Salt River

Conditional Letter of Map Revision

Prepared for:

City of Phoenix
Floodplain Management
5th Floor
200 W. Washington St.
Phoenix, AZ 85003

Prepared by:

AZTEC
www.aztec.us TYPSA group

4561 E. McDowell Road
Phoenix, Arizona 85008
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September 2013

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EXPIRES 6/30/2016

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I.0 INTRODUCTION

1.1 Purpose and Authorization of Study

The purpose of this study is to obtain a Conditional Letter of Map Revision (CLOMR) for the floodplain/floodway for the Salt River from downstream of the 51st Avenue Bridge to upstream of the 35th Avenue Bridge. The CLOMR is based on a new topographic mapping of the river and proposed Avenida Rio Salado (ARS)/Broadway Road along the south bank. A portion of the proposed roadway embankment between 51st Avenue and 43rd Avenue extends into the river. Additionally, a new maintenance ramp will be constructed along the 31st Avenue alignment to the river bottom. No structures or crossings will be added with this project. There will be no revision to the existing hydrology.

This study and analysis was authorized by the Floodplain Management & Street Transportation Departments for the City of Phoenix.

1.2 Project Location

The project area is located in the City of Phoenix and unincorporated Maricopa County as shown in Figure 1. The project is within Sections 20, 21, 22, 23, 24, 27, 28, and 29, Township 1 North and Range 2 East. The site map is shown in Figure 2. The study reach is from downstream of 51st Avenue to upstream of 35th Avenue.

The project area is located within Zone AE of the FEMA Flood Insurance Rate Map (FIRM), Panel No. 04013C2120G and Panel No. 04013C2140G, dated September 30, 2005. Zone AE is defined as areas in which the "Base Flood Elevations determined." The floodway areas in Zone AE "is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual flood can be carried without substantial increase in flood heights, Base flood elevations determined." Figure 3 provides a copy of the FIRM Map for the project location.

1.3 Floodplain History

1.3.1 Effective FIS

In October 2010, AZTEC requested the effective models from FEMA to begin the CLOMR process. At this time we received the files from the 1999 Salt-Gila Floodplain Delineation Restudy, prepared by Michael Baker, Jr., Inc. for the Flood Control District of Maricopa County and a LOMR Case No. 08-09-1412P. The information from the LOMR was stamped as effective and dated November 28, 2008. At that time, the models associated with this LOMR were considered effective. In November 2010, an additional model was received for a LOMR study within the ARS reach, FEMA Case #08-09-1294. This model was stamped and dated effective April 23, 2009. Unfortunately, the later LOMR did not include the revised cross sections from the former LOMR. It was decided to use both of the LOMR models as effective and create one Duplicate Effective Model combining the

revised cross sections from each model. Additional information on the comparison of the two effective models to the duplicate effective model is included in Section 5. Documentation from the two LOMR cases is included in Appendix B.

Figure 1, Project Location Map

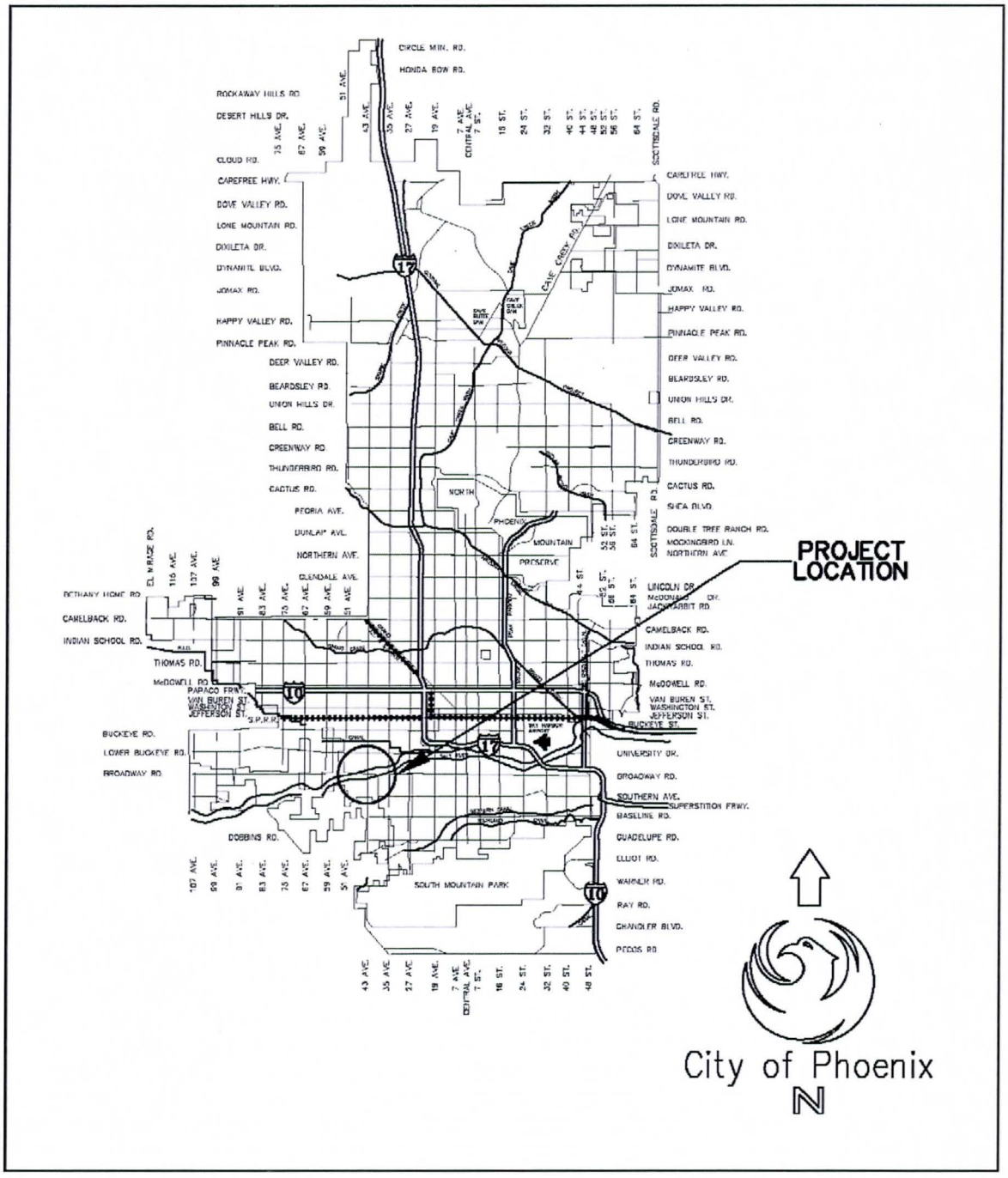


Figure 2, Site Map

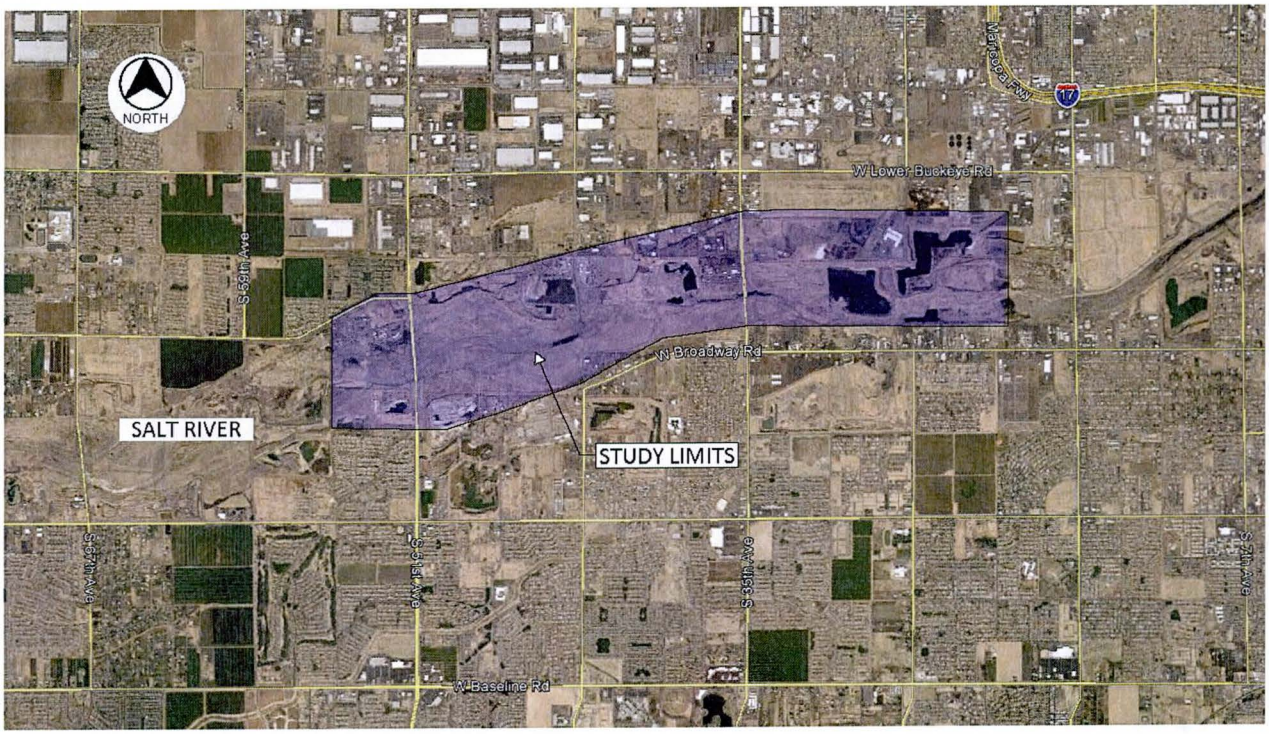


Figure 3 - Flood Insurance Rate Map (Sheet 1 of 3)

880000 FT

875000 FT

ZONE AE

JOINS PANEL 2115

DV2303

DV2304

DV2332

DV2333

WILLIAMS ST

MIAMI ST

ELWOOD ST

BROADWAY RD

ROESER RD

GROVE ST

BOWKER ST

PECAN RD

LARSON RD

59TH AVE

55TH AVE

54TH AVE

51ST AVE

RIVER WALK CR

Cave Creek

Salt River

PROFILE BASE LINE

Maricopa County
Unincorporated Areas
040037

ZONE X

ZONE AE

ZONE A

19

20

21

28

29

30

MAP SCALE 1" = 1000'

500 0 1000 2000 FEET

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 2120G

FIRM

FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA

AND INCORPORATED AREAS

PANEL 2120 OF 4350

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY	040037	2120	G
PHOENIX, CITY OF	040051	2120	G

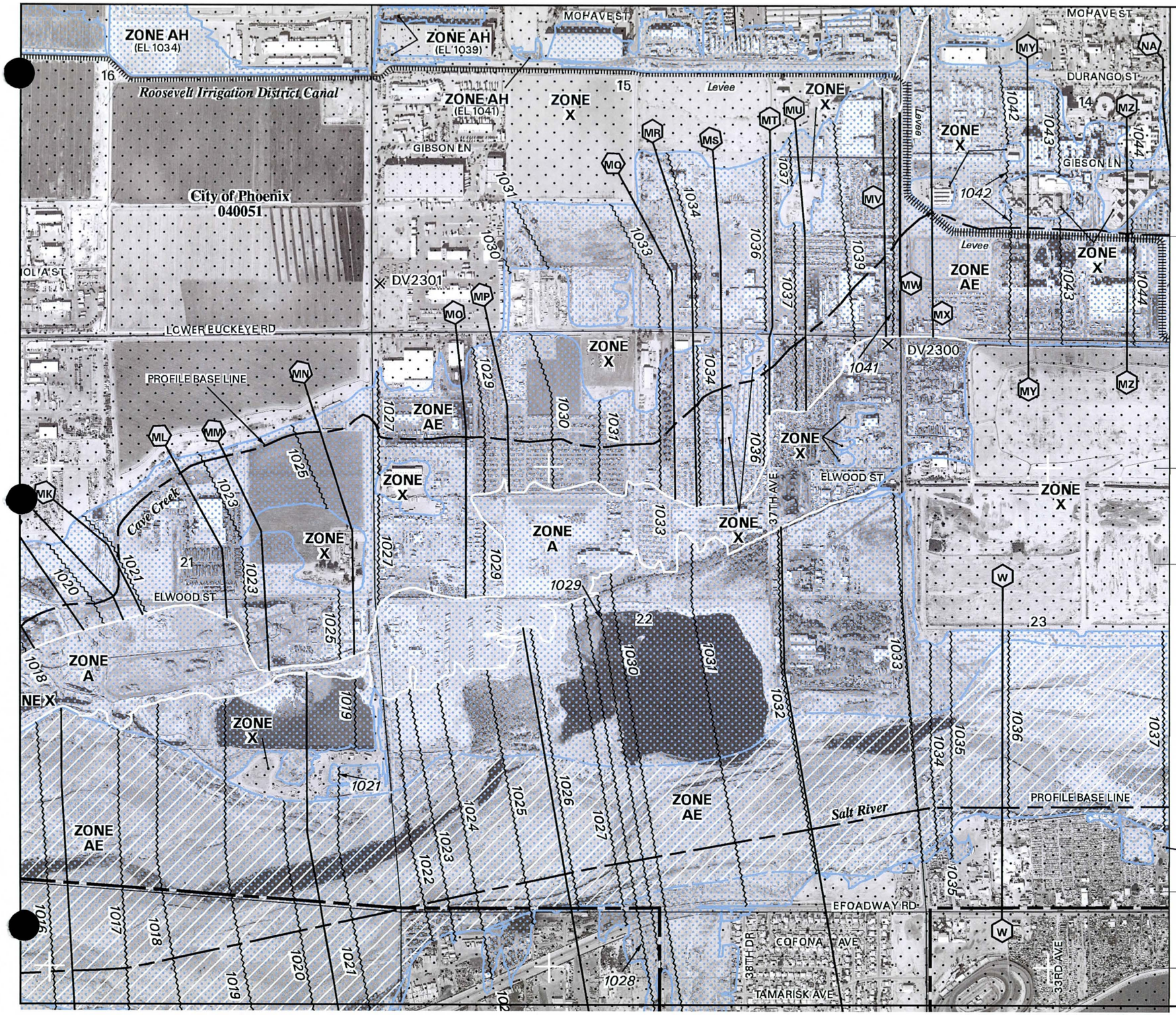
Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
04013C2120G
MAP REVISED
SEPTEMBER 30, 2005

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

Figure 3 - Flood Insurance Rate Map (Sheet 2 of 3)



MAP SCALE 1" = 1000'

0 1000 2000 FEET

0 300 600 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 2120G

FIRM

FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA

AND INCORPORATED AREAS

PANEL 2120 OF 4350

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY	040037	2120	G
PHOENIX, CITY OF	040051	2120	G

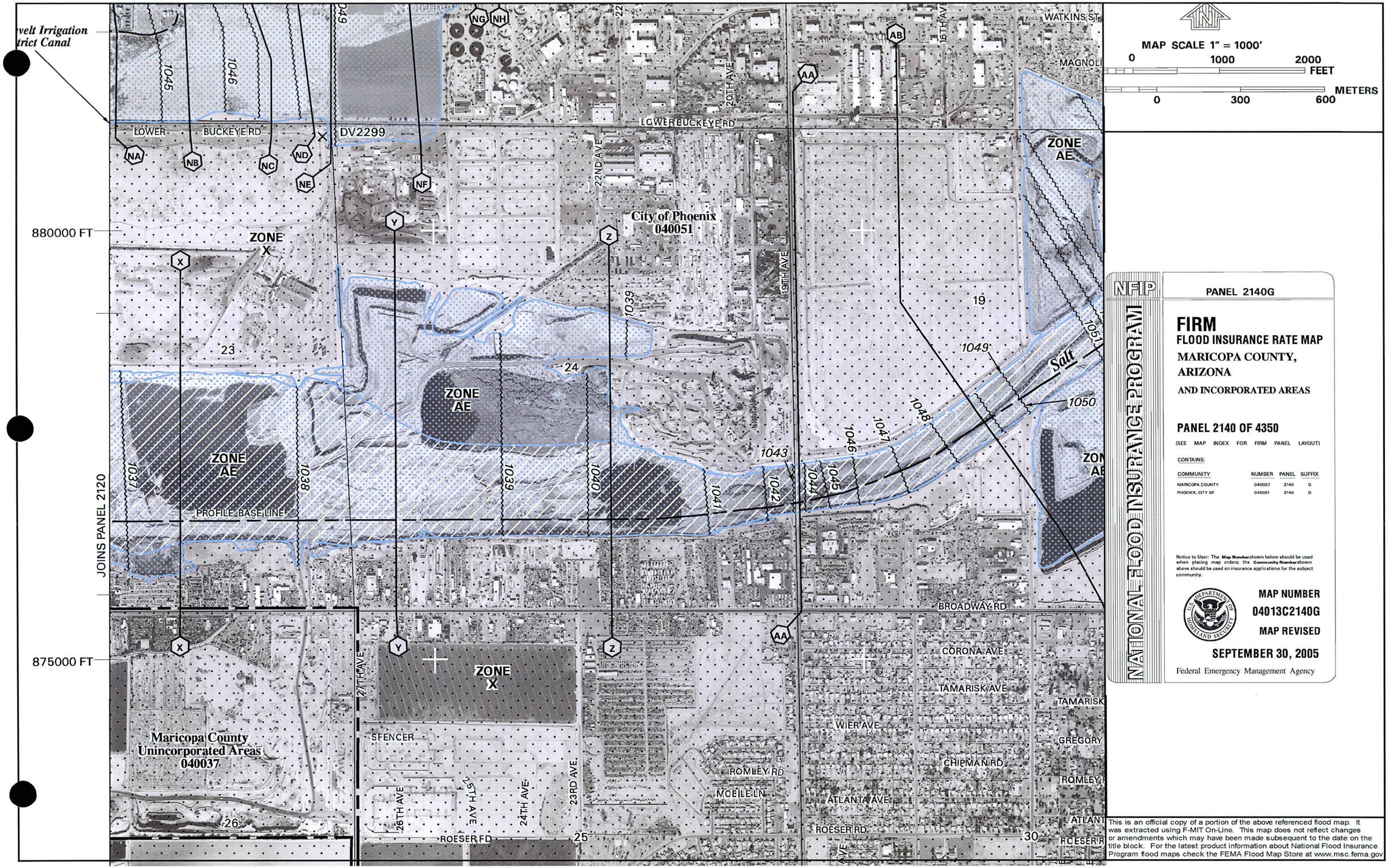
Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
04013C2120G
MAP REVISED
SEPTEMBER 30, 2005

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

Figure 3 - Flood Insurance Rate Map (Sheet 3 of 3)



MAP SCALE 1" = 1000'

0 1000 2000 FEET

0 300 600 METERS

NFIP

PANEL 2140G

FIRM

FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA

AND INCORPORATED AREAS

PANEL 2140 OF 4350

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY	040037	2140	G
PHOENIX, CITY OF	040051	2140	G

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER

04013C2140G

MAP REVISED

SEPTEMBER 30, 2005

Federal Emergency Management Agency

NATIONAL FLOOD INSURANCE PROGRAM

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

2.0 ABSTRACT AND FEMA FORMS

2.1 Study Documentation Abstract

2.1.1	Date Study Accepted	No Acceptance
2.1.2	Study Contractor	Aztec Engineering
	Contact (s)	Sarah Smedley, P.E.
		Tony Bokich, P.E.
	Address:	4561 E. McDowell Road
		Phoenix, AZ 85008
	Phone / Fax	(602) 454-0402 / (602) 454-0403
	Email	ssmedley@aztec.us
2.1.3	FEMA Technical Review Contractor	Unknown
	Contact (s)	
	Address	
	Phone	
2.1.4	FEMA Regional Reviewer	Unknown
	Phone	
2.1.5	State Technical Reviewer	Unknown
	Phone	
2.1.6	Local Technical Reviewer	Hasan Mushtaq, City of Phoenix
	Phone	(602) 262-4026
2.1.7	Reach Description	Salt River – 51st Avenue to 35th Avenue
2.1.8	Aerial Mapping Source	Kenney Aerial
	Phone	602-258-6471
	Survey Date / Contour Interval	September 24, 2010 1" = 40', 1' CI
2.1.9	Unique Conditions and Problems	• New topography from 51st Ave to 35th Ave • New roadway along south bank – 51st to 35th Ave
2.1.10	Coordination of Peak Discharges	Used Existing LOMR Discharges

2.2 FEMA Forms

Application for a Conditional Letter of Map Revision requires the use of the FEMA Form Series 086-0-27, MT-2 forms. The following is a list of the forms required for this submittal:

- MT-2, Form 1 – Overview & Concurrence Form.
- MT-2, Form 2 - Riverine Hydrology & Hydraulic Form.

The remainder of this section is comprised of the completed forms.

U.S. DEPARTMENT OF HOMELAND SECURITY
FEDERAL EMERGENCY MANAGEMENT AGENCY

OVERVIEW & CONCURRENCE FORM

O.M.B No. 1660-0016
Expires February 28, 2014

PAPERWORK BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 1 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing, reviewing, and submitting the form. You are not required to respond to this collection of information unless it displays a valid OMB control number. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Department of Homeland Security, Federal Emergency Management Agency, 1800 South Bell Street, Arlington, VA 20958-3005, Paperwork Reduction Project (1660-0016). Submission of the form is required to obtain or retain benefits under the National Flood Insurance Program. **Please do not send your completed survey to the above address.**

PRIVACY ACT STATEMENT

AUTHORITY: The National Flood Insurance Act of 1968, Public Law 90-448, as amended by the Flood Disaster Protection Act of 1973, Public Law 93-234.

PRINCIPAL PURPOSE(S): This information is being collected for the purpose of determining an applicant's eligibility to request changes to National Flood Insurance Program (NFIP) Flood Insurance Rate Maps (FIRM).

ROUTINE USE(S): The information on this form may be disclosed as generally permitted under 5 U.S.C § 552a(b) of the Privacy Act of 1974, as amended. This includes using this information as necessary and authorized by the routine uses published in DHS/FEMA/NFIP/LOMA-1 National Flood Insurance Program (NFIP); Letter of Map Amendment (LOMA) February 15, 2006, 71 FR 7990.

DISCLOSURE: The disclosure of information on this form is voluntary; however, failure to provide the information requested may delay or prevent FEMA from processing a determination regarding a requested change to a (NFIP) Flood Insurance Rate Maps (FIRM).

A. REQUESTED RESPONSE FROM DHS-FEMA

This request is for a (check one):

☒ CLOMR: A letter from DHS-FEMA commenting on whether a proposed project, if built as proposed, would justify a map revision, or proposed hydrology changes (See 44 CFR Ch. 1, Parts 60, 65 & 72).

☐ LOMR: A letter from DHS-FEMA officially revising the current NFIP map to show the changes to floodplains, regulatory floodway or flood elevations. (See 44 CFR Ch. 1, Parts 60, 65 & 72)

B. OVERVIEW

1. The NFIP map panel(s) affected for all impacted communities is (are):

Community No.	Community Name	State	Map No.	Panel No.	Effective Date
Example: 480301 480287	City of Katy Harris County	TX TX	48473C 48201C	0005D 0220G	02/08/83 09/28/90
040037 040051	Maricopa County City of Phoenix	AZ AZ	04013C 04013C	2120G 2120G	09/30/05 09/30/05
040051	City of Phoenix	AZ	04013C	2140G	09/30/05

2. a. Flooding Source: Salt River

   b. Types of Flooding: ☒ Riverine ☐ Coastal ☐ Shallow Flooding (e.g., Zones AO and AH)
   ☐ Alluvial fan ☐ Lakes ☐ Other (Attach Description)

3. Project Name/Identifier: Avenida Rio Salado/Broadway Road

4. FEMA zone designations affected: AE (choices: A, AH, AO, A1-A30, A99, AE, AR, V, V1-V30, VE, B, C, D, X)

5. Basis for Request and Type of Revision:

   a. The basis for this revision request is (check all that apply)

   ☒ Physical Change ☐ Improved Methodology/Data ☐ Regulatory Floodway Revision ☐ Base Map Changes
   ☐ Coastal Analysis ☐ Hydraulic Analysis ☐ Hydrologic Analysis ☐ Corrections
   ☐ Weir-Dam Changes ☐ Levee Certification ☐ Alluvial Fan Analysis ☐ Natural Changes
   ☒ New Topographic Data ☐ Other (Attach Description)

   Note: A photograph and narrative description of the area of concern is not required, but is very helpful during review.

b. The area of revision encompasses the following structures (check all that apply)

Structures: ☐ Channelization ☐ Levee/Floodwall ☐ Bridge/Culvert ☐ Dam ☐ Fill ☐ Other (Attach Description)

6. ☒ Documentation of ESA compliance is submitted (required to initiate CLOMR review). Please refer to the instructions for more information.

C. REVIEW FEE

Has the review fee for the appropriate request category been included? ☒ Yes Fee amount: $ 0

☐ No, Attach Explanation

Please see the DHS-FEMA Web site at http://www.fema.gov/plan/prevent/fhm/frm_fees.shtm **for Fee Amounts and Exemptions.**

D. SIGNATURE

All documents submitted in support of this request are correct to the best of my knowledge. I understand that any false statement may be punishable by fine or imprisonment under Title 18 of the United States Code, Section 1001.

Name: Ms. Melody Moss	Company: City of Phoenix	
Mailing Address: 1034 East Madison Phoenix, AZ 85032	Daytime Telephone No.: 602-262-4055	Fax No.: 602-495-3670
	E-Mail Address: melody.moss@phoenix.gov	
Signature of Requester (required):	Date: 9/24/13	

As the community official responsible for floodplain management, I hereby acknowledge that we have received and reviewed this Letter of Map Revision (LOMR) or conditional LOMR request. Based upon the community's review, we find the completed or proposed project meets or is designed to meet all of the community floodplain management requirements, including the requirements for when fill is placed in the regulatory floodway, and that all necessary Federal, State, and local permits have been, or in the case of a conditional LOMR, will be obtained. For Conditional LOMR requests, the applicant has documented Endangered Species Act (ESA) compliance to FEMA prior to FEMA's review of the Conditional LOMR application. For LOMR requests, I acknowledge that compliance with Sections 9 and 10 of the ESA has been achieved independently of FEMA's process. For actions authorized, funded, or being carried out by Federal or State agencies, documentation from the agency showing its compliance with Section 7(a)(2) of the ESA will be submitted. In addition, we have determined that the land and any existing or proposed structures to be removed from the SFHA are or will be reasonably safe from flooding as defined in 44CFR 65.2(c), and that we have available upon request by FEMA, all analyses and documentation used to make this determination.

Community Official's Name and Title: Mr. Hasan Mushtaq/Floodplain Administrator	Community Name: City of Phoenix	
Mailing Address: 200 W. Washington St., 5th Floor Phoenix, AZ 85003	Daytime Telephone No.: 602-262-4026	Fax No.: 602-262-7322
	E-Mail Address: hasan.mushtaq@phoenix.gov	
Community Official's Signature (required):	Date: 09/25/2013	

CERTIFICATION BY REGISTERED PROFESSIONAL ENGINEER AND/OR LAND SURVEYOR

This certification is to be signed and sealed by a licensed land surveyor, registered professional engineer, or architect authorized by law to certify elevation information data, hydrologic and hydraulic analysis, and any other supporting information as per NFIP regulations paragraph 65.2(b) and as described in the MT-2 Forms Instructions. All documents submitted in support of this request are correct to the best of my knowledge. I understand that any false statement may be punishable by fine or imprisonment under Title 18 of the United States Code, Section 1001.

Certifier's Name: Sarah Smedley	License No.: 46632	Expiration Date: 06/30/16
Company Name: AZTEC Engineering	Telephone No.: 602-458-9269	Fax No.: 602-454-0403
Signature:	Date: 9/26/13 E-Mail Address: ssmedley@aztec.us	

Ensure the forms that are appropriate to your revision request are included in your submittal.

Form Name and (Number)	Required if ...
☒ Riverine Hydrology and Hydraulics Form (Form 2)	New or revised discharges or water-surface elevations
☐ Riverine Structures Form (Form 3)	Channel is modified, addition/revision of bridge/culverts, addition/revision of levee/floodwall, addition/revision of dam
☐ Coastal Analysis Form (Form 4)	New or revised coastal elevations
☐ Coastal Structures Form (Form 5)	Addition/revision of coastal structure
☐ Alluvial Fan Flooding Form (Form 6)	Flood control measures on alluvial fans

Seal (Optional)

U.S. DEPARTMENT OF HOMELAND SECURITY
FEDERAL EMERGENCY MANAGEMENT AGENCY

RIVERINE HYDROLOGY & HYDRAULICS FORM

O.M.B No. 1660-0016
Expires February 28, 2014

PAPERWORK BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 3.5 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing, reviewing, and submitting the form. You are not required to respond to this collection of information unless a valid OMB control number appears in the upper right corner of this form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Department of Homeland Security, Federal Emergency Management Agency, 1800 South Bell Street, Arlington VA 20958-3005, Paperwork Reduction Project (1660-0016). Submission of the form is required to obtain or retain benefits under the National Flood Insurance Program. **Please do not send your completed survey to the above address.**

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DISCLOSURE: The disclosure of information on this form is voluntary; however, failure to provide the information requested may delay or prevent FEMA from processing a determination regarding a requested change to a NFIP Flood Insurance Rate Maps (FIRM).

Flooding Source: Salt River

Note: Fill out one form for each flooding source studied

A. HYDROLOGY

1. Reason for New Hydrologic Analysis (check all that apply)

☒ Not revised (skip to section B) ☐ No existing analysis ☐ Improved data
☐ Alternative methodology ☐ Proposed Conditions (CLOMR) ☐ Changed physical condition of watershed

2. Comparison of Representative 1%-Annual-Chance Discharges

Location	Drainage Area (Sq. Mi.)	Effective/FIS (cfs)	Revised (cfs)

3. Methodology for New Hydrologic Analysis (check all that apply)

☐ Statistical Analysis of Gage Records ☐ Precipitation/Runoff Model → Specify Model: _____
☐ Regional Regression Equations ☐ Other (please attach description)

Please enclose all relevant models in digital format, maps, computations (including computation of parameters), and documentation to support the new analysis.

4. Review/Approval of Analysis

If your community requires a regional, state, or federal agency to review the hydrologic analysis, please attach evidence of approval/review.

5. Impacts of Sediment Transport on Hydrology

Is the hydrology for the revised flooding source(s) affected by sediment transport? ☐ Yes ☐ No

If yes, then fill out Section F (Sediment Transport) of Form 3. If No, then attach your explanation..

B. HYDRAULICS

1. Reach to be Revised

	Description	Cross Section	Water-Surface Elevations (ft.)	
			Effective	Proposed/Revised
Downstream Limit*	Section Q-Q	207.16	1007.63	1007.50
Upstream Limit*	Section Z-Z	211.12	1039.87	1039.45

*Proposed/Revised elevations must tie-into the Effective elevations within 0.5 foot at the downstream and upstream limits of revision.

2. Hydraulic Method/Model Used: HEC-RAS v 4.0.0

3. Pre-Submittal Review of Hydraulic Models*

DHS-FEMA has developed two review programs, CHECK-2 and CHECK-RAS, to aid in the review of HEC-2 and HEC-RAS hydraulic models, respectively. We recommend that you review your HEC-2 and HEC-RAS models with CHECK-2 and CHECK-RAS.

4.

Models Submitted	Natural Run		Floodway Run		Datum
Duplicate Effective Model*	File Name: DuplicateEffective	Plan Name: DupEff	File Name: DuplicateEffective	Plan Name: DupEff	NGVD 29
Corrected Effective Model*	File Name:	Plan Name:	File Name:	Plan Name:	
Existing or Pre-Project Conditions Model	File Name: Pre-Project	Plan Name: PrePrj	File Name: Pre-Project	Plan Name: PrePrj	NGVD 29
Revised or Post-Project Conditions Model	File Name: Post-Project	Plan Name: PostPrj	File Name: Post-Project	Plan Name: PostPrj	NGVD 29
Other - (attach description)	File Name:	Plan Name:	File Name:	Plan Name:	

* For details, refer to the corresponding section of the instructions.

☒ Digital Models Submitted? (Required)

C. MAPPING REQUIREMENTS

A **certified topographic work map** must be submitted showing the following information (where applicable): the boundaries of the effective, existing, and proposed conditions 1%-annual-chance floodplain (for approximate Zone A revisions) or the boundaries of the 1%- and 0.2%-annual-chance floodplains and regulatory floodway (for detailed Zone AE, AO, and AH revisions); location and alignment of all cross sections with stationing control indicated; stream, road, and other alignments (e.g., dams, levees, etc.); current community easements and boundaries; boundaries of the requester's property; certification of a registered professional engineer registered in the subject State; location and description of reference marks; and the referenced vertical datum (NGVD, NAVD, etc.).

☒ Digital Mapping (GIS/CADD) Data Submitted (preferred)

Topographic Information: 1-foot contour interval topographic mapping

Source: Kenney Aerial Mapping Date: 9/24/2010

Accuracy: +/- 0.5 feet vertical & horizontal

Note that the boundaries of the existing or proposed conditions floodplains and regulatory floodway to be shown on the revised FIRM and/or FBFM must tie-in with the effective floodplain and regulatory floodway boundaries. Please attach **a copy of the effective FIRM and/or FBFM**, at the same scale as the original, annotated to show the boundaries of the revised 1%-and 0.2%-annual-chance floodplains and regulatory floodway that tie-in with the boundaries of the effective 1%-and 0.2%-annual-chance floodplain and regulatory floodway at the upstream and downstream limits of the area on revision.

☒ Annotated FIRM and/or FBFM (Required)

D. COMMON REGULATORY REQUIREMENTS*

1. For LOMR/CLOMR requests, do Base Flood Elevations (BFEs) increase? ☐ Yes ☒ No

   a. For CLOMR requests, if either of the following is true, please submit **evidence of compliance with Section 65.12 of the NFIP regulations**:

   - The proposed project encroaches upon a regulatory floodway and would result in increases above 0.00 foot compared to pre-project conditions.
   - The proposed project encroaches upon a SFHA with or without BFEs established and would result in increases above 1.00 foot compared to pre-project conditions.

   b. Does this LOMR request cause increase in the BFE and/or SFHA compared with the effective BFEs and/or SFHA? ☐ Yes ☒ No

   If Yes, please attach **proof of property owner notification and acceptance (if available)**. Elements of and examples of property owner notifications can be found in the MT-2 Form 2 Instructions.

2. Does the request involve the placement or proposed placement of fill? ☒ Yes ☐ No

   If Yes, the community must be able to certify that the area to be removed from the special flood hazard area, to include any structures or proposed structures, meets all of the standards of the local floodplain ordinances, and is reasonably safe from flooding in accordance with the NFIP regulations set forth at 44 CFR 60.3(A)(3), 65.5(a)(4), and 65.6(a)(14). Please see the MT-2 instructions for more information.

3. For LOMR requests, is the regulatory floodway being revised? ☐ Yes ☐ No

   If Yes, attach **evidence of regulatory floodway revision notification**. As per Paragraph 65.7(b)(1) of the NFIP Regulations, notification is required for requests involving revisions to the regulatory floodway. (Not required for revisions to approximate 1%-annual-chance floodplains [studied Zone A designation] unless a regulatory floodway is being established. Elements and examples of regulatory floodway revision notification can be found in the MT-2 Form 2 Instructions.)

4. For CLOMR requests, please submit documentation to FEMA and the community to show that you have complied with Sections 9 and 10 of the Endangered Species Act (ESA).

For actions authorized, funded, or being carried out by Federal or State agencies, please submit documentation from the agency showing its compliance with Section 7(a)(2) of the ESA. Please see the MT-2 instructions for more detail.

* Not inclusive of all applicable regulatory requirements. For details, see 44 CFR parts 60 and 65.

3.0 SURVEY AND MAPPING INFORMATION

3.1 Field Survey Information

Horizontal and vertical survey control for this project was performed by AZTEC and was conducted in September 2010. The survey was performed under the direct supervision of Alan D. Reece, R.L.S. (AZ RLS No. 25396). The survey work included establishment of a horizontal and vertical control network and placement of targets for aerial mapping.

3.2 Topographic Mapping

One-foot contour interval aerial mapping compiled to a horizontal scale accuracy of 1-inch equals 40-feet was created for this project. The flight date for the aerial topography was September 24, 2010 and was flown by Kenney Aerial.

The coordinate grid is based on the North American Datum of 1983 (NAD 83), Central Zone of Arizona State Plane Coordinate System, standard transverse Mercator projection, with a scale or origin point of X=0.0000, Y=0.0000, using a grid adjustment factor of 1.00016. Elevations are based upon the National Geodetic Vertical Datum of 1929 (NGVD 29). The conversion factor to the North American Vertical Datum of 1988 (NAVD 88) is +1.87'. Digital mapping data in CADD format has been included on the attached CD.

4.0 HYDROLOGY

4.1 General

No new hydrology was developed for this study. The effective peak discharges listed in the *Gila River Basin, Arizona, Section 7 Study for Modified Roosevelt Dam, Arizona, Hydrologic Evaluation of Water Control Plans, Salt River Project to Gila River at Gillespie Dam* (1996), prepared by the USACE, Los Angeles District, were used in the HEC-RAS model. The 100-year peak discharges for the subject reach of the Salt River are summarized in Table 1 below.

Table 1
Summary of Effective Discharges

Location	HEC-RAS Cross Section	Drainage Area (sq mi)	Peak 100-Yr Discharge (cfs)
At Central Avenue	213.25	12.831	166,000
At 67th Avenue	205.43	12.962	164,000

5.0 HYDRAULICS

5.1 Method Description

The U.S. Army Corps of Engineers computer program, HEC-RAS, version 4.0.0, released March 2008 was used to analyze the 100-year floodplain conditions along the Salt River and to develop the models for the project site. Three hydraulic models are included in this report: the Duplicate Effective Model, the Pre-Project Model, and the Post-Project Model.

5.1.1 Duplicate Effective Model

The duplicate effective model created for this project used the models from the two LOMR cases, #08-09-1412P and 08-09-1294P. The duplicate effective model is included in Appendix C. The duplicate model started with the model from Case #08-09-1412P, in which modifications to sections 209.33 to 209.98 where made based on revised mapping and improvement plans from the 35th Avenue Bridge. Modified cross sections 208.57 to 208.85 from LOMR case #08-09-1294P were added to create the duplicate effective model. Comparison of the two LOMR cases to the duplicate effective model is presented in Table 2. The bold numbers denote the cross sections that were modified in each case and were the elevations used as a comparison to the duplicate effective. As shown, there are no changes from each effective model to the duplicate effective model and therefore the duplicate effective model can be used as a comparison to the pre-project and post-project models.

Table 2
Comparison of Effective Models and Duplicate Effective Model

FEMA Cross Section	HEC-RAS Cross Section	Effective WSEL Case #08-09-1412P (ft)	Effective WSEL Case #08-09-1294P (ft)	Duplicate Effective WSEL (ft)
Q	207.16	1007.6	1007.6	1007.6
R	207.49	1012.1	1012.1	1012.1
S	207.90	1016.4	1016.4	1016.4
T	208.39	1020.4	1020.4	1020.4
U	208.75	1025.8	**1026.4**	1026.4
V	209.33	**1032.4**	1032.0	1032.4
W	209.69	**1034.4**	1035.9	1034.4
X	210.17	**1035.3**	1037.4	1035.3
Y	210.64	**1036.7**	1038.3	1036.6
Z	211.12	**1039.9**	1040.6	1039.9

5.1.2 Pre-Project Model

The pre-project model was created by revising the cross-sections from the duplicate effective model within the topographic area prepared by Kenney Aerial for this project. For the most part the cross-sections are in the same location and the geometry was updated based on the new topography. HEC-RAS cross section 207.53 was removed from the pre-project model because it fell directly on the 51st Avenue Bridge and was deemed unnecessary. FEMA cross section U was re-orientated based on the direction of flow and bank geometry.

The pre-project model ties back into the duplicate effective model at FEMA Section Q-Q just downstream of 51st Avenue on the downstream end and at FEMA Section Z-Z upstream of the 35th Avenue Bridge. The duplicate effective water surface elevations are 1007.63 and 1039.87, effectively and the pre-project water surface elevations are 1007.50 and 1039.47, effectively. Table 3 compares the results of the pre-project model to the duplicate effective model. The pre-project model is included in Appendix D.

5.1.3 Post-Project Model

The post-project model is an adjustment of the pre-project model. For the post-project model, the proposed Avenida Rio Salado/Broadway Road improvements were added to cross sections 207.49 to 209.42. From cross sections 208.10 to 208.48, the proposed roadway embankment encroaches into the river. The maximum increase to the water surface elevation from pre-project to post-project is 0.11 feet in the location of the roadway embankment encroachment. The proposed improvements are presented on Exhibit 1 Proposed Work Map in Appendix F. The post-project model is included in Appendix E.

Table 3 compares the results of the duplicate effective model, the pre-project model, and the post-project model.

Table 3
Water Surface Elevation Comparison

FEMA Cross Section	HEC-RAS Cross Section	Distance (1) (mi)	Duplicate Effective WSEL (ft)	Pre-Project WSEL (ft)	Post-Project WSEL (ft)	Duplicate vs Post Elevation Difference (ft)
Q	207.16	7.725	1007.63	1007.50	1007.50	-0.13
	207.27		1008.39	1007.12	1007.12	-1.27
	207.34		1009.51	1007.54	1007.54	-1.97

FEMA Cross Section	HEC-RAS Cross Section	Distance (1) (mi)	Duplicate Effective WSEL (ft)	Pre-Project WSEL (ft)	Post-Project WSEL (ft)	Duplicate vs Post Elevation Difference (ft)
	207.43		1010.99	1007.83	1007.83	-3.16
	207.48		1011.97	1008.36	1008.36	-3.61
R	207.49	8.098	1012.07	1009.45	1009.45	-2.62
	207.53		1012.09	NA	NA	NA
	207.62		1012.76	1010.06	1010.06	-2.70
	207.71		1014.41	1010.84	1010.84	-3.57
	207.80		1015.41	1012.20	1012.20	-3.21
S	207.90	8.473	1016.38	1013.80	1013.80	-2.58
	207.99		1016.92	1014.47	1014.47	-2.45
	208.10		1018.03	1015.84	1015.82	-2.21
	208.19		1018.79	1016.79	1016.78	-2.01
	208.29		1019.52	1017.69	1017.77	-1.75
T	208.39	8.948	1020.44	1018.82	1018.93	-1.51
	208.48		1021.36	1019.72	1019.79	-1.57
	208.57		1021.05	1020.24	1020.28	-0.77
	208.67		1025.63	1022.72	1022.73	-2.90
U	208.75	9.324	1026.41	1024.13	1024.13	-2.28
	208.85		1027.11	1024.64	1024.64	-2.47
	208.95		1027.37	1025.58	1025.59	-1.78
	209.04		1030.45	1026.13	1026.13	-4.32
	209.14		1030.69	1026.70	1026.71	-3.98
	209.24		1031.35	1027.66	1027.66	-3.69
V	209.33	9.891	1032.38	1028.74	1028.74	-3.64
	209.42		1032.51	1028.88	1028.89	-3.62
	209.53		1032.62	1029.83	1029.83	-2.79
	209.54		1032.94	1030.18	1030.18	-2.76
	209.60		1034.21	1030.41	1030.41	-3.80
W	209.69	10.274	1034.41	1031.51	1031.52	-2.89
	209.79		1034.85	1032.21	1032.21	-2.64
	209.88		1034.93	1032.27	1032.27	-2.66
	209.98		1035.11	1032.54	1032.54	-2.57
	210.07		1035.08	1032.62	1032.55	-2.53
X	210.17	10.730	1035.29	1032.74	1032.74	-2.55
	210.26		1035.68	1033.51	1033.50	-2.18
	210.36		1035.87	1033.83	1033.83	-2.04

FEMA Cross Section	HEC-RAS Cross Section	Distance (1) (mi)	Duplicate Effective WSEL (ft)	Pre-Project WSEL (ft)	Post-Project WSEL (ft)	Duplicate vs Post Elevation Difference (ft)
	210.46		1036.30	1034.51	1034.50	-1.80
	210.55		1035.92	1033.98	1033.98	-1.94
Y	210.64	11.210	1036.64	1035.01	1035.01	-1.63
	210.74		1036.90	1035.63	1035.63	-1.27
	210.83		1037.40	1036.06	1036.06	-1.34
	210.93		1038.11	1037.31	1037.31	-0.80
	211.02		1038.44	1037.87	1037.87	-0.57
Z	211.12	11.691	1039.87	1039.45	1039.45	-0.42

Notes: (1) River Mile is distance upstream of the confluence with the Gila River.

5.2 Work Study Maps & Annotated FIRM Panel

A proposed work map and an annotated FIRM Panel are provided with this study. Exhibit 1 is the Proposed Work Map and Exhibit 2 is the Annotated FIRM Panel. These two exhibits are included in Appendix F.

5.3 Parameter Estimation

5.3.1 Roughness Coefficients

The Manning 'n' Coefficients used in this study are similar to those in previous studies to provide continuity and to reflect increased GR (ground) data available. Coefficients used were:

Feature	n
Roadways	0.015
Over banks	0.032 to 0.043
Natural wash bottom	0.032 to 0.043

The over banks in the study area have sparse vegetation, so there is no difference in the Manning's values.

5.3.2 Expansion and Contraction Coefficients

Coefficients for expansion and contraction of 0.1 and 0.3, respectively, were used throughout the study reach, except through the transition into the existing bridges. Coefficients for expansion and contraction of 0.3 and 0.5, respectively, were used through the transitions. Since there are no new structures crossing the river in this project, the expansion and contraction coefficients have not been modified.

5.4 Cross Section Description

New cross section data was generated for the portion of the Salt River along the proposed roadway improvements, from HEC-RAS cross section 207.17 to 209.98. Avenida Rio Salado/Broadway Road was added to cross sections 207.49 to 209.42 based on the final construction documents. These improvement plans have been included in Appendix H.

A new maintenance ramp to an improved storm drain outlet into the river was determined necessary after the aerial mapping for the project was completed. The ramp is located outside of the limits of the mapping at HEC-RAS cross section 210.07. Additional ground survey was obtained for the design of the ramp. The survey was limited to just the left bank of the river. The information was added to the HEC-RAS cross section in both the pre- and post-project models. The new ramp was added to the post-project model. The existing data points for this cross section were used outside of the limits of the new survey information. Construction plans for the maintenance ramp have been included in Appendix H.

5.5 Modeling Considerations

5.5.1 Hydraulic Jump and Drop Analysis

No significant hydraulic jumps occur in the study reach.

5.5.2 Culverts

There are no culverts within the study reach.

5.5.3 Ineffective Flow Areas

Ineffective flow areas were set to model a one-to-one contraction of the flows into the existing bridges within the revised reach.

5.6 Floodway Modeling

Floodway encroachments are analyzed for the study reach for the 100-year flow of the revised model. Method Four was the encroachment type first used so that the water surface was increased by a maximum of one foot. The values where converted to Method One, to provide the exact left and right encroachment stations.

5.7 Special Problems

There are no special problems to report.

5.7.1 Errors and Warning Messages

There are no modeling error messages and the warnings primarily deal with the defaulting of calculations to critical depth and minimum specific energy.

5.8 Final Results

Results are presented in Table 3 in Section 5.1.3.

The 100-year water surface resulting from this study is delineated on Exhibit 3. Tabulation of the water surface elevations for the post-project conditions is shown in Table 2 and a printout of the post-project model is included in Appendix E. The water surface elevation at the upstream tie-in point is 1039.47, which is within 0.40' of the effective water surface elevation.

There were structures, including single family homes and commercial buildings, within the floodplain prior to this study. The result of this study has effectively removed these structures from the 100-year floodplain. No new structures have been added to the floodplain.

The area between the Salt River Floodplain and the Cave Creek Wash Floodplain has been identified in the effective mapping as Zone A, an area where no base flood elevations have been determined. Due to the results of this study, properties between these two flooding sources have been removed from the Salt River floodplain but may still see flooding from Cave Creek Wash. These areas have been identified as Proposed Zone A. Further studies of the Cave Creek Wash will be necessary to determine if these properties can be removed from special flood hazard areas.

5.8.1 HEC-RAS Files and Output

Table 4 provides a summary of the project files and associated plans for the HEC-RAS analysis. Detailed input and outputs for each of these plans are included in Appendices D, E, and F. Electronic files are included on CD in Appendix I.

Table 4
Summary of Project Files for CLOMR Submittal

Modeling Condition	HEC-RAS File Name	Appendix for Output
Duplicate Effective	DuplicateEffective.prj	D
Pre-Project Model	Pre-Project.prj	E
Post-Project Model	Post-Project.prj	F

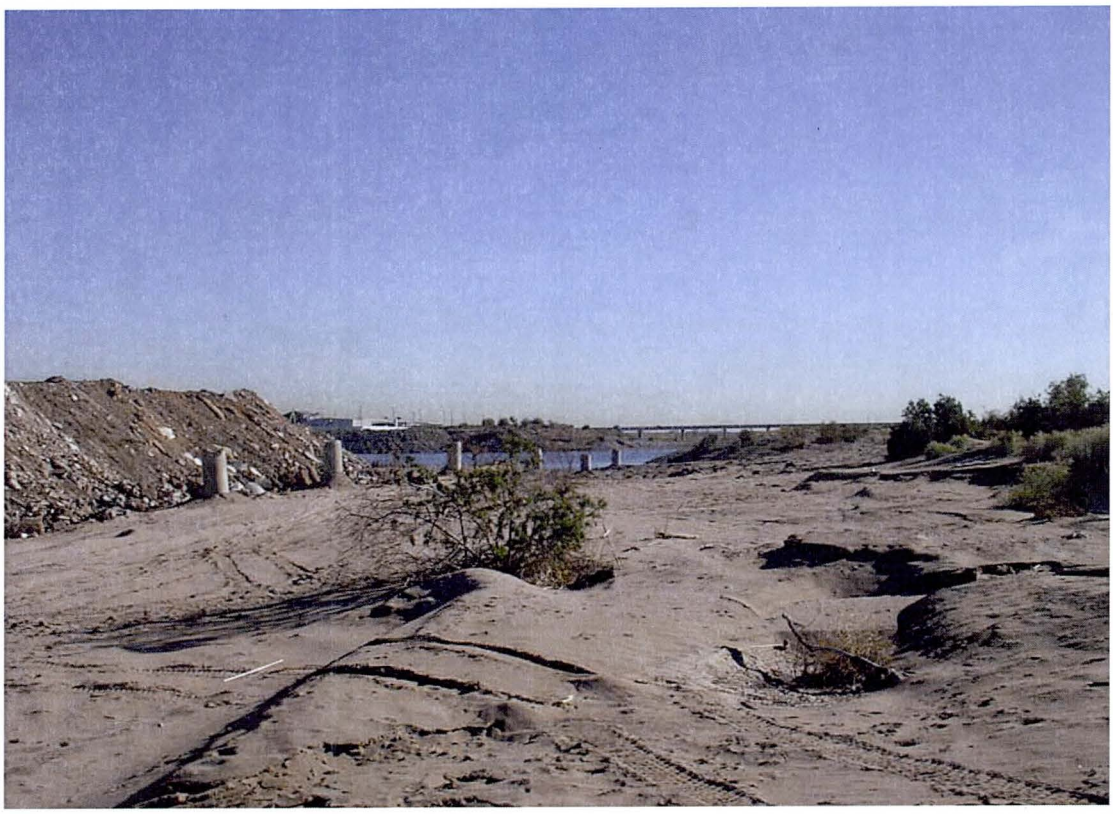
APPENDIX A

PHOTOGRAPHS

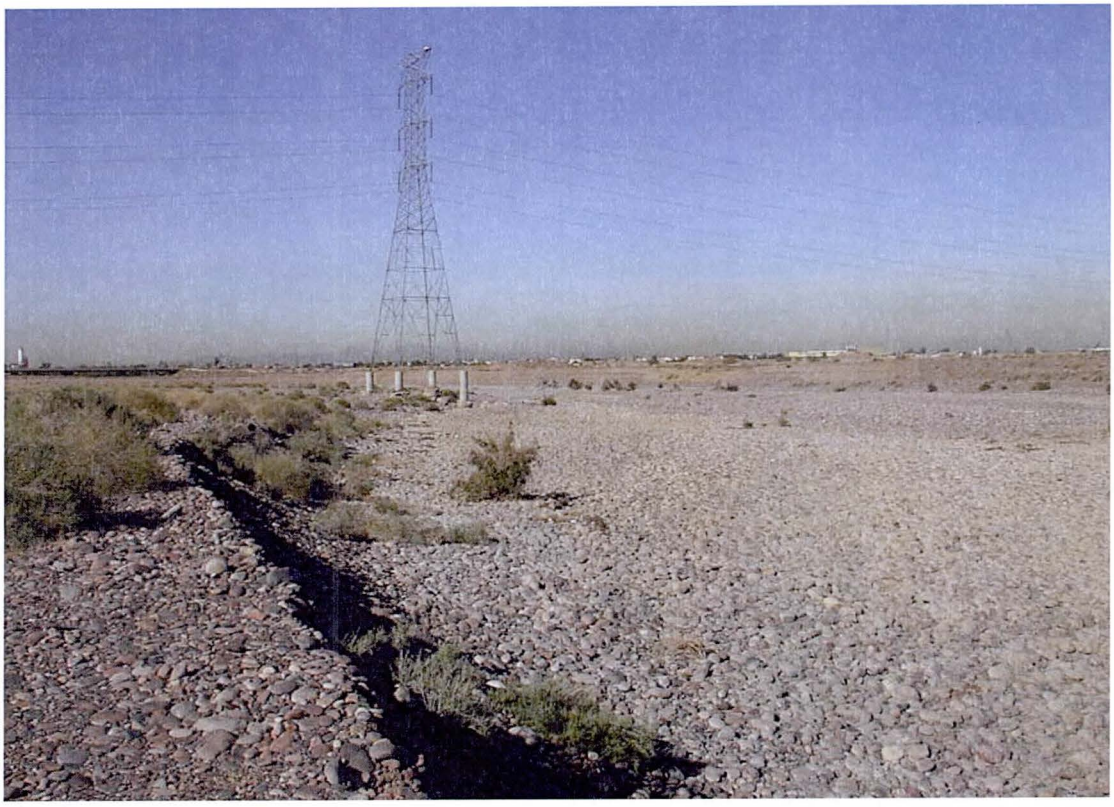
35th Ave Bridge Looking East

35th Ave Bridge Looking East

Mining Pit Standing Water (N. Side of Salt River)

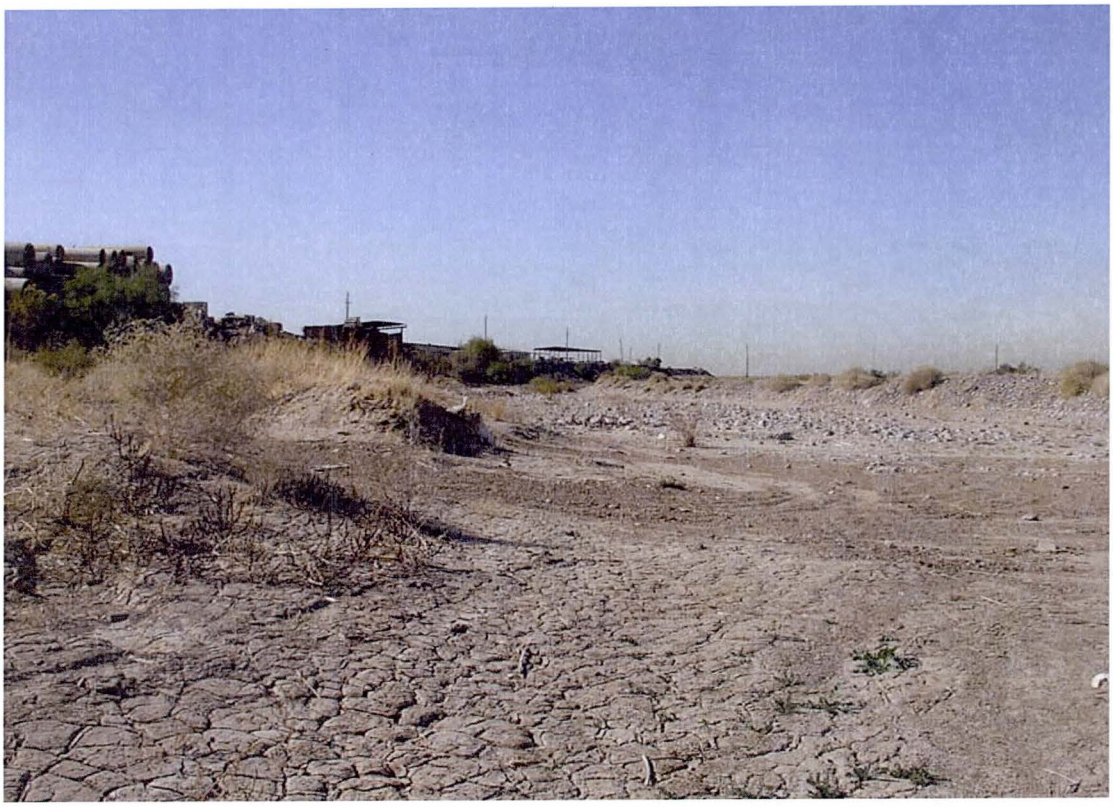


River Bottom Looking East



River Bottom Looking Northwest

51st Ave Bridge Looking West



South Bank Near 43rd Ave Looking West

South Bank Near 43rd Ave Looking East

APPENDIX B

EFFECTIVE LOMR DOCUMENTS

Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP REVISION DETERMINATION DOCUMENT

COMMUNITY AND REVISION INFORMATION		PROJECT DESCRIPTION	BASIS OF REQUEST
COMMUNITY	City of Phoenix Maricopa County Arizona	BRIDGE	HYDRAULIC ANALYSIS NEW TOPOGRAPHIC DATA
	COMMUNITY NO.: 040051		
IDENTIFIER	LOMR for the Salt River Bridge at 35th Avenue	APPROXIMATE LATITUDE & LONGITUDE: 33.410, -112.120 SOURCE: Precision Mapping Streets DATUM: NAD 27	

ANNOTATED MAPPING ENCLOSURES			ANNOTATED STUDY ENCLOSURES
TYPE: FIRM*	NO.: 04013C2120 G	DATE: September 30, 2005	DATE OF EFFECTIVE FLOOD INSURANCE STUDY REPORT: September 30, 2005
TYPE: FIRM*	NO.: 04013C2140 G	DATE: September 30, 2005	PROFILE(S): 279P-281P FLOODWAY DATA TABLE: 5

nclosures reflect changes to flooding sources affected by this revision.
* FIRM - Flood Insurance Rate Map; ** FBFM - Flood Boundary and Floodway Map; *** FHBM - Flood Hazard Boundary Map

FLOODING SOURCE(S) & REVISED REACH(ES)

Salt River - from approximately 1,100 feet downstream of 35th Avenue to approximately 1,200 feet downstream of 7th Avenue

SUMMARY OF REVISIONS

Flooding Source	Effective Flooding	Revised Flooding	Increases	Decreases
Salt River	Zone AE	Zone AE	NONE	YES
	Floodway	Floodway	YES	NONE
	BFEs*	BFEs	NONE	YES

* BFEs - Base Flood Elevations

DETERMINATION

This document provides the determination from the Department of Homeland Security's Federal Emergency Management Agency (FEMA) regarding a request for a Letter of Map Revision (LOMR) for the area described above. Using the information submitted, we have determined that a revision to the flood hazards depicted in the Flood Insurance Study (FIS) report and/or National Flood Insurance Program (NFIP) map is warranted. This document revises the effective NFIP map, as indicated in the attached documentation. Please use the enclosed annotated map panels revised by this LOMR for floodplain management purposes and for all flood insurance policies and renewals in your community.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Assistance Center toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMR Depot, 3601 Eisenhower Avenue, Alexandria, VA 22304. Additional Information about the NFIP is available on our website at http://www.fema.gov/nfip.

Joshua A. Smith, CFM, Program Specialist
Engineering Management Branch
Mitigation Directorate

Federal Emergency Management Agency
Washington, D.C. 20472

LETTER OF MAP REVISION
DETERMINATION DOCUMENT (CONTINUED)

COMMUNITY INFORMATION

APPLICABLE NFIP REGULATIONS/COMMUNITY OBLIGATION

We have made this determination pursuant to Section 206 of the Flood Disaster Protection Act of 1973 (P.L. 93-234) and in accordance with the National Flood Insurance Act of 1968, as amended (Title XIII of the Housing and Urban Development Act of 1968, P.L. 90-448), 42 U.S.C. 4001-4128, and 44 CFR Part 65. Pursuant to Section 1361 of the National Flood Insurance Act of 1968, as amended, communities participating in the NFIP are required to adopt and enforce floodplain management regulations that meet or exceed NFIP criteria. These criteria, including adoption of the FIS report and FIRM, and the modifications made by this LOMR, are the minimum requirements for continued NFIP participation and do not supersede more stringent State/Commonwealth or local requirements to which the regulations apply.

We provide the floodway designation to your community as a tool to regulate floodplain development. Therefore, the floodway revision we have described in this letter, while acceptable to us, must also be acceptable to your community and adopted by appropriate community action, as specified in Paragraph 60.3(d) of the NFIP regulations.

NFIP regulations Subparagraph 60.3(b)(7) requires communities to ensure that the flood-carrying capacity within the altered or relocated portion of any watercourse is maintained. This provision is incorporated into your community's existing floodplain management ordinances; therefore, responsibility for maintenance of the altered or relocated watercourse, including any related appurtenances such as bridges, culverts, and other drainage structures, rests with your community. We may request that your community submit a description and schedule of maintenance activities necessary to ensure this requirement.

COMMUNITY REMINDERS

We based this determination on the 1-percent-annual-chance flood discharges computed in the FIS for your community without considering subsequent changes in watershed characteristics that could increase flood discharges. Future development of projects upstream could cause increased flood discharges, which could cause increased flood hazards. A comprehensive restudy of your community's flood hazards would consider the cumulative effects of development on flood discharges subsequent to the publication of the FIS report for your community and could, therefore, establish greater flood hazards in this area.

Your community must regulate all proposed floodplain development and ensure that permits required by Federal and/or State/Commonwealth law have been obtained. State/Commonwealth or community officials, based on knowledge of local conditions and in the interest of safety, may set higher standards for construction or may limit development in floodplain areas. If your State/Commonwealth or community has adopted more restrictive or comprehensive floodplain management criteria, those criteria take precedence over the minimum NFIP requirements.

We will not print and distribute this LOMR to primary users, such as local insurance agents or mortgage lenders; instead, the community will serve as a repository for the new data. We encourage you to disseminate the information in this LOMR by preparing a news release for publication in your community's newspaper that describes the revision and explains how your community will provide the data and help interpret the NFIP maps. In that way, interested persons, such as property owners, insurance agents, and mortgage lenders, can benefit from the information.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Assistance Center toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMR Depot, 3601 Eisenhower Avenue, Alexandria, VA 22304. Additional Information about the NFIP is available on our website at http://www.fema.gov/nfip.

Joshua A. Smith, CFM, Program Specialist
Engineering Management Branch
Mitigation Directorate

Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP REVISION
DETERMINATION DOCUMENT (CONTINUED)

We have designated a Consultation Coordination Officer (CCO) to assist your community. The CCO will be the primary liaison between your community and FEMA. For information regarding your CCO, please contact:

Ms. Sally M. Ziolkowski
Director, Mitigation Division
Federal Emergency Management Agency, Region IX
1111 Broadway Street, Suite 1200
Oakland, CA 94607-4052
(510) 627-7175

STATUS OF THE COMMUNITY NFIP MAPS

We will not physically revise and republish the FIRM and FIS report for your community to reflect the modifications made by this LOMR at this time. When changes to the previously cited FIRM panel(s) and FIS report warrant physical revision and republication in the future, we will incorporate the modifications made by this LOMR at that time.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Assistance Center toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMR Depot, 3601 Eisenhower Avenue, Alexandria, VA 22304. Additional Information about the NFIP is available on our website at http://www.fema.gov/nfip.

Joshua A. Smith, CFM, Program Specialist
Engineering Management Branch
Mitigation Directorate

Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP REVISION
DETERMINATION DOCUMENT (CONTINUED)

PUBLIC NOTIFICATION OF REVISION

PUBLIC NOTIFICATION

FLOODING SOURCE	LOCATION OF REFERENCED ELEVATION	BFE (FEET NGVD 29)		MAP PANEL NUMBER(S)
		EFFECTIVE	REVISED	
Salt River	Approximately 300 feet upstream of 35th Avenue	1,035	1,034	04013C2120 G
	Just upstream of 27th Avenue	1,037	1,036	04013C2140 G

Within 90 days of the second publication in the local newspaper, any interested party may request that we reconsider this determination. Any request for reconsideration must be based on scientific or technical data. This revision is effective as of the date of this letter. However, until the 90-day period has elapsed, the revised BFEs presented in this LOMR may be changed.

A notice of changes will be published in the *Federal Register*. A short notice also will be published in your local newspaper on or about the dates listed below. Please refer to FEMA's website at https://www.floodmaps.fema.gov/fhm/Scripts/bfe_main.asp for a more detailed description of proposed BFE changes, which will be posted within a week of the date of this letter.

LOCAL NEWSPAPER Name: *The Arizona Business Gazette*
Dates: 12/11/08 12/18/08

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Assistance Center toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMR Depot, 3601 Eisenhower Avenue, Alexandria, VA 22304. Additional Information about the NFIP is available on our website at http://www.fema.gov/nfip.

Joshua A. Smith, CFM, Program Specialist
Engineering Management Branch
Mitigation Directorate

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
					(FEET NGVD)			
Salt River								
A	0.284	5,175	53,136	3.7	949.0/948.3[2]	948.3	949.3	1.0
B	0.661	3,770	38,392	4.7	950.8/950.2[2]	950.2	951.1	0.9
C	1.139	3,940	33,793	4.9	954.1/953.8[2]	953.8	954.2	0.4
D	1.614	3,899	36,618	4.5	956.6/956.5[2]	956.5	956.7	0.2
E	2.087	3,383	29,242	5.6	960.4	960.4	960.5	0.1
F	2.553	3,626	26,811	6.1	963.3	963.3	963.4	0.1
G	3.042	2,943	23,417	7.0	967.7	967.7	967.8	0.1
H	3.549	2,458	22,950	7.2	971.5	971.5	971.9	0.4
I	4.038	2,912	24,568	6.7	975.9	975.9	976.3	0.4
J	4.512	2,051	14,478	11.3	977.7	977.7	978.0	0.3
K	4.978	1,654	17,123	9.6	986.4	986.4	986.4	0.0
L	5.437	1,542	22,409	7.3	990.2	990.2	990.4	0.2
M	5.911	1,563	22,084	7.4	993.6	993.6	994.0	0.4
N	6.313	2,402	25,689	6.5	995.1	995.1	995.8	0.7
O	6.787	2,542	21,235	7.8	999.8	999.8	1,000.7	0.9
P	7.262	2,353	27,986	5.9	1,003.3	1,003.3	1,004.3	1.0
Q	7.725	1,735	17,441	9.5	1,007.6	1,007.6	1,008.3	0.7
R	8.054	1,579	22,816	7.3	1,012.1	1,012.1	1,012.3	0.2
S	8.468	3,033	25,411	6.5	1,016.4	1,016.4	1,016.6	0.2
T	8.954	2,286	19,622	8.5	1,020.4	1,020.4	1,020.5	0.1
U	9.421	1,950	15,511	10.7	1,025.8	1,025.8	1,025.8	0.0
V	9.896	1,585	26,575	6.3	1,032.4	1,032.4	1,032.7	0.3
W	10.262	1,671	24,934	6.7	1,034.4	1,034.4	1,034.6	0.2
X	10.730	1,975	26,979	6.2	1,035.3	1,035.3	1,035.6	0.3
Y	11.210	1,479	19,037	8.7	1,036.7	1,036.7	1,036.7	0.0
Z	11.691	1,081	20,618	8.1	1,039.9	1,039.9	1,040.4	0.5

Revised Area

[1]Miles above confluence with Gila River [2]River side/land side

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ AND INCORPORATED AREAS

FLOODWAY DATA

REVISED TO REFLECT LOMR EFFECTIVE: November 28, 2008

SALT RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
					(FEET NGVD)			
Salt River (Cont'd)								
AA	12.139	526	10,482	15.8	1,043.5	1,043.5	1,043.7	0.2
AB	12.580	550	11,564	14.4	1,048.6	1,048.6	1,048.6	0.1
AC	13.059	558	9,738	17.1	1,056.2	1,056.2	1,056.3	0.1
AD	13.409	636	11,740	14.1	1,063.5	1,063.5	1,063.6	0.1
AE	13.809	880	19,319	8.8	1,068.0	1,068.0	1,068.0	0.0
AF	14.141	852	13,541	12.5	1,069.2	1,069.2	1,069.2	0.0
AG	14.520	745	15,305	11.0	1,074.2	1,074.2	1,074.2	0.0
AH	14.900	900	22,831	7.4	1,076.9	1,076.9	1,076.9	0.0
AI	15.337	1,054	17,199	9.8	1,078.1	1,078.1	1,078.1	0.0
AJ	15.750	594	9,383	18.0	1,081.9	1,081.9	1,081.9	0.0
AK	16.223	890	14,237	11.9	1,088.3	1,088.3	1,088.3	0.0
AL	16.515	907	11,465	14.7	1,093.7	1,093.7	1,093.7	0.0
AM	16.990	947	14,614	11.6	1,098.9	1,098.9	1,098.9	0.0
AN	17.328	897	16,768	10.1	1,103.1	1,103.1	1,103.1	0.0
AO	17.802	999	14,340	11.8	1,107.2	1,107.2	1,107.2	0.0
AP	18.273	824	11,392	14.8	1,111.7	1,111.7	1,111.7	0.0
AQ	18.750	1,035	14,553	11.6	1,118.2	1,118.2	1,118.2	0.0
AR	19.224	987	14,890	11.4	1,123.6	1,123.6	1,123.6	0.0
AS	19.553	1,027	14,367	11.8	1,127.8	1,127.8	1,127.8	0.0
AT	20.026	1,006	14,993	11.3	1,132.9	1,132.9	1,132.9	0.0
AU	20.547	907	13,097	12.9	1,139.7	1,139.7	1,139.7	0.0
AV	20.960	912	14,837	11.4	1,145.0	1,145.0	1,145.0	0.0
AW	21.435	906	15,058	11.2	1,149.4	1,149.4	1,149.4	0.0
AX	21.719	973	17,696	9.6	1,152.2	1,152.2	1,152.2	0.0
AY	22.015	929	13,822	12.4	1,154.6	1,154.6	1,154.6	0.0
AZ	22.503	1,012	16,481	10.4	1,159.0	1,159.0	1,159.0	0.0

Revised Area

[1]Miles above confluence with Gila River

REVISED TO
REFLECT LOMR
EFFECTIVE: November 28, 2008

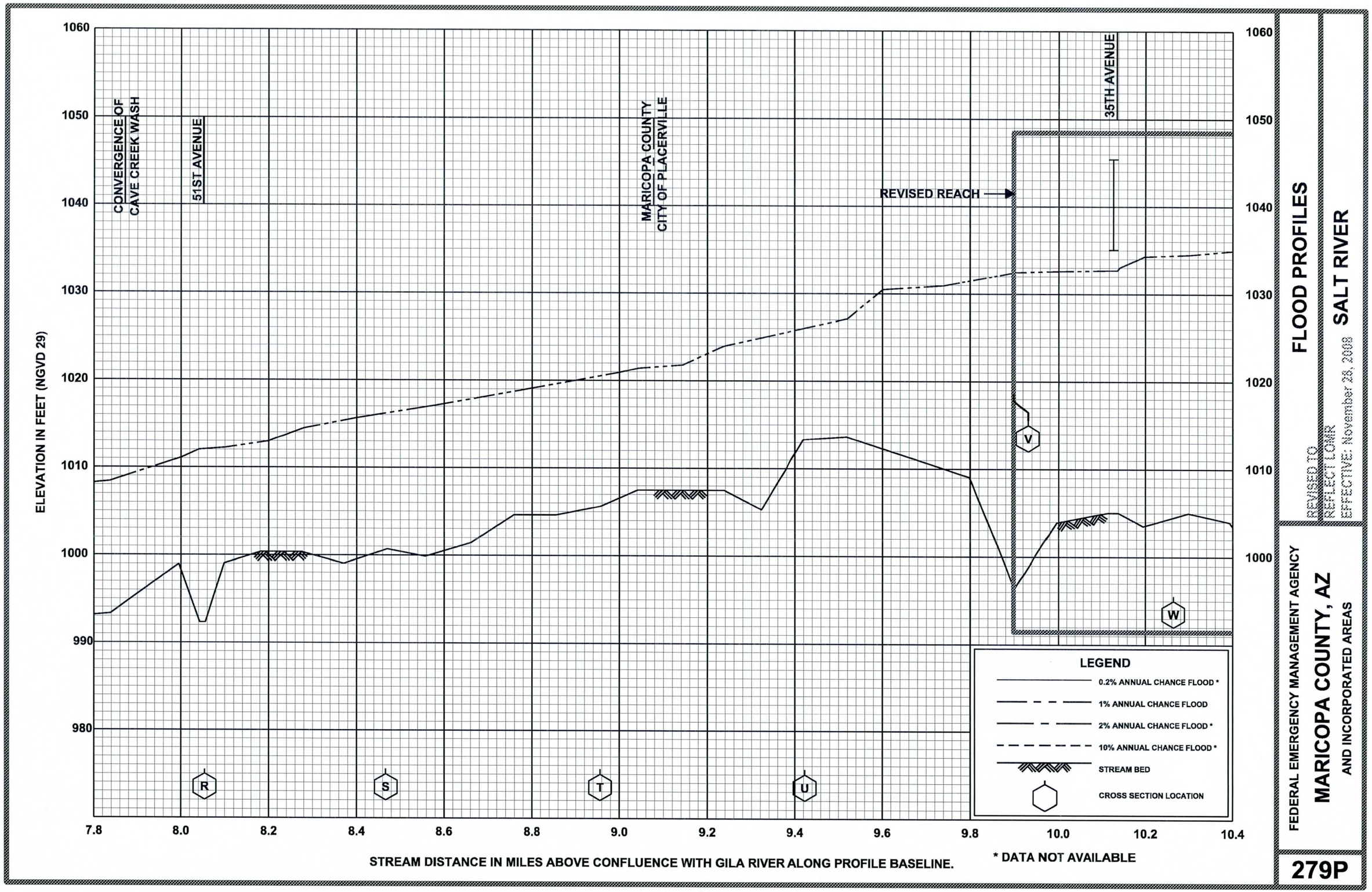
TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ AND INCORPORATED AREAS

FLOODWAY DATA

SALT RIVER



FLOOD PROFILES

SALT RIVER

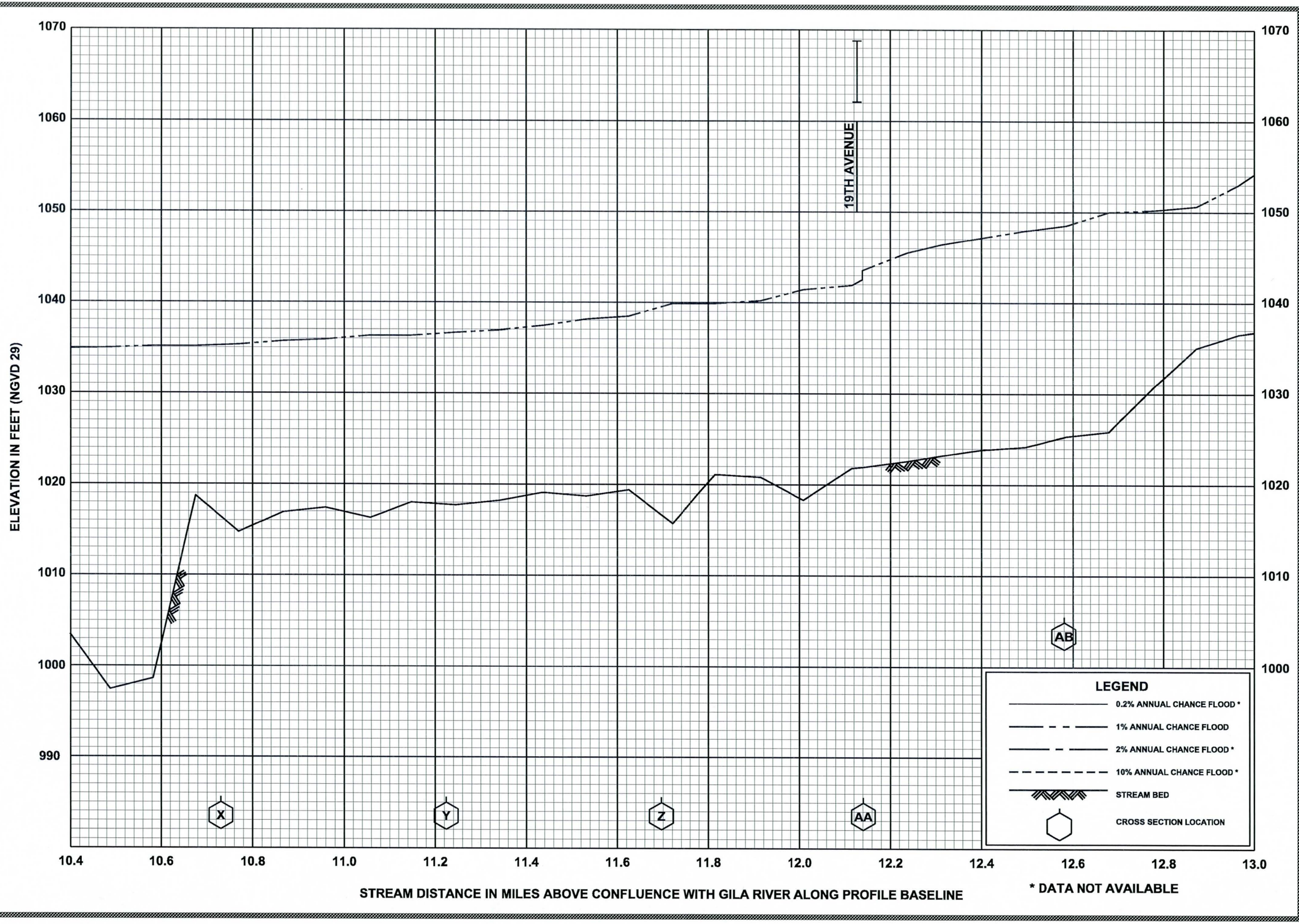
REVISED TO REFLECT LOMR
EFFECTIVE: November 28, 2008

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ

AND INCORPORATED AREAS

279P



FLOOD PROFILES

SALT RIVER

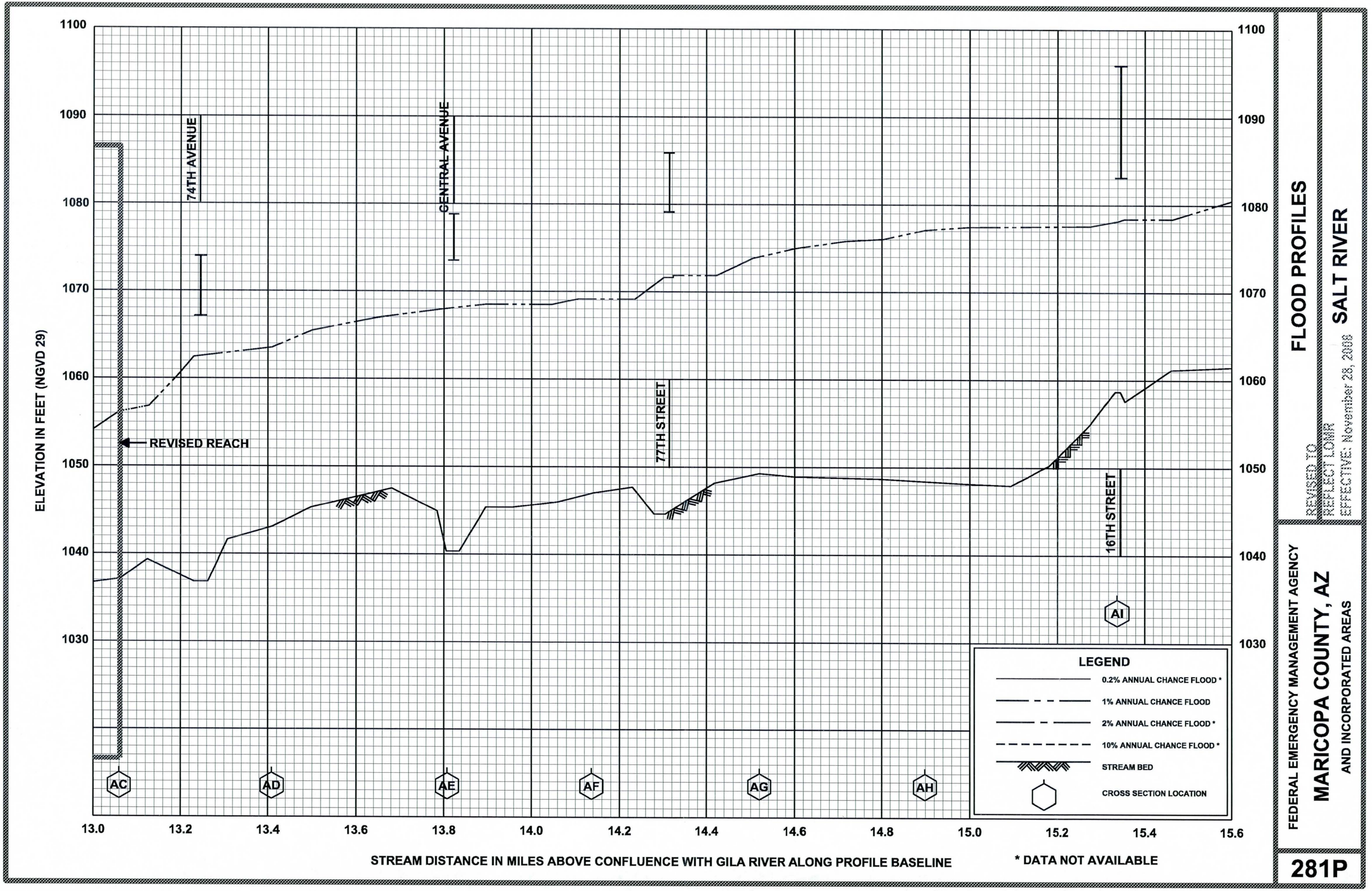
REVISED TO REFLECT LOMR EFFECTIVE: November 28, 2008

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ

AND INCORPORATED AREAS

280P



FLOOD PROFILES

SALT RIVER

REVISED TO REFLECT LOMR
EFFECTIVE: November 28, 2008

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ

AND INCORPORATED AREAS

281P

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 2140G

FIRM
FLOOD INSURANCE RATE MAP

MARICOPA COUNTY,
ARIZONA
AND INCORPORATED AREAS

PANEL 2140 OF 4350
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)
CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY	040037	2140	G
PHOENIX, CITY OF	040051	2140	G

REVISED TO
REFLECT LOMR
EFFECTIVE: November 28, 2008

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
04013C2140G

EFFECTIVE DATE
SEPTEMBER 30, 2005

Federal Emergency Management Agency

MAP SCALE 1" = 1000'
500 0 1000 FEET
300 0 300 METERS

Legend
- 1% annual chance (100-Year) Floodplain
- 1% annual chance (100-Year) Floodway
- 0.2% annual chance (500-Year) Floodplain

City of Phoenix
040051

REVISED AREA

ZONE AE
ZONE X

Cave Creek
Roosevelt Irrigation District Canal
Salt River
PROFILE BASE LINE

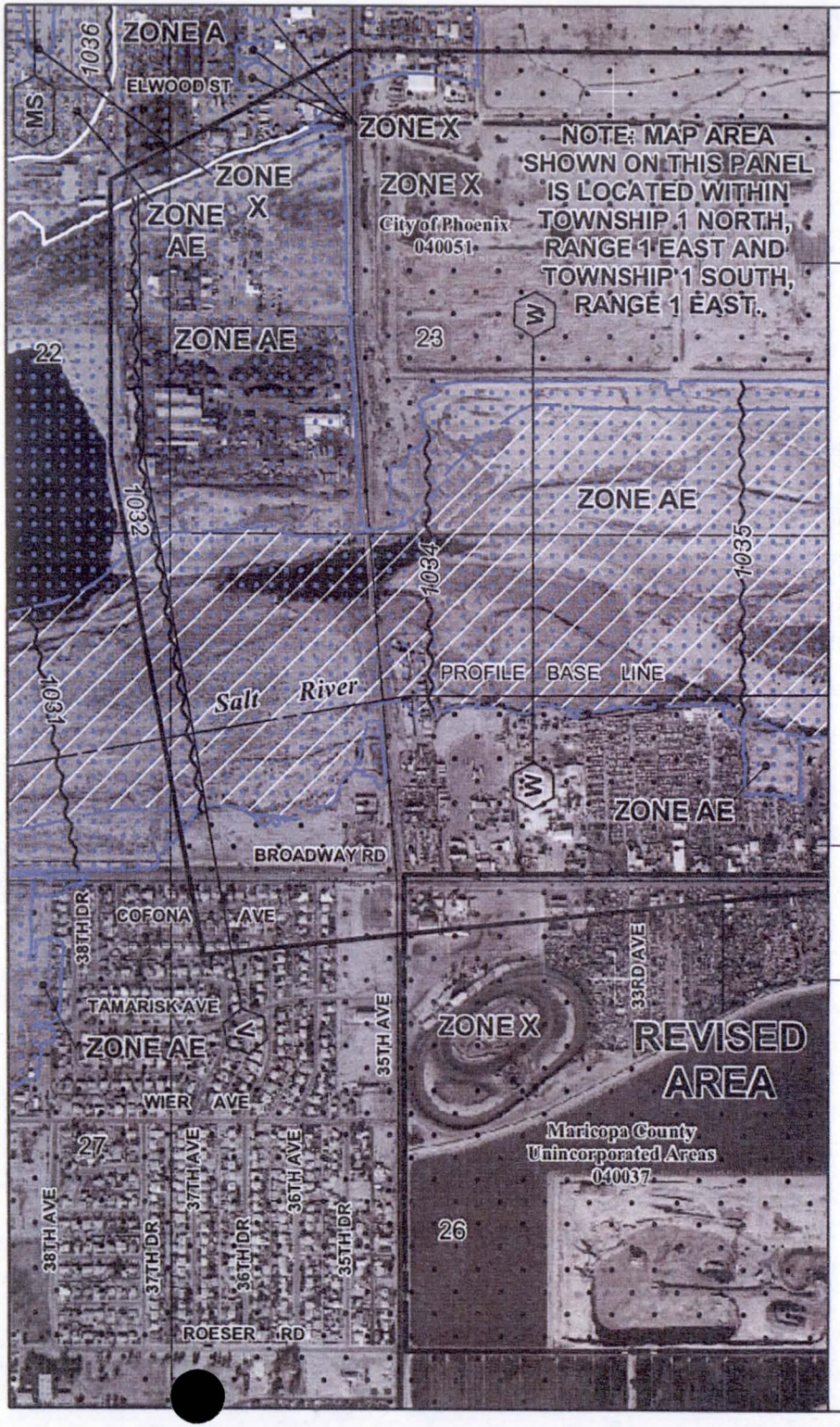
DURANGO ST
MOHAVE ST
COCOPAH ST
SONORA ST
PIMA ST
APACHE ST
HILTON AVE
LOWER BUCKEYE RD
BROADWAY RD
WATKINS ST
MAGNOLIA ST
JONES AVE
SOUTHGATE AVE
RIVERSIDE ST
PUEBLO AVE
ILLINI ST

DV0680
DV2298
DV0472
DV2297
DV2299

880000 FT

JOINS PANEL 2120

Maricopa County
Unincorporated Areas
040051



$^{36}98^{000m}$ N

JOINS PANEL 2140

$^{36}97^{000m}$ N

Legend

- 1% annual chance (100-Year) Floodplain
- 1% annual chance (100-Year) Floodway
- 0.2% annual chance (500-Year) Floodplain

MAP SCALE 1" = 1000'

500 0 1000 FEET

300 0 300 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 2120G

FIRM

FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS

PANEL 2120 OF 4350

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY	040037	2120	G
PHOENIX, CITY OF	040051	2120	G

REVISED TO REFLECT LOMR EFFECTIVE: November 28, 2008

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
04013C2120G

EFFECTIVE DATE
SEPTEMBER 30, 2005

Federal Emergency Management Agency

Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP REVISION DETERMINATION DOCUMENT

COMMUNITY AND REVISION INFORMATION		PROJECT DESCRIPTION	BASIS OF REQUEST
COMMUNITY	City of Phoenix Maricopa County Arizona	FILL	FLOODWAY HYDRAULIC ANALYSIS NEW TOPOGRAPHIC DATA
	COMMUNITY NO.: 040051		
IDENTIFIER	Shumway Property / APN# 105-69-009A	APPROXIMATE LATITUDE & LONGITUDE: 33.412, -112.148 SOURCE: USGS QUADRANGLE DATUM: NAD 83	

ANNOTATED MAPPING ENCLOSURES	ANNOTATED STUDY ENCLOSURES
TYPE: FIRM* NO.: 04013C2120 G DATE: September 30, 2005	DATE OF EFFECTIVE FLOOD INSURANCE STUDY: September 30, 2005 PROFILE(S): 279P FLOODWAY DATA TABLE: 5

Enclosures reflect changes to flooding sources affected by this revision.
* FIRM - Flood Insurance Rate Map; ** FBFM - Flood Boundary and Floodway Map; *** FHBM - Flood Hazard Boundary Map

FLOODING SOURCE(S) & REVISED REACH(ES)

Salt River - from approximately 5,280 feet upstream of 51st Avenue to approximately 7,870 feet upstream

SUMMARY OF REVISIONS

Flooding Source	Effective Flooding	Revised Flooding	Increases	Decreases
Salt River	BFEs*	BFEs	YES	YES
	Floodway	Floodway	NONE	YES
	Zone AE	Zone AE	NONE	YES

* BFEs - Base Flood Elevations

DETERMINATION

This document provides the determination from the Department of Homeland Security's Federal Emergency Management Agency (FEMA) regarding a request for a Letter of Map Revision (LOMR) for the area described above. Using the information submitted, we have determined that a revision to the flood hazards depicted in the Flood Insurance Study (FIS) report and/or National Flood Insurance Program (NFIP) map is warranted. This document revises the effective NFIP map, as indicated in the attached documentation. Please use the enclosed annotated map panels revised by this LOMR for floodplain management purposes and for all flood insurance policies and renewals in your community.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Assistance Center toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMR Depot, 3601 Eisenhower Avenue, Alexandria, VA 22304. Additional Information about the NFIP is available on our website at http://www.fema.gov/nfip.

Dahlia Kasperski

Dahlia Kasperski, P.E., CFM, Program Specialist
Engineering Management Branch
Mitigation Directorate

Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP REVISION
DETERMINATION DOCUMENT (CONTINUED)

OTHER COMMUNITIES AFFECTED BY THIS REVISION

CID Number: 040037 **Name:** Maricopa County, Arizona

AFFECTED MAP PANELS	AFFECTED PORTIONS OF THE FLOOD INSURANCE STUDY REPORT
TYPE: FIRM* NO.: 04013C2120 G DATE: September 30, 2005	DATE OF EFFECTIVE FLOOD INSURANCE STUDY: September 30, 2005 PROFILE(S): 279P FLOODWAY DATA TABLE: 5

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Assistance Center toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMR Depot, 3601 Eisenhower Avenue, Alexandria, VA 22304. Additional Information about the NFIP is available on our website at http://www.fema.gov/nfip.

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Engineering Management Branch
Mitigation Directorate

Federal Emergency Management Agency
Washington, D.C. 20472

LETTER OF MAP REVISION
DETERMINATION DOCUMENT (CONTINUED)

COMMUNITY INFORMATION

APPLICABLE NFIP REGULATIONS/COMMUNITY OBLIGATION

We have made this determination pursuant to Section 206 of the Flood Disaster Protection Act of 1973 (P.L. 93-234) and in accordance with the National Flood Insurance Act of 1968, as amended (Title XIII of the Housing and Urban Development Act of 1968, P.L. 90-448), 42 U.S.C. 4001-4128, and 44 CFR Part 65. Pursuant to Section 1361 of the National Flood Insurance Act of 1968, as amended, communities participating in the NFIP are required to adopt and enforce floodplain management regulations that meet or exceed NFIP criteria. These criteria, including adoption of the FIS report and FIRM, and the modifications made by this LOMR, are the minimum requirements for continued NFIP participation and do not supersede more stringent State/Commonwealth or local requirements to which the regulations apply.

We provide the floodway designation to your community as a tool to regulate floodplain development. Therefore, the floodway revision we have described in this letter, while acceptable to us, must also be acceptable to your community and adopted by appropriate community action, as specified in Paragraph 60.3(d) of the NFIP regulations.

COMMUNITY REMINDERS

We based this determination on the 1-percent-annual-chance flood discharges computed in the FIS for your community without considering subsequent changes in watershed characteristics that could increase flood discharges. Future development of projects upstream could cause increased flood discharges, which could cause increased flood hazards. A comprehensive restudy of your community's flood hazards would consider the cumulative effects of development on flood discharges subsequent to the publication of the FIS report for your community and could, therefore, establish greater flood hazards in this area.

Your community must regulate all proposed floodplain development and ensure that permits required by Federal and/or State/Commonwealth law have been obtained. State/Commonwealth or community officials, based on knowledge of local conditions and in the interest of safety, may set higher standards for construction or may limit development in floodplain areas. If your State/Commonwealth or community has adopted more restrictive or comprehensive floodplain management criteria, those criteria take precedence over the minimum NFIP requirements.

We will not print and distribute this LOMR to primary users, such as local insurance agents or mortgage lenders; instead, the community will serve as a repository for the new data. We encourage you to disseminate the information in this LOMR by preparing a news release for publication in your community's newspaper that describes the revision and explains how your community will provide the data and help interpret the NFIP maps. In that way, interested persons, such as property owners, insurance agents, and mortgage lenders, can benefit from the information.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Assistance Center toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMR Depot, 3601 Eisenhower Avenue, Alexandria, VA 22304. Additional Information about the NFIP is available on our website at http://www.fema.gov/nfip.

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Mitigation Directorate

Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP REVISION
DETERMINATION DOCUMENT (CONTINUED)

We have designated a Consultation Coordination Officer (CCO) to assist your community. The CCO will be the primary liaison between your community and FEMA. For information regarding your CCO, please contact:

Ms. Sally M. Ziolkowski
Director, Mitigation Division
Federal Emergency Management Agency, Region IX
1111 Broadway Street, Suite 1200
Oakland, CA 94607-4052
(510) 627-7175

STATUS OF THE COMMUNITY NFIP MAPS

We will not physically revise and republish the FIRM and FIS report for your community to reflect the modifications made by this LOMR at this time. When changes to the previously cited FIRM panel(s) and FIS report warrant physical revision and republication in the future, we will incorporate the modifications made by this LOMR at that time.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Assistance Center toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMR Depot, 3601 Eisenhower Avenue, Alexandria, VA 22304. Additional Information about the NFIP is available on our website at http://www.fema.gov/nfip.

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Engineering Management Branch
Mitigation Directorate

Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP REVISION
DETERMINATION DOCUMENT (CONTINUED)

PUBLIC NOTIFICATION OF REVISION

PUBLIC NOTIFICATION

FLOODING SOURCE	LOCATION OF REFERENCED ELEVATION	BFE (FEET NGVD 29)		MAP PANEL NUMBER(S)
		EFFECTIVE	REVISED	
Salt River	Approximately 6,070 feet upstream of 51st Avenue	1,023	1,024	04013C2120 G
	Approximately 7,340 feet upstream of 51st Avenue	1,026	1,027	04013C2120 G

Within 90 days of the second publication in the local newspaper, a citizen may request that we reconsider this determination. Any request for reconsideration must be based on scientific or technical data. This revision is effective as of the date of this letter. However, until the 90-day period has elapsed, the revised BFEs presented in this LOMR may be changed.

A notice of changes will be published in the *Federal Register*. A short notice also will be published in your local newspaper on or about the dates listed below. Please refer to FEMA's website at https://www.floodmaps.fema.gov/fhm/Scripts/bfe_main.asp for a more detailed description of proposed BFE changes, which will be posted within a week of the date of this letter.

LOCAL NEWSPAPER Name: *Arizona Business Gazette*
Dates: 05/07/2009 05/14/2009

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Assistance Center toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMR Depot, 3601 Eisenhower Avenue, Alexandria, VA 22304. Additional Information about the NFIP is available on our website at http://www.fema.gov/nfip.

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Engineering Management Branch
Mitigation Directorate

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
					(FEET NGVD)			
Salt River								
A	0.284	5,175	53,136	3.7	949.0/948.3[2]	948.3	949.3	1.0
B	0.661	3,770	38,392	4.7	950.8/950.2[2]	950.2	951.1	0.9
C	1.139	3,940	33,793	4.9	954.1/953.8[2]	953.8	954.2	0.4
D	1.614	3,899	36,618	4.5	956.6/956.5[2]	956.5	956.7	0.2
E	2.087	3,383	29,242	5.6	960.4	960.4	960.5	0.1
F	2.553	3,626	26,811	6.1	963.3	963.3	963.4	0.1
G	3.042	2,943	23,417	7.0	967.7	967.7	967.8	0.1
H	3.549	2,458	22,950	7.2	971.5	971.5	971.9	0.4
I	4.038	2,912	24,568	6.7	975.9	975.9	976.3	0.4
J	4.512	2,051	14,478	11.3	977.7	977.7	978.0	0.3
K	4.978	1,654	17,123	9.6	986.4	986.4	986.4	0.0
L	5.437	1,542	22,409	7.3	990.2	990.2	990.4	0.2
M	5.911	1,563	22,084	7.4	993.6	993.6	994.0	0.4
N	6.313	2,402	25,689	6.5	995.1	995.1	995.8	0.7
O	6.787	2,542	21,235	7.8	999.8	999.8	1,000.7	0.9
P	7.262	2,353	27,986	5.9	1,003.3	1,003.3	1,004.3	1.0
Q	7.725	1,735	17,441	9.5	1,007.6	1,007.6	1,008.3	0.7
R	8.054	1,579	22,816	7.3	1,012.1	1,012.1	1,012.3	0.2
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V	9.896	1,593	18,829	8.8	1,032.0	1,032.0	1,032.3	0.3
W	10.263	1,875	25,614	6.5	1,035.9	1,035.9	1,036.1	0.2
X	10.736	1,980	31,047	5.4	1,037.4	1,037.4	1,037.7	0.3
Y	11.211	1,411	20,957	7.9	1,038.3	1,038.3	1,038.3	0.0
Z	11.687	1,112	21,561	7.7	1,040.6	1,040.6	1,041.3	0.7

Revised Data

[1]Miles above confluence with Gila River [2]River side/land side

TABLE 5

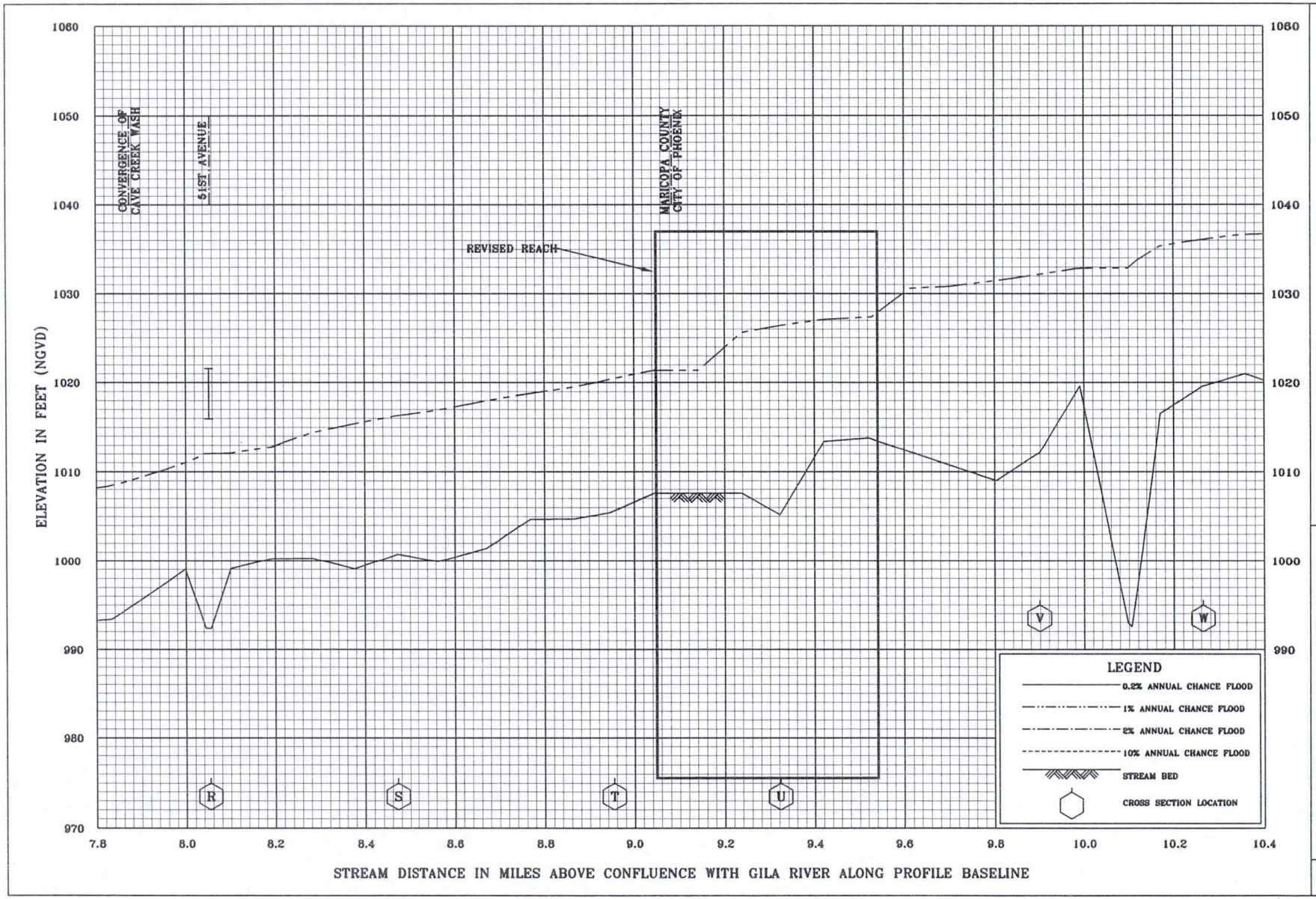
FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ AND INCORPORATED AREAS

FLOODWAY DATA

REVISED TO REFLECT LOMR EFFECTIVE: April 23, 2009

SALT RIVER



FLOOD PROFILES

REVISED TO REFLECT LOMR EFFECTIVE: April 23, 2009

SALT RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ AND INCORPORATED AREAS

279P

Legend

- 1% annual chance (100-Year) Floodplain
- 1% annual chance (100-Year) Floodway
- 0.2% annual chance (500-Year) Floodplain

MAP SCALE 1" = 1000'

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)
CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY	040037	2120	G
PHOENIX, CITY OF	040051	2120	G

REVISED TO REFLECT LOMR EFFECTIVE: April 23, 2009

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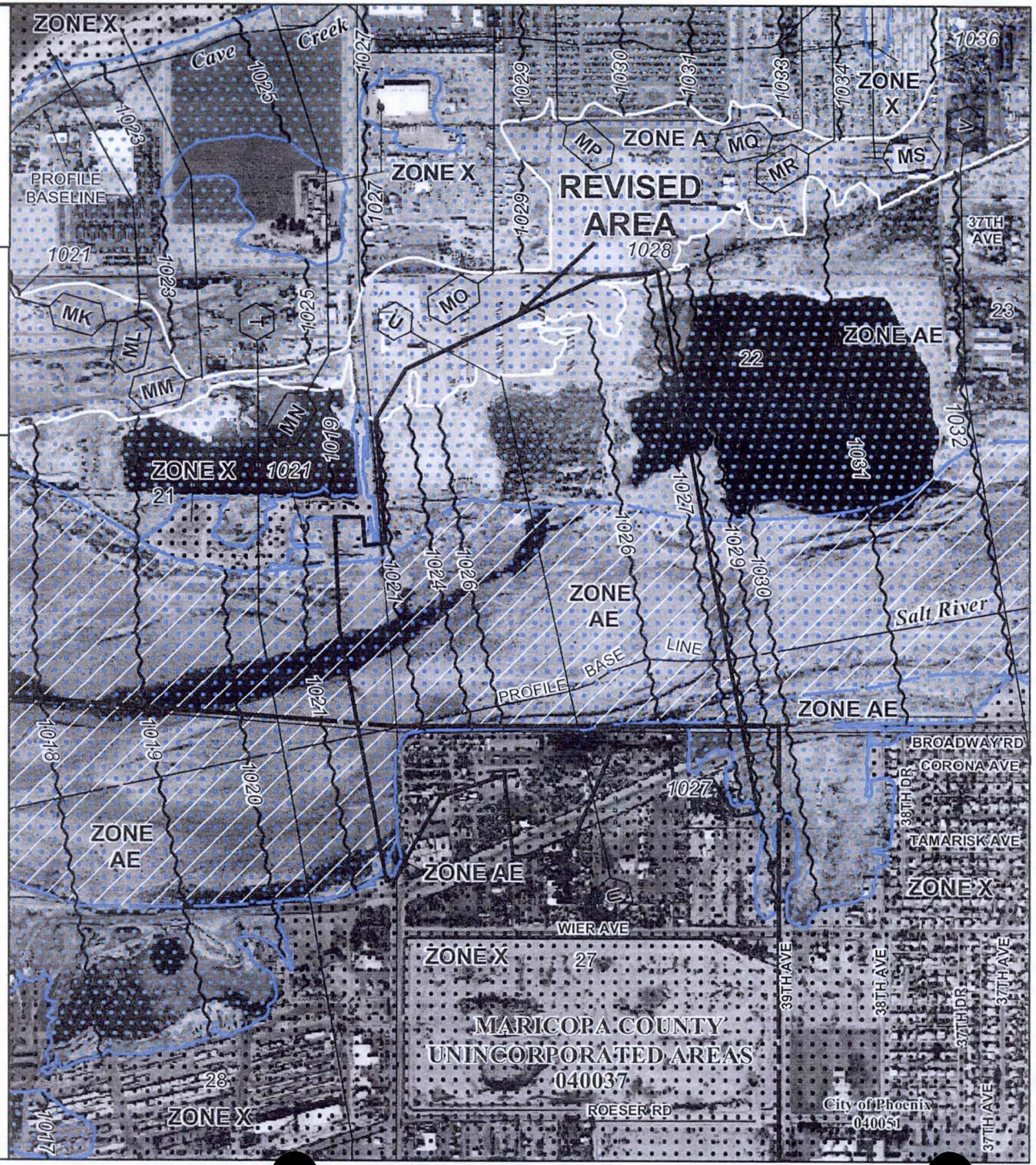
Federal Emergency Management Agency



APPENDIX C

DUPLICATE EFFECTIVE MODEL

HEC-RAS Plan: DupEff River: 1 Reach: 1

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
1	214.14	PF#1	169000.00	1048.70	1075.50	1062.66	1077.01	0.000804	9.84	17180.89	1312.52	0.36
1	214.14	PF#2	169000.00	1048.70	1075.51	1062.66	1077.01	0.000803	9.83	17184.88	726.86	0.36
1	214.04	PF#1	169000.00	1048.80	1075.04	1062.64	1076.58	0.000846	9.95	16977.45	813.60	0.36
1	214.04	PF#2	169000.00	1048.80	1075.05	1062.64	1076.59	0.000845	9.95	16981.83	733.89	0.36
1	213.95	PF#1	169000.00	1049.30	1074.16	1063.67	1076.05	0.001218	11.04	15307.12	777.40	0.43
1	213.95	PF#2	169000.00	1049.30	1074.16	1063.67	1076.06	0.001216	11.04	15312.49	745.19	0.43
1	213.85	PF#1	169000.00	1048.10	1071.66	1065.14	1075.08	0.002230	14.98	11764.97	1017.61	0.58
1	213.85	PF#2	169000.00	1048.10	1071.66	1065.14	1075.09	0.002229	14.98	11769.51	702.59	0.58
1	213.75	PF#1	169000.00	1044.60	1071.97	1060.91	1073.93	0.000919	11.25	15022.46	656.45	0.41
1	213.75	PF#2	169000.00	1044.60	1071.98	1060.91	1073.94	0.000918	11.25	15027.91	656.35	0.41
1	213.745		Bridge									
1	213.74	PF#1	169000.00	1044.60	1071.66	1060.91	1073.68	0.000958	11.40	14818.63	654.76	0.42
1	213.74	PF#2	169000.00	1044.60	1071.67	1060.91	1073.69	0.000957	11.40	14824.30	654.73	0.42
1	213.66	PF#1	169000.00	1047.60	1069.25	1063.62	1072.99	0.002199	15.51	10898.94	586.13	0.62
1	213.66	PF#2	169000.00	1047.60	1069.27	1063.62	1073.00	0.002194	15.50	10906.67	565.99	0.62
1	213.57	PF#1	169000.00	1046.70	1069.19	1063.08	1071.61	0.001831	12.49	13535.60	1275.10	0.55
1	213.57	PF#2	169000.00	1046.70	1069.20	1063.08	1071.62	0.001827	12.47	13548.71	852.16	0.55
1	213.47	PF#1	169000.00	1045.80	1068.60	1061.42	1070.60	0.001694	11.35	14886.30	1424.00	0.52
1	213.47	PF#2	169000.00	1045.80	1068.62	1061.42	1070.62	0.001691	11.34	14903.79	1023.12	0.52
1	213.38	PF#1	169000.00	1045.40	1068.60	1059.34	1069.81	0.000809	8.83	19139.19	1251.70	0.37
1	213.38	PF#2	169000.00	1045.40	1068.61	1059.34	1069.82	0.000810	8.82	19155.73	1101.75	0.37
1	213.33	PF#1	169000.00	1045.40	1068.57	1057.70	1069.53	0.000606	7.87	21480.53	1371.95	0.33
1	213.33	PF#2	169000.00	1045.40	1068.58	1057.70	1069.54	0.000608	7.86	21497.32	1185.62	0.33
1	213.26	PF#1	169000.00	1040.40	1068.16	1055.61	1069.32	0.000568	8.67	19493.06	881.25	0.32
1	213.26	PF#2	169000.00	1040.40	1068.17	1055.61	1069.34	0.000567	8.66	19505.43	881.21	0.32
1	213.255		Bridge									
1	213.25	PF#1	169000.00	1040.40	1067.95	1055.61	1069.14	0.000585	8.75	19310.07	880.24	0.33
1	213.25	PF#2	169000.00	1040.40	1067.96	1055.61	1069.15	0.000584	8.75	19322.76	880.24	0.33
1	213.21	PF#1	166000.00	1044.90	1067.99	1055.88	1069.03	0.000510	8.17	20358.92	1540.79	0.31
1	213.21	PF#2	166000.00	1044.90	1068.00	1055.88	1069.04	0.000528	8.17	20315.02	928.20	0.31
1	213.11	PF#1	166000.00	1047.60	1067.16	1058.35	1068.63	0.000913	9.73	17066.41	927.80	0.40
1	213.11	PF#2	166000.00	1047.60	1067.16	1058.35	1068.63	0.000912	9.72	17072.18	927.79	0.40
1	213.03	PF#1	166000.00	1046.70	1066.57	1058.30	1068.17	0.001032	10.14	16391.47	965.60	0.42
1	213.03	PF#2	166000.00	1046.70	1066.58	1058.30	1068.17	0.001031	10.13	16382.68	919.76	0.42
1	212.93	PF#1	166000.00	1045.40	1065.48	1058.04	1067.55	0.001316	11.53	14402.09	850.19	0.48
1	212.93	PF#2	166000.00	1045.40	1065.49	1058.04	1067.55	0.001314	11.52	14408.82	798.99	0.48
1	212.84	PF#1	166000.00	1043.10	1063.54	1057.57	1066.65	0.001930	14.14	11737.26	635.75	0.58
1	212.84	PF#2	166000.00	1043.10	1063.56	1057.57	1066.66	0.001926	14.13	11745.09	635.75	0.58
1	212.74	PF#1	166000.00	1041.60	1063.06	1055.53	1065.57	0.001465	12.71	13064.60	721.72	0.51
1	212.74	PF#2	166000.00	1041.60	1063.08	1055.53	1065.58	0.001462	12.70	13074.10	676.59	0.51
1	212.68	PF#1	166000.00	1036.90	1063.02	1052.69	1065.16	0.001030	11.74	14139.91	629.02	0.44
1	212.68	PF#2	166000.00	1036.90	1063.04	1052.69	1065.17	0.001028	11.73	14148.66	629.03	0.44
1	212.675		Bridge									
1	212.67	PF#1	166000.00	1036.90	1062.53	1052.69	1064.77	0.001102	12.00	13830.37	626.50	0.45
1	212.67	PF#2	166000.00	1036.90	1062.54	1052.69	1064.77	0.001101	12.00	13834.12	626.51	0.45
1	212.56	PF#1	166000.00	1039.30	1056.87	1055.74	1063.23	0.004887	20.23	8207.39	521.49	0.90
1	212.56	PF#2	166000.00	1039.30	1056.98	1055.74	1063.25	0.004781	20.09	8263.99	521.09	0.89
1	212.46	PF#1	166000.00	1037.20	1056.23	1052.77	1060.78	0.003034	17.11	9703.67	1555.15	0.72
1	212.46	PF#2	166000.00	1037.20	1056.29	1052.77	1060.80	0.003114	17.05	9738.10	557.66	0.72

HEC-RAS Plan: DupEff River: 1 Reach: 1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
1	212.37	PF#1	166000.00	1036.60	1053.09	1051.73	1058.81	0.004658	19.19	8651.10	573.58	0.87
1	212.37	PF#2	166000.00	1036.60	1053.10	1051.73	1058.81	0.004647	19.17	8657.61	573.63	0.87
1	212.27	PF#1	166000.00	1035.10	1050.68	1049.57	1056.35	0.005222	19.10	8689.03	2801.44	0.89
1	212.27	PF#2	166000.00	1035.10	1050.71	1049.57	1056.36	0.005192	19.07	8704.85	605.70	0.89
1	212.18	PF#1	166000.00	1030.80	1050.27	1045.89	1053.95	0.002685	15.41	10771.28	2341.16	0.66
1	212.18	PF#2	166000.00	1030.80	1050.30	1045.89	1053.97	0.002669	15.38	10791.50	627.68	0.65
1	212.08	PF#1	166000.00	1025.90	1050.06	1041.45	1052.68	0.001412	12.99	12782.71	2180.90	0.49
1	212.08	PF#2	166000.00	1025.90	1050.09	1041.45	1052.70	0.001405	12.97	12803.52	589.77	0.49
1	211.99	PF#1	166000.00	1025.39	1048.57	1041.17	1051.79	0.001817	14.39	11535.15	1310.55	0.55
1	211.99	PF#2	166000.00	1025.39	1048.62	1041.17	1051.82	0.001806	14.36	11560.38	549.74	0.55
1	211.89	PF#1	166000.00	1024.19	1047.95	1039.97	1050.86	0.001595	13.69	12125.97	564.78	0.52
1	211.89	PF#2	166000.00	1024.19	1048.01	1039.97	1050.90	0.001583	13.66	12154.99	564.94	0.52
1	211.79	PF#1	166000.00	1023.84	1047.10	1039.26	1050.02	0.001613	13.71	12111.00	1186.74	0.52
1	211.79	PF#2	166000.00	1023.84	1047.16	1039.26	1050.06	0.001599	13.67	12145.65	567.77	0.52
1	211.71	PF#1	166000.00	1023.19	1046.38	1038.56	1049.29	0.001615	13.70	12118.89	637.47	0.52
1	211.71	PF#2	166000.00	1023.19	1046.45	1038.56	1049.34	0.001599	13.65	12158.51	569.33	0.52
1	211.64	PF#1	166000.00	1022.58	1045.49	1038.24	1048.61	0.001773	14.16	11720.96	835.81	0.55
1	211.64	PF#2	166000.00	1022.58	1045.57	1038.24	1048.66	0.001751	14.11	11767.87	562.02	0.54
1	211.54	PF#1	166000.00	1021.90	1043.53	1038.07	1047.48	0.002272	15.95	10410.75	525.50	0.63
1	211.54	PF#2	166000.00	1021.90	1043.66	1038.07	1047.56	0.002226	15.84	10478.70	525.86	0.63
1	211.525		Bridge									
1	211.51	PF#1	166000.00	1021.80	1041.88	1037.98	1046.51	0.002923	17.26	9616.05	521.31	0.71
1	211.51	PF#2	166000.00	1021.80	1042.12	1037.98	1046.63	0.002807	17.05	9738.69	521.98	0.70
1	211.41	PF#1	166000.00	1018.30	1041.42		1044.81	0.001948	14.79	11221.50	565.86	0.59
1	211.41	PF#2	166000.00	1018.30	1041.69		1044.99	0.001869	14.59	11375.19	567.44	0.57
1	211.31	PF#1	166000.00	1020.80	1040.20	1037.24	1043.59	0.003137	14.78	11234.25	821.06	0.70
1	211.31	PF#2	166000.00	1020.80	1040.63	1037.24	1043.81	0.002845	14.33	11585.76	823.96	0.67
1	211.21	PF#1	166000.00	1021.10	1039.45	1035.55	1041.89	0.002343	12.54	13237.48	989.51	0.60
1	211.21	PF#2	166000.00	1021.10	1040.04	1035.55	1042.28	0.002037	12.01	13818.43	991.82	0.57
1	211.12	PF#1	166000.00	1015.70	1039.87	1029.88	1040.93	0.000644	8.29	20026.95	1060.56	0.34
1	211.12	PF#2	166000.00	1015.70	1040.41	1029.88	1041.42	0.000587	8.06	20608.32	1081.14	0.32
1	211.02	PF#1	166000.00	1019.40	1038.44	1032.11	1040.38	0.001433	11.22	15256.11	1310.75	0.49
1	211.02	PF#2	166000.00	1019.40	1039.06	1032.12	1040.91	0.001298	10.92	15277.02	1005.42	0.47
1	210.93	PF#1	166000.00	1018.70	1038.11	1034.18	1039.54	0.001361	10.24	19460.52	2668.95	0.47
1	210.93	PF#2	166000.00	1018.70	1038.16	1033.38	1040.16	0.001720	11.53	15120.02	1173.11	0.53
1	210.83	PF#1	166000.00	1019.10	1037.40	1032.21	1038.86	0.001318	10.23	19536.87	2260.41	0.46
1	210.83	PF#2	166000.00	1019.10	1037.36	1031.99	1039.30	0.001616	11.31	15485.58	1303.30	0.51
1	210.74	PF#1	166000.00	1018.20	1036.90	1029.79	1038.25	0.001002	9.51	19824.06	2325.61	0.41
1	210.74	PF#2	166000.00	1018.20	1037.01	1029.51	1038.51	0.001066	9.85	17018.50	1365.70	0.42
1	210.64	PF#1	166000.00	1017.70	1036.64	1029.00	1037.70	0.000835	8.61	22697.83	2997.54	0.37
1	210.64	PF#2	166000.00	1017.70	1036.65	1029.00	1037.94	0.000956	9.21	19007.99	1479.19	0.40
1	210.55	PF#1	166000.00	1018.00	1035.92	1028.55	1037.21	0.001015	9.17	19327.74	2363.76	0.41
1	210.55	PF#2	166000.00	1018.00	1036.18	1028.55	1037.43	0.000970	9.04	19351.21	1743.43	0.40
1	210.46	PF#1	166000.00	1016.30	1036.30	1025.05	1036.70	0.000315	5.06	32809.68	2068.39	0.21
1	210.46	PF#2	166000.00	1016.30	1036.55	1025.05	1036.94	0.000304	4.99	33290.61	1905.27	0.21
1	210.36	PF#1	166000.00	1017.40	1035.87	1027.55	1036.46	0.000542	6.21	26745.71	1908.19	0.29
1	210.36	PF#2	166000.00	1017.40	1036.14	1027.55	1036.72	0.000509	6.09	27269.74	1909.31	0.28
1	210.26	PF#1	166000.00	1016.90	1035.68	1026.47	1036.19	0.000463	5.72	29013.43	1943.97	0.26
1	210.26	PF#2	166000.00	1016.90	1035.97	1026.47	1036.46	0.000435	5.61	29570.83	1945.53	0.25
1	210.17	PF#1	166000.00	1014.70	1035.29	1027.95	1035.91	0.000609	6.31	26319.87	2187.11	0.30

HEC-RAS Plan: DupEff River: 1 Reach: 1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
1	210.17	PF#2	166000.00	1014.70	1035.61	1027.95	1036.20	0.000565	6.16	26940.91	1975.40	0.29
1	210.07	PF#1	166000.00	1018.70	1035.08	1026.32	1035.59	0.000543	5.78	29128.99	2347.69	0.26
1	210.07	PF#2	166000.00	1018.70	1035.40	1026.28	1035.90	0.000526	5.74	29207.43	2015.00	0.26
1	209.98	PF#1	166000.00	998.62	1035.11	1019.92	1035.39	0.000164	4.32	39949.28	2495.85	0.17
1	209.98	PF#2	166000.00	998.62	1035.39	1019.88	1035.70	0.000177	4.49	36985.45	1842.97	0.18
1	209.88	PF#1	166000.00	997.42	1034.93	1018.36	1035.29	0.000201	4.89	34725.63	1828.99	0.20
1	209.88	PF#2	166000.00	997.42	1035.19	1018.32	1035.60	0.000216	5.10	32558.83	1650.94	0.20
1	209.79	PF#1	166000.00	1003.93	1034.85	1019.46	1035.18	0.000207	4.68	35815.89	2274.68	0.19
1	209.79	PF#2	166000.00	1003.93	1035.09	1019.65	1035.48	0.000234	4.97	33396.39	1686.12	0.20
1	209.69	PF#1	166000.00	1004.96	1034.41	1021.44	1035.00	0.000504	6.17	26927.41	2254.04	0.28
1	209.69	PF#2	166000.00	1004.96	1034.58	1021.87	1035.27	0.000612	6.67	24896.48	1666.72	0.30
1	209.6	PF#1	166000.00	1003.48	1034.21	1022.79	1034.75	0.000344	6.21	28592.34	2390.29	0.25
1	209.6	PF#2	166000.00	1003.48	1034.26	1023.22	1034.98	0.000430	6.96	24606.78	1328.11	0.28
1	209.54	PF#1	166000.00	1005.00	1032.94	1026.10	1034.51	0.000808	12.15	18920.65	1093.87	0.41
1	209.54	PF#2	166000.00	1005.00	1033.17	1026.10	1034.73	0.000796	12.13	18832.48	1050.00	0.40
1	209.535		Bridge									
1	209.53	PF#1	166000.00	1005.00	1032.62	1026.09	1034.25	0.000855	12.41	18565.73	1093.87	0.42
1	209.53	PF#2	166000.00	1005.00	1032.84	1026.10	1034.48	0.000840	12.37	18495.38	1050.00	0.41
1	209.42	PF#1	166000.00	1003.87	1032.51	1024.61	1033.34	0.000757	7.34	22651.20	3449.86	0.35
1	209.42	PF#2	166000.00	1003.87	1032.77	1024.61	1033.57	0.000713	7.20	23049.24	1636.60	0.34
1	209.33	PF#1	166000.00	996.31	1032.38	1021.18	1032.99	0.000445	6.32	26675.06	6734.89	0.27
1	209.33	PF#2	166000.00	996.31	1032.63	1021.18	1033.24	0.000432	6.26	26537.57	1585.47	0.27
1	209.24	PF#1	166000.00	1008.90	1031.35	1026.11	1032.58	0.001239	9.36	20160.96	3668.36	0.44
1	209.24	PF#2	166000.00	1008.90	1031.34	1026.15	1032.80	0.001403	9.95	18055.99	1637.72	0.47
1	209.14	PF#1	166000.00	1010.60	1030.69	1025.89	1031.94	0.001275	9.50	20412.75	3553.73	0.45
1	209.14	PF#2	166000.00	1010.60	1030.60	1026.05	1032.06	0.001458	10.11	18577.89	1899.79	0.48
1	209.04	PF#1	166000.00	1012.20	1030.45	1023.93	1031.32	0.000816	8.02	24080.08	4633.32	0.37
1	209.04	PF#2	166000.00	1012.20	1030.39	1023.99	1031.35	0.000885	8.33	22691.72	1980.00	0.38
1	208.95	PF#1	166000.00	1013.80	1027.37	1027.01	1030.35	0.003774	14.37	13413.33	3710.50	0.77
1	208.95	PF#2	166000.00	1013.80	1027.38	1027.00	1030.36	0.003762	14.35	13433.12	2058.96	0.77
1	208.85	PF#1	166000.00	1013.40	1027.11	1024.13	1028.51	0.002038	9.75	17958.04	3049.03	0.54
1	208.85	PF#2	166000.00	1013.40	1027.11	1024.11	1028.51	0.002037	9.75	17971.29	1945.66	0.54
1	208.75	PF#1	166000.00	1005.20	1026.41	1021.31	1027.61	0.001289	8.80	18870.67	2854.08	0.44
1	208.75	PF#2	166000.00	1005.20	1026.42	1021.31	1027.62	0.001294	8.79	18880.31	1548.90	0.44
1	208.67	PF#1	166000.00	1007.60	1025.63	1021.02	1026.96	0.001614	9.25	17964.56	3257.49	0.48
1	208.67	PF#2	166000.00	1007.60	1025.64	1021.02	1026.97	0.001615	9.25	17944.12	1585.22	0.48
1	208.57	PF#1	166000.00	1007.60	1021.05	1021.05	1025.15	0.007401	16.25	10216.43	1588.16	1.00
1	208.57	PF#2	166000.00	1007.60	1021.05	1021.05	1025.15	0.007440	16.25	10216.43	1241.44	1.00
1	208.48	PF#1	166000.00	1007.60	1021.36	1017.86	1022.45	0.001742	8.36	19846.45	2170.30	0.49
1	208.48	PF#2	166000.00	1007.60	1021.38	1017.86	1022.46	0.001731	8.35	19884.46	2170.30	0.49
1	208.39	PF#1	166000.00	1005.60	1020.44	1017.33	1021.56	0.002009	8.49	19556.29	2917.06	0.51
1	208.39	PF#2	166000.00	1005.60	1020.47	1017.33	1021.58	0.001987	8.46	19622.28	2285.85	0.51
1	208.29	PF#1	166000.00	1004.70	1019.52	1016.25	1020.55	0.001814	8.14	20401.30	2550.03	0.49
1	208.29	PF#2	166000.00	1004.70	1019.57	1016.25	1020.59	0.001783	8.09	20508.57	2381.47	0.49
1	208.19	PF#1	166000.00	1004.70	1018.79	1014.91	1019.66	0.001564	7.49	22151.56	2675.20	0.46
1	208.19	PF#2	166000.00	1004.70	1018.85	1014.91	1019.71	0.001524	7.44	22325.38	2664.02	0.45
1	208.1	PF#1	166000.00	1001.40	1018.03	1014.27	1018.84	0.001569	7.22	22976.38	3169.18	0.46
1	208.1	PF#2	166000.00	1001.40	1018.12	1014.27	1018.91	0.001506	7.14	23258.76	2944.81	0.45
1	207.99	PF#1	166000.00	999.90	1016.92	1013.04	1017.87	0.001846	7.82	21224.66	3550.63	0.49
1	207.99	PF#2	166000.00	999.90	1017.08	1013.04	1018.00	0.001749	7.66	21661.21	2749.34	0.48

HEC-RAS Plan: DupEff River: 1 Reach: 1 (Continued)

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
1	207.9	PF#1	166000.00	1000.80	1016.38	1012.13	1017.07	0.001248	6.69	24842.12	3677.94	0.41
1	207.9	PF#2	166000.00	1000.80	1016.58	1012.13	1017.24	0.001158	6.53	25415.12	3016.31	0.40
1	207.8	PF#1	166000.00	999.10	1015.41	1011.92	1016.32	0.001667	7.69	21970.15	4717.03	0.47
1	207.8	PF#2	166000.00	999.10	1015.66	1011.92	1016.54	0.001544	7.53	22032.87	2617.43	0.46
1	207.71	PF#1	166000.00	1000.30	1014.41	1011.60	1015.43	0.001884	8.24	20770.72	3875.76	0.50
1	207.71	PF#2	166000.00	1000.30	1014.58	1011.48	1015.67	0.001904	8.39	19789.24	2344.11	0.51
1	207.62	PF#1	166000.00	1000.20	1012.76	1010.44	1014.28	0.002780	9.99	17277.21	4261.97	0.61
1	207.62	PF#2	166000.00	1000.20	1012.98	1010.38	1014.53	0.002696	10.01	16602.68	1962.23	0.61
1	207.53	PF#1	166000.00	999.10	1012.09	1008.07	1013.25	0.001487	8.78	19697.37	4480.19	0.47
1	207.53	PF#2	166000.00	999.10	1012.25	1007.97	1013.51	0.001553	9.01	18428.21	1672.10	0.48
1	207.49	PF#1	166000.00	992.20	1012.07	1004.75	1012.92	0.000745	7.40	22425.83	3807.67	0.35
1	207.49	PF#2	166000.00	992.20	1012.33	1004.75	1013.15	0.000702	7.27	22830.88	1579.37	0.34
1	207.485		Bridge									
1	207.48	PF#1	166000.00	992.20	1011.97	1004.75	1012.83	0.000763	7.46	22259.18	3764.82	0.35
1	207.48	PF#2	166000.00	992.20	1012.22	1004.75	1013.05	0.000720	7.33	22660.16	1578.87	0.34
1	207.43	PF#1	166000.00	999.00	1010.99	1007.63	1012.48	0.002056	9.80	16943.05	3420.35	0.54
1	207.43	PF#2	166000.00	999.00	1011.34	1007.63	1012.73	0.001848	9.47	17535.23	1686.77	0.52
1	207.34	PF#1	166000.00	995.90	1009.51	1006.72	1011.35	0.002647	10.88	15262.63	3294.41	0.61
1	207.34	PF#2	166000.00	995.90	1010.15	1006.72	1011.77	0.002156	10.21	16265.80	1568.77	0.56
1	207.27	PF#1	166000.00	993.30	1008.39	1006.08	1010.28	0.002803	10.35	15197.74	2021.75	0.62
1	207.27	PF#2	166000.00	993.30	1009.39	1006.07	1010.93	0.002031	9.44	16777.84	1617.90	0.54
1	207.16	PF#1	166000.00	992.70	1007.63	1004.57	1008.85	0.001702	9.42	19339.72	2937.65	0.50
1	207.16	PF#2	166000.00	992.70	1008.33	1005.08	1009.81	0.001825	10.16	17450.59	1734.50	0.52
1	207.07	PF#1	166000.00	992.80	1004.30	1004.30	1007.37	0.005272	15.04	12709.44	2121.27	0.86
1	207.07	PF#2	166000.00	992.80	1004.74	1004.74	1008.25	0.005422	15.68	11728.65	1710.74	0.88
1	206.97	PF#1	166000.00	981.70	1003.73	995.22	1004.80	0.000773	8.53	21352.60	2153.01	0.36
1	206.97	PF#2	166000.00	981.70	1004.63	995.22	1005.77	0.000760	8.62	19950.52	1567.64	0.36
1	206.88	PF#1	166000.00	981.80	1003.59	993.27	1004.41	0.000528	7.55	24354.50	2551.40	0.31
1	206.88	PF#2	166000.00	981.80	1004.48	993.27	1005.39	0.000533	7.71	22622.29	1800.86	0.31
1	206.79	PF#1	166000.00	981.80	1003.43	992.85	1004.13	0.000488	6.93	26343.78	3026.51	0.29
1	206.79	PF#2	166000.00	981.80	1004.34	992.85	1005.10	0.000478	7.08	24760.10	1934.31	0.29
1	206.7	PF#1	166000.00	981.80	1003.32	994.04	1003.85	0.000441	6.03	29831.77	3518.68	0.27
1	206.7	PF#2	166000.00	981.80	1004.25	994.04	1004.82	0.000429	6.14	27986.52	2093.13	0.27
1	206.6	PF#1	166000.00	981.80	1002.90	996.86	1003.56	0.000710	6.91	26877.21	3305.80	0.33
1	206.6	PF#2	166000.00	981.80	1003.79	996.68	1004.54	0.000695	7.14	24927.56	2185.35	0.33
1	206.51	PF#1	166000.00	981.80	1002.02	998.52	1003.04	0.001348	8.99	22111.25	4076.37	0.45
1	206.51	PF#2	166000.00	981.80	1002.84	999.19	1004.02	0.001341	9.36	20116.29	2060.75	0.46
1	206.41	PF#1	166000.00	982.50	1001.41	997.88	1002.32	0.001436	8.71	23370.94	3862.05	0.46
1	206.41	PF#2	166000.00	982.50	1002.21	998.36	1003.30	0.001435	9.12	20569.79	2190.50	0.47
1	206.32	PF#1	166000.00	982.80	1000.76	997.04	1001.56	0.001495	8.05	24553.57	3961.10	0.46
1	206.32	PF#2	166000.00	982.80	1001.56	997.90	1002.55	0.001498	8.50	21191.37	2377.93	0.47
1	206.22	PF#1	166000.00	983.00	999.83	996.54	1000.70	0.001855	8.54	24922.30	3819.75	0.52
1	206.22	PF#2	166000.00	983.00	1000.69	996.71	1001.72	0.001734	8.70	21236.13	2441.77	0.51
1	206.13	PF#1	166000.00	984.60	998.84		999.71	0.002097	8.44	24241.50	3610.69	0.52
1	206.13	PF#2	166000.00	984.60	999.43		1000.66	0.002539	9.44	19323.79	2386.31	0.57
1	206.03	PF#1	166000.00	984.50	997.19	995.40	998.47	0.002920	10.04	20468.71	3627.33	0.61
1	206.03	PF#2	166000.00	984.50	997.37	995.41	999.15	0.003548	11.22	16111.43	2131.13	0.67
1	205.94	PF#1	166000.00	981.00	996.28	992.36	997.17	0.001782	8.09	23804.66	3972.87	0.48
1	205.94	PF#2	166000.00	981.00	996.85	992.30	997.71	0.001519	7.77	22932.78	2567.00	0.45

HEC-RAS Plan: DupEff River: 1 Reach: 1 (Continued)

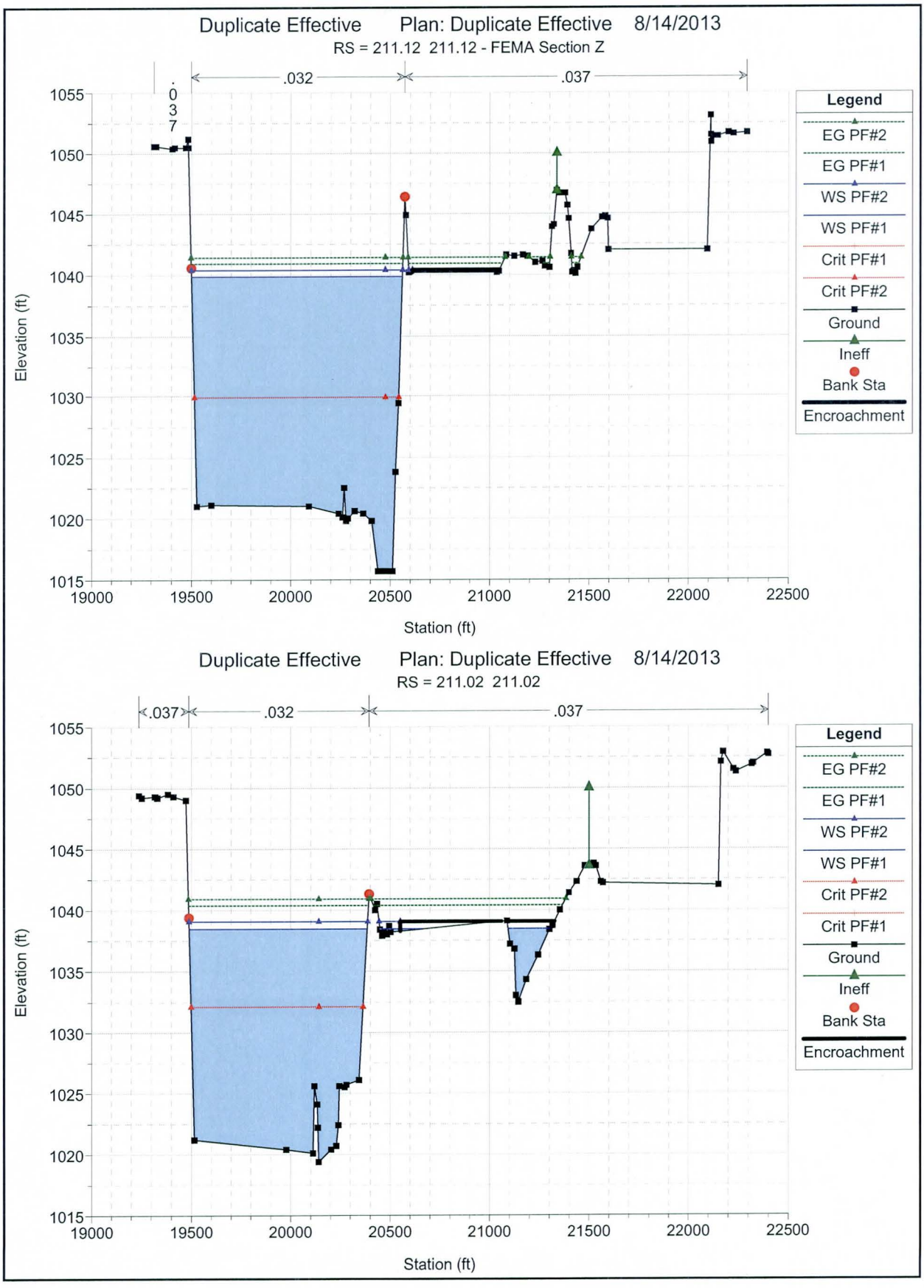
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
1	205.84	PF#1	166000.00	979.50	995.78	991.10	996.43	0.001006	6.80	27802.52	3933.88	0.38
1	205.84	PF#2	166000.00	979.50	996.39	991.10	997.06	0.000928	6.78	25657.05	2435.70	0.36
1	205.75	PF#1	166000.00	973.90	995.10	989.59	995.78	0.001766	6.71	25677.68	3323.85	0.37
1	205.75	PF#2	166000.00	973.90	995.83	989.59	996.48	0.001497	6.46	25689.44	2402.30	0.35
1	205.62	PF#1	166000.00	976.00	994.55	988.70	995.07	0.000680	5.99	30115.70	4036.31	0.31
1	205.62	PF#2	166000.00	976.00	995.25	988.65	995.85	0.000671	6.18	26878.39	2234.10	0.31
1	205.52	PF#1	166000.00	975.90	994.29	987.07	994.75	0.000496	5.67	33142.23	4244.89	0.28
1	205.52	PF#2	166000.00	975.90	994.95	987.28	995.53	0.000543	6.12	27121.18	2019.90	0.29
1	205.43	PF#1	166000.00	976.10	994.00	986.93	994.50	0.000544	6.04	31497.11	3841.68	0.29
1	205.43	PF#2	166000.00	976.10	994.53	986.96	995.24	0.000647	6.76	24572.45	1842.37	0.33
1	205.4	PF#1	164000.00	975.50	993.99	984.67	994.40	0.000362	5.41	35918.39	4097.71	0.24
1	205.4	PF#2	164000.00	975.50	994.56	984.67	995.10	0.000413	5.90	27793.38	1747.80	0.26
1	205.34	PF#1	164000.00	975.57	993.64	986.68	994.20	0.001005	6.45	29523.69	7348.85	0.30
1	205.34	PF#2	164000.00	975.57	993.98	986.65	994.85	0.001336	7.53	22084.53	1562.96	0.35
1	205.25	PF#1	164000.00	973.40	993.26	985.26	993.82	0.000623	6.64	30541.15	4512.59	0.28
1	205.25	PF#2	164000.00	973.40	993.49	985.16	994.34	0.000817	7.64	22668.13	1482.30	0.32
1	205.15	PF#1	164000.00	973.10	991.76	987.66	993.21	0.002039	10.40	19449.29	3049.28	0.49
1	205.15	PF#2	164000.00	973.10	992.25	987.65	993.69	0.001819	10.06	17454.60	1445.00	0.47
1	205.06	PF#1	164000.00	970.50	990.85	984.95	992.22	0.001875	9.62	18539.88	2210.68	0.47
1	205.06	PF#2	164000.00	970.50	991.36	984.95	992.79	0.001795	9.65	17328.48	1435.30	0.46
1	204.97	PF#1	164000.00	973.30	990.56	984.97	991.30	0.001134	7.35	24819.05	3736.09	0.36
1	204.97	PF#2	164000.00	973.30	990.76	985.05	991.87	0.001485	8.49	19457.05	1516.30	0.42
1	204.87	PF#1	164000.00	968.10	990.19	982.94	990.80	0.000767	6.60	27860.69	3635.74	0.31
1	204.87	PF#2	164000.00	968.10	990.37	982.85	991.20	0.000942	7.37	22409.55	1542.20	0.34
1	204.78	PF#1	164000.00	967.60	990.01	980.93	990.45	0.000477	5.68	31874.88	4837.51	0.25
1	204.78	PF#2	164000.00	967.60	990.13	980.78	990.77	0.000611	6.47	25928.85	1620.43	0.28
1	204.68	PF#1	164000.00	971.40	989.36	982.91	990.10	0.000903	7.28	24862.56	3375.81	0.33
1	204.68	PF#2	164000.00	971.40	989.32	982.81	990.31	0.001151	8.21	21000.50	1586.28	0.38
1	204.61	PF#1	164000.00	972.60	988.59	983.53	989.64	0.001360	8.79	20900.84	7282.60	0.41
1	204.61	PF#2	164000.00	972.60	988.62	983.47	989.78	0.001462	9.12	19542.28	1602.90	0.42
1	204.53	PF#1	164000.00	972.70	987.68	982.99	988.93	0.001814	9.22	18844.19	4061.16	0.46
1	204.53	PF#2	164000.00	972.70	987.68	982.94	989.03	0.001919	9.48	18005.97	1610.90	0.47
1	204.42	PF#1	164000.00	971.40	986.40	982.76	987.76	0.002432	9.40	17715.45	2778.70	0.51
1	204.42	PF#2	164000.00	971.40	986.38	982.73	987.81	0.002531	9.57	17129.48	1653.57	0.52
1	204.34	PF#1	164000.00	969.30	985.28	981.45	986.65	0.002470	9.39	17462.96	2452.20	0.52
1	204.34	PF#2	164000.00	969.30	985.29	981.45	986.66	0.002469	9.38	17480.30	1701.99	0.52
1	204.25	PF#1	164000.00	969.22	980.90	980.90	984.46	0.007742	15.13	10836.44	1993.93	1.00
1	204.25	PF#2	164000.00	969.22	980.89	980.89	984.46	0.007809	15.17	10810.89	1516.99	1.00
1	204.15	PF#1	164000.00	966.00	981.17	975.82	982.09	0.001058	7.72	21240.76	2149.48	0.40
1	204.15	PF#2	164000.00	966.00	981.18	975.82	982.11	0.001059	7.71	21274.63	1831.89	0.40
1	204.05	PF#1	164000.00	965.00	980.27	976.80	981.39	0.001759	8.49	19320.37	2116.76	0.50
1	204.05	PF#2	164000.00	965.00	980.29	976.80	981.41	0.001744	8.47	19370.37	2116.76	0.49
1	203.96	PF#1	164000.00	964.10	977.71	976.71	979.86	0.005220	11.77	13938.65	2225.53	0.80
1	203.96	PF#2	164000.00	964.10	977.98	976.71	979.97	0.004601	11.33	14478.25	2050.76	0.75
1	203.86	PF#1	164000.00	962.30	977.81	971.84	978.53	0.000902	6.82	24032.73	2201.58	0.36
1	203.86	PF#2	164000.00	962.30	978.06	971.84	978.75	0.000838	6.67	24588.83	2191.78	0.35
1	203.77	PF#1	164000.00	963.30	977.43	971.58	978.06	0.000873	6.37	25746.39	2518.56	0.35
1	203.77	PF#2	164000.00	963.30	977.72	971.58	978.32	0.000799	6.19	26473.99	2511.27	0.34
1	203.67	PF#1	164000.00	962.30	976.93	971.58	977.61	0.000940	6.66	25646.21	3648.91	0.37
1	203.67	PF#2	164000.00	962.30	977.23	971.58	977.89	0.000885	6.58	25407.91	2567.43	0.36

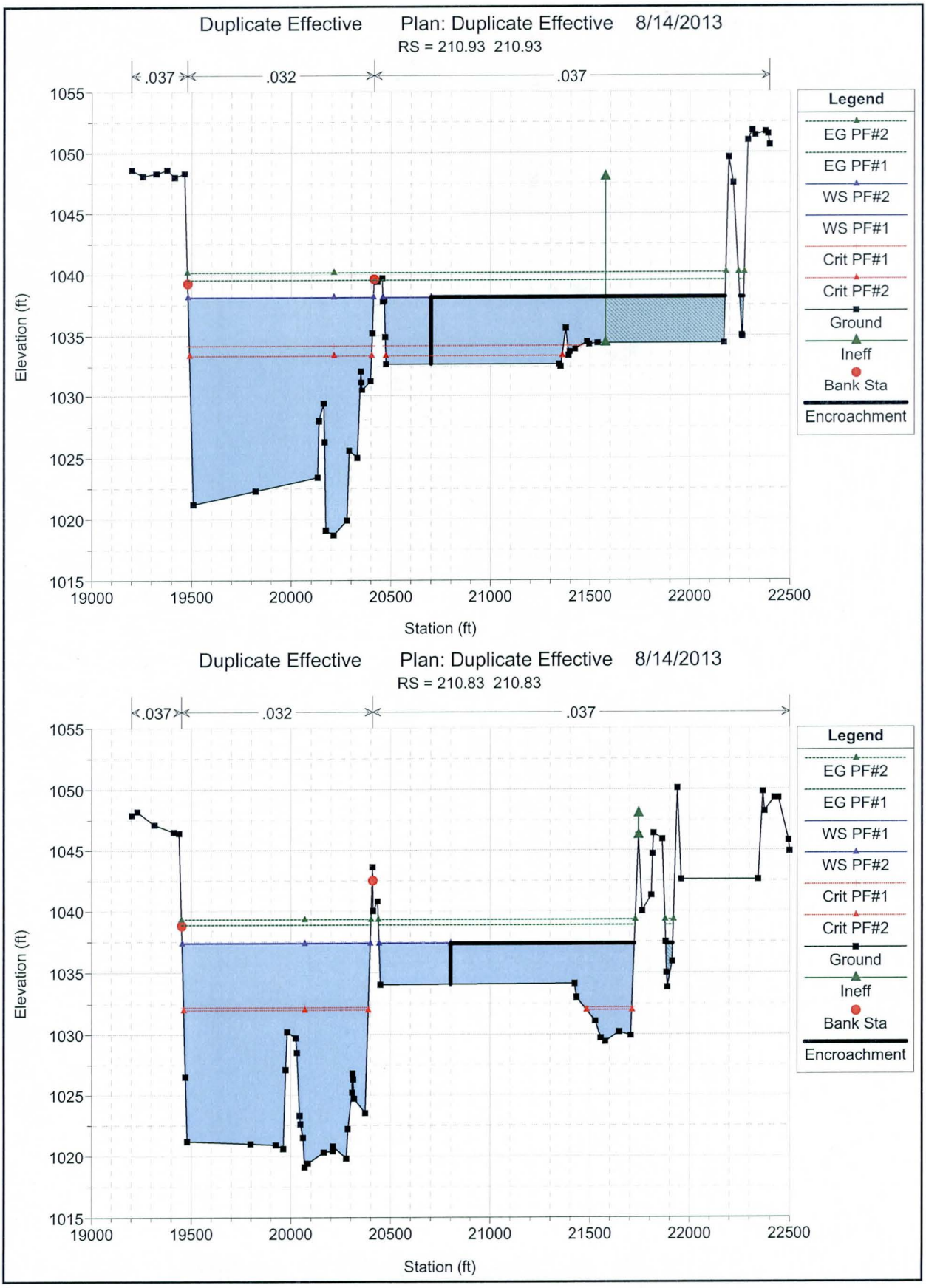
HEC-RAS Plan: DupEff River: 1 Reach: 1 (Continued)

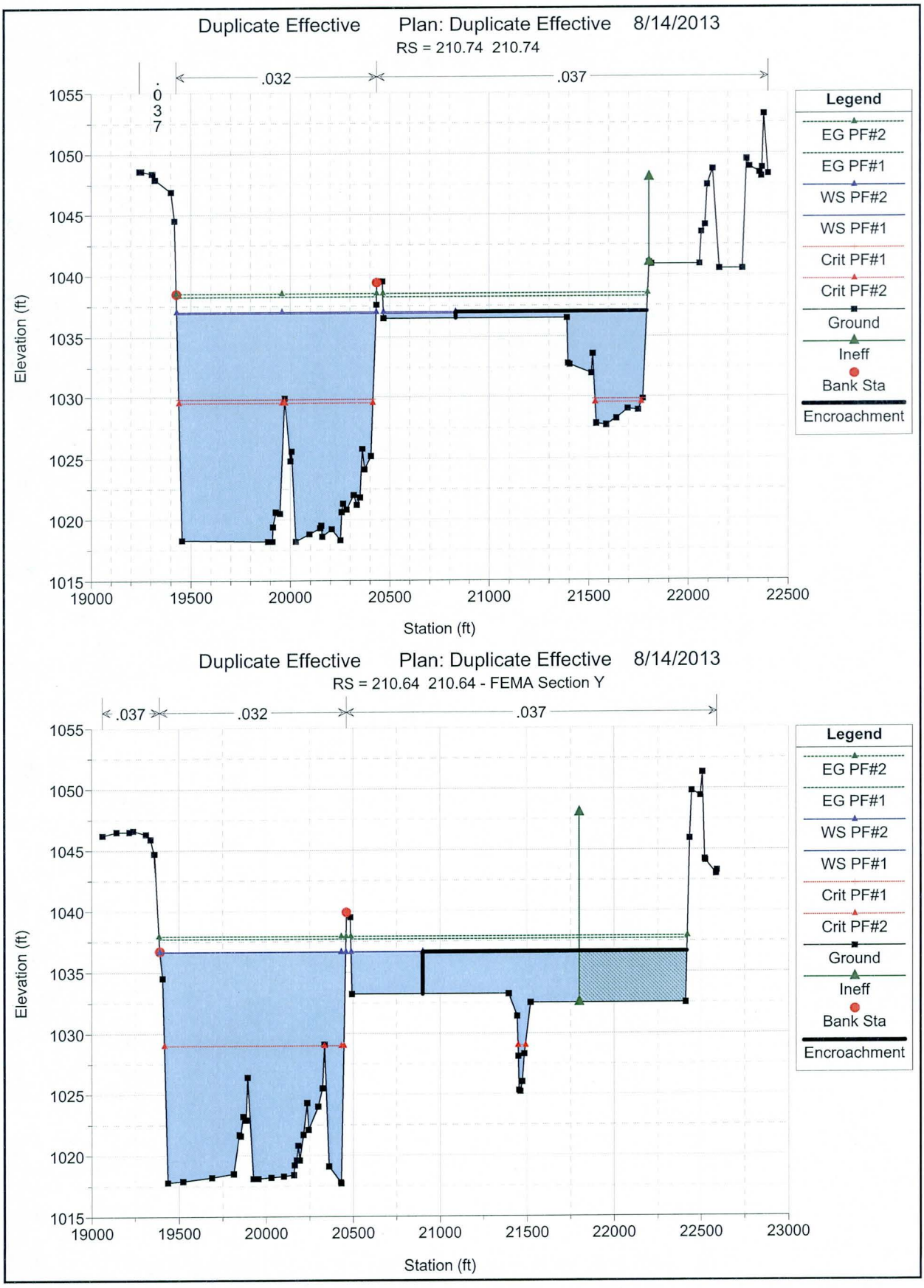
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
1	203.58	PF#1	164000.00	962.10	976.47	971.52	977.14	0.000945	6.64	25340.30	4630.96	0.37
1	203.58	PF#2	164000.00	962.10	976.81	971.52	977.46	0.000858	6.46	25597.65	2676.39	0.36
1	203.48	PF#1	164000.00	962.20	975.92	972.02	976.58	0.001248	6.66	25618.08	4863.77	0.41
1	203.48	PF#2	164000.00	962.20	976.25	971.97	976.94	0.001196	6.68	24567.80	2911.71	0.40
1	203.39	PF#1	164000.00	959.90	975.23	971.15	975.93	0.001331	6.81	24862.43	4207.76	0.42
1	203.39	PF#2	164000.00	959.90	975.62	971.10	976.32	0.001254	6.69	24520.14	2930.05	0.41
1	203.29	PF#1	164000.00	960.70	974.46	970.77	975.20	0.001572	6.98	24302.16	4967.77	0.45
1	203.29	PF#2	164000.00	960.70	974.88	970.71	975.63	0.001478	6.94	23633.34	3009.26	0.44
1	203.19	PF#1	164000.00	956.70	973.59	970.04	974.28	0.001787	6.81	25046.62	3491.38	0.42
1	203.19	PF#2	164000.00	956.70	973.95	970.04	974.74	0.001849	7.13	23041.46	2689.14	0.43
1	203.09	PF#1	164000.00	958.70	972.42	969.19	973.25	0.002112	7.51	23337.60	3213.89	0.46
1	203.09	PF#2	164000.00	958.70	972.75	968.97	973.69	0.002162	7.79	21163.56	2475.85	0.46
1	202.99	PF#1	164000.00	959.20	971.50	967.56	972.24	0.001726	7.08	24615.47	3260.60	0.42
1	202.99	PF#2	164000.00	959.20	971.87	967.53	972.66	0.001673	7.15	22949.27	2457.50	0.41
1	202.9	PF#1	164000.00	956.50	970.92	966.33	971.52	0.001285	6.37	27288.47	3419.52	0.36
1	202.9	PF#2	164000.00	956.50	971.28	966.26	971.95	0.001315	6.59	24881.66	2511.71	0.37
1	202.8	PF#1	164000.00	956.40	970.32	965.61	970.84	0.001157	5.94	29050.37	3577.40	0.34
1	202.8	PF#2	164000.00	956.40	970.64	965.52	971.25	0.001223	6.25	26258.33	2620.78	0.35
1	202.69	PF#1	164000.00	953.70	969.50	965.26	970.12	0.001416	6.45	27011.89	3716.99	0.37
1	202.69	PF#2	164000.00	953.70	969.79	965.27	970.49	0.001483	6.73	24379.59	2553.41	0.38
1	202.59	PF#1	164000.00	953.70	968.55	964.73	969.23	0.001710	6.76	25201.38	3795.64	0.40
1	202.59	PF#2	164000.00	953.70	968.77	964.70	969.56	0.001832	7.10	23099.83	2606.65	0.42
1	202.48	PF#1	164000.00	952.50	967.66	963.72	968.30	0.001617	6.64	26503.22	3830.22	0.40
1	202.48	PF#2	164000.00	952.50	967.77	963.79	968.54	0.001789	7.04	23415.23	2826.14	0.42
1	202.37	PF#1	164000.00	954.60	966.79	962.77	967.38	0.001487	6.30	27725.82	4026.46	0.39
1	202.37	PF#2	164000.00	954.60	966.82	963.06	967.52	0.001673	6.70	24843.07	3165.40	0.41
1	202.29	PF#1	164000.00	955.50	966.51	961.30	966.88	0.000809	4.90	34227.32	4327.50	0.29
1	202.29	PF#2	164000.00	955.50	966.59	961.30	966.97	0.000812	4.93	33283.39	3605.60	0.29
1	202.18	PF#1	164000.00	950.00	965.70	961.75	966.23	0.001545	5.88	28639.20	4356.13	0.38
1	202.18	PF#2	164000.00	950.00	965.77	961.75	966.31	0.001559	5.94	27619.54	3692.06	0.38
1	202.09	PF#1	164000.00	950.00	964.09	961.98	965.01	0.003848	7.74	21594.75	4052.05	0.57
1	202.09	PF#2	164000.00	950.00	964.16	961.95	965.09	0.003803	7.75	21163.39	3682.20	0.57
1	201.99	PF#1	164000.00	948.70	963.29	958.65	963.87	0.001252	6.13	27234.15	5331.46	0.38
1	201.99	PF#2	164000.00	948.70	963.38	958.65	963.96	0.001241	6.12	26811.01	3219.77	0.37
1	201.9	PF#1	164000.00	947.20	962.94	957.27	963.35	0.000785	5.15	31873.70	5241.54	0.31
1	201.9	PF#2	164000.00	947.20	963.05	957.27	963.45	0.000756	5.08	32284.29	3830.97	0.31
1	201.81	PF#1	164000.00	946.00	962.64	955.84	962.99	0.000619	4.79	34251.95	5916.44	0.28
1	201.81	PF#2	164000.00	946.00	962.75	955.84	963.10	0.000597	4.73	34684.20	3650.46	0.27
1	201.71	PF#1	164000.00	946.00	961.87	958.21	962.46	0.001826	6.22	26658.13	8308.19	0.40
1	201.71	PF#2	164000.00	946.00	961.98	958.21	962.58	0.001807	6.24	26277.29	3415.69	0.40
1	201.62	PF#1	164000.00	945.60	961.15	956.72	961.66	0.001385	5.78	28773.37	7614.80	0.35
1	201.62	PF#2	164000.00	945.60	961.28	956.72	961.80	0.001343	5.74	28552.62	3241.81	0.34
1	201.52	PF#1	164000.00	940.90	960.41	955.39	960.87	0.001854	5.50	30263.04	8984.51	0.33
1	201.52	PF#2	164000.00	940.90	960.53	955.39	961.02	0.001898	5.61	29242.62	3382.85	0.34
1	201.43	PF#1	164000.00	941.30	959.46	954.87	960.01	0.001619	5.99	27971.80	6526.99	0.37
1	201.43	PF#2	164000.00	941.30	959.60	954.87	960.15	0.001604	6.00	27334.01	3288.24	0.37
1	201.33	PF#1	164000.00	943.00	958.44	954.88	959.06	0.002024	6.40	26135.11	5745.25	0.41
1	201.33	PF#2	164000.00	943.00	958.60	954.88	959.23	0.001959	6.36	25785.53	3307.45	0.40
1	201.24	PF#1	164000.00	943.00	957.46	953.61	958.06	0.001852	6.23	26885.10	6935.04	0.40
1	201.24	PF#2	164000.00	943.00	957.66	953.61	958.26	0.001790	6.21	26420.07	3500.08	0.40

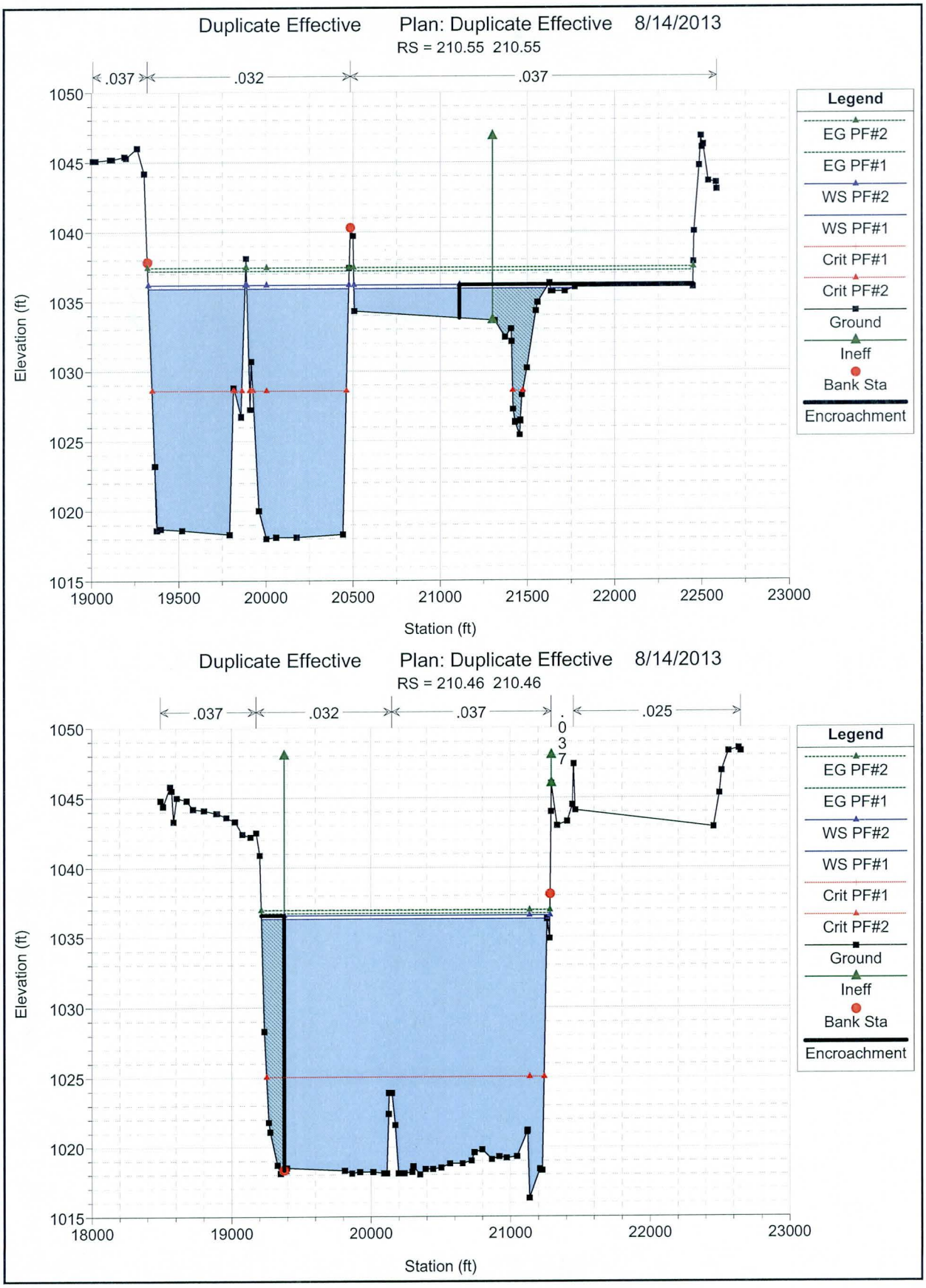
HEC-RAS Plan: DupEff River: 1 Reach: 1 (Continued)

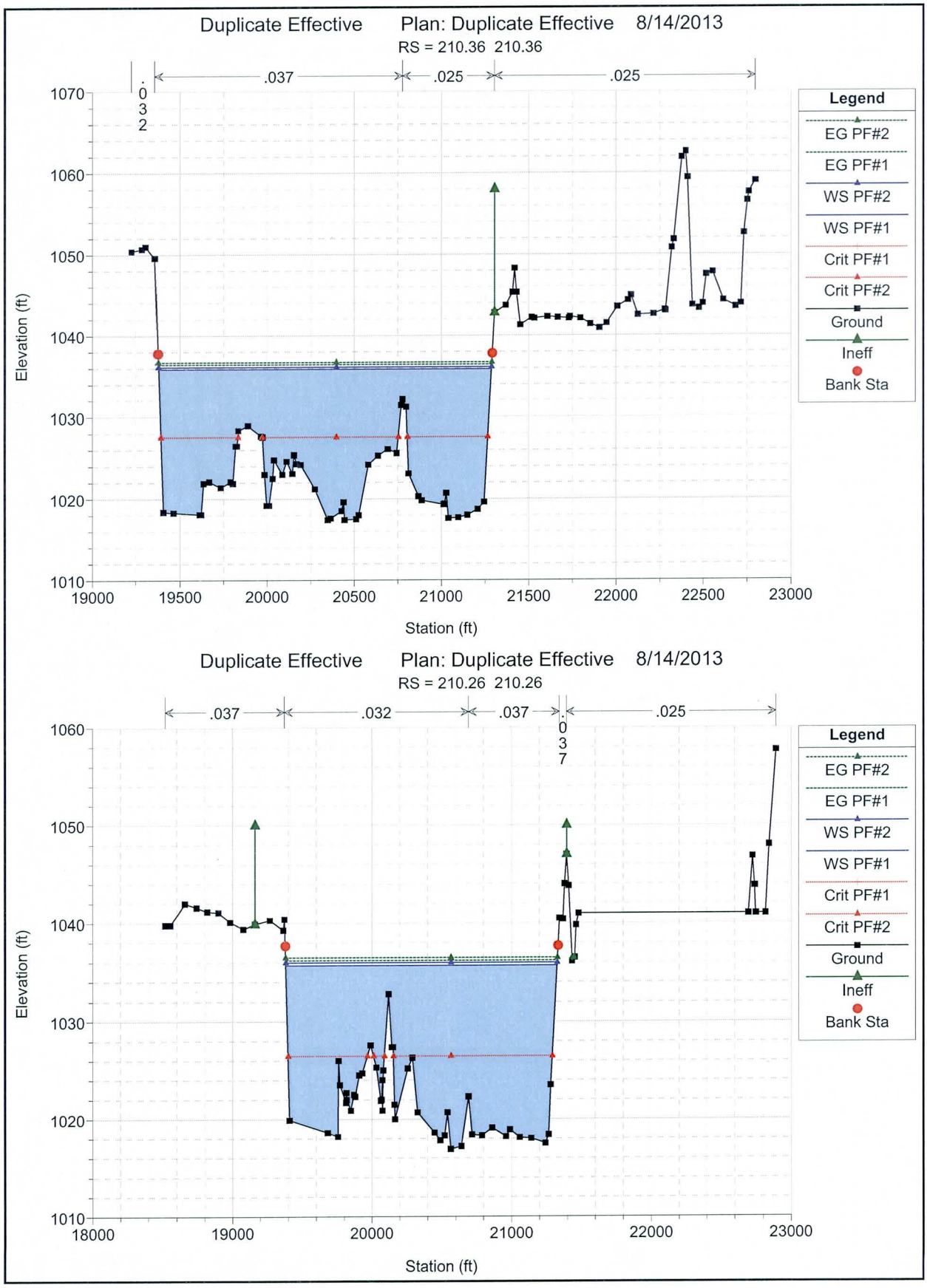
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
1	201.14	PF#1	164000.00	940.40	956.91	952.08	957.32	0.001090	5.20	32069.34	8631.33	0.31
1	201.14	PF#2	164000.00	940.40	957.15	952.08	957.55	0.001017	5.10	32150.13	3680.58	0.30
1	201.05	PF#1	164000.00	941.50	956.49	950.99	956.80	0.000974	4.50	37110.44	9249.94	0.26
1	201.05	PF#2	164000.00	941.50	956.74	950.99	957.06	0.000928	4.48	36618.90	3898.52	0.26
1	200.95	PF#1	164000.00	939.80	956.09	949.86	956.38	0.000668	4.33	39057.14	10045.22	0.25
1	200.95	PF#2	164000.00	939.80	956.38	949.86	956.66	0.000629	4.27	38407.73	4001.09	0.24
1	200.86	PF#1	164000.00	938.50	955.63	949.69	955.94	0.001346	4.48	37607.63	11080.59	0.27
1	200.86	PF#2	164000.00	938.50	955.94	949.69	956.24	0.001276	4.46	36762.91	4032.00	0.26
1	200.77	PF#1	164000.00	936.90	955.02	949.21	955.35	0.000950	4.62	36840.73	11449.90	0.28
1	200.77	PF#2	164000.00	936.90	955.38	949.21	955.70	0.000875	4.52	36283.86	4122.20	0.27
1	200.67	PF#1	164000.00	939.80	954.42	948.98	954.80	0.001288	4.96	33784.71	10368.24	0.30
1	200.67	PF#2	164000.00	939.80	954.84	948.98	955.20	0.001158	4.82	34281.14	4009.30	0.28
1	200.58	PF#1	164000.00	937.60	953.76	948.29	954.14	0.001313	5.04	33541.77	10091.02	0.30
1	200.58	PF#2	164000.00	937.60	954.23	948.29	954.60	0.001187	4.91	33793.59	3940.00	0.28
1	200.49	PF#1	164000.00	936.90	953.28	946.97	953.59	0.000940	4.59	37370.44	10978.11	0.26
1	200.49	PF#2	164000.00	936.90	953.77	946.97	954.10	0.000893	4.59	36178.07	3791.00	0.25
1	200.39	PF#1	164000.00	937.00	952.89	946.26	953.17	0.000739	4.35	39814.10	11315.74	0.24
1	200.39	PF#2	164000.00	937.00	953.40	946.26	953.70	0.000702	4.37	38317.51	3741.00	0.23
1	200.3	PF#1	179750.00	937.70	952.12	947.18	952.61	0.001603	5.79	36487.07	9118.91	0.34
1	200.3	PF#2	179750.00	937.70	952.73	947.17	953.18	0.001382	5.57	36217.73	3683.53	0.31
1	200.2	PF#1	179750.00	937.00	951.10	946.78	951.67	0.002027	6.37	35619.57	11857.73	0.37
1	200.2	PF#2	179750.00	937.00	951.83	946.77	952.38	0.001732	6.15	34725.75	3629.00	0.35
1	200.1	PF#1	179750.00	934.50	950.19	945.22	950.66	0.001730	5.74	37659.50	11254.10	0.32
1	200.1	PF#2	179750.00	934.50	951.11	945.22	951.53	0.001392	5.36	38392.25	3770.00	0.29
1	200	PF#1	179750.00	933.40	949.74	944.16	950.01	0.000864	4.29	44537.34	11193.60	0.24
1	200	PF#2	179750.00	933.40	950.70	944.16	950.98	0.000792	4.23	42550.11	4100.00	0.23
1	199.91	PF#1	179750.00	932.10	949.39	943.36	949.60	0.000668	3.83	50254.95	10846.61	0.22
1	199.91	PF#2	179750.00	932.10	950.39	943.36	950.61	0.000573	3.75	48102.12	4530.00	0.20
1	199.82	PF#1	179750.00	931.20	948.90	943.28	949.09	0.002007	3.30	51778.97	10752.57	0.19
1	199.82	PF#2	179750.00	931.20	949.90	943.25	950.14	0.002185	3.68	47698.04	4780.00	0.20

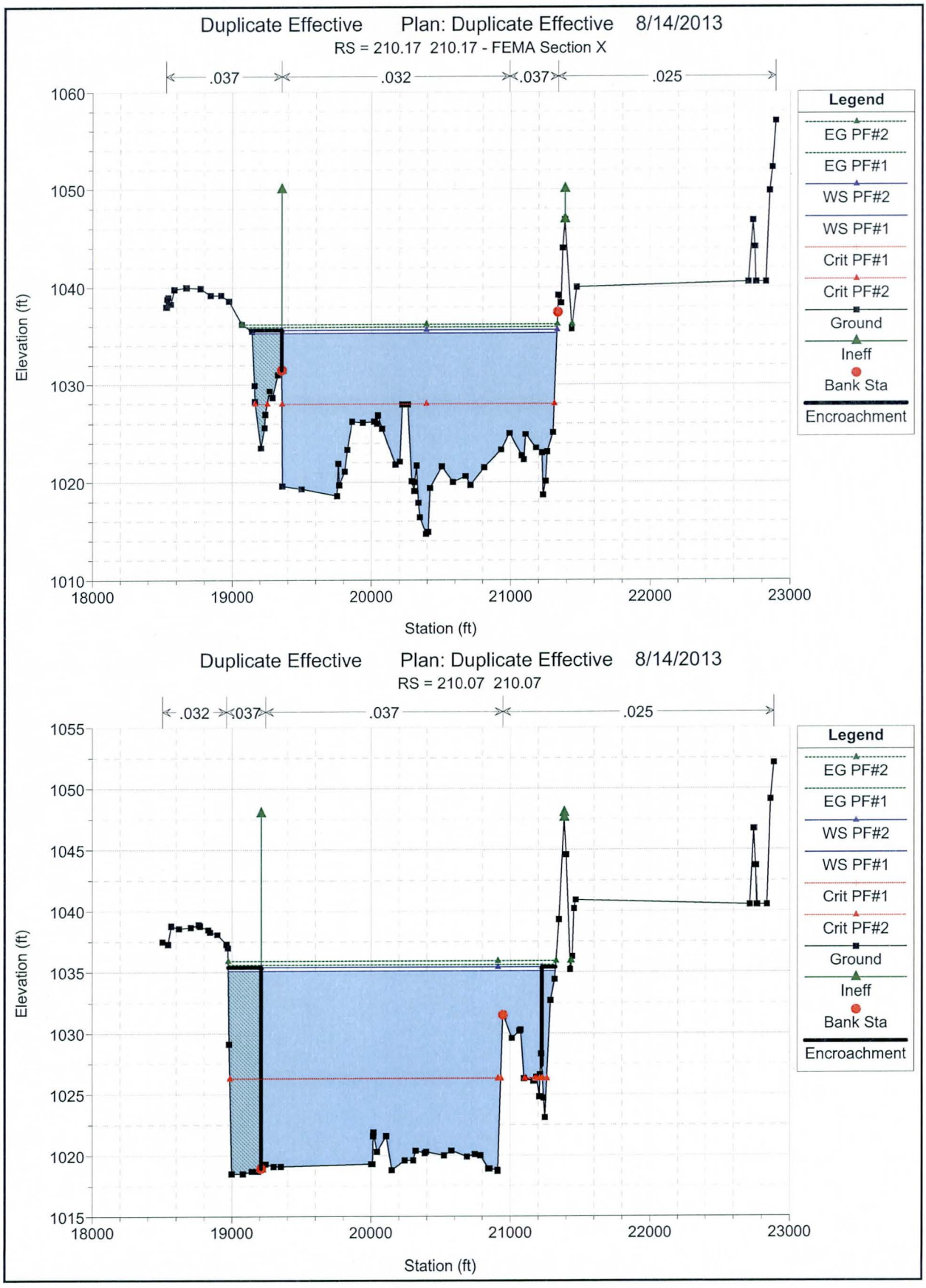

Duplicate Effective Plan: Duplicate Effective 8/14/2013
RS = 211.12 211.12 - FEMA Section Z
.037
.032
.037
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Duplicate Effective Plan: Duplicate Effective 8/14/2013
RS = 211.02 211.02
.037
.032
.037
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#2
Crit PF#1
Ground
Ineff
Bank Sta
Encroachment

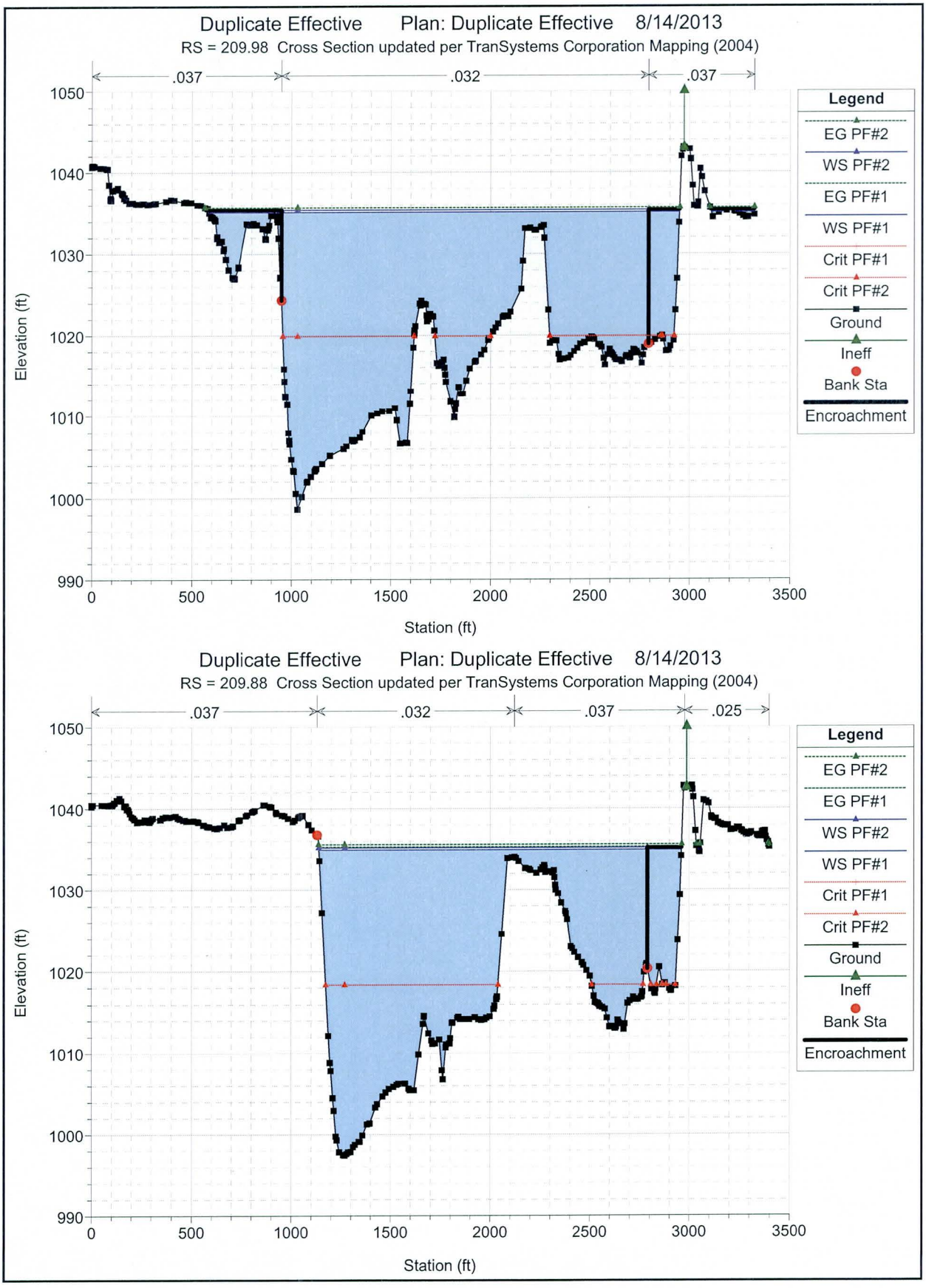

Duplicate Effective
Plan: Duplicate Effective
8/14/2013
RS = 210.93 210.93
.037
.032
.037
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Duplicate Effective
Plan: Duplicate Effective
8/14/2013
RS = 210.83 210.83
.037
.032
.037
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#1
WS PF#2
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment

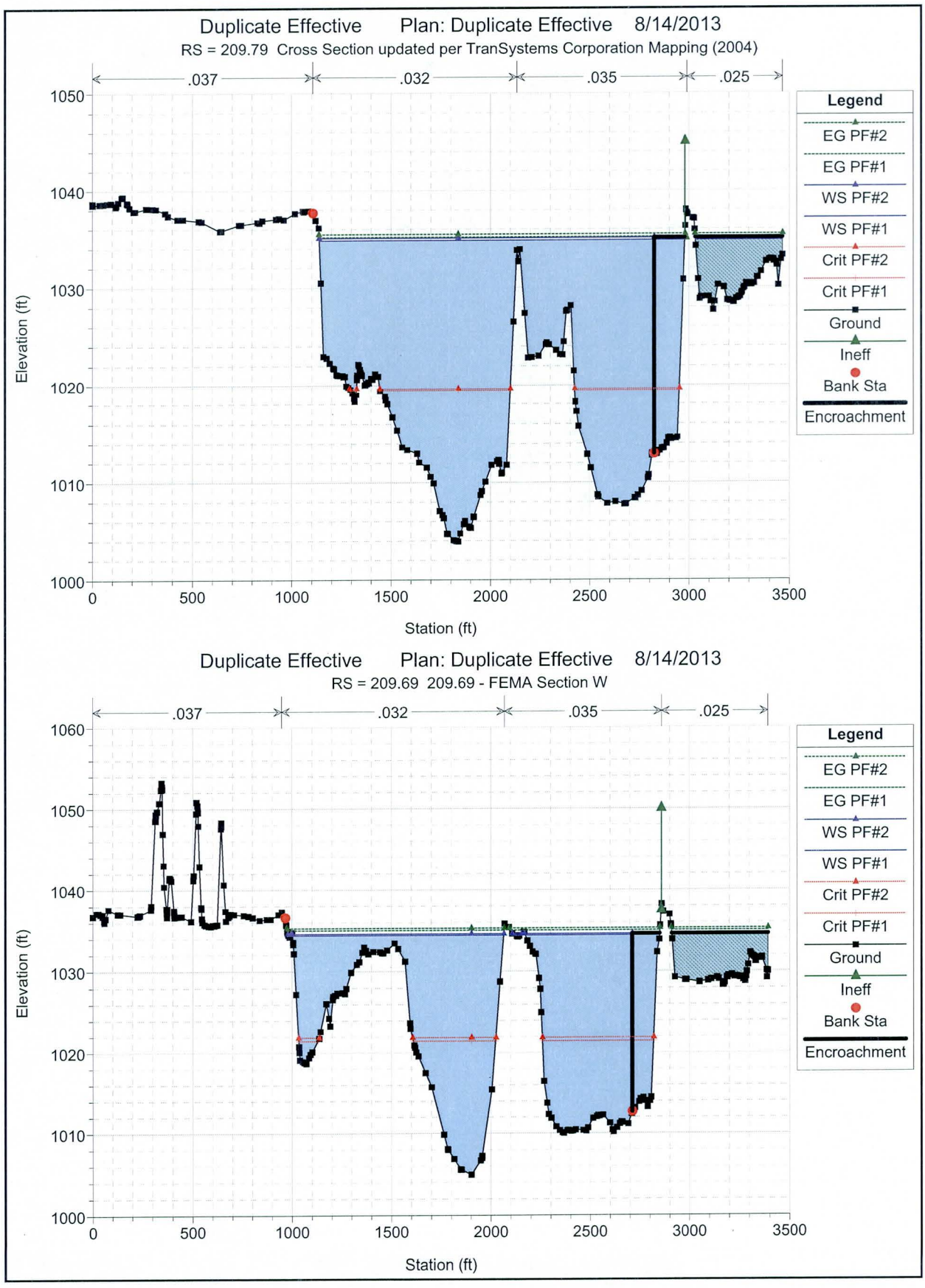

Duplicate Effective
Plan: Duplicate Effective
8/14/2013
RS = 210.74 210.74
.037
.032
.037
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
1055
1050
1045
1040
1035
1030
1025
1020
1015
19000
19500
20000
20500
21000
21500
22000
22500
Duplicate Effective
Plan: Duplicate Effective
8/14/2013
RS = 210.64 210.64 - FEMA Section Y
.037
.032
.037
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
1055
1050
1045
1040
1035
1030
1025
1020
1015
19000
19500
20000
20500
21000
21500
22000
22500
23000

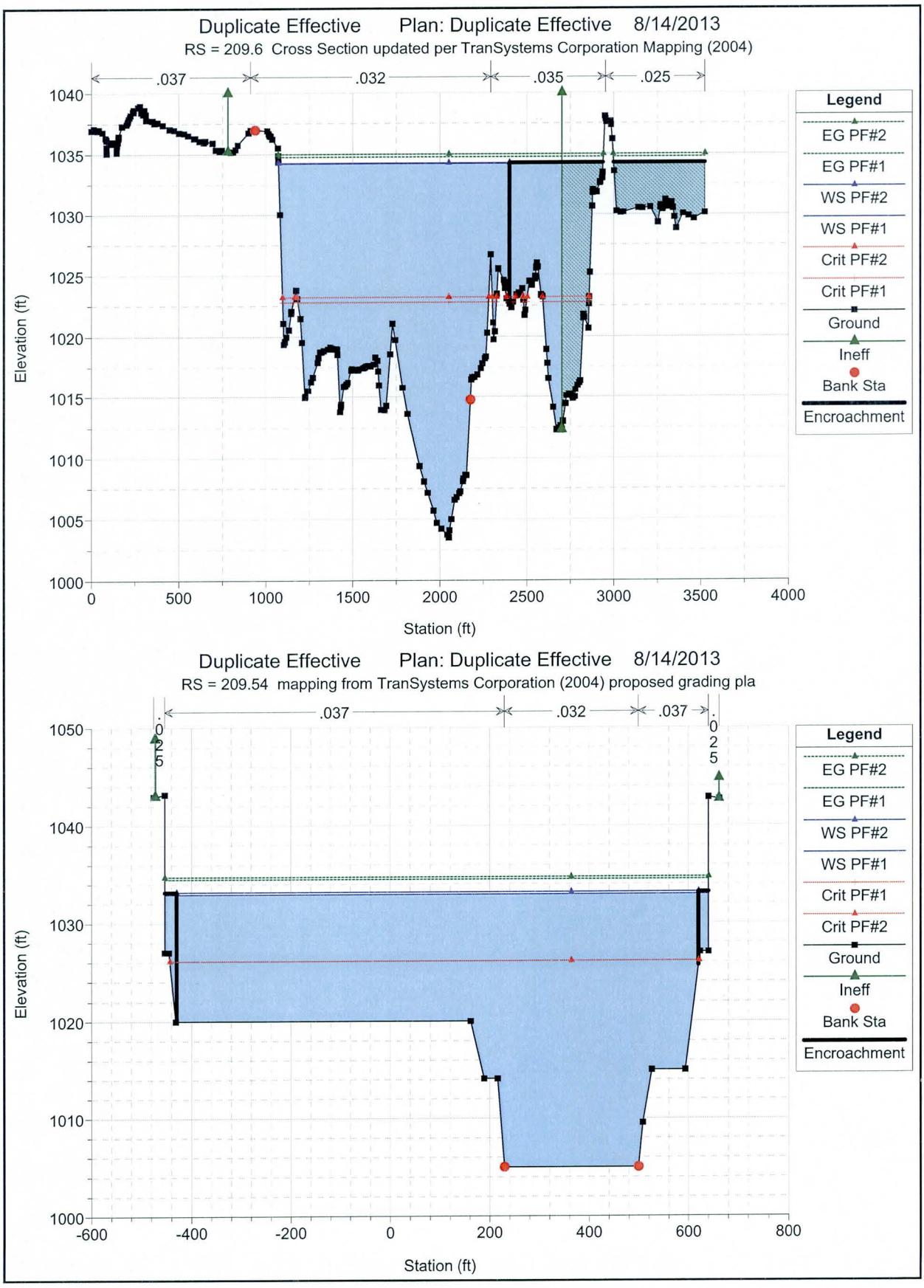

Duplicate Effective
Plan: Duplicate Effective
8/14/2013
RS = 210.55 210.55
.037
.032
.037
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Duplicate Effective
Plan: Duplicate Effective
8/14/2013
RS = 210.46 210.46
.037
.032
.037
.037
.025
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment

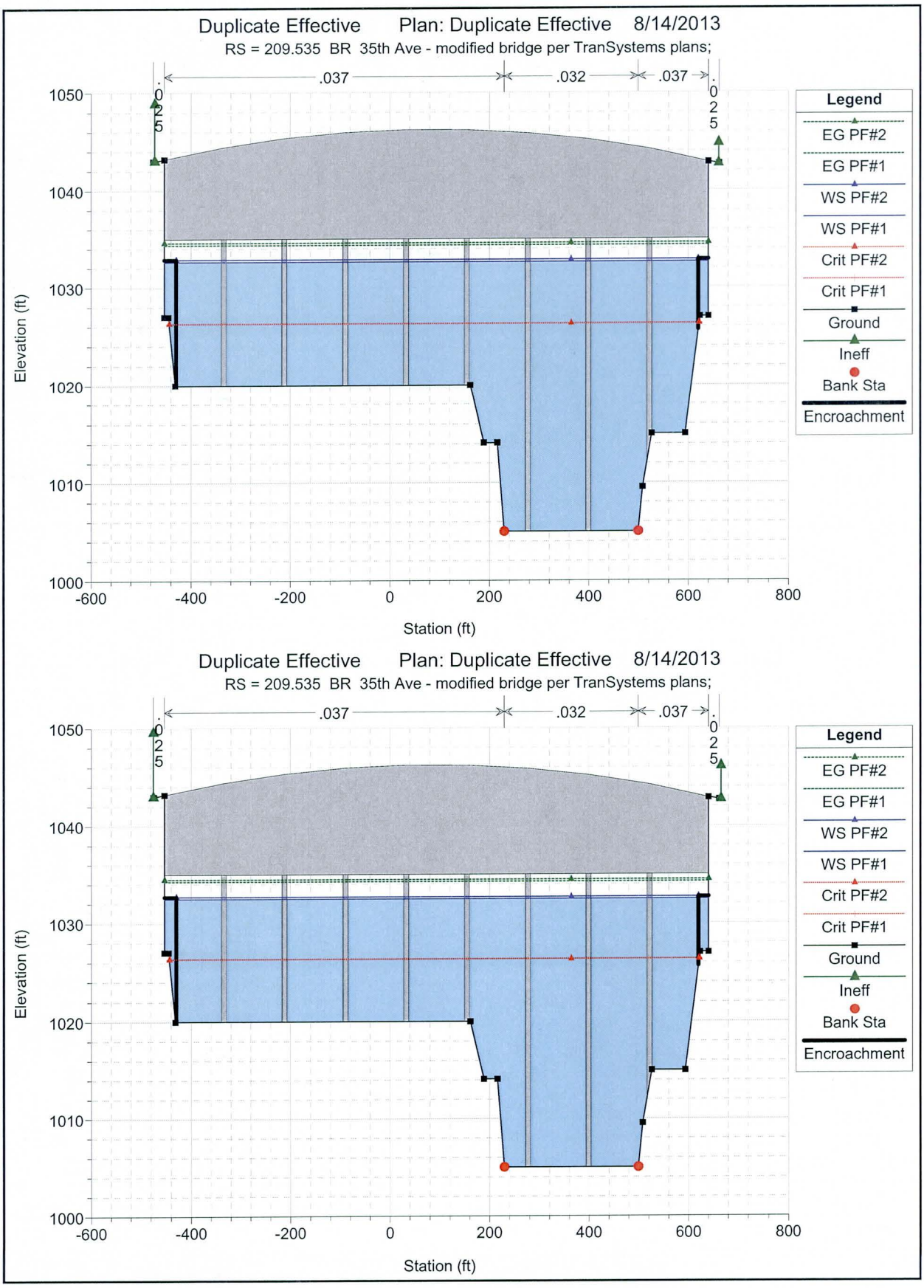

Duplicate Effective
Plan: Duplicate Effective
8/14/2013
RS = 210.36 210.36
.037
.025
.025
.032
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Duplicate Effective
Plan: Duplicate Effective
8/14/2013
RS = 210.26 210.26
.037
.032
.037
.037
.025
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta

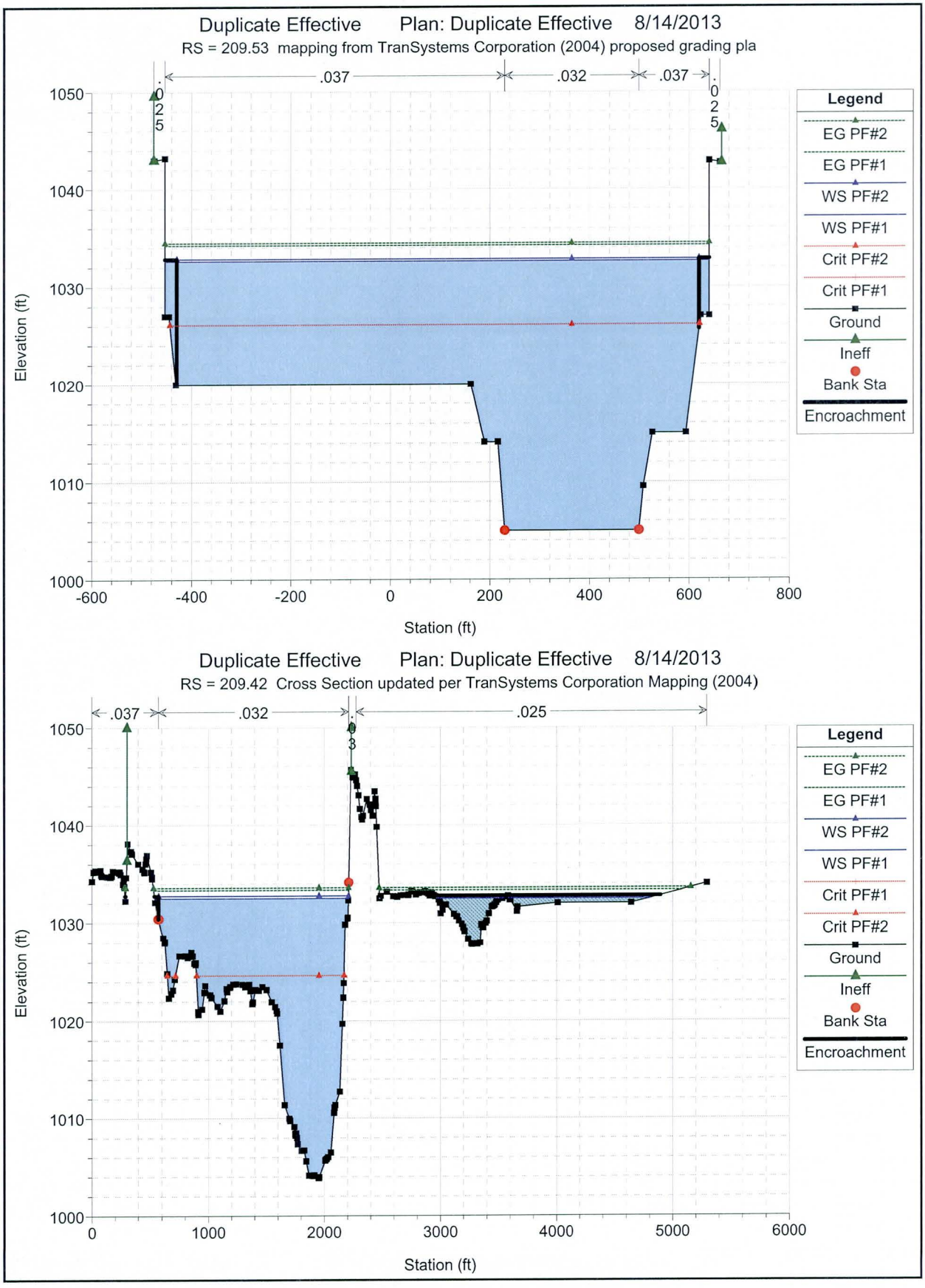

Duplicate Effective Plan: Duplicate Effective 8/14/2013
RS = 210.17 210.17 - FEMA Section X
.037
.032
.037
.025
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Duplicate Effective Plan: Duplicate Effective 8/14/2013
RS = 210.07 210.07
.032
.037
.037
.025
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment

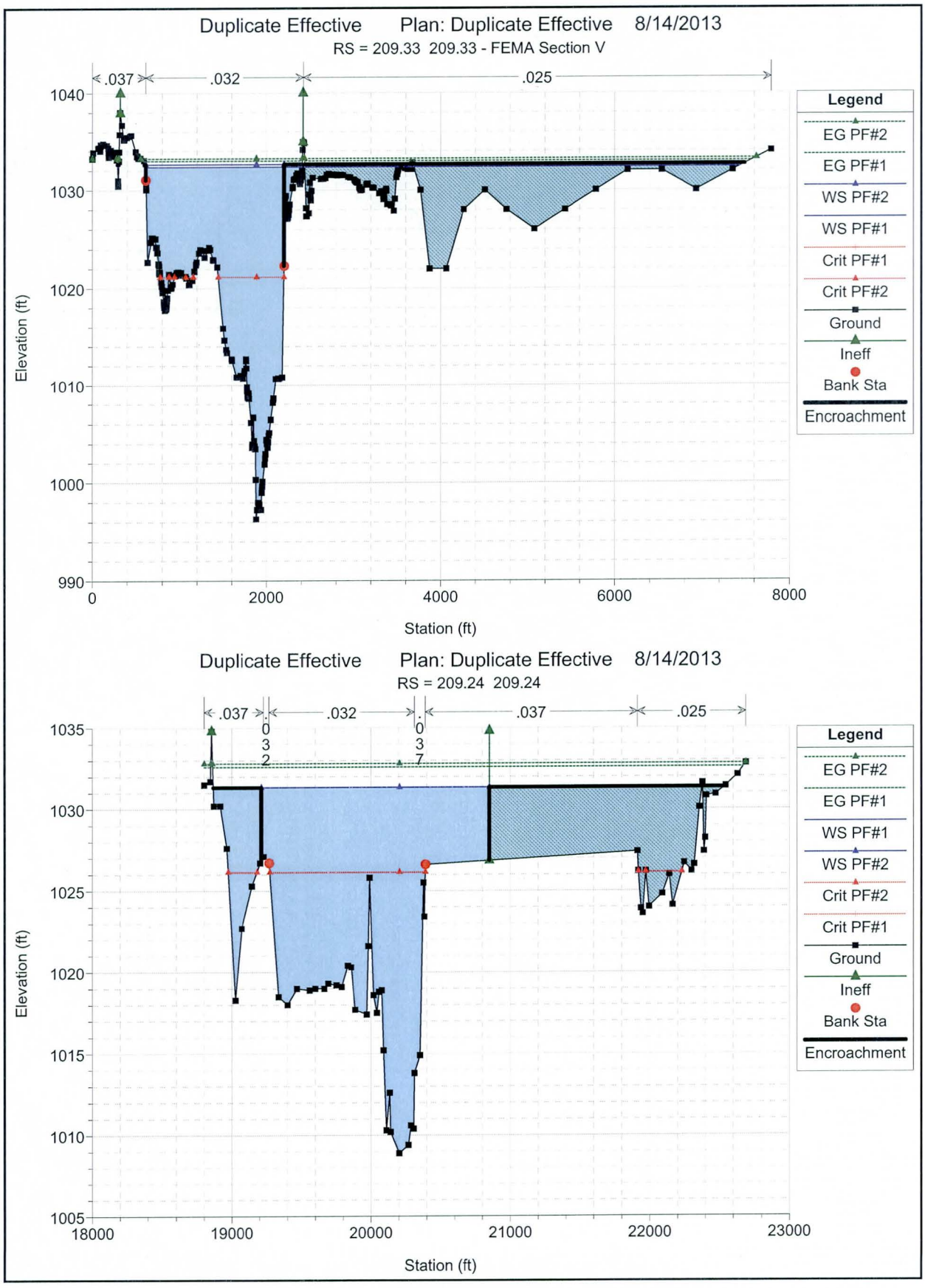

Duplicate Effective Plan: Duplicate Effective 8/14/2013
RS = 209.98 Cross Section updated per TranSystems Corporation Mapping (2004)
.037
.032
.037
Legend
EG PF#2
WS PF#2
EG PF#1
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
Duplicate Effective Plan: Duplicate Effective 8/14/2013
RS = 209.88 Cross Section updated per TranSystems Corporation Mapping (2004)
.037
.032
.037
.025
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)

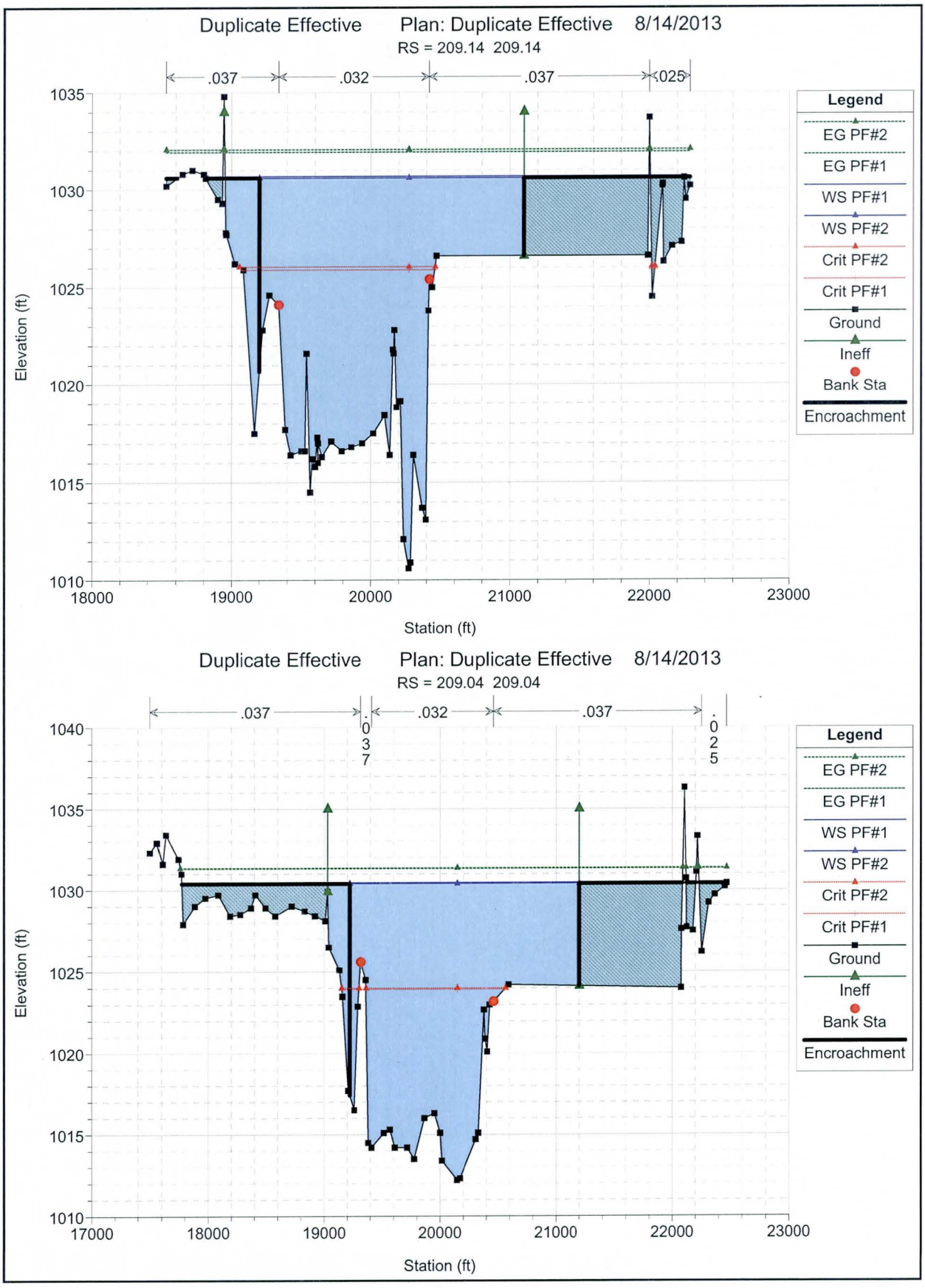

Duplicate Effective Plan: Duplicate Effective 8/14/2013
RS = 209.79 Cross Section updated per TranSystems Corporation Mapping (2004)
.037
.032
.035
.025
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#2
Crit PF#1
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
Duplicate Effective Plan: Duplicate Effective 8/14/2013
RS = 209.69 209.69 - FEMA Section W
.037
.032
.035
.025
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#2
Crit PF#1
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)

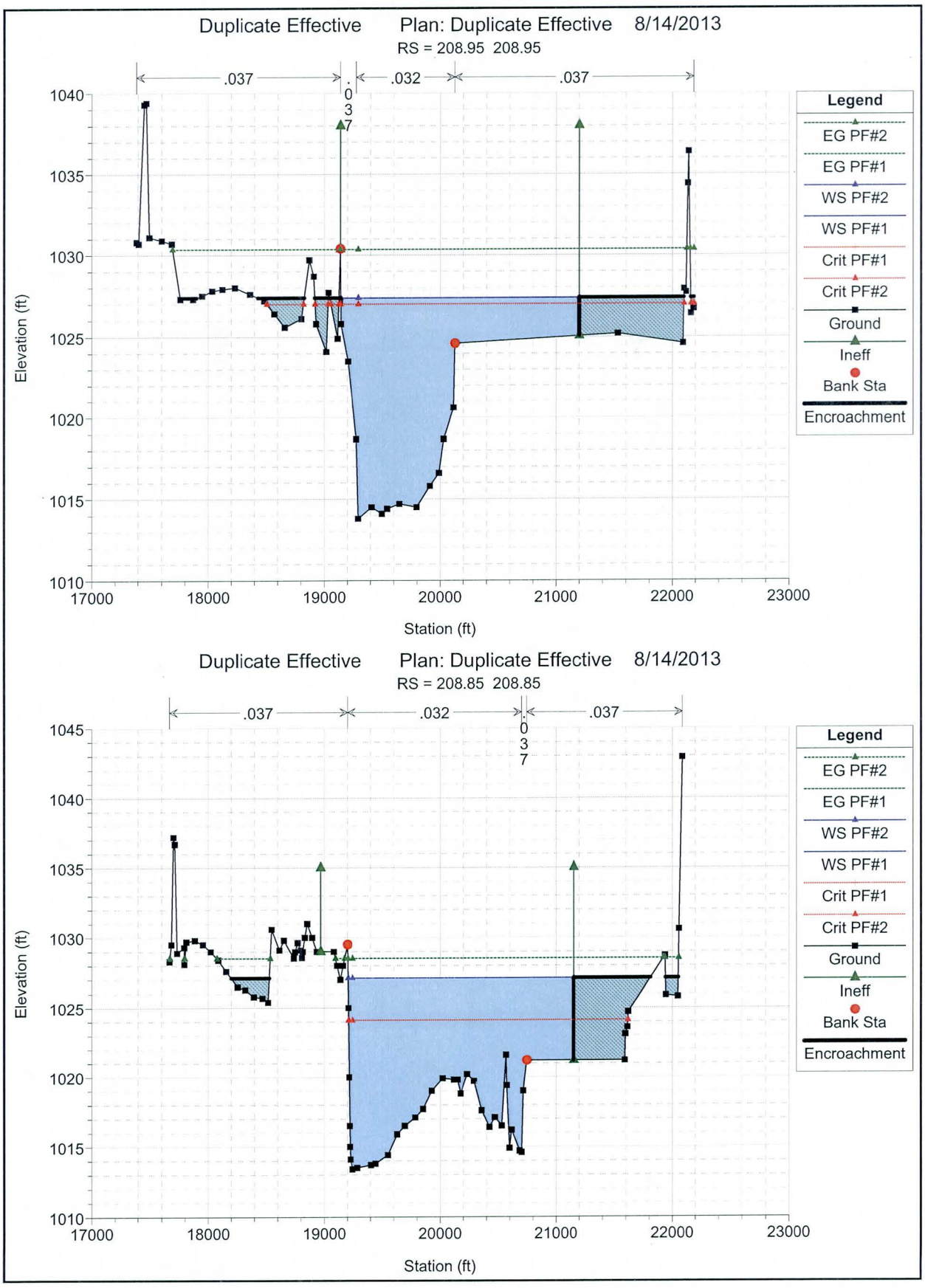

Duplicate Effective Plan: Duplicate Effective 8/14/2013
RS = 209.6 Cross Section updated per TranSystems Corporation Mapping (2004)
.037
.032
.035
.025
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#2
Crit PF#1
Ground
Ineff
Bank Sta
Encroachment
Duplicate Effective Plan: Duplicate Effective 8/14/2013
RS = 209.54 mapping from TranSystems Corporation (2004) proposed grading pla
.037
.032
.037
.025
.025
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment

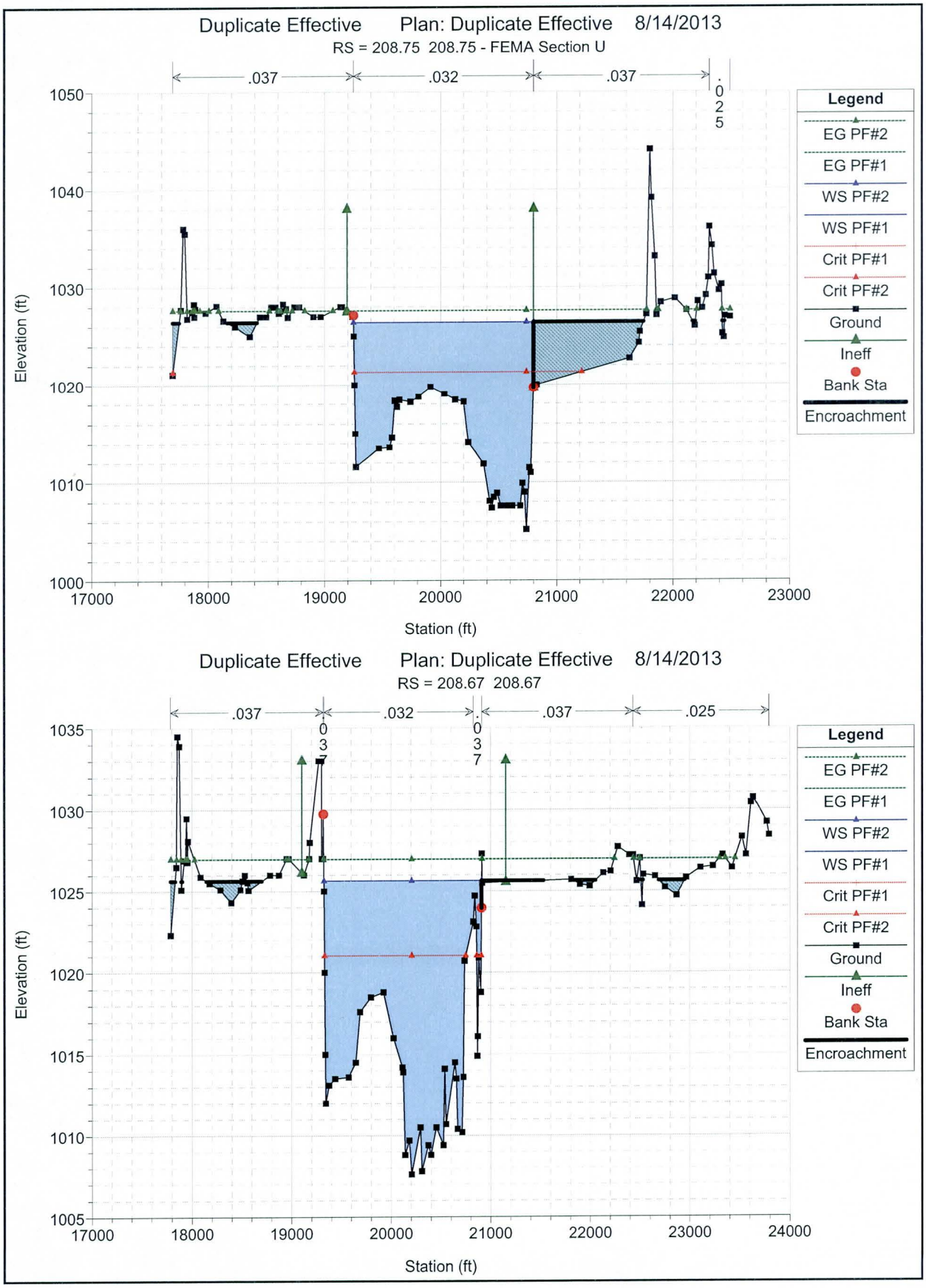

Duplicate Effective Plan: Duplicate Effective 8/14/2013
RS = 209.535 BR 35th Ave - modified bridge per TranSystems plans;
.037
.032
.037
.025
.025
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#2
Crit PF#1
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
1050
1040
1030
1020
1010
1000
-600
-400
-200
0
200
400
600
800
Station (ft)
Duplicate Effective Plan: Duplicate Effective 8/14/2013
RS = 209.535 BR 35th Ave - modified bridge per TranSystems plans;
.037
.032
.037
.025
.025
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#2
Crit PF#1
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
1050
1040
1030
1020
1010
1000
-600
-400
-200
0
200
400
600
800
Station (ft)

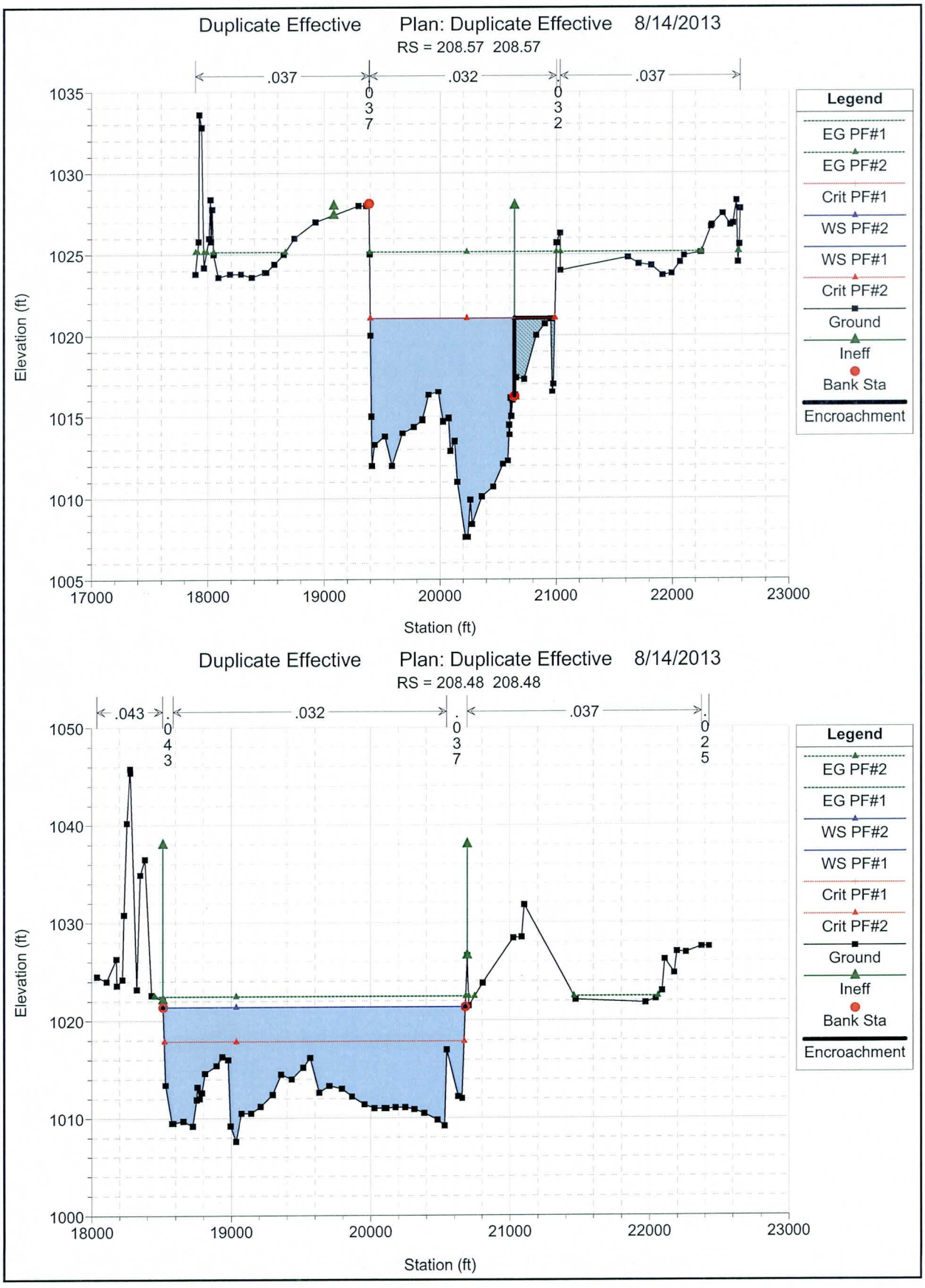

Duplicate Effective Plan: Duplicate Effective 8/14/2013
RS = 209.53 mapping from TranSystems Corporation (2004) proposed grading pla
.037
.032
.037
.025
.025
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#2
Crit PF#1
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
1050
1040
1030
1020
1010
1000
-600
-400
-200
0
200
400
600
800
Duplicate Effective Plan: Duplicate Effective 8/14/2013
RS = 209.42 Cross Section updated per TranSystems Corporation Mapping (2004)
.037
.032
.025
.03
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
1050
1040
1030
1020
1010
1000
0
1000
2000
3000
4000
5000
6000

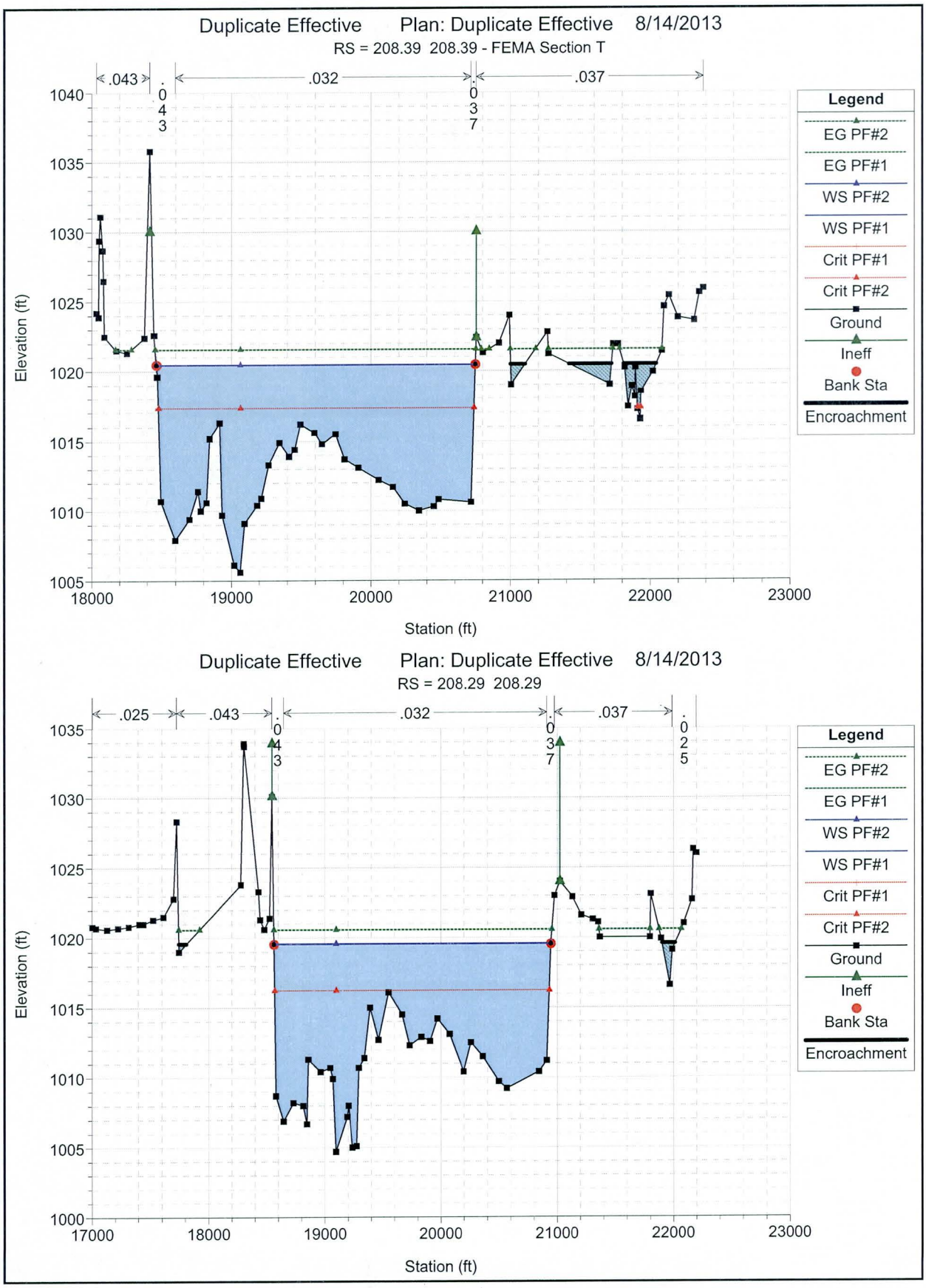

Duplicate Effective Plan: Duplicate Effective 8/14/2013
RS = 209.33 209.33 - FEMA Section V
.037
.032
.025
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Duplicate Effective Plan: Duplicate Effective 8/14/2013
RS = 209.24 209.24
.037
.032
.037
.025
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#1
WS PF#2
Crit PF#2
Crit PF#1
Ground
Ineff
Bank Sta
Encroachment

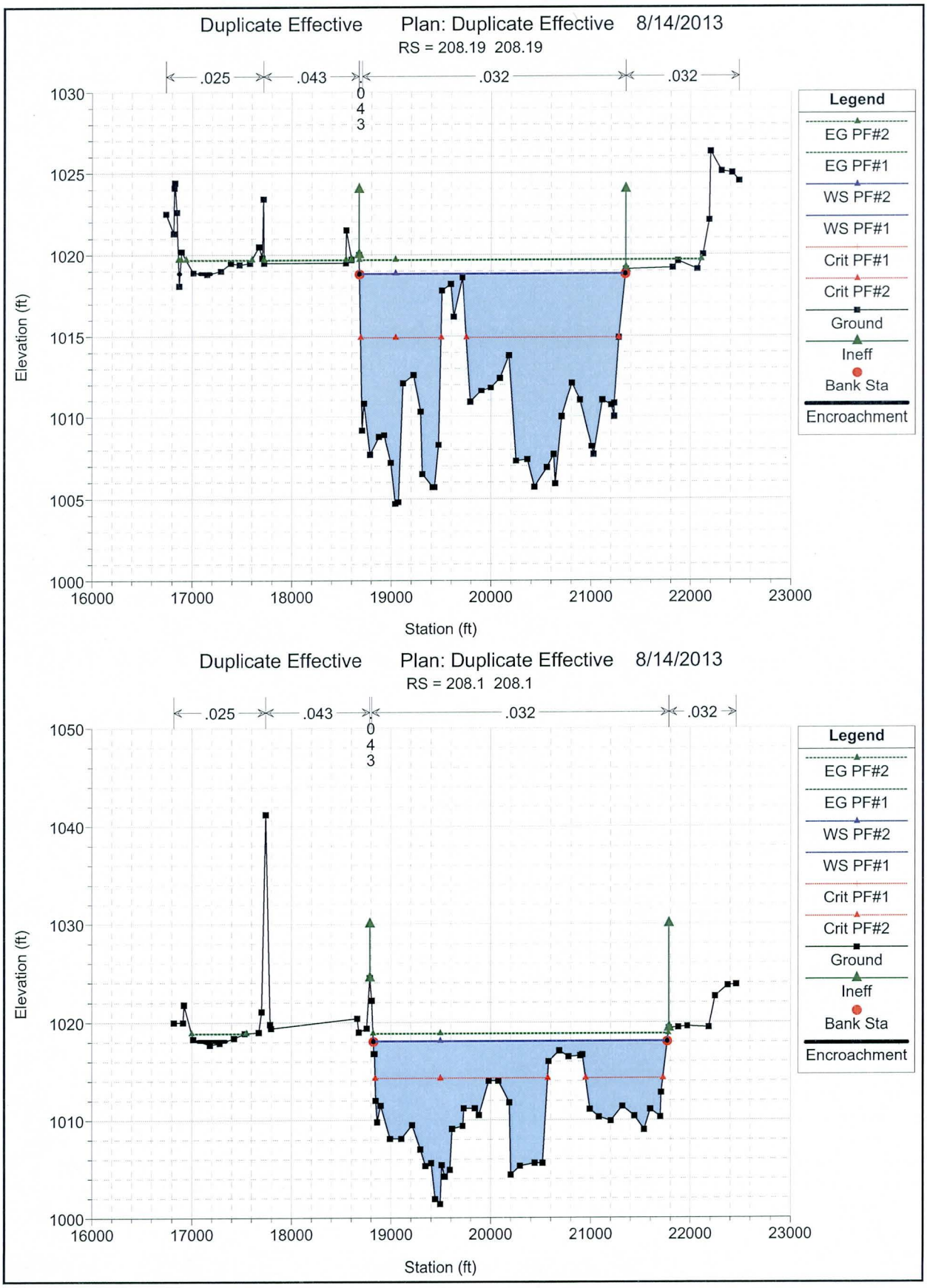

Duplicate Effective
Plan: Duplicate Effective
8/14/2013
RS = 209.14 209.14
.037
.032
.037
.025
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#1
WS PF#2
Crit PF#2
Crit PF#1
Ground
Ineff
Bank Sta
Encroachment
Duplicate Effective
Plan: Duplicate Effective
8/14/2013
RS = 209.04 209.04
.037
.032
.037
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#1
WS PF#2
Crit PF#2
Crit PF#1
Ground
Ineff
Bank Sta
Encroachment

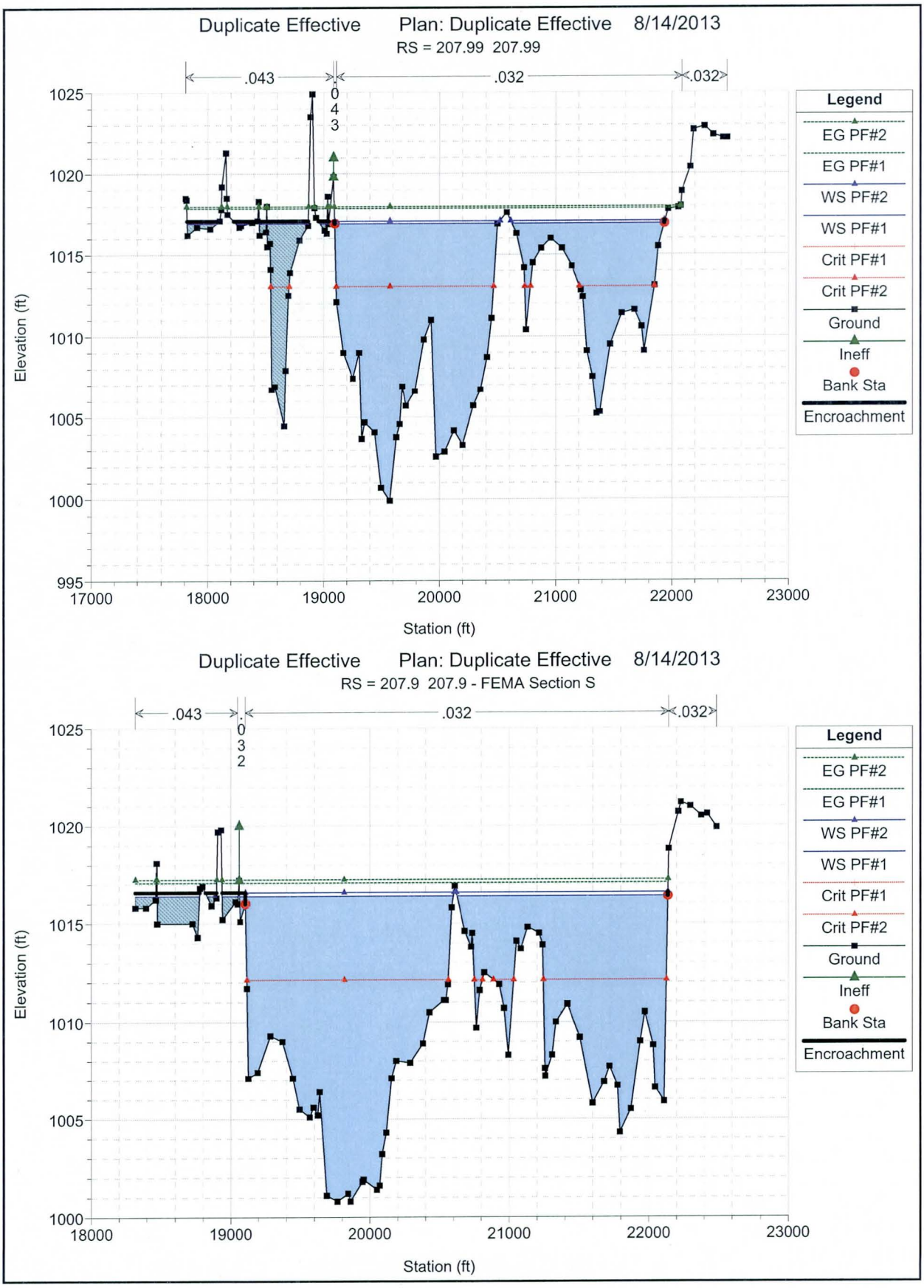

Duplicate Effective
Plan: Duplicate Effective 8/14/2013
RS = 208.95 208.95
.037
.032
.037
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Duplicate Effective
Plan: Duplicate Effective 8/14/2013
RS = 208.85 208.85
.037
.032
.037
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment

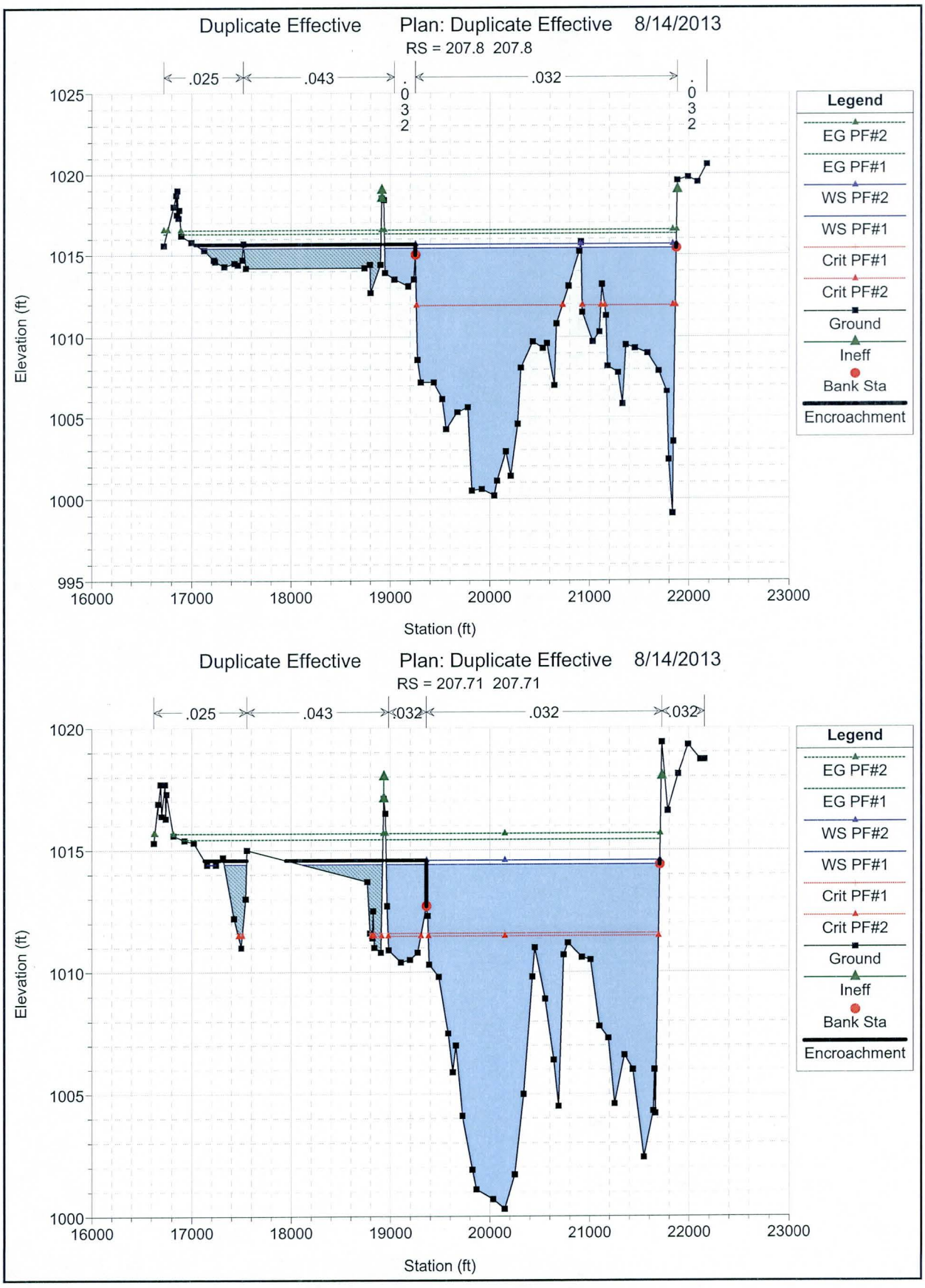

Duplicate Effective Plan: Duplicate Effective 8/14/2013
RS = 208.75 208.75 - FEMA Section U
.037
.032
.037
.025
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Duplicate Effective Plan: Duplicate Effective 8/14/2013
RS = 208.67 208.67
.037
.032
.037
.025
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment

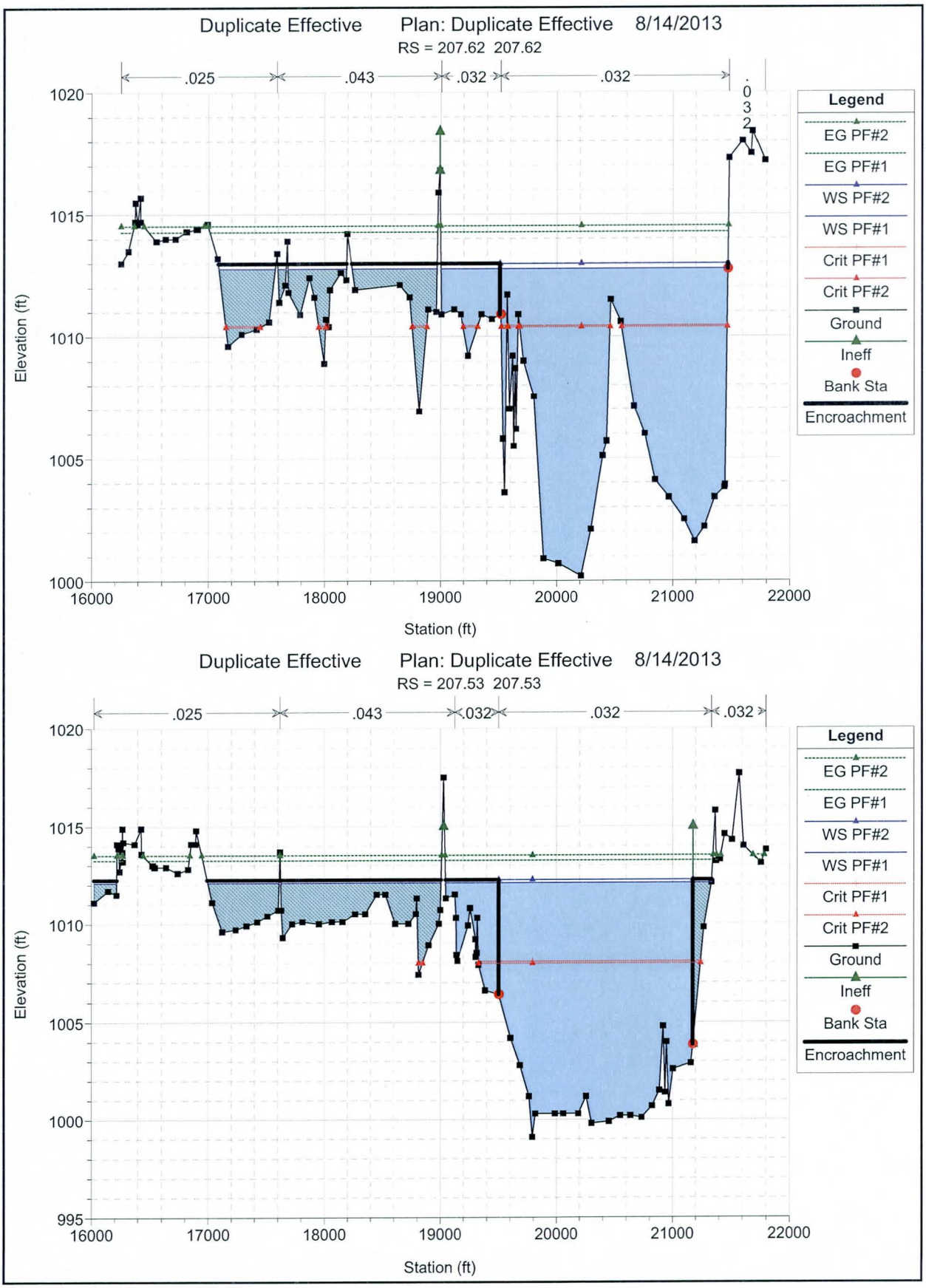

Duplicate Effective
Plan: Duplicate Effective
8/14/2013
RS = 208.57 208.57
.037
.032
.037
037
032
Elevation (ft)
Station (ft)
Legend
EG PF#1
EG PF#2
Crit PF#1
WS PF#2
WS PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Duplicate Effective
Plan: Duplicate Effective
8/14/2013
RS = 208.48 208.48
.043
.032
.037
043
037
025
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment

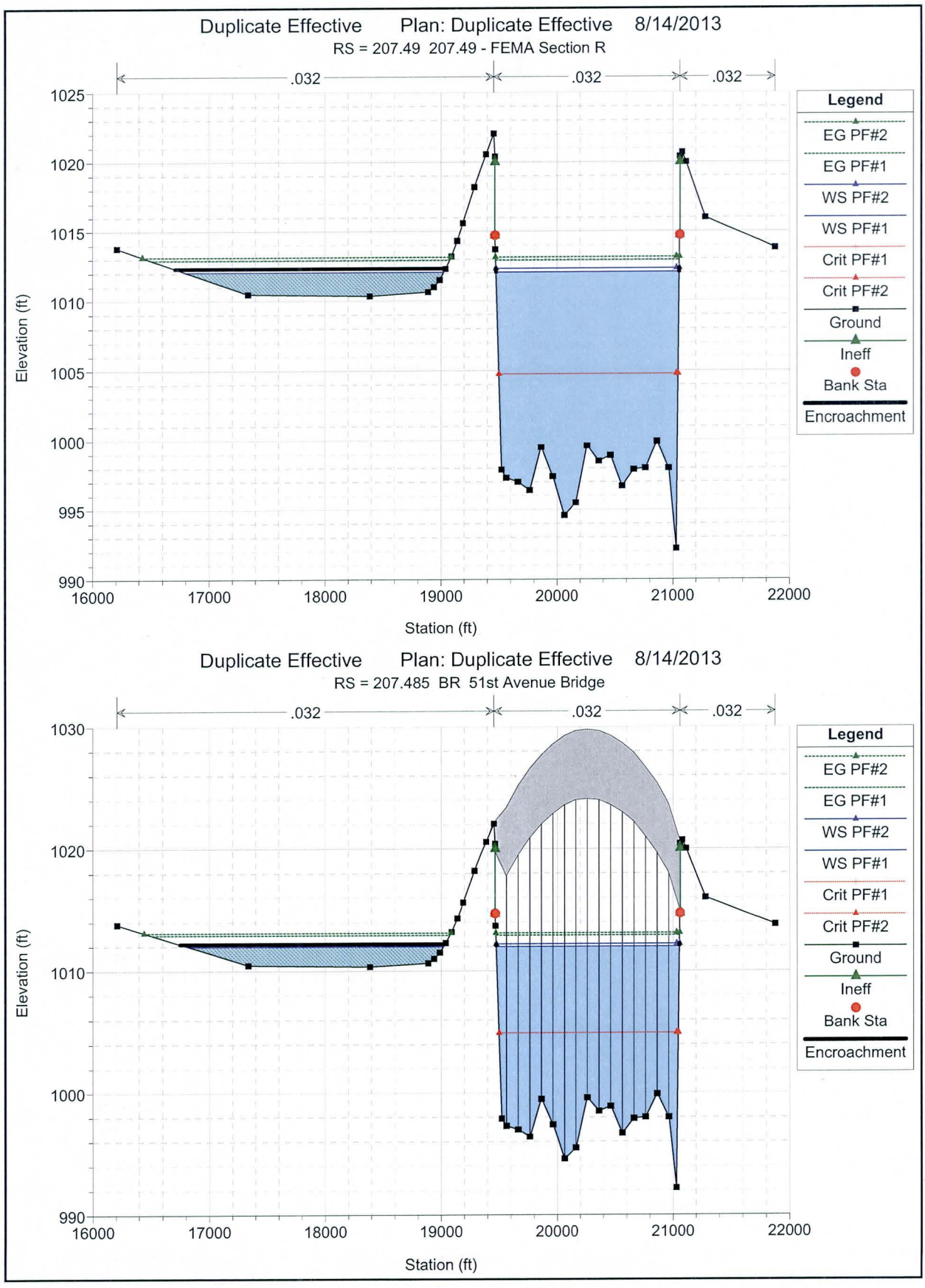

Duplicate Effective Plan: Duplicate Effective 8/14/2013
RS = 208.39 208.39 - FEMA Section T
.043
.032
.037
.043
.037
Elevation (ft)
1040
1035
1030
1025
1020
1015
1010
1005
18000
19000
20000
21000
22000
23000
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Duplicate Effective Plan: Duplicate Effective 8/14/2013
RS = 208.29 208.29
.025
.043
.032
.037
.043
.037
.025
Elevation (ft)
1035
1030
1025
1020
1015
1010
1005
1000
17000
18000
19000
20000
21000
22000
23000
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment

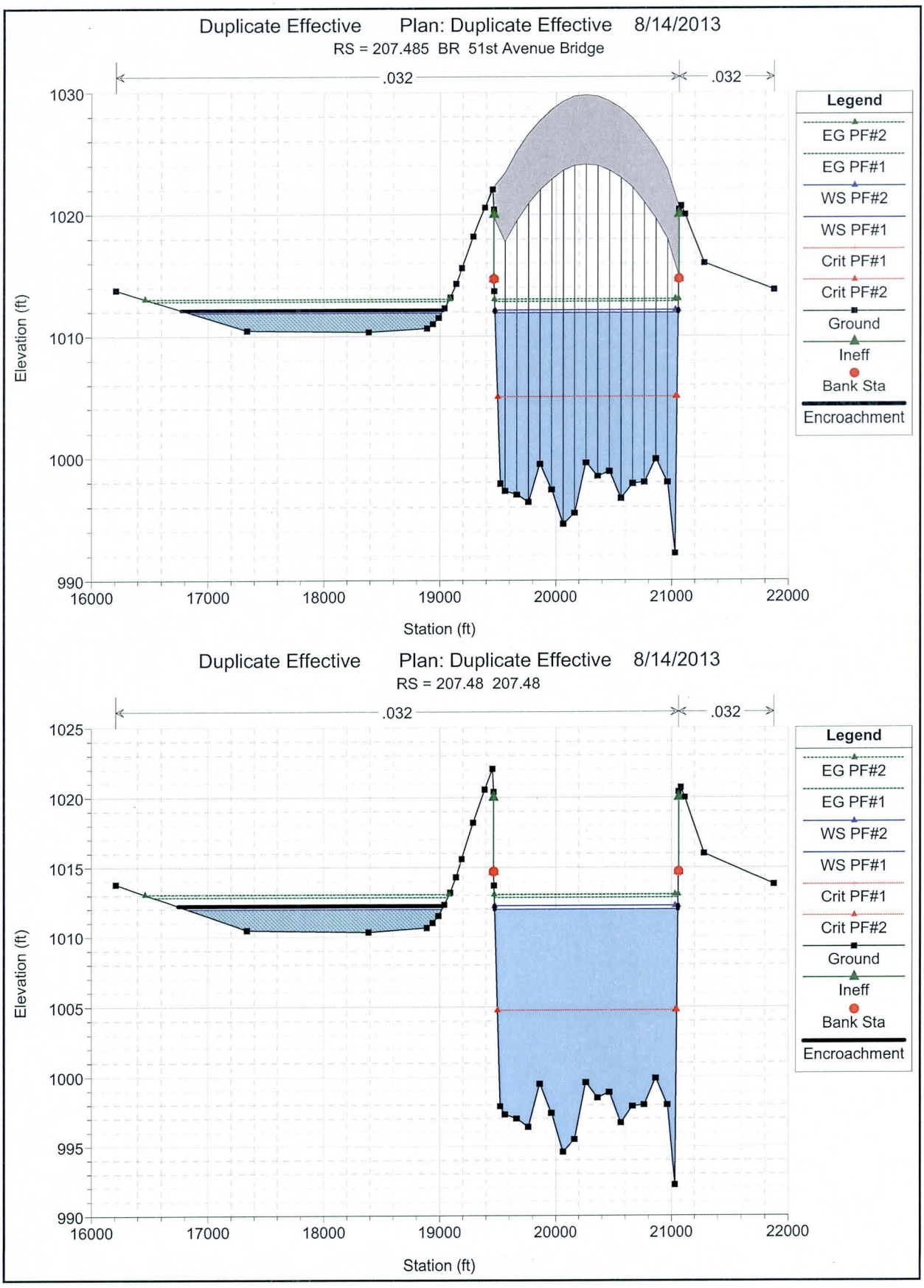

Duplicate Effective
Plan: Duplicate Effective 8/14/2013
RS = 208.19 208.19
.025
.043
.032
.032
0
4
3
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
1030
1025
1020
1015
1010
1005
1000
16000
17000
18000
19000
20000
21000
22000
23000
Duplicate Effective
Plan: Duplicate Effective 8/14/2013
RS = 208.1 208.1
.025
.043
.032
.032
0
4
3
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
1050
1040
1030
1020
1010
1000
16000
17000
18000
19000
20000
21000
22000
23000

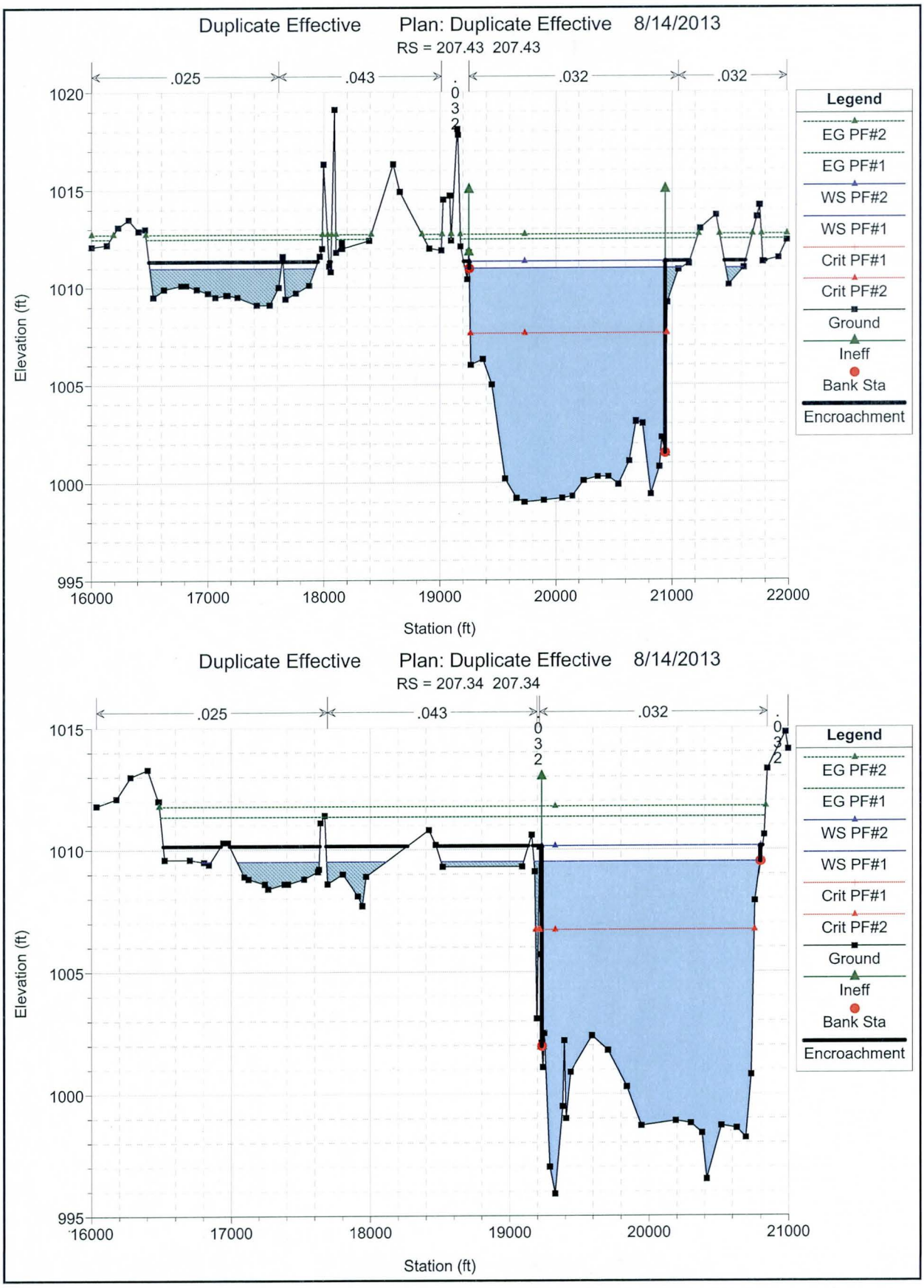

Duplicate Effective Plan: Duplicate Effective 8/14/2013
RS = 207.99 207.99
.043
.032
.032
0.043
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Duplicate Effective Plan: Duplicate Effective 8/14/2013
RS = 207.9 207.9 - FEMA Section S
.043
.032
.032
0.032
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment

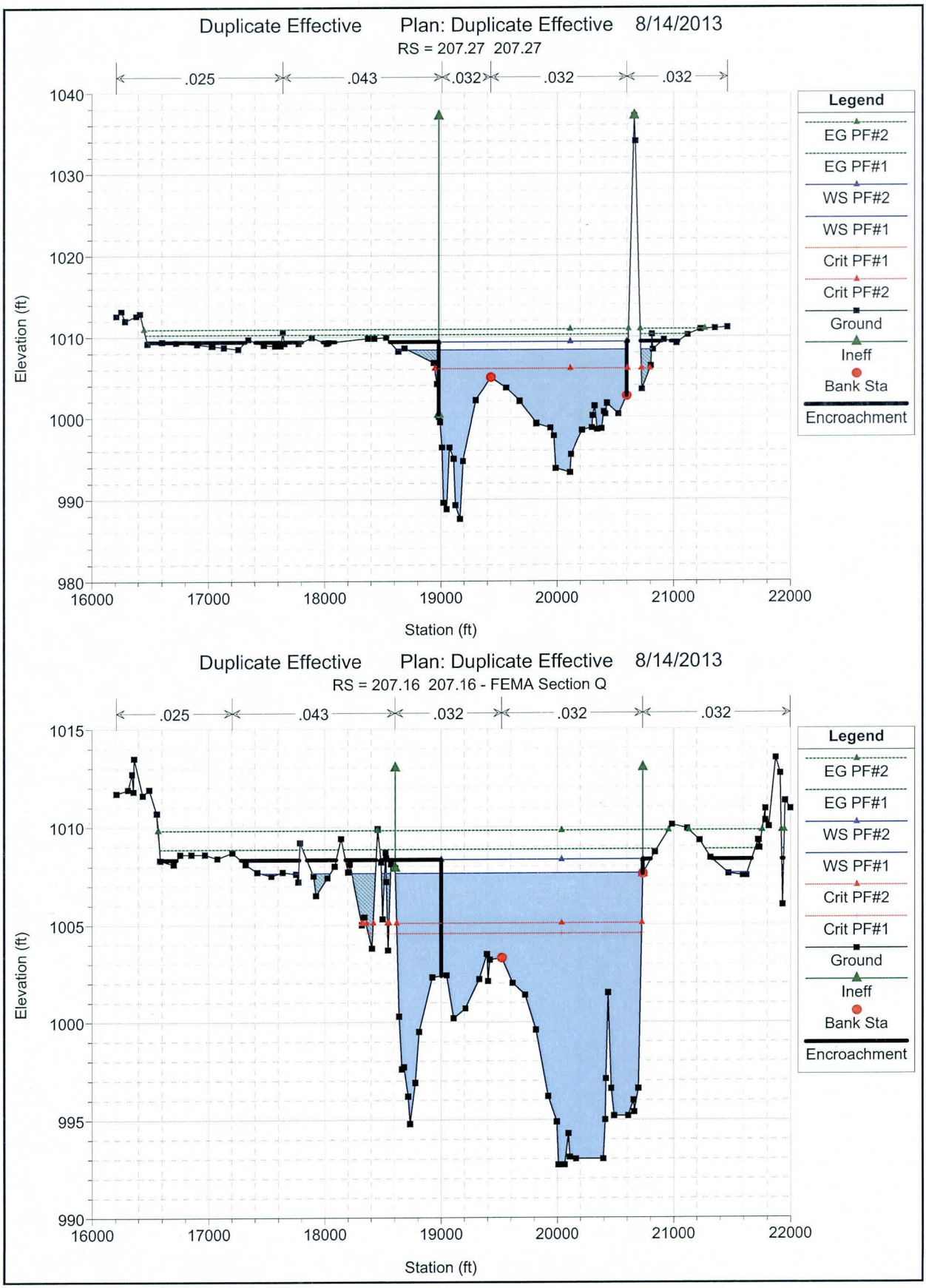

Duplicate Effective
Plan: Duplicate Effective
8/14/2013
RS = 207.8 207.8
.025
.043
.032
.032
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Duplicate Effective
Plan: Duplicate Effective
8/14/2013
RS = 207.71 207.71
.025
.043
.032
.032
.032
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment


Duplicate Effective
Plan: Duplicate Effective
8/14/2013
RS = 207.62 207.62
.025
.043
.032
.032
.032
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Duplicate Effective
Plan: Duplicate Effective
8/14/2013
RS = 207.53 207.53
.025
.043
.032
.032
.032
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment


Duplicate Effective Plan: Duplicate Effective 8/14/2013
RS = 207.49 207.49 - FEMA Section R
.032
.032
.032
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
Duplicate Effective Plan: Duplicate Effective 8/14/2013
RS = 207.485 BR 51st Avenue Bridge
.032
.032
.032
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


Duplicate Effective Plan: Duplicate Effective 8/14/2013
RS = 207.485 BR 51st Avenue Bridge
.032
.032
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
1030
1020
1010
1000
990
16000
17000
18000
19000
20000
21000
22000
Duplicate Effective Plan: Duplicate Effective 8/14/2013
RS = 207.48 207.48
.032
.032
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
1025
1020
1015
1010
1005
1000
995
990
16000
17000
18000
19000
20000
21000
22000


Duplicate Effective
Plan: Duplicate Effective
8/14/2013
RS = 207.43 207.43
.025
.043
.032
.032
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
Duplicate Effective
Plan: Duplicate Effective
8/14/2013
RS = 207.34 207.34
.025
.043
.032
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


Duplicate Effective Plan: Duplicate Effective 8/14/2013
RS = 207.27 207.27
.025
.043
.032
.032
.032
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Duplicate Effective Plan: Duplicate Effective 8/14/2013
RS = 207.16 207.16 - FEMA Section Q
.025
.043
.032
.032
.032
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#2
Crit PF#1
Ground
Ineff
Bank Sta
Encroachment

HEC-RAS Version 4.0.0 March 2008
U.S. Army Corps of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

```
X     X  XXXXXX    XXXX        XXXX       XX      XXXX
X     X  X       X    X       X   X     X  X    X
X     X  X            X      X   X    X    X   X
XXXXXXX  XXXX        X   XXX  XXXX     XXXXXX    XXXX
X     X  X           X       X  X     X    X        X
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X     X  XXXXXX    XXXX       X    X   X    X   XXXXX
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****

PROJECT DATA
Project Title: Duplicate Effective
Project File : DuplicateEffective.prj
Run Date and Time: 8/23/2013 10:22:56 AM

Project in English units

Project Description:
City of Phoenix ARS (AZTEC project No AZE1005)
Salt River Effective model -
Received from FEMA for LOMR case no. 08-09-1412P
Salt River Effective model -
Received from FEMA for LOMR case no.
08-09-1294P

==========
Used the model obtained from LOMR 08-09-1412P which modified
sections 209.33 to 209.98 based on TranSystems mapping and grading plans and
Modified cross section 208.57, 208.67, 208.75 & 208.85 based on LOMR
08-09-1294P to create the Duplicate Effective Model

S.Smedley 12/01/10

****

PLAN DATA

Plan Title: Duplicate Effective
Plan File : R:\Phoenix\Projects\AZE1005-ARS_ProgramManagement\Technical\Drainage\HEC-RAS\Duplicate Effective Model\DuplicateEffective.p01

Geometry Title: Salt River Reach 3 - Duplicate Effective
Geometry File : R:\Phoenix\Projects\AZE1005-ARS_ProgramManagement\Technical\Drainage\HEC-RAS\Duplicate Effective Model\DuplicateEffective.g02

Flow Title   : Reach 3 - Floodway
Flow File   : R:\Phoenix\Projects\AZE1005-ARS_ProgramManagement\Technical\Drainage\HEC-RAS\Duplicate Effective Model\DuplicateEffective.f01

Plan Summary Information:
Number of: Cross Sections = 161   Multiple Openings =   0
            Culverts   =   0   Inline Structures =   0
            Bridges   =   6   Lateral Structures =   0

Computational Information
    Water surface calculation tolerance = 0.01
    Critical depth calculation tolerance = 0.01
    Maximum number of iterations   = 20
    Maximum difference tolerance   = 0.3
    Flow tolerance factor   = 0.001

Computation Options
    Critical depth computed only where necessary
    Conveyance Calculation Method: At breaks in n values only
    Friction Slope Method: Average Conveyance
    Computational Flow Regime: Subcritical Flow

Encroachment Data
   Equal Conveyance = True
   Left Offset   =   0
   Right Offset   =   0

River = 1   Reach = 1
RS   Profile   Method Value1 Value2
214.14 PF#2   119654.9720381.83
214.04 PF#2   119637.8820371.77
213.95 PF#2   119586.5420331.73
213.85 PF#2   119618.3320320.92
213.75 PF#2   1   1964120297.35
213.74 PF#2   119641.87 20296.6
213.66 PF#2   119687.5720253.56
213.57 PF#2   1 19484.520336.66
213.47 PF#2   1 19243.320266.42
213.38 PF#2   1 19346.120447.85
213.33 PF#2   1 19328.920514.52
213.26 PF#2   119497.1820378.39
213.255 PF#2   119497.3720378.09
213.25 PF#2   119497.5520377.79
213.21 PF#2   1 19490.3 20418.5
213.11 PF#2   119616.8820544.67
213.03 PF#2   1   1967220591.83
212.93 PF#2   119690.7620489.75
212.84 PF#2   1 19711.520347.25
212.74 PF#2   119690.61 20367.2
212.68 PF#2   119501.07 20130.1
212.675 PF#2   119492.8920137.19

212.67	PF#2	119502.3320128.84
212.56	PF#2	119731.0520252.14
212.46	PF#2	119743.34 20301
212.37	PF#2	119744.0620320.69
212.27	PF#2	119715.2520330.35
212.18	PF#2	119706.8520334.57
212.08	PF#2	119681.09 20270.9
211.99	PF#2	119699.7720249.64
211.89	PF#2	119685.7520250.74
211.79	PF#2	119649.87 20217.7
211.71	PF#2	119628.4320197.84
211.64	PF#2	1 19657.7 20219.8
211.54	PF#2	119603.6520129.64
211.51	PF#2	119615.1920137.39
211.41	PF#2	1 19638.120206.06
211.31	PF#2	119531.2120356.09
211.21	PF#2	119528.7520521.25
211.12	PF#2	119498.47 20610
211.02	PF#2	119487.12 20550
210.93	PF#2	119479.13 20700
210.83	PF#2	119450.42 20800
210.74	PF#2	119426.13 20830
210.64	PF#2	1 19388.6 20900
210.55	PF#2	119322.17 21110
210.46	PF#2	1 19377 21284
210.36	PF#2	119375.1721291.16
210.26	PF#2	119377.08 21331.8
210.17	PF#2	1 19354.621334.72
210.07	PF#2	1 19210 21225
209.98	PF#2	1 949.7 2792.67
209.88	PF#2	1 1130.44 2789.02
209.79	PF#2	1 1105.89 2823.47
209.69	PF#2	1 965.68 2711.24
209.6	PF#2	1 937.97 2400
209.54	PF#2	1 -430 620
209.535	PF#2	1 -430 620
209.53	PF#2	1 -430 620
209.42	PF#2	1 571.09 2210.07
209.33	PF#2	1 615.66 2201.13
209.24	PF#2	119212.28 20850
209.14	PF#2	119200.21 21100
209.04	PF#2	1 19220 21200
208.95	PF#2	119141.04 21200
208.85	PF#2	1 19199.7 21150
208.75	PF#2	1 19192.9 20799.2
208.67	PF#2	119118.2220908.11
208.57	PF#2	119087.13 20640
208.48	PF#2	118510.5620680.86
208.39	PF#2	118462.9420748.79
208.29	PF#2	1 18562.620944.07
208.19	PF#2	118679.18 21343.2
208.1	PF#2	118822.3721767.18
207.99	PF#2	119093.0321934.42
207.9	PF#2	1 19104.722137.55
207.8	PF#2	1 19249.521871.22
207.71	PF#2	1 1936021704.11
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207.53	PF#2	1 19502.9 21175
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207.43	PF#2	119253.23 20940
207.34	PF#2	1 1923020798.77
207.27	PF#2	1 18980 20597.9
207.16	PF#2	1 19000 20734.5
207.07	PF#2	118857.5720748.18
206.97	PF#2	1 18850 20800
206.88	PF#2	118838.93 20800
206.79	PF#2	118806.0120895.15
206.7	PF#2	118784.84 21138.8
206.6	PF#2	118675.5821066.25
206.51	PF#2	118561.35 20622.1
206.41	PF#2	118494.7120685.21
206.32	PF#2	118476.9420854.87
206.22	PF#2	1 1843520977.29
206.13	PF#2	1 1837020914.89
206.03	PF#2	1 18320 20772.6
205.94	PF#2	1 18200 20767
205.84	PF#2	1 18100 20535.7
205.75	PF#2	1 18048 20450.3
205.62	PF#2	1 18216 20450.1
205.52	PF#2	1 18591.6 20611.5
205.43	PF#2	1 18917.5 20770.4
205.4	PF#2	1 19020 20767.8
205.34	PF#2	1 1918020742.96
205.25	PF#2	1 19300 20782.3
205.15	PF#2	1 19385 20830
205.06	PF#2	1 19470 20905.3
204.97	PF#2	1 19445 20961.3
204.87	PF#2	1 19410 20952.2
204.78	PF#2	1 1921020830.43
204.68	PF#2	1 1896020546.37
204.61	PF#2	1 18880 20482.9
204.53	PF#2	1 18885 20495.9
204.42	PF#2	1 19025.420679.03
204.34	PF#2	1 1910020814.38
204.25	PF#2	1 1930020817.18
204.15	PF#2	1 1920021031.89
204.05	PF#2	118963.7821080.54
203.96	PF#2	118736.54 20787.3
203.86	PF#2	118542.4920734.27
203.77	PF#2	118232.4120743.68
203.67	PF#2	1 1813020697.43
203.58	PF#2	1 1802520701.39
203.48	PF#2	1 17932.620844.31
203.39	PF#2	1 17970.821036.47
203.29	PF#2	1 18065.621074.86

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203.19  PF#2                    1 18262.120951.24
203.09  PF#2                    1   1843020905.85
202.99  PF#2                    1 18469.4 20926.9
202.9   PF#2                    1 18455.620967.31
202.8   PF#2                    1 18390.821011.58
202.69  PF#2                    1 18377.821080.23
202.59  PF#2                    1 18416.7 21190.4
202.48  PF#2                    1   18360 21302.7
202.37  PF#2                    1   1827021577.77
202.29  PF#2                    1 18197.4   21803
202.18  PF#2                    1 18139.721936.54
202.09  PF#2                    1 18212.921936.96
201.99  PF#2                    1 18235.121861.56
201.9   PF#2                    117992.63 21823.6
201.81  PF#2                    117952.4821801.08
201.71  PF#2                    118112.81 21528.5
201.62  PF#2                    118235.69 21477.5
201.52  PF#2                    118008.55 21391.4
201.43  PF#2                    118053.86 21342.1
201.33  PF#2                    118074.35 21381.8
201.24  PF#2                    118069.92   21570
201.14  PF#2                    118040.42   21721
201.05  PF#2                    117950.48   21849
200.95  PF#2                    117952.91   21954
200.86  PF#2                    1   18000   22032
200.77  PF#2                    1 17828.8   21951
200.67  PF#2                    1   17640 21649.3
200.58  PF#2                    1   17510   21450
200.49  PF#2                    1   17380   21171
200.39  PF#2                    1   17300   21041
200.3   PF#2                    1   17205   20896
200.2   PF#2                    1   17115   20744
200.1   PF#2                    1   17030   20800
200     PF#2                    1   16950   21050
199.91  PF#2                    1   16800   21330
199.82  PF#2                    1   16870   21650

*****************************************************************************

FLOW DATA

Flow Title: Reach 3 - Floodway
Flow File : R:\Phoenix\Projects\AZE1005-ARS_ProgramManagement\Technical\Drainage\HEC-RAS\Duplicate Effective Model\DuplicateEffective.f01

Flow Data (cfs)
*****************************************************************************
* River          Reach          RS      *          PF#1          PF#2 *
* 1              1              214.14  *        169000        169000 *
* 1              1              213.21  *        166000        166000 *
* 1              1              205.4   *        164000        164000 *
* 1              1              200.3   *        179750        179750 *
*****************************************************************************

Boundary Conditions
*****************************************************************************************************************
* River          Reach          Profile         *          Upstream                  Downstream    *
*****************************************************************************************************************
* 1              1              PF#1            *                                Known WS = 948.9 *
* 1              1              PF#2            *                                Known WS = 949.9 *
*****************************************************************************************************************

*****************************************************************************

GEOMETRY DATA

Geometry Title: Salt River Reach 3 - Duplicate Effective
Geometry File : R:\Phoenix\Projects\AZE1005-ARS_ProgramManagement\Technical\Drainage\HEC-RAS\Duplicate Effective
Model\DuplicateEffective.g02

CROSS SECTION


RIVER: 1
REACH: 1                RS: 214.14

INPUT
Description: 214.14
Station Elevation Data    num=      96
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
 18555.4  1082.6 18577.7  1082.5 18586.5  1082.5 18650.6    1082 18678.8  1082.1
 18707.4  1081.7 18729.5    1082 18771.6  1082.1 18793.7  1081.8   18836  1080.9
 18859.7  1080.3 18935.6  1078.9 19050.6  1077.2 19056.7  1077.2 19059.9  1077.1
 19062.9  1076.9 19063.3    1077 19067.8  1077.1 19071.9  1077.1 19078.2  1077.1
 19188.3  1078.1 19249.7  1079.4 19290.2  1080.1 19298.1  1080.2 19313.1  1080.4
 19327.5  1080.7 19358.6  1080.6 19391.6  1080.5 19412.8  1080.3 19520.8  1077.9
 19554.8  1077.5 19580.2  1077.3 19610.8  1076.5 19651.9  1076.7 19697.7  1058.7
 19715.9  1051.7 19732.8  1050.2 19750.7  1048.7 20032.7    1049 20292.3  1049.2
 20350.9  1065.9 20388.3  1077.5 20405.5  1075.6   20406  1075.6 20439.7  1075.6
 20637.3  1075.5 20899.6  1075.4 20920.6  1075.5 20941.8  1075.4 20947.4  1075.5
   20962  1075.5   20980  1075.4 20989.9  1075.4 21074.1  1075.4 21119.6  1075.7
 21168.7  1076.8   21222  1076.6 21326.8  1076.2 21327.4  1076.2 21342.2    1075
 21390.6    1075 21428.8    1075 21455.3  1075.3 21502.1  1076.4 21502.4  1076.2
 21505.4  1076.4 21551.9  1077.5 21591.8  1077.6 21726.3  1078.4 21759.2  1078.5
 21766.3  1078.3 21792.4  1078.4 21884.6  1078.9   22013  1079.1 22034.3  1079.5
 22101.6  1079.7 22156.1  1080.1 22201.4    1080 22204.6  1079.9 22217.3  1080.5
   22235  1081.3 22238.1  1081.3 22264.5    1081 22267.7  1080.9 22269.4  1080.7
 22269.9  1080.6 22272.4  1080.4 22280.3  1079.8 22341.9  1080.2   22431  1080.6
 22501.3  1081.2 22591.2  1081.8 22602.9    1082 22619.7    1083 22686.6  1082.9
 22710.3  1082.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
 18555.4     .04 19651.9    .035 20388.3     .04
```

```
Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.    Expan.
       19651.9 20388.3             475  510.51     570            .1         .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 18555.4 19651.9    1082       F
 20388.3 22710.3    1082       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         * 1077.01  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.50  * Wt. n-Val.            *          *    0.035 *          *
* W.S. Elev (ft)         * 1075.50  * Reach Len. (ft)       *  475.00  *  510.51  *  570.00  *
* Crit W.S. (ft)         * 1062.66  * Flow Area (sq ft)     *          *17180.89  *          *
* E.G. Slope (ft/ft)     *0.000804  * Area (sq ft)          *          *17180.89  *   83.10  *
* Q Total (cfs)          *169000.00  * Flow (cfs)           *          *169000.00  *          *
* Top Width (ft)         * 1312.52  * Top Width (ft)       *          *  726.91  *  585.60  *
* Vel Total (ft/s)       *    9.84  * Avg. Vel. (ft/s)      *          *    9.84  *          *
* Max Chl Dpth (ft)      *   26.80  * Hydr. Depth (ft)      *          *   23.64  *          *
* Conv. Total (cfs)      *5961484.0  * Conv. (cfs)          *          *5961484.0  *          *
* Length Wtd. (ft)       *  510.51  * Wetted Per. (ft)      *          *  735.31  *          *
* Min Ch El (ft)         * 1048.70  * Shear (lb/sq ft)     *          *    1.17  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   11.53  *          *
* Frctn Loss (ft)        *    0.42  * Cum Volume (acre-ft)  * 9467.46  *35647.09  * 3148.44  *
* C & E Loss (ft)        *    0.00  * Cum SA (acres)        * 2206.08  * 3246.48  * 1055.25  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)         * 1077.01  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.50  * Wt. n-Val.            *          *    0.035 *          *
* W.S. Elev (ft)         * 1075.51  * Reach Len. (ft)       *  475.00  *  510.51  *  570.00  *
* Crit W.S. (ft)         * 1062.66  * Flow Area (sq ft)     *          *17184.88  *          *
* E.G. Slope (ft/ft)     *0.000803  * Area (sq ft)          *          *17184.88  *          *
* Q Total (cfs)          *169000.00  * Flow (cfs)           *          *169000.00  *          *
* Top Width (ft)         *  726.86  * Top Width (ft)       *          *  726.86  *          *
* Vel Total (ft/s)       *    9.83  * Avg. Vel. (ft/s)      *          *    9.83  *          *
* Max Chl Dpth (ft)      *   26.81  * Hydr. Depth (ft)      *          *   23.64  *          *
* Conv. Total (cfs)      *5963943.0  * Conv. (cfs)          *          *5963943.0  *          *
* Length Wtd. (ft)       *  510.51  * Wetted Per. (ft)      *          *  735.29  *          *
* Min Ch El (ft)         * 1048.70  * Shear (lb/sq ft)     *          *    1.17  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   11.52  *          *
* Frctn Loss (ft)        *    0.42  * Cum Volume (acre-ft)  * 1430.28  *36629.85  *  355.97  *
* C & E Loss (ft)        *    0.00  * Cum SA (acres)        *  223.80  * 3252.09  *   77.43  *
*********************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 214.04

INPUT
Description: 214.04
Station Elevation Data    num=      96
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
*********************************************************************************************
 19072.9   1079.7  19093.4   1080.3  19132.2   1080.8  19189.9   1082.5  19193.8   1082.6
 19198.4   1082.5  19239.2     1081  19288.1   1081.2  19324.4   1080.7  19371.7   1079.1
 19395.9   1078.4  19428.8     1078  19449.6   1077.2  19490.6   1077.5  19513.1   1077.7
 19544.1   1077.9  19555.9   1077.7  19588.8   1076.5  19610.7   1075.7  19613.2   1075.7
 19632.1   1075.8  19635.6   1075.8  19636.8   1075.4  19702.8     1053  19711.2   1052.5
 19718.8   1052.3  19726.8   1051.2  19735.4   1048.8  20175.7     1049  20286.6     1049
 20298.5   1052.8  20376.6   1076.5  20387.2   1075.5  20390.3   1075.2  20574.2     1076
 20667.2   1076.1  20825.6   1075.6  20839.5   1075.5  20839.8   1075.5  20855.8     1073
 20864.2   1073.4  20909.3   1072.6  20914.5   1072.6  20915.6   1072.9  20928.6     1077
 20951.8     1077  20990.8   1076.9  20996.8   1076.9  21016.8   1077.3  21040.9   1077.5
 21130.4   1077.3  21234.3   1076.9  21246.3   1076.9  21256.8   1076.2  21294.9   1076.5
 21366.4   1076.6  21461.4   1076.5  21539.2   1076.3  21557.9   1076.3  21565.1   1076.3
 21586.9   1076.6  21607.7   1076.8  21639.2   1077.1  21662.1   1077.5  21690.5   1078.1
 21711.2   1078.3  21774.8   1078.5  21799.9   1079.2  21800.4   1079.3  21942.9   1079.4
   21971   1079.3  22001.7   1079.3  22020.7   1079.3  22177.7   1078.3  22203.1   1078.1
 22217.2   1078.1  22226.8     1078  22231.1     1078  22238.5     1078    22248   1077.8
 22357.9   1076.9  22384.7   1077.9  22394.1   1078.2  22399.6   1078.1  22400.9   1078.1
 22428.8   1077.9  22430.1   1077.9  22450.6   1078.2  22542.8   1078.3    22554   1078.5
 22667.1   1079.2  22667.7   1079.3  22717.7   1081.1  22725.6   1081.1  22727.3   1081.2
 22747.1     1084

Manning's n Values        num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
 19072.9     .04  19636.8    .035  20376.6     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.    Expan.
       19636.8 20376.6             495  493.12     480            .1         .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 19072.9 19636.8    1083       F
 20376.6 22747.1    1083       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         * 1076.58  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.54  * Wt. n-Val.            *          *    0.035 *          *
* W.S. Elev (ft)         * 1075.04  * Reach Len. (ft)       *  495.00  *  493.12  *  480.00  *
* Crit W.S. (ft)         * 1062.64  * Flow Area (sq ft)     *          *16977.45  *          *
* E.G. Slope (ft/ft)     *0.000846  * Area (sq ft)          *          *16977.45  *  143.39  *
* Q Total (cfs)          *169000.00  * Flow (cfs)           *          *169000.00  *          *
* Top Width (ft)         *  813.60  * Top Width (ft)       *          *  733.94  *   79.66  *
```

```
                                                                    DuplicateEffective
* Vel Total (ft/s)       *    9.95  * Avg. Vel. (ft/s)       *          *    9.95  *          *
* Max Chl Dpth (ft)      *   26.24  * Hydr. Depth (ft)       *          *   23.13  *          *
* Conv. Total (cfs)      *5809707.0  * Conv. (cfs)           *          *5809707.0  *          *
* Length Wtd. (ft)       *  493.12  * Wetted Per. (ft)       *          *  741.89  *          *
* Min Ch El (ft)         * 1048.80  * Shear (lb/sq ft)       *          *    1.21  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   12.03  *          *
* Frctn Loss (ft)        *    0.50  * Cum Volume (acre-ft)   * 9467.46  *35446.93  * 3146.95  *
* C & E Loss (ft)        *    0.04  * Cum SA (acres)         * 2206.08  * 3237.92  * 1050.89  *
*****************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*****************************************************************************************
* E.G. Elev (ft)         * 1076.59  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.54  * Wt. n-Val.            *          *   0.035  *          *
* W.S. Elev (ft)         * 1075.05  * Reach Len. (ft)       *  495.00  *  493.12  *  480.00  *
* Crit W.S. (ft)         * 1062.64  * Flow Area (sq ft)     *          *16981.83  *          *
* E.G. Slope (ft/ft)     *0.000845  * Area (sq ft)          *          *16981.83  *          *
* Q Total (cfs)          *169000.00  * Flow (cfs)           *          *169000.00  *          *
* Top Width (ft)         *  733.89  * Top Width (ft)       *          *  733.89  *          *
* Vel Total (ft/s)       *    9.95  * Avg. Vel. (ft/s)      *          *    9.95  *          *
* Max Chl Dpth (ft)      *   26.25  * Hydr. Depth (ft)      *          *   23.14  *          *
* Conv. Total (cfs)      *5812338.0  * Conv. (cfs)          *          *5812338.0  *          *
* Length Wtd. (ft)       *  493.12  * Wetted Per. (ft)      *          *  741.87  *          *
* Min Ch El (ft)         * 1048.80  * Shear (lb/sq ft)      *          *    1.21  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   12.02  *          *
* Frctn Loss (ft)        *    0.50  * Cum Volume (acre-ft)   * 1430.28  *36429.64  *  355.97  *
* C & E Loss (ft)        *    0.04  * Cum SA (acres)         *  223.80  * 3243.53  *   77.43  *
*****************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                RS: 213.95

INPUT
Description: 213.95 - FEMA Section AG
Station Elevation Data    num=      96
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
*****************************************************************************************
 19012.2  1082.3 19071.8  1081.2 19072.8  1081.2 19073.5  1081.2 19172.6    1080
 19176.1  1079.9   19177  1079.9 19191.6  1079.8 19233.8  1079.1 19245.6  1079.2
 19283.7  1079.1   19366  1078.5 19459.9  1077.8 19508.7  1075.2   19510  1075.1
 19510.4  1075.2 19511.8  1075.3 19534.7  1076.7 19583.1  1074.4 19622.2  1071.5
 19627.4  1072.4 19631.4  1072.9 19699.3  1056.7   19729  1049.4 19783.8  1049.5
 20255.4  1049.3 20277.7  1056.5 20337.1  1075.9 20360.3  1074.9 20361.6  1074.8
 20403.2  1074.5 20653.5  1075.3 20691.9  1075.3   20740  1075.5   20772  1075.4
 20775.5  1075.1 20784.4  1073.9 20808.5  1074.1 20840.9  1074.4 20844.2  1074.5
 20853.7  1075.1   20870  1074.8   20875  1074.6 20914.9  1075.6 20922.3  1075.7
 20949.7  1076.5 20960.6  1076.8 20964.2  1076.9 20966.3  1078.4   20973  1080.1
 21108.8  1079.4 21171.4  1079.5 21176.1  1079.5   21183  1079.7 21200.9  1076.8
 21203.1  1076.6 21232.6  1076.3 21271.1    1076 21272.6    1076 21274.1    1076
 21377.7  1076.7 21386.9  1076.7 21400.8  1076.7 21470.9  1077.6 21502.4  1077.7
   21528  1077.6   21534  1077.9 21534.2  1077.9   21537    1078 21542.7  1077.4
 21542.9  1077.8 21554.1  1077.4 21695.2  1077.7 21731.7  1077.2 21736.1  1076.3
 21743.3  1075.1   21752  1076.3 21753.2  1076.5 21753.7  1076.6 21759.1  1078.6
 21760.3  1079.1 21763.3  1079.6 21764.1  1079.5 21772.7  1079.3 21784.7  1079.3
 21791.6  1079.5 21806.1  1079.6 21832.6  1079.8 21918.1  1079.8 21918.4  1080.2
 22000.8  1079.8   22342  1078.4 22351.4  1078.4 22362.3  1078.4 22373.8  1078.7
 22391.3  1078.7

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
 19012.2     .04 19534.7    .035 20337.1     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.    Expan.
       19534.7 20337.1             500  504.25     500             .1       .3
Ineffective Flow     num=       2
   Sta L    Sta R     Elev  Permanent
 19012.2 19534.7  1082.3       F
 20337.1 22391.3  1082.3       F

CROSS SECTION OUTPUT  Profile #PF#1
*****************************************************************************************
* E.G. Elev (ft)         * 1076.05  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.89  * Wt. n-Val.            *          *   0.035  *          *
* W.S. Elev (ft)         * 1074.16  * Reach Len. (ft)       *  500.00  *  504.25  *  500.00  *
* Crit W.S. (ft)         * 1063.67  * Flow Area (sq ft)     *          *15307.12  *          *
* E.G. Slope (ft/ft)     *0.001218  * Area (sq ft)          *          *15307.12  *    4.17  *
* Q Total (cfs)          *169000.00  * Flow (cfs)           *          *169000.00  *          *
* Top Width (ft)         *  777.40  * Top Width (ft)       *          *  745.37  *   32.04  *
* Vel Total (ft/s)       *   11.04  * Avg. Vel. (ft/s)      *          *   11.04  *          *
* Max Chl Dpth (ft)      *   24.86  * Hydr. Depth (ft)      *          *   20.54  *          *
* Conv. Total (cfs)      *4843418.0  * Conv. (cfs)          *          *4843418.0  *          *
* Length Wtd. (ft)       *  504.21  * Wetted Per. (ft)      *          *  752.31  *          *
* Min Ch El (ft)         * 1049.30  * Shear (lb/sq ft)      *          *    1.55  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   17.07  *          *
* Frctn Loss (ft)        *    0.81  * Cum Volume (acre-ft)   * 9467.46  *35264.19  * 3146.14  *
* C & E Loss (ft)        *    0.15  * Cum SA (acres)         * 2206.08  * 3229.55  * 1050.28  *
*****************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
```

DuplicateEffective

E.G. Elev (ft)	1076.06	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.89	Wt. n-Val.		0.035	
W.S. Elev (ft)	1074.16	Reach Len. (ft)	500.00	504.25	500.00
Crit W.S. (ft)	1063.67	Flow Area (sq ft)		15312.49	
E.G. Slope (ft/ft)	0.001216	Area (sq ft)		15312.49	
Q Total (cfs)	169000.00	Flow (cfs)		169000.00	
Top Width (ft)	745.19	Top Width (ft)		745.19	
Vel Total (ft/s)	11.04	Avg. Vel. (ft/s)		11.04	
Max Chl Dpth (ft)	24.86	Hydr. Depth (ft)		20.55	
Conv. Total (cfs)	4846870.0	Conv. (cfs)		4846870.0	
Length Wtd. (ft)	504.21	Wetted Per. (ft)		752.16	
Min Ch El (ft)	1049.30	Shear (lb/sq ft)		1.55	
Alpha	1.00	Stream Power (lb/ft s)		17.05	
Frctn Loss (ft)	0.81	Cum Volume (acre-ft)	1430.28	36246.84	355.97
C & E Loss (ft)	0.15	Cum SA (acres)	223.80	3235.16	77.43

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 213.85

INPUT
Description: 213.85
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17827.8	1078.7	17849.3	1078.5	17962.5	1078	17983.6	1077.8	18087.6	1077.7
18117.7	1077.6	18209	1077.4	18245.6	1077.6	18313.2	1077.9	18389.3	1078.8
18415.4	1078.8	18437.5	1078.2	18449	1078.3	18463.7	1078.2	18513.6	1077.6
18548.9	1077.6	18753.1	1077.6	18798.9	1077.6	18834.2	1077.6	18917.4	1077
19257.5	1075.3	19264.9	1075.1	19293.5	1075.6	19308	1069.8	19333.3	1060.1
19342.5	1063.1	19360.7	1068.8	19366.6	1068.9	19391	1069.1	19423.4	1069.4
19453.2	1068.8	19469.5	1068.4	19505	1067.4	19506.5	1067.3	19507.3	1067.3
19507.8	1067.3	19547.4	1067.3	19584.5	1067.6	19698.5	1068	19698.6	1068
19700.1	1067.8	19706.3	1067	19707.5	1066.9	19732.9	1066.7	19742.3	1067
19770.4	1067.6	19785.4	1067.6	19789.2	1066.5	19853.9	1048.1	19906.4	1048.1
20083.9	1048.2	20249.9	1048.3	20313.2	1069.1	20328.7	1074.2	20334.9	1074.2
20586	1074.1	20640.3	1074.2	20781.1	1074.5	20824.2	1074.1	20842	1073.7
20852.3	1073.7	20870.3	1073.9	20934.9	1073.8	20979.5	1074.4	21111.7	1075.1
21125.5	1075	21144.4	1074.8	21152.1	1075.1	21185.5	1076.2	21224.6	1075.6
21230.8	1075.4	21246.8	1077.2	21248.3	1077.3	21269	1076.4	21270.4	1076.3
21272.5	1076.3	21337.9	1076.3	21381.5	1076.2	21384.6	1076.3	21498.8	1077.1
21503.7	1077.1	21545.5	1077.1	21557.5	1077.1	21587	1077.2	21625.9	1077.3
21671.9	1077.5	21707.6	1077.4	21723.9	1077.4	21767.4	1077.3	21770.2	1077.3
21773.6	1077.4	21774.6	1077.4	21801.1	1079.6	21831.2	1078.8	21907.4	1079.1
21970.5	1078.8								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
17827.8	.04	19785.4	.035	20328.7	.04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19785.4 20328.7 521 520.04 541 .1 .3
Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17827.8	19618.33	1078	F
20328.7	21970.5	1078	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1075.08	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.43	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	1071.66	Reach Len. (ft)	521.00	520.04	541.00
Crit W.S. (ft)	1065.14	Flow Area (sq ft)	694.18	11070.79	
E.G. Slope (ft/ft)	0.002230	Area (sq ft)	1959.01	11070.79	
Q Total (cfs)	169000.00	Flow (cfs)	3146.51	165853.50	
Top Width (ft)	1017.61	Top Width (ft)	482.04	535.57	
Vel Total (ft/s)	14.36	Avg. Vel. (ft/s)	4.53	14.98	
Max Chl Dpth (ft)	23.56	Hydr. Depth (ft)	4.16	20.67	
Conv. Total (cfs)	3578540.0	Conv. (cfs)	66626.8	3511913.0	
Length Wtd. (ft)	520.05	Wetted Per. (ft)	167.15	542.03	
Min Ch El (ft)	1048.10	Shear (lb/sq ft)	0.58	2.84	
Alpha	1.07	Stream Power (lb/ft s)	2.62	42.60	
Frctn Loss (ft)	0.71	Cum Volume (acre-ft)	9456.22	35111.52	3146.12
C & E Loss (ft)	0.44	Cum SA (acres)	2203.31	3222.13	1050.09

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1075.09	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.43	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	1071.66	Reach Len. (ft)	521.00	520.04	541.00
Crit W.S. (ft)	1065.14	Flow Area (sq ft)	695.26	11074.25	
E.G. Slope (ft/ft)	0.002229	Area (sq ft)	695.26	11074.25	
Q Total (cfs)	169000.00	Flow (cfs)	3105.07	165894.90	
Top Width (ft)	702.59	Top Width (ft)	167.07	535.52	
Vel Total (ft/s)	14.36	Avg. Vel. (ft/s)	4.47	14.98	
Max Chl Dpth (ft)	23.56	Hydr. Depth (ft)	4.16	20.68	

```
                                                                    DuplicateEffective
* Conv. Total (cfs)      *3579632.0  * Conv. (cfs)            * 65769.3  *3513862.0  *          *
* Length Wtd. (ft)       *  520.05  * Wetted Per. (ft)       *  171.10  *  542.00  *          *
* Min Ch El (ft)         * 1048.10  * Shear (lb/sq ft)       *    0.57  *    2.84  *          *
* Alpha                  *    1.07  * Stream Power (lb/ft s) *    2.53  *   42.59  *          *
* Frctn Loss (ft)        *    0.71  * Cum Volume (acre-ft)   * 1426.29  *36094.12  *  355.97  *
* C & E Loss (ft)        *    0.44  * Cum SA (acres)         *  222.84  * 3227.74  *   77.43  *
*****************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                  RS: 213.75

INPUT
Description: 213.75
Station Elevation Data    num=      28
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
*************************************************************************************
   18435     1076   19470     1076    19600     1080 19633.4 1080.84 19633.5 1074.13
 19633.6   1073.5 19636.5   1073.5    19709 1048.55    19764     1047 19769.5     1047
 19834.5 1047.15    19899   1046.6    19904   1046.6    19959     1047    20034 1044.61
   20039   1044.6   20104     1045    20169   1045.5    20174   1045.5 20240.5 1049.35
   20302   1073.8   20305  1073.8 20305.1   1074.8 20305.2   1081.5    20340     1080
   20490     1076   20925     1075    21465     1076

Manning's n Values        num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*************************************************
   18435    .037 19633.5    .032 20305.1    .037

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       19633.5 20305.1             125  116.36     120             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
   18435 19633.5 1074.13        F
 20305.1   21465  1074.8        F

CROSS SECTION OUTPUT  Profile #PF#1
*****************************************************************************************************
* E.G. Elev (ft)         * 1073.93  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.97  * Wt. n-Val.             *          *    0.032  *          *
* W.S. Elev (ft)         * 1071.97  * Reach Len. (ft)        *    0.10  *    0.10  *    0.10  *
* Crit W.S. (ft)         * 1060.91  * Flow Area (sq ft)      *          *15022.46  *          *
* E.G. Slope (ft/ft)     *0.000919  * Area (sq ft)           *          *15022.46  *          *
* Q Total (cfs)          *169000.00  * Flow (cfs)            *          *169000.00  *          *
* Top Width (ft)         *  656.45  * Top Width (ft)        *          *  656.45  *          *
* Vel Total (ft/s)       *   11.25  * Avg. Vel. (ft/s)      *          *   11.25  *          *
* Max Chl Dpth (ft)      *   27.37  * Hydr. Depth (ft)      *          *   22.88  *          *
* Conv. Total (cfs)      *5575129.0  * Conv. (cfs)          *          *5575129.0  *          *
* Length Wtd. (ft)       *    0.10  * Wetted Per. (ft)      *          *  664.87  *          *
* Min Ch El (ft)         * 1044.60  * Shear (lb/sq ft)      *          *    1.30  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   14.58  *          *
* Frctn Loss (ft)        *          * Cum Volume (acre-ft)  * 9444.51  *34955.76  * 3146.12  *
* C & E Loss (ft)        *          * Cum SA (acres)        * 2200.43  * 3215.02  * 1050.09  *
*****************************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

CROSS SECTION OUTPUT  Profile #PF#2
*****************************************************************************************************
* E.G. Elev (ft)         * 1073.94  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.96  * Wt. n-Val.             *          *    0.032  *          *
* W.S. Elev (ft)         * 1071.98  * Reach Len. (ft)        *    0.10  *    0.10  *    0.10  *
* Crit W.S. (ft)         * 1060.91  * Flow Area (sq ft)      *          *15027.91  *          *
* E.G. Slope (ft/ft)     *0.000918  * Area (sq ft)           *          *15027.91  *          *
* Q Total (cfs)          *169000.00  * Flow (cfs)            *          *169000.00  *          *
* Top Width (ft)         *  656.35  * Top Width (ft)        *          *  656.35  *          *
* Vel Total (ft/s)       *   11.25  * Avg. Vel. (ft/s)      *          *   11.25  *          *
* Max Chl Dpth (ft)      *   27.38  * Hydr. Depth (ft)      *          *   22.90  *          *
* Conv. Total (cfs)      *5578780.0  * Conv. (cfs)          *          *5578780.0  *          *
* Length Wtd. (ft)       *    0.10  * Wetted Per. (ft)      *          *  664.82  *          *
* Min Ch El (ft)         * 1044.60  * Shear (lb/sq ft)      *          *    1.30  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   14.56  *          *
* Frctn Loss (ft)        *          * Cum Volume (acre-ft)  * 1422.13  *35938.31  *  355.97  *
* C & E Loss (ft)        *          * Cum SA (acres)        *  221.84  * 3220.63  *   77.43  *
*****************************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

BRIDGE


RIVER: 1
REACH: 1                  RS: 213.745

INPUT
Description: 7th Street Bridge
Distance from Upstream XS =       .1
Deck/Roadway Width        =    115.36
Weir Coefficient          =       2.6
Upstream  Deck/Roadway Coordinates
    num=       8
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
*************************************************************************
```

```
                                                                    DuplicateEffective
 19633.4 1080.84 1074.13 19633.5 1080.84 1074.13   19764 1084.56 1077.81
   19899 1085.96 1079.23   20039 1085.95  1079.2   20174 1084.45  1077.7
   20305 1081.53 1074.82 20305.2  1081.5 1074.82

Upstream Bridge Cross Section Data
Station Elevation Data    num=      28
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
   18435    1076   19470    1076   19600    1080 19633.4 1080.84 19633.5 1074.13
 19633.6  1073.5 19636.5  1073.5   19709 1048.55   19764    1047 19769.5    1047
 19834.5 1047.15   19899  1046.6   19904  1046.6   19959    1047   20034 1044.61
   20039  1044.6   20104    1045   20169  1045.5   20174  1045.5 20240.5 1049.35
   20302  1073.8   20305  1073.8 20305.1  1074.8 20305.2  1081.5   20340    1080
   20490    1076   20925    1075   21465    1076

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
   18435    .037 19633.5    .032 20305.1    .037

Bank Sta: Left   Right    Coeff Contr.   Expan.
       19633.5 20305.1            .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
   18435 19633.5 1074.13        F
 20305.1   21465  1074.8        F

Downstream  Deck/Roadway Coordinates
    num=       8
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
*********************************************************************************
 19633.4 1080.84 1074.13 19633.5 1080.84 1074.13   19764 1084.56 1077.81
   19899 1085.96 1079.23   20039 1085.95  1079.2   20174 1084.45  1077.7
   20305 1081.53 1074.82 20305.2  1081.5 1074.82

Downstream Bridge Cross Section Data
Station Elevation Data    num=      28
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
   18435    1076   19470    1076   19600    1080 19633.4 1080.84 19633.5 1074.13
 19633.6  1073.5 19636.5  1073.5   19709 1048.55   19764    1047 19769.5    1047
 19834.5 1047.15   19899  1046.6   19904  1046.6   19959    1047   20034 1044.61
   20039  1044.6   20104    1045   20169  1045.5   20174  1045.5 20240.5 1049.35
   20302  1073.8   20305  1073.8 20305.1  1074.8 20305.2  1081.5   20340    1080
   20490    1076   20925    1075   21465    1076

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
   18435    .037 19633.5    .032 20305.1    .037

Bank Sta: Left   Right    Coeff Contr.   Expan.
       19633.5 20305.1            .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
   18435 19633.5 1074.13        F
 20305.1   21465  1074.8        F

Upstream Embankment side slope              =         horiz. to 1.0 vertical
Downstream Embankment side slope            =         horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Piers =  4

Pier Data
Pier Station     Upstream= 19766.5    Downstream= 19766.5
Upstream     num=       2
    Width   Elev    Width   Elev
*********************************
        5    1047        5 1077.88
Downstream     num=       2
    Width   Elev    Width   Elev
*********************************
        5    1047        5 1077.88

Pier Data
Pier Station     Upstream= 19901.5    Downstream= 19901.5
Upstream     num=       2
    Width   Elev    Width   Elev
*********************************
        5  1046.6        5  1079.2
Downstream     num=       2
    Width   Elev    Width   Elev
*********************************
        5  1046.6        5  1079.2

Pier Data
Pier Station     Upstream= 20036.5    Downstream= 20036.5
Upstream     num=       2
    Width   Elev    Width   Elev
*********************************
        5  1044.6        5  1079.2
Downstream     num=       2
    Width   Elev    Width   Elev
*********************************
        5  1044.6        5  1079.2

Pier Data
Pier Station     Upstream= 20171.5    Downstream= 20171.5
Upstream     num=       2
    Width   Elev    Width   Elev
*********************************
```

```
       5  1045.5       5  1077.7
Downstream      num=       2
    Width   Elev    Width   Elev
*********************************
       5  1045.5       5  1077.7

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
       Momentum               Cd   =     1.2
       Yarnell                KVal =    1.05
Selected Low Flow Methods = Highest Energy Answer

High Flow Method
       Energy Only

Additional Bridge Parameters
       Add Friction component to Momentum
       Add Weight component to Momentum
       Class B flow critical depth computations use critical depth
          inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT  Profile #PF#1
*************************************************************************************************
* E.G. US. (ft)          *    1073.93  * Element                *Inside BR US *Inside BR DS *
* W.S. US. (ft)          *    1071.97  * E.G. Elev (ft)         *    1073.86  *    1073.68  *
* Q Total (cfs)          *  169000.00  * W.S. Elev (ft)         *    1071.70  *    1071.48  *
* Q Bridge (cfs)         *  169000.00  * Crit W.S. (ft)         *    1061.26  *    1061.26  *
* Q Weir (cfs)           *             * Max Chl Dpth (ft)      *      27.10  *      26.88  *
* Weir Sta Lft (ft)      *             * Vel Total (ft/s)       *      11.80  *      11.91  *
* Weir Sta Rgt (ft)      *             * Flow Area (sq ft)      *   14327.87  *   14190.25  *
* Weir Submerg           *             * Froude # Chl           *       0.44  *       0.44  *
* Weir Max Depth (ft)    *             * Specif Force (cu ft)   *  236120.50  *  233627.70  *
* Min El Weir Flow (ft)  *    1075.01  * Hydr Depth (ft)        *      22.56  *      22.39  *
* Min El Prs (ft)        *    1079.23  * W.P. Total (ft)        *     849.45  *     846.46  *
* Delta EG (ft)          *       0.26  * Conv. Total (cfs)      *  4375788.0  *  4316097.0  *
* Delta WS (ft)          *       0.31  * Top Width (ft)         *     634.96  *     633.79  *
* BR Open Area (sq ft)   *   18211.62  * Frctn Loss (ft)        *             *             *
* BR Open Vel (ft/s)     *      11.91  * C & E Loss (ft)        *             *             *
* Coef of Q              *             * Shear Total (lb/sq ft) *       1.57  *       1.60  *
* Br Sel Method          *   Momentum  * Power Total (lb/ft s)  *      18.53  *      19.11  *
*************************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

BRIDGE OUTPUT  Profile #PF#2
*************************************************************************************************
* E.G. US. (ft)          *    1073.94  * Element                *Inside BR US *Inside BR DS *
* W.S. US. (ft)          *    1071.98  * E.G. Elev (ft)         *    1073.86  *    1073.69  *
* Q Total (cfs)          *  169000.00  * W.S. Elev (ft)         *    1071.70  *    1071.49  *
* Q Bridge (cfs)         *  169000.00  * Crit W.S. (ft)         *    1061.26  *    1061.26  *
* Q Weir (cfs)           *             * Max Chl Dpth (ft)      *      27.10  *      26.89  *
* Weir Sta Lft (ft)      *             * Vel Total (ft/s)       *      11.79  *      11.90  *
* Weir Sta Rgt (ft)      *             * Flow Area (sq ft)      *   14333.29  *   14195.82  *
* Weir Submerg           *             * Froude # Chl           *       0.44  *       0.44  *
* Weir Max Depth (ft)    *             * Specif Force (cu ft)   *  236219.40  *  233727.90  *
* Min El Weir Flow (ft)  *    1081.09  * Hydr Depth (ft)        *      22.57  *      22.40  *
* Min El Prs (ft)        *    1079.23  * W.P. Total (ft)        *     849.57  *     846.58  *
* Delta EG (ft)          *       0.26  * Conv. Total (cfs)      *  4378146.0  *  4318510.0  *
* Delta WS (ft)          *       0.31  * Top Width (ft)         *     635.01  *     633.84  *
* BR Open Area (sq ft)   *   18185.24  * Frctn Loss (ft)        *             *             *
* BR Open Vel (ft/s)     *      11.90  * C & E Loss (ft)        *             *             *
* Coef of Q              *             * Shear Total (lb/sq ft) *       1.57  *       1.60  *
* Br Sel Method          *   Momentum  * Power Total (lb/ft s)  *      18.50  *      19.09  *
*************************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

CROSS SECTION


RIVER: 1
REACH: 1                  RS: 213.74

INPUT
Description: 213.74
Station Elevation Data    num=      28
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
*********************************************************************************************
    18435     1076    19470     1076    19600     1080 19633.4 1080.84 19633.5 1074.13
 19633.6  1073.5 19636.5  1073.5    19709 1048.55    19764     1047 19769.5     1047
 19834.5 1047.15    19899  1046.6    19904  1046.6    19959     1047    20034 1044.61
    20039  1044.6    20104     1045    20169  1045.5    20174  1045.5 20240.5 1049.35
    20302  1073.8    20305  1073.8 20305.1  1074.8 20305.2  1081.5    20340     1080
    20490     1076    20925     1075    21465     1076

Manning's n Values        num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*************************************************
    18435    .037 19633.5    .032 20305.1    .037

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       19633.5 20305.1             391  373.47     361             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
   18435 19633.5 1074.13       F
 20305.1   21465  1074.8       F
```

DuplicateEffective

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1073.68	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.02	Wt. n-Val.		0.032	
W.S. Elev (ft)	1071.66	Reach Len. (ft)	391.00	373.47	361.00
Crit W.S. (ft)	1060.91	Flow Area (sq ft)		14818.63	
E.G. Slope (ft/ft)	0.000958	Area (sq ft)		14818.63	
Q Total (cfs)	169000.00	Flow (cfs)		169000.00	
Top Width (ft)	654.76	Top Width (ft)		654.76	
Vel Total (ft/s)	11.40	Avg. Vel. (ft/s)		11.40	
Max Chl Dpth (ft)	27.06	Hydr. Depth (ft)		22.63	
Conv. Total (cfs)	5459470.0	Conv. (cfs)		5459470.0	
Length Wtd. (ft)	373.47	Wetted Per. (ft)		663.07	
Min Ch El (ft)	1044.60	Shear (lb/sq ft)		1.34	
Alpha	1.00	Stream Power (lb/ft s)		15.25	
Frctn Loss (ft)	0.52	Cum Volume (acre-ft)	9444.51	34917.66	3146.12
C & E Loss (ft)	0.17	Cum SA (acres)	2200.43	3213.32	1050.09

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1073.69	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.02	Wt. n-Val.		0.032	
W.S. Elev (ft)	1071.67	Reach Len. (ft)	391.00	373.47	361.00
Crit W.S. (ft)	1060.91	Flow Area (sq ft)		14824.30	
E.G. Slope (ft/ft)	0.000957	Area (sq ft)		14824.30	
Q Total (cfs)	169000.00	Flow (cfs)		169000.00	
Top Width (ft)	654.73	Top Width (ft)		654.73	
Vel Total (ft/s)	11.40	Avg. Vel. (ft/s)		11.40	
Max Chl Dpth (ft)	27.07	Hydr. Depth (ft)		22.64	
Conv. Total (cfs)	5462967.0	Conv. (cfs)		5462967.0	
Length Wtd. (ft)	373.47	Wetted Per. (ft)		663.07	
Min Ch El (ft)	1044.60	Shear (lb/sq ft)		1.34	
Alpha	1.00	Stream Power (lb/ft s)		15.23	
Frctn Loss (ft)	0.52	Cum Volume (acre-ft)	1422.13	35900.20	355.97
C & E Loss (ft)	0.17	Cum SA (acres)	221.84	3218.93	77.43

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 213.66

INPUT
Description: 213.66
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17026.7	1076.4	17035.9	1076.4	17047	1076.4	17057.3	1076.5	17212.3	1077.3
17306.5	1077.8	17311.3	1077.7	17325.2	1077.3	17326.2	1077.3	17343.4	1077.3
17442.9	1076.7	17474.5	1076.6	17571	1076	17573.6	1076	17595.6	1076.1
17610	1076.1	17705.1	1075	17741.5	1075.1	17947.8	1075.4	17953.1	1075.5
18038.8	1075.4	18185.8	1075.6	18234.4	1076.1	18300.9	1076.4	18318.8	1076.5
18414	1075.5	18414.6	1075.5	18415.1	1075.5	18415.7	1075.5	18448.6	1075.8
18455.1	1075.4	18472.5	1073.3	18527.9	1073.3	18683	1073	18718.7	1073
18832.1	1073.3	18873.8	1073.2	18878.4	1072.9	18881.8	1072.9	18892.6	1074.2
18901.3	1075.2	19033.1	1075.2	19131.6	1074.9	19140.9	1074.8	19157.1	1074.8
19235.1	1073.7	19291.4	1073.4	19291.9	1073.4	19292.2	1073.4	19391.8	1069.9
19418.5	1069.7	19442.4	1069.3	19496.9	1070	19532.6	1070.6	19537.6	1070.2
19543	1070.6	19572.3	1071.8	19605.3	1068.7	19616.1	1068.2	19621.3	1069.8
19633.2	1073.3	19663.1	1073.7	19675.2	1073.6	19689.7	1068.5	19748.8	1047.6
19750.4	1047.6	20010.7	1047.7	20194.9	1047.9	20235	1062.5	20260.3	1071.7
20270.2	1073.7	20288.3	1076.6	20297.7	1078.3	20387.2	1078.5	20416.3	1078.5
20457.1	1078.5	20464.9	1076.1	20469.4	1075.3	20825.5	1074.4	20828.5	1074.4
20828.8	1074.4	20830.9	1074.4	20837.2	1074.9	20839.2	1074.9	20870.3	1074.9
20871.4	1074.9	20872.6	1074.6	20872.8	1074.7	20900.8	1074.1	20901.5	1074
20908.4	1073.9	20912.4	1073.9	20915.4	1074	20927	1075.1	20951.2	1077.5
20999.4	1077.6								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
17026.7	.037	19675.2	.032	20297.7	.037

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19675.2 20297.7 490 491.08 495 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17026.7	19675.2	1078.5	F
20297.7	20999.4	1078.5	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1072.99	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.73	Wt. n-Val.		0.032	
W.S. Elev (ft)	1069.25	Reach Len. (ft)	490.00	491.08	495.00
Crit W.S. (ft)	1063.62	Flow Area (sq ft)		10898.94	
E.G. Slope (ft/ft)	0.002199	Area (sq ft)	12.11	10898.94	
Q Total (cfs)	169000.00	Flow (cfs)		169000.00	
Top Width (ft)	586.13	Top Width (ft)	20.11	566.02	
Vel Total (ft/s)	15.51	Avg. Vel. (ft/s)		15.51	

```
                                                                    DuplicateEffective
* Max Chl Dpth (ft)      *   21.65  * Hydr. Depth (ft)       *          *   19.26  *          *
* Conv. Total (cfs)      *3604114.0  * Conv. (cfs)           *          *3604114.0  *          *
* Length Wtd. (ft)       *  491.08  * Wetted Per. (ft)       *          *  573.50  *          *
* Min Ch El (ft)         * 1047.60  * Shear (lb/sq ft)       *          *    2.61  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   40.45  *          *
* Frctn Loss (ft)        *    0.98  * Cum Volume (acre-ft)   * 9444.45  *34807.41  * 3146.12  *
* C & E Loss (ft)        *    0.39  * Cum SA (acres)         * 2200.34  * 3208.09  * 1050.09  *
*****************************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*****************************************************************************************************
* E.G. Elev (ft)          * 1073.00  * Element              *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    3.73  * Wt. n-Val.           *          *    0.032  *          *
* W.S. Elev (ft)          * 1069.27  * Reach Len. (ft)      *  490.00  *  491.08  *  495.00  *
* Crit W.S. (ft)          * 1063.62  * Flow Area (sq ft)    *          *10906.67  *          *
* E.G. Slope (ft/ft)      *0.002194  * Area (sq ft)         *          *10906.67  *          *
* Q Total (cfs)           *169000.00  * Flow (cfs)          *          *169000.00  *          *
* Top Width (ft)          *  565.99  * Top Width (ft)       *          *  565.99  *          *
* Vel Total (ft/s)        *   15.50  * Avg. Vel. (ft/s)     *          *   15.50  *          *
* Max Chl Dpth (ft)       *   21.67  * Hydr. Depth (ft)     *          *   19.27  *          *
* Conv. Total (cfs)       *3608339.0  * Conv. (cfs)         *          *3608339.0  *          *
* Length Wtd. (ft)        *  491.08  * Wetted Per. (ft)     *          *  573.51  *          *
* Min Ch El (ft)          * 1047.60  * Shear (lb/sq ft)     *          *    2.60  *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s) *          *   40.36  *          *
* Frctn Loss (ft)         *    0.98  * Cum Volume (acre-ft)   * 1422.13  *35789.89  *  355.97  *
* C & E Loss (ft)         *    0.39  * Cum SA (acres)         *  221.84  * 3213.70  *   77.43  *
*****************************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                RS: 213.57

INPUT
Description: 213.57 - FEMA Section AF
Station Elevation Data    num=      96
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
 17508.1  1075.8 17669.7    1076 17677.2    1076 17679.4    1076 17681.9  1075.9
 17685.3  1075.9 17879.1  1077.7 17883.6  1077.7 17891.2  1077.7 17899.7  1077.7
 17907.2  1077.7 18293.4  1077.1 18302.2  1077.1 18305.6  1077.2   18335  1077.2
 18409.4  1076.8 18482.1    1076 18487.1  1075.3 18493.2  1074.6 18496.9  1074.6
   18674  1073.2   18717    1073 18743.5  1072.8 18755.4  1072.8   18802  1072.6
 18832.6  1072.6 18934.4  1072.7 18941.7  1072.7   18977    1069 18979.3  1068.7
 18979.7  1068.7 18981.1  1068.6 19032.8  1069.7 19078.3  1069.3 19123.5    1069
 19190.3  1068.3 19211.6  1068.4 19212.3  1068.4   19245  1068.5 19287.9    1069
 19318.4  1068.9 19384.7  1069.1 19398.3  1068.6 19484.5  1068.5 19514.1  1067.2
 19542.6  1063.6   19548  1062.9   19575  1062.8 19586.3  1062.5 19595.5  1063.8
 19603.2  1064.4 19612.3  1065.2 19617.4  1064.5 19668.9  1061.9 19672.3  1061.7
 19674.3  1061.7 19711.7  1060.1   19720  1057.4 19743.1  1047.9 20035.4    1047
 20123.9  1046.7 20135.8  1048.3 20147.5  1050.1 20202.7  1051.3 20261.3  1052.3
 20286.6    1053 20301.2  1052.6 20302.5  1052.5 20345.5  1073.5 20347.7  1074.6
 20347.8  1074.6 20348.2  1074.6 20373.8  1075.7 20384.8  1075.5 20390.6  1075.6
 20426.7  1075.7 20435.9  1075.7 20452.6  1075.3 20481.8  1075.4 20485.6  1075.2
 20501.3  1076.7   20634    1076 20804.5  1073.3 20853.6  1072.8 20858.1  1072.8
 20865.8  1073.1 20870.9    1073 20902.9  1071.5 20922.6  1075.2 20923.6  1075.4
 20925.3  1075.3 20936.8  1075.1 20950.5  1074.7 21085.5  1074.8 21211.9  1075.1
 21311.2  1074.8

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
 17508.1    .037 19484.5    .032 20373.8    .037

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       19484.5 20373.8             650  500.37     390             .1       .3
Ineffective Flow     num=       2
   Sta L    Sta R     Elev  Permanent
 17508.1 19484.5  1077.7       F
 20373.8 21311.2  1077.7       F

CROSS SECTION OUTPUT  Profile #PF#1
*****************************************************************************************************
* E.G. Elev (ft)          * 1071.61  * Element              *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    2.42  * Wt. n-Val.           *          *    0.032  *          *
* W.S. Elev (ft)          * 1069.19  * Reach Len. (ft)      *  650.00  *  500.37  *  390.00  *
* Crit W.S. (ft)          * 1063.08  * Flow Area (sq ft)    *          *13535.60  *          *
* E.G. Slope (ft/ft)      *0.001831  * Area (sq ft)         *  189.41  *13535.60  *          *
* Q Total (cfs)           *169000.00  * Flow (cfs)          *          *169000.00  *          *
* Top Width (ft)          * 1275.10  * Top Width (ft)       *  422.92  *  852.17  *          *
* Vel Total (ft/s)        *   12.49  * Avg. Vel. (ft/s)     *          *   12.49  *          *
* Max Chl Dpth (ft)       *   22.49  * Hydr. Depth (ft)     *          *   15.88  *          *
* Conv. Total (cfs)       *3949740.0  * Conv. (cfs)         *          *3949740.0  *          *
* Length Wtd. (ft)        *  500.37  * Wetted Per. (ft)     *          *  859.23  *          *
* Min Ch El (ft)          * 1046.70  * Shear (lb/sq ft)     *          *    1.80  *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s) *          *   22.48  *          *
* Frctn Loss (ft)         *    0.88  * Cum Volume (acre-ft)   * 9443.32  *34669.68  * 3146.12  *
* C & E Loss (ft)         *    0.13  * Cum SA (acres)         * 2197.85  * 3200.10  * 1050.09  *
*****************************************************************************************************
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Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1071.62	Element	Left OB	Channel	Right OB			
Vel Head (ft)	2.42	Wt. n-Val.		0.032				
W.S. Elev (ft)	1069.20	Reach Len. (ft)	650.00	500.37	390.00			
Crit W.S. (ft)	1063.08	Flow Area (sq ft)		13548.71				
E.G. Slope (ft/ft)	0.001827	Area (sq ft)		13548.71				
Q Total (cfs)	169000.00	Flow (cfs)		169000.00				
Top Width (ft)	852.16	Top Width (ft)		852.16				
Vel Total (ft/s)	12.47	Avg. Vel. (ft/s)		12.47				
Max Chl Dpth (ft)	22.50	Hydr. Depth (ft)		15.90				
Conv. Total (cfs)	3953934.0	Conv. (cfs)		3953934.0				
Length Wtd. (ft)	500.37	Wetted Per. (ft)		859.94				
Min Ch El (ft)	1046.70	Shear (lb/sq ft)		1.80				
Alpha	1.00	Stream Power (lb/ft s)		22.41				
Frctn Loss (ft)	0.88	Cum Volume (acre-ft)	1422.13	35652.04	355.97			
C & E Loss (ft)	0.13	Cum SA (acres)	221.84	3205.71	77.43			

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 213.47

INPUT
Description: 213.47
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17897	1072.3	17950.9	1072.3	17955.5	1073.1	17972.5	1074.8	18140.3	1074.1
18179.1	1074.1	18193.1	1074	18207.9	1073.9	18257.4	1074	18402.2	1073.7
18450.1	1073.2	18519.9	1072.6	18592.3	1071.7	18600.6	1071.6	18625.8	1071.9
18741.5	1071.7	18784.9	1071.7	18805.1	1070.7	18823.4	1069.4	18880.6	1067
18888.4	1066.7	18938.9	1066.6	18942.7	1066.6	18948.4	1066.6	18970.5	1067.2
19008	1068.2	19008.9	1068.2	19041.7	1068.5	19057.6	1068.6	19057.8	1068.6
19058.1	1068.6	19060.2	1068.6	19154.7	1068.1	19202.4	1067.9	19243.3	1067
19289	1066	19306.6	1065.6	19313.9	1065.3	19357.8	1064.8	19392.5	1064.4
19420.7	1063.8	19432.7	1063.5	19483.4	1062	19493.9	1061.7	19499.6	1061.8
19534.7	1062.6	19536.4	1062.5	19585.4	1061.2	19586.6	1061.2	19587.5	1061.2
19588.9	1061.1	19593.6	1060.6	19689.9	1051.5	19699.6	1050.5	19735.3	1047
19807.1	1046.8	19827.4	1046.8	19970.4	1046.6	19993.9	1046.3	20037.8	1046.2
20146.5	1045.8	20205.3	1048.7	20214.8	1049.3	20219.4	1049	20220.8	1048.9
20255.2	1063.1	20274.2	1072.4	20283.3	1072.6	20341.6	1072.5	20362.6	1072.6
20428.7	1074.9	20446.8	1074.9	20469.6	1074.9	20474.3	1074.9	20476.7	1075
20483.2	1074.9	20484.1	1074.9	20486.3	1074.9	20488.6	1074.7	20489.3	1074.7
20515.7	1073.2	20526.3	1073.3	20537.5	1073.5	20540.5	1073.4	20545	1073.8
20567.4	1075.2	20569.1	1075.4	20578.4	1075	20619.2	1074.5	20621.6	1074.4
20649.8	1074	20700.8	1074	20735.1	1074.2	20751.5	1074.5	20765.2	1074.8
20783.9	1075.1								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
17897	.037	19243.3	.032	20274.2	.037

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19243.3 20274.2 500 493.66 485 .1 .3
Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17897	19243.3	1075.4	F
20274.2	20783.9	1075.4	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1070.60	Element	Left OB	Channel	Right OB			
Vel Head (ft)	2.00	Wt. n-Val.		0.032				
W.S. Elev (ft)	1068.60	Reach Len. (ft)	500.00	493.66	485.00			
Crit W.S. (ft)	1061.42	Flow Area (sq ft)		14886.30				
E.G. Slope (ft/ft)	0.001694	Area (sq ft)	342.03	14886.30				
Q Total (cfs)	169000.00	Flow (cfs)		169000.00				
Top Width (ft)	1424.00	Top Width (ft)	400.86	1023.14				
Vel Total (ft/s)	11.35	Avg. Vel. (ft/s)		11.35				
Max Chl Dpth (ft)	22.80	Hydr. Depth (ft)		14.55				
Conv. Total (cfs)	4106424.0	Conv. (cfs)		4106424.0				
Length Wtd. (ft)	493.66	Wetted Per. (ft)		1028.11				
Min Ch El (ft)	1045.80	Shear (lb/sq ft)		1.53				
Alpha	1.00	Stream Power (lb/ft s)		17.38				
Frctn Loss (ft)	0.56	Cum Volume (acre-ft)	9439.35	34506.44	3146.12			
C & E Loss (ft)	0.24	Cum SA (acres)	2191.70	3189.33	1050.09			

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1070.62	Element	Left OB	Channel	Right OB			
Vel Head (ft)	2.00	Wt. n-Val.		0.032				
W.S. Elev (ft)	1068.62	Reach Len. (ft)	500.00	493.66	485.00			
Crit W.S. (ft)	1061.42	Flow Area (sq ft)		14903.79				

```
                                                                    DuplicateEffective
* E.G. Slope (ft/ft)     *0.001691  * Area (sq ft)            *          *14903.79  *          *
* Q Total (cfs)          *169000.00  * Flow (cfs)             *          *169000.00  *          *
* Top Width (ft)         * 1023.12  * Top Width (ft)          *          * 1023.12  *          *
* Vel Total (ft/s)       *   11.34  * Avg. Vel. (ft/s)        *          *   11.34  *          *
* Max Chl Dpth (ft)      *   22.82  * Hydr. Depth (ft)        *          *   14.57  *          *
* Conv. Total (cfs)      *4110138.0  * Conv. (cfs)            *          *4110138.0  *          *
* Length Wtd. (ft)       *  493.66  * Wetted Per. (ft)        *          * 1029.73  *          *
* Min Ch El (ft)         * 1045.80  * Shear (lb/sq ft)        *          *    1.53  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   17.32  *          *
* Frctn Loss (ft)        *    0.56  * Cum Volume (acre-ft)   * 1422.13  *35488.63  *  355.97  *
* C & E Loss (ft)        *    0.24  * Cum SA (acres)         *  221.84  * 3194.94  *   77.43  *
*********************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                RS: 213.38

INPUT
Description: 213.38
Station Elevation Data    num=      96
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 17634.6  1070.7 17652.1  1070.7 17729.5  1071.2 17747.9  1072.2 17763.8  1073.1
 17893.9  1073.4 17976.4  1073.1 18006.5  1072.7 18006.7  1072.7   18008  1072.7
 18197.8  1072.8 18341.3  1071.5 18390.9  1071.3 18419.4  1070.9 18420.4  1070.9
 18423.8  1070.9   18431    1071 18656.8  1070.5   18735  1070.6 18756.6  1070.9
 18796.6  1071.1 18974.7  1070.8 19012.6  1070.8 19073.3  1070.8 19129.4  1069.7
 19192.7  1068.9 19195.5  1068.8 19196.5  1068.5 19204.6  1068.3 19213.9  1068.2
 19225.5  1067.5 19242.1  1066.8 19303.8  1064.4 19303.9  1064.4 19304.2  1064.4
 19346.1  1064.6 19365.3  1061.2 19365.5  1061.2 19401.7    1061 19405.7  1060.8
 19411.2  1060.6 19452.9  1058.9 19499.7  1059.7 19523.7  1060.4 19526.3  1060.4
 19530.8  1060.5 19534.1  1060.4 19575.5  1058.6 19625.5  1054.4 19648.5  1052.9
 19678.5  1053.7 19684.4  1053.8 19732.6  1049.4 19735.1  1049.2 19761.4  1050.8
 19767.8  1050.7 19771.9  1050.2 19796.5  1046.2 19864.4  1045.8 20277.6  1045.7
 20311.6  1045.6 20311.7  1045.4 20329.1  1049.4 20361.7  1051.6 20363.3  1052.8
 20364.3  1052.8   20374  1053.5 20405.3  1054.8   20417  1056.5 20434.2    1065
   20473  1075.2 20473.5  1075.2 20515.6  1074.3   20532  1073.2 20533.3    1073
 20535.9    1073 20539.6  1072.9 20569.9  1072.5   20578  1072.1 20607.5  1072.2
 20652.6    1074 20655.9  1074.1 20722.7  1075.3 20793.4    1076 20804.4  1076.4
 20831.2  1076.4   20834  1075.7 20842.3  1072.9 20845.3  1072.1 20848.9  1072.1
 20860.3  1072.3 20875.9  1072.3 20895.1  1072.4 20963.7  1072.4 20982.3  1071.9
 20996.7  1072.4

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
************************************************
 17634.6    .037 19346.1    .032   20473    .037

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.    Expan.
       19346.1   20473              210  290.06     395             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 17634.6 19346.1  1076.4       F
   20473 20996.7  1076.4       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         * 1069.81  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.21  * Wt. n-Val.             *          *    0.032  *          *
* W.S. Elev (ft)         * 1068.60  * Reach Len. (ft)        *  210.00  *  290.06  *  395.00  *
* Crit W.S. (ft)         * 1059.34  * Flow Area (sq ft)      *          *19139.19  *          *
* E.G. Slope (ft/ft)     *0.000809  * Area (sq ft)           *  395.62  *19139.19  *          *
* Q Total (cfs)          *169000.00  * Flow (cfs)            *          *169000.00  *          *
* Top Width (ft)         * 1251.70  * Top Width (ft)         *  149.92  * 1101.78  *          *
* Vel Total (ft/s)       *    8.83  * Avg. Vel. (ft/s)       *          *    8.83  *          *
* Max Chl Dpth (ft)      *   23.20  * Hydr. Depth (ft)       *          *   17.37  *          *
* Conv. Total (cfs)      *5943323.0  * Conv. (cfs)           *          *5943323.0  *          *
* Length Wtd. (ft)       *  290.06  * Wetted Per. (ft)       *          * 1106.71  *          *
* Min Ch El (ft)         * 1045.40  * Shear (lb/sq ft)       *          *    0.87  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    7.71  *          *
* Frctn Loss (ft)        *    0.20  * Cum Volume (acre-ft)   * 9435.12  *34313.64  * 3146.12  *
* C & E Loss (ft)        *    0.07  * Cum SA (acres)         * 2188.54  * 3177.29  * 1050.09  *
*********************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)         * 1069.82  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.21  * Wt. n-Val.             *          *    0.032  *          *
* W.S. Elev (ft)         * 1068.61  * Reach Len. (ft)        *  210.00  *  290.06  *  395.00  *
* Crit W.S. (ft)         * 1059.34  * Flow Area (sq ft)      *          *19155.73  *          *
* E.G. Slope (ft/ft)     *0.000810  * Area (sq ft)           *          *19155.73  *          *
* Q Total (cfs)          *169000.00  * Flow (cfs)            *          *169000.00  *          *
* Top Width (ft)         * 1101.75  * Top Width (ft)         *          * 1101.75  *          *
* Vel Total (ft/s)       *    8.82  * Avg. Vel. (ft/s)       *          *    8.82  *          *
* Max Chl Dpth (ft)      *   23.21  * Hydr. Depth (ft)       *          *   17.39  *          *
* Conv. Total (cfs)      *5937578.0  * Conv. (cfs)           *          *5937578.0  *          *
* Length Wtd. (ft)       *  290.06  * Wetted Per. (ft)       *          * 1110.71  *          *
* Min Ch El (ft)         * 1045.40  * Shear (lb/sq ft)       *          *    0.87  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    7.70  *          *
* Frctn Loss (ft)        *    0.20  * Cum Volume (acre-ft)   * 1422.13  *35295.63  *  355.97  *
* C & E Loss (ft)        *    0.07  * Cum SA (acres)         *  221.84  * 3182.90  *   77.43  *
*********************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
```

water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 213.33

INPUT
Description: 213.33
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17662.6	1072.6	17668	1072.6	17677	1072.6	17679.2	1072.7	17685.5	1072.7
17890.3	1072	17891.3	1072	17919.8	1071.9	18055.2	1071.9	18114.9	1071.9
18241.8	1071.2	18279.3	1070.9	18302.9	1070.9	18305.8	1070.8	18316.6	1070.7
18337.3	1070.5	18464.8	1070.6	18565.2	1070.8	18644.2	1071	18654.1	1071
18680.7	1070.7	18888.5	1070	18954.5	1069.6	19002.1	1069.7	19091.3	1069
19104.2	1069	19104.4	1069	19107.7	1069	19109.5	1068.5	19112.3	1067.7
19112.4	1067.7	19123.4	1067.3	19136.1	1067.1	19144.4	1069.1	19147.5	1069.9
19163.9	1070.3	19173.4	1070.7	19184.4	1069.5	19203.3	1068.1	19209.7	1067.1
19222.7	1066	19244.2	1064.1	19272.3	1063	19328.9	1063.5	19336.9	1063.4
19344.3	1063.4	19367.2	1062.3	19389	1062	19396.3	1061.9	19416.7	1061.3
19418.1	1060.9	19453.8	1059.7	19472.5	1059.2	19476.7	1057.5	19530.4	1058.7
19538.8	1058.7	19541	1058.6	19590	1056.9	19629.4	1054.2	19644.5	1053.7
19671.3	1051.4	19710.3	1047.2	19715.9	1046.8	19755.6	1046.4	19757.3	1046.3
19759.3	1046.3	19761.3	1046.3	19780.3	1046.2	20358.7	1045.4	20444.8	1048.7
20449.3	1048.9	20508	1066.2	20514.9	1068.7	20553.2	1069.1	20640.2	1069.7
20662.5	1069.4	20704	1068.4	20729.7	1068.7	20782.7	1069.1	20784.7	1069.2
20789.1	1069.5	20821.1	1071.4	20854.7	1073	20856.9	1073.1	20859.1	1073.1
20896	1072.7	20902.1	1072.7	20919.8	1072.5	20932.4	1072.6	20967.3	1072.5
21012.3	1072.8	21051.5	1073	21059.7	1073	21066	1073.1	21092.4	1073
21244.4	1073.1								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
17662.6	.037	19328.9	.032	20514.9	.037

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19328.9 20514.9 266 316.41 426 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17662.6	19328.9	1073.1	F
20640.2	21244.4	1073.1	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1069.53	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.96	Wt. n-Val.		0.032	
W.S. Elev (ft)	1068.57	Reach Len. (ft)	266.00	316.41	426.00
Crit W.S. (ft)	1057.70	Flow Area (sq ft)		21480.53	
E.G. Slope (ft/ft)	0.000606	Area (sq ft)	586.65	21480.53	1.81
Q Total (cfs)	169000.00	Flow (cfs)		169000.00	
Top Width (ft)	1371.95	Top Width (ft)	164.87	1185.64	21.44
Vel Total (ft/s)	7.87	Avg. Vel. (ft/s)		7.87	
Max Chl Dpth (ft)	23.17	Hydr. Depth (ft)		18.12	
Conv. Total (cfs)	6865352.0	Conv. (cfs)		6865352.0	
Length Wtd. (ft)	316.41	Wetted Per. (ft)		1189.56	
Min Ch El (ft)	1045.40	Shear (lb/sq ft)		0.68	
Alpha	1.00	Stream Power (lb/ft s)		5.37	
Frctn Loss (ft)	0.19	Cum Volume (acre-ft)	9432.75	34178.39	3146.11
C & E Loss (ft)	0.02	Cum SA (acres)	2187.78	3169.67	1050.00

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1069.54	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.96	Wt. n-Val.		0.032	
W.S. Elev (ft)	1068.58	Reach Len. (ft)	266.00	316.41	426.00
Crit W.S. (ft)	1057.70	Flow Area (sq ft)		21497.32	
E.G. Slope (ft/ft)	0.000608	Area (sq ft)		21497.32	
Q Total (cfs)	169000.00	Flow (cfs)		169000.00	
Top Width (ft)	1185.62	Top Width (ft)		1185.62	
Vel Total (ft/s)	7.86	Avg. Vel. (ft/s)		7.86	
Max Chl Dpth (ft)	23.18	Hydr. Depth (ft)		18.13	
Conv. Total (cfs)	6854778.0	Conv. (cfs)		6854778.0	
Length Wtd. (ft)	316.41	Wetted Per. (ft)		1194.64	
Min Ch El (ft)	1045.40	Shear (lb/sq ft)		0.68	
Alpha	1.00	Stream Power (lb/ft s)		5.37	
Frctn Loss (ft)	0.19	Cum Volume (acre-ft)	1422.13	35160.28	355.97
C & E Loss (ft)	0.02	Cum SA (acres)	221.84	3175.28	77.43

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 213.26

INPUT
Description: 213.26
Station Elevation Data num= 45

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17300	1071.7	17670	1072	17850	1073.6	18250	1075.5	19180	1078.2
19488.1	1078.1	19488.2	1072.97	19495.2	1069.2	19517.2	1057.5	19564.2	1055.45
19584.2	1051.3	19586.9	1051	19589.4	1051	19638.2	1048.1	19686.9	1047.3
19689.4	1047.3	19704.2	1047.2	19743.2	1042.2	19786.9	1042.15	19789.4	1042.2

```
                                                                    DuplicateEffective
 19838.2  1042.8 19871.7  1042.9 19886.9 1043.85 19889.4  1043.8 19938.2  1044.1
 19986.9  1042.7 19989.4  1042.7 20038.2  1042.3 20086.9 1042.85 20089.4  1042.8
 20121.7  1043.3 20171.2 1041.05 20188.2  1040.9 20189.4  1040.9 20223.2  1040.4
 20248.7  1042.2 20286.9  1043.4 20289.4  1043.4 20307.7 1044.35 20382.7  1069.6
 20387.9  1070.4 20387.9  1072.9   20388 1078.19   20790  1078.3   21330  1075.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
   17300    .037 19488.2    .032 20387.9    .037

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      19488.2 20387.9              155  152.22     155             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
   17300 19488.2 1072.97       F
 20387.9   21330  1070.4       F

CROSS SECTION OUTPUT  Profile #PF#1
*************************************************************************************************
* E.G. Elev (ft)         * 1069.32  * Element                * Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.17  * Wt. n-Val.             *         *   0.032  *          *
* W.S. Elev (ft)         * 1068.16  * Reach Len. (ft)       *    0.10 *    0.10  *    0.10  *
* Crit W.S. (ft)         * 1055.61  * Flow Area (sq ft)     *         *19493.06  *          *
* E.G. Slope (ft/ft)     *0.000568  * Area (sq ft)          *         *19493.06  *          *
* Q Total (cfs)          *169000.00  * Flow (cfs)           *         *169000.00  *          *
* Top Width (ft)         *  881.25  * Top Width (ft)        *         *  881.25  *          *
* Vel Total (ft/s)       *    8.67  * Avg. Vel. (ft/s)      *         *    8.67  *          *
* Max Chl Dpth (ft)      *   27.76  * Hydr. Depth (ft)      *         *   22.12  *          *
* Conv. Total (cfs)      *7091407.0  * Conv. (cfs)          *         *7091407.0  *          *
* Length Wtd. (ft)       *    0.10  * Wetted Per. (ft)      *         *  888.93  *          *
* Min Ch El (ft)         * 1040.40  * Shear (lb/sq ft)      *         *    0.78  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *         *    6.74  *          *
* Frctn Loss (ft)        *          * Cum Volume (acre-ft)  * 9430.96 *34029.58  * 3146.10  *
* C & E Loss (ft)        *          * Cum SA (acres)        * 2187.28 * 3162.16  * 1049.89  *
*************************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

CROSS SECTION OUTPUT  Profile #PF#2
*************************************************************************************************
* E.G. Elev (ft)         * 1069.34  * Element                * Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.17  * Wt. n-Val.             *         *   0.032  *          *
* W.S. Elev (ft)         * 1068.17  * Reach Len. (ft)       *    0.10 *    0.10  *    0.10  *
* Crit W.S. (ft)         * 1055.61  * Flow Area (sq ft)     *         *19505.43  *          *
* E.G. Slope (ft/ft)     *0.000567  * Area (sq ft)          *         *19505.43  *          *
* Q Total (cfs)          *169000.00  * Flow (cfs)           *         *169000.00  *          *
* Top Width (ft)         *  881.21  * Top Width (ft)        *         *  881.21  *          *
* Vel Total (ft/s)       *    8.66  * Avg. Vel. (ft/s)      *         *    8.66  *          *
* Max Chl Dpth (ft)      *   27.77  * Hydr. Depth (ft)      *         *   22.13  *          *
* Conv. Total (cfs)      *7098897.0  * Conv. (cfs)          *         *7098897.0  *          *
* Length Wtd. (ft)       *    0.10  * Wetted Per. (ft)      *         *  888.94  *          *
* Min Ch El (ft)         * 1040.40  * Shear (lb/sq ft)      *         *    0.78  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *         *    6.73  *          *
* Frctn Loss (ft)        *          * Cum Volume (acre-ft)  * 1422.13 *35011.36  *  355.97  *
* C & E Loss (ft)        *          * Cum SA (acres)        *  221.84 * 3167.77  *   77.43  *
*************************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

BRIDGE


RIVER: 1
REACH: 1                  RS: 213.255

INPUT
Description: Central Avenue Bridge
Distance from Upstream XS =       .1
Deck/Roadway Width        =  151.22
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=       11
     Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord
*****************************************************************************
 19488.1  1078.1 1072.97 19488.2 1078.14 1072.97 19586.9  1078.5 1073.28
 19686.9 1078.86 1073.64 19786.9 1079.15 1073.93 19886.9 1079.37  1074.2
 19989.4 1079.38  1074.2 20086.9 1079.13 1073.93 20188.2 1078.89  1073.7
 20286.9 1078.53 1073.32   20388 1078.19 1072.98

Upstream Bridge Cross Section Data
Station Elevation Data    num=      45
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
   17300  1071.7   17670    1072   17850  1073.6   18250  1075.5   19180  1078.2
 19488.1  1078.1 19488.2 1072.97 19495.2  1069.2 19517.2  1057.5 19564.2 1055.45
 19584.2  1051.3 19586.9    1051 19589.4    1051 19638.2  1048.1 19686.9  1047.3
 19689.4  1047.3 19704.2  1047.2 19743.2  1042.2 19786.9 1042.15 19789.4  1042.2
 19838.2  1042.8 19871.7  1042.9 19886.9 1043.85 19889.4  1043.8 19938.2  1044.1
 19986.9  1042.7 19989.4  1042.7 20038.2  1042.3 20086.9 1042.85 20089.4  1042.8
 20121.7  1043.3 20171.2 1041.05 20188.2  1040.9 20189.4  1040.9 20223.2  1040.4
 20248.7  1042.2 20286.9  1043.4 20289.4  1043.4 20307.7 1044.35 20382.7  1069.6
 20387.9  1070.4 20387.9  1072.9   20388 1078.19   20790  1078.3   21330  1075.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
   17300    .037 19488.2    .032 20387.9    .037

Bank Sta: Left   Right    Coeff Contr.   Expan.
      19488.2 20387.9             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
   17300 19488.2 1072.97       F
```

```
 20387.9   21330  1070.4       F

Downstream  Deck/Roadway Coordinates
    num=        11
     Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord
*********************************************************************************
 19488.1  1078.1 1072.97 19488.2 1078.14 1072.97 19586.9  1078.5 1073.28
 19686.9 1078.86 1073.64 19786.9 1079.15 1073.93 19886.9 1079.37  1074.2
 19989.4 1079.38  1074.2 20086.9 1079.13 1073.93 20188.2 1078.89  1073.7
 20286.9 1078.53 1073.32   20388 1078.19 1072.98

Downstream Bridge Cross Section Data
Station Elevation Data    num=      45
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
   17300  1071.7   17670    1072   17850  1073.6   18250  1075.5   19180  1078.2
 19488.1  1078.1 19488.2 1072.97 19495.2  1069.2 19517.2  1057.5 19564.2 1055.45
 19584.2  1051.3 19586.9    1051 19589.4    1051 19638.2  1048.1 19686.9  1047.3
 19689.4  1047.3 19704.2  1047.2 19743.2  1042.2 19786.9 1042.15 19789.4  1042.2
 19838.2  1042.8 19871.7  1042.9 19886.9 1043.85 19889.4  1043.8 19938.2  1044.1
 19986.9  1042.7 19989.4  1042.7 20038.2  1042.3 20086.9 1042.85 20089.4  1042.8
 20121.7  1043.3 20171.2 1041.05 20188.2  1040.9 20189.4  1040.9 20223.2  1040.4
 20248.7  1042.2 20286.9  1043.4 20289.4  1043.4 20307.7 1044.35 20382.7  1069.6
 20387.9  1070.4 20387.9  1072.9   20388 1078.19   20790  1078.3   21330  1075.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
   17300    .037 19488.2    .032 20387.9    .037

Bank Sta: Left   Right    Coeff Contr.   Expan.
       19488.2 20387.9          .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
   17300 19488.2 1072.97       F
 20387.9   21330  1070.4       F

Upstream Embankment side slope              =         horiz. to 1.0 vertical
Downstream Embankment side slope            =         horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Piers =  8

Pier Data
Pier Station     Upstream=19588.15    Downstream=19588.15
Upstream     num=       2
    Width   Elev    Width   Elev
*********************************
     2.5    1051     2.5 1073.28
Downstream     num=       2
    Width   Elev    Width   Elev
*********************************
     2.5    1051     2.5 1073.28

Pier Data
Pier Station     Upstream=19688.15    Downstream=19688.15
Upstream     num=       2
    Width   Elev    Width   Elev
*********************************
     2.5  1047.3     2.5  1073.7
Downstream     num=       2
    Width   Elev    Width   Elev
*********************************
     2.5  1047.3     2.5  1073.7

Pier Data
Pier Station     Upstream=19788.15    Downstream=19788.15
Upstream     num=       2
    Width   Elev    Width   Elev
*********************************
     2.5 1042.15     2.5  1073.9
Downstream     num=       2
    Width   Elev    Width   Elev
*********************************
     2.5 1042.15     2.5  1073.9

Pier Data
Pier Station     Upstream=19888.15    Downstream=19888.15
Upstream     num=       2
    Width   Elev    Width   Elev
*********************************
     2.5  1043.8     2.5  1074.2
Downstream     num=       2
    Width   Elev    Width   Elev
*********************************
     2.5  1043.8     2.5  1074.2

Pier Data
Pier Station     Upstream=19988.15    Downstream=19988.15
Upstream     num=       2
    Width   Elev    Width   Elev
*********************************
     2.5  1042.7     2.5  1074.2
Downstream     num=       2
    Width   Elev    Width   Elev
*********************************
     2.5  1042.7     2.5  1074.2

Pier Data
Pier Station     Upstream=20088.15    Downstream=20088.15
Upstream     num=       2
    Width   Elev    Width   Elev
```

```
*********************************
     2.5  1042.8     2.5  1073.9
Downstream     num=        2
    Width   Elev    Width   Elev
*********************************
     2.5  1042.8     2.5  1073.9

Pier Data
Pier Station     Upstream=20189.45    Downstream=20189.45
Upstream     num=        2
    Width   Elev    Width   Elev
*********************************
     2.5  1040.9     2.5  1073.7
Downstream     num=        2
    Width   Elev    Width   Elev
*********************************
     2.5  1040.9     2.5  1073.7

Pier Data
Pier Station     Upstream=20288.15    Downstream=20288.15
Upstream     num=        2
    Width   Elev    Width   Elev
*********************************
     2.5  1043.4     2.5  1073.3
Downstream     num=        2
    Width   Elev    Width   Elev
*********************************
     2.5  1043.4     2.5  1073.3

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
       Momentum               Cd   =     1.2
       Yarnell                KVal =    1.05
Selected Low Flow Methods = Highest Energy Answer

High Flow Method
       Energy Only

Additional Bridge Parameters
       Add Friction component to Momentum
       Add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT  Profile #PF#1
*************************************************************************************************
* E.G. US. (ft)          *    1069.32  * Element               *Inside BR US *Inside BR DS *
* W.S. US. (ft)          *    1068.16  * E.G. Elev (ft)        *    1069.29  *    1069.14  *
* Q Total (cfs)          *  169000.00  * W.S. Elev (ft)        *    1068.05  *    1067.88  *
* Q Bridge (cfs)         *  169000.00  * Crit W.S. (ft)        *    1055.83  *    1055.83  *
* Q Weir (cfs)           *             * Max Chl Dpth (ft)     *      27.65  *      27.48  *
* Weir Sta Lft (ft)      *             * Vel Total (ft/s)      *       8.93  *       9.00  *
* Weir Sta Rgt (ft)      *             * Flow Area (sq ft)     *   18925.37  *   18778.97  *
* Weir Submerg           *             * Froude # Chl          *       0.34  *       0.34  *
* Weir Max Depth (ft)    *             * Specif Force (cu ft)  *  270196.80  *  267354.20  *
* Min El Weir Flow (ft)  *    1072.98  * Hydr Depth (ft)       *      21.99  *      21.84  *
* Min El Prs (ft)        *    1074.20  * W.P. Total (ft)       *    1248.98  *    1245.37  *
* Delta EG (ft)          *       0.19  * Conv. Total (cfs)     *  5381226.0  *  5322311.0  *
* Delta WS (ft)          *       0.21  * Top Width (ft)        *     860.74  *     859.92  *
* BR Open Area (sq ft)   *   23844.87  * Frctn Loss (ft)       *              *             *
* BR Open Vel (ft/s)     *       9.00  * C & E Loss (ft)       *              *             *
* Coef of Q              *             * Shear Total (lb/sq ft) *       0.93  *       0.95  *
* Br Sel Method          *   Momentum  * Power Total (lb/ft s)  *       8.33  *       8.54  *
*************************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

BRIDGE OUTPUT  Profile #PF#2
*************************************************************************************************
* E.G. US. (ft)          *    1069.34  * Element               *Inside BR US *Inside BR DS *
* W.S. US. (ft)          *    1068.17  * E.G. Elev (ft)        *    1069.30  *    1069.15  *
* Q Total (cfs)          *  169000.00  * W.S. Elev (ft)        *    1068.07  *    1067.90  *
* Q Bridge (cfs)         *  169000.00  * Crit W.S. (ft)        *    1055.83  *    1055.83  *
* Q Weir (cfs)           *             * Max Chl Dpth (ft)     *      27.67  *      27.50  *
* Weir Sta Lft (ft)      *             * Vel Total (ft/s)      *       8.92  *       8.99  *
* Weir Sta Rgt (ft)      *             * Flow Area (sq ft)     *   18937.56  *   18791.46  *
* Weir Submerg           *             * Froude # Chl          *       0.34  *       0.34  *
* Weir Max Depth (ft)    *             * Specif Force (cu ft)  *  270434.70  *  267595.70  *
* Min El Weir Flow (ft)  *    1078.18  * Hydr Depth (ft)       *      22.00  *      21.85  *
* Min El Prs (ft)        *    1074.20  * W.P. Total (ft)       *    1249.28  *    1245.67  *
* Delta EG (ft)          *       0.19  * Conv. Total (cfs)     *  5386143.0  *  5327335.0  *
* Delta WS (ft)          *       0.21  * Top Width (ft)        *     860.81  *     859.99  *
* BR Open Area (sq ft)   *   23784.88  * Frctn Loss (ft)       *              *             *
* BR Open Vel (ft/s)     *       8.99  * C & E Loss (ft)       *              *             *
* Coef of Q              *             * Shear Total (lb/sq ft) *       0.93  *       0.95  *
* Br Sel Method          *   Momentum  * Power Total (lb/ft s)  *       8.31  *       8.52  *
*************************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 213.25

INPUT
```

Description: 213.25 - FEMA Section AE
Station Elevation Data num= 45

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17300	1071.7	17670	1072	17850	1073.6	18250	1075.5	19180	1078.2
19488.1	1078.1	19488.2	1072.97	19495.2	1069.2	19517.2	1057.5	19564.2	1055.45
19584.2	1051.3	19586.9	1051	19589.4	1051	19638.2	1048.1	19686.9	1047.3
19689.4	1047.3	19704.2	1047.2	19743.2	1042.2	19786.9	1042.15	19789.4	1042.2
19838.2	1042.8	19871.7	1042.9	19886.9	1043.85	19889.4	1043.8	19938.2	1044.1
19986.9	1042.7	19989.4	1042.7	20038.2	1042.3	20086.9	1042.85	20089.4	1042.8
20121.7	1043.3	20171.2	1041.05	20188.2	1040.9	20189.4	1040.9	20223.2	1040.4
20248.7	1042.2	20286.9	1043.4	20289.4	1043.4	20307.7	1044.35	20382.7	1069.6
20387.9	1070.4	20387.9	1072.9	20388	1078.19	20790	1078.3	21330	1075.5

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
17300	.037	19488.2	.032	20387.9	.037

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19488.2 20387.9 121 123.36 121 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17300	19488.2	1072.97	F
20387.9	21330	1070.4	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1069.14	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.19	Wt. n-Val.		0.032	
W.S. Elev (ft)	1067.95	Reach Len. (ft)	121.00	123.36	121.00
Crit W.S. (ft)	1055.61	Flow Area (sq ft)		19310.07	
E.G. Slope (ft/ft)	0.000585	Area (sq ft)		19310.07	
Q Total (cfs)	169000.00	Flow (cfs)		169000.00	
Top Width (ft)	880.24	Top Width (ft)		880.24	
Vel Total (ft/s)	8.75	Avg. Vel. (ft/s)		8.75	
Max Chl Dpth (ft)	27.55	Hydr. Depth (ft)		21.94	
Conv. Total (cfs)	6986536.0	Conv. (cfs)		6986536.0	
Length Wtd. (ft)	123.36	Wetted Per. (ft)		887.84	
Min Ch El (ft)	1040.40	Shear (lb/sq ft)		0.79	
Alpha	1.00	Stream Power (lb/ft s)		6.95	
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)	9430.96	33963.70	3146.10
C & E Loss (ft)	0.05	Cum SA (acres)	2187.28	3159.16	1049.89

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1069.15	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.19	Wt. n-Val.		0.032	
W.S. Elev (ft)	1067.96	Reach Len. (ft)	121.00	123.36	121.00
Crit W.S. (ft)	1055.61	Flow Area (sq ft)		19322.76	
E.G. Slope (ft/ft)	0.000584	Area (sq ft)		19322.76	
Q Total (cfs)	169000.00	Flow (cfs)		169000.00	
Top Width (ft)	880.24	Top Width (ft)		880.24	
Vel Total (ft/s)	8.75	Avg. Vel. (ft/s)		8.75	
Max Chl Dpth (ft)	27.56	Hydr. Depth (ft)		21.95	
Conv. Total (cfs)	6994050.0	Conv. (cfs)		6994050.0	
Length Wtd. (ft)	123.36	Wetted Per. (ft)		887.87	
Min Ch El (ft)	1040.40	Shear (lb/sq ft)		0.79	
Alpha	1.00	Stream Power (lb/ft s)		6.94	
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)	1422.13	34945.43	355.97
C & E Loss (ft)	0.05	Cum SA (acres)	221.84	3164.77	77.43

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 213.21

INPUT
Description: 213.21

Right Channel Bank Station Interpolated
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18330.9	1072.8	18364	1072.8	18412.8	1073.1	18447.9	1073	18475.1	1072.3
18506.2	1072	18530.5	1071.1	18588.6	1070	18604.7	1069.8	18607.3	1070
18638.6	1069.9	18645.2	1070	18646.8	1070	18647	1070	18648.3	1070
18679.6	1070.4	18691	1070.2	18696.8	1070.3	18826.1	1070.2	18853.1	1069.7
18879.8	1069.1	18990	1068.8	19004.3	1068.6	19030.8	1069	19071.8	1069.5
19171.4	1069.4	19189.5	1069.4	19238.8	1069.2	19251.2	1070	19253.8	1070
19283.8	1069	19284.7	1069	19384	1068.2	19385.3	1068.1	19387.8	1068.1
19391.2	1068.1	19421.7	1067.9	19486.6	1066.6	19490.3	1065.6	19518.8	1054.9
19533.4	1049	19535.9	1049.5	19545.6	1052	19551.4	1054.2	19576.8	1051.8
19595.9	1047.4	19611.2	1046.8	19618.6	1046.7	19619.1	1046.6	19626.3	1045.5
19627	1045.3	19697	1045.2	19802.7	1045.1	20377.2	1044.9	20380.6	1045
20387.2	1045.1	20389.8	1045.1	20418.5	1045.3	20484.9	1046.3	20500.9	1046.4
20506.4	1046.3	20545.8	1046.4	20547	1046.4	20573.1	1046	20581	1046
20584	1054.4	20584.6	1058.9	20634.9	1062.9	20654.9	1064.2	20663	1064.8
20687	1065.1	20732.3	1064.9	20749.5	1065.1	20761.2	1066	20787.8	1066.2
20803.3	1066.3	20840	1066.3	20853.8	1066.3	20900.8	1066.8	20929.7	1067.2
20948.4	1067.8	20957.7	1070.3	20963.6	1072.1	20965.8	1071.9	20972.5	1072.2
20980.1	1072.5	21025.3	1072.2	21041.7	1072.4	21049	1072.4	21083	1072.6
21094.6	1072.7	21137.7	1072.7	21224.3	1073.6	21258.5	1074.2	21274.1	1074.3
21278.4	1074.5								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val

```
**********************************************
 18330.9    .037 19490.3    .032 20418.5    .037

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      19490.3 20418.5                450  531.57     745             .1       .3
Ineffective Flow     num=        2
   Sta L   Sta R    Elev  Permanent
 18330.9 19253.8    1074        F
 20418.5 21278.4    1074        F

CROSS SECTION OUTPUT  Profile #PF#1
*************************************************************************************************
* E.G. Elev (ft)         * 1069.03  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.04  * Wt. n-Val.            *    0.037 *    0.032 *          *
* W.S. Elev (ft)         * 1067.99  * Reach Len. (ft)       *   450.00 *   531.57 *   745.00 *
* Crit W.S. (ft)         * 1055.88  * Flow Area (sq ft)     *    55.46 *20303.46 *          *
* E.G. Slope (ft/ft)     *0.000510  * Area (sq ft)          *    55.46 *20303.46 * 4648.82  *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *    38.71 *165961.30 *          *
* Top Width (ft)         * 1540.79  * Top Width (ft)       *    81.99 *  928.20 *  530.60  *
* Vel Total (ft/s)       *    8.15  * Avg. Vel. (ft/s)     *     0.70 *    8.17 *          *
* Max Chl Dpth (ft)      *   23.09  * Hydr. Depth (ft)     *     0.68 *   21.87 *          *
* Conv. Total (cfs)      *7351368.0  * Conv. (cfs)         *   1714.1 *7349654.0 *          *
* Length Wtd. (ft)       *  531.56  * Wetted Per. (ft)     *    82.14 *  932.81 *          *
* Min Ch El (ft)         * 1044.90  * Shear (lb/sq ft)     *     0.02 *    0.69 *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *    0.02 *    5.66 *          *
* Frctn Loss (ft)        *    0.36  * Cum Volume (acre-ft)  * 9430.88 *33907.61 * 3139.64  *
* C & E Loss (ft)        *    0.04  * Cum SA (acres)        * 2187.17 * 3156.60 * 1049.15  *
*************************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*************************************************************************************************
* E.G. Elev (ft)         * 1069.04  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.04  * Wt. n-Val.            *          *    0.032 *          *
* W.S. Elev (ft)         * 1068.00  * Reach Len. (ft)       *   450.00 *   531.57 *   745.00  *
* Crit W.S. (ft)         * 1055.88  * Flow Area (sq ft)     *          *20315.02 *          *
* E.G. Slope (ft/ft)     *0.000528  * Area (sq ft)          *          *20315.02 *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *          *166000.00 *          *
* Top Width (ft)         *  928.20  * Top Width (ft)       *          *  928.20 *          *
* Vel Total (ft/s)       *    8.17  * Avg. Vel. (ft/s)     *          *    8.17 *          *
* Max Chl Dpth (ft)      *   23.10  * Hydr. Depth (ft)     *          *   21.89 *          *
* Conv. Total (cfs)      *7227547.0  * Conv. (cfs)         *          *7227547.0 *          *
* Length Wtd. (ft)       *  531.57  * Wetted Per. (ft)     *          *  957.91 *          *
* Min Ch El (ft)         * 1044.90  * Shear (lb/sq ft)     *          *    0.70 *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    5.71 *          *
* Frctn Loss (ft)        *    0.36  * Cum Volume (acre-ft)  * 1422.13 *34889.31 *  355.97  *
* C & E Loss (ft)        *    0.04  * Cum SA (acres)        *  221.84 * 3162.21 *   77.43  *
*************************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                RS: 213.11

INPUT
Description: 213.11
Station Elevation Data    num=      85
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 17566.5  1070.1 17705.4  1071.3 17742.2  1071.6 17814.3  1070.1 17888.9  1069.6
 17929.2  1069.8 17996.1  1072.7 18084.9  1073.4 18245.7  1073.1 18304.6  1073.3
 18312.5  1071.8 18319.5  1069.3 18320.2  1069.1 18324.7  1069.1 18353.4  1069.6
 18382.1  1068.8   18390  1068.3 18395.2  1069.2 18399.3  1071.7 18472.2  1071.2
 18480.8  1071.2 18492.7  1070.4 18507.8    1070 18517.1  1069.2 18520.7  1069.6
   18584  1071.9 18596.8  1072.2   18606  1072.4 18609.2  1072.4 18753.6    1072
 18759.6  1071.8 18769.2  1073.7 18780.8  1075.5 18785.7    1075 18793.4  1074.4
 18863.8  1073.8 18931.9  1074.1 18960.3  1074.3 18976.4  1074.4 19015.9    1075
 19047.7    1075 19171.5  1072.4 19275.4    1071   19456  1071.1 19523.2  1069.3
   19575  1067.9 19589.1  1068.3 19601.9  1071.4 19606.1  1072.1 19616.1  1067.5
 19661.3  1047.6 20012.6  1047.6 20486.9  1047.9 20586.5  1081.1 20599.1    1086
 20638.9  1086.2 20743.9  1086.8 20798.9  1087.3   20849  1087.5 20878.6  1087.6
 20889.5  1087.8 20899.2  1087.8   20922  1087.5 21000.4  1087.3 21062.3  1085.9
 21080.5  1084.4 21100.6  1083.3 21131.5    1083 21372.7  1078.3 21390.1  1077.6
 21449.7  1073.9 21464.1  1073.6 21478.8  1073.9 21484.8  1073.8 21573.7  1073.9
 21602.4  1073.9 21694.6  1073.6 21800.6  1072.4 21943.2  1070.8 22180.4  1070.9
 22217.7    1071 22268.3  1071.4 22474.2  1073.6 22486.2  1076.3 22488.2    1077

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
**********************************************
 17566.5    .037 19606.1    .032 20599.1    .037

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      19606.1 20599.1                425  459.38     565             .1       .3
Ineffective Flow     num=        2
   Sta L   Sta R    Elev  Permanent
 17566.5 18780.8  1087.8        F
 20599.1 22488.2  1087.8        F

CROSS SECTION OUTPUT  Profile #PF#1
*************************************************************************************************
* E.G. Elev (ft)         * 1068.63  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.47  * Wt. n-Val.            *          *    0.032 *          *
* W.S. Elev (ft)         * 1067.16  * Reach Len. (ft)       *  425.00 *  459.38 *  565.00  *
* Crit W.S. (ft)         * 1058.35  * Flow Area (sq ft)     *          *17066.41 *          *
* E.G. Slope (ft/ft)     *0.000913  * Area (sq ft)          *          *17066.41 *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *          *166000.00 *          *
* Top Width (ft)         *  927.80  * Top Width (ft)       *          *  927.80 *          *
* Vel Total (ft/s)       *    9.73  * Avg. Vel. (ft/s)     *          *    9.73 *          *
* Max Chl Dpth (ft)      *   19.56  * Hydr. Depth (ft)     *          *   18.39 *          *
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                                                                    DuplicateEffective
* Conv. Total (cfs)      *5493675.0  * Conv. (cfs)                    *          *5493675.0  *          *
* Length Wtd. (ft)       *  459.38  * Wetted Per. (ft)               *          *  935.04  *          *
* Min Ch El (ft)         * 1047.60  * Shear (lb/sq ft)               *          *    1.04  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s)         *          *   10.12  *          *
* Frctn Loss (ft)        *    0.45  * Cum Volume (acre-ft)           * 9430.60  *33679.59  * 3099.89  *
* C & E Loss (ft)        *    0.01  * Cum SA (acres)                 * 2186.74  * 3145.27  * 1044.62  *
*********************************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************************
* E.G. Elev (ft)         * 1068.63  * Element                  *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.47  * Wt. n-Val.               *          *    0.032  *          *
* W.S. Elev (ft)         * 1067.16  * Reach Len. (ft)          *  425.00  *  459.38  *  565.00  *
* Crit W.S. (ft)         * 1058.35  * Flow Area (sq ft)        *          *17072.18  *          *
* E.G. Slope (ft/ft)     *0.000912  * Area (sq ft)             *          *17072.18  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)               *          *166000.00  *          *
* Top Width (ft)         *  927.79  * Top Width (ft)           *          *  927.79  *          *
* Vel Total (ft/s)       *    9.72  * Avg. Vel. (ft/s)         *          *    9.72  *          *
* Max Chl Dpth (ft)      *   19.56  * Hydr. Depth (ft)         *          *   18.40  *          *
* Conv. Total (cfs)      *5496745.0  * Conv. (cfs)              *          *5496745.0  *          *
* Length Wtd. (ft)       *  459.38  * Wetted Per. (ft)         *          *  935.04  *          *
* Min Ch El (ft)         * 1047.60  * Shear (lb/sq ft)         *          *    1.04  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s)   *          *   10.11  *          *
* Frctn Loss (ft)        *    0.44  * Cum Volume (acre-ft)     * 1422.13  *34661.19  *  355.97  *
* C & E Loss (ft)        *    0.01  * Cum SA (acres)           *  221.84  * 3150.88  *   77.43  *
*********************************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                RS: 213.03

INPUT
Description: 213.03
Station Elevation Data    num=      97
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
*********************************************************************************
 16056.5  1068.9 16069.1  1068.8 16071.5  1068.8 16197.1  1069.2 16383.9    1070
   16409    1070 16413.8    1070 16414.4    1070 16428.8    1070 16501.9  1070.2
   16550  1070.3 16603.1  1070.5 16734.3  1069.9   16759  1069.9 16800.6  1069.5
 16821.1  1069.8 16943.1  1070.1 16956.6  1070.5 16985.9  1070.6 17193.9  1070.8
 17238.8  1069.8 17263.2  1069.3 17296.6  1068.7 17461.4  1069.1 17486.5  1069.2
 17576.5  1069.4 17728.6  1070.6 17908.4    1072 17938.3  1071.6 17974.7  1070.1
 17987.3  1069.9 18028.7  1068.5 18086.7  1069.1 18107.5  1068.9 18113.8  1068.9
 18246.2  1068.5 18370.2  1068.2 18382.5  1068.2   18389  1068.3 18394.9  1068.3
   18496  1070.4 18502.4  1070.5 18521.4  1070.6 18643.8    1071 18700.9  1071.3
 18708.1  1071.2 18723.6  1071.3 18831.5  1070.9 18846.4  1070.8 18847.1  1070.8
 18848.3  1070.8 18969.8  1071.4 19007.8  1071.8 19178.9  1073.7 19181.7  1073.7
 19324.1  1073.1 19588.8  1066.9 19627.1    1066 19640.5  1066.2 19662.1  1067.2
 19666.3  1067.8 19672.11066.574 19703.2    1060 19755.3  1050.7 19776.1  1048.9
 19807.6  1047.8 19807.9  1047.8 19808.6  1047.8 19883.7  1046.8 19936.5  1046.7
 19974.6  1046.7 20168.5  1046.8 20481.5  1047.5 20531.6  1047.5 20536.3  1047.6
 20551.1  1052.620591.831066.575 20595.4  1067.8 20639.6    1083 20645.8    1085
 20668.5  1085.5 20744.1  1085.4 20806.7  1086.1 20879.4    1082 20936.8  1078.5
 20990.3  1075.5 21125.9  1073.2 21137.8  1072.9 21183.6  1072.1   21221    1072
 21240.8  1071.7 21303.4  1071.3 21328.8  1071.1 21394.9  1071.7 21406.3  1071.8
   21439  1071.7 21481.2  1071.9

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
 16056.5    .037 19672.1    .03220591.83    .037

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       19672.120591.83             475     495     525             .1      .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 16056.5 19178.9  1086.1       F
 20645.8 21481.2  1086.1       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************************
* E.G. Elev (ft)         * 1068.17  * Element                  *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.60  * Wt. n-Val.               *   0.037  *    0.032  *          *
* W.S. Elev (ft)         * 1066.57  * Reach Len. (ft)          *  475.00  *  495.00  *  525.00  *
* Crit W.S. (ft)         * 1058.30  * Flow Area (sq ft)        *   14.85  *16376.62  *          *
* E.G. Slope (ft/ft)     *0.001032  * Area (sq ft)             *   14.85  *16376.62  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)               *    9.03  *165991.00  *          *
* Top Width (ft)         *  965.60  * Top Width (ft)           *   45.87  *  919.72  *          *
* Vel Total (ft/s)       *   10.13  * Avg. Vel. (ft/s)         *    0.61  *   10.14  *          *
* Max Chl Dpth (ft)      *   19.87  * Hydr. Depth (ft)         *    0.32  *   17.81  *          *
* Conv. Total (cfs)      *5167811.0  * Conv. (cfs)              *   281.1  *5167530.0  *          *
* Length Wtd. (ft)       *  495.00  * Wetted Per. (ft)         *   45.89  *  924.49  *          *
* Min Ch El (ft)         * 1046.70  * Shear (lb/sq ft)         *    0.02  *    1.14  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s)   *    0.01  *   11.57  *          *
* Frctn Loss (ft)        *    0.57  * Cum Volume (acre-ft)     * 9430.52  *33503.25  * 3099.89  *
* C & E Loss (ft)        *    0.05  * Cum SA (acres)           * 2186.52  * 3135.53  * 1044.62  *
*********************************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************************
* E.G. Elev (ft)         * 1068.17  * Element                  *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.59  * Wt. n-Val.               *          *    0.032  *          *
* W.S. Elev (ft)         * 1066.58  * Reach Len. (ft)          *  475.00  *  495.00  *  525.00  *
* Crit W.S. (ft)         * 1058.30  * Flow Area (sq ft)        *          *16382.68  *          *
```

				DuplicateEffective	
E.G. Slope (ft/ft)	0.001031	Area (sq ft)	0.00	16382.68	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	919.76	Top Width (ft)	0.03	919.73	
Vel Total (ft/s)	10.13	Avg. Vel. (ft/s)		10.13	
Max Chl Dpth (ft)	19.88	Hydr. Depth (ft)		17.81	
Conv. Total (cfs)	5170676.0	Conv. (cfs)		5170676.0	
Length Wtd. (ft)	495.00	Wetted Per. (ft)		924.50	
Min Ch El (ft)	1046.70	Shear (lb/sq ft)		1.14	
Alpha	1.00	Stream Power (lb/ft s)		11.55	
Frctn Loss (ft)	0.57	Cum Volume (acre-ft)	1422.13	34484.78	355.97
C & E Loss (ft)	0.05	Cum SA (acres)	221.84	3141.14	77.43

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 212.93

INPUT
Description: 212.93

Left and Right Channel Bank Stations Interpolated
Station Elevation Data num= 93

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18913.7	1067.5	18940.6	1066.4	18961.6	1067.4	18996.4	1069.5	19034.7	1069.3
19121.7	1070.2	19158.8	1070.2	19269.6	1071.2	19362.4	1070.3	19381.3	1070.6
19412.2	1072.5	19420.1	1072.9	19430.8	1073.3	19436.5	1073.5	19633.3	1068.7
19645	1068.3	19645.7	1068.4	19645.9	1068.4	19653.4	1069	19673.1	1070.5
19690.76	1065.485	19697.4	1063.6	19757.3	1046.7	19779.3	1046.4	19826.6	1046.3
19850.5	1046.5	19924.2	1047.4	19928.9	1047.5	19929.5	1047.4	19958.7	1045.5
20129.7	1045.4	20271.7	1045.6	20345.4	1045.6	20426.9	1045.52	20489.75	1065.484
20489.8	1065.5	20498.7	1068.1	20501.4	1068	20587.1	1066.5	20637	1066.5
20655.9	1066.4	20685.9	1065.7	20749.1	1064.9	20804.3	1071.3	20847	1074.9
20872.4	1075.1	20941	1074.1	20990.9	1073	21005.7	1072.8	21075.3	1071.3
21079.7	1071.2	21083	1071.2	21113	1071.3	21246.3	1072.7	21249.5	1072.8
21261.8	1072.9	21268.5	1072.9	21332.8	1073.1	21571.4	1072.7	21590.1	1072.7
21815.9	1071.3	21853.1	1071.3	21982.5	1070.6	22017.6	1070.5	22314.9	1070
22499	1068.8	22548.8	1068.9	22568.2	1068.4	22648.5	1068.9	22948.3	1069.7
23054.9	1071.1	23121.6	1072	23140.9	1076.4	23143.5	1077.2	23151.2	1077.1
23159.2	1077	23162.2	1077.3	23171	1077.8	23179.9	1081.1	23202.7	1089.6
23248.6	1089.5	23303.8	1089.6	23327.8	1082.2	23331.1	1081	23333.2	1080.6
23345.9	1077.9	23350.9	1077.9	23361.3	1078.1	23377.6	1073.6	23386.3	1070.8
23389.2	1071	23392	1071.2	23394	1070.7				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
18913.7	.037	19690.76	.032	20489.75	.037

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
19690.76	20489.75	495	501.9	535	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
18913.7	19673.1	1078	F
20498.7	23394	1078	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1067.55	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.06	Wt. n-Val.		0.032	
W.S. Elev (ft)	1065.48	Reach Len. (ft)	495.00	501.90	535.00
Crit W.S. (ft)	1058.04	Flow Area (sq ft)		14402.09	
E.G. Slope (ft/ft)	0.001316	Area (sq ft)		14402.09	14.96
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	850.19	Top Width (ft)		798.99	51.20
Vel Total (ft/s)	11.53	Avg. Vel. (ft/s)		11.53	
Max Chl Dpth (ft)	20.08	Hydr. Depth (ft)		18.03	
Conv. Total (cfs)	4575514.0	Conv. (cfs)		4575514.0	
Length Wtd. (ft)	501.90	Wetted Per. (ft)		804.77	
Min Ch El (ft)	1045.40	Shear (lb/sq ft)		1.47	
Alpha	1.00	Stream Power (lb/ft s)		16.95	
Frctn Loss (ft)	0.79	Cum Volume (acre-ft)	9430.44	33328.37	3099.80
C & E Loss (ft)	0.10	Cum SA (acres)	2186.27	3125.76	1044.31

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1067.55	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.06	Wt. n-Val.		0.032	
W.S. Elev (ft)	1065.49	Reach Len. (ft)	495.00	501.90	535.00
Crit W.S. (ft)	1058.04	Flow Area (sq ft)		14408.82	
E.G. Slope (ft/ft)	0.001314	Area (sq ft)		14408.82	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	798.99	Top Width (ft)		798.99	
Vel Total (ft/s)	11.52	Avg. Vel. (ft/s)		11.52	
Max Chl Dpth (ft)	20.09	Hydr. Depth (ft)		18.03	
Conv. Total (cfs)	4579008.0	Conv. (cfs)		4579008.0	
Length Wtd. (ft)	501.90	Wetted Per. (ft)		804.79	
Min Ch El (ft)	1045.40	Shear (lb/sq ft)		1.47	
Alpha	1.00	Stream Power (lb/ft s)		16.92	
Frctn Loss (ft)	0.79	Cum Volume (acre-ft)	1422.13	34309.83	355.97
C & E Loss (ft)	0.10	Cum SA (acres)	221.84	3131.37	77.43

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for

additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 212.84

INPUT
Description: 212.84 - FEMA Section AD

Left and Right Channel Bank Stations
Interpolated
Station Elevation Data num= 66

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16284.9	1068.4	16487.1	1068.9	16606	1069.3	16985	1071.2	17015.9	1071.4
17038.7	1071.8	17089.2	1071.1	17339.8	1070.2	17519.4	1069.1	17554.9	1069.1
17652.7	1069	17900.6	1068.7	18109.2	1068.8	18133.9	1069	19053.9	1067.7
19203.8	1066	19229.6	1065.8	19232.1	1065.8	19238.5	1065.7	19242.2	1065.7
19244.8	1065.8	19286.8	1067.4	19292.2	1069.2	19450.5	1067.9	19498.7	1067.5
19560.8	1067	19586	1066.9	19671.4	1066.8	19692.2	1068.3	19695.5	1068.9
19711.51063.544		19765.4	1045.5	19772.2	1043.1	19790.5	1043.1	19811.3	1043.2
20298.7	1043.5	20314.2	1050.220347.251063.544			20367.7	1071.8	20367.9	1071.8
20405.2	1072.8	20416.8	1072.7	20424.4	1072.7	20490.9	1070.9	20522.9	1069.8
20629.8	1070.1	20679.7	1070.1	20767.5	1070.4	20793.1	1070.2	20818.2	1069.1
20874.5	1068.7	20940.7	1070.4	20979.1	1070.3	21186.4	1069.3	21242.6	1069.1
21449.2	1070.2	21488.8	1070.8	21502.4	1071	21582.5	1070.9	21684.9	1071.4
21805.3	1070.7	21883.6	1070.5	21943.6	1070.2	22187.5	1070.4	22226.7	1070.2
22398.2	1069.8								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
16284.9	.037	19711.5	.03220347.25		.037

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19711.520347.25 565 538.19 480 .1 .3
Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
16284.9	19695.5	1072.8	F
20367.7	22398.2	1072.8	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1066.65	Element	Left OB	Channel / Right OB
Vel Head (ft)	3.11	Wt. n-Val.		0.032
W.S. Elev (ft)	1063.54	Reach Len. (ft)	565.00	538.19 / 480.00
Crit W.S. (ft)	1057.57	Flow Area (sq ft)		11737.26
E.G. Slope (ft/ft)	0.001930	Area (sq ft)		11737.26
Q Total (cfs)	166000.00	Flow (cfs)		166000.00
Top Width (ft)	635.75	Top Width (ft)		635.75
Vel Total (ft/s)	14.14	Avg. Vel. (ft/s)		14.14
Max Chl Dpth (ft)	20.44	Hydr. Depth (ft)		18.46
Conv. Total (cfs)	3778154.0	Conv. (cfs)		3778154.0
Length Wtd. (ft)	538.19	Wetted Per. (ft)		643.08
Min Ch El (ft)	1043.10	Shear (lb/sq ft)		2.20
Alpha	1.00	Stream Power (lb/ft s)		31.11
Frctn Loss (ft)	0.90	Cum Volume (acre-ft)	9430.44	33177.78 / 3099.71
C & E Loss (ft)	0.18	Cum SA (acres)	2186.27	3117.50 / 1043.99

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1066.66	Element	Left OB	Channel / Right OB
Vel Head (ft)	3.10	Wt. n-Val.		0.032
W.S. Elev (ft)	1063.56	Reach Len. (ft)	565.00	538.19 / 480.00
Crit W.S. (ft)	1057.57	Flow Area (sq ft)		11745.09
E.G. Slope (ft/ft)	0.001926	Area (sq ft)		11745.09
Q Total (cfs)	166000.00	Flow (cfs)		166000.00
Top Width (ft)	635.75	Top Width (ft)		635.75
Vel Total (ft/s)	14.13	Avg. Vel. (ft/s)		14.13
Max Chl Dpth (ft)	20.46	Hydr. Depth (ft)		18.47
Conv. Total (cfs)	3782263.0	Conv. (cfs)		3782263.0
Length Wtd. (ft)	538.19	Wetted Per. (ft)		643.10
Min Ch El (ft)	1043.10	Shear (lb/sq ft)		2.20
Alpha	1.00	Stream Power (lb/ft s)		31.04
Frctn Loss (ft)	0.90	Cum Volume (acre-ft)	1422.13	34159.16 / 355.97
C & E Loss (ft)	0.18	Cum SA (acres)	221.84	3123.11 / 77.43

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 212.74

INPUT
Description: 212.74

DuplicateEffective

Left and Right Channel Bank Stations Interpolated
Station Elevation Data num= 70

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
15451.4	1067.1	15456.2	1067.3	15464.1	1067.8	15467.8	1068.3	15480.9	1067.9
15619.6	1066.5	15997.3	1067	16142.7	1066.6	16235	1067.1	16317.5	1067.4
16486.7	1067.9	16644.3	1068.2	16906.1	1067.7	17106.4	1067.8	17312.1	1069.3
17351.4	1069.8	17392.8	1069.3	17578.5	1067.9	17799	1066.9	17906.3	1067
18021.4	1067.4	18082.2	1066.6	18121.5	1067.1	18128.7	1067	19421.5	1067
19430.3	1070.5	19440.7	1074.4	19464.5	1074.9	19479.6	1075	19498.8	1064.8
19504.9	1062.5	19514.1	1062.5	19546.7	1062.8	19569.3	1066	19571.5	1066.5
19577.2	1066.5	19641.5	1067.1	19653.8	1066.8	19678.6	1067.3	19690.61	1063.061
19709.2	1056.5	19745.4	1042.1	19776.5	1041.9	20081.3	1041.6	20297.5	1041.8
20311.1	1046.1	20335	1053.3	20367.2	1063.063	20372.6	1064.7	20387.5	1069
20400.7	1069	20436.3	1069	20477.6	1068.5	20512.4	1068.7	20545.9	1068.9
20612.1	1068.9	20630.4	1069.2	20677.9	1069.9	20719.8	1069.6	20764.1	1069.6
20802.7	1069.4	20847.1	1068.9	20916.2	1069.1	20977.1	1068.7	21027.9	1068.8
21126.4	1069.4	21156	1069.5	21203.9	1069.2	21326.9	1068.9	21421.2	1069.1

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
15451.4	.037	19690.61	.032	20367.2	.037

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19690.61 20367.2 296 242.17 66 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
15451.4	19678.6	1074	F
20387.5	21421.2	1074	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1065.57	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.51	Wt. n-Val.		0.032	
W.S. Elev (ft)	1063.06	Reach Len. (ft)	296.00	242.17	66.00
Crit W.S. (ft)	1055.53	Flow Area (sq ft)		13064.60	
E.G. Slope (ft/ft)	0.001465	Area (sq ft)	19.23	13064.60	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	721.72	Top Width (ft)	45.13	676.58	
Vel Total (ft/s)	12.71	Avg. Vel. (ft/s)		12.71	
Max Chl Dpth (ft)	21.46	Hydr. Depth (ft)		19.31	
Conv. Total (cfs)	4336312.0	Conv. (cfs)		4336312.0	
Length Wtd. (ft)	242.17	Wetted Per. (ft)		683.64	
Min Ch El (ft)	1041.60	Shear (lb/sq ft)		1.75	
Alpha	1.00	Stream Power (lb/ft s)		22.22	
Frctn Loss (ft)	0.30	Cum Volume (acre-ft)	9430.32	33024.56	3099.71
C & E Loss (ft)	0.11	Cum SA (acres)	2185.98	3109.39	1043.99

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1065.58	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.50	Wt. n-Val.		0.032	
W.S. Elev (ft)	1063.08	Reach Len. (ft)	296.00	242.17	66.00
Crit W.S. (ft)	1055.53	Flow Area (sq ft)		13074.10	
E.G. Slope (ft/ft)	0.001462	Area (sq ft)		13074.10	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	676.59	Top Width (ft)		676.59	
Vel Total (ft/s)	12.70	Avg. Vel. (ft/s)		12.70	
Max Chl Dpth (ft)	21.48	Hydr. Depth (ft)		19.32	
Conv. Total (cfs)	4341428.0	Conv. (cfs)		4341428.0	
Length Wtd. (ft)	242.17	Wetted Per. (ft)		683.67	
Min Ch El (ft)	1041.60	Shear (lb/sq ft)		1.75	
Alpha	1.00	Stream Power (lb/ft s)		22.16	
Frctn Loss (ft)	0.29	Cum Volume (acre-ft)	1422.13	34005.83	355.97
C & E Loss (ft)	0.11	Cum SA (acres)	221.84	3115.00	77.43

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 212.68

INPUT
Description: 212.68

Upstream face of 7th Avenue bridge
Station Elevation Data num= 34

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18325	1064.2	19130.38	1068	19307.91	1072	19492.8	1073.03	19492.89	1066.21
19501.07	1063.02	319567.36	1037.2	19595.08	1037.5	19600.27	1037.5	19645.74	1037.8
19703.33	1037.8	819708.52	1037.8	819721.94	1039.1	19780.83	1037.6	19790.36	1040
19811.58	1039.4	19816.77	1039.4	19829.76	1037.2	19839.72	1038	19878.26	1039.3
19919.83	1037.5	19925.02	1037.5	19977.41	1036.9	20028.08	1038.1	20033.27	1038.1
20064.88	1037.5	20130.11	1063.02	520137.19	1065.8	20137.28	1072.66	20407.73	1072
20615.57	1068	20641.55	1067.6	20780.11	1068	21568.17	1069.3		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
18325	.037	19501.07	.032	20130.1	.037

```
                                                                DuplicateEffective
Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.    Expan.
      19501.07 20130.1              155  154.01     155             .1       .3
Ineffective Flow     num=       2
   Sta L    Sta R    Elev  Permanent
   1832519492.89 1066.21       F
20137.1921568.17  1065.8       F

CROSS SECTION OUTPUT  Profile #PF#1
**********************************************************************************************
* E.G. Elev (ft)        * 1065.16  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)         *    2.14  * Wt. n-Val.           *          *   0.032  *          *
* W.S. Elev (ft)        * 1063.02  * Reach Len. (ft)       *    0.10  *    0.10  *    0.10  *
* Crit W.S. (ft)        * 1052.69  * Flow Area (sq ft)     *          *14139.91  *          *
* E.G. Slope (ft/ft)    *0.001030  * Area (sq ft)          *          *14139.91  *          *
* Q Total (cfs)         *166000.00  * Flow (cfs)           *          *166000.00  *          *
* Top Width (ft)        *  629.02  * Top Width (ft)       *          *  629.02  *          *
* Vel Total (ft/s)      *   11.74  * Avg. Vel. (ft/s)     *          *   11.74  *          *
* Max Chl Dpth (ft)     *   26.12  * Hydr. Depth (ft)     *          *   22.48  *          *
* Conv. Total (cfs)     *5173112.0  * Conv. (cfs)         *          *5173112.0  *          *
* Length Wtd. (ft)      *    0.10  * Wetted Per. (ft)     *          *  639.38  *          *
* Min Ch El (ft)        * 1036.90  * Shear (lb/sq ft)     *          *    1.42  *          *
* Alpha                 *    1.00  * Stream Power (lb/ft s) *          *   16.69  *          *
* Frctn Loss (ft)       *    0.00  * Cum Volume (acre-ft)  * 9430.25  *32948.94  * 3099.71  *
* C & E Loss (ft)       *    0.03  * Cum SA (acres)        * 2185.82  * 3105.76  * 1043.99  *
**********************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

CROSS SECTION OUTPUT  Profile #PF#2
**********************************************************************************************
* E.G. Elev (ft)        * 1065.17  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)         *    2.14  * Wt. n-Val.           *          *   0.032  *          *
* W.S. Elev (ft)        * 1063.04  * Reach Len. (ft)       *    0.10  *    0.10  *    0.10  *
* Crit W.S. (ft)        * 1052.69  * Flow Area (sq ft)     *          *14148.66  *          *
* E.G. Slope (ft/ft)    *0.001028  * Area (sq ft)          *          *14148.66  *          *
* Q Total (cfs)         *166000.00  * Flow (cfs)           *          *166000.00  *          *
* Top Width (ft)        *  629.03  * Top Width (ft)       *          *  629.03  *          *
* Vel Total (ft/s)      *   11.73  * Avg. Vel. (ft/s)     *          *   11.73  *          *
* Max Chl Dpth (ft)     *   26.14  * Hydr. Depth (ft)     *          *   22.49  *          *
* Conv. Total (cfs)     *5178275.0  * Conv. (cfs)         *          *5178275.0  *          *
* Length Wtd. (ft)      *    0.10  * Wetted Per. (ft)     *          *  639.41  *          *
* Min Ch El (ft)        * 1036.90  * Shear (lb/sq ft)     *          *    1.42  *          *
* Alpha                 *    1.00  * Stream Power (lb/ft s) *          *   16.66  *          *
* Frctn Loss (ft)       *          * Cum Volume (acre-ft)  * 1422.13  *33930.16  *  355.97  *
* C & E Loss (ft)       *          * Cum SA (acres)        *  221.84  * 3111.37  *   77.43  *
**********************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

BRIDGE


RIVER: 1
REACH: 1                 RS: 212.675

INPUT
Description: 7th Avenue Bridge
Distance from Upstream XS =       .1
Deck/Roadway Width        =    153.01
Weir Coefficient          =       2.6
Upstream  Deck/Roadway Coordinates
    num=       11
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
*****************************************************************************
   18325  1064.2  1064.219130.38    1068    106819307.91    1072    1072
 19492.8 1073.03 1073.0319492.89 1073.03 1066.2119595.08  1073.9 1067.07
19703.34 1074.35 1067.5219811.58 1074.48 1067.6419925.02 1074.24 1067.41
20033.27  1073.6 1066.7620137.19 1072.66 1065.84

Upstream Bridge Cross Section Data
Station Elevation Data    num=      34
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*************************************************************************************
   18325  1064.219130.38    106819307.91    1072 19492.8 1073.0319492.89 1066.21
19501.071063.02319567.36  1037.219595.08  1037.519600.27  1037.519645.74  1037.8
19703.33 1037.8819708.52 1037.8819721.94  1039.119780.83  1037.619790.36    1040
19811.58  1039.419816.77  1039.419829.76  1037.219839.72    103819878.26  1039.3
19919.83  1037.519925.02  1037.519977.41  1036.920028.08  1038.120033.27  1038.1
20064.88  1037.5 20130.11063.02520137.19  1065.820137.28 1072.6620407.73    1072
20615.57    106820641.55  1067.620780.11    106821568.17  1069.3

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
   18325    .03719501.07    .032 20130.1    .037

Bank Sta: Left   Right    Coeff Contr.    Expan.
      19501.07 20130.1             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
   1832519492.89 1066.21       F
20137.1921568.17  1065.8       F

Downstream  Deck/Roadway Coordinates
    num=       11
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
*****************************************************************************
   18325  1064.2  1064.219130.38    1068    106819307.91    1072    1072
 19492.8 1073.03 1073.0319492.89 1073.03 1066.2119595.08  1073.9 1067.07
19703.34 1074.35 1067.5219811.58 1074.48 1067.6419925.02 1074.24 1067.41
20033.27  1073.6 1066.7620137.19 1072.66 1065.84

Downstream Bridge Cross Section Data
Station Elevation Data    num=      34
```

```
                                                                    DuplicateEffective
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
 ********************************************************************************
   18325  1064.219130.38    106819307.91    1072 19492.8 1073.0319492.89 1066.21
19502.331062.53319567.36  1037.219595.08  1037.519600.27  1037.519645.74  1037.8
19703.33 1037.8819708.52 1037.8819721.94  1039.119780.83  1037.619790.36    1040
19811.58  1039.419816.77  1039.419829.76  1037.219839.72    103819878.26  1039.3
19919.83  1037.519925.02  1037.519977.41  1036.920028.08  1038.120033.27  1038.1
20064.88  1037.520128.841062.53220137.19  1065.820137.28 1072.6620407.73    1072
20615.57    106820641.55  1067.620780.11    106821568.17  1069.3

Manning's n Values         num=       3
     Sta    n Val     Sta    n Val     Sta    n Val
 ************************************************
   18325    .03719502.33    .03220128.84    .037

Bank Sta: Left   Right    Coeff Contr.   Expan.
      19502.3320128.84             .1       .3
Ineffective Flow      num=        2
   Sta L    Sta R    Elev  Permanent
   1832519492.89 1066.21       F
20137.1921568.17  1065.8       F

Upstream Embankment side slope              =         horiz. to 1.0 vertical
Downstream Embankment side slope            =         horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Piers =  5

Pier Data
Pier Station     Upstream=19597.67    Downstream=19597.67
Upstream      num=        2
    Width   Elev    Width   Elev
 *********************************
     4.8    1036     4.8    1068
Downstream      num=        2
    Width   Elev    Width   Elev
 *********************************
     4.8    1036     4.8    1068

Pier Data
Pier Station     Upstream=19705.06    Downstream=19705.06
Upstream      num=        2
    Width   Elev    Width   Elev
 *********************************
     4.8    1036     4.8    1068
Downstream      num=        2
    Width   Elev    Width   Elev
 *********************************
     4.8    1036     4.8    1068

Pier Data
Pier Station     Upstream=19814.17    Downstream=19814.17
Upstream      num=        2
    Width   Elev    Width   Elev
 *********************************
     4.8    1036     4.8    1068
Downstream      num=        2
    Width   Elev    Width   Elev
 *********************************
     4.8    1036     4.8    1068

Pier Data
Pier Station     Upstream=19922.42    Downstream=19922.42
Upstream      num=        2
    Width   Elev    Width   Elev
 *********************************
     4.8    1036     4.8    1068
Downstream      num=        2
    Width   Elev    Width   Elev
 *********************************
     4.8    1036     4.8    1068

Pier Data
Pier Station     Upstream=20030.67    Downstream=20030.67
Upstream      num=        2
    Width   Elev    Width   Elev
 *********************************
     4.8    1036     4.8    1068
Downstream      num=        2
    Width   Elev    Width   Elev
 *********************************
     4.8    1036     4.8    1068

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
       Momentum               Cd   =     1.2
       Yarnell                KVal =    1.05
Selected Low Flow Methods = Highest Energy Answer

High Flow Method
       Energy Only

Additional Bridge Parameters
       Add Friction component to Momentum
       Add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT  Profile #PF#1
```

DuplicateEffective

E.G. US. (ft)	1065.16	Element	Inside BR US	Inside BR DS
W.S. US. (ft)	1063.02	E.G. Elev (ft)	1065.14	1064.84
Q Total (cfs)	166000.00	W.S. Elev (ft)	1062.75	1062.36
Q Bridge (cfs)	166000.00	Crit W.S. (ft)	1053.13	1053.12
Q Weir (cfs)		Max Chl Dpth (ft)	25.85	25.46
Weir Sta Lft (ft)		Vel Total (ft/s)	12.41	12.63
Weir Sta Rgt (ft)		Flow Area (sq ft)	13373.12	13142.99
Weir Submerg		Froude # Chl	0.46	0.48
Weir Max Depth (ft)		Specif Force (cu ft)	223159.50	219217.40
Min El Weir Flow (ft)	1065.81	Hydr Depth (ft)	22.16	21.85
Min El Prs (ft)	1067.64	W.P. Total (ft)	860.54	854.62
Delta EG (ft)	0.40	Conv. Total (cfs)	3867106.0	3774164.0
Delta WS (ft)	0.49	Top Width (ft)	603.60	601.64
BR Open Area (sq ft)	16032.12	Frctn Loss (ft)	0.29	0.00
BR Open Vel (ft/s)	12.63	C & E Loss (ft)	0.01	0.07
Coef of Q		Shear Total (lb/sq ft)	1.79	1.86
Br Sel Method	Energy only	Power Total (lb/ft s)	22.19	23.46

Note: Momentum answer is not valid if the water surface is above the low chord or if there is weir flow. The momentum answer has been disregarded.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

BRIDGE OUTPUT Profile #PF#2

E.G. US. (ft)	1065.17	Element	Inside BR US	Inside BR DS
W.S. US. (ft)	1063.04	E.G. Elev (ft)	1065.07	1064.78
Q Total (cfs)	166000.00	W.S. Elev (ft)	1062.66	1062.28
Q Bridge (cfs)	166000.00	Crit W.S. (ft)	1053.13	1053.12
Q Weir (cfs)		Max Chl Dpth (ft)	25.76	25.38
Weir Sta Lft (ft)		Vel Total (ft/s)	12.46	12.68
Weir Sta Rgt (ft)		Flow Area (sq ft)	13321.77	13094.60
Weir Submerg		Froude # Chl	0.47	0.48
Weir Max Depth (ft)		Specif Force (cu ft)	222270.50	218402.60
Min El Weir Flow (ft)	1072.75	Hydr Depth (ft)	22.09	21.78
Min El Prs (ft)	1067.64	W.P. Total (ft)	859.22	853.37
Delta EG (ft)	0.40	Conv. Total (cfs)	3846322.0	3754689.0
Delta WS (ft)	0.50	Top Width (ft)	603.16	601.23
BR Open Area (sq ft)	16000.11	Frctn Loss (ft)		
BR Open Vel (ft/s)	12.68	C & E Loss (ft)		
Coef of Q		Shear Total (lb/sq ft)	1.80	1.87
Br Sel Method	Momentum	Power Total (lb/ft s)	22.47	23.74

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 212.67

INPUT
Description: 212.67

Left and Right Channel Bank Stations Interpolated
Station Elevation Data num= 34

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18325	1064.21	9130.38	106819307.91	1072	19492.8	1073.03	19492.89	1066.21	
19502.33	1062.5	3319567.36	1037.219595.08	1037.519600.27	1037.519645.74	1037.8			
19703.33	1037.8819708.52	1037.8819721.94	1039.119780.83	1037.619790.36	1040				
19811.58	1039.419816.77	1039.419829.76	1037.219839.72	103819878.26	1039.3				
19919.83	1037.519925.02	1037.519977.41	1036.920028.08	1038.120033.27	1038.1				
20064.88	1037.520128.84	1062.53220137.19	1065.820137.28	1072.6620407.73	1072				
20615.57	106820641.55	1067.620780.11	106821568.17	1069.3					

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
18325	.03719502.33		.03220128.84		.037

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19502.3320128.84 481 557.08 901 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
1832519492.89		1066.21	F
20137.1921568.17		1065.8	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1064.77	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.24	Wt. n-Val.		0.032	
W.S. Elev (ft)	1062.53	Reach Len. (ft)	481.00	557.08	901.00
Crit W.S. (ft)	1052.69	Flow Area (sq ft)		13830.37	
E.G. Slope (ft/ft)	0.001102	Area (sq ft)		13830.37	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	626.50	Top Width (ft)		626.50	
Vel Total (ft/s)	12.00	Avg. Vel. (ft/s)		12.00	
Max Chl Dpth (ft)	25.63	Hydr. Depth (ft)		22.08	
Conv. Total (cfs)	4999902.0	Conv. (cfs)		4999902.0	
Length Wtd. (ft)	557.08	Wetted Per. (ft)		636.66	
Min Ch El (ft)	1036.90	Shear (lb/sq ft)		1.49	
Alpha	1.00	Stream Power (lb/ft s)		17.94	
Frctn Loss (ft)	1.13	Cum Volume (acre-ft)	9430.25	32902.06	3099.71
C & E Loss (ft)	0.41	Cum SA (acres)	2185.82	3103.63	1043.99

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for

additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1064.77	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.24	Wt. n-Val.		0.032	
W.S. Elev (ft)	1062.54	Reach Len. (ft)	481.00	557.08	901.00
Crit W.S. (ft)	1052.69	Flow Area (sq ft)		13834.12	
E.G. Slope (ft/ft)	0.001101	Area (sq ft)		13834.12	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	626.51	Top Width (ft)		626.51	
Vel Total (ft/s)	12.00	Avg. Vel. (ft/s)		12.00	
Max Chl Dpth (ft)	25.64	Hydr. Depth (ft)		22.08	
Conv. Total (cfs)	5002046.0	Conv. (cfs)		5002046.0	
Length Wtd. (ft)	557.08	Wetted Per. (ft)		636.69	
Min Ch El (ft)	1036.90	Shear (lb/sq ft)		1.49	
Alpha	1.00	Stream Power (lb/ft s)		17.93	
Frctn Loss (ft)	1.12	Cum Volume (acre-ft)	1422.13	33883.46	355.97
C & E Loss (ft)	0.40	Cum SA (acres)	221.84	3109.24	77.43

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 212.56

INPUT
Description: 212.56

Left and Right Channel Bank Stations Interpolated
Station Elevation Data num= 84

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18526.6	1067.7	18605.6	1068.5	18672.9	1069.1	18686.4	1060	19108.7	1062.5
19147.3	1066.2	19151.5	1066.4	19161.7	1067.6	19184.3	1068.9	19238.8	1068.8
19249.1	1068.8	19264.6	1065	19289.8	1059.5	19333	1060.5	19374.1	1060.3
19381.8	1063.3	19405.9	1071.5	19420.1	1070.7	19427.9	1069.3	19436.8	1069
19464.9	1070.8	19474	1071.7	19488.9	1073.8	19506.5	1072.1	19530.4	1065.8
19539	1066.2	19604	1065.9	19607.1	1065.3	19613.7	1065.3	19619.1	1065.7
19619.8	1066.4	19637.7	1068	19655.3	1067.8	19692.8	1068.8	19731.05	1056.917
19757.5	1048.7	19785.4	1039.9	19929	1039.8	20217.8	1039.3	20252.14	1056.916
20264	1063	20269.6	1061.5	20279.7	1059.4	20318.1	1058.6	20372.9	1059.3
20398.1	1060.1	20425.6	1066.2	20438.5	1062.1	20445.5	1059.5	20451.6	1056.8
20575.6	1077.4	20581.9	1078.8	20601.9	1079.3	20671.6	1080.6	20698.7	1080.1
20732.1	1079.9	20755.7	1079.5	20791.2	1077.6	20834.9	1075.6	20892.5	1079.5
20896	1079.6	20938.4	1078.1	20958.4	1077.9	21004.8	1078.7	21029.1	1078.1
21101.8	1077.3	21144.7	1078.4	21165.1	1078.9	21203.3	1079.8	21236.8	1080.1
21329	1071.7	21351.9	1069.5	21384.8	1066.8	21396.7	1060	21632.6	1060
21640.1	1063.9	21686.7	1065.4	21688.1	1065.4	21734.9	1066.2	21757.8	1066.7
21833.3	1068.7	21846.1	1068.8	21931.4	1069.9	21952.1	1069		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
18526.6	.03	19731.05	.03	20252.14	.037

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19731.05 20252.14 495 502.71 525 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
18526.6	19692.8	1078	F
20301	21952.1	1078	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1063.23	Element	Left OB	Channel	Right OB
Vel Head (ft)	6.35	Wt. n-Val.		0.032	
W.S. Elev (ft)	1056.87	Reach Len. (ft)	495.00	502.71	525.00
Crit W.S. (ft)	1055.74	Flow Area (sq ft)		8207.39	
E.G. Slope (ft/ft)	0.004887	Area (sq ft)		8207.39	0.02
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	521.49	Top Width (ft)		520.87	0.62
Vel Total (ft/s)	20.23	Avg. Vel. (ft/s)		20.23	
Max Chl Dpth (ft)	17.57	Hydr. Depth (ft)		15.76	
Conv. Total (cfs)	2374592.0	Conv. (cfs)		2374592.0	
Length Wtd. (ft)	502.71	Wetted Per. (ft)		527.71	
Min Ch El (ft)	1039.30	Shear (lb/sq ft)		4.75	
Alpha	1.00	Stream Power (lb/ft s)		95.97	
Frctn Loss (ft)	1.91	Cum Volume (acre-ft)	9430.25	32761.14	3099.71
C & E Loss (ft)	0.54	Cum SA (acres)	2185.82	3096.29	1043.99

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

DuplicateEffective

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1063.25	Element	Left OB	Channel / Right OB
Vel Head (ft)	6.27	Wt. n-Val.		0.032
W.S. Elev (ft)	1056.98	Reach Len. (ft)	495.00	502.71 / 525.00
Crit W.S. (ft)	1055.74	Flow Area (sq ft)		8263.99
E.G. Slope (ft/ft)	0.004781	Area (sq ft)		8263.99
Q Total (cfs)	166000.00	Flow (cfs)		166000.00
Top Width (ft)	521.09	Top Width (ft)		521.09
Vel Total (ft/s)	20.09	Avg. Vel. (ft/s)		20.09
Max Chl Dpth (ft)	17.68	Hydr. Depth (ft)		15.86
Conv. Total (cfs)	2400832.0	Conv. (cfs)		2400832.0
Length Wtd. (ft)	502.71	Wetted Per. (ft)		528.08
Min Ch El (ft)	1039.30	Shear (lb/sq ft)		4.67
Alpha	1.00	Stream Power (lb/ft s)		93.82
Frctn Loss (ft)	1.92	Cum Volume (acre-ft)	1422.13	33742.15 / 355.97
C & E Loss (ft)	0.53	Cum SA (acres)	221.84	3101.90 / 77.43

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 212.46

INPUT
Description: 212.46 - FEMA Section AC

Left and Right Channel Bank Stations
Interpolated
Station Elevation Data num= 66

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18753.5	1067.1	18827.8	1067.7	18877.5	1068.2	18898.4	1055	19357.3	1055.1
19382.1	1053.4	19409	1053.9	19429.7	1053.3	19445.8	1054.1	19481.5	1054.3
19531	1052.9	19550.5	1054.6	19656.6	1055	19684.4	1069.8	19700	1067.4
19714.7	1067.8	19743.34	1056.289	19787.6	1038.5	19877.7	1038.3	20214.4	1037.2
20270.9	1039.9	20290.3	1040.2	20301	1040.331	20380.4	1041.3	20415.6	1048.6
20422.7	1048.9	20436.9	1047.2	20446.3	1048.4	20484.2	1055.6	20494.5	1057
20510.9	1057.5	20553.9	1062.4	20563.5	1064	20616.9	1070.3	20661.5	1072.5
20691.8	1074.7	20705.2	1075.2	20771.8	1073.9	20836.5	1073.6	20841.8	1073.2
20893.4	1072.8	20932.3	1068.7	20999.5	1072.8	21028.4	1074	21091.5	1069.7
21143.4	1069.4	21187.1	1070.2	21222.4	1071.9	21234.8	1070.7	21242.4	1070.9
21265.3	1070.2	21277.9	1069.2	21302	1065.4	21326.5	1063.3	21392.1	1057.4
21427.4	1052.9	21482.8	1061.6	21523.6	1061.6	21591.7	1061.2	21609.9	1060.7
21657.5	1061.6	22674	1062	22695.3	1072.2	22728.6	1064.6	22746.1	1064.3
22917.1	1063.8								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
18753.5	.037	19743.34	.032	20301	.037

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19743.34 20301 495 497.81 510 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
18753.5	19684.4	1075.2	F
20301	22917.1	1075.2	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1060.78	Element	Left OB	Channel / Right OB
Vel Head (ft)	4.54	Wt. n-Val.		0.032
W.S. Elev (ft)	1056.23	Reach Len. (ft)	495.00	497.81 / 510.00
Crit W.S. (ft)	1052.77	Flow Area (sq ft)	1160.90	9703.67 / 2110.16
E.G. Slope (ft/ft)	0.003034	Area (sq ft)		9703.67
Q Total (cfs)	166000.00	Flow (cfs)		166000.00
Top Width (ft)	1555.15	Top Width (ft)	762.46	557.52 / 235.17
Vel Total (ft/s)	17.11	Avg. Vel. (ft/s)		17.11
Max Chl Dpth (ft)	19.03	Hydr. Depth (ft)		17.41
Conv. Total (cfs)	3013623.0	Conv. (cfs)		3013623.0
Length Wtd. (ft)	497.81	Wetted Per. (ft)		561.02
Min Ch El (ft)	1037.20	Shear (lb/sq ft)		3.28
Alpha	1.00	Stream Power (lb/ft s)		56.05
Frctn Loss (ft)	1.85	Cum Volume (acre-ft)	9423.66	32657.79 / 3086.99
C & E Loss (ft)	0.12	Cum SA (acres)	2181.49	3090.07 / 1042.57

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1060.80	Element	Left OB	Channel / Right OB
Vel Head (ft)	4.51	Wt. n-Val.		0.032
W.S. Elev (ft)	1056.29	Reach Len. (ft)	495.00	497.81 / 510.00
Crit W.S. (ft)	1052.77	Flow Area (sq ft)		9738.10
E.G. Slope (ft/ft)	0.003114	Area (sq ft)		9738.10
Q Total (cfs)	166000.00	Flow (cfs)		166000.00
Top Width (ft)	557.66	Top Width (ft)		557.66
Vel Total (ft/s)	17.05	Avg. Vel. (ft/s)		17.05
Max Chl Dpth (ft)	19.09	Hydr. Depth (ft)		17.46
Conv. Total (cfs)	2974752.0	Conv. (cfs)		2974752.0

```
                                                                  DuplicateEffective
* Length Wtd. (ft)       *  497.81  * Wetted Per. (ft)       *          *  577.14  *          *
* Min Ch El (ft)         * 1037.20  * Shear (lb/sq ft)       *          *    3.28  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   55.92  *          *
* Frctn Loss (ft)        *    1.87  * Cum Volume (acre-ft)   * 1422.13  *33638.27  *  355.97  *
* C & E Loss (ft)        *    0.12  * Cum SA (acres)         *  221.84  * 3095.68  *   77.43  *
*********************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 212.37

INPUT
Description: 212.37

Left and Right Channel Bank Stations Interpolated
Station Elevation Data    num=      53
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 18816.9  1066.3 18818.6  1066.2 18822.9  1066.3   18834  1066.3 18957.9    1066
 18989.9  1065.8   19000  1065.6 19036.9  1065.2 19054.2  1064.9 19092.2  1064.1
 19112.5  1063.4 19137.4  1064.7 19138.3  1064.8 19139.3  1064.8 19195.1  1066.9
 19209.3    1061 19668.8    1061 19681.7  1066.2 19684.6  1067.4 19684.8  1067.3
 19685.1  1067.2 19692.2  1064.6 19715.3    1065 19717.4  1065.1 19722.1  1063.2
19744.061053.778 19782.7  1037.2 19926.2  1036.9 20272.4  1037.1 20284.2  1036.6
 20285.4  1036.6 20288.8  1038.620320.691053.776 20338.6  1062.3 20338.7  1062.3
 20369.5  1065.2 20396.5  1069.4 20454.4  1070.1 20471.3  1070.1 20508.4    1061
 22070.8    1061 22075.2  1062.9 22088.8  1064.3 22125.1  1067.6 22147.7  1068.9
 22155.8  1069.3 22177.3  1071.8 22222.4  1065.3 22242.6  1063.6 22252.8  1063.9
 22275.2  1064.6 22382.7  1065.6 22407.8  1066.1

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
 18816.9    .03719744.06    .03220320.69    .037

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      19744.0620320.69              500  495.84     485            .1      .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 18816.9 19684.6    1070       F
 20396.5 22407.8    1070       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         * 1058.81  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    5.72  * Wt. n-Val.             *          *    0.032  *          *
* W.S. Elev (ft)         * 1053.09  * Reach Len. (ft)        *  500.00  *  495.84  *  485.00  *
* Crit W.S. (ft)         * 1051.73  * Flow Area (sq ft)      *          * 8651.10  *          *
* E.G. Slope (ft/ft)     *0.004658  * Area (sq ft)           *          * 8651.10  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)            *          *166000.00  *          *
* Top Width (ft)         *  573.58  * Top Width (ft)        *          *  573.58  *          *
* Vel Total (ft/s)       *   19.19  * Avg. Vel. (ft/s)      *          *   19.19  *          *
* Max Chl Dpth (ft)      *   16.49  * Hydr. Depth (ft)      *          *   15.08  *          *
* Conv. Total (cfs)      *2432248.0  * Conv. (cfs)          *          *2432248.0  *          *
* Length Wtd. (ft)       *  495.84  * Wetted Per. (ft)      *          *  580.68  *          *
* Min Ch El (ft)         * 1036.60  * Shear (lb/sq ft)      *          *    4.33  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   83.13  *          *
* Frctn Loss (ft)        *    2.44  * Cum Volume (acre-ft)   * 9417.06  *32552.91  * 3074.64  *
* C & E Loss (ft)        *    0.01  * Cum SA (acres)         * 2177.16  * 3083.61  * 1041.19  *
*********************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)         * 1058.81  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    5.71  * Wt. n-Val.             *          *    0.032  *          *
* W.S. Elev (ft)         * 1053.10  * Reach Len. (ft)        *  500.00  *  495.84  *  485.00  *
* Crit W.S. (ft)         * 1051.73  * Flow Area (sq ft)      *          * 8657.61  *          *
* E.G. Slope (ft/ft)     *0.004647  * Area (sq ft)           *          * 8657.61  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)            *          *166000.00  *          *
* Top Width (ft)         *  573.63  * Top Width (ft)        *          *  573.63  *          *
* Vel Total (ft/s)       *   19.17  * Avg. Vel. (ft/s)      *          *   19.17  *          *
* Max Chl Dpth (ft)      *   16.50  * Hydr. Depth (ft)      *          *   15.09  *          *
* Conv. Total (cfs)      *2435146.0  * Conv. (cfs)          *          *2435146.0  *          *
* Length Wtd. (ft)       *  495.84  * Wetted Per. (ft)      *          *  580.73  *          *
* Min Ch El (ft)         * 1036.60  * Shear (lb/sq ft)      *          *    4.32  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   82.93  *          *
* Frctn Loss (ft)        *    2.43  * Cum Volume (acre-ft)   * 1422.13  *33533.16  *  355.97  *
* C & E Loss (ft)        *    0.02  * Cum SA (acres)         *  221.84  * 3089.22  *   77.43  *
*********************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 212.27

INPUT
```

Description: 212.27

Left and Right Channel Bank Stations Interpolated

Station Elevation Data num= 95

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17693.1	1064.6	17697.9	1064.6	17734.8	1064	17740.4	1063.9	17785.6	1063.1
17796.2	1063.1	17827.6	1062.5	17846.2	1062.4	17893.5	1062.2	18008.4	1061.5
18061.8	1061.5	18108.5	1062.4	18180.8	1062.8	18221.3	1063	18239.7	1059
18264.8	1054.5	18285.2	1054	18326.7	1048.1	18342.3	1046.2	18362.6	1053.4
18380.3	1046.2	18395.3	1042.4	18405.4	1039	18415.2	1036.5	18431.2	1031.5
18465.3	1023.5	18544.4	1025.1	18579.3	1015.6	18586.4	1013.2	18615.7	1013
18649.7	1013	18693.4	1012.9	18782.3	1012.3	18931.2	1012.8	18976.1	1012.6
18981.9	1012.7	19083	1012.1	19110	1012.1	19284.8	1012.2	19302.3	1012.4
19314.3	1019	19342.1	1028.5	19385.1	1048.2	19442.6	1044.9	19457.4	1044.6
19509.8	1062.9	19515.4	1063	19561	1063.7	19676.4	1065.4	19715.25	1052.334
19754.6	1039.1	19765.4	1035.4	19935.2	1035.2	20003.5	1035.2	20097.2	1035.1
20281.9	1035.1	20330.35	1052.334	20337	1054.7	20351	1059.5	20416.4	1037.6
20457	1023.9	20721.5	1023.4	20766.6	1022.9	20810.1	1022.2	20848.4	1021.5
20878.3	1023.7	20909.5	1025.8	20935.1	1026.2	20970.3	1026.8	20984	1027.2
21016.1	1028	21073.4	1026.9	21105.5	1026.6	21138.2	1026.2	21189.1	1025.7
21190.6	1025.7	21248.8	1040.7	21294.4	1051.5	21328.2	1059.6	21333.8	1060.2
21373.3	1067.4	21415.5	1061.7	21426.9	1059.4	21439.1	1056.3	21473.7	1050
21501.4	1044.9	21538.1	1038.9	21543.5	1037.9	21579.4	1046.2	21617.1	1054.3
21626.5	1056.1	21660.7	1060	21745.2	1060.6	21930.8	1061.7	21968.2	1061.7

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
17693.1	.045	19715.25	.033	20330.35	.04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

19715.25	20330.35	510	495	475	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17693.1	19676.4	1065.4	F
20351	21968.2	1059.5	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1056.35	Element	Left OB	Channel	Right OB
Vel Head (ft)	5.67	Wt. n-Val.		0.033	
W.S. Elev (ft)	1050.68	Reach Len. (ft)	510.00	495.00	475.00
Crit W.S. (ft)	1049.57	Flow Area (sq ft)		8689.03	
E.G. Slope (ft/ft)	0.005222	Area (sq ft)	34333.16	8689.03	22236.28
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	2801.44	Top Width (ft)	1151.95	605.55	1043.94
Vel Total (ft/s)	19.10	Avg. Vel. (ft/s)		19.10	
Max Chl Dpth (ft)	38.58	Hydr. Depth (ft)		14.35	
Conv. Total (cfs)	2297156.0	Conv. (cfs)		2297156.0	
Length Wtd. (ft)	495.00	Wetted Per. (ft)		610.75	
Min Ch El (ft)	1035.10	Shear (lb/sq ft)		4.64	
Alpha	1.00	Stream Power (lb/ft s)		88.61	
Frctn Loss (ft)	1.80	Cum Volume (acre-ft)	9220.02	32454.22	2950.85
C & E Loss (ft)	0.59	Cum SA (acres)	2170.55	3076.90	1035.38

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1056.36	Element	Left OB	Channel	Right OB
Vel Head (ft)	5.65	Wt. n-Val.		0.033	
W.S. Elev (ft)	1050.71	Reach Len. (ft)	510.00	495.00	475.00
Crit W.S. (ft)	1049.57	Flow Area (sq ft)		8704.85	
E.G. Slope (ft/ft)	0.005192	Area (sq ft)		8704.85	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	605.70	Top Width (ft)		605.70	
Vel Total (ft/s)	19.07	Avg. Vel. (ft/s)		19.07	
Max Chl Dpth (ft)	15.61	Hydr. Depth (ft)		14.37	
Conv. Total (cfs)	2303734.0	Conv. (cfs)		2303734.0	
Length Wtd. (ft)	495.00	Wetted Per. (ft)		610.91	
Min Ch El (ft)	1035.10	Shear (lb/sq ft)		4.62	
Alpha	1.00	Stream Power (lb/ft s)		88.08	
Frctn Loss (ft)	1.79	Cum Volume (acre-ft)	1422.13	33434.34	355.97
C & E Loss (ft)	0.59	Cum SA (acres)	221.84	3082.50	77.43

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 212.18

INPUT
Description: 212.18

Left and Right Channel Bank Stations Interpolated

DuplicateEffective

Station Elevation Data num= 87

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16867.12	1065.216906.93	1063.9117072.69	1063.6217369.21	1062.4817505.56	1062.52				
17612.28	1062.917794.36	1062.3317881.75	1062.5817916.47	1062.3217948.21	1065.69				
18039.48	1010.818149.75	1011.6918168.39	1016.6418177.08	1014.6	18188	1020.06			
18220.51	1027.218252.71	1039.3418269.64	1041.1618292.43	1036.718335.96	1016.75				
18454.36	1016.218568.19	1014.7218633.81	1016.1118764.91	1017.4618823.95	1017.09				
19046.22	1017.719156.65	1019.3719198.34	1018.4419223.89	1018.4919248.34	1016.23				
19311.18	1015.1 19393.8	1012.98	19433	1012.5219464.03	1021.8119488.46	1011.1			
19574.96	1010.619614.98	1037.4219649.87	1059.81 19685.1	1058.8119706.85	1050.309				
19749.09	1033.819960.28	1030.820229.47	1031.720272.48	1032.6720319.31	1039.88				
20334.57	1050.30720340.72	1054.5120354.62	1060.320472.17	1061.55 20523.7	1061.62				
20551.86	1053.0420622.11	1048.820687.56	1052.220928.11	1055.2921136.97	1058.41				
21257.08	1058.6921362.76	1060.7121646.22	1067.221858.08	1068.1122054.43	1067.43				
22158.98	1065.9622243.23	1064.32 22279.9	1062.822295.67	1065.5922307.88	1060.91				
22324.63	1061.3922394.01	1058.4322480.34	1058.922555.28	1058.9222720.83	1059.92				
22855.27	1061.5422949.17	1061.4922974.76	1060 23021.3	1058.523070.19	1058.44				
23114.11	1060.29 23152.9	1060.0823260.95	1061.423486.25	1061.0523586.41	1061.15				
23621.07	1061.4723789.79	1060.3723929.16	1060.4 24034.7	1061.824176.57	1062.42				
24281.11	1062.3324460.33	1061.22							

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
16867.12	.04519706.85	.03320334.57	.04		

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

19706.8520334.57 500 502.53 485 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
16867.1219649.87	1068	F	
20523.724460.33	1068	F	

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1053.95	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.69	Wt. n-Val.		0.033	
W.S. Elev (ft)	1050.27	Reach Len. (ft)	500.00	502.53	485.00
Crit W.S. (ft)	1045.89	Flow Area (sq ft)		10771.28	
E.G. Slope (ft/ft)	0.002685	Area (sq ft)	53197.46	10771.28	38.44
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	2341.16	Top Width (ft)	1661.14	627.55	52.48
Vel Total (ft/s)	15.41	Avg. Vel. (ft/s)		15.41	
Max Chl Dpth (ft)	39.67	Hydr. Depth (ft)		17.16	
Conv. Total (cfs)	3203782.0	Conv. (cfs)		3203782.0	
Length Wtd. (ft)	502.53	Wetted Per. (ft)		634.45	
Min Ch El (ft)	1030.80	Shear (lb/sq ft)		2.85	
Alpha	1.00	Stream Power (lb/ft s)		43.85	
Frctn Loss (ft)	0.95	Cum Volume (acre-ft)	8707.61	32343.65	2829.40
C & E Loss (ft)	0.32	Cum SA (acres)	2154.08	3069.89	1029.40

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1053.97	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.67	Wt. n-Val.		0.033	
W.S. Elev (ft)	1050.30	Reach Len. (ft)	500.00	502.53	485.00
Crit W.S. (ft)	1045.89	Flow Area (sq ft)		10791.50	
E.G. Slope (ft/ft)	0.002669	Area (sq ft)		10791.50	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	627.68	Top Width (ft)		627.68	
Vel Total (ft/s)	15.38	Avg. Vel. (ft/s)		15.38	
Max Chl Dpth (ft)	19.50	Hydr. Depth (ft)		17.19	
Conv. Total (cfs)	3213324.0	Conv. (cfs)		3213324.0	
Length Wtd. (ft)	502.53	Wetted Per. (ft)		634.59	
Min Ch El (ft)	1030.80	Shear (lb/sq ft)		2.83	
Alpha	1.00	Stream Power (lb/ft s)		43.58	
Frctn Loss (ft)	0.95	Cum Volume (acre-ft)	1422.13	33323.57	355.97
C & E Loss (ft)	0.32	Cum SA (acres)	221.84	3075.50	77.43

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 212.08

INPUT
Description: 212.08

Left and Right Channel Bank Stations Interpolated
Station Elevation Data num= 101

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17052.4	1065.117093.98	1063.217330.91	1062.5917423.14	1062.2117562.97	1062.23				
17854.31	106117952.67	1061.3917989.42	1061.1 18003.9	1064.7218053.78	1032.77				
18092.97	1010.318121.67	1010.4218204.85	1011.4918218.51	1014.5318400.47	1013.68				
18430.19	1013.718591.23	1012.7318717.39	1012.5518827.36	1012.71 18982.9	1014.44				
19125.21	1014.119158.95	1014.27 19197.5	1013.7219237.59	1014.0519246.24	1012.73				
19261.95	1013.819287.74	1011.5219294.56	1009.4419377.18	1009.8819458.03	1009.79				

```
                                                                    DuplicateEffective
19560.86  1055.919603.52 1052.7719676.09 1052.9419681.091050.10619689.85 1045.14
19720.06 1031.7419729.83  1028.619835.59 1026.9819956.58 1026.4520018.74 1026.48
20046.86 1026.7120134.08  1025.920179.54 1025.9920234.17 1026.6520245.73 1033.13
20270.89  1050.120275.07 1052.9220290.81  1060.920335.45 1060.3720383.25 1044.65
20424.79 1044.3820442.88 1052.7920545.79  1055.720813.04 1061.3820956.27 1063.95
21082.72 1065.9821252.33 1068.1621359.98  1067.921436.79 1067.7621473.77 1066.77
21529.98 1066.4821607.29  1070.321676.41  1072.821730.28 1073.8421923.53 1073.03
22030.61 1073.7622091.57 1073.1322182.24  1073.622303.01 1072.0522453.89 1069.64
22595.45 1068.2222755.09 1066.8622966.16  1063.923129.47 1061.46 23222.4 1059.05
23255.36 1058.6423268.74 1055.5123278.67  1058.323295.59 1055.5423328.26  1058.3
23417.52  1058.423428.87  1058.123519.64  1059.323868.62 1059.1724082.28 1059.08
24280.77 1060.1224441.84 1061.9124594.59  1060.924688.74 1061.7424871.91 1061.24
 24970.8 1060.3325012.15 1058.2625172.94  1060.8 25399.4 1060.1425629.95 1059.85
25800.17 1059.4125815.84 1060.0725861.96  1079.725884.17 1080.2625963.83 1080.96
26004.82 1061.65

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
 17052.4    .04519681.09    .03320270.89     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      19681.0920270.89              510  519.85     475             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 17052.419560.86    1078       F
 20290.826004.82    1078       F

CROSS SECTION OUTPUT  Profile #PF#1
**********************************************************************************************
* E.G. Elev (ft)         * 1052.68  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    2.62  * Wt. n-Val.            *          *    0.033  *          *
* W.S. Elev (ft)         * 1050.06  * Reach Len. (ft)       *  510.00  *  519.85  *  475.00  *
* Crit W.S. (ft)         * 1041.45  * Flow Area (sq ft)     *          *12782.71  *          *
* E.G. Slope (ft/ft)     *0.001412  * Area (sq ft)          *53987.83  *12782.71  *  309.41  *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *          *166000.00  *          *
* Top Width (ft)         * 2180.90  * Top Width (ft)       * 1521.04  *  589.65  *   70.20  *
* Vel Total (ft/s)       *   12.99  * Avg. Vel. (ft/s)     *          *   12.99  *          *
* Max Chl Dpth (ft)      *   40.62  * Hydr. Depth (ft)     *          *   21.68  *          *
* Conv. Total (cfs)      *4417610.0  * Conv. (cfs)         *          *4417610.0  *          *
* Length Wtd. (ft)       *  519.85  * Wetted Per. (ft)     *          *  601.17  *          *
* Min Ch El (ft)         * 1025.90  * Shear (lb/sq ft)     *          *    1.87  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *        *   24.34  *          *
* Frctn Loss (ft)        *    0.83  * Cum Volume (acre-ft)  * 8092.45  *32207.79  * 2827.46  *
* C & E Loss (ft)        *    0.06  * Cum SA (acres)        * 2135.82  * 3062.87  * 1028.72  *
**********************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
**********************************************************************************************
* E.G. Elev (ft)         * 1052.70  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    2.61  * Wt. n-Val.            *          *    0.033  *          *
* W.S. Elev (ft)         * 1050.09  * Reach Len. (ft)       *  510.00  *  519.85  *  475.00  *
* Crit W.S. (ft)         * 1041.45  * Flow Area (sq ft)     *          *12803.52  *          *
* E.G. Slope (ft/ft)     *0.001405  * Area (sq ft)          *          *12803.52  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *          *166000.00  *          *
* Top Width (ft)         *  589.77  * Top Width (ft)       *          *  589.77  *          *
* Vel Total (ft/s)       *   12.97  * Avg. Vel. (ft/s)     *          *   12.97  *          *
* Max Chl Dpth (ft)      *   24.19  * Hydr. Depth (ft)     *          *   21.71  *          *
* Conv. Total (cfs)      *4428936.0  * Conv. (cfs)         *          *4428936.0  *          *
* Length Wtd. (ft)       *  519.85  * Wetted Per. (ft)     *          *  601.31  *          *
* Min Ch El (ft)         * 1025.90  * Shear (lb/sq ft)     *          *    1.87  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *        *   24.21  *          *
* Frctn Loss (ft)        *    0.82  * Cum Volume (acre-ft)  * 1422.13  *33187.47  *  355.97  *
* C & E Loss (ft)        *    0.06  * Cum SA (acres)        *  221.84  * 3068.47  *   77.43  *
**********************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 211.99

INPUT
Description: 211.99 - FEMA Section AB

Left and Right Channel Bank Stations
           Interpolated
Station Elevation Data    num=      97
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
*****************************************************************************************
17386.75    106217493.12 1060.3617883.55  1058.918026.04 1059.0818043.61 1064.43
18128.52  1011.918212.07 1010.04 18284.3 1009.4118375.77 1031.9918386.79 1034.99
18398.32  1031.618455.15 1010.4218634.29 1010.1518715.79 1026.1718726.98 1025.43
18746.82  1028.918793.14 1039.1118826.55 1047.2218835.49 1050.27 18880.3 1056.14
18928.65  1059.619023.07 1060.4719122.51 1058.69 19147.6 1056.9819172.92  1053.9
19222.57  1059.719306.36 1064.7519387.36 1066.2619419.32 1065.7319467.92  1063.3
19535.53  1055.9 19579.8  1052.519594.04 1050.0119626.09 1059.7519669.23 1060.17
19682.93  1052.119695.13  1051.719699.771048.63219734.91 1025.3919968.68 1025.66
 20018.4    102620129.78  1025.520175.87 1025.6620205.91  1027.820236.81 1047.09
20249.651048.632 20249.8 1048.6520268.39  1059.720319.37 1059.4520355.66 1049.61
20366.72 1051.1620380.34 1056.3120536.66  1059.720697.58 1062.9120861.07 1067.46
20969.05  1071.421086.46 1074.5421220.77  1077.821348.89 1078.3521519.24 1075.76
21606.23 1073.4221740.53 1069.1421834.91    106821936.77 1071.0222068.74 1077.26
22189.17 1082.4922398.45 1089.6222486.87  1090.322515.75 1089.9422616.83 1085.49
22698.81 1083.4322757.86 1080.0622899.81  1069.523059.97  1066.123300.96 1061.35
```

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                                                                    DuplicateEffective
23457.95 1059.0923578.87 1055.29 23592.8  1052.823611.42  1057.123707.16 1057.71
23758.72 1057.8423837.72 1057.31   23902  1056.223950.13 1056.5724182.97 1056.91
24332.01 1056.0724582.04 1056.0124636.44    105924704.95 1057.5324865.28 1057.45
24966.74 1058.31 24996.3 1059.9325064.88  1059.825072.86 1059.0925171.62 1057.94
25224.27 1057.7525467.18 1058.61

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
17386.75    .04519699.77    .03320249.65     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      19699.7720249.65             740  489.19     710             .1       .3
Ineffective Flow      num=       2
   Sta L   Sta R    Elev  Permanent
17386.7519669.23    1078       F
 20268.325467.18    1078       F

CROSS SECTION OUTPUT  Profile #PF#1
*************************************************************************************************
* E.G. Elev (ft)         * 1051.79  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    3.22  * Wt. n-Val.            *          *    0.033  *          *
* W.S. Elev (ft)         * 1048.57  * Reach Len. (ft)       *  740.00  *  489.19  *  710.00  *
* Crit W.S. (ft)         * 1041.17  * Flow Area (sq ft)     *          *11535.15  *          *
* E.G. Slope (ft/ft)     *0.001817  * Area (sq ft)          *22367.19  *11535.15  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *          *166000.00  *          *
* Top Width (ft)         * 1310.55  * Top Width (ft)       *  761.27  *  549.29  *          *
* Vel Total (ft/s)       *   14.39  * Avg. Vel. (ft/s)     *          *   14.39  *          *
* Max Chl Dpth (ft)      *   39.16  * Hydr. Depth (ft)     *          *   21.00  *          *
* Conv. Total (cfs)      *3893922.0  * Conv. (cfs)         *          *3893922.0  *          *
* Length Wtd. (ft)       *  489.19  * Wetted Per. (ft)     *          *  561.95  *          *
* Min Ch El (ft)         * 1025.39  * Shear (lb/sq ft)     *          *    2.33  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   33.52  *          *
* Frctn Loss (ft)        *    0.83  * Cum Volume (acre-ft)  * 7645.47  *32062.68  * 2825.78  *
* C & E Loss (ft)        *    0.09  * Cum SA (acres)        * 2122.46  * 3056.07  * 1028.34  *
*************************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*************************************************************************************************
* E.G. Elev (ft)         * 1051.82  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    3.20  * Wt. n-Val.            *          *    0.033  *          *
* W.S. Elev (ft)         * 1048.62  * Reach Len. (ft)       *  740.00  *  489.19  *  710.00  *
* Crit W.S. (ft)         * 1041.17  * Flow Area (sq ft)     *          *11560.38  *          *
* E.G. Slope (ft/ft)     *0.001806  * Area (sq ft)          *          *11560.38  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *          *166000.00  *          *
* Top Width (ft)         *  549.74  * Top Width (ft)       *          *  549.74  *          *
* Vel Total (ft/s)       *   14.36  * Avg. Vel. (ft/s)     *          *   14.36  *          *
* Max Chl Dpth (ft)      *   23.23  * Hydr. Depth (ft)     *          *   21.03  *          *
* Conv. Total (cfs)      *3905949.0  * Conv. (cfs)         *          *3905949.0  *          *
* Length Wtd. (ft)       *  489.19  * Wetted Per. (ft)     *          *  562.42  *          *
* Min Ch El (ft)         * 1025.39  * Shear (lb/sq ft)     *          *    2.32  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   33.28  *          *
* Frctn Loss (ft)        *    0.83  * Cum Volume (acre-ft)  * 1422.13  *33042.09  *  355.97  *
* C & E Loss (ft)        *    0.09  * Cum SA (acres)        *  221.84  * 3061.67  *   77.43  *
*************************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                  RS: 211.89

INPUT
Description: 211.89

Left and Right Channel Bank Stations Interpolated
Station Elevation Data    num=      95
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
17673.64  1059.917830.52  1057.818075.45 1057.5918106.59 1061.3918156.21 1060.92
18181.64    105718268.15  1057.418570.49 1056.27 18656.7 1057.3718734.79  1059.4
18854.83  1058.1 18903.9 1058.6218933.75 1056.2618954.51  1054.319026.15 1059.53
19074.67  1064.519130.02 1067.6619166.92 1067.8219220.33 1064.2519291.97 1056.93
19339.05  1053.2 19355.5 1049.4119383.94 1051.7719506.58 1049.7319568.03 1052.09
19611.95  1052.419640.96 1059.4519668.79 1059.3319685.751048.02319719.16 1025.75
19877.45 1024.19   19996  1024.820046.95 1024.9420149.18 1025.3420215.53 1026.87
20231.37 1035.8620250.74 1048.0220268.71  1059.320317.76 1059.25 20347.9 1053.02
20357.11 1053.8720365.64 1057.4620503.92  1061.220587.79 1062.3220715.42 1064.82
20808.25 1066.4820898.25 1068.17 21050.2    107021240.42  1069.721365.85 1067.31
21444.39 1066.6721597.69 1066.8121747.36  1066.621837.61 1066.0122018.21 1062.79
22078.36 1061.7622206.84  1065.222377.75  1068.122579.85 1068.7522814.63 1068.78
22947.07 1067.96 23029.4 1068.0923191.51  1066.423528.26  1059.523662.78 1056.72
23775.83 1055.5423829.73 1054.1523844.87  1051.223876.82 1056.0923920.99    1057
23995.44 1056.4724052.85  1056.124082.77  1056.624140.98 1058.2724165.07 1058.25
24271.91 1056.4524411.05 1053.1724579.36  1053.324759.09 1054.04 24774.1 1055.28
24840.04 1057.6924883.78 1058.2624920.88  1055.825041.94 1055.2925284.44  1056.1
25336.01 1057.1325359.39 1058.3225402.51  1057.3 25726.4 1058.2326172.96 1058.11
 26295.6  1059.626333.92 1078.1726470.33  1078.826504.14  1058.926569.17 1059.94

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
17673.64    .04519685.75    .03320250.74     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      19685.7520250.74             507  527.46     640             .1       .3
Ineffective Flow      num=       2
   Sta L   Sta R    Elev  Permanent
17673.6419640.96    1068       F
```

20268.726569.17 1068 F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1050.86	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.91	Wt. n-Val.		0.033	
W.S. Elev (ft)	1047.95	Reach Len. (ft)	507.00	527.46	640.00
Crit W.S. (ft)	1039.97	Flow Area (sq ft)		12125.97	
E.G. Slope (ft/ft)	0.001595	Area (sq ft)		12125.97	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	564.78	Top Width (ft)		564.78	
Vel Total (ft/s)	13.69	Avg. Vel. (ft/s)		13.69	
Max Chl Dpth (ft)	23.76	Hydr. Depth (ft)		21.47	
Conv. Total (cfs)	4156215.0	Conv. (cfs)		4156215.0	
Length Wtd. (ft)	527.46	Wetted Per. (ft)		577.39	
Min Ch El (ft)	1024.19	Shear (lb/sq ft)		2.09	
Alpha	1.00	Stream Power (lb/ft s)		28.63	
Frctn Loss (ft)	0.85	Cum Volume (acre-ft)	7455.48	31929.82	2825.78
C & E Loss (ft)	0.00	Cum SA (acres)	2115.99	3049.82	1028.34

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1050.90	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.90	Wt. n-Val.		0.033	
W.S. Elev (ft)	1048.01	Reach Len. (ft)	507.00	527.46	640.00
Crit W.S. (ft)	1039.97	Flow Area (sq ft)		12154.99	
E.G. Slope (ft/ft)	0.001583	Area (sq ft)		12154.99	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	564.94	Top Width (ft)		564.94	
Vel Total (ft/s)	13.66	Avg. Vel. (ft/s)		13.66	
Max Chl Dpth (ft)	23.81	Hydr. Depth (ft)		21.52	
Conv. Total (cfs)	4171896.0	Conv. (cfs)		4171896.0	
Length Wtd. (ft)	527.46	Wetted Per. (ft)		577.57	
Min Ch El (ft)	1024.19	Shear (lb/sq ft)		2.08	
Alpha	1.00	Stream Power (lb/ft s)		28.41	
Frctn Loss (ft)	0.84	Cum Volume (acre-ft)	1422.13	32908.93	355.97
C & E Loss (ft)	0.00	Cum SA (acres)	221.84	3055.41	77.43

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 211.79

INPUT
Description: 211.79

Left and Right Channel Bank Stations Interpolated
Station Elevation Data num= 85

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18158.31	1058.1	18521.37	1057.9	18711.98	1053.2	18821.22	1049.9	19332.48	1038.9
19421.9	1034.7	19443.13	1034.6	19494.83	1031.4	19529.82	1033.8	19593.73	1053.47
19613.84	1059.2	19631.93	1059.1	19649.87	1047.1	19683.64	1024.7	19868.29	1023.84
19990.11	1024.4	20071.01	1024.2	20181	1025.03	20210.4	1042.5	20217.71	1047.186
20234.96	1058.1	20266.77	1058.9	20288.34	1058.2	20317.07	1049.6	20327.91	1051.41
20334.62	1054.8	20544.02	1058.1	20748.52	1061.3	20960.89	1062.1	21136.74	1063.31
21355.67	1062.99	21514.2	1062.9	21680.46	1061.6	21736.21	1061.7	21809.47	1060.69
21912.92	1059.5	22164.31	1055.8	22183.26	1055.4	22365.65	1059.3	22456.33	1059.66
22607.29	1061.0	22697.85	1061.2	22757.13		106222877.22	1061.9	22997.38	1061.21
23058.71	1061.6	23238.58	1060.2	23378.99	1059.6	23483.49	1059.3	23694.55	1056.44
23766.47	1056.3	23904.99	1053.8	23939.63	1052.5	23954.41	1049.7	23974.63	1054.92
24066.57	1057.0	24104.95	1055.7	24159.03	1054.9	24203.29	1053.77	24226.8	1054.13
24410.42	1054.11	24588.5	1054.8	24806.33	1056.9	24857.28	1056.9	24892.35	1056.25
24937.4	1056.2	24992.53	1057.9	25025.07	1054.5	25154.69	1054.6	25336.45	1057.87
25508.23	1059.0	25689.64	1058.1	25912.41	1058.8	26025.53	1058.4	26235.18	1058.51
26315.33	105826360.96		1059.1	26386.48	1071.4	26401.46	1071.61	26423.9	1078.8
26526.56	1078.9	26547.02	1071.3	26569.39	1067.8	26599.18	1058.2	26670.85	1059.87

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
18158.31	.045	19649.87	.033	20217.71	.04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19649.8 720217.71 680 450.74 290 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
18158.31	19613.84	1068	F
20266.72	6670.85	1068	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1050.02	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.92	Wt. n-Val.		0.033	
W.S. Elev (ft)	1047.10	Reach Len. (ft)	680.00	450.74	290.00
Crit W.S. (ft)	1039.26	Flow Area (sq ft)		12111.00	
E.G. Slope (ft/ft)	0.001613	Area (sq ft)	4252.35	12111.00	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	1186.74	Top Width (ft)	619.16	567.58	
Vel Total (ft/s)	13.71	Avg. Vel. (ft/s)		13.71	
Max Chl Dpth (ft)	23.26	Hydr. Depth (ft)		21.34	
Conv. Total (cfs)	4132806.0	Conv. (cfs)		4132806.0	
Length Wtd. (ft)	450.74	Wetted Per. (ft)		580.50	
Min Ch El (ft)	1023.84	Shear (lb/sq ft)		2.10	
Alpha	1.00	Stream Power (lb/ft s)		28.80	
Frctn Loss (ft)	0.73	Cum Volume (acre-ft)	7430.74	31783.08	2825.78
C & E Loss (ft)	0.00	Cum SA (acres)	2112.39	3042.96	1028.34

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1050.06	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.90	Wt. n-Val.		0.033	
W.S. Elev (ft)	1047.16	Reach Len. (ft)	680.00	450.74	290.00
Crit W.S. (ft)	1039.26	Flow Area (sq ft)		12145.65	
E.G. Slope (ft/ft)	0.001599	Area (sq ft)		12145.65	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	567.77	Top Width (ft)		567.77	
Vel Total (ft/s)	13.67	Avg. Vel. (ft/s)		13.67	
Max Chl Dpth (ft)	23.32	Hydr. Depth (ft)		21.39	
Conv. Total (cfs)	4151454.0	Conv. (cfs)		4151454.0	
Length Wtd. (ft)	450.74	Wetted Per. (ft)		580.73	
Min Ch El (ft)	1023.84	Shear (lb/sq ft)		2.09	
Alpha	1.00	Stream Power (lb/ft s)		28.53	
Frctn Loss (ft)	0.72	Cum Volume (acre-ft)	1422.13	32761.80	355.97
C & E Loss (ft)	0.00	Cum SA (acres)	221.84	3048.56	77.43

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 211.71

INPUT
Description: 211.71

Left and Right Channel Bank Stations Interpolated
Station Elevation Data num= 82

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18356.24	1056.6	18403.32	1056.5	118836.53	1046.2	19011.11	1054.3	19170.81	1053.8
19462.94	1052.5	19478.82	1053.0	919497.62	1060.06	19533	1043.2	819551.37	1045.32
19595.29	1059	19611.46	1057.8	119628.43	1046.4	719661.32	1024.4	919846.96	1023.81
19928.43	1023.1	919998.17	1023.2	200045.76	1023.2	120158.51	1023.3	920197.84	1046.47
20216.14	1057.2	120266.22	1057.7	620314.99	1042.6	20325.03	1043.14	20337.2	1046.87
20568.24	1050.2	520851.05	1051.3	120962.88	1051.5	21206.35	1051.6	421388.45	1051.42
21419.92	1051.2	321727.44	1052.6	221848.61	1053.5	21981.25	1052.7	822130.55	1052.51
22220.26	1051.5	322459.24	1054.3	422578.82	1055.1	22876.18	1055.9	323025.66	1056.21
23117.46	1056.8	923238.24	1055.61	23357.2	1054.6	23446.32	1054.2	323535.13	1054.99
23685.75	1053.2	823748.15	1053.5	423836.62	1056.4	23904.67	1055.7	524029.98	1052.16
24046.15	1048.7	24064.65	1054.8	424297.11	1054.6	24417.85	1054.0	824709.66	1055.58
24914.5	1057.2	724949.53	1057.2	425042.76	1055.7	25080.42	1056.7	725117.12	1053.8
25243.64	1054.8	825321.41	1057.3	325361.74	1058.5	25825507.43	1059.54	25610.8	1058.49
25724.65	1059.9	825796.42	1060.0	825841.82	1059.6	25987.23	1060.3	26062.01	1060.39
26081.09	1058.8	926241.81	1058.1	126377.22	1057.1	26422.65	1058.2	926467.41	1067.88
26493.74	1078.7	726570.07	1078.7	926595.33	1080	26627.3	1065.29	26661.5	1058.87
26693.27	1058.2	226725.34	1059.01						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
18356.24	.045	19628.43	.033	20197.84	.04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19628.4 20197.84 780 392.06 500 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
18356.24	19595.3	1068	F
20266.2	26725.34	1068	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1049.29	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.91	Wt. n-Val.		0.033	
W.S. Elev (ft)	1046.38	Reach Len. (ft)	780.00	392.06	500.00
Crit W.S. (ft)	1038.56	Flow Area (sq ft)		12118.89	
E.G. Slope (ft/ft)	0.001615	Area (sq ft)	50.42	12118.89	75.18
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	637.47	Top Width (ft)	35.63	569.11	32.74
Vel Total (ft/s)	13.70	Avg. Vel. (ft/s)		13.70	
Max Chl Dpth (ft)	23.19	Hydr. Depth (ft)		21.29	
Conv. Total (cfs)	4130222.0	Conv. (cfs)		4130222.0	
Length Wtd. (ft)	392.06	Wetted Per. (ft)		581.99	
Min Ch El (ft)	1023.19	Shear (lb/sq ft)		2.10	
Alpha	1.00	Stream Power (lb/ft s)		28.76	
Frctn Loss (ft)	0.66	Cum Volume (acre-ft)	7397.15	31657.72	2825.53
C & E Loss (ft)	0.02	Cum SA (acres)	2107.27	3037.08	1028.23

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1049.34	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.89	Wt. n-Val.		0.033	
W.S. Elev (ft)	1046.45	Reach Len. (ft)	780.00	392.06	500.00
Crit W.S. (ft)	1038.56	Flow Area (sq ft)		12158.51	
E.G. Slope (ft/ft)	0.001599	Area (sq ft)		12158.51	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	569.33	Top Width (ft)		569.33	
Vel Total (ft/s)	13.65	Avg. Vel. (ft/s)		13.65	
Max Chl Dpth (ft)	23.25	Hydr. Depth (ft)		21.36	
Conv. Total (cfs)	4151491.0	Conv. (cfs)		4151491.0	

```
                                                                    DuplicateEffective
* Length Wtd. (ft)       *  392.06  * Wetted Per. (ft)       *          *  582.26  *          *
* Min Ch El (ft)         * 1023.19  * Shear (lb/sq ft)       *          *    2.08  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   28.46  *          *
* Frctn Loss (ft)        *    0.66  * Cum Volume (acre-ft)   * 1422.13  *32636.05  *  355.97  *
* C & E Loss (ft)        *    0.02  * Cum SA (acres)         *  221.84  * 3042.67  *   77.43  *
*********************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 211.64

INPUT
Description: 211.63

Left and Right Channel Bank Stations Interpolated
Station Elevation Data    num=      74
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
18455.22  1055.618870.41 1054.6119083.17 1054.4919308.22 1054.2519426.55 1053.86
 19582.2  1054.119594.16 1050.2119604.79 1050.3319629.34 1057.4119639.51  1057.5
 19657.71045.60119689.19    102519804.58  1023.319911.42 1022.65 19986.5 1022.75
20036.19 1022.9320060.82  1023.620181.08 1022.5820196.63 1031.17 20219.81045.602
20238.13 1057.0220265.94 1057.5920288.34  1056.820321.05 1046.9420343.65 1039.08
20371.71 1043.95 20510.4 1045.0120712.01  1046.120789.36 1046.9121038.61 1047.48
21208.66 1048.1421454.04 1047.8221685.69  1048.521805.81 1048.0822092.18 1048.45
22242.98 1048.2222332.89 1048.1922513.12  1050.222770.05 1051.0723054.32  1051.7
23295.42 1051.6523472.95 1051.1123700.42  1052.523820.77 1054.7623926.54 1054.04
23949.21 1052.3623981.01 1052.4624008.88  1047.424037.13 1053.1124090.43 1054.01
24133.79 1054.5824302.75 1054.0624347.21  1053.624484.04    105424904.87 1055.84
 25102.6 1055.6325165.57 1054.9925293.65  1054.325400.67 1057.0625522.25 1059.22
25597.17 1058.4125713.85 1057.9825824.69  1060.625850.02 1060.9225980.05 1061.02
26040.31 1060.2826085.96 1060.1626115.36  1058.626378.37 1057.1726385.52 1058.22
26496.95 1078.6826605.38 1079.6726703.24  1058.126712.22 1058.41

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
18455.22    .045 19657.7    .033 20219.8     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       19657.7 20219.8             481  521.13     221            .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
18455.2219639.51    1068       F
 20265.926712.22    1068       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         * 1048.61  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    3.11  * Wt. n-Val.            *          *    0.033  *          *
* W.S. Elev (ft)         * 1045.49  * Reach Len. (ft)       *  481.00  *  521.13  *  221.00  *
* Crit W.S. (ft)         * 1038.24  * Flow Area (sq ft)     *          *11720.96  *          *
* E.G. Slope (ft/ft)     *0.001773  * Area (sq ft)          *          *11720.96  *  332.13  *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *          *166000.00  *          *
* Top Width (ft)         *  835.81  * Top Width (ft)       *          *  561.75  *  274.05  *
* Vel Total (ft/s)       *   14.16  * Avg. Vel. (ft/s)     *          *   14.16  *          *
* Max Chl Dpth (ft)      *   22.91  * Hydr. Depth (ft)     *          *   20.86  *          *
* Conv. Total (cfs)      *3941953.0  * Conv. (cfs)         *          *3941953.0  *          *
* Length Wtd. (ft)       *  521.13  * Wetted Per. (ft)     *          *  574.20  *          *
* Min Ch El (ft)         * 1022.58  * Shear (lb/sq ft)     *          *    2.26  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   32.01  *          *
* Frctn Loss (ft)        *    1.04  * Cum Volume (acre-ft)   * 7396.70  *31550.44  * 2823.19  *
* C & E Loss (ft)        *    0.08  * Cum SA (acres)         * 2106.96  * 3031.99  * 1026.47  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)         * 1048.66  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    3.09  * Wt. n-Val.            *          *    0.033  *          *
* W.S. Elev (ft)         * 1045.57  * Reach Len. (ft)       *  481.00  *  521.13  *  221.00  *
* Crit W.S. (ft)         * 1038.24  * Flow Area (sq ft)     *          *11767.87  *          *
* E.G. Slope (ft/ft)     *0.001751  * Area (sq ft)          *          *11767.87  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *          *166000.00  *          *
* Top Width (ft)         *  562.02  * Top Width (ft)       *          *  562.02  *          *
* Vel Total (ft/s)       *   14.11  * Avg. Vel. (ft/s)     *          *   14.11  *          *
* Max Chl Dpth (ft)      *   22.99  * Hydr. Depth (ft)     *          *   20.94  *          *
* Conv. Total (cfs)      *3966851.0  * Conv. (cfs)         *          *3966851.0  *          *
* Length Wtd. (ft)       *  521.13  * Wetted Per. (ft)     *          *  574.51  *          *
* Min Ch El (ft)         * 1022.58  * Shear (lb/sq ft)     *          *    2.24  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   31.59  *          *
* Frctn Loss (ft)        *    1.03  * Cum Volume (acre-ft)   * 1422.13  *32528.38  *  355.97  *
* C & E Loss (ft)        *    0.08  * Cum SA (acres)         *  221.84  * 3037.58  *   77.43  *
*********************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION
```

```
RIVER: 1
REACH: 1                    RS: 211.54

INPUT
Description: 211.54 - FEMA Section AA
Station Elevation Data    num=      24
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
   18557    105619498.08 1062.8819570.11  1056.919585.13  1056.719633.01  1023.1
19866.76  1021.920100.43  1023.220148.29  1056.820163.32    105720195.23  1056.3
 20223.6  1049.320265.59  1046.120326.25  1049.420339.59  1050.820360.21  1052.5
20374.03  1055.420382.33  1055.9 20385.6  1055.9 20412.1  1057.320434.96  1056.7
20443.92  1057.120456.54  1061.420479.34  1060.721248.52  1053.6

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
   18557    .03719498.08    .03220163.32    .037

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.    Expan.
      19498.0820163.32              125  125.49     120             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
   1855719498.08    1070       F
20163.3221248.52    1070       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         * 1047.48  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    3.95  * Wt. n-Val.            *          *   0.032  *          *
* W.S. Elev (ft)         * 1043.53  * Reach Len. (ft)       *    0.10  *    0.10  *    0.10  *
* Crit W.S. (ft)         * 1038.07  * Flow Area (sq ft)     *          *10410.75  *          *
* E.G. Slope (ft/ft)     *0.002272  * Area (sq ft)          *          *10410.75  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *          *166000.00  *          *
* Top Width (ft)         *  525.50  * Top Width (ft)        *          *  525.50  *          *
* Vel Total (ft/s)       *   15.95  * Avg. Vel. (ft/s)      *          *   15.95  *          *
* Max Chl Dpth (ft)      *   21.63  * Hydr. Depth (ft)      *          *   19.81  *          *
* Conv. Total (cfs)      *3482746.0  * Conv. (cfs)          *          *3482746.0  *          *
* Length Wtd. (ft)       *    0.10  * Wetted Per. (ft)      *          *  538.38  *          *
* Min Ch El (ft)         * 1021.90  * Shear (lb/sq ft)      *          *    2.74  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   43.73  *          *
* Frctn Loss (ft)        *    0.00  * Cum Volume (acre-ft)  * 7396.70  *31418.05  * 2822.35  *
* C & E Loss (ft)        *    0.09  * Cum SA (acres)        * 2106.96  * 3025.49  * 1025.77  *
*********************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)         * 1047.56  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    3.90  * Wt. n-Val.            *          *   0.032  *          *
* W.S. Elev (ft)         * 1043.66  * Reach Len. (ft)       *    0.10  *    0.10  *    0.10  *
* Crit W.S. (ft)         * 1038.07  * Flow Area (sq ft)     *          *10478.70  *          *
* E.G. Slope (ft/ft)     *0.002226  * Area (sq ft)          *          *10478.70  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *          *166000.00  *          *
* Top Width (ft)         *  525.86  * Top Width (ft)        *          *  525.86  *          *
* Vel Total (ft/s)       *   15.84  * Avg. Vel. (ft/s)      *          *   15.84  *          *
* Max Chl Dpth (ft)      *   21.76  * Hydr. Depth (ft)      *          *   19.93  *          *
* Conv. Total (cfs)      *3518758.0  * Conv. (cfs)          *          *3518758.0  *          *
* Length Wtd. (ft)       *    0.10  * Wetted Per. (ft)      *          *  538.83  *          *
* Min Ch El (ft)         * 1021.90  * Shear (lb/sq ft)      *          *    2.70  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   42.80  *          *
* Frctn Loss (ft)        *    0.00  * Cum Volume (acre-ft)  * 1422.13  *32395.31  *  355.97  *
* C & E Loss (ft)        *    0.09  * Cum SA (acres)        *  221.84  * 3031.07  *   77.43  *
*********************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

BRIDGE


RIVER: 1
REACH: 1                    RS: 211.525

INPUT
Description: 19th Avenue Bridge
Distance from Upstream XS =       .1
Deck/Roadway Width        =    124.49
Weir Coefficient          =       2.6
Upstream  Deck/Roadway Coordinates
    num=       11
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
*************************************************************************
   18557    1056    105619498.08 1062.88 1062.8819498.08 1062.88 1056.33
19617.96  1065.1 1058.4319732.91  1067.4 1060.6819853.66 1068.72 1062.03
19974.41 1069.18 1062.5120095.16 1068.67 1061.9720215.91 1067.18 1060.46
20336.66 1064.77 1058.0320456.45  1061.4 1054.73

Upstream Bridge Cross Section Data
Station Elevation Data    num=      24
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
   18557    105619498.08 1062.8819570.11  1056.919585.13  1056.719633.01  1023.1
19866.76  1021.920100.43  1023.220148.29  1056.820163.32    105720195.23  1056.3
 20223.6  1049.320265.59  1046.120326.25  1049.420339.59  1050.820360.21  1052.5
20374.03  1055.420382.33  1055.9 20385.6  1055.9 20412.1  1057.320434.96  1056.7
20443.92  1057.120456.54  1061.420479.34  1060.721248.52  1053.6

Manning's n Values        num=       3
```

```
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
   18557    .03719498.08    .03220163.32    .037

Bank Sta: Left   Right    Coeff Contr.   Expan.
      19498.0820163.32            .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
   1855719498.08    1070       F
20163.3221248.52    1070       F

Downstream  Deck/Roadway Coordinates
    num=      11
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
*************************************************************************
   18557    1056    105619498.08 1062.88 1062.8819498.08 1062.88 1056.33
19617.96  1065.1 1058.4319732.91  1067.4 1060.6819853.66 1068.72 1062.03
19974.41 1069.18 1062.5120095.16 1068.67 1061.9720215.91 1067.18 1060.46
20336.66 1064.77 1058.0320456.45  1061.4 1054.73

Downstream Bridge Cross Section Data
Station Elevation Data    num=      22
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
   18577    105619498.08 1062.8819510.11    105119579.82  1056.719594.75  1056.5
19642.62    102319876.38  1021.820110.04    102320157.91  1056.620172.93  1056.8
20204.85  1056.120210.17  1055.920249.54  1049.420344.26  1054.820347.44  1054.8
20366.65  1054.320380.75  1054.620418.55    105520428.15    105520456.54  1061.4
20479.34  1060.721248.52  1053.6

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
   18577    .03719579.82    .03220172.93    .037

Bank Sta: Left   Right    Coeff Contr.   Expan.
      19579.8220172.93            .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
   1857719579.82  1056.7       F
20172.9321248.52  1056.8       F

Upstream Embankment side slope              =         horiz. to 1.0 vertical
Downstream Embankment side slope            =         horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Piers =  7

Pier Data
Pier Station     Upstream=19615.06    Downstream=19615.06
Upstream     num=       2
    Width   Elev    Width   Elev
*********************************
      5.8  1046.9     5.8 1058.51
Downstream     num=       2
    Width   Elev    Width   Elev
*********************************
      5.8  1046.9     5.8 1058.51

Pier Data
Pier Station     Upstream=19735.81    Downstream=19735.81
Upstream     num=       2
    Width   Elev    Width   Elev
*********************************
      5.8    1022     5.8 1060.77
Downstream     num=       2
    Width   Elev    Width   Elev
*********************************
      5.8    1022     5.8 1060.77

Pier Data
Pier Station     Upstream=19856.56    Downstream=19856.56
Upstream     num=       2
    Width   Elev    Width   Elev
*********************************
      5.8 1020.85     5.8 1062.07
Downstream     num=       2
    Width   Elev    Width   Elev
*********************************
      5.8 1020.85     5.8 1062.07

Pier Data
Pier Station     Upstream=19977.31    Downstream=19977.31
Upstream     num=       2
    Width   Elev    Width   Elev
*********************************
      5.8 1028.55     5.8 1062.51
Downstream     num=       2
    Width   Elev    Width   Elev
*********************************
      5.8 1028.55     5.8 1062.51

Pier Data
Pier Station     Upstream=20098.06    Downstream=20098.06
Upstream     num=       2
    Width   Elev    Width   Elev
*********************************
      5.8 1033.84     5.8 1062.02
Downstream     num=       2
    Width   Elev    Width   Elev
*********************************
      5.8 1033.84     5.8 1062.02
```

```
Pier Data
Pier Station     Upstream=20218.81    Downstream=20218.81
Upstream     num=        2
    Width   Elev    Width   Elev
*********************************
     5.8 1039.95     5.8 1060.55
Downstream     num=        2
    Width   Elev    Width   Elev
*********************************
     5.8 1039.95     5.8 1060.55

Pier Data
Pier Station     Upstream=20339.56    Downstream=20339.56
Upstream     num=        2
    Width   Elev    Width   Elev
*********************************
     5.8 1045.78     5.8 1058.17
Downstream     num=        2
    Width   Elev    Width   Elev
*********************************
     5.8 1045.78     5.8 1058.17

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
       Momentum               Cd   =     1.2
       Yarnell                KVal =    1.05
Selected Low Flow Methods = Highest Energy Answer

High Flow Method
       Energy Only

Additional Bridge Parameters
       Add Friction component to Momentum
       Add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT  Profile #PF#1
*************************************************************************************************
* E.G. US. (ft)          *    1047.48  * Element                *Inside BR US *Inside BR DS *
* W.S. US. (ft)          *    1043.53  * E.G. Elev (ft)         *    1047.39  *    1046.75  *
* Q Total (cfs)          *  166000.00  * W.S. Elev (ft)         *    1042.53  *    1041.34  *
* Q Bridge (cfs)         *  166000.00  * Crit W.S. (ft)         *    1038.59  *    1038.44  *
* Q Weir (cfs)           *             * Max Chl Dpth (ft)      *      20.63  *      19.54  *
* Weir Sta Lft (ft)      *             * Vel Total (ft/s)       *      17.70  *      18.66  *
* Weir Sta Rgt (ft)      *             * Flow Area (sq ft)      *    9380.77  *    8894.33  *
* Weir Submerg           *             * Froude # Chl           *       0.72  *       0.78  *
* Weir Max Depth (ft)    *             * Specif Force (cu ft)   *  183437.40  *  178883.90  *
* Min El Weir Flow (ft)  *    1065.11  * Hydr Depth (ft)        *      19.00  *      17.97  *
* Min El Prs (ft)        *    1062.51  * W.P. Total (ft)        *     677.51  *     658.71  *
* Delta EG (ft)          *       0.97  * Conv. Total (cfs)      *  2511687.0  *  2341905.0  *
* Delta WS (ft)          *       1.65  * Top Width (ft)         *     493.62  *     495.01  *
* BR Open Area (sq ft)   *   19158.31  * Frctn Loss (ft)        *       0.58  *       0.00  *
* BR Open Vel (ft/s)     *      18.66  * C & E Loss (ft)        *       0.05  *       0.23  *
* Coef of Q              *             * Shear Total (lb/sq ft) *       3.78  *       4.24  *
* Br Sel Method          *Energy only  * Power Total (lb/ft s)  *      66.81  *      79.05  *
*************************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

BRIDGE OUTPUT  Profile #PF#2
*************************************************************************************************
* E.G. US. (ft)          *    1047.56  * Element                *Inside BR US *Inside BR DS *
* W.S. US. (ft)          *    1043.66  * E.G. Elev (ft)         *    1047.47  *    1046.86  *
* Q Total (cfs)          *  166000.00  * W.S. Elev (ft)         *    1042.69  *    1041.60  *
* Q Bridge (cfs)         *  166000.00  * Crit W.S. (ft)         *    1038.59  *    1038.44  *
* Q Weir (cfs)           *             * Max Chl Dpth (ft)      *      20.79  *      19.80  *
* Weir Sta Lft (ft)      *             * Vel Total (ft/s)       *      17.54  *      18.40  *
* Weir Sta Rgt (ft)      *             * Flow Area (sq ft)      *    9462.04  *    9023.69  *
* Weir Submerg           *             * Froude # Chl           *       0.71  *       0.76  *
* Weir Max Depth (ft)    *             * Specif Force (cu ft)   *  184204.20  *  179844.90  *
* Min El Weir Flow (ft)  *    1065.06  * Hydr Depth (ft)        *      19.15  *      18.22  *
* Min El Prs (ft)        *    1062.51  * W.P. Total (ft)        *     679.73  *     661.52  *
* Delta EG (ft)          *       0.93  * Conv. Total (cfs)      *  2542505.0  *  2392157.0  *
* Delta WS (ft)          *       1.54  * Top Width (ft)         *     494.09  *     495.38  *
* BR Open Area (sq ft)   *   18724.25  * Frctn Loss (ft)        *       0.56  *       0.00  *
* BR Open Vel (ft/s)     *      18.40  * C & E Loss (ft)        *       0.05  *       0.22  *
* Coef of Q              *             * Shear Total (lb/sq ft) *       3.70  *       4.10  *
* Br Sel Method          *Energy only  * Power Total (lb/ft s)  *      64.99  *      75.44  *
*************************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

CROSS SECTION


RIVER: 1
REACH: 1                RS: 211.51

INPUT
```

Description: 211.51

Begin 19th Ave Landfill channelization

Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18577	105619498.08	1062.8819510.11		105119579.82	1056.719594.75	1056.5			
19642.62	102319876.38	1021.820110.04		102320157.91	1056.620172.93	1056.8			
20204.85	1056.120210.17	1055.920249.54		1049.420344.26	1054.820347.44	1054.8			
20366.65	1054.320380.75	1054.620418.55		105520428.15	105520456.54	1061.4			
20479.34	1060.721248.52	1053.6							

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
18577	.03719579.82	.03220172.93		.037	

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

19579.8220172.93		541	562.88	606	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
1857719579.82	1056.7	F	
20172.9321248.52	1056.8	F	

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1046.51	Element	Left OB	Channel	Right OB
Vel Head (ft)	4.63	Wt. n-Val.		0.032	
W.S. Elev (ft)	1041.88	Reach Len. (ft)	541.00	562.88	606.00
Crit W.S. (ft)	1037.98	Flow Area (sq ft)		9616.05	
E.G. Slope (ft/ft)	0.002923	Area (sq ft)		9616.05	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	521.31	Top Width (ft)		521.31	
Vel Total (ft/s)	17.26	Avg. Vel. (ft/s)		17.26	
Max Chl Dpth (ft)	20.08	Hydr. Depth (ft)		18.45	
Conv. Total (cfs)	3070642.0	Conv. (cfs)		3070642.0	
Length Wtd. (ft)	562.88	Wetted Per. (ft)		533.23	
Min Ch El (ft)	1021.80	Shear (lb/sq ft)		3.29	
Alpha	1.00	Stream Power (lb/ft s)		56.80	
Frctn Loss (ft)	1.33	Cum Volume (acre-ft)	7396.70	31391.72	2822.35
C & E Loss (ft)	0.37	Cum SA (acres)	2106.96	3024.06	1025.77

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1046.63	Element	Left OB	Channel	Right OB
Vel Head (ft)	4.51	Wt. n-Val.		0.032	
W.S. Elev (ft)	1042.12	Reach Len. (ft)	541.00	562.88	606.00
Crit W.S. (ft)	1037.98	Flow Area (sq ft)		9738.69	
E.G. Slope (ft/ft)	0.002807	Area (sq ft)		9738.69	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	521.98	Top Width (ft)		521.98	
Vel Total (ft/s)	17.05	Avg. Vel. (ft/s)		17.05	
Max Chl Dpth (ft)	20.32	Hydr. Depth (ft)		18.66	
Conv. Total (cfs)	3132976.0	Conv. (cfs)		3132976.0	
Length Wtd. (ft)	562.88	Wetted Per. (ft)		534.05	
Min Ch El (ft)	1021.80	Shear (lb/sq ft)		3.20	
Alpha	1.00	Stream Power (lb/ft s)		54.48	
Frctn Loss (ft)	1.28	Cum Volume (acre-ft)	1422.13	32368.67	355.97
C & E Loss (ft)	0.36	Cum SA (acres)	221.84	3029.65	77.43

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 211.41

INPUT
Description: 211.41

Left and Right Channel Bank Stations Interpolated
Station Elevation Data num= 98

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18573.85	1055.518621.78	1056.6118655.14		1053.7918722.99	1053.2518902.93	1052.9			
19132.77	1051.619320.33	1050.8719480.47		1049.5819533.31	1047.7219566.92	1049.4			
19611.4	1046.919634.53	1044.0819638.09		1041.7819668.43	1022.1819702.69	1018.56			
19754.63	1019.6519786.92	1018.319889.98		1020.7419930.16	1020.8119994.45	1020.82			
20076.61	1020.9120167.45	1021.220192.38		1033.0120195.55	1039.3220206.061041.777				
20220.36	1045.1220236.46	1054.7820293.62		105620331.24	1065.2220351.37	1065.23			
20357.03	1066.6220414.04	1056.96 20436.1		1062.220445.88	1058.7420504.13	1060.74			
20521.21	1060.7920557.16	1066.5820578.69		1061.620603.37	1060.3620654.05	1060.04			
20689.25	1058.2320722.97	1060.5820735.67		1057.720828.84	1057.0620846.13	1057.59			
20898.33	1070.2520938.86	1063.6420980.02		106321017.32	1057.9221060.66	1055.82			

DuplicateEffective

21097.07 1055.5321119.44 1056.16 21132.9 1055.121181.47 1054.221283.06 1053.8
21298.44 1058.2121320.94 1060.3521339.43 1062.821380.38 1060.3221406.09 1052.45
21459.74 1053.4821477.97 1059.9821533.47 106121555.62 1081.8121619.68 1081.91
21644.09 1080.121655.42 1076.4821707.29 1075.321720.18 1072.1521749.96 1071.27
21770.47 1076.9921793.84 1054.8221802.85 1056.121842.36 105621864.05 1053.48
21891.41 1052.6921905.23 1051.4321991.71 1051.822210.76 1052.0622373.03 1052.78
22531.21 1052.1722650.75 1052.0922819.43 1052.522919.43 1053.1423211.23 1053.67
23252.71 1054.2423349.12 1054.0823463.55 1053.123574.33 1051.7923680.61 1051.32
23891.22 1051.5624133.09 1051.4824212.43 1051.924237.65 1050.3224284.73 1050.32
24320.22 105124361.59 1050.58 24444.1 1052

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
18573.85 .03719638.09 .03220206.06 .037

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19638.0920206.06 500 501.53 505 .1 .3

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1044.81	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.40	Wt. n-Val.		0.032	
W.S. Elev (ft)	1041.42	Reach Len. (ft)	500.00	501.53	505.00
Crit W.S. (ft)		Flow Area (sq ft)		11221.50	
E.G. Slope (ft/ft)	0.001948	Area (sq ft)		11221.50	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	565.86	Top Width (ft)		565.86	
Vel Total (ft/s)	14.79	Avg. Vel. (ft/s)		14.79	
Max Chl Dpth (ft)	23.11	Hydr. Depth (ft)		19.83	
Conv. Total (cfs)	3761447.0	Conv. (cfs)		3761447.0	
Length Wtd. (ft)	501.53	Wetted Per. (ft)		578.58	
Min Ch El (ft)	1018.30	Shear (lb/sq ft)		2.36	
Alpha	1.00	Stream Power (lb/ft s)		34.89	
Frctn Loss (ft)	1.22	Cum Volume (acre-ft)	7396.70	31257.09	2822.35
C & E Loss (ft)	0.00	Cum SA (acres)	2106.96	3017.04	1025.77

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1044.99	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.31	Wt. n-Val.		0.032	
W.S. Elev (ft)	1041.69	Reach Len. (ft)	500.00	501.53	505.00
Crit W.S. (ft)		Flow Area (sq ft)		11375.19	
E.G. Slope (ft/ft)	0.001869	Area (sq ft)		11375.19	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	567.44	Top Width (ft)		567.44	
Vel Total (ft/s)	14.59	Avg. Vel. (ft/s)		14.59	
Max Chl Dpth (ft)	23.39	Hydr. Depth (ft)		20.05	
Conv. Total (cfs)	3840224.0	Conv. (cfs)		3840224.0	
Length Wtd. (ft)	501.53	Wetted Per. (ft)		580.27	
Min Ch El (ft)	1018.30	Shear (lb/sq ft)		2.29	
Alpha	1.00	Stream Power (lb/ft s)		33.37	
Frctn Loss (ft)	1.14	Cum Volume (acre-ft)	1422.13	32232.26	355.97
C & E Loss (ft)	0.04	Cum SA (acres)	221.84	3022.61	77.43

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 211.31

INPUT
Description: 211.31

Left and Right Channel Bank Stations Interpolated
Station Elevation Data num= 98
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev

19209.8 1054 19309.4 1053.9 19371 1052.4 19415.6 1052 19462.5 1051.5
19496.2 1050.5 19510.1 1050.5 19528.9 1041.9 19531.21040.766 19571.7 1020.8
19614 1021.1 19677.8 1021.1 19724.1 1021.3 19888.2 1022 19928.3 1022.1
19954.9 1021.8 19973.9 1032 19980.4 1029.8 19994.7 1027.2 20059 1026.6
20112 1026.2 20123.3 1028 20158.9 1030.9 20198.7 1033.6 20212.5 1034.3
20267.3 1034.5 20269.1 1035.1 20281.8 1034.8 20323.2 1035.6 20338.5 1037.1
20343 1038 20356.11040.765 20425.9 1055.5 20434.4 1057.4 20457.3 1049
20499 1049.5 20549.5 1051.1 20551.5 1051 20571.1 1052.5 20575.3 1055.6
20584.2 1059.5 20614 1060.7 20625.4 1057 20636 1051.6 20682.5 1051.6
20692.1 1051.6 20699.2 1055 20718.1 1055.1 20723.4 1052.3 20725.3 1052.3
20778.6 1052.4 20806 1052.5 20808.3 1053.2 20835.4 1052.5 20836.7 1052.2
20884.1 1051.7 20893 1051.9 20922.6 1067.4 20930.4 1067.8 20944 1066.2
20964.4 1055.2 20970.5 1050.2 21010.5 1050.3 21036.1 1052 21040.8 1052.7
21082 1053.8 21083.4 1053.5 21093.1 1049.5 21124.5 1050.5 21134.6 1050.2
21141.3 1051.6 21160.1 1051.2 21201.6 1048.9 21204.4 1049.1 21219.3 1052.5
21236.3 1049.8 21240.9 1049.4 21293.9 1049 21338.4 1048.2 21394.2 1047.1
21457 1046.7 21459.4 1046.7 21510.1 1046.2 21538.8 1046.8 21571 1046.8
21576.7 1047.8 21607.4 1058.3 21626.3 1059.1 21651.1 1060.7 21661.7 1060.9
21672.8 1062 21684.6 1057.7 21696.7 1051.4 21740.6 1053.4 21745.1 1054.1
21754.3 1054.6 21757.7 1053 21786 1052.5

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
19209.8 .037 19531.2 .032 20356.1 .037

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19531.2 20356.1 540 523.28 460 .1 .3
Ineffective Flow num= 1
Sta L Sta R Elev Permanent

DuplicateEffective

20434.4 21786 1060 F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1043.59	Element	Left OB	Channel / Right OB
Vel Head (ft)	3.39	Wt. n-Val.		0.032 /
W.S. Elev (ft)	1040.20	Reach Len. (ft)	540.00	523.28 / 460.00
Crit W.S. (ft)	1037.24	Flow Area (sq ft)		11234.25 /
E.G. Slope (ft/ft)	0.003137	Area (sq ft)		11234.25 /
Q Total (cfs)	166000.00	Flow (cfs)		166000.00 /
Top Width (ft)	821.06	Top Width (ft)		821.06 /
Vel Total (ft/s)	14.78	Avg. Vel. (ft/s)		14.78 /
Max Chl Dpth (ft)	19.40	Hydr. Depth (ft)		13.68 /
Conv. Total (cfs)	2963673.0	Conv. (cfs)		2963673.0 /
Length Wtd. (ft)	523.28	Wetted Per. (ft)		829.63 /
Min Ch El (ft)	1020.80	Shear (lb/sq ft)		2.65 /
Alpha	1.00	Stream Power (lb/ft s)		39.19 /
Frctn Loss (ft)	1.41	Cum Volume (acre-ft)	7396.70	31127.82 / 2822.35
C & E Loss (ft)	0.28	Cum SA (acres)	2106.96	3009.06 / 1025.77

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1043.81	Element	Left OB	Channel / Right OB
Vel Head (ft)	3.19	Wt. n-Val.		0.032 /
W.S. Elev (ft)	1040.63	Reach Len. (ft)	540.00	523.28 / 460.00
Crit W.S. (ft)	1037.24	Flow Area (sq ft)		11585.76 /
E.G. Slope (ft/ft)	0.002845	Area (sq ft)		11585.76 /
Q Total (cfs)	166000.00	Flow (cfs)		166000.00 /
Top Width (ft)	823.96	Top Width (ft)		823.96 /
Vel Total (ft/s)	14.33	Avg. Vel. (ft/s)		14.33 /
Max Chl Dpth (ft)	19.83	Hydr. Depth (ft)		14.06 /
Conv. Total (cfs)	3112242.0	Conv. (cfs)		3112242.0 /
Length Wtd. (ft)	523.28	Wetted Per. (ft)		832.66 /
Min Ch El (ft)	1020.80	Shear (lb/sq ft)		2.47 /
Alpha	1.00	Stream Power (lb/ft s)		35.41 /
Frctn Loss (ft)	1.25	Cum Volume (acre-ft)	1422.13	32100.08 / 355.97
C & E Loss (ft)	0.28	Cum SA (acres)	221.84	3014.60 / 77.43

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 211.21

INPUT
Description: 211.21

Left and Right Channel Bank Stations Interpolated
Station Elevation Data num= 88

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
19418.7	1050	19432.3	1049.9	19486.6	1051	19504.4	1050.9	19507.4	1051.4
19520	1044.7	19528.7	1040.2	16	19566	1021.1	19781.8	1021.6	19997.4
20060.3	1022.2	20076.2	1032.8	20080	1035	20082.4	1032.7	20093.4	1024.4
20174.8	1026.6	20183.9	1027.6	20204.6	1029.5	20217.4	1030.4	20229.3	1030.7
20232.4	1030.9	20272.7	1031.9	20335.2	1032.6	20395.1	1032	20413.6	1031.7
20425.2	1031.3	20429.3	1031.7	20447.4	1035.2	20472.4	1032.1	20501.4	1030.2
20521.26	1040.2	16	20521.28	1040.2	26	20524.4	1041.8	20544	1051.9	20563.3	1064.6
20571.8	1065.7	20580.9	1066	20589.3	1061.5	20605.5	1058.5	20622.4	1060.1
20646.3	1062.6	20659.3	1063.4	20674.4	1064.8	20683.8	1065.5	20692.9	1064.2
20760.3	1066	20772	1068	20791.6	1063.6	20814.8	1059	20846.6	1053
20876.7	1045.5	20891.6	1044.9	20916.6	1044.2	20944.9	1044.5	20964.5	1044.9
21002.8	1046.7	21028.1	1048.6	21034.5	1044.8	21035.5	1044	21113.8	1044.6
21130.1	1044.6	21249.3	1044	21250	1044.1	21260.5	1047.3	21288	1046.8
21324.8	1046.7	21359.3	1046.9	21432.1	1048	21449.9	1048.7	21452.1	1049.4
21462.5	1051.8	21469.8	1052.8	21533.8	1052	21595.7	1051.9	21614.5	1051.8
21642.6	1057.9	21645.8	1056.1	21673.8	1046.4	21698	1040.9	21967.4	1041
21972	1044.7	21983.2	1052.6	21984.7	1051.9	21991.1	1050.7	21999	1051.3
22028.7	1051	22088.3	1051.4	22171	1051.7				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
19418.7	.037	19528.74	.032	20521.26	.037

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19528.74 20521.26 495 493.11 475 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
20571.8	22171	1068	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1041.89	Element	Left OB	Channel / Right OB
Vel Head (ft)	2.44	Wt. n-Val.		0.032 /
W.S. Elev (ft)	1039.45	Reach Len. (ft)	495.00	493.11 / 475.00
Crit W.S. (ft)	1035.55	Flow Area (sq ft)		13237.48 /
E.G. Slope (ft/ft)	0.002343	Area (sq ft)		13237.48 /
Q Total (cfs)	166000.00	Flow (cfs)		166000.00 /
Top Width (ft)	989.51	Top Width (ft)		989.51 /

```
                                                                    DuplicateEffective
* Vel Total (ft/s)       *   12.54  * Avg. Vel. (ft/s)        *          *   12.54  *          *
* Max Chl Dpth (ft)      *   18.35  * Hydr. Depth (ft)        *          *   13.38  *          *
* Conv. Total (cfs)      *3429417.0  * Conv. (cfs)            *          *3429417.0  *          *
* Length Wtd. (ft)       *  493.11  * Wetted Per. (ft)        *          * 1004.50  *          *
* Min Ch El (ft)         * 1021.10  * Shear (lb/sq ft)        *          *   1.93  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   24.17  *          *
* Frctn Loss (ft)        *    0.55  * Cum Volume (acre-ft)   * 7396.70  *30980.83  * 2822.35  *
* C & E Loss (ft)        *    0.41  * Cum SA (acres)         * 2106.96  * 2998.18  * 1025.77  *
*********************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)         * 1042.28  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    2.24  * Wt. n-Val.            *          *   0.032  *          *
* W.S. Elev (ft)         * 1040.04  * Reach Len. (ft)       *  495.00  *  493.11  *  475.00  *
* Crit W.S. (ft)         * 1035.55  * Flow Area (sq ft)     *          *13818.43  *          *
* E.G. Slope (ft/ft)     *0.002037  * Area (sq ft)          *          *13818.43  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *          *166000.00  *          *
* Top Width (ft)         *  991.82  * Top Width (ft)        *          *  991.82  *          *
* Vel Total (ft/s)       *   12.01  * Avg. Vel. (ft/s)      *          *   12.01  *          *
* Max Chl Dpth (ft)      *   18.94  * Hydr. Depth (ft)      *          *   13.93  *          *
* Conv. Total (cfs)      *3677597.0  * Conv. (cfs)          *          *3677597.0  *          *
* Length Wtd. (ft)       *  493.11  * Wetted Per. (ft)      *          * 1007.09  *          *
* Min Ch El (ft)         * 1021.10  * Shear (lb/sq ft)      *          *   1.75  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   20.97  *          *
* Frctn Loss (ft)        *    0.49  * Cum Volume (acre-ft)   * 1422.13  *31947.49  *  355.97  *
* C & E Loss (ft)        *    0.37  * Cum SA (acres)         *  221.84  * 3003.69  *   77.43  *
*********************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                RS: 211.12

INPUT
Description: 211.12 - FEMA Section Z

Left Channel Bank Station Interpolated
Station Elevation Data    num=      63
    Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
   19314  1050.6 19321.1  1050.6 19403.5  1050.4 19415.2  1050.5 19470.9  1050.5
 19482.5  1051.2 19483.7  1050.5 19498.46 1040.58 19527.6    1021 19600.2  1021.1
 20090.7    1021 20239.6  1020.4   20259  1020.1   20267  1022.5 20276.5  1019.8
 20287.8    1020 20321.5  1020.6 20364.3  1020.4 20406.5  1019.8 20438.1  1015.7
 20453.3  1015.7 20484.3  1015.7 20510.9  1015.7 20526.1  1023.8 20540.7  1029.4
 20572.2  1046.4 20577.1  1044.9 20591.9  1040.2 21035.6  1040.2 21045.7  1040.3
 21082.9  1041.6   21123  1041.5   21166  1041.6 21189.7  1041.5 21228.3    1041
 21264.3  1041.1 21277.3  1040.7 21299.3  1040.6 21311.7  1043.9 21321.5  1044.1
 21335.9  1046.9 21349.5  1046.7 21377.3  1046.7 21389.3  1045.7 21395.8  1044.6
   21409  1041.7 21414.3  1040.2 21431.9  1040.1 21441.7  1040.6 21511.5  1043.7
 21564.5  1044.7 21580.3  1044.8   21593  1044.6   21597    1042 22094.6    1042
 22111.5  1053.1 22112.9  1051.5 22113.7  1050.9   22123  1051.4 22146.6  1051.4
 22200.7  1051.7 22225.6  1051.6 22293.4  1051.7

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
   19314    .03719498.46    .032 20572.2    .037

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
     19498.46 20572.2             500  505.73     500            .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
 21335.9 22293.4    1050       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         * 1040.93  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.07  * Wt. n-Val.            *          *   0.032  *          *
* W.S. Elev (ft)         * 1039.87  * Reach Len. (ft)       *  500.00  *  505.73  *  500.00  *
* Crit W.S. (ft)         * 1029.88  * Flow Area (sq ft)     *          *20026.95  *          *
* E.G. Slope (ft/ft)     *0.000644  * Area (sq ft)          *          *20026.95  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *          *166000.00  *          *
* Top Width (ft)         * 1060.56  * Top Width (ft)        *          * 1060.56  *          *
* Vel Total (ft/s)       *    8.29  * Avg. Vel. (ft/s)      *          *    8.29  *          *
* Max Chl Dpth (ft)      *   24.17  * Hydr. Depth (ft)      *          *   18.88  *          *
* Conv. Total (cfs)      *6543288.0  * Conv. (cfs)          *          *6543288.0  *          *
* Length Wtd. (ft)       *  505.70  * Wetted Per. (ft)      *          * 1073.03  *          *
* Min Ch El (ft)         * 1015.70  * Shear (lb/sq ft)      *          *    0.75  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    6.22  *          *
* Frctn Loss (ft)        *    0.47  * Cum Volume (acre-ft)   * 7396.70  *30792.55  * 2822.35  *
* C & E Loss (ft)        *    0.09  * Cum SA (acres)         * 2106.96  * 2986.58  * 1025.77  *
*********************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.
```

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1041.42	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.01	Wt. n-Val.		0.032	0.037
W.S. Elev (ft)	1040.41	Reach Len. (ft)	500.00	505.73	500.00
Crit W.S. (ft)	1029.88	Flow Area (sq ft)		20604.46	3.86
E.G. Slope (ft/ft)	0.000587	Area (sq ft)		20604.46	3.86
Q Total (cfs)	166000.00	Flow (cfs)		165998.70	1.30
Top Width (ft)	1081.14	Top Width (ft)		1062.38	18.76
Vel Total (ft/s)	8.05	Avg. Vel. (ft/s)		8.06	0.34
Max Chl Dpth (ft)	24.71	Hydr. Depth (ft)		19.39	0.21
Conv. Total (cfs)	6851806.0	Conv. (cfs)		6851753.0	53.5
Length Wtd. (ft)	505.73	Wetted Per. (ft)		1075.15	19.00
Min Ch El (ft)	1015.70	Shear (lb/sq ft)		0.70	0.01
Alpha	1.00	Stream Power (lb/ft s)		5.66	0.00
Frctn Loss (ft)	0.42	Cum Volume (acre-ft)	1422.13	31752.65	355.94
C & E Loss (ft)	0.08	Cum SA (acres)	221.84	2992.07	77.33

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 211.02

INPUT
Description: 211.02

Left Channel Bank Station Interpolated
Station Elevation Data num= 58

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
19239	1049.4	19253.3	1049.2	19318.8	1049.3	19330	1049.2	19381.9	1049.5
19409.6	1049.3	19472.3	104919487.121039.375			19515.1	1021.2	19977.7	1020.4
20111.7	1020.1	20119.2	1025.6	20133.2	1024.1	20136.2	1022.2	20140	1019.4
20202.9	1020.4	20228.3	1020.7	20238.9	1022.4	20243.6	1025.6	20270.1	1025.5
20279.9	1025.7	20343.8	1026.1	20394.3	1041.3	20424.2	1040	20434	1040.5
20448.3	1038.4	20459.5	1037.9	20468.8	1038.2	20484.1	1038	20494.6	1038.7
20501.7	1038.2	21087.6	1039.1	21102.9	1037.2	21124.7	1036.8	21132.2	1033
21144.9	1032.5	21184.2	1034.3	21243.7	1036.3	21300.5	1038.4	21315.9	1038.7
21353.2	1040	21399.5	1041.4	21439	1042.3	21480	1043.6	21514.7	1043.6
21524.4	1043.8	21535.1	1043.6	21559.7	1042.3	21570.6	1042.2	22151.3	1042
22163.4	1052.1	22174.7	1052.9	22226.3	1051.5	22239.2	1051.3	22318	1051.9
22324.3	1052	22393.8	1052.8	22399.8	1052.7				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
19239	.037	19487.12	.032	20394.3	.037

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19487.12 20394.3 485 493.19 495 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
21500	22399.8	1050	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1040.38	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.94	Wt. n-Val.		0.032	0.037
W.S. Elev (ft)	1038.44	Reach Len. (ft)	485.00	493.19	495.00
Crit W.S. (ft)	1032.11	Flow Area (sq ft)		14638.78	617.33
E.G. Slope (ft/ft)	0.001433	Area (sq ft)		14638.78	617.33
Q Total (cfs)	166000.00	Flow (cfs)		164233.00	1767.03
Top Width (ft)	1310.75	Top Width (ft)		896.26	414.49
Vel Total (ft/s)	10.88	Avg. Vel. (ft/s)		11.22	2.86
Max Chl Dpth (ft)	19.04	Hydr. Depth (ft)		16.33	1.49
Conv. Total (cfs)	4385797.0	Conv. (cfs)		4339111.0	46685.8
Length Wtd. (ft)	493.33	Wetted Per. (ft)		907.67	415.65
Min Ch El (ft)	1019.40	Shear (lb/sq ft)		1.44	0.13
Alpha	1.05	Stream Power (lb/ft s)		16.18	0.38
Frctn Loss (ft)	0.69	Cum Volume (acre-ft)	7396.70	30591.31	2818.80
C & E Loss (ft)	0.15	Cum SA (acres)	2106.96	2975.22	1023.39

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1040.91	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.85	Wt. n-Val.		0.032	0.037
W.S. Elev (ft)	1039.06	Reach Len. (ft)	485.00	493.19	495.00
Crit W.S. (ft)	1032.12	Flow Area (sq ft)		15190.01	87.01
E.G. Slope (ft/ft)	0.001298	Area (sq ft)		15190.01	87.01
Q Total (cfs)	166000.00	Flow (cfs)		165890.30	109.65
Top Width (ft)	1005.42	Top Width (ft)		899.24	106.18
Vel Total (ft/s)	10.87	Avg. Vel. (ft/s)		10.92	1.26
Max Chl Dpth (ft)	19.66	Hydr. Depth (ft)		16.89	0.82
Conv. Total (cfs)	4606872.0	Conv. (cfs)		4603829.0	3043.1
Length Wtd. (ft)	493.22	Wetted Per. (ft)		910.93	107.07
Min Ch El (ft)	1019.40	Shear (lb/sq ft)		1.35	0.07
Alpha	1.01	Stream Power (lb/ft s)		14.76	0.08
Frctn Loss (ft)	0.73	Cum Volume (acre-ft)	1422.13	31544.86	355.42

DuplicateEffective

* C & E Loss (ft)	* 0.02	* Cum SA (acres)	* 221.84	* 2980.68	* 76.62	*

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 210.93

INPUT
Description: 210.93

Left Channel Bank Station Interpolated
Station Elevation Data num= 50

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
19200.1	1048.6	19256.6	1048.1	19323.4	1048.3	19376.7	1048.6	19414.5	1048
19464.2	1048.3	19479.12	1039.255	19508.9	1021.2	19821.8	1022.3	20131.9	1023.4
20138.8	1028	20162.4	1029.4	20166.3	1026.3	20172.8	1019.1	20212	1018.7
20278.3	1019.9	20290	1025.6	20331.4	1025	20349.2	1032.1	20351.6	1031.2
20355.1	1030.5	20397.8	1031.3	20406.9	1035.2	20414.8	1039.6	20431.2	1039.4
20455.9	1039.7	20458.7	1037.8	20465.5	1037.9	20470.4	1034.9	20474.7	1032.7
21343.1	1032.7	21350.5	1032.5	21376.3	1035.6	21390.1	1033.4	21395.9	1033.7
21424.3	1033.9	21484.4	1034.5	21494.9	1034.3	21537	1034.4	22171.3	1034.4
22195.5	1049.6	22217.9	1047.5	22260.9	1035	22263.6	1034.9	22291.1	1051
22312.1	1051.8	22326.6	1051.4	22375.7	1051.7	22388.8	1051.5	22397.4	1050.6

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
19200.1	.037	19479.12	.032	20414.8	.037

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19479.12 20414.8 505 505.14 505 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
21576	22397.4	1048	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 1039.54	* Element	* Left OB	* Channel	* Right OB	*
* Vel Head (ft)	* 1.43	* Wt. n-Val.	*	* 0.032	* 0.037	*
* W.S. Elev (ft)	* 1038.11	* Reach Len. (ft)	* 505.00	* 505.14	* 505.00	*
* Crit W.S. (ft)	* 1034.18	* Flow Area (sq ft)	*	*13814.35	* 5646.17	*
* E.G. Slope (ft/ft)	*0.001361	* Area (sq ft)	*	*13814.35	* 7898.65	*
* Q Total (cfs)	*166000.00	* Flow (cfs)	*	*141396.70	*24603.29	*
* Top Width (ft)	* 2668.95	* Top Width (ft)	*	* 931.11	* 1737.83	*
* Vel Total (ft/s)	* 8.53	* Avg. Vel. (ft/s)	*	* 10.24	* 4.36	*
* Max Chl Dpth (ft)	* 19.41	* Hydr. Depth (ft)	*	* 14.84	* 5.05	*
* Conv. Total (cfs)	*4499064.0	* Conv. (cfs)	*	*3832246.0	*666817.9	*
* Length Wtd. (ft)	* 505.12	* Wetted Per. (ft)	*	* 946.05	* 1119.60	*
* Min Ch El (ft)	* 1018.70	* Shear (lb/sq ft)	*	* 1.24	* 0.43	*
* Alpha	* 1.27	* Stream Power (lb/ft s)	*	* 12.70	* 1.87	*
* Frctn Loss (ft)	* 0.68	* Cum Volume (acre-ft)	* 7396.70	*30430.24	* 2770.42	*
* C & E Loss (ft)	* 0.00	* Cum SA (acres)	* 2106.96	* 2964.87	* 1011.16	*

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 1040.16	* Element	* Left OB	* Channel	* Right OB	*
* Vel Head (ft)	* 2.00	* Wt. n-Val.	*	* 0.032	* 0.037	*
* W.S. Elev (ft)	* 1038.16	* Reach Len. (ft)	* 505.00	* 505.14	* 505.00	*
* Crit W.S. (ft)	* 1033.38	* Flow Area (sq ft)	*	*13860.73	* 1259.29	*
* E.G. Slope (ft/ft)	*0.001720	* Area (sq ft)	*	*13860.73	* 1259.29	*
* Q Total (cfs)	*166000.00	* Flow (cfs)	*	*159816.00	* 6184.00	*
* Top Width (ft)	* 1173.11	* Top Width (ft)	*	* 931.29	* 241.83	*
* Vel Total (ft/s)	* 10.98	* Avg. Vel. (ft/s)	*	* 11.53	* 4.91	*
* Max Chl Dpth (ft)	* 19.46	* Hydr. Depth (ft)	*	* 14.88	* 5.21	*
* Conv. Total (cfs)	*4002269.0	* Conv. (cfs)	*	*3853173.0	*149096.5	*
* Length Wtd. (ft)	* 505.14	* Wetted Per. (ft)	*	* 946.25	* 248.77	*
* Min Ch El (ft)	* 1018.70	* Shear (lb/sq ft)	*	* 1.57	* 0.54	*
* Alpha	* 1.07	* Stream Power (lb/ft s)	*	* 18.14	* 2.67	*
* Frctn Loss (ft)	* 0.84	* Cum Volume (acre-ft)	* 1422.13	*31380.41	* 347.77	*
* C & E Loss (ft)	* 0.02	* Cum SA (acres)	* 221.84	* 2970.32	* 74.64	*

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 210.83

INPUT
Description: 210.83

Left Channel Bank Station Interpolated
Station Elevation Data num= 61

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
19202.3	1047.9	19230.6	1048.2	19316.1	1047.1	19412.4	1046.5	19438.4	1046.4
19450.41	1038.813	19469.9	1026.5	19479.2	1021.2	19797.6	1021	19923.9	1020.9
19961.4	1020.6	19972.9	1027.1	19981.7	1030.2	20023.7	1029.7	20030.1	1028.5
20042.7	1023.3	20047.1	1022.6	20060.1	1021.5	20068	1019.1	20084.8	1019.4
20164.7	1020.3	20209.2	1020.4	20210.1	1020.8	20276.6	1019.8	20285.1	1022.2

```
                                                                    DuplicateEffective
 20306.6  1025.2   20309  1026.8 20312.4  1026.3 20316.8  1024.7 20372.8  1023.5
 20408.7  1043.6 20410.4  1042.5   20412    1040 20434.3  1040.8 20448.6    1034
 21423.7  1034.1 21433.7    1033 21527.5  1031.1 21554.4  1029.7 21577.9  1029.4
 21646.5  1030.2 21704.4  1029.9 21742.9  1046.2 21761.3    1040 21807.2  1041.3
   21814  1044.7 21818.3  1046.4 21862.5  1045.9 21879.4  1037.5 21883.7    1035
 21887.9  1033.8 21911.6  1035.9 21937.9  1050.1 21957.5  1042.6 22341.8  1042.6
 22364.7  1049.8 22372.9  1048.2   22423  1049.3 22443.3  1049.3 22494.1  1045.8
 22499.7  1044.9

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
 19202.3    .03719450.41    .032 20410.4    .037

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      19450.41 20410.4              505  505.61     500             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
 21742.9 22499.7    1048       F

CROSS SECTION OUTPUT  Profile #PF#1
*************************************************************************************************
* E.G. Elev (ft)         * 1038.86  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.46  * Wt. n-Val.            *          *   0.032  *   0.037  *
* W.S. Elev (ft)         * 1037.40  * Reach Len. (ft)       *  505.00  *  505.61  *  500.00  *
* Crit W.S. (ft)         * 1032.21  * Flow Area (sq ft)     *          *14336.46  * 5200.41  *
* E.G. Slope (ft/ft)     *0.001318  * Area (sq ft)          *          *14336.46  * 5280.35  *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *          *146725.00  *19274.99  *
* Top Width (ft)         * 2260.41  * Top Width (ft)        *          *  944.97  * 1315.44  *
* Vel Total (ft/s)       *    8.50  * Avg. Vel. (ft/s)     *          *   10.23  *    3.71  *
* Max Chl Dpth (ft)      *   18.30  * Hydr. Depth (ft)     *          *   15.17  *    4.06  *
* Conv. Total (cfs)      *4572343.0  * Conv. (cfs)          *          *4041428.0  *530914.8  *
* Length Wtd. (ft)       *  505.17  * Wetted Per. (ft)     *          *  958.45  * 1283.06  *
* Min Ch El (ft)         * 1019.10  * Shear (lb/sq ft)     *          *    1.23  *    0.33  *
* Alpha                  *    1.30  * Stream Power (lb/ft s) *        *   12.60  *    1.24  *
* Frctn Loss (ft)        *    0.58  * Cum Volume (acre-ft)  * 7396.70  *30267.01  * 2694.02  *
* C & E Loss (ft)        *    0.03  * Cum SA (acres)        * 2106.96  * 2954.00  *  993.46  *
*************************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*************************************************************************************************
* E.G. Elev (ft)         * 1039.30  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.94  * Wt. n-Val.            *          *   0.032  *   0.037  *
* W.S. Elev (ft)         * 1037.36  * Reach Len. (ft)       *  505.00  *  505.61  *  500.00  *
* Crit W.S. (ft)         * 1031.99  * Flow Area (sq ft)     *          *14300.13  * 1185.46  *
* E.G. Slope (ft/ft)     *0.001616  * Area (sq ft)          *          *14300.13  * 1185.46  *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *          *161784.10  * 4215.89  *
* Top Width (ft)         * 1303.30  * Top Width (ft)        *          *  944.84  *  358.46  *
* Vel Total (ft/s)       *   10.72  * Avg. Vel. (ft/s)     *          *   11.31  *    3.56  *
* Max Chl Dpth (ft)      *   18.26  * Hydr. Depth (ft)     *          *   15.14  *    3.31  *
* Conv. Total (cfs)      *4129675.0  * Conv. (cfs)          *          *4024794.0  *104881.1  *
* Length Wtd. (ft)       *  505.54  * Wetted Per. (ft)     *          *  958.30  *  362.54  *
* Min Ch El (ft)         * 1019.10  * Shear (lb/sq ft)     *          *    1.51  *    0.33  *
* Alpha                  *    1.09  * Stream Power (lb/ft s) *        *   17.03  *    1.17  *
* Frctn Loss (ft)        *    0.66  * Cum Volume (acre-ft)  * 1422.13  *31217.12  *  333.60  *
* C & E Loss (ft)        *    0.13  * Cum SA (acres)        *  221.84  * 2959.44  *   71.16  *
*************************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 210.74

INPUT
Description: 210.74

Left Channel Bank Station Interpolated
Station Elevation Data    num=      63
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 19243.9  1048.6 19252.9  1048.6 19306.8  1048.4 19320.5  1047.9 19400.4  1046.9
 19417.4  1044.519426.121038.473 19455.3  1018.3 19887.7  1018.2 19910.2  1018.2
 19912.1  1019.4 19926.7  1020.6 19947.1  1020.5 19971.2  1029.9 19999.5  1024.8
 20005.9  1025.6 20026.7  1018.2 20095.6  1018.8   20149  1019.3 20154.3  1019.5
 20159.1  1018.6 20206.5  1019.2 20250.3  1018.3 20256.9  1020.6 20263.3  1021.3
 20281.7  1020.8 20318.1    1022 20333.5  1021.2 20349.8  1021.8 20361.7  1025.8
 20373.2  1024.1 20404.6  1025.2 20432.5  1037.6 20433.7  1039.4 20462.4  1039.5
 20468.2  1036.5 21389.5  1036.5 21394.6  1032.8   21404  1032.7 21513.7    1032
 21520.3  1033.6 21537.2  1027.8 21587.9  1027.7 21638.9  1028.2 21695.6    1029
 21747.1  1028.9   21771  1029.8 21801.8    1041 21813.2  1040.9 22057.2  1040.9
 22066.5  1043.5 22085.1  1044.1 22096.2  1047.4 22123.7  1048.7 22156.7  1040.5
 22272.5  1040.5 22293.7  1049.5 22308.5  1048.9 22356.6  1048.4 22365.3  1048.1
   22369  1048.8 22377.5  1053.2 22399.8  1048.3

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
 19243.9    .03719426.12    .032 20433.7    .037

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      19426.12 20433.7              495  503.39     500             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
 21801.8 22399.8    1048       F

CROSS SECTION OUTPUT  Profile #PF#1
*************************************************************************************************
```

DuplicateEffective

* E.G. Elev (ft)	* 1038.25	* Element	* Left OB	* Channel	* Right OB	*
* Vel Head (ft)	* 1.35	* Wt. n-Val.	*	* 0.032	* 0.037	*
* W.S. Elev (ft)	* 1036.90	* Reach Len. (ft)	* 495.00	* 503.39	* 500.00	*
* Crit W.S. (ft)	* 1029.79	* Flow Area (sq ft)	*	*16726.33	* 3097.74	*
* E.G. Slope (ft/ft)	*0.001002	* Area (sq ft)	*	*16726.33	* 3097.74	*
* Q Total (cfs)	*166000.00	* Flow (cfs)	*	*159070.40	* 6929.57	*
* Top Width (ft)	* 2325.61	* Top Width (ft)	*	* 1002.52	* 1323.09	*
* Vel Total (ft/s)	* 8.37	* Avg. Vel. (ft/s)	*	* 9.51	* 2.24	*
* Max Chl Dpth (ft)	* 18.70	* Hydr. Depth (ft)	*	* 16.68	* 2.34	*
* Conv. Total (cfs)	*5244781.0	* Conv. (cfs)	*	*5025840.0	*218940.3	*
* Length Wtd. (ft)	* 503.17	* Wetted Per. (ft)	*	* 1016.15	* 1326.83	*
* Min Ch El (ft)	* 1018.20	* Shear (lb/sq ft)	*	* 1.03	* 0.15	*
* Alpha	* 1.24	* Stream Power (lb/ft s)	*	* 9.79	* 0.33	*
* Frctn Loss (ft)	* 0.46	* Cum Volume (acre-ft)	* 7396.70	*30086.74	* 2645.94	*
* C & E Loss (ft)	* 0.09	* Cum SA (acres)	* 2106.96	* 2942.69	* 978.32	*

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 1038.51	* Element	* Left OB	* Channel	* Right OB	*
* Vel Head (ft)	* 1.51	* Wt. n-Val.	*	* 0.032	* 0.037	*
* W.S. Elev (ft)	* 1037.01	* Reach Len. (ft)	* 495.00	* 503.39	* 500.00	*
* Crit W.S. (ft)	* 1029.51	* Flow Area (sq ft)	*	*16835.02	* 183.49	*
* E.G. Slope (ft/ft)	*0.001066	* Area (sq ft)	*	*16835.02	* 183.49	*
* Q Total (cfs)	*166000.00	* Flow (cfs)	*	*165847.40	* 152.58	*
* Top Width (ft)	* 1365.70	* Top Width (ft)	*	* 1002.92	* 362.78	*
* Vel Total (ft/s)	* 9.75	* Avg. Vel. (ft/s)	*	* 9.85	* 0.83	*
* Max Chl Dpth (ft)	* 18.81	* Hydr. Depth (ft)	*	* 16.79	* 0.51	*
* Conv. Total (cfs)	*5083538.0	* Conv. (cfs)	*	*5078865.0	* 4672.5	*
* Length Wtd. (ft)	* 503.35	* Wetted Per. (ft)	*	* 1016.60	* 363.41	*
* Min Ch El (ft)	* 1018.20	* Shear (lb/sq ft)	*	* 1.10	* 0.03	*
* Alpha	* 1.02	* Stream Power (lb/ft s)	*	* 10.86	* 0.03	*
* Frctn Loss (ft)	* 0.51	* Cum Volume (acre-ft)	* 1422.13	*31036.43	* 325.75	*
* C & E Loss (ft)	* 0.07	* Cum SA (acres)	* 221.84	* 2948.14	* 67.02	*

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 210.64

INPUT
Description: 210.64 - FEMA Section Y
Station Elevation Data num= 56

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
19062.1	1046.2	19142.3	1046.5	19216.9	1046.5	19239.3	1046.6	19313.3	1046.3
19339.3	1045.9	19359.9	1044.7	19388.6	1036.7	19405.4	1034.5	19435.6	1017.8
19522.4	1017.9	19688	1018.2	19812.5	1018.5	19845.7	1021.7	19854.2	1021.6
19868.7	1023.2	19885.6	1022.9	19894.1	1026.4	19926.9	1018.1	19954	1018.1
20029.3	1018.2	20100.6	1018.3	20159.1	1018.4	20163.7	1019.2	20174.9	1019.6
20183.1	1020.8	20192.3	1019.6	20214.4	1021.7	20234.8	1024.3	20242.8	1022.1
20298.5	1024	20323.5	1025.5	20335	1029.1	20359.6	1019.1	20427.6	1017.8
20430.1	1017.7	20460.6	1039.9	20483.4	1039.5	20493.5	1033.2	21394.6	1033.2
21442.1	1031.4	21449.1	1028.1	21453.5	1025.3	21460.9	1025.2	21472.1	1026
21483.6	1028.3	21519.7	1032.5	22411.4	1032.5	22434.2	1045.9	22446.8	1049.8
22496.5	1049.4	22507.7	1051.3	22521	1044.2	22524.9	1044.1	22586.3	1043
22591.1	1043.3								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
19062.1	.037	19388.6	.032	20460.6	.037

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19388.6 20460.6 520 515.29 495 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
21800	22591.1	1048	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 1037.70	* Element	* Left OB	* Channel	* Right OB	*
* Vel Head (ft)	* 1.06	* Wt. n-Val.	*	* 0.032	* 0.037	*
* W.S. Elev (ft)	* 1036.64	* Reach Len. (ft)	* 520.00	* 515.29	* 495.00	*
* Crit W.S. (ft)	* 1029.00	* Flow Area (sq ft)	*	*17585.84	* 5111.99	*
* E.G. Slope (ft/ft)	*0.000835	* Area (sq ft)	*	*17585.84	* 7658.60	*
* Q Total (cfs)	*166000.00	* Flow (cfs)	*	*151331.50	*14668.52	*
* Top Width (ft)	* 2997.54	* Top Width (ft)	*	* 1067.08	* 1930.47	*
* Vel Total (ft/s)	* 7.31	* Avg. Vel. (ft/s)	*	* 8.61	* 2.87	*
* Max Chl Dpth (ft)	* 18.94	* Hydr. Depth (ft)	*	* 16.48	* 3.90	*
* Conv. Total (cfs)	*5743728.0	* Conv. (cfs)	*	*5236186.0	*507542.1	*
* Length Wtd. (ft)	* 514.20	* Wetted Per. (ft)	*	* 1083.06	* 1315.09	*
* Min Ch El (ft)	* 1017.70	* Shear (lb/sq ft)	*	* 0.85	* 0.20	*
* Alpha	* 1.28	* Stream Power (lb/ft s)	*	* 7.29	* 0.58	*
* Frctn Loss (ft)	* 0.47	* Cum Volume (acre-ft)	* 7396.70	*29888.48	* 2584.21	*
* C & E Loss (ft)	* 0.02	* Cum SA (acres)	* 2106.96	* 2930.73	* 959.65	*

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 1037.94	* Element	* Left OB	* Channel	* Right OB	*
* Vel Head (ft)	* 1.29	* Wt. n-Val.	*	* 0.032	* 0.037	*

```
                                                                  DuplicateEffective
* W.S. Elev (ft)          * 1036.65  * Reach Len. (ft)          *  520.00  *  515.29  *  495.00  *
* Crit W.S. (ft)          * 1029.00  * Flow Area (sq ft)        *          *17595.74  * 1412.25  *
* E.G. Slope (ft/ft)      *0.000956  * Area (sq ft)             *          *17595.74  * 1412.25  *
* Q Total (cfs)           *166000.00  * Flow (cfs)              *          *162041.90  * 3958.07  *
* Top Width (ft)          * 1479.19  * Top Width (ft)          *          * 1067.16  *  412.03  *
* Vel Total (ft/s)        *    8.73  * Avg. Vel. (ft/s)        *          *    9.21  *    2.80  *
* Max Chl Dpth (ft)       *   18.95  * Hydr. Depth (ft)        *          *   16.49  *    3.43  *
* Conv. Total (cfs)       *5368837.0  * Conv. (cfs)            *          *5240824.0  *128013.4  *
* Length Wtd. (ft)        *  514.88  * Wetted Per. (ft)        *          * 1083.15  *  416.47  *
* Min Ch El (ft)          * 1017.70  * Shear (lb/sq ft)        *          *    0.97  *    0.20  *
* Alpha                   *    1.09  * Stream Power (lb/ft s) *          *    8.93  *    0.57  *
* Frctn Loss (ft)         *    0.50  * Cum Volume (acre-ft)   * 1422.13  *30837.48  *  316.59  *
* C & E Loss (ft)         *    0.01  * Cum SA (acres)         *  221.84  * 2936.17  *   62.57  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 210.55

INPUT
Description: 210.55

Left Channel Bank Station Interpolated
Station Elevation Data    num=      55
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
   19008  1045.1 19023.1  1045.1 19106.6  1045.2 19117.1  1045.2 19188.7  1045.4
 19198.2  1045.3 19263.2    1046 19303.5  1044.219322.161037.828   19365  1023.2
 19375.9  1018.6 19396.7  1018.7 19519.3  1018.6   19791  1018.3 19813.4  1028.8
 19857.3  1026.7 19886.1  1038.1 19909.3  1027.2 19915.5  1030.7 19959.6    1020
 20002.1    1018 20058.3  1018.1 20175.7  1018.1 20440.7  1018.3 20476.7  1037.4
 20483.2  1040.3 20500.3  1039.7 20507.6  1034.3 21313.5  1033.6 21372.5  1032.4
 21406.9    1033 21409.3  1032.1 21417.2  1027.2   21429  1026.3 21456.2  1025.4
 21459.3  1026.4 21468.1  1028.2 21496.9  1030.2 21548.3  1034.3 21557.5  1034.9
 21626.2  1036.3 21634.2  1035.7 21643.8  1035.7   21713  1035.7 21771.2    1036
 22449.6    1036 22451.9  1037.8 22455.6    1040 22484.4  1044.7 22494.2  1046.8
 22499.9    1046 22506.9  1046.2 22537.1  1043.6 22580.7  1043.5   22585    1043

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
   19008    .03719322.16    .032 20483.2    .037

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      19322.16 20483.2              475  473.19     495             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
   21300   22585  1046.8       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)          * 1037.21  * Element                * Left OB *  Channel * Right OB *
* Vel Head (ft)           *    1.28  * Wt. n-Val.            *         *    0.032  *    0.037  *
* W.S. Elev (ft)          * 1035.92  * Reach Len. (ft)       *  475.00  *  473.19  *  495.00  *
* Crit W.S. (ft)          * 1028.55  * Flow Area (sq ft)     *          *17766.06  * 1561.68  *
* E.G. Slope (ft/ft)      *0.001015  * Area (sq ft)          *          *17766.06  * 2866.74  *
* Q Total (cfs)           *166000.00  * Flow (cfs)           *          *162866.20  * 3133.85  *
* Top Width (ft)          * 2363.76  * Top Width (ft)       *          * 1136.06  * 1227.70  *
* Vel Total (ft/s)        *    8.59  * Avg. Vel. (ft/s)     *          *    9.17  *    2.01  *
* Max Chl Dpth (ft)       *   17.92  * Hydr. Depth (ft)     *          *   15.64  *    1.97  *
* Conv. Total (cfs)       *5210137.0  * Conv. (cfs)         *          *5111777.0  * 98360.2  *
* Length Wtd. (ft)        *  473.40  * Wetted Per. (ft)     *          * 1151.83  *  795.13  *
* Min Ch El (ft)          * 1018.00  * Shear (lb/sq ft)     *          *    0.98  *    0.12  *
* Alpha                   *    1.12  * Stream Power (lb/ft s) *        *    8.96  *    0.25  *
* Frctn Loss (ft)         *    0.25  * Cum Volume (acre-ft)  * 7396.70  *29679.38  * 2524.40  *
* C & E Loss (ft)         *    0.27  * Cum SA (acres)        * 2106.96  * 2917.70  *  941.70  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)          * 1037.43  * Element                * Left OB *  Channel * Right OB *
* Vel Head (ft)           *    1.25  * Wt. n-Val.            *         *    0.032  *    0.037  *
* W.S. Elev (ft)          * 1036.18  * Reach Len. (ft)       *  475.00  *  473.19  *  495.00  *
* Crit W.S. (ft)          * 1028.55  * Flow Area (sq ft)     *          *18058.02  * 1293.19  *
* E.G. Slope (ft/ft)      *0.000970  * Area (sq ft)          *          *18058.02  * 1293.19  *
* Q Total (cfs)           *166000.00  * Flow (cfs)           *          *163325.00  * 2675.01  *
* Top Width (ft)          * 1743.43  * Top Width (ft)       *          * 1138.49  *  604.94  *
* Vel Total (ft/s)        *    8.58  * Avg. Vel. (ft/s)     *          *    9.04  *    2.07  *
* Max Chl Dpth (ft)       *   18.18  * Hydr. Depth (ft)     *          *   15.86  *    2.14  *
* Conv. Total (cfs)       *5330421.0  * Conv. (cfs)         *          *5244524.0  * 85897.0  *
* Length Wtd. (ft)        *  473.37  * Wetted Per. (ft)     *          * 1154.47  *  607.97  *
* Min Ch El (ft)          * 1018.00  * Shear (lb/sq ft)     *          *    0.95  *    0.13  *
* Alpha                   *    1.09  * Stream Power (lb/ft s) *        *    8.57  *    0.27  *
* Frctn Loss (ft)         *    0.24  * Cum Volume (acre-ft)  * 1422.13  *30626.60  *  301.22  *
* C & E Loss (ft)         *    0.26  * Cum SA (acres)        *  221.84  * 2923.13  *   56.79  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
```

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 210.46

INPUT
Description: 210.46

Left and Right Channel Bank Stations Interpolated
Station Elevation Data num= 74

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18491.3	1044.8	18509.6	1044.4	18559.8	1045.8	18571.1	1045.5	18584.8	1043.3
18607.7	1045	18678	1044.8	18723.7	1044.2	18801	1044.1	18803.4	1044.1
18891.1	1043.9	18897.1	1043.9	18962.7	1043.6	19022.5	1043.3	19024.4	1043.3
19078.3	1042.4	19136.1	1042.2	19176.5	1042.5	19201.9	1040.9	19233.8	1028.3
19266.3	1021.8	19276.2	1021.1	19328.5	1018.7	19351.6	1018.1	19377	1018.33
19395.8	1018.5	19810.2	1018.3	19863.8	1018.1	19922	1018.2	20015.9	1018.2
20094.1	1018.1	20114.1	1018.1	20127.6	1022.4	20129.6	1023.9	20150.4	1023.9
20174.1	1021.6	20197.2	1018.1	20239.9	1018.1	20295.4	1018.2	20303	1018.6
20351.5	1018	20390.4	1018.4	20443.9	1018.4	20502.8	1018.5	20565.4	1018.8
20656.3	1018.8	20722.5	1019	20743	1019.6	20798.1	1019.8	20867.2	1019.1
20920.3	1019.3	20973.2	1019.2	21047.3	1019.3	21120.7	1021.1	21123	1021.2
21136.1	1016.3	21211.7	1018.4	21228.5	1018.3	21261.8	1036.3	21280.4	1034.9
21284	1038.08	21290.7	1044	21292.3	1046	21334.2	1043	21405.2	1043.3
21443.5	1044.5	21454	1047.4	21465.5	1044.1	22456.6	1042.9	22498.8	1045.3
22515	1046.9	22564.7	1048.3	22637.2	1048.5	22652	1048.3		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
18491.3	.037	19176.5	.032	20150.4	.037	21292.3	.037	21454	.025

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19377 21284 520 522.28 505 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
18491.3	19377	1048	F
21292.3	22652	1048	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1036.70	Element	Left OB	Right OB
Vel Head (ft)	0.40	Wt. n-Val.	0.035	
W.S. Elev (ft)	1036.30	Reach Len. (ft)	520.00	505.00
Crit W.S. (ft)	1025.05	Flow Area (sq ft)	2323.77	32809.68
E.G. Slope (ft/ft)	0.000315	Area (sq ft)		32809.68
Q Total (cfs)	166000.00	Flow (cfs)		166000.00
Top Width (ft)	2068.39	Top Width (ft)	163.45	1904.94
Vel Total (ft/s)	5.06	Avg. Vel. (ft/s)		5.06
Max Chl Dpth (ft)	20.00	Hydr. Depth (ft)		17.22
Conv. Total (cfs)	9356502.0	Conv. (cfs)		9356502.0
Length Wtd. (ft)	522.28	Wetted Per. (ft)		1912.59
Min Ch El (ft)	1016.30	Shear (lb/sq ft)		0.34
Alpha	1.00	Stream Power (lb/ft s)		1.71
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	7384.03	29404.68
C & E Loss (ft)	0.02	Cum SA (acres)	2106.06	2901.19

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1036.94	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.39	Wt. n-Val.		0.035	
W.S. Elev (ft)	1036.55	Reach Len. (ft)	520.00	522.28	505.00
Crit W.S. (ft)	1025.05	Flow Area (sq ft)		33290.61	
E.G. Slope (ft/ft)	0.000304	Area (sq ft)		33290.61	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	1905.27	Top Width (ft)		1905.27	
Vel Total (ft/s)	4.99	Avg. Vel. (ft/s)		4.99	
Max Chl Dpth (ft)	20.25	Hydr. Depth (ft)		17.47	
Conv. Total (cfs)	9515830.0	Conv. (cfs)		9515830.0	
Length Wtd. (ft)	522.28	Wetted Per. (ft)		1931.23	
Min Ch El (ft)	1016.30	Shear (lb/sq ft)		0.33	
Alpha	1.00	Stream Power (lb/ft s)		1.63	
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	1422.13	30347.70	293.87
C & E Loss (ft)	0.02	Cum SA (acres)	221.84	2906.60	53.36

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 210.36

INPUT
Description: 210.36

Left and Right Channel Bank Stations Interpolated
Station Elevation Data num= 99

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
19224.5	1050.4	19284.3	1050.7	19305	1051	19357.1	1049.61	9375.161	037.787
19404.8	1018.4	19463.3	1018.3	19612.3	1018.1	19621.3	1018.1	19634.8	1021.9
19667.3	1022.1	19733.3	1021.4	19790.5	1022.1	19802.9	1021.9	19818.6	1026.5
19827	1026.5	19834.6	1028.4	19890.9	1029	19964.7	1027.7	19973.5	1027.6

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                                                                    DuplicateEffective
 19985.2    1023 19997.6  1019.2 20010.7  1019.2 20032.2  1022.5 20039.2  1024.8
 20087.1    1023 20111.8  1024.6 20144.4  1023.1 20153.9  1025.4 20168.7  1024.3
 20191.7  1024.2 20273.6  1021.2 20346.9  1017.4 20363.5  1017.6 20425.8  1018.5
 20437.5  1019.6 20442.7  1017.4 20510.8  1017.5 20526.1    1018 20581.3  1024.2
 20636.5  1025.3 20692.9  1026.1 20742.9  1025.6 20769.6  1031.4 20776.7  1032.1
 20797.4  1031.2 20811.3  1023.1 20868.1  1020.3 20886.8  1019.8 21012.2  1019.3
 21017.9  1019.4   21027  1020.7 21039.6  1017.6 21095.8  1017.7 21149.8    1018
 21208.9  1018.7   21245  1019.621291.171037.78621291.23 1037.81 21303.9  1042.8
   21368  1043.7 21407.5  1045.3 21418.5  1048.3 21429.5  1045.3 21450.9  1041.3
 21516.4  1042.2 21531.8  1042.1 21606.4  1042.3 21664.8  1042.2 21728.4  1042.1
 21735.8  1042.3 21795.8  1042.1   21853  1041.4 21904.7  1040.9 21945.9  1041.5
 22007.4  1043.5 22067.8  1044.3 22085.5  1044.9 22124.1  1042.5 22213.9  1042.6
   22278  1043.1 22282.5    1043 22318.4  1050.8 22330.1  1051.8   22376  1061.9
 22399.2  1062.6 22410.6  1059.4 22438.3  1043.7   22476  1043.3 22498.2  1043.9
 22517.5  1047.5 22554.5  1047.8 22615.4  1044.3 22685.5  1043.5 22715.7  1043.9
 22733.2  1052.6 22752.7  1056.6 22761.2  1057.6 22797.5    1059

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************************
 19224.5    .032 19357.1    .037 20776.7    .025 21303.9    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      19375.1621291.17             480  487.62     480            .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
 21303.9 22797.5    1058        F

CROSS SECTION OUTPUT  Profile #PF#1
*****************************************************************************************
* E.G. Elev (ft)         * 1036.46  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.60  * Wt. n-Val.           *          *    0.032  *          *
* W.S. Elev (ft)         * 1035.87  * Reach Len. (ft)      *  480.00  *  487.62  *  480.00  *
* Crit W.S. (ft)         * 1027.55  * Flow Area (sq ft)    *          *26745.71  *          *
* E.G. Slope (ft/ft)     *0.000542  * Area (sq ft)         *          *26745.71  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)          *          *166000.00  *          *
* Top Width (ft)         * 1908.19  * Top Width (ft)      *          * 1908.19  *          *
* Vel Total (ft/s)       *    6.21  * Avg. Vel. (ft/s)    *          *    6.21  *          *
* Max Chl Dpth (ft)      *   18.46  * Hydr. Depth (ft)    *          *   14.02  *          *
* Conv. Total (cfs)      *7131869.0  * Conv. (cfs)        *          *7131869.0  *          *
* Length Wtd. (ft)       *  487.62  * Wetted Per. (ft)    *          * 1924.89  *          *
* Min Ch El (ft)         * 1017.40  * Shear (lb/sq ft)    *          *    0.47  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *       *    2.92  *          *
* Frctn Loss (ft)        *    0.24  * Cum Volume (acre-ft)  * 7370.16  *29047.65  * 2508.12  *
* C & E Loss (ft)        *    0.03  * Cum SA (acres)        * 2105.09  * 2878.33  *  934.73  *
*****************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*****************************************************************************************
* E.G. Elev (ft)         * 1036.72  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.58  * Wt. n-Val.           *          *    0.032  *          *
* W.S. Elev (ft)         * 1036.14  * Reach Len. (ft)      *  480.00  *  487.62  *  480.00  *
* Crit W.S. (ft)         * 1027.55  * Flow Area (sq ft)    *          *27269.74  *          *
* E.G. Slope (ft/ft)     *0.000509  * Area (sq ft)         *          *27269.74  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)          *          *166000.00  *          *
* Top Width (ft)         * 1909.31  * Top Width (ft)      *          * 1909.31  *          *
* Vel Total (ft/s)       *    6.09  * Avg. Vel. (ft/s)    *          *    6.09  *          *
* Max Chl Dpth (ft)      *   18.74  * Hydr. Depth (ft)    *          *   14.28  *          *
* Conv. Total (cfs)      *7359590.0  * Conv. (cfs)        *          *7359590.0  *          *
* Length Wtd. (ft)       *  487.62  * Wetted Per. (ft)    *          * 1926.14  *          *
* Min Ch El (ft)         * 1017.40  * Shear (lb/sq ft)    *          *    0.45  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *       *    2.74  *          *
* Frctn Loss (ft)        *    0.23  * Cum Volume (acre-ft)  * 1422.13  *29984.65  *  293.87  *
* C & E Loss (ft)        *    0.03  * Cum SA (acres)        *  221.84  * 2883.73  *   53.36  *
*****************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 210.26

INPUT
Description: 210.26

Left and Right Channel Bank Stations Interpolated
Station Elevation Data    num=      75
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
*************************************************************************************
   18518  1039.8 18554.5  1039.8 18657.8    1042 18741.9  1041.6   18818  1041.2
 18898.6  1041.1 18982.3  1040.1 19077.8  1039.4   19162  1039.9 19268.1  1040.3
 19363.8  1039.3 19372.2  1040.419377.071037.672 19408.8  1019.9 19682.2  1018.6
 19755.3  1018.2 19759.5    1026   19769  1023.5 19813.4  1021.7   19816  1022.7
 19816.8    1022 19849.2  1020.9 19871.6  1022.5 19881.3  1022.3 19909.8  1024.5
 19932.2  1024.7 19991.1  1027.6 20032.1  1025.3 20063.9  1021.9 20070.8    1022
 20075.8    1024 20075.9  1020.9 20082.4    1025 20120.1  1032.8 20142.9  1027.4
 20152.1  1027.4   20162  1021.5 20166.1    1020 20257.3  1025.2 20290.7  1026.3
 20327.7  1020.7   20449  1018.6 20490.7  1017.8 20521.6  1018.3 20541.8  1020.7
 20564.4  1016.9 20641.9  1017.2 20694.8  1022.3 20718.8  1018.4 20789.5  1018.3
 20862.3  1019.1   20960  1018.2 20989.1  1018.9 21058.3  1018.1   21141    1018
 21241.8  1017.5 21265.8  1018.4 21280.3  1023.521331.821037.672 21342.1  1040.5
 21367.6  1040.4 21378.7    1044 21393.2    1047 21408.2  1043.8 21433.3  1036.1
 21453.3  1036.5 21462.7  1039.8 21481.6    1041 22697.5    1041 22726.9  1046.8
 22740.7  1043.8 22748.5    1041 22815.8    1041 22841.3    1048   22891  1057.7

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************************************************
   18518    .037 19372.2    .032 20694.8    .037 21342.1    .037 21393.2    .025
```

```
                                                                  DuplicateEffective
Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      19377.0721331.82               505  512.65     520            .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
   18518   19162    1050       F
 21393.2   22891    1050       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         * 1036.19  * Element                * Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.51  * Wt. n-Val.            *          *   0.034  *          *
* W.S. Elev (ft)         * 1035.68  * Reach Len. (ft)       *  505.00  *  512.65  *  520.00  *
* Crit W.S. (ft)         * 1026.47  * Flow Area (sq ft)     *          *29013.43  *          *
* E.G. Slope (ft/ft)     *0.000463  * Area (sq ft)          *          *29013.43  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *          *166000.00  *          *
* Top Width (ft)         * 1943.97  * Top Width (ft)       *          * 1943.97  *          *
* Vel Total (ft/s)       *    5.72  * Avg. Vel. (ft/s)     *          *    5.72  *          *
* Max Chl Dpth (ft)      *   18.78  * Hydr. Depth (ft)     *          *   14.92  *          *
* Conv. Total (cfs)      *7711693.0  * Conv. (cfs)          *          *7711693.0  *          *
* Length Wtd. (ft)       *  512.65  * Wetted Per. (ft)     *          * 1966.13  *          *
* Min Ch El (ft)         * 1016.90  * Shear (lb/sq ft)     *          *    0.43  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    2.44  *          *
* Frctn Loss (ft)        *    0.27  * Cum Volume (acre-ft)  * 7370.16  *28735.56  * 2508.12  *
* C & E Loss (ft)        *    0.01  * Cum SA (acres)        * 2105.09  * 2856.77  *  934.73  *
*********************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)         * 1036.46  * Element                * Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.49  * Wt. n-Val.            *          *   0.034  *          *
* W.S. Elev (ft)         * 1035.97  * Reach Len. (ft)       *  505.00  *  512.65  *  520.00  *
* Crit W.S. (ft)         * 1026.47  * Flow Area (sq ft)     *          *29570.83  *          *
* E.G. Slope (ft/ft)     *0.000435  * Area (sq ft)          *          *29570.83  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *          *166000.00  *          *
* Top Width (ft)         * 1945.53  * Top Width (ft)       *          * 1945.53  *          *
* Vel Total (ft/s)       *    5.61  * Avg. Vel. (ft/s)     *          *    5.61  *          *
* Max Chl Dpth (ft)      *   19.07  * Hydr. Depth (ft)     *          *   15.20  *          *
* Conv. Total (cfs)      *7955870.0  * Conv. (cfs)          *          *7955870.0  *          *
* Length Wtd. (ft)       *  512.65  * Wetted Per. (ft)     *          * 1967.80  *          *
* Min Ch El (ft)         * 1016.90  * Shear (lb/sq ft)     *          *    0.41  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    2.29  *          *
* Frctn Loss (ft)        *    0.25  * Cum Volume (acre-ft)  * 1422.13  *29666.50  *  293.87  *
* C & E Loss (ft)        *    0.01  * Cum SA (acres)        *  221.84  * 2862.15  *   53.36  *
*********************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 210.17

INPUT
Description: 210.17 - FEMA Section X


Right Channel Bank Station
            Interpolated
Station Elevation Data    num=      81
   Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
*********************************************************************************
 18525.7     1038 18530.7     1038 18532.2  1038.8 18540.9     1039 18542.7  1038.3
 18559.1  1038.3 18583.6  1039.8 18667.3     1040 18672.2     1040 18771.1  1039.9
 18843.2  1039.2 18918.6  1039.2 18975.6  1038.6 19067.9  1036.2 19141.4  1035.5
 19159.7  1029.9 19162.1  1028.2 19206.3  1023.5 19232.4  1025.6 19237.8  1026.9
 19267.8  1029.3 19288.9  1028.6 19327.1     1031 19354.6  1031.5 19359.6  1019.6
 19498.4  1019.3 19752.3  1018.6 19761.8  1021.9 19768.4  1019.7 19807.9  1021.1
 19826.4  1023.3 19861.6  1026.2 19939.7  1026.1 20019.7  1026.2 20040.5     1026
   20047  1026.8   20077  1025.5 20173.1  1021.8 20204.7  1022.1 20221.8  1027.9
 20260.5  1027.9 20289.3  1020.1 20308.5  1019.1   20310    1020 20324.5  1021.7
 20336.8  1017.9 20348.1  1016.4 20392.6  1014.7 20407.8  1014.9 20421.1  1019.4
 20505.4  1021.6 20584.7     1020 20677.5  1020.6   20713  1019.7 20811.2  1021.5
 20931.9  1023.3 20991.7     1025 21079.4  1022.7 21093.5  1022.3 21106.3  1024.9
 21181.2  1023.5   21223     1023   21231  1018.7 21249.3  1020.1 21260.4  1023.1
 21302.8  1025.121334.72 1037.43 21339.3  1039.2 21359.2  1038.4 21371.3     1044
 21385.9  1046.9 21435.8  1035.7 21473.1     1040 22703.8  1040.5 22737.6  1046.8
 22750.2  1044.1 22757.2  1040.5 22826.4  1040.5   22854  1049.8 22873.2  1052.2
 22897.3     1057

Manning's n Values        num=       4
   Sta    n Val     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************************
 18525.7    .037 19354.6    .032 20991.7    .037 21339.3    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      19354.621334.72               505  497.78     495            .1       .3
Ineffective Flow     num=       2
   Sta L    Sta R    Elev  Permanent
 18525.7 19354.6    1050       F
 21385.9 22897.3    1050       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         * 1035.91  * Element                * Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.62  * Wt. n-Val.            *          *   0.033  *          *
* W.S. Elev (ft)         * 1035.29  * Reach Len. (ft)       *  505.00  *  497.78  *  495.00  *
* Crit W.S. (ft)         * 1027.95  * Flow Area (sq ft)     *          *26319.87  *          *
* E.G. Slope (ft/ft)     *0.000609  * Area (sq ft)          * 1479.59  *26319.87  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *          *166000.00  *          *
* Top Width (ft)         * 2187.11  * Top Width (ft)       *  212.52  * 1974.59  *          *
* Vel Total (ft/s)       *    6.31  * Avg. Vel. (ft/s)     *          *    6.31  *          *
```

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                                                                    DuplicateEffective
* Max Chl Dpth (ft)      *   20.59  * Hydr. Depth (ft)          *          *   13.33  *          *
* Conv. Total (cfs)      *6728709.0  * Conv. (cfs)              *          *6728709.0  *          *
* Length Wtd. (ft)       *  497.68  * Wetted Per. (ft)         *          * 1991.56  *          *
* Min Ch El (ft)         * 1014.70  * Shear (lb/sq ft)         *          *    0.50  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s)   *          *    3.17  *          *
* Frctn Loss (ft)        *    0.29  * Cum Volume (acre-ft)     * 7361.58  *28409.96  * 2508.12  *
* C & E Loss (ft)        *    0.03  * Cum SA (acres)           * 2103.86  * 2833.71  *  934.73  *
*****************************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*****************************************************************************************************
* E.G. Elev (ft)         * 1036.20  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.59  * Wt. n-Val.             *          *   0.033  *          *
* W.S. Elev (ft)         * 1035.61  * Reach Len. (ft)        *  505.00  *  497.78  *  495.00  *
* Crit W.S. (ft)         * 1027.95  * Flow Area (sq ft)      *          *26940.91  *          *
* E.G. Slope (ft/ft)     *0.000565  * Area (sq ft)           *          *26940.91  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)            *          *166000.00  *          *
* Top Width (ft)         * 1975.40  * Top Width (ft)         *          * 1975.40  *          *
* Vel Total (ft/s)       *    6.16  * Avg. Vel. (ft/s)       *          *    6.16  *          *
* Max Chl Dpth (ft)      *   20.91  * Hydr. Depth (ft)       *          *   13.64  *          *
* Conv. Total (cfs)      *6982102.0  * Conv. (cfs)           *          *6982102.0  *          *
* Length Wtd. (ft)       *  497.70  * Wetted Per. (ft)       *          * 1996.54  *          *
* Min Ch El (ft)         * 1014.70  * Shear (lb/sq ft)       *          *    0.48  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    2.93  *          *
* Frctn Loss (ft)        *    0.27  * Cum Volume (acre-ft)   * 1422.13  *29333.96  *  293.87  *
* C & E Loss (ft)        *    0.03  * Cum SA (acres)         *  221.84  * 2839.08  *   53.36  *
*****************************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 210.07

INPUT
Description: 210.07

Left Channel Bank Station Interpolated
Station Elevation Data    num=      71
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
 18501.7  1037.5 18541.3  1037.3 18564.5  1038.8 18619.1  1038.6 18704.2  1038.7
 18760.6  1038.9 18769.9  1038.8 18829.1  1038.5   18842  1038.3 18894.1  1038.1
 18959.6  1037.3 18970.3    1037 18978.8  1029.1 18997.2  1018.5 19080.1  1018.5
   19143  1018.7 19188.2  1018.7   192101018.946 19241.4  1019.3 19299.9  1019.1
 19351.1  1019.1 20002.2  1019.3 20010.8  1019.3 20015.9  1021.6 20017.6  1021.9
 20043.4  1020.3 20109.3  1021.6 20149.1  1018.8 20241.7  1019.6 20301.9  1019.6
 20319.7  1020.4 20385.2  1020.2   20395  1020.3 20523.6    1020   20576  1020.4
 20689.9  1019.9 20746.4  1020.1 20785.8    1020 20842.9  1018.9 20851.6  1018.9
 20907.6  1018.8 20909.5  1018.7 20945.5  1031.5 20951.8  1031.4 21011.2  1029.6
 21065.6  1030.2 21073.1  1030.3 21098.1  1026.3 21164.8  1026.1 21186.9  1026.4
 21207.2  1024.8 21212.4  1026.6 21220.7  1028.3 21237.2  1024.7 21246.8  1023.1
 21286.7  1032.7 21315.8  1034.4 21346.3  1039.3 21383.5  1047.6 21397.9  1044.6
 21428.3  1035.2 21444.5  1036.3 21455.5  1040.2   21470  1040.9 22716.5  1040.5
 22744.1  1046.7 22757.9  1043.7 22766.1  1040.5 22836.3  1040.5 22861.9  1049.1
 22885.1  1052.1

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************************************
 18501.7    .032 18959.6    .037 19241.4    .037 20945.5    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        19210 20945.5              495  490.15     505            .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 18501.7   19210    1048       F
 21383.5 22885.1    1048       F

CROSS SECTION OUTPUT  Profile #PF#1
*****************************************************************************************************
* E.G. Elev (ft)         * 1035.59  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.51  * Wt. n-Val.             *          *   0.037  *   0.025  *
* W.S. Elev (ft)         * 1035.08  * Reach Len. (ft)        *  495.00  *  490.15  *  505.00  *
* Crit W.S. (ft)         * 1026.32  * Flow Area (sq ft)      *          *26671.91  * 2457.08  *
* E.G. Slope (ft/ft)     *0.000543  * Area (sq ft)           * 3733.47  *26671.91  * 2457.08  *
* Q Total (cfs)          *166000.00  * Flow (cfs)            *          *154129.50  *11870.45  *
* Top Width (ft)         * 2347.69  * Top Width (ft)         *  237.64  * 1735.50  *  374.55  *
* Vel Total (ft/s)       *    5.70  * Avg. Vel. (ft/s)       *          *    5.78  *    4.83  *
* Max Chl Dpth (ft)      *   16.58  * Hydr. Depth (ft)       *          *   15.37  *    6.56  *
* Conv. Total (cfs)      *7123192.0  * Conv. (cfs)           *          *6613821.0  *509370.5  *
* Length Wtd. (ft)       *  491.01  * Wetted Per. (ft)       *          * 1738.43  *  377.21  *
* Min Ch El (ft)         * 1018.70  * Shear (lb/sq ft)       *          *    0.52  *    0.22  *
* Alpha                  *    1.01  * Stream Power (lb/ft s) *          *    3.01  *    1.07  *
* Frctn Loss (ft)        *    0.13  * Cum Volume (acre-ft)   * 7331.37  *28107.18  * 2494.16  *
* C & E Loss (ft)        *    0.07  * Cum SA (acres)         * 2101.25  * 2812.51  *  932.60  *
*****************************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*****************************************************************************************************
* E.G. Elev (ft)         * 1035.90  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.50  * Wt. n-Val.             *          *   0.037  *   0.025  *
* W.S. Elev (ft)         * 1035.40  * Reach Len. (ft)        *  495.00  *  490.15  *  505.00  *
* Crit W.S. (ft)         * 1026.28  * Flow Area (sq ft)      *          *27213.61  * 1993.82  *
* E.G. Slope (ft/ft)     *0.000526  * Area (sq ft)           *          *27213.61  * 1993.82  *
```

				DuplicateEffective	
* Q Total (cfs)	*166000.00	* Flow (cfs)	*	*156138.00	* 9861.98 *
* Top Width (ft)	* 2015.00	* Top Width (ft)	*	* 1735.50	* 279.50 *
* Vel Total (ft/s)	* 5.68	* Avg. Vel. (ft/s)	*	* 5.74	* 4.95 *
* Max Chl Dpth (ft)	* 16.70	* Hydr. Depth (ft)	*	* 15.68	* 7.13 *
* Conv. Total (cfs)	*7236885.0	* Conv. (cfs)	*	*6806945.0	*429939.8 *
* Length Wtd. (ft)	* 490.59	* Wetted Per. (ft)	*	* 1754.88	* 288.53 *
* Min Ch El (ft)	* 1018.70	* Shear (lb/sq ft)	*	* 0.51	* 0.23 *
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 2.92	* 1.12 *
* Frctn Loss (ft)	* 0.14	* Cum Volume (acre-ft)	* 1422.13	*29024.54	* 282.54 *
* C & E Loss (ft)	* 0.06	* Cum SA (acres)	* 221.84	* 2817.88	* 51.77 *

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 209.98

INPUT
Description: Cross Section updated per TranSystems Corporation Mapping (2004)
Station Elevation Data num= 320

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1040.68	.38	1040.75	.84	1040.78	2.14	1040.82	5.35	1040.83
12.48	1040.75	41.57	1040.56	56.66	1040.53	72.61	1040.46	78.01	1040.43
85.2	1038.49	91.98	1036.7	93.03	1036.76	93.93	1036.88	94.99	1036.59
96.37	1036.67	105.06	1037.78	119.1	1037.9	128.69	1038.1	148.19	1037.5
152.57	1037.41	152.65	1037.39	152.81	1037.41	152.92	1037.36	155.27	1037.32
160.63	1036.86	163.78	1036.96	169.85	1036.66	186.07	1036.26	195.52	1036.29
203.29	1036.3	206	1036.29	221.12	1036.16	230.53	1036.15	238.55	1036.15
253.38	1036.22	257.36	1036.22	259.97	1036.21	279.16	1036.08	285.88	1036.12
310.32	1036.18	317.45	1036.24	369.81	1036.48	394.15	1036.66	411.11	1036.63
458.57	1036.34	469.5	1036.4	480.02	1036.32	494.89	1036.32	526.57	1036.02
544.05	1035.98	564.19	1035.7	575.82	1035.61	577.99	1035.57	585.19	1035.03
589.24	1035.14	594.2	1034.5	596.93	1034.6	600.77	1034.53	603.96	1034.45
611.68	1034.3	614.4	1034.17	617.06	1034.09	624.58	1031.91	625.92	1032.1
634.82	1031.43	648.68	1031.58	657.13	1030.41	659.47	1030.66	668.45	1029.35
669.98	1029.35	682.13	1028.08	682.46	1028.04	702.38	1027.13	702.42	1027.13
702.49	1027.13	707.72	1026.99	711.74	1026.95	711.94	1026.96	713.69	1027.02
731.99	1028.3	732.69	1028.41	733.37	1028.44	774.02	1033.73	777.62	1033.66
780	1033.61	789.67	1033.67	791.84	1033.53	808.28	1033.79	809.37	1033.66
810.27	1033.59	822.28	1033.54	824.97	1033.61	825.2	1033.61	825.49	1033.6
853.53	1033.11	854.2	1033.08	855.52	1033.03	867.7	1031.87	870.42	1031.79
870.82	1031.8	880.21	1032.89	883.22	1033.15	887.54	1033.56	896.78	1034.72
901.48	1034.88	906.63	1035.16	911.16	1035.19	915.07	1035.33	921.24	1035.38
924.43	1034.93	926.6	1034.25	929.7	1033.93	933.37	1031.93	941.68	1027.16
941.76	1027.12	941.84	1027.07	949.7	1024.31	961.81	1015.83	964.44	1014.31
967.57	1012.36	970.2	1012.28	979.19	1011.42	984.15	1007.97	988.71	1007.04
990.39	1006.57	999.38	1004.75	1008.06	1003.39	1011.6	1003.26	1021.41	1000.56
1029.78	998.62	1051.95	1000.17	1077.28	1001.95	1080.2	1002.04	1096.92	1002.62
1115.88	1003.28	1119.83	1003.43	1124.53	1003.6	1153.64	1004.18	1192.48	1005.2
1192.91	1005.22	1193.19	1005.22	1261.21	1006.01	1275.78	1006.34	1303.29	1007.1
1310.67	1006.97	1319.44	1007.08	1344.58	1007.43	1357.83	1008.1	1402.63	1010.05
1431.52	1010.28	1456.81	1010.52	1491.8	1010.56	1519.79	1010.94	1529.47	1009.49
1546.19	1006.66	1550.36	1006.69	1575.27	1006.77	1581.89	1006.72	1595.33	1011.48
1599.29	1013.02	1612.63	1018.47	1616.83	1020.21	1618.08	1020.62	1622.32	1021.13
1644.29	1023.92	1647.87	1023.67	1651.52	1024.28	1666.75	1023.89	1673.99	1023.79
1678.15	1022.47	1680.88	1021.73	1685.19	1022.01	1688.14	1021.98	1692.2	1022.38
1696.02	1022.65	1708.55	1022.4	1712.17	1022.3	1717.45	1020.59	1730.14	1016.53
1738.27	1016.22	1740.86	1016.19	1752.01	1016.5	1753.49	1016.55	1754.11	1016.58
1756.38	1016.68	1763.68	1016.97	1767.79	1015.96	1771.79	1015.12	1775.18	1014.24
1798.11	1011.74	1817.62	1009.86	1821.77	1010.76	1825.81	1011.51	1838.63	1013.58
1840.74	1013.5	1851.04	1012.65	1861.87	1012.68	1879.11	1014.37	1896.39	1015.86
1921.14	1016.66	1924.63	1016.75	1926.92	1016.82	1953.1	1017.59	1968.8	1018.17
1988.54	1019.39	1992.88	1019.61	2012.55	1020.44	2025.38	1020.93	2038.37	1021.42
2060.87	1022.24	2065.95	1022.39	2071.2	1022.42	2088.02	1022.3	2099.31	1022.88
2153.33	1025.7	2161.47	1029.13	2171.27	1033.12	2187.61	1033.1	2197.34	1033.19
2218.32	1032.91	2223.38	1032.87	2224.65	1032.86	2226.15	1032.9	2250.63	1033.23
2254.33	1033.35	2265.02	1033.51	2268.42	1031.92	2288.31	1023.13	2297.24	1019.02
2315	1019.35	2329.62	1019.32	2340.88	1017.65	2346.47	1016.92	2354.08	1017.04
2365.42	1017.06	2390.03	1017.16	2401.67	1017.48	2419.35	1017.97	2436.2	1018.38
2451.67	1018.92	2470.07	1019.13	2473.56	1019.05	2493.37	1019.52	2507.36	1019.79
2512.65	1019.66	2521.19	1019.47	2541.11	1018.83	2548.66	1018.86	2550.53	1018.75
2556.75	1018.5	2567.94	1017.12	2574.88	1016.29	2587.42	1017.56	2598.27	1018.25
2605.01	1017.83	2609.79	1017.66	2615.31	1017.46	2622.7	1017.16	2628.29	1016.93
2642.03	1016.9	2654.28	1016.81	2658.24	1016.67	2678.17	1017.25	2681.85	1017.45
2685.04	1017.43	2698.14	1017.14	2699.78	1017.21	2700.95	1017.32	2706.51	1017.71
2716.76	1018.22	2720.89	1018.14	2722.94	1018.11	2731.59	1017.96	2736.67	1017.74
2758.4	1016.49	2765.16	1017.51	2770.56	1018.41	2787.81	1018.9	2792.67	1018.9
2806.29	1019.08	2825.22	1019.43	2850.71	1019.8	2861.26	1019.96	2865.72	1019.48
2880.65	1018	2883.89	1018.04	2894.48	1018.07	2902.57	1018.62	2919.19	1019.34
2927.68	1023.07	2936.19	1026.93	2946.26	1033.82	2958.02	1041.95	2964.72	1042.75
2967.49	1043.1	2974.5	1043	2999.58	1042.84	3005.84	1041.62	3006.42	1041.56
3015.44	1038.33	3022.09	1035.89	3037.07	1035.79	3041.29	1035.77	3042.8	1036.31
3053.61	1040.4	3061.36	1039.39	3075.1	1037.64	3102.07	1035.66	3115.31	1034.45
3145.53	1034.97	3185.42	1035.25	3223.02	1035.17	3228.61	1035.14	3230.73	1035.1
3249.46	1034.86	3267.52	1034.62	3280.82	1034.43	3291.4	1034.47	3324.3	1034.75

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.037	949.7	.032	2792.67	.037

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
949.7 2792.67 549.53 500.89 495.04 .1 .3
Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
2971	3324.3	1050	F

CROSS SECTION OUTPUT Profile #PF#1

			DuplicateEffective		
* E.G. Elev (ft)	* 1035.39	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 0.28	* Wt. n-Val.	* 0.037	* 0.032	* 0.037 *
* W.S. Elev (ft)	* 1035.11	* Reach Len. (ft)	* 549.53	* 500.89	* 495.04 *
* Crit W.S. (ft)	* 1019.92	* Flow Area (sq ft)	* 1204.31	*36464.38	* 2280.59 *
* E.G. Slope (ft/ft)	*0.000164	* Area (sq ft)	* 1204.31	*36464.38	* 2336.35 *
* Q Total (cfs)	*166000.00	* Flow (cfs)	* 1428.91	*157667.70	* 6903.40 *
* Top Width (ft)	* 2495.85	* Top Width (ft)	* 346.55	* 1842.97	* 306.33 *
* Vel Total (ft/s)	* 4.16	* Avg. Vel. (ft/s)	* 1.19	* 4.32	* 3.03 *
* Max Chl Dpth (ft)	* 36.49	* Hydr. Depth (ft)	* 3.48	* 19.79	* 14.67 *
* Conv. Total (cfs)	*12960820.0	* Conv. (cfs)	*111565.5	*12310260.0	*538998.4 *
* Length Wtd. (ft)	* 500.82	* Wetted Per. (ft)	* 350.29	* 1860.11	* 159.74 *
* Min Ch El (ft)	* 998.62	* Shear (lb/sq ft)	* 0.04	* 0.20	* 0.15 *
* Alpha	* 1.05	* Stream Power (lb/ft s)	* 0.04	* 0.87	* 0.44 *
* Frctn Loss (ft)	* 0.09	* Cum Volume (acre-ft)	* 7303.31	*27751.96	* 2466.37 *
* C & E Loss (ft)	* 0.01	* Cum SA (acres)	* 2097.93	* 2792.38	* 928.65 *

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 1035.70	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 0.31	* Wt. n-Val.	*	* 0.032	* *
* W.S. Elev (ft)	* 1035.39	* Reach Len. (ft)	* 549.53	* 500.89	* 495.04 *
* Crit W.S. (ft)	* 1019.88	* Flow Area (sq ft)	*	*36985.45	* *
* E.G. Slope (ft/ft)	*0.000177	* Area (sq ft)	*	*36985.45	* *
* Q Total (cfs)	*166000.00	* Flow (cfs)	*	*166000.00	* *
* Top Width (ft)	* 1842.97	* Top Width (ft)	*	* 1842.97	* *
* Vel Total (ft/s)	* 4.49	* Avg. Vel. (ft/s)	*	* 4.49	* *
* Max Chl Dpth (ft)	* 36.77	* Hydr. Depth (ft)	*	* 20.07	* *
* Conv. Total (cfs)	*12481800.0	* Conv. (cfs)	*	*12481800.0	* *
* Length Wtd. (ft)	* 500.89	* Wetted Per. (ft)	*	* 1887.68	* *
* Min Ch El (ft)	* 998.62	* Shear (lb/sq ft)	*	* 0.22	* *
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 0.97	* *
* Frctn Loss (ft)	* 0.10	* Cum Volume (acre-ft)	* 1422.13	*28663.35	* 270.98 *
* C & E Loss (ft)	* 0.01	* Cum SA (acres)	* 221.84	* 2797.74	* 50.15 *

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 209.88

INPUT
Description: Cross Section updated per TranSystems Corporation Mapping (2004)
Station Elevation Data num= 328

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1040.27	.23	1040.47	6.09	1040.47	50.78	1040.47	64.08	1040.46
84.17	1040.41	95.3	1040.49	102.77	1040.43	106.47	1040.56	112.77	1040.72
115.53	1040.76	126.23	1041.08	139.95	1041.34	148.97	1041	163.51	1040.33
164.03	1040.35	165.09	1040.37	165.21	1040.34	166.12	1040.3	170.48	1040.41
170.64	1040.4	172.63	1040.28	177.01	1039.94	183.04	1039.97	187.91	1039.77
192.11	1039.45	200.35	1039.04	207.06	1038.94	210.68	1038.87	217.45	1038.67
230.27	1038.35	230.76	1038.33	249.06	1038.45	249.79	1038.39	260.4	1038.43
267.83	1038.67	271.23	1038.65	285.22	1038.52	291.58	1038.37	295.83	1038.54
298.24	1038.58	302.54	1038.76	308.07	1038.86	344.8	1038.65	355.04	1038.9
370.59	1039.02	380.45	1038.95	389.75	1038.98	412.15	1039.05	420.37	1039.1
431.17	1038.87	439.74	1038.75	458.08	1038.59	466.19	1038.61	473.95	1038.49
499.92	1038.47	509.49	1038.53	528.58	1038.44	533.87	1038.35	558.82	1038.01
560.08	1038	561.18	1037.98	577.13	1037.83	582.03	1037.8	588.32	1037.76
613.77	1037.62	627.53	1037.57	641.37	1037.7	663.46	1038.01	679.13	1037.69
698.06	1037.75	706.33	1037.87	707.44	1037.89	735.43	1038.54	739.44	1038.57
743.49	1038.65	773.37	1039.11	780.03	1039.25	803.62	1039.57	810.48	1039.67
817.87	1039.77	861.88	1040.45	868.29	1040.45	891.82	1040.29	896.57	1040.19
901.78	1040.19	923.11	1039.56	926.63	1039.38	954.47	1039.19	955.93	1039.17
966.66	1039.1	983.3	1038.79	984.71	1038.79	1007.78	1038.4	1017.74	1038.57
1034.27	1038.85	1038.22	1038.98	1044.03	1039.05	1052.17	1039.12	1057.18	1039.16
1086.68	1038.02	1102.65	1037.38	1130.44	1036.77	1135.15	1036.64	1141.34	1033.58
1154.03	1027.18	1186.32	1012.16	1194.16	1008.84	1198.27	1007.84	1207.92	1004.51
1213.27	1002.94	1223.45	999.77	1228.47	999.3	1241.19	997.82	1261.44	997.47
1268.43	997.42	1278.49	997.6	1286.21	997.79	1300.36	997.85	1311.87	998.45
1321.56	998.73	1341.54	999.09	1347.16	999.11	1359.73	999.89	1382.35	1001.25
1394.28	1001.34	1396.53	1001.39	1424.15	1003.33	1433.39	1003.75	1460.09	1004.69
1475.46	1005.17	1492.46	1005.6	1514.52	1005.86	1531.09	1006.11	1539.19	1006.24
1571.55	1006.29	1573.63	1006.26	1590.77	1005.64	1596.16	1005.44	1596.47	1005.44
1597.02	1005.44	1617.72	1005.45	1640.44	1009.86	1662.37	1013.6	1666.91	1014.51
1667.68	1014.62	1689.26	1012.44	1705.47	1011.58	1710.14	1011.16	1723.61	1011.22
1744.57	1011.69	1757.2	1007.9	1762.18	1006.79	1776.85	1010.71	1778.13	1011.08
1793.46	1011.19	1796.54	1011.18	1799.59	1011.87	1808.2	1013.73	1811.17	1013.81
1834.52	1014.36	1839.27	1014.48	1840.03	1014.5	1840.47	1014.5	1847.83	1014.19
1878.39	1014.19	1896.2	1014.19	1924.18	1014.43	1941.79	1014.16	1956.09	1014.06
1972.8	1014.17	1981.63	1014.37	1998.78	1014.53	2018.57	1015.47	2022.77	1015.84
2031.1	1016.65	2035.12	1016.91	2057.71	1024.56	2086.32	1033.89	2109.21	1033.98
2121.49	1034.04	2129.06	1033.9	2142	1033.53	2175.03	1032.67	2175.67	1032.65
2176.8	1032.64	2194.58	1032.56	2201.12	1032.4	2230.85	1032.07	2253.57	1032.47
2261.97	1032.74	2269.59	1032.94	2270.79	1033.03	2271.35	1032.88	2272.17	1032.71
2275.6	1032.14	2296.06	1032.26	2309.39	1032.15	2310.73	1032.09	2313.76	1032.25
2318.97	1032.4	2321.34	1031.52	2325.22	1030.57	2327.89	1029.98	2339.43	1029.53
2355.79	1028.4	2375.54	1027.37	2379.47	1027.07	2385.26	1026.32	2404.25	1023.02
2412.18	1022.78	2422.37	1022.31	2442.28	1021.69	2461.08	1021.05	2468.71	1020.72
2484.52	1020.08	2501.4	1019.39	2511.38	1018.16	2520.8	1016.99	2527.12	1016.26
2535.82	1016.17	2539.43	1016.15	2544.35	1016.01	2549.9	1015.78	2562.71	1015.65
2575.78	1015.45	2586.66	1014.32	2599.02	1013.24	2602.82	1013.19	2612.59	1013.28
2625.37	1013.06	2627.94	1013.04	2632.6	1013.21	2640.51	1014.07	2642.64	1013.71
2644.28	1013.76	2652.34	1013.58	2670.12	1012.9	2675.13	1013.6	2690.65	1016.15
2700.62	1016.44	2718.37	1016.82	2731.95	1016.58	2742.01	1016.62	2757.11	1016.84
2761.77	1016.95	2763.67	1017.46	2772.36	1019.85	2781.73	1020.67	2784.08	1020.88
2786.83	1020.51	2789.02	1020.28	2809.55	1017.8	2823.06	1017.42	2827.17	1017.27

```
                                                                    DuplicateEffective
  2830.3 1017.79 2848.37  1020.5 2863.27 1018.37 2863.78 1018.29 2864.03 1018.29
 2876.85 1018.53 2899.43 1017.87 2906.29 1017.59 2909.46 1017.69 2930.33 1018.18
 2941.53  1023.8 2952.33 1029.35 2959.18 1034.17 2970.84 1042.78  2976.1 1042.55
  2977.4 1042.47 2992.28 1042.64 3013.71  1042.8 3016.53 1042.31 3021.32 1041.38
 3031.87 1037.24 3036.49 1035.38 3049.38 1034.75 3052.14 1034.63 3055.69 1035.73
 3072.45    1041 3086.88 1040.87 3096.63 1040.63 3110.16 1039.02 3112.15 1038.87
 3114.19 1038.81 3127.28 1038.69 3134.01 1038.72 3143.44 1038.23 3145.22  1038.2
 3156.85 1038.07 3156.89 1038.07  3158.9 1038.05 3167.52 1037.94 3177.62 1037.86
 3177.68 1037.86 3178.84 1037.86 3193.08 1037.93 3193.63 1037.93 3207.45 1037.33
  3210.2 1037.34 3214.47 1037.39 3226.77 1037.41 3239.82 1037.62 3249.47 1037.64
 3260.98 1037.31 3264.32 1037.21 3272.45 1037.03 3283.44 1036.86 3286.06 1036.77
 3288.58 1036.76 3300.51 1036.87 3304.56 1036.98 3309.85 1037.09 3338.44 1036.74
 3343.63  1036.6 3347.13 1036.62 3349.72 1036.54  3351.4  1036.6 3362.29 1037.09
  3366.6 1037.17 3371.35 1036.68 3376.35 1037.22 3380.61 1036.51  3385.3 1036.08
  3392.4 1035.87 3394.14  1035.5 3397.96 1035.28

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************************
       0    .037 1130.44    .032 2121.49    .037  2977.4    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       1130.44 2789.02           504.67  500.86  499.29             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
    2987 3397.96    1050        F

CROSS SECTION OUTPUT  Profile #PF#1
*****************************************************************************************
* E.G. Elev (ft)         * 1035.29  * Element                * Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.36  * Wt. n-Val.            *         *    0.033 *    0.037  *
* W.S. Elev (ft)         * 1034.93  * Reach Len. (ft)       *  504.67 *  500.86  *  499.29  *
* Crit W.S. (ft)         * 1018.36  * Flow Area (sq ft)     *         *32124.59  * 2601.03  *
* E.G. Slope (ft/ft)     *0.000201  * Area (sq ft)          *         *32124.59  * 2602.17  *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *          *157093.90  * 8906.08  *
* Top Width (ft)         * 1828.99  * Top Width (ft)        *         * 1650.41  *  178.58  *
* Vel Total (ft/s)       *    4.78  * Avg. Vel. (ft/s)      *         *    4.89  *    3.42  *
* Max Chl Dpth (ft)      *   37.51  * Hydr. Depth (ft)      *         *   19.46  *   15.19  *
* Conv. Total (cfs)      *11715260.0  * Conv. (cfs)         *          *11086720.0  *628536.1  *
* Length Wtd. (ft)       *  500.76  * Wetted Per. (ft)      *         * 1665.43  *  176.22  *
* Min Ch El (ft)         *  997.42  * Shear (lb/sq ft)      *         *    0.24  *    0.19  *
* Alpha                  *    1.02  * Stream Power (lb/ft s) *        *    1.18  *    0.63  *
* Frctn Loss (ft)        *    0.10  * Cum Volume (acre-ft)  * 7295.71  *27357.61  * 2438.31  *
* C & E Loss (ft)        *    0.01  * Cum SA (acres)        * 2095.74  * 2772.29  *  925.90  *
*****************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*****************************************************************************************
* E.G. Elev (ft)         * 1035.60  * Element                * Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.40  * Wt. n-Val.            *         *    0.033 *           *
* W.S. Elev (ft)         * 1035.19  * Reach Len. (ft)       *  504.67 *  500.86  *  499.29  *
* Crit W.S. (ft)         * 1018.32  * Flow Area (sq ft)     *         *32558.83  *           *
* E.G. Slope (ft/ft)     *0.000216  * Area (sq ft)          *         *32558.83  *           *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *          *166000.00  *           *
* Top Width (ft)         * 1650.94  * Top Width (ft)        *         * 1650.94  *           *
* Vel Total (ft/s)       *    5.10  * Avg. Vel. (ft/s)      *         *    5.10  *           *
* Max Chl Dpth (ft)      *   37.77  * Hydr. Depth (ft)      *         *   19.72  *           *
* Conv. Total (cfs)      *11288030.0  * Conv. (cfs)         *          *11288030.0  *           *
* Length Wtd. (ft)       *  500.86  * Wetted Per. (ft)      *         * 1680.94  *           *
* Min Ch El (ft)         *  997.42  * Shear (lb/sq ft)      *         *    0.26  *           *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *        *    1.33  *           *
* Frctn Loss (ft)        *    0.11  * Cum Volume (acre-ft)  * 1422.13  *28263.51  *  270.98  *
* C & E Loss (ft)        *    0.01  * Cum SA (acres)        *  221.84  * 2777.66  *   50.15  *
*****************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 209.79

INPUT
Description: Cross Section updated per TranSystems Corporation Mapping (2004)
Station Elevation Data    num=     270
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
       0 1038.52     .16 1038.69    1.57 1038.53   35.18  1038.6   54.94 1038.62
   72.48 1038.68   91.59 1038.72   94.91 1038.68  116.31 1038.35  119.07 1038.47
  128.46  1038.8  145.69 1039.29  151.13 1039.35  172.31 1038.74  174.73 1038.71
  177.03 1038.63  185.13 1038.28  186.98 1038.21  207.03 1037.87  207.82 1037.85
  208.77 1037.86  215.32 1037.87  270.62 1038.16   302.6 1038.14  317.32  1038.1
   363.9 1037.69  377.09 1037.39  424.31 1037.05  452.29 1037.04  531.32 1036.87
  545.43  1036.8  638.29 1035.79   639.1 1035.79  644.83 1035.83  732.97 1036.47
  737.44 1036.46   739.8 1036.47  745.31 1036.48  827.11 1036.73  837.57 1036.66
  852.28 1036.91  921.28 1037.06  935.63 1037.13  959.27    1037 1016.17 1037.63
 1055.33 1037.89 1060.21 1037.79 1083.54  1037.9 1099.81 1037.83 1105.89 1037.69
 1119.72 1036.94  1135.4 1036.14 1145.97 1030.48 1159.42 1022.97 1174.88  1022.8
 1190.29  1022.3 1207.51  1021.8 1210.72 1021.74 1212.09 1021.71 1224.28  1021.1
 1230.78 1021.03 1239.33 1020.99 1243.64    1021 1249.43 1021.02 1254.22 1021.02
 1259.87 1020.89  1266.1 1020.91 1273.94 1019.93 1283.73 1019.79 1295.32 1019.56
 1305.02 1019.09 1313.21 1018.56 1316.98 1018.29 1317.06 1018.28 1325.17 1018.94
 1329.02  1020.6 1329.66 1020.79 1330.49 1021.06 1336.22 1022.17 1338.44 1022.03
 1344.04 1021.66 1347.38 1021.35 1348.05 1021.31 1350.86 1021.12 1353.36 1021.07
 1354.26 1020.99 1368.96 1020.04 1371.06 1020.07 1379.06 1020.17 1379.75 1020.18
 1386.35 1020.33 1388.94 1020.25 1400.96  1020.7  1402.5 1020.72 1405.31 1020.63
 1406.67 1020.61 1419.94 1021.17 1434.68 1020.91 1444.87 1019.35 1469.65 1018.79
 1472.59  1018.4 1481.56    1018 1507.27 1016.66 1529.95 1015.36 1555.83 1013.63
  1580.8 1013.35 1630.32 1012.98 1640.85 1012.07 1679.42 1011.55 1698.33  1010.6
 1713.68 1009.93 1744.59 1007.07 1757.74 1006.67 1764.21 1006.33 1781.15 1004.74
```

```
                                                                    DuplicateEffective
 1783.42  1004.7 1783.67  1004.7 1784.01 1004.69 1784.38 1004.69 1785.04 1004.68
 1813.36 1004.07  1821.3 1004.03 1828.35 1003.96 1836.71 1003.93 1847.58 1004.75
 1865.27  1005.7 1872.05 1006.05 1893.53 1005.46 1896.04 1005.38 1897.62 1005.35
 1902.24 1005.31  1915.5 1006.42 1917.06 1006.51 1950.54  1008.7 1956.34 1009.08
 1957.41 1009.13 1975.18 1010.07 2005.88  1011.8 2033.44 1012.16  2040.9 1012.32
  2043.3 1011.88 2055.71 1010.91 2057.75    1011 2081.02  1011.8 2115.57  1026.5
  2132.3 1033.81 2139.42 1032.65 2139.43 1032.64 2139.44 1032.65 2146.45 1033.91
 2171.22 1027.38 2188.57 1022.83 2206.69 1022.87 2240.98 1023.01 2277.82 1024.19
 2282.21 1024.36 2292.11 1024.16 2329.09 1023.58 2348.64 1023.16 2361.57 1023.13
 2367.18 1024.46 2379.78 1027.59  2385.1 1027.68 2403.41 1028.15 2418.98 1021.49
 2426.65 1018.19 2432.86 1017.22 2442.94 1015.76 2487.48  1012.9 2488.08 1012.86
 2505.09 1011.49 2539.49 1008.72 2542.21  1008.5 2543.35 1008.48  2587.7 1007.83
 2628.35    1008 2628.63 1008.01 2673.58 1007.75 2677.82 1007.75 2681.69  1007.8
 2725.57  1008.4 2728.31 1008.36  2740.9 1008.66  2760.3 1009.12 2792.01 1010.41
 2792.65 1010.43 2793.02 1010.48 2795.31 1010.77  2811.2 1012.75 2812.91 1012.95
 2823.47 1012.94 2834.67 1012.89 2836.63 1012.92 2841.99 1013.21 2848.77 1013.23
 2851.56 1013.25 2861.32 1013.46 2864.11 1013.52 2868.12 1013.48 2869.82 1013.48
 2871.87 1013.57 2886.27 1013.97 2894.75 1014.53 2903.18 1014.59 2909.21 1014.41
 2932.89 1014.48 2939.98  1014.6 2970.89 1030.77 2981.19  1036.3 2983.73 1037.91
 2983.94    1038 2989.67 1037.64 2992.97 1037.48 3018.68 1037.12 3025.05 1037.06
 3028.42 1035.94  3033.3 1034.24 3046.13  1030.8 3053.43 1028.82 3060.33 1029.01
 3090.98 1029.04 3099.33 1029.04 3107.82 1028.55 3121.72 1027.68 3129.35 1028.51
 3145.31 1030.22 3174.33 1030.01 3174.83    1030 3175.38 1029.96 3191.93 1028.67
 3197.41 1028.66 3203.05 1028.59 3211.11 1028.57 3221.57 1028.45 3222.24 1028.44
 3224.39 1028.46 3236.21 1028.83 3244.15 1028.88 3247.93 1028.95 3252.74 1029.04
 3256.15 1029.04 3262.73 1029.37  3265.9  1029.5 3273.25 1029.88 3277.66 1029.98
 3286.41 1030.39  3291.8 1030.38 3292.85 1030.38 3297.74 1030.29 3304.79 1030.22
 3313.11 1030.25 3324.45 1030.37 3341.02 1030.98 3358.22 1031.57 3383.88 1032.62
 3398.64  1032.8 3405.45 1032.86 3405.71 1032.86 3406.21 1032.86  3406.6 1032.86
 3410.77 1032.85 3413.35 1032.84 3415.21  1032.8 3420.31 1032.83 3421.57 1032.65
 3435.54 1032.53 3436.17 1032.24 3445.06 1030.18 3458.84 1032.82 3465.58 1033.26

Manning's n Values        num=       4
    Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************************
      0    .037 1105.89    .032  2132.3    .035 2989.67    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      1105.89 2823.47          492.06  500.22  508.91            .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
    2979 3465.58    1045       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         * 1035.18  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.33  * Wt. n-Val.            *          *   0.033  *   0.035  *
* W.S. Elev (ft)         * 1034.85  * Reach Len. (ft)       *  492.06  *  500.22  *  508.91  *
* Crit W.S. (ft)         * 1019.46  * Flow Area (sq ft)     *          *32978.41  * 2837.48  *
* E.G. Slope (ft/ft)     *0.000207  * Area (sq ft)          *          *32978.41  * 4815.33  *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *          *154214.60  *11785.36  *
* Top Width (ft)         * 2274.68  * Top Width (ft)        *          * 1685.65  *  589.03  *
* Vel Total (ft/s)       *    4.63  * Avg. Vel. (ft/s)      *          *    4.68  *    4.15  *
* Max Chl Dpth (ft)      *   30.92  * Hydr. Depth (ft)      *          *   19.56  *   18.30  *
* Conv. Total (cfs)      *11536480.0  * Conv. (cfs)         *          *10717430.0  *819045.9  *
* Length Wtd. (ft)       *  500.90  * Wetted Per. (ft)      *          * 1699.92  *  160.05  *
* Min Ch El (ft)         * 1003.93  * Shear (lb/sq ft)      *          *    0.25  *    0.23  *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    1.17  *    0.95  *
* Frctn Loss (ft)        *    0.15  * Cum Volume (acre-ft)   * 7295.71  *26983.33  * 2395.80  *
* C & E Loss (ft)        *    0.03  * Cum SA (acres)         * 2095.74  * 2753.11  *  921.50  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)         * 1035.48  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.38  * Wt. n-Val.            *          *   0.033  *          *
* W.S. Elev (ft)         * 1035.09  * Reach Len. (ft)       *  492.06  *  500.22  *  508.91  *
* Crit W.S. (ft)         * 1019.65  * Flow Area (sq ft)     *          *33396.39  *          *
* E.G. Slope (ft/ft)     *0.000234  * Area (sq ft)          *          *33396.39  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *          *166000.00  *          *
* Top Width (ft)         * 1686.12  * Top Width (ft)        *          * 1686.12  *          *
* Vel Total (ft/s)       *    4.97  * Avg. Vel. (ft/s)      *          *    4.97  *          *
* Max Chl Dpth (ft)      *   31.16  * Hydr. Depth (ft)      *          *   19.81  *          *
* Conv. Total (cfs)      *10862060.0  * Conv. (cfs)         *          *10862060.0  *          *
* Length Wtd. (ft)       *  500.22  * Wetted Per. (ft)      *          * 1722.60  *          *
* Min Ch El (ft)         * 1003.93  * Shear (lb/sq ft)      *          *    0.28  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    1.41  *          *
* Frctn Loss (ft)        *    0.18  * Cum Volume (acre-ft)   * 1422.13  *27884.33  *  270.98  *
* C & E Loss (ft)        *    0.03  * Cum SA (acres)         *  221.84  * 2758.47  *   50.15  *
*********************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                RS: 209.69

INPUT
Description: 209.69 - FEMA Section W
Cross Section updated per TranSystems
             Corporation Mapping (2004)
Station Elevation Data    num=     299
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
*****************************************************************************
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                                                                                                    DuplicateEffective
      0 1036.75   18.08 1037.13   27.01 1037.16   37.81    1037   47.97 1036.77
  48.34 1036.99   55.99 1036.22   58.68 1036.02   64.55 1036.49   78.83  1037.6
 124.78 1037.07 131.42 1037.02  137.63 1037.03  225.42 1036.77  229.88 1036.81
 231.92 1036.84 237.51 1036.92  292.61 1037.62  293.41 1037.84  293.85 1038.05
 314.32 1048.54 315.75 1049.26  315.89 1049.33  321.65  1049.7  333.76 1050.75
 340.61 1052.37 342.86 1053.08  343.63 1053.23  346.92 1052.74  347.11 1052.43
 349.73 1046.95  353.9 1043.04  356.31 1040.43  368.02 1037.71  369.48 1037.15
 370.83 1036.68 371.93 1037.33  372.72 1037.71  382.29 1041.32  384.05 1041.52
 388.96 1041.37 391.87 1041.16  405.42 1037.49  406.45 1037.29  407.35 1036.96
  408.1 1036.65 417.91 1036.71  437.65 1036.74  438.31 1036.74  438.59 1036.74
  439.8 1036.73 444.45 1036.74  491.48 1036.17  502.71 1041.23  504.45 1041.81
 516.44 1049.45 518.64 1050.86  523.26 1050.43  525.16 1049.81  525.83 1049.58
  527.5 1047.93 533.26  1042.9  542.36 1037.89  543.98 1037.69  545.54 1036.49
 548.12 1036.05  557.8 1035.75  565.29 1035.64  579.73 1035.56  589.81 1035.53
 599.61 1035.67 607.47 1035.61  615.41  1035.7  622.41 1035.73  640.62 1047.58
 641.82 1048.21 642.09  1048.3  642.32 1048.31  642.59 1048.23  643.35 1047.85
 655.14 1040.66 663.93  1037.4  666.36 1036.18  678.53 1036.66  684.64 1036.84
 689.15 1037.03 706.37 1036.99  755.68 1036.87  780.88 1036.77   802.2  1036.6
 836.54 1036.27 872.65 1036.39  891.57 1036.38  931.86 1036.97  947.85  1037.3
 948.93 1037.22 965.68 1036.58  969.83 1035.75  970.66 1035.63  975.67 1034.89
  977.6 1034.71 979.38  1034.6  981.18 1034.46  987.59 1034.23 1001.05 1034.76
 1004.8 1033.56 1005.52 1033.31 1008.41 1032.18 1020.01 1027.26 1034.85 1020.78
1036.46 1020.04 1038.51  1019.1    1053 1018.92 1059.92 1018.83 1062.93 1018.79
1071.44 1018.65 1084.75 1019.38 1092.72 1019.81 1101.03 1020.11 1136.14 1021.79
1142.52 1022.64 1171.41  1026.1 1185.18 1024.31 1191.22 1023.33 1204.25 1026.59
1205.84 1026.98 1214.98 1027.12  1220.7 1027.11 1226.92 1027.39 1251.37 1027.43
1264.69 1027.31 1272.02 1027.94 1296.22 1029.83 1296.45 1029.83 1298.03 1029.87
1327.01 1030.81 1339.19 1031.13 1354.62 1032.31 1363.56 1032.95 1372.84 1032.54
1384.31 1032.11 1408.72 1032.39 1409.01  1032.4 1443.19 1032.36 1452.75 1032.23
 1460.3 1032.21 1478.75 1032.56 1516.07 1033.43 1533.76 1032.76 1568.62  1031.2
1592.95 1023.72 1594.93    1023 1614.77 1020.93 1618.09 1020.64 1623.88 1020.04
   1635 1019.56 1671.06 1017.49 1701.63 1015.74 1763.43 1009.85 1782.19 1008.09
1783.87 1007.99 1813.91 1006.88 1846.96 1005.59 1849.74 1005.57 1853.33 1005.56
1902.92 1004.96  1949.1  1006.7 1955.65 1007.01 1956.77 1007.24  2005.5 1015.43
 2046.3 1028.74 2069.36 1035.81  2069.4 1035.82 2069.41 1035.82 2069.42 1035.82
2069.49 1035.82  2091.3 1035.39 2106.54 1034.61 2106.62 1034.61 2106.97  1034.6
2129.78 1034.28 2134.78 1034.23 2139.04 1034.31 2142.53 1034.35 2164.93  1034.8
2167.41 1034.78 2182.34 1033.74 2195.33 1033.07 2209.36 1032.38  2222.7 1032.13
2225.83 1032.07 2240.92 1029.14 2247.68 1027.86 2252.34    1025 2266.46 1016.46
2282.63 1013.75 2290.07 1012.34 2303.03 1011.87 2328.05 1010.82 2345.62 1010.35
2359.16 1010.09 2366.12 1010.02 2366.24 1010.02  2366.4 1010.02 2382.75 1010.31
2384.33 1010.31  2386.3 1010.32 2387.88 1010.38 2404.56 1010.24 2414.48 1010.31
2427.24 1010.43 2466.11 1010.35 2481.02 1010.27 2489.54 1010.67 2514.74 1011.84
2534.04 1012.05 2541.14  1012.2 2547.14 1012.12 2564.52 1012.24 2599.24 1011.25
2612.59 1010.41 2617.72 1010.17 2634.79 1010.68 2648.78 1011.18 2656.48 1011.39
2659.05 1011.39 2662.81 1011.33 2691.01 1011.13 2708.24 1012.39 2711.24 1012.65
2724.43 1013.15 2745.42 1013.88  2752.5 1014.26 2766.38 1014.41 2775.07 1014.02
2788.38 1013.23 2800.03 1014.01 2805.96 1014.44 2836.12 1032.31 2836.13 1032.32
2847.63 1033.87 2851.47 1035.63 2859.11  1038.2 2865.83  1037.3 2865.89 1037.29
2866.15 1037.29 2898.71 1036.93 2905.31 1035.75 2906.69 1035.57 2912.34 1033.88
2926.28 1029.23 2977.22 1028.92  2982.5 1028.92 2985.76  1028.9 3050.77 1028.65
3092.51 1028.85 3094.07 1028.87 3095.06 1028.87 3109.81 1028.99 3139.17 1029.21
3146.98 1029.03 3167.69 1028.31 3172.03 1028.39 3177.58  1028.6  3187.1  1029.2
3190.63 1029.18 3191.34 1029.26 3195.55 1029.44 3200.31 1029.45 3213.33 1029.55
3226.05 1029.29 3231.26 1029.35 3232.63 1029.33 3241.57 1029.31 3250.75 1029.25
3254.24 1029.22 3256.11 1029.19 3269.62 1028.95 3279.64 1028.75 3284.54 1029.33
3288.23  1029.9  3294.5 1030.75 3305.42 1032.23 3310.74 1031.94 3319.16 1031.82
3322.07 1031.73 3325.49 1031.66 3330.23 1031.17 3343.34 1031.56 3346.87 1031.58
3351.07 1031.56 3358.37  1031.6 3360.56 1031.69 3361.75 1031.53 3361.96 1031.53
3385.12 1030.03 3386.26 1029.15 3390.43 1029.95  3391.2    1030

Manning's n Values         num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************************
       0    .037  947.85    .032 2069.36    .035 2859.11    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        965.68 2711.24           500.2   544.5  694.57             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
    2857  3391.2    1050       F

CROSS SECTION OUTPUT  Profile #PF#1
*****************************************************************************************
* E.G. Elev (ft)         * 1035.00  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.59  * Wt. n-Val.            *          *   0.033  *   0.035  *
* W.S. Elev (ft)         * 1034.41  * Reach Len. (ft)       *  500.20  *  544.50  *  694.57  *
* Crit W.S. (ft)         * 1021.44  * Flow Area (sq ft)     *          *24620.09  * 2307.33  *
* E.G. Slope (ft/ft)     *0.000504  * Area (sq ft)          *          *24620.09  * 4639.95  *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *          *151942.40  *14057.60  *
* Top Width (ft)         * 2254.04  * Top Width (ft)       *          * 1635.84  *  618.20  *
* Vel Total (ft/s)       *    6.16  * Avg. Vel. (ft/s)     *          *    6.17  *    6.09  *
* Max Chl Dpth (ft)      *   29.45  * Hydr. Depth (ft)     *          *   15.05  *   16.77  *
* Conv. Total (cfs)      *7393035.0  * Conv. (cfs)         *          *6766960.0  *626074.4  *
* Length Wtd. (ft)       *  565.41  * Wetted Per. (ft)     *          * 1650.09  *  142.80  *
* Min Ch El (ft)         * 1004.96  * Shear (lb/sq ft)     *          *    0.47  *    0.51  *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *        *    2.90  *    3.10  *
* Frctn Loss (ft)        *    0.23  * Cum Volume (acre-ft)  * 7295.71  *26652.62  * 2340.56  *
* C & E Loss (ft)        *    0.01  * Cum SA (acres)        * 2095.74  * 2734.04  *  914.45  *
*****************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*****************************************************************************************
* E.G. Elev (ft)         * 1035.27  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.69  * Wt. n-Val.            *          *   0.033  *          *
* W.S. Elev (ft)         * 1034.58  * Reach Len. (ft)       *  500.20  *  544.50  *  694.57  *
* Crit W.S. (ft)         * 1021.87  * Flow Area (sq ft)     *          *24896.48  *          *
* E.G. Slope (ft/ft)     *0.000612  * Area (sq ft)          *          *24896.48  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *          *166000.00  *          *
* Top Width (ft)         * 1666.72  * Top Width (ft)       *          * 1666.72  *          *
* Vel Total (ft/s)       *    6.67  * Avg. Vel. (ft/s)     *          *    6.67  *          *
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                                                                    DuplicateEffective
* Max Chl Dpth (ft)      *   29.62  * Hydr. Depth (ft)       *          *   14.94  *          *
* Conv. Total (cfs)      *6712772.0  * Conv. (cfs)           *          *6712772.0  *          *
* Length Wtd. (ft)       *  551.61  * Wetted Per. (ft)       *          * 1702.96  *          *
* Min Ch El (ft)         * 1004.96  * Shear (lb/sq ft)       *          *    0.56  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    3.72  *          *
* Frctn Loss (ft)        *    0.28  * Cum Volume (acre-ft)   * 1422.13  *27549.62  *  270.98  *
* C & E Loss (ft)        *    0.00  * Cum SA (acres)         *  221.84  * 2739.22  *   50.15  *
*****************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                RS: 209.6

INPUT
Description: Cross Section updated per TranSystems Corporation Mapping (2004)
Station Elevation Data    num=     314
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************************
       0 1036.94   13.13 1037.09    35.4 1036.93   42.14 1037.02   62.75 1036.81
   80.11 1036.35   84.47 1036.23   85.83 1036.19   85.84 1036.15   86.03 1035.58
   86.15 1035.07   108.3 1035.89  115.07 1036.01  117.72 1035.96  143.85 1035.72
  143.85 1035.31  143.89 1035.15  144.06 1035.22   144.2 1035.69  146.15 1035.79
  150.76    1036  153.65 1036.31   155.1 1036.44  155.52 1036.47  173.49  1037.3
  173.54  1037.3  174.31 1037.31  201.33 1037.45  205.96 1037.59  209.36  1037.7
  212.78 1037.88  219.14 1038.03  224.53  1038.2  238.58 1038.46  241.57 1038.48
  243.21 1038.62  268.05 1038.83  278.58 1038.95  286.08 1038.44  296.45 1038.29
  297.77 1038.27  303.74 1038.62  311.74 1038.26  313.97  1037.8   348.5 1037.74
  361.32 1037.54  368.48  1037.6  376.51 1037.59  406.72 1037.39  446.88 1037.05
  471.45 1036.98   500.7 1036.76  528.82 1036.71  552.06 1036.54  586.94  1036.3
  593.03 1036.31  618.45 1036.08   642.8 1035.97  650.54 1036.09  692.12 1035.93
  710.73 1035.35  732.72 1035.23  745.41 1035.35  797.35 1035.18  810.26  1035.2
  824.69 1035.38  837.74 1035.75  900.02 1036.75  912.46 1036.96  924.92 1036.96
  937.97 1036.97 1007.76 1036.92 1015.56 1036.68 1020.51 1036.54 1023.15  1036.5
 1026.88 1036.47 1036.88 1036.23 1068.93 1035.52 1070.45 1034.88 1070.93 1034.68
 1071.73 1034.34 1080.95 1030.02 1100.19 1021.08 1103.62 1019.38  1108.7 1019.56
 1110.02 1019.62 1117.66 1019.97 1132.58 1020.54 1145.09 1021.88 1146.16 1021.99
 1147.32 1022.05 1174.38 1023.78 1180.69  1023.1 1198.85 1021.47 1207.45 1019.53
 1224.71 1014.95 1227.51 1015.05 1243.18 1015.55 1259.79  1016.3 1270.34 1016.67
 1297.89 1017.87  1302.5 1018.29 1311.94 1018.73 1319.79 1018.75 1333.21 1018.85
 1356.89 1018.97 1371.27 1019.15 1379.98 1019.05 1389.63 1018.97 1399.68 1019.01
 1408.76 1018.97 1409.46 1018.96 1410.95 1018.53 1426.62 1013.77 1430.86  1014.2
 1432.61 1014.37 1448.08  1015.9 1456.17 1015.96 1462.43 1016.12 1467.13  1016.1
 1471.86 1016.25 1490.55 1017.24 1496.97 1017.34 1528.03 1017.25 1530.84 1017.27
 1535.13 1017.32 1560.42 1017.41 1569.61 1017.48 1577.34 1017.57 1588.76 1017.61
 1596.03  1017.6 1602.24 1017.57 1621.07 1017.72 1629.55 1018.31 1641.44 1018.04
 1645.69 1017.16 1650.49 1016.01 1662.37 1013.96 1662.44 1013.96 1662.46 1013.96
  1662.5 1013.95 1683.72 1013.91 1692.66 1014.28 1715.54 1018.57 1728.51 1021.05
 1743.77 1019.73 1786.04 1015.81 1814.33  1013.6 1882.73 1009.34 1909.42 1008.07
  1930.4 1007.13 1962.92 1005.68 1982.06 1004.68 2007.74  1004.2 2042.33  1003.7
 2049.39 1003.55 2049.65 1003.53 2049.97 1003.51 2050.19 1003.48 2053.55 1004.07
 2064.95 1004.97 2083.98 1006.56  2096.1 1006.77 2111.08 1007.09 2115.74 1007.23
 2117.52 1007.24 2133.57 1008.09 2135.88 1008.31  2146.7 1008.59  2148.8 1008.62
 2150.04 1008.57 2153.29 1008.59 2175.61 1014.74  2181.1 1016.48 2186.93 1016.65
 2198.05  1016.7 2199.07 1016.69 2215.46 1016.88 2235.66 1017.39 2244.67 1017.79
 2259.53 1018.21 2264.96 1018.36 2272.02 1020.28 2292.42 1026.67 2292.54 1026.68
 2292.63 1026.67 2292.78 1026.67 2306.01 1021.11 2308.72 1019.74 2316.03 1020.38
 2316.05 1020.38 2316.07 1020.39 2316.08 1020.39  2316.1  1020.4 2327.73 1023.46
 2335.67  1025.5 2335.73 1025.52 2335.76 1025.53    2336 1025.52 2366.83 1024.59
 2370.54  1024.4 2373.96 1023.92 2383.42 1023.08 2395.77 1022.89 2401.08 1022.62
 2410.38 1022.34 2421.08 1022.79 2440.47 1023.41  2446.4 1023.35 2447.97 1023.37
 2453.73 1023.55 2473.17 1023.91 2479.34 1022.97 2485.44 1021.75 2486.91 1021.72
 2491.13 1022.14 2514.28  1024.5  2518.4 1024.52 2528.28 1024.17 2547.01 1024.68
 2548.12 1024.84 2548.46 1024.91 2553.72 1025.57 2553.98 1025.62 2554.78  1025.7
 2557.29 1025.98 2562.66 1025.66 2580.34  1023.4 2583.36 1023.33 2589.33 1023.24
 2611.06 1018.94 2617.05 1017.81 2622.59 1016.56 2650.12 1014.13 2669.03 1012.35
 2669.52 1012.33 2669.85 1012.31 2682.01 1012.46 2692.25 1012.65 2694.03  1012.6
 2695.96 1012.47 2699.48 1012.31  2699.7 1012.32 2700.08 1012.35  2706.2    1013
 2720.84 1014.42 2725.55 1015.09 2740.46 1015.24 2745.49 1015.22 2755.58  1015.2
 2759.61    1015 2762.69 1014.83 2767.69 1014.88 2776.81 1014.99 2780.12 1015.62
 2792.64 1015.98 2801.77 1016.21 2807.39 1016.37 2825.53 1021.49 2826.62 1021.77
 2831.19 1021.57 2854.98 1020.64 2858.03 1022.63 2859.37 1023.21 2863.19 1025.21
  2876.6 1030.67 2879.06 1031.79  2880.1 1032.03 2889.81  1031.9 2901.67 1031.82
 2902.36 1031.83 2902.64 1031.85 2920.11  1032.6 2922.79 1032.68 2932.52 1032.97
 2934.22 1033.03  2935.5 1033.44  2948.9 1038.06 2952.61 1037.84 2956.44 1037.61
 2966.22 1037.59  2980.9 1037.65 2983.52 1037.36 2991.01  1036.2  3001.3 1033.55
  3015.1 1030.26 3039.96 1030.15 3054.54 1030.18 3140.48 1030.53 3150.96 1030.53
 3163.72  1030.5 3208.71 1030.59 3252.82 1029.35 3253.78 1029.32 3267.23 1030.56
 3269.13 1030.75 3275.49 1030.54 3279.52 1030.42 3280.97  1030.5 3296.28  1031.2
 3302.64 1031.01 3313.45  1030.7 3317.94 1030.62 3322.93 1030.73 3331.95 1030.99
 3339.39 1030.54 3340.16  1030.5 3347.45 1029.77 3357.33 1028.82 3358.85 1028.85
 3399.02 1030.06 3430.86 1029.88 3460.86 1029.64 3523.32 1030.13

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************************
       0    .037  912.46    .032 2292.42    .035 2952.61    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.    Expan.
        937.97 2175.61             256     290   340.7            .1       .3
Ineffective Flow      num=       2
   Sta L   Sta R    Elev  Permanent
       0     780    1040        F
    2700 3523.32    1040        F

CROSS SECTION OUTPUT  Profile #PF#1
*****************************************************************************************
* E.G. Elev (ft)         * 1034.75  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.55  * Wt. n-Val.            *          *   0.032  *   0.034  *
* W.S. Elev (ft)         * 1034.21  * Reach Len. (ft)       *  256.00  *  290.00  *  340.70  *
* Crit W.S. (ft)         * 1022.79  * Flow Area (sq ft)     *          *21539.74  * 7052.60  *
```

```
                                                                    DuplicateEffective
* E.G. Slope (ft/ft)     *0.000344  * Area (sq ft)            *          *21539.74  *12157.87  *
* Q Total (cfs)          *166000.00  * Flow (cfs)             *          *133805.10  *32194.94  *
* Top Width (ft)         * 2390.29  * Top Width (ft)          *          * 1103.60  * 1286.70  *
* Vel Total (ft/s)       *    5.81  * Avg. Vel. (ft/s)       *          *    6.21  *    4.56  *
* Max Chl Dpth (ft)      *   30.73  * Hydr. Depth (ft)       *          *   19.52  *   13.45  *
* Conv. Total (cfs)      *8951574.0  * Conv. (cfs)            *          *7215457.0  *1736117.0  *
* Length Wtd. (ft)       *  291.43  * Wetted Per. (ft)       *          * 1111.66  *  529.64  *
* Min Ch El (ft)         * 1003.48  * Shear (lb/sq ft)       *          *    0.42  *    0.29  *
* Alpha                  *    1.04  * Stream Power (lb/ft s) *          *    2.58  *    1.31  *
* Frctn Loss (ft)        *    0.15  * Cum Volume (acre-ft)   * 7295.71  *26364.12  * 2206.64  *
* C & E Loss (ft)        *    0.10  * Cum SA (acres)         * 2095.74  * 2716.92  *  899.26  *
*****************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*****************************************************************************************
* E.G. Elev (ft)         * 1034.98  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.72  * Wt. n-Val.            *          *   0.032  *   0.033  *
* W.S. Elev (ft)         * 1034.26  * Reach Len. (ft)       *  256.00  *  290.00  *  340.70  *
* Crit W.S. (ft)         * 1023.22  * Flow Area (sq ft)     *          *21600.36  * 3006.42  *
* E.G. Slope (ft/ft)     *0.000430  * Area (sq ft)          *          *21600.36  * 3006.42  *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *          *150272.30  *15727.66  *
* Top Width (ft)         * 1328.11  * Top Width (ft)        *          * 1103.72  *  224.39  *
* Vel Total (ft/s)       *    6.75  * Avg. Vel. (ft/s)      *          *    6.96  *    5.23  *
* Max Chl Dpth (ft)      *   30.78  * Hydr. Depth (ft)      *          *   19.57  *   13.40  *
* Conv. Total (cfs)      *8007438.0  * Conv. (cfs)           *          *7248774.0  *758664.0  *
* Length Wtd. (ft)       *  288.91  * Wetted Per. (ft)      *          * 1111.79  *  239.74  *
* Min Ch El (ft)         * 1003.48  * Shear (lb/sq ft)      *          *    0.52  *    0.34  *
* Alpha                  *    1.02  * Stream Power (lb/ft s) *          *    3.63  *    1.76  *
* Frctn Loss (ft)        *    0.17  * Cum Volume (acre-ft)   * 1422.13  *27259.02  *  247.01  *
* C & E Loss (ft)        *    0.08  * Cum SA (acres)         *  221.84  * 2721.90  *   48.36  *
*****************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                RS: 209.54

INPUT
Description: mapping from TranSystems Corporation (2004) proposed grading plans
Station Elevation Data    num=      17
      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
*****************************************************************************************
 -474.84 1042.98 -453.59 1043.19 -453.58    1027 -445.58    1027 -431.58    1020
  161.45    1020  188.62  1014.1  215.79  1014.1  229.37    1005  498.77    1005
  507.83 1009.55  525.94    1015  593.85    1015  623.28    1027  640.28    1027
  640.29 1042.87  661.91 1042.69

Manning's n Values        num=       5
     Sta    n Val     Sta    n Val     Sta    n Val     Sta    n Val     Sta    n Val
*****************************************************************************************
 -474.84     .025 -453.58     .037  229.37     .032  498.77     .037  640.28     .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        229.37  498.77              116     116     116              .3       .5
Ineffective Flow     num=        2
   Sta L    Sta R     Elev  Permanent
 -474.84 -472.34 1048.87       F
  660.86  661.91 1044.79       F

CROSS SECTION OUTPUT  Profile #PF#1
*****************************************************************************************
* E.G. Elev (ft)         * 1034.51  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.56  * Wt. n-Val.            *   0.037  *   0.032  *   0.037  *
* W.S. Elev (ft)         * 1032.94  * Reach Len. (ft)       *   24.00  *   24.00  *   24.00  *
* Crit W.S. (ft)         * 1026.10  * Flow Area (sq ft)     * 9115.63  * 7527.38  * 2277.64  *
* E.G. Slope (ft/ft)     *0.000808  * Area (sq ft)          * 9115.63  * 7527.38  * 2277.64  *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *58264.24  *91484.05  *16251.70  *
* Top Width (ft)         * 1093.87  * Top Width (ft)        *  682.95  *  269.40  *  141.51  *
* Vel Total (ft/s)       *    8.77  * Avg. Vel. (ft/s)      *    6.39  *   12.15  *    7.14  *
* Max Chl Dpth (ft)      *   27.94  * Hydr. Depth (ft)      *   13.35  *   27.94  *   16.09  *
* Conv. Total (cfs)      *5840043.0  * Conv. (cfs)           *2049793.0  *3218499.0  *571750.6  *
* Length Wtd. (ft)       *   24.00  * Wetted Per. (ft)      *  693.93  *  269.40  *  151.68  *
* Min Ch El (ft)         * 1005.00  * Shear (lb/sq ft)      *    0.66  *    1.41  *    0.76  *
* Alpha                  *    1.31  * Stream Power (lb/ft s) *    4.24  *   17.13  *    5.40  *
* Frctn Loss (ft)        *          * Cum Volume (acre-ft)   * 7268.93  *26267.36  * 2150.19  *
* C & E Loss (ft)        *          * Cum SA (acres)         * 2093.74  * 2712.35  *  893.67  *
*****************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

CROSS SECTION OUTPUT  Profile #PF#2
*****************************************************************************************
* E.G. Elev (ft)         * 1034.73  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.57  * Wt. n-Val.            *   0.037  *   0.032  *   0.037  *
* W.S. Elev (ft)         * 1033.17  * Reach Len. (ft)       *   24.00  *   24.00  *   24.00  *
* Crit W.S. (ft)         * 1026.10  * Flow Area (sq ft)     * 9062.84  * 7587.60  * 2182.04  *
* E.G. Slope (ft/ft)     *0.000796  * Area (sq ft)          * 9062.84  * 7587.60  * 2182.04  *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *57968.30  *92040.84  *15990.86  *
* Top Width (ft)         * 1050.00  * Top Width (ft)        *  659.37  *  269.40  *  121.23  *
* Vel Total (ft/s)       *    8.81  * Avg. Vel. (ft/s)      *    6.40  *   12.13  *    7.33  *
```

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                                                                    DuplicateEffective
* Max Chl Dpth (ft)      *   28.16  * Hydr. Depth (ft)       *   13.74  *   28.16  *   18.00  *
* Conv. Total (cfs)      *5882311.0  * Conv. (cfs)           *2054142.0  *3261523.0  *566645.7  *
* Length Wtd. (ft)       *   24.00  * Wetted Per. (ft)       *  675.94  *  269.40  *  132.70  *
* Min Ch El (ft)         * 1005.00  * Shear (lb/sq ft)       *    0.67  *    1.40  *    0.82  *
* Alpha                  *    1.30  * Stream Power (lb/ft s) *    4.26  *   16.99  *    5.99  *
* Frctn Loss (ft)        *          * Cum Volume (acre-ft)   * 1395.50  *27161.86  *  226.72  *
* C & E Loss (ft)        *          * Cum SA (acres)         *  219.91  * 2717.33  *   47.01  *
*************************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

BRIDGE


RIVER: 1
REACH: 1                  RS: 209.535

INPUT
Description: 35th Ave - modified bridge per TranSystems plans;
Used Interim
             Finished grade per plans; the pier widths were doubled (plans=5ft;
             model=10ft) in order to model the debris accumulation.
Distance from Upstream XS =       24
Deck/Roadway Width        =       91
Weir Coefficient          =      2.6
Upstream  Deck/Roadway Coordinates
    num=       10
     Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord
*************************************************************************
 -453.59 1043.19     1035 -334.34 1044.42     1035 -212.09 1045.34     1035
  -89.84 1045.94     1035   32.41 1046.22     1035  154.66 1046.19     1035
  276.91 1045.85     1035  399.16 1045.19     1035  521.41 1044.21     1035
  640.29 1042.87     1035

Upstream Bridge Cross Section Data
Station Elevation Data    num=      17
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
*********************************************************************************
 -474.84 1042.98 -453.59 1043.19 -453.58    1027 -445.58    1027 -431.58    1020
  161.45    1020  188.62  1014.1  215.79  1014.1  229.37    1005  498.77    1005
  507.83 1009.55  525.94    1015  593.85    1015  623.28    1027  640.28    1027
  640.29 1042.87  661.91 1042.69

Manning's n Values        num=       5
     Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val
*************************************************************************************
 -474.84    .025 -453.58    .037  229.37    .032  498.77    .037  640.28    .025

Bank Sta: Left   Right    Coeff Contr.   Expan.
        229.37  498.77           .3        .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 -474.84 -472.34 1048.87        F
  660.86  661.91 1044.79        F

Downstream  Deck/Roadway Coordinates
    num=       10
     Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord
*************************************************************************
 -453.59 1043.19     1035 -334.34 1044.42     1035 -212.09 1045.34     1035
  -89.84 1045.94     1035   32.41 1046.22     1035  154.66 1046.19     1035
  276.91 1045.85     1035  399.16 1045.19     1035  521.41 1044.21     1035
  640.29 1042.87     1035

Downstream Bridge Cross Section Data
Station Elevation Data    num=      17
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
*********************************************************************************
 -474.84 1042.98 -453.59 1043.19 -453.58    1027 -445.58    1027 -431.58    1020
  161.45    1020  188.62  1014.1  215.79  1014.1  229.37    1005  498.77    1005
  507.83 1009.55  525.94    1015  593.85    1015  623.28    1027  640.28    1027
  640.29 1042.87  661.91 1042.69

Manning's n Values        num=       5
     Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val
*************************************************************************************
 -474.84    .025 -453.58    .037  229.37    .032  498.77    .037  640.28    .025

Bank Sta: Left   Right    Coeff Contr.   Expan.
        229.37  498.77           .3        .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 -474.84  -475.2 1049.55        F
  665.16  661.91 1046.07        F

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Piers =  8

Pier Data
Pier Station     Upstream= -334.34    Downstream= -334.34
Upstream     num=       2
    Width   Elev    Width   Elev
*********************************
      10     990       10    1040
Downstream     num=       2
    Width   Elev    Width   Elev
*********************************
      10     990       10    1040
```

```
Pier Data
Pier Station     Upstream= -212.09    Downstream= -212.09
Upstream     num=        2
    Width   Elev    Width   Elev
*********************************
      10     990       10    1040
Downstream     num=        2
    Width   Elev    Width   Elev
*********************************
      10     990       10    1040

Pier Data
Pier Station     Upstream=  -89.84    Downstream=  -89.84
Upstream     num=        2
    Width   Elev    Width   Elev
*********************************
      10     990       10    1040
Downstream     num=        2
    Width   Elev    Width   Elev
*********************************
      10     990       10    1040

Pier Data
Pier Station     Upstream=   32.41    Downstream=   32.41
Upstream     num=        2
    Width   Elev    Width   Elev
*********************************
      10     990       10    1040
Downstream     num=        2
    Width   Elev    Width   Elev
*********************************
      10     990       10    1040

Pier Data
Pier Station     Upstream=  154.66    Downstream=  154.66
Upstream     num=        2
    Width   Elev    Width   Elev
*********************************
      10     990       10    1040
Downstream     num=        2
    Width   Elev    Width   Elev
*********************************
      10     990       10    1040

Pier Data
Pier Station     Upstream=  276.91    Downstream=  276.91
Upstream     num=        2
    Width   Elev    Width   Elev
*********************************
      10     990       10    1040
Downstream     num=        2
    Width   Elev    Width   Elev
*********************************
      10     990       10    1040

Pier Data
Pier Station     Upstream=  399.16    Downstream=  399.16
Upstream     num=        2
    Width   Elev    Width   Elev
*********************************
      10     990       10    1040
Downstream     num=        2
    Width   Elev    Width   Elev
*********************************
      10     990       10    1040

Pier Data
Pier Station     Upstream=  521.41    Downstream=  521.41
Upstream     num=        2
    Width   Elev    Width   Elev
*********************************
      10     990       10    1040
Downstream     num=        2
    Width   Elev    Width   Elev
*********************************
      10     990       10    1040

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
       Momentum               Cd   =     1.2
Selected Low Flow Methods = Momentum

High Flow Method
       Pressure and Weir flow
           Submerged Inlet Cd          =
           Submerged Inlet + Outlet Cd =      .8
           Max Low Cord                =    1035

Additional Bridge Parameters
       Add Friction component to Momentum
       Do not add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT  Profile #PF#1
*******************************************************************************************
* E.G. US. (ft)          *    1034.51  * Element               *Inside BR US *Inside BR DS *
* W.S. US. (ft)          *    1032.94  * E.G. Elev (ft)        *    1034.37  *    1034.25  *
* Q Total (cfs)          *  166000.00  * W.S. Elev (ft)        *    1032.64  *    1032.47  *
* Q Bridge (cfs)         *  166000.00  * Crit W.S. (ft)        *    1026.30  *    1026.29  *
* Q Weir (cfs)           *             * Max Chl Dpth (ft)     *      27.63  *      27.47  *
* Weir Sta Lft (ft)      *             * Vel Total (ft/s)      *       9.65  *       9.74  *
```

			DuplicateEffective	
* Weir Sta Rgt (ft)	*	* Flow Area (sq ft)	* 17210.91	* 17040.98 *
* Weir Submerg	*	* Froude # Chl	* 0.42	* 0.43 *
* Weir Max Depth (ft)	*	* Specif Force (cu ft)	* 221851.50	* 219560.00 *
* Min El Weir Flow (ft)	* 1042.71	* Hydr Depth (ft)	* 16.98	* 16.81 *
* Min El Prs (ft)	* 1035.00	* W.P. Total (ft)	* 1309.01	* 1305.95 *
* Delta EG (ft)	* 0.26	* Conv. Total (cfs)	* 4357145.0	* 4297493.0 *
* Delta WS (ft)	* 0.32	* Top Width (ft)	* 1013.87	* 1013.87 *
* BR Open Area (sq ft)	* 19608.95	* Frctn Loss (ft)	*	* *
* BR Open Vel (ft/s)	* 9.74	* C & E Loss (ft)	*	* *
* Coef of Q	*	* Shear Total (lb/sq ft)	* 1.19	* 1.22 *
* Br Sel Method	* Momentum	* Power Total (lb/ft s)	* 11.49	* 11.84 *

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

BRIDGE OUTPUT Profile #PF#2

* E.G. US. (ft)	* 1034.73	* Element	*Inside BR US	*Inside BR DS *
* W.S. US. (ft)	* 1033.17	* E.G. Elev (ft)	* 1034.59	* 1034.47 *
* Q Total (cfs)	* 166000.00	* W.S. Elev (ft)	* 1032.86	* 1032.70 *
* Q Bridge (cfs)	* 166000.00	* Crit W.S. (ft)	* 1026.31	* 1026.31 *
* Q Weir (cfs)	*	* Max Chl Dpth (ft)	* 27.86	* 27.70 *
* Weir Sta Lft (ft)	*	* Vel Total (ft/s)	* 9.70	* 9.79 *
* Weir Sta Rgt (ft)	*	* Flow Area (sq ft)	* 17119.72	* 16962.24 *
* Weir Submerg	*	* Froude # Chl	* 0.42	* 0.43 *
* Weir Max Depth (ft)	*	* Specif Force (cu ft)	* 224523.30	* 222291.60 *
* Min El Weir Flow (ft)	* 1043.11	* Hydr Depth (ft)	* 17.65	* 17.49 *
* Min El Prs (ft)	* 1035.00	* W.P. Total (ft)	* 1255.57	* 1252.98 *
* Delta EG (ft)	* 0.26	* Conv. Total (cfs)	* 4403094.0	* 4346859.0 *
* Delta WS (ft)	* 0.32	* Top Width (ft)	* 970.00	* 970.00 *
* BR Open Area (sq ft)	* 19195.78	* Frctn Loss (ft)	*	* *
* BR Open Vel (ft/s)	* 9.79	* C & E Loss (ft)	*	* *
* Coef of Q	*	* Shear Total (lb/sq ft)	* 1.21	* 1.23 *
* Br Sel Method	* Momentum	* Power Total (lb/ft s)	* 11.73	* 12.06 *

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 209.53

INPUT
Description: mapping from TranSystems Corporation (2004) proposed grading plans
Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-474.84	1042.98	-453.59	1043.19	-453.58	1027	-445.58	1027	-431.58	1020
161.45	1020	188.62	1014.1	215.79	1014.1	229.37	1005	498.77	1005
507.83	1009.55	525.94	1015	593.85	1015	623.28	1027	640.28	1027
640.29	1042.87	661.91	1042.69						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-474.84	.025	-453.58	.037	229.37	.032	498.77	.037	640.28	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
229.37	498.77	566	647	655 .3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
-474.84	-475.2	1049.55	F
665.16	661.91	1046.07	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 1034.25	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 1.63	* Wt. n-Val.	* 0.037	* 0.032	* 0.037 *
* W.S. Elev (ft)	* 1032.62	* Reach Len. (ft)	* 566.00	* 647.00	* 655.00 *
* Crit W.S. (ft)	* 1026.09	* Flow Area (sq ft)	* 8894.04	* 7439.97	* 2231.73 *
* E.G. Slope (ft/ft)	*0.000855	* Area (sq ft)	* 8894.04	* 7439.97	* 2231.73 *
* Q Total (cfs)	*166000.00	* Flow (cfs)	*57533.61	*92304.57	*16161.82 *
* Top Width (ft)	* 1093.87	* Top Width (ft)	* 682.95	* 269.40	* 141.51 *
* Vel Total (ft/s)	* 8.94	* Avg. Vel. (ft/s)	* 6.47	* 12.41	* 7.24 *
* Max Chl Dpth (ft)	* 27.62	* Hydr. Depth (ft)	* 13.02	* 27.62	* 15.77 *
* Conv. Total (cfs)	*5676541.0	* Conv. (cfs)	*1967421.0	*3156450.0	*552670.2 *
* Length Wtd. (ft)	* 633.34	* Wetted Per. (ft)	* 693.62	* 269.40	* 151.39 *
* Min Ch El (ft)	* 1005.00	* Shear (lb/sq ft)	* 0.68	* 1.47	* 0.79 *
* Alpha	* 1.32	* Stream Power (lb/ft s)	* 4.43	* 18.29	* 5.70 *
* Frctn Loss (ft)	* 0.51	* Cum Volume (acre-ft)	* 7246.77	*26248.87	* 2144.70 *
* C & E Loss (ft)	* 0.40	* Cum SA (acres)	* 2092.04	* 2711.68	* 893.32 *

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 1034.48	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 1.63	* Wt. n-Val.	* 0.037	* 0.032	* 0.037 *
* W.S. Elev (ft)	* 1032.84	* Reach Len. (ft)	* 566.00	* 647.00	* 655.00 *
* Crit W.S. (ft)	* 1026.10	* Flow Area (sq ft)	* 8851.15	* 7501.11	* 2143.12 *
* E.G. Slope (ft/ft)	*0.000840	* Area (sq ft)	* 8851.15	* 7501.11	* 2143.12 *
* Q Total (cfs)	*166000.00	* Flow (cfs)	*57268.59	*92763.73	*15967.67 *
* Top Width (ft)	* 1050.00	* Top Width (ft)	* 659.37	* 269.40	* 121.23 *
* Vel Total (ft/s)	* 8.98	* Avg. Vel. (ft/s)	* 6.47	* 12.37	* 7.45 *

				DuplicateEffective	
* Max Chl Dpth (ft)	* 27.84	* Hydr. Depth (ft)	* 13.42	* 27.84	* 17.68 *
* Conv. Total (cfs)	*5726011.0	* Conv. (cfs)	*1975425.0	*3199796.0	*550789.6 *
* Length Wtd. (ft)	* 633.41	* Wetted Per. (ft)	* 675.61	* 269.40	* 132.38 *
* Min Ch El (ft)	* 1005.00	* Shear (lb/sq ft)	* 0.69	* 1.46	* 0.85 *
* Alpha	* 1.31	* Stream Power (lb/ft s)	* 4.45	* 18.07	* 6.33 *
* Frctn Loss (ft)	* 0.49	* Cum Volume (acre-ft)	* 1373.47	*27143.21	* 221.48 *
* C & E Loss (ft)	* 0.41	* Cum SA (acres)	* 218.27	* 2716.66	* 46.71 *

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 209.42

INPUT
Description: Cross Section updated per TranSystems Corporation Mapping (2004)
Station Elevation Data num= 261

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1034.29	13.95	1035.23	30.6	1035.36	34.2	1035.28	40.66	1035.34
43.54	1035.31	58.19	1035.26	73.11	1035.4	79.13	1034.92	85.28	1034.79
105.16	1034.78	128.62	1034.73	132.9	1034.75	156.09	1034.69	157.21	1034.69
158.1	1034.68	160.06	1034.68	160.67	1034.69	166.18	1034.85	167.34	1034.85
169.73	1034.81	178.72	1035.31	201.05	1035.25	210.87	1035.25	231.67	1035.25
233.12	1035.14	236.04	1035.16	240.22	1035.23	246.03	1034.98	266.86	1033.98
272.38	1034.56	273.11	1034.54	277.52	1033.77	287.54	1032.25	295.72	1034.67
308.45	1038.11	337.71	1037.32	342.25	1037.1	346.32	1037.06	399.81	1036.03
437.59	1035.53	450.62	1035.26	454.42	1035.18	462.99	1036.04	469.46	1036.56
474.85	1036.91	509.74	1035.21	517.9	1034.72	519.4	1034.52	547.09	1032.11
571.09	1030.41	610.96	1028.51	623.69	1027.98	625.8	1028.1	645.65	1024.85
660.16	1022.37	680.73	1022.79	695.8	1023.15	710.23	1024.25	750.12	1026.66
797.1	1026.65	801.31	1026.67	802.77	1026.65	821.28	1026.47	836.71	1026.6
853.16	1027.02	865.83	1026.64	878.1	1025.9	889.61	1025.75	890.58	1025.95
912.9	1020.98	913.31	1020.88	914.04	1020.67	915.41	1020.7	946.3	1021.22
965.99	1022.91	972.75	1023.6	1011.39	1022.68	1016.53	1022.66	1026.48	1022.4
1078.86	1021.51	1103.56	1020.99	1138.64	1022.07	1157.54	1023.27	1161.83	1022.98
1184.97	1023.4	1189.6	1023.49	1214.37	1023.73	1219.41	1023.74	1239.8	1023.75
1294.77	1023.7	1319.01	1023.45	1334.96	1023.61	1351.96	1023.71	1363.77	1023.06
1380.3	1021.78	1386.01	1021.94	1406.76	1023.11	1407.05	1023.17	1409.32	1023.11
1435.49	1023.09	1466.53	1023.46	1502.69	1023.18	1546.39	1021.96	1576.4	1021.46
1589.16	1021.04	1594.54	1020.78	1617.19	1017.47	1658.29	1011.37	1697.76	1009.98
1701.9	1009.84	1706.09	1009.72	1741.68	1009.11	1748.57	1008.42	1751.35	1008.26
1756.92	1008.46	1764.35	1008	1770.76	1007.36	1802.89	1006.68	1812.38	1006.68
1826.28	1006.72	1843.86	1005.6	1867.67	1004.13	1895.38	1004.11	1907.68	1004.08
1913.92	1004.16	1949.03	1003.88	1953.19	1003.87	1954.63	1003.89	1955.23	1003.91
1956.82	1003.98	2007.57	1005.68	2013.21	1005.79	2021.26	1005.87	2032.67	1006.02
2055.91	1006.49	2083.84	1010.54	2087.17	1011.06	2087.73	1011.11	2094.31	1011.35
2133.24	1012.72	2155.65	1019.69	2163.56	1022.38	2166.92	1023.84	2178.78	1029.79
2178.83	1029.82	2200.08	1030.43	2203.87	1030.53	2206.83	1032.28	2210.07	1034.12
2230.25	1045.65	2242.6	1044.92	2245.87	1044.86	2247.48	1044.9	2250.27	1044.9
2253.59	1045.08	2265.71	1045.18	2276.03	1044.59	2284.06	1044	2297.44	1043.03
2308.18	1041.64	2322.34	1040.81	2326.93	1040.54	2335.66	1040.94	2367.98	1042.66
2391.74	1042.11	2395.24	1042.03	2402.64	1041.52	2417.67	1040.94	2425.35	1042.01
2434.99	1043.45	2441.29	1042.69	2442.75	1042.53	2444.7	1041.93	2452.12	1039.79
2476.06	1032.49	2487.64	1032.75	2538.91	1033.17	2592.57	1032.72	2616.96	1032.7
2627.7	1032.64	2655.8	1032.8	2679.32	1032.83	2718.24	1032.83	2721.28	1032.81
2725.34	1032.9	2749.41	1033.26	2759.32	1033.16	2787.73	1032.88	2804.84	1033.02
2807.91	1033.02	2812.72	1033.03	2820.93	1033.11	2849.34	1033.09	2867.33	1033.2
2882.68	1033.06	2895.72	1032.96	2906.2	1032.77	2914.49	1033.07	2915.88	1033.12
2921.76	1033.05	2925.44	1033.01	2942.93	1032.82	2954.19	1032.69	2983.24	1032.35
2987.96	1032.32	2992.97	1032.2	2994.09	1031.99	3000.47	1030.92	3017.65	1031.3
3032.62	1031.8	3036.6	1031.84	3046.19	1031.83	3115.08	1030.86	3135.83	1030.62
3138.26	1030.62	3142.08	1030.59	3157.49	1030.19	3183.8	1029.85	3194.75	1029.52
3198.02	1029.43	3208.52	1029.13	3239.43	1028.33	3267.5	1027.88	3272.94	1027.8
3293.13	1027.87	3318.15	1027.82	3343.82	1027.96	3352.58	1029.75	3352.69	1029.77
3352.9	1029.82	3352.93	1029.82	3353.05	1029.82	3364.26	1029.49	3370.27	1029.49
3390.26	1029.93	3399.73	1030.16	3417.54	1030.91	3442.95	1031.61	3450.87	1031.66
3451.98	1031.67	3463.43	1031.73	3468.18	1031.83	3479.17	1032.03	3481.11	1032.08
3488.58	1032.27	3495.15	1032.33	3511.25	1032.53	3512.76	1032.53	3533.97	1032.45
3572.07	1032.64	3581.32	1032.75	3589.52	1032.66	3594.25	1032.35	3596.39	1032.31
3601.71	1032.3	3658.37	1031.14	3663.86	1031.58	4008.27	1032	4642.62	1032
5294.79	1034								

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.037	571.09	.032	2210.07	.03	2276.03	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
571.09	2210.07	522.18	501.19	560.6	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	302	1050	F
2233	5294.79	1050	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 1033.34	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 0.84	* Wt. n-Val.	* 0.037	* 0.032	* *
* W.S. Elev (ft)	* 1032.51	* Reach Len. (ft)	* 522.18	* 501.19	* 560.60 *
* Crit W.S. (ft)	* 1024.61	* Flow Area (sq ft)	* 30.82	*22620.38	* *
* E.G. Slope (ft/ft)	*0.000757	* Area (sq ft)	* 31.15	*22620.38	* 1879.59 *
* Q Total (cfs)	*166000.00	* Flow (cfs)	* 35.76	*165964.30	* *
* Top Width (ft)	* 3449.86	* Top Width (ft)	* 31.12	* 1636.14	* 1782.61 *
* Vel Total (ft/s)	* 7.33	* Avg. Vel. (ft/s)	* 1.16	* 7.34	* *
* Max Chl Dpth (ft)	* 28.64	* Hydr. Depth (ft)	* 1.08	* 13.83	* *
* Conv. Total (cfs)	*6035340.0	* Conv. (cfs)	* 1300.1	*6034040.0	* *
* Length Wtd. (ft)	* 501.37	* Wetted Per. (ft)	* 28.63	* 1642.88	* *
* Min Ch El (ft)	* 1003.87	* Shear (lb/sq ft)	* 0.05	* 0.65	* *
* Alpha	* 1.00	* Stream Power (lb/ft s)	* 0.06	* 4.77	* *

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                                                                    DuplicateEffective
* Frctn Loss (ft)        *    0.29  * Cum Volume (acre-ft)   * 7188.78  *26025.63  * 2113.79  *
* C & E Loss (ft)        *    0.07  * Cum SA (acres)         * 2087.40  * 2697.53  *  878.85  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)          * 1033.57  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.81  * Wt. n-Val.             *          *    0.032  *          *
* W.S. Elev (ft)          * 1032.77  * Reach Len. (ft)        *  522.18  *  501.19  *  560.60  *
* Crit W.S. (ft)          * 1024.61  * Flow Area (sq ft)      *          *23049.24  *          *
* E.G. Slope (ft/ft)      *0.000713  * Area (sq ft)           *          *23049.24  *          *
* Q Total (cfs)           *166000.00  * Flow (cfs)            *          *166000.00  *          *
* Top Width (ft)          * 1636.60  * Top Width (ft)         *          * 1636.60  *          *
* Vel Total (ft/s)        *    7.20  * Avg. Vel. (ft/s)       *          *    7.20  *          *
* Max Chl Dpth (ft)       *   28.90  * Hydr. Depth (ft)       *          *   14.08  *          *
* Conv. Total (cfs)       *6218621.0  * Conv. (cfs)           *          *6218621.0  *          *
* Length Wtd. (ft)        *  501.19  * Wetted Per. (ft)       *          * 1645.77  *          *
* Min Ch El (ft)          * 1003.87  * Shear (lb/sq ft)       *          *    0.62  *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s) *          *    4.49  *          *
* Frctn Loss (ft)         *    0.27  * Cum Volume (acre-ft)   * 1315.97  *26916.33  *  205.36  *
* C & E Loss (ft)         *    0.06  * Cum SA (acres)         *  213.99  * 2702.51  *   45.80  *
*********************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                RS: 209.33

INPUT
Description: 209.33 - FEMA Section V
Cross Section updated per TranSystems
            Corporation Mapping (2004)
Station Elevation Data    num=     299
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
***************************************************************************************
       0 1033.23     9.28 1033.85    67.59 1034.31    76.29 1034.37    87.16 1034.02
   88.44 1034.02    90.97 1034.27    95.25 1034.49    97.58 1034.68   122.52 1034.77
  138.89 1034.64   164.56 1034.61    182.7 1034.34   185.83 1033.89   188.83 1033.39
  194.16   1033.6   211.38   1034.1  216.25 1033.75   218.76 1033.54   230.15   1033.6
  250.54 1033.94   261.84   1033.5  277.15 1033.46   280.01 1033.12   284.45 1033.52
  295.17     1031  297.37 1030.46   305.08 1032.99   308.41 1033.93   312.26 1035.75
  318.63 1038.04   338.18 1036.71   361.88 1035.18   366.78 1035.25   399.56 1035.44
  429.92 1035.56   447.82 1035.65   501.08 1033.95   515.32 1033.52   518.77 1033.44
  520.96 1033.43    532.1 1033.29   545.07 1033.28   550.44 1033.26   554.88 1033.27
  595.06 1033.05   615.66 1031.04   619.87 1030.58   621.01 1030.06    637.5  1022.7
   677.1 1024.71   684.12 1025.13   693.83 1025.14   720.18 1025.05   733.99 1024.21
  746.45 1023.65   760.29 1022.52   764.83 1022.34   769.36 1021.68   771.49 1021.54
  788.85 1020.64   793.84 1020.23   800.12 1019.85   804.23 1019.57   818.36 1018.65
  820.59 1018.32    822.5 1018.07   830.27 1017.75   832.72 1017.81   840.02 1017.86
  845.29 1017.91   847.96 1018.05   850.48 1018.32   853.78 1018.79   854.56 1018.77
  857.13 1019.03   864.44 1019.81   876.08 1021.46   899.77   1020.2   903.44 1020.01
  905.95 1020.12   907.58 1020.15   918.13 1020.44   948.09 1021.35   958.16 1021.48
  965.83 1021.65   982.55 1021.69   992.22 1021.38 1016.97 1021.63 1066.46 1021.26
 1076.42 1021.07  1105.8 1020.37  1113.21 1020.41 1146.44 1020.81 1169.39 1021.76
 1186.25   1022.4 1188.92   1022.5 1194.15 1022.71 1221.93   1023.6 1236.97 1023.95
 1262.89 1023.87 1284.95 1023.17  1327.05 1023.89 1337.68 1024.18 1349.73 1023.99
 1382.73 1022.93 1388.67 1022.88  1431.76 1022.19 1500.12 1015.89 1514.65 1014.64
 1535.28 1013.68 1542.33 1013.35  1544.11 1013.33 1597.72  1012.7 1602.59 1012.55
 1654.05 1010.85 1669.93 1010.82  1700.26     1011 1714.32 1010.97 1727.89  1010.7
 1742.92 1011.23 1747.36 1011.51  1767.18  1012.7 1767.89 1012.51 1770.42 1011.77
 1777.39 1009.82  1779.1 1009.37  1782.68 1009.06 1783.99 1008.76 1786.05 1008.63
 1795.57 1009.17 1797.61 1008.93   1801.1 1008.56 1824.55 1006.15 1837.62  1003.8
 1838.78 1003.59 1840.25 1003.97  1850.79 1006.66 1858.83 1004.29 1861.38 1003.73
 1864.95 1003.77 1868.11 1003.51  1874.72 1003.45 1878.41 1000.33 1882.97  996.31
 1894.86  997.27 1906.05     998  1919.2  997.82 1939.03  997.28 1946.03  998.99
 1947.79  999.29    1952  999.63     1956 1000.13 1979.64 1001.89 1985.84 1002.52
 1989.17 1002.95 2000.01   1004.4 2005.36 1004.02 2014.47 1003.59 2020.19 1004.18
 2025.36 1004.85 2033.38 1005.14  2049.61 1006.44 2074.51 1008.15 2079.46 1008.47
 2081.02   1008.6 2108.62 1010.66 2134.07 1010.71   2138.6 1010.67  2148.2 1010.73
 2181.42 1010.81 2201.13   1022.3 2214.22 1029.21 2221.15 1029.43 2231.35 1028.17
 2235.41 1027.78 2239.31 1027.07  2245.92 1027.26 2247.52 1027.19 2252.84 1027.46
 2254.41 1027.48 2259.36 1027.98  2264.86 1028.55   2299.2   1030.2 2300.36 1030.25
 2302.03 1030.35 2314.15 1031.05  2315.84 1031.07 2322.94 1031.14  2342.6 1031.52
 2349.83 1031.44 2355.95 1031.72  2364.32 1031.31 2367.09 1031.31 2377.24 1030.95
  2378.4 1030.91 2383.41 1030.73  2384.58 1030.62 2394.07 1031.01 2402.28 1031.39
 2403.62 1031.45 2405.33 1031.72  2407.36   1032.3 2414.23 1034.12 2417.54 1034.95
 2424.21 1034.92 2430.56 1034.82  2454.18 1028.16   2456.8 1027.31 2461.45 1027.34
 2486.18 1027.64 2493.33 1029.57  2498.17 1030.77 2505.12 1029.44 2508.51 1028.96
  2517.6 1029.93 2529.97 1031.26  2622.11 1031.12 2637.96 1031.16 2650.32 1031.14
 2674.99 1031.22  2689.9 1031.57  2714.91 1031.67  2732.2 1031.54 2778.38 1031.59
 2794.49 1031.51 2810.59 1031.48  2854.12 1031.57 2878.43 1031.52 2935.81 1031.33
 2961.68 1031.28 3005.88 1031.07  3015.88 1030.95 3029.29 1030.86 3033.41 1030.82
 3040.12 1030.79 3045.08 1030.77  3047.78 1030.75 3066.15 1030.29 3070.91 1030.23
 3073.75 1030.13 3081.52 1029.97  3097.94 1030.02 3146.58 1030.52 3153.89 1030.61
 3156.18 1030.64 3157.49 1030.65  3159.11 1030.65 3163.93 1030.65 3216.54 1030.26
 3221.33 1030.24 3233.08   1030.2 3295.99 1029.66 3316.09 1029.87 3340.88 1029.36
 3345.28 1029.06 3367.97 1029.98  3375.88 1030.13  3377.7 1029.93 3387.46 1028.55
 3422.85 1028.55  3425.4 1028.47   3433.2  1028.4 3462.75 1027.88 3474.13  1029.1
 3492.12 1031.29  3500.6 1031.61  3507.72  1031.9 3512.42 1032.08 3522.72 1032.41
 3543.21 1032.48 3557.79 1032.53  3578.84 1032.52 3587.78 1032.26 3592.68  1032.2
  3602.5  1032.2 3618.19 1032.12  3632.46 1032.12 3667.58 1032.12 3668.46 1032.11
 3672.96 1032.71 3673.72 1032.73  3674.53 1032.77 3675.28 1032.79 3675.37 1032.79
 3768.01     1030 3873.98     1022 4064.75     1022 4266.25     1028  4509.1     1030
 4756.15     1028 5076.44     1026 5429.17     1028 5785.07     1030 6148.28     1032
 6538.72     1032 6935.43     1030 7354.12     1032 7788.93     1034

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
```

```
**********************************************
       0    .037  615.66    .032 2424.21    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        615.66 2201.13              505.94  495.23  518.99             .1      .3
Ineffective Flow      num=        2
   Sta L    Sta R    Elev  Permanent
       0      320    1040        F
    2419 7788.93    1040        F

CROSS SECTION OUTPUT  Profile #PF#1
*************************************************************************************************
* E.G. Elev (ft)         * 1032.99  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.62  * Wt. n-Val.           *   0.037  *   0.032  *   0.032  *
* W.S. Elev (ft)         * 1032.38  * Reach Len. (ft)       *  505.94  *  495.23  *  518.99  *
* Crit W.S. (ft)         * 1021.18  * Flow Area (sq ft)     *    9.13  *26127.26  *  538.68  *
* E.G. Slope (ft/ft)     *0.000445  * Area (sq ft)          *   22.35  *26127.26  *15068.58  *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *    5.89  *165000.90  *  993.21  *
* Top Width (ft)         * 6734.89  * Top Width (ft)       *   27.56  * 1585.47  * 5121.87  *
* Vel Total (ft/s)       *    6.22  * Avg. Vel. (ft/s)     *    0.65  *    6.32  *    1.84  *
* Max Chl Dpth (ft)      *   36.06  * Hydr. Depth (ft)     *    0.67  *   16.48  *    2.61  *
* Conv. Total (cfs)      *7866844.0  * Conv. (cfs)         *   279.0  *7819496.0  * 47069.1  *
* Length Wtd. (ft)       *  496.25  * Wetted Per. (ft)     *   13.74  * 1596.74  *  208.68  *
* Min Ch El (ft)         *  996.31  * Shear (lb/sq ft)     *    0.02  *    0.45  *    0.07  *
* Alpha                  *    1.02  * Stream Power (lb/ft s) *    0.01  *    2.87  *    0.13  *
* Frctn Loss (ft)        *    0.35  * Cum Volume (acre-ft)  * 7188.46  *25745.19  * 2004.73  *
* C & E Loss (ft)        *    0.06  * Cum SA (acres)       * 2087.04  * 2678.99  *  834.43  *
*************************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*************************************************************************************************
* E.G. Elev (ft)         * 1033.24  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.61  * Wt. n-Val.           *          *   0.032  *          *
* W.S. Elev (ft)         * 1032.63  * Reach Len. (ft)       *  505.94  *  495.23  *  518.99  *
* Crit W.S. (ft)         * 1021.18  * Flow Area (sq ft)     *          *26537.57  *          *
* E.G. Slope (ft/ft)     *0.000432  * Area (sq ft)          *          *26537.57  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *          *166000.00  *          *
* Top Width (ft)         * 1585.47  * Top Width (ft)       *          * 1585.47  *          *
* Vel Total (ft/s)       *    6.26  * Avg. Vel. (ft/s)     *          *    6.26  *          *
* Max Chl Dpth (ft)      *   36.32  * Hydr. Depth (ft)     *          *   16.74  *          *
* Conv. Total (cfs)      *7985517.0  * Conv. (cfs)         *          *7985517.0  *          *
* Length Wtd. (ft)       *  495.89  * Wetted Per. (ft)     *          * 1608.67  *          *
* Min Ch El (ft)         *  996.31  * Shear (lb/sq ft)     *          *    0.45  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    2.78  *          *
* Frctn Loss (ft)        *    0.35  * Cum Volume (acre-ft)  * 1315.97  *26631.07  *  205.36  *
* C & E Loss (ft)        *    0.09  * Cum SA (acres)       *  213.99  * 2683.97  *   45.80  *
*************************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 209.24

INPUT
Description: 209.24
Station Elevation Data    num=      65
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*************************************************************************************
 18800.9  1031.5 18845.2  1031.7 18853.7  1034.8 18869.6  1030.2 18915.9  1030.2
 18963.2  1027.6 19026.2  1018.3 19072.6  1022.7 19145.5  1025.3 19204.5  1026.7
   19228  1027.1 19267.6  1026.7 19336.8  1018.5   19401    1018   19469    1019
 19559.6  1018.9 19600.3    1019 19664.3    1019 19693.2  1019.3 19751.6  1019.2
 19788.9  1019.1 19833.6  1020.4 19858.1  1020.3 19886.4  1017.7   19971  1017.4
 19982.5  1021.6 19990.5  1025.8 20018.6  1018.6 20042.8  1017.5 20058.4  1018.8
 20077.7  1018.9 20090.4  1015.2 20111.7  1010.3 20135.2  1012.6 20140.8  1010.2
 20203.6  1008.9 20268.9  1009.4   20288  1010.6 20307.3  1010.4   20312  1013.8
 20352.1  1014.9 20376.3  1025.5 20383.4  1023.4 20390.2  1026.6   21913  1027.4
 21918.5  1026.2 21937.9  1023.9 21950.8  1023.6 21971.5  1026.2   21995    1024
 22089.4  1024.8   22140    1026 22164.3  1024.1 22247.4  1026.7 22301.3  1026.2
 22321.1  1026.6 22357.4  1030.1 22379.9  1031.6 22389.9  1027.4 22399.6  1028.2
 22408.1  1030.8 22473.3  1030.9 22546.1  1031.4   22631  1032.1   22690  1032.8

Manning's n Values        num=       6
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************************************************
 18800.9    .037   19228    .032 19267.6    .032   20312    .037 20390.2    .037
   21913    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       19267.6 20390.2              510     515     525             .1      .3
Ineffective Flow      num=        2
   Sta L    Sta R    Elev  Permanent
 18800.9 18853.7  1034.8        F
   20850    22690  1034.8        F

CROSS SECTION OUTPUT  Profile #PF#1
*************************************************************************************************
* E.G. Elev (ft)         * 1032.58  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.24  * Wt. n-Val.           *   0.037  *   0.032  *   0.037  *
* W.S. Elev (ft)         * 1031.35  * Reach Len. (ft)       *  510.00  *  515.00  *  525.00  *
```

```
                                                                    DuplicateEffective
* Crit W.S. (ft)         * 1026.11  * Flow Area (sq ft)       * 2335.14  *15698.65  * 2127.17  *
* E.G. Slope (ft/ft)     *0.001239  * Area (sq ft)           * 2335.14  *15698.65  * 9347.02  *
* Q Total (cfs)          *166000.00  * Flow (cfs)             *10786.24  *146865.80  * 8348.01  *
* Top Width (ft)         * 3668.36  * Top Width (ft)         *  401.96  * 1122.60  * 2143.79  *
* Vel Total (ft/s)       *    8.23  * Avg. Vel. (ft/s)       *    4.62  *    9.36  *    3.92  *
* Max Chl Dpth (ft)      *   22.45  * Hydr. Depth (ft)      *    5.81  *   13.98  *    4.63  *
* Conv. Total (cfs)      *4716374.0  * Conv. (cfs)           *306457.3  *4172734.0  *237182.8  *
* Length Wtd. (ft)       *  515.20  * Wetted Per. (ft)      *  403.16  * 1132.10  *  459.80  *
* Min Ch El (ft)         * 1008.90  * Shear (lb/sq ft)      *    0.45  *    1.07  *    0.36  *
* Alpha                  *    1.17  * Stream Power (lb/ft s) *    2.07  *   10.03  *    1.40  *
* Frctn Loss (ft)        *    0.65  * Cum Volume (acre-ft)  * 7174.77  *25507.43  * 1859.29  *
* C & E Loss (ft)        *    0.00  * Cum SA (acres)        * 2084.55  * 2663.60  *  791.14  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)         * 1032.80  * Element              *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.46  * Wt. n-Val.           *   0.033  *   0.032  *   0.037  *
* W.S. Elev (ft)         * 1031.34  * Reach Len. (ft)      *  510.00  *  515.00  *  525.00  *
* Crit W.S. (ft)         * 1026.15  * Flow Area (sq ft)    *  244.47  *15688.51  * 2123.01  *
* E.G. Slope (ft/ft)     *0.001403  * Area (sq ft)         *  244.47  *15688.51  * 2123.01  *
* Q Total (cfs)          *166000.00  * Flow (cfs)           * 1059.22  *156142.10  * 8798.69  *
* Top Width (ft)         * 1637.72  * Top Width (ft)       *   55.32  * 1122.60  *  459.80  *
* Vel Total (ft/s)       *    9.19  * Avg. Vel. (ft/s)     *    4.33  *    9.95  *    4.14  *
* Max Chl Dpth (ft)      *   22.44  * Hydr. Depth (ft)    *    4.42  *   13.98  *    4.62  *
* Conv. Total (cfs)      *4431403.0  * Conv. (cfs)         * 28276.1  *4168244.0  *234882.6  *
* Length Wtd. (ft)       *  515.50  * Wetted Per. (ft)    *   59.83  * 1132.10  *  464.30  *
* Min Ch El (ft)         * 1008.90  * Shear (lb/sq ft)    *    0.36  *    1.21  *    0.40  *
* Alpha                  *    1.11  * Stream Power (lb/ft s) *    1.55  *   12.08  *    1.66  *
* Frctn Loss (ft)        *    0.74  * Cum Volume (acre-ft)  * 1314.55  *26391.03  *  192.72  *
* C & E Loss (ft)        *    0.00  * Cum SA (acres)        *  213.66  * 2668.58  *   43.06  *
*********************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 209.14

INPUT
Description: 209.14
Station Elevation Data    num=      61
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 18530.6  1030.2 18647.3  1030.8 18717.7    1031 18799.9  1030.8 18812.7  1030.6
   18900  1029.5 18932.6  1029.3 18944.6  1034.8 18957.8  1027.8 18961.9  1027.7
 19022.8  1026.2   19085  1025.9   19166  1017.5 19223.3  1022.8 19272.5  1024.6
 19338.9  1024.1 19386.4  1017.7 19425.6  1016.4 19503.5  1016.6 19527.4  1016.6
 19538.6  1021.6 19565.5  1014.5 19580.5  1016.2 19601.3  1015.8 19617.1  1017.3
 19620.4    1016 19621.3    1017 19649.1  1016.3 19715.5  1017.1   19791  1016.6
   19861  1016.8 19939.6    1017 20018.5  1017.5 20098.7  1018.4 20136.8  1016.4
   20159  1021.8 20163.8  1021.6 20169.1  1022.8   20184  1018.8 20211.5  1019.1
 20235.1  1012.1 20271.8  1010.6 20284.5  1010.9 20305.9  1016.4 20368.5  1013.7
 20394.9  1013.1 20413.2  1023.8 20418.3  1025.4 20439.5    1025 20471.6  1026.6
 21987.9  1026.6 21999.2  1033.7 22018.9  1024.5 22092.4  1030.2 22094.4  1030.3
 22100.9  1026.3 22162.2  1027.1 22231.7  1027.3 22248.2  1030.6   22261  1029.5
 22293.3  1030.2

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************************
 18530.6    .037 19338.9    .032 20418.3    .037 21999.2    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       19338.9 20418.3             500  504.56     485             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 18530.6 18944.6    1034        F
   21100 22293.3    1034        F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         * 1031.94  * Element              *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.25  * Wt. n-Val.           *   0.037  *   0.032  *   0.037  *
* W.S. Elev (ft)         * 1030.69  * Reach Len. (ft)      *  500.00  *  504.56  *  485.00  *
* Crit W.S. (ft)         * 1025.89  * Flow Area (sq ft)    * 2633.35  *14935.83  * 2843.57  *
* E.G. Slope (ft/ft)     *0.001275  * Area (sq ft)         * 2757.01  *14935.83  * 7342.59  *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *13537.12  *141896.50  *10566.40  *
* Top Width (ft)         * 3553.73  * Top Width (ft)       *  610.56  * 1079.40  * 1863.77  *
* Vel Total (ft/s)       *    8.13  * Avg. Vel. (ft/s)     *    5.14  *    9.50  *    3.72  *
* Max Chl Dpth (ft)      *   20.09  * Hydr. Depth (ft)    *    6.81  *   13.84  *    4.17  *
* Conv. Total (cfs)      *4648719.0  * Conv. (cfs)         *379097.8  *3973716.0  *295904.9  *
* Length Wtd. (ft)       *  502.51  * Wetted Per. (ft)    *  388.00  * 1089.05  *  681.74  *
* Min Ch El (ft)         * 1010.60  * Shear (lb/sq ft)    *    0.54  *    1.09  *    0.33  *
* Alpha                  *    1.21  * Stream Power (lb/ft s) *    2.78  *   10.37  *    1.23  *
* Frctn Loss (ft)        *    0.51  * Cum Volume (acre-ft)  * 7144.96  *25326.34  * 1758.71  *
* C & E Loss (ft)        *    0.11  * Cum SA (acres)        * 2078.62  * 2650.58  *  766.99  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)         * 1032.06  * Element              *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.46  * Wt. n-Val.           *   0.037  *   0.032  *   0.037  *
* W.S. Elev (ft)         * 1030.60  * Reach Len. (ft)      *  500.00  *  504.56  *  485.00  *
```

				DuplicateEffective	
* Crit W.S. (ft)	* 1026.05	* Flow Area (sq ft)	* 959.08	*14837.40	* 2781.41 *
* E.G. Slope (ft/ft)	*0.001458	* Area (sq ft)	* 959.08	*14837.40	* 2781.41 *
* Q Total (cfs)	*166000.00	* Flow (cfs)	* 5094.29	*150058.70	*10847.02 *
* Top Width (ft)	* 1899.79	* Top Width (ft)	* 138.69	* 1079.40	* 681.70 *
* Vel Total (ft/s)	* 8.94	* Avg. Vel. (ft/s)	* 5.31	* 10.11	* 3.90 *
* Max Chl Dpth (ft)	* 20.00	* Hydr. Depth (ft)	* 6.92	* 13.75	* 4.08 *
* Conv. Total (cfs)	*4347684.0	* Conv. (cfs)	*133423.8	*3930167.0	*284092.8 *
* Length Wtd. (ft)	* 502.66	* Wetted Per. (ft)	* 148.76	* 1089.05	* 685.74 *
* Min Ch El (ft)	* 1010.60	* Shear (lb/sq ft)	* 0.59	* 1.24	* 0.37 *
* Alpha	* 1.18	* Stream Power (lb/ft s)	* 3.12	* 12.54	* 1.44 *
* Frctn Loss (ft)	* 0.56	* Cum Volume (acre-ft)	* 1307.51	*26210.58	* 163.16 *
* C & E Loss (ft)	* 0.15	* Cum SA (acres)	* 212.53	* 2655.56	* 36.18 *

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 209.04

INPUT
Description: 209.04
Station Elevation Data num= 63

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17502.1	1032.3	17560.1	1032.9	17609.7	1031.6	17636.5	1033.4	17744.6	1031.9
17770	1031	17784.7	1027.9	17886.2	1029	17976	1029.5	18087	1029.7
18189.2	1028.4	18278	1028.5	18371.6	1028.9	18408.2	1029.7	18494.9	1028.9
18579.6	1028.4	18720.8	1029	18831.6	1028.7	18921.3	1028.4	19009.8	1028.1
19029.7	1029.9	19039.2	1026.5	19129.8	1025.1	19156.1	1023.5	19206.7	1017.7
19260.8	1016.5	19291.9	1022.9	19315.3	1025.6	19358.3	1024.5	19381.5	1014.5
19410.3	1014.2	19515.9	1015.1	19568.7	1015.3	19609.7	1014.2	19715.7	1014.2
19776	1013.5	19864.4	1016	19951.2	1016.3	20000.4	1015.1	20015.4	1013.4
20144.8	1012.2	20171.9	1012.3	20307.8	1014.7	20330.1	1015.1	20379.3	1022.7
20387.8	1020.9	20406	1020.1	20427.2	1023	20461.4	1023.2	20591	1024.2
22074.8	1024	22077.6	1027.6	22104.8	1036.3	22120.5	1030.7	22123.6	1027.7
22179.3	1027.5	22209.6	1031.1	22217	1033.3	22254	1026.2	22313.5	1029.2
22366.7	1029.7	22453.1	1030.2	22468	1030.4				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
17502.1	.037	19315.3	.037	19410.3	.032	20461.4	.037	22254	.025

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19315.3 20461.4 495 493.26 500 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17502.1	19029.7	1035	F
21200	22468	1035	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 1031.32	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 0.87	* Wt. n-Val.	* 0.037	* 0.032	* 0.037 *
* W.S. Elev (ft)	* 1030.45	* Reach Len. (ft)	* 495.00	* 493.26	* 500.00 *
* Crit W.S. (ft)	* 1023.93	* Flow Area (sq ft)	* 2303.24	*17073.97	* 4702.87 *
* E.G. Slope (ft/ft)	*0.000816	* Area (sq ft)	* 4315.44	*17073.97	*10822.87 *
* Q Total (cfs)	*166000.00	* Flow (cfs)	*10578.41	*136892.90	*18528.71 *
* Top Width (ft)	* 4633.32	* Top Width (ft)	* 1542.67	* 1146.10	* 1944.55 *
* Vel Total (ft/s)	* 6.89	* Avg. Vel. (ft/s)	* 4.59	* 8.02	* 3.94 *
* Max Chl Dpth (ft)	* 18.25	* Hydr. Depth (ft)	* 8.06	* 14.90	* 6.37 *
* Conv. Total (cfs)	*5812813.0	* Conv. (cfs)	*370423.6	*4793571.0	*648819.0 *
* Length Wtd. (ft)	* 493.95	* Wetted Per. (ft)	* 287.40	* 1149.37	* 738.60 *
* Min Ch El (ft)	* 1012.20	* Shear (lb/sq ft)	* 0.41	* 0.76	* 0.32 *
* Alpha	* 1.18	* Stream Power (lb/ft s)	* 1.87	* 6.06	* 1.28 *
* Frctn Loss (ft)	* 0.75	* Cum Volume (acre-ft)	* 7104.37	*25140.95	* 1657.58 *
* C & E Loss (ft)	* 0.21	* Cum SA (acres)	* 2066.27	* 2637.69	* 745.79 *

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 1031.35	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 0.96	* Wt. n-Val.	* 0.037	* 0.032	* 0.037 *
* W.S. Elev (ft)	* 1030.39	* Reach Len. (ft)	* 495.00	* 493.26	* 500.00 *
* Crit W.S. (ft)	* 1023.99	* Flow Area (sq ft)	* 1024.17	*17007.51	* 4660.04 *
* E.G. Slope (ft/ft)	*0.000885	* Area (sq ft)	* 1024.17	*17007.51	* 4660.04 *
* Q Total (cfs)	*166000.00	* Flow (cfs)	* 5443.86	*141657.50	*18898.60 *
* Top Width (ft)	* 1980.00	* Top Width (ft)	* 95.30	* 1146.10	* 738.60 *
* Vel Total (ft/s)	* 7.32	* Avg. Vel. (ft/s)	* 5.32	* 8.33	* 4.06 *
* Max Chl Dpth (ft)	* 18.19	* Hydr. Depth (ft)	* 10.75	* 14.84	* 6.31 *
* Conv. Total (cfs)	*5581269.0	* Conv. (cfs)	*183034.1	*4762824.0	*635410.8 *
* Length Wtd. (ft)	* 493.93	* Wetted Per. (ft)	* 109.10	* 1149.37	* 744.87 *
* Min Ch El (ft)	* 1012.20	* Shear (lb/sq ft)	* 0.52	* 0.82	* 0.35 *
* Alpha	* 1.16	* Stream Power (lb/ft s)	* 2.76	* 6.81	* 1.40 *
* Frctn Loss (ft)	* 0.79	* Cum Volume (acre-ft)	* 1296.12	*26026.15	* 121.73 *
* C & E Loss (ft)	* 0.20	* Cum SA (acres)	* 211.19	* 2642.67	* 28.27 *

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than

0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 208.95

INPUT
Description: 208.95
Station Elevation Data num= 47

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17388.1	1030.8	17406	1030.7	17453.4	1039.3	17470.9	1039.4	17498	1031.1
17600.7	1030.9	17686	1030.7	17760.7	1027.3	17869.1	1027.3	17947.5	1027.5
18034.7	1027.8	18122.9	1027.9	18229.8	1028	18362.5	1027.6	18483.7	1027.2
18571	1026.4	18659.7	1025.6	18802.8	1026.1	18871.2	1029.7	18908.6	1028.7
18928.4	1025.8	19016.8	1024.1	19035.5	1027.7	19114.2	1024.9	19137.7	1030.4
19142.2	1025.8	19205.2	1023.5	19276.9	1018.7	19293.7	1013.8	19408.9	1014.5
19496.9	1014.1	19543	1014.4	19646.8	1014.7	19794.8	1014.5	19910.6	1015.8
19987.9	1016.6	20028.6	1018.7	20113.7	1020.6	20123.6	1024.6	21531.3	1025.2
22092	1024.6	22101.4	1027.9	22119.6	1027.7	22135	1034.4	22141.9	1036.4
22162.1	1026.4	22186	1026.7						

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
17388.1	.037	19137.7	.037	19276.9	.032	20123.6	.037

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
19137.7	20123.6	505	506.69	505	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17388.1	19137.7	1038	F
21200	22186	1038	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1030.35	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.99	Wt. n-Val.		0.032	0.037
W.S. Elev (ft)	1027.37	Reach Len. (ft)	505.00	506.69	505.00
Crit W.S. (ft)	1027.01	Flow Area (sq ft)		10682.39	2730.95
E.G. Slope (ft/ft)	0.003774	Area (sq ft)	763.41	10682.39	4886.42
Q Total (cfs)	166000.00	Flow (cfs)		153466.20	12533.80
Top Width (ft)	3710.50	Top Width (ft)	725.44	982.93	2002.13
Vel Total (ft/s)	12.38	Avg. Vel. (ft/s)		14.37	4.59
Max Chl Dpth (ft)	13.57	Hydr. Depth (ft)		10.87	2.54
Conv. Total (cfs)	2702037.0	Conv. (cfs)		2498020.0	204016.8
Length Wtd. (ft)	506.55	Wetted Per. (ft)		985.36	1076.40
Min Ch El (ft)	1013.80	Shear (lb/sq ft)		2.55	0.60
Alpha	1.26	Stream Power (lb/ft s)		36.70	2.74
Frctn Loss (ft)	1.37	Cum Volume (acre-ft)	7075.51	24983.80	1567.42
C & E Loss (ft)	0.48	Cum SA (acres)	2053.38	2625.64	723.14

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1030.36	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.98	Wt. n-Val.		0.032	0.037
W.S. Elev (ft)	1027.38	Reach Len. (ft)	505.00	506.69	505.00
Crit W.S. (ft)	1027.00	Flow Area (sq ft)		10691.79	2741.33
E.G. Slope (ft/ft)	0.003762	Area (sq ft)		10691.79	2741.33
Q Total (cfs)	166000.00	Flow (cfs)		153426.00	12574.00
Top Width (ft)	2058.96	Top Width (ft)		982.56	1076.40
Vel Total (ft/s)	12.36	Avg. Vel. (ft/s)		14.35	4.59
Max Chl Dpth (ft)	13.58	Hydr. Depth (ft)		10.88	2.55
Conv. Total (cfs)	2706599.0	Conv. (cfs)		2501582.0	205016.7
Length Wtd. (ft)	506.55	Wetted Per. (ft)		985.22	1078.72
Min Ch El (ft)	1013.80	Shear (lb/sq ft)		2.55	0.60
Alpha	1.26	Stream Power (lb/ft s)		36.57	2.74
Frctn Loss (ft)	1.37	Cum Volume (acre-ft)	1290.30	25869.32	79.26
C & E Loss (ft)	0.47	Cum SA (acres)	210.64	2630.62	17.86

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 208.85

INPUT
Description: 208.85
Edits per LOMR 08-09-1294P
Station Elevation Data num= 78

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17667	1028.3	17683.4	1029.5	17702	1037.2	17712.6	1036.7	17732.2	1028.9
17793.4	1029.3	17794.3	1028.1	17811.4	1029.7	17884.4	1029.8	17954.5	1029.5

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                                                                  DuplicateEffective
 18021.3    1029 18086.8  1028.4 18155.5  1027.6 18253.7  1026.5 18321.5  1026.3
 18395.4  1025.8 18469.1  1025.7   18517  1025.4 18547.8  1030.6 18614.6  1029.1
 18653.1  1029.8 18738.3 1028.53 18748.5 1028.97 18771.2 1029.63 18797.1  1029.1
 18806.7 1028.5618814.49    102918832.29    103018852.13    103118895.22    1030
18935.95    102919081.55    102919109.08    102819138.51    102719159.86    1028
19200.47  1029.519207.77    102519215.46    102019220.56  1016.519223.25    1015
 19228.4  1014.1 19243.7  1013.4 19285.7  1013.5 19404.4  1013.7 19442.3  1013.8
 19550.1  1014.4 19628.8  1015.9 19695.2  1016.5 19784.8  1017.1 19851.9  1017.7
 19926.2    1019 20020.7  1019.9 20118.1  1019.8 20148.7  1019.8 20176.3  1018.8
 20233.8  1020.2 20291.9  1019.7 20357.5  1017.6   20426  1016.4 20472.5  1017.1
 20530.5  1016.5 20568.5  1021.6 20573.6  1019.4   20598  1014.9 20615.5  1016.2
 20685.2  1014.7 20701.9  1014.6 20716.4    1019 20745.8  1021.2 21590.5  1021.2
 21595.5  1023.1 21612.9  1023.6 21620.3  1024.7 21935.6  1028.7   21943  1025.9
 22047.6  1025.8 22056.8  1030.6   22086  1042.9

Manning's n Values         num=       4
     Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val
*************************************************************
   17667    .03719200.47    .032 20701.9    .037 20745.8    .037

Bank Sta: Left   Right    Lengths: Left Channel   Right      Coeff Contr.   Expan.
     19200.47 20745.8              510  519.42     530              .1       .3
Ineffective Flow      num=       2
   Sta L   Sta R    Elev  Permanent
   17667 18968.7    1035       F
   21150   22086    1035       F

CROSS SECTION OUTPUT  Profile #PF#1
*****************************************************************************************
* E.G. Elev (ft)         * 1028.51  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.40  * Wt. n-Val.            *   0.037  *   0.032  *   0.037  *
* W.S. Elev (ft)         * 1027.11  * Reach Len. (ft)       *  510.00  *  519.42  *  530.00  *
* Crit W.S. (ft)         * 1024.13  * Flow Area (sq ft)     *    0.29  *15570.13  * 2387.62  *
* E.G. Slope (ft/ft)     *0.002038  * Area (sq ft)          *  326.02  *15570.13  * 5465.13  *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *    0.07  *151854.00  *14145.93  *
* Top Width (ft)         * 3049.03  * Top Width (ft)       *  333.04  * 1541.45  * 1174.54  *
* Vel Total (ft/s)       *    9.24  * Avg. Vel. (ft/s)     *    0.26  *    9.75  *    5.92  *
* Max Chl Dpth (ft)      *   13.71  * Hydr. Depth (ft)     *    0.05  *   10.10  *    5.91  *
* Conv. Total (cfs)      *3676905.0  * Conv. (cfs)         *     1.7  *3363571.0  *313332.8  *
* Length Wtd. (ft)       *  519.87  * Wetted Per. (ft)     *    5.44  * 1547.23  *  404.20  *
* Min Ch El (ft)         * 1013.40  * Shear (lb/sq ft)     *    0.01  *    1.28  *    0.75  *
* Alpha                  *    1.05  * Stream Power (lb/ft s) *    0.00  *   12.49  *    4.45  *
* Frctn Loss (ft)        *    0.83  * Cum Volume (acre-ft)  * 7069.20  *24831.11  * 1507.42  *
* C & E Loss (ft)        *    0.06  * Cum SA (acres)        * 2047.24  * 2610.96  *  704.73  *
*****************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*****************************************************************************************
* E.G. Elev (ft)         * 1028.51  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.40  * Wt. n-Val.            *          *   0.032  *   0.037  *
* W.S. Elev (ft)         * 1027.11  * Reach Len. (ft)       *  510.00  *  519.42  *  530.00  *
* Crit W.S. (ft)         * 1024.11  * Flow Area (sq ft)     *          *15580.85  * 2390.44  *
* E.G. Slope (ft/ft)     *0.002037  * Area (sq ft)          *          *15580.85  * 2390.44  *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *          *151968.30  *14031.68  *
* Top Width (ft)         * 1945.66  * Top Width (ft)       *          * 1541.46  *  404.20  *
* Vel Total (ft/s)       *    9.24  * Avg. Vel. (ft/s)     *          *    9.75  *    5.87  *
* Max Chl Dpth (ft)      *   13.71  * Hydr. Depth (ft)     *          *   10.11  *    5.91  *
* Conv. Total (cfs)      *3678330.0  * Conv. (cfs)         *          *3367407.0  *310922.7  *
* Length Wtd. (ft)       *  519.87  * Wetted Per. (ft)     *          * 1547.25  *  410.11  *
* Min Ch El (ft)         * 1013.40  * Shear (lb/sq ft)     *          *    1.28  *    0.74  *
* Alpha                  *    1.05  * Stream Power (lb/ft s) *          *   12.49  *    4.35  *
* Frctn Loss (ft)        *    0.83  * Cum Volume (acre-ft)  * 1290.30  *25716.52  *   49.51  *
* C & E Loss (ft)        *    0.06  * Cum SA (acres)        *  210.64  * 2615.94  *    9.27  *
*****************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 208.75

INPUT
Description: 208.75 - FEMA Section U
Edits per LOMR 08-09-1294P
Station Elevation Data    num=      90
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*************************************************************************************
 17694.2  1021.1 17763.9  1027.7   17785    1036 17797.3  1035.5 17818.9  1026.8
 17862.3  1027.5 17876.4  1028.3 17879.6    1027 17887.5  1027.8 17976.5  1027.4
 18069.6  1028.1 18129.1  1026.6 18227.5    1026 18358.7    1025 18444.7    1027
   18498    1027   18542    1028 18577.8    1028 18607.8 1027.35 18619.8  1027.6
 18643.2  1028.3 18668.9 1027.84 18684.6 1026.9318740.66    102818782.94    1028
18904.32    102718966.24    1027 19135.5    102819147.88    102819238.98    1027
 19249.3 1027.1319252.28    102519259.56    102019266.81    101519271.79  1011.6
 19469.4  1013.5 19559.7  1013.6   19581  1014.6 19605.6  1018.3 19624.1  1017.7
 19644.9  1018.4 19739.6  1018.2 19808.7  1018.7 19912.6  1019.8 20031.3    1019
 20124.1  1018.4 20199.4  1018.2 20239.9  1014.1 20370.8  1011.9   20423  1008.1
 20441.8  1007.4 20459.1  1008.5 20487.2  1008.9 20517.6  1007.6 20545.9  1007.6
 20574.1  1007.6 20616.3  1007.6 20685.5  1007.6 20704.1  1009.9 20720.5    1009
   20737  1005.2 20763.6  1011.5 20774.6    1011 20799.2  1019.7 20826.5    1020
   21626  1022.7   21706  1024.3 21714.3  1025.4   21770  1027.2 21800.9  1044.1
 21813.2  1039.1 21842.4  1033.1 21857.2  1027.1 21893.8  1028.4 22015.3  1028.8
 22117.6  1027.6 22189.1    1026 22214.4  1028.5 22251.7  1027.8 22282.9  1029.1
 22304.2  1030.9 22314.1  1036.1 22336.1  1034.2   22354  1031.3 22395.9  1029.6
 22417.9  1030.2 22426.2  1025.2 22438.2  1024.8   22447    1027 22490.7  1026.9

Manning's n Values         num=       4
     Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val
*************************************************************
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                                                                    DuplicateEffective
 17694.2    .037 19249.3    .032 20799.2    .037 22314.1    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      19249.3 20799.2              440  443.83     450             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 17694.2 19192.9    1038       F
 20799.2 22490.7    1038       F

CROSS SECTION OUTPUT  Profile #PF#1
*************************************************************************************************
* E.G. Elev (ft)         * 1027.61  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.20  * Wt. n-Val.             *          *    0.032  *          *
* W.S. Elev (ft)         * 1026.41  * Reach Len. (ft)        *  440.00  *  443.83  *  450.00  *
* Crit W.S. (ft)         * 1021.31  * Flow Area (sq ft)      *          * 18870.67  *          *
* E.G. Slope (ft/ft)     *0.001289  * Area (sq ft)           *  325.59  * 18870.67  * 4516.46  *
* Q Total (cfs)          *166000.00  * Flow (cfs)            *          *166000.00  *          *
* Top Width (ft)         * 2854.08  * Top Width (ft)        *  315.69  * 1548.90  *  989.50  *
* Vel Total (ft/s)       *    8.80  * Avg. Vel. (ft/s)      *          *    8.80  *          *
* Max Chl Dpth (ft)      *   21.21  * Hydr. Depth (ft)      *          *   12.18  *          *
* Conv. Total (cfs)      *4623178.0  * Conv. (cfs)          *          *4623178.0  *          *
* Length Wtd. (ft)       *  443.83  * Wetted Per. (ft)      *          * 1557.13  *          *
* Min Ch El (ft)         * 1005.20  * Shear (lb/sq ft)      *          *    0.98  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    8.58  *          *
* Frctn Loss (ft)        *    0.64  * Cum Volume (acre-ft)  * 7065.38  *24625.77  * 1446.70  *
* C & E Loss (ft)        *    0.01  * Cum SA (acres)        * 2043.45  * 2592.53  *  691.56  *
*************************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*************************************************************************************************
* E.G. Elev (ft)         * 1027.62  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.20  * Wt. n-Val.             *          *    0.032  *          *
* W.S. Elev (ft)         * 1026.42  * Reach Len. (ft)        *  440.00  *  443.83  *  450.00  *
* Crit W.S. (ft)         * 1021.31  * Flow Area (sq ft)      *          * 18880.31  *          *
* E.G. Slope (ft/ft)     *0.001294  * Area (sq ft)           *          * 18880.31  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)            *          *166000.00  *          *
* Top Width (ft)         * 1548.90  * Top Width (ft)        *          * 1548.90  *          *
* Vel Total (ft/s)       *    8.79  * Avg. Vel. (ft/s)      *          *    8.79  *          *
* Max Chl Dpth (ft)      *   21.22  * Hydr. Depth (ft)      *          *   12.19  *          *
* Conv. Total (cfs)      *4613830.0  * Conv. (cfs)          *          *4613830.0  *          *
* Length Wtd. (ft)       *  443.83  * Wetted Per. (ft)      *          * 1563.86  *          *
* Min Ch El (ft)         * 1005.20  * Shear (lb/sq ft)      *          *    0.98  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    8.58  *          *
* Frctn Loss (ft)        *    0.64  * Cum Volume (acre-ft)  * 1290.30  *25511.06  *   34.97  *
* C & E Loss (ft)        *    0.01  * Cum SA (acres)        *  210.64  * 2597.52  *    6.81  *
*************************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 208.67

INPUT
Description: 208.67
Edits per LOMR 08-09-1294P
Station Elevation Data    num=      98
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*************************************************************************************
 17786.1  1022.3 17843.6  1026.5 17855.3  1034.5 17872.2  1033.9 17892.4  1025.1
 17923.9  1026.9 17935.3  1026.9 17946.1  1029.5 17954.2  1026.8 17960.6  1028.1
 18085.3  1025.9 18175.8  1025.5 18284.1  1025.1   18393  1024.3 18487.3  1025.1
 18509.1 1025.64 18532.1    1026 18557.8 1025.54 18568.2 1025.06   18784    1026
 18872.6    102618951.11    102718970.13    102719123.78    102619176.25    1027
19183.07    102819272.43    1033 19298.9    103319302.29    102719314.92    1027
19317.06 1029.74 19323.8    102519330.74    102019337.72    101519341.93    1012
 19374.5  1013.1 19435.1  1013.5 19572.8  1013.6 19645.9  1014.5 19689.8  1017.6
 19797.8  1018.5 19923.6  1018.8 20022.9    1016 20112.6  1014.2 20119.4  1013.9
 20139.2  1008.8 20180.9  1009.7 20203.7  1007.6   20293  1010.5 20307.2  1007.8
   20372  1009.4 20399.2  1008.8 20452.2  1010.5 20523.1  1009.4 20536.1  1014.1
 20548.6  1010.7 20639.2  1014.5 20652.7  1013.5 20665.3  1010.4 20713.7  1010.2
 20725.6  1013.6 20738.6  1020.7   20826  1023.1 20841.3  1024.7 20857.6  1022.8
 20866.3  1014.9 20871.8  1016.1 20881.2  1020.9   20902  1018.820908.111023.942
 20912.1  1027.3 20915.2  1025.5 21808.2  1025.7 21897.3  1025.4 21995.2  1025.3
 22131.2  1026.1 22205.3  1026.2 22276.6  1027.7 22393.1  1027.2   22428  1027.2
 22464.1  1025.6 22496.5    1027 22518.1  1024.1 22529.5    1026   22649  1025.9
 22747.7  1025.2 22864.8  1024.7 22963.7  1025.8 23106.8  1026.4   23231  1026.5
 23328.6  1027.2 23422.1  1026.4 23522.3  1028.3 23562.9  1027.2 23612.4  1030.4
 23634.1  1030.7 23767.5  1029.2 23789.9  1028.4

Manning's n Values        num=       6
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************************************************
 17786.1    .03719317.06    .037 19323.8    .032   20826    .037 20912.1    .037
   22428    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      19317.0620908.11              495  511.45     475             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 17786.1 19102.8    1033       F
   21150 23789.9    1033       F

CROSS SECTION OUTPUT  Profile #PF#1
*************************************************************************************************
* E.G. Elev (ft)         * 1026.96  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.33  * Wt. n-Val.             *          *   0.032  *   0.037  *
* W.S. Elev (ft)         * 1025.63  * Reach Len. (ft)        *  495.00  *  511.45  *  475.00  *
```

				Duplicate	Effective	
* Crit W.S. (ft)	* 1021.02	* Flow Area (sq ft)	*	*17937.73	* 26.84	*
* E.G. Slope (ft/ft)	*0.001614	* Area (sq ft)	* 353.80	*17937.73	* 234.89	*
* Q Total (cfs)	*166000.00	* Flow (cfs)	*	*165988.80	* 11.19	*
* Top Width (ft)	* 3257.49	* Top Width (ft)	* 566.60	* 1585.21	* 1105.68	*
* Vel Total (ft/s)	* 9.24	* Avg. Vel. (ft/s)	*	* 9.25	* 0.42	*
* Max Chl Dpth (ft)	* 18.03	* Hydr. Depth (ft)	*	* 11.32	* 0.11	*
* Conv. Total (cfs)	*4132509.0	* Conv. (cfs)	*	*4132230.0	* 278.5	*
* Length Wtd. (ft)	* 511.45	* Wetted Per. (ft)	*	* 1601.51	* 237.69	*
* Min Ch El (ft)	* 1007.60	* Shear (lb/sq ft)	*	* 1.13	* 0.01	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 10.44	* 0.00	*
* Frctn Loss (ft)	* 1.53	* Cum Volume (acre-ft)	* 7061.95	*24438.25	* 1422.16	*
* C & E Loss (ft)	* 0.28	* Cum SA (acres)	* 2038.99	* 2576.57	* 680.74	*

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 1026.97	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 1.33	* Wt. n-Val.	*	* 0.032	* *
* W.S. Elev (ft)	* 1025.64	* Reach Len. (ft)	* 495.00	* 511.45	* 475.00 *
* Crit W.S. (ft)	* 1021.02	* Flow Area (sq ft)	*	*17944.12	* *
* E.G. Slope (ft/ft)	*0.001615	* Area (sq ft)	*	*17944.12	* *
* Q Total (cfs)	*166000.00	* Flow (cfs)	*	*166000.00	* *
* Top Width (ft)	* 1585.22	* Top Width (ft)	*	* 1585.22	* *
* Vel Total (ft/s)	* 9.25	* Avg. Vel. (ft/s)	*	* 9.25	* *
* Max Chl Dpth (ft)	* 18.04	* Hydr. Depth (ft)	*	* 11.32	* *
* Conv. Total (cfs)	*4131094.0	* Conv. (cfs)	*	*4131094.0	* *
* Length Wtd. (ft)	* 511.45	* Wetted Per. (ft)	*	* 1603.21	* *
* Min Ch El (ft)	* 1007.60	* Shear (lb/sq ft)	*	* 1.13	* *
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 10.44	* *
* Frctn Loss (ft)	* 1.54	* Cum Volume (acre-ft)	* 1290.30	*25323.46	* 34.97 *
* C & E Loss (ft)	* 0.28	* Cum SA (acres)	* 210.64	* 2581.55	* 6.81 *

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 208.57

INPUT
Description: 208.57
Edits per LOMR 08-09-1294P
Station Elevation Data num= 83

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17892.9	1023.8	17920.6	1025.8	17926.7	1033.6	17946	1032.8	17966.2	1024.2
18010.1	1026	18022	1028.4	18027.2	1025.8	18036.6	1027.8	18048.7	1025
18090.2	1023.6	18189.1	1023.8	18284.4	1023.8	18378.8	1023.6	18492.2	1023.9
18502.6	1023.9	18572.5	1024.4	18652.6	1025	18744.4	1026	18925.6	1027
19296.9	1028	19363.1	1028	19388.3	1028.13	19392.8	1025	19400.1	1020
19408.3	1015	19413.2	1012	19435.4	1013.3	19524.5	1013.8	19585.9	1012
19676.3	1014	19772.4	1014.4	19846.2	1014.8	19900.7	1016.3	19982.9	1016.5
20023.8	1014.7	20071.3	1014.9	20086.3	1012.9	20123	1013.5	20146	1011
20220.3	1007.6	20240.8	1007.6	20261.8	1009.9	20276.9	1008.4	20361	1010.1
20458.8	1010.7	20541.8	1012.1	20584.9	1012.3	20595.3	1014.5	20599.2	1013.9
20607.5	1016.1	20614.3	1015	20623.9	1016	206401	016.203	20647.7	1016.3
20654.4	1017.4	20724.7	1017.3	20827.2	1020	20901.1	1020.7	20951.9	1021
20965.4	1016.5	20974.8	1017	21000.4	1025.7	21032.4	1026.3	21033.8	1024
21616	1024.8	21707.7	1024.4	21817.1	1024.3	21913.4	1023.7	21991.5	1023.8
22065.5	1024.5	22100	1024.9	22243.4	1025.1	22248	1025.1	22334.2	1026.7
22341.3	1026.8	22434.5	1027.5	22499.8	1026.8	22523.2	1026.9	22552.2	1028.3
22565.8	1024.5	22577.9	1025.6	22585	1027.8				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
17892.9	.037	19388.3	.037	19392.8	.032	21000.4	.032	21032.4	.037

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19388.3 20640 560 514.75 370 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17892.9	19080.9	1028	F
20640	22585	1028	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 1025.15	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 4.10	* Wt. n-Val.	*	* 0.032	* *
* W.S. Elev (ft)	* 1021.05	* Reach Len. (ft)	* 560.00	* 514.75	* 370.00 *
* Crit W.S. (ft)	* 1021.05	* Flow Area (sq ft)	*	*10216.43	* *
* E.G. Slope (ft/ft)	*0.007401	* Area (sq ft)	*	*10216.43	* 729.51 *
* Q Total (cfs)	*166000.00	* Flow (cfs)	*	*166000.00	* *
* Top Width (ft)	* 1588.16	* Top Width (ft)	*	* 1241.44	* 346.72 *

```
                                                                    DuplicateEffective
* Vel Total (ft/s)       *   16.25  * Avg. Vel. (ft/s)       *          *   16.25  *          *
* Max Chl Dpth (ft)      *   13.45  * Hydr. Depth (ft)       *          *    8.23  *          *
* Conv. Total (cfs)      *1929565.0  * Conv. (cfs)           *          *1929565.0  *          *
* Length Wtd. (ft)       *  514.75  * Wetted Per. (ft)       *          * 1245.45  *          *
* Min Ch El (ft)         * 1007.60  * Shear (lb/sq ft)       *          *    3.79  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   61.58  *          *
* Frctn Loss (ft)        *    1.63  * Cum Volume (acre-ft)   * 7059.94  *24272.97  * 1416.90  *
* C & E Loss (ft)        *    0.90  * Cum SA (acres)         * 2035.77  * 2559.97  *  672.82  *
*********************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Manning's n values were composited to a single value in the main channel.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)         * 1025.15  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    4.10  * Wt. n-Val.             *          *    0.032  *          *
* W.S. Elev (ft)         * 1021.05  * Reach Len. (ft)        *  560.00  *  514.75  *  370.00  *
* Crit W.S. (ft)         * 1021.05  * Flow Area (sq ft)      *          *10216.43  *          *
* E.G. Slope (ft/ft)     *0.007440  * Area (sq ft)           *          *10216.43  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)            *          *166000.00  *          *
* Top Width (ft)         * 1241.44  * Top Width (ft)        *          * 1241.44  *          *
* Vel Total (ft/s)       *   16.25  * Avg. Vel. (ft/s)      *          *   16.25  *          *
* Max Chl Dpth (ft)      *   13.45  * Hydr. Depth (ft)      *          *    8.23  *          *
* Conv. Total (cfs)      *1924572.0  * Conv. (cfs)          *          *1924572.0  *          *
* Length Wtd. (ft)       *  514.75  * Wetted Per. (ft)      *          * 1250.30  *          *
* Min Ch El (ft)         * 1007.60  * Shear (lb/sq ft)      *          *    3.80  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   61.66  *          *
* Frctn Loss (ft)        *    1.62  * Cum Volume (acre-ft)   * 1290.30  *25158.14  *   34.97  *
* C & E Loss (ft)        *    0.91  * Cum SA (acres)         *  210.64  * 2564.96  *    6.81  *
*********************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Manning's n values were composited to a single value in the main channel.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                RS: 208.48

INPUT
Description: 208.48
Station Elevation Data    num=      72
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 18038.2  1024.5 18107.3    1024 18176.8  1026.3 18180.6  1023.6   18220  1024.2
 18231.5  1030.8   18253  1040.2 18276.7  1045.8 18279.2  1045.4 18325.3  1023.2
 18350.1  1034.9 18383.7  1036.5 18431.8  1022.6 18508.9  1022.118510.561021.363
 18528.5  1013.4 18574.3  1009.5   18585  1009.5 18656.1  1009.7 18723.8  1009.2
 18751.4  1011.9 18757.6  1013.2 18773.9    1012   18790  1012.6 18811.4  1014.6
   18894  1015.4 18935.3  1016.3 18976.7    1016 18993.7  1009.2 19033.2  1007.6
 19073.1  1010.5 19142.7  1010.5 19210.3  1011.2 19297.6  1012.4 19357.3  1014.5
 19432.9    1014 19515.6  1015.2 19565.3  1016.2 19630.9  1012.6 19702.1  1013.3
 19791.9    1013 19865.2  1012.2 19956.6  1011.4 20027.1    1011 20099.9    1011
 20112.3    1011 20178.6  1011.1 20248.4  1011.1 20312.8  1010.9 20383.8  1010.5
 20479.2  1009.8 20529.6  1009.2 20545.1    1017 20627.3  1012.2 20656.3    1012
20680.861021.362 20694.6  1026.6 20705.7  1021.5 20806.1  1023.8 21024.6  1028.4
   21084  1028.5 21102.7  1031.8 21472.3  1022.1 21971.9  1021.8 22046.1  1022.2
 22091.6    1023 22109.6  1026.2 22178.4  1024.8   22198    1027 22264.7  1026.9
   22377  1027.5   22430  1027.5

Manning's n Values        num=       6
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************************************************
 18038.2    .043 18508.9    .043   18585    .032 20545.1    .037 20694.6    .037
   22377    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      18510.5620680.86              500  476.54     525             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 18038.2 18508.9    1038        F
 20694.6   22430    1038        F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         * 1022.45  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.09  * Wt. n-Val.             *          *    0.032  *          *
* W.S. Elev (ft)         * 1021.36  * Reach Len. (ft)        *  500.00  *  476.54  *  525.00  *
* Crit W.S. (ft)         * 1017.86  * Flow Area (sq ft)      *          *19846.45  *          *
* E.G. Slope (ft/ft)     *0.001742  * Area (sq ft)           *          *19846.45  *    0.00  *
```

```
                                                                    DuplicateEffective
* Q Total (cfs)          *166000.00  * Flow (cfs)                    *          *166000.00  *          *
* Top Width (ft)         * 2170.30  * Top Width (ft)                 *          * 2170.30  *          *
* Vel Total (ft/s)       *    8.36  * Avg. Vel. (ft/s)               *          *    8.36  *          *
* Max Chl Dpth (ft)      *   13.76  * Hydr. Depth (ft)               *          *    9.14  *          *
* Conv. Total (cfs)      *3977183.0  * Conv. (cfs)                    *          *3977183.0  *          *
* Length Wtd. (ft)       *  476.54  * Wetted Per. (ft)               *          * 2177.94  *          *
* Min Ch El (ft)         * 1007.60  * Shear (lb/sq ft)               *          *    0.99  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s)         *          *    8.29  *          *
* Frctn Loss (ft)        *    0.89  * Cum Volume (acre-ft)           * 7059.94  *24095.34  * 1413.80  *
* C & E Loss (ft)        *    0.00  * Cum SA (acres)                 * 2035.77  * 2539.81  *  671.35  *
*********************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)         * 1022.46  * Element                  *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.08  * Wt. n-Val.               *          *    0.032  *          *
* W.S. Elev (ft)         * 1021.38  * Reach Len. (ft)          *  500.00  *  476.54  *  525.00  *
* Crit W.S. (ft)         * 1017.86  * Flow Area (sq ft)        *          *19884.46  *          *
* E.G. Slope (ft/ft)     *0.001731  * Area (sq ft)             *          *19884.46  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)               *          *166000.00  *          *
* Top Width (ft)         * 2170.30  * Top Width (ft)           *          * 2170.30  *          *
* Vel Total (ft/s)       *    8.35  * Avg. Vel. (ft/s)         *          *    8.35  *          *
* Max Chl Dpth (ft)      *   13.78  * Hydr. Depth (ft)         *          *    9.16  *          *
* Conv. Total (cfs)      *3989798.0  * Conv. (cfs)              *          *3989798.0  *          *
* Length Wtd. (ft)       *  476.54  * Wetted Per. (ft)         *          * 2177.97  *          *
* Min Ch El (ft)         * 1007.60  * Shear (lb/sq ft)         *          *    0.99  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s)   *          *    8.24  *          *
* Frctn Loss (ft)        *    0.88  * Cum Volume (acre-ft)     * 1290.30  *24980.29  *   34.97  *
* C & E Loss (ft)        *    0.00  * Cum SA (acres)           *  210.64  * 2544.80  *    6.81  *
*********************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 208.39

INPUT
Description: 208.39 - FEMA Section T
Station Elevation Data    num=      72
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 18033.7  1024.2 18048.9  1023.9 18052.4  1029.4 18060.9  1031.1 18078.5  1028.7
 18083.6  1026.5 18089.9  1022.5 18176.1  1021.5 18253.5  1021.3 18379.7  1022.4
 18417.8  1035.8   18447  1022.618462.941020.436 18469.1  1019.6 18494.4  1010.7
 18597.1  1007.9 18699.5  1009.4 18760.1  1011.4 18779.9    1010 18820.5  1010.6
 18843.1  1015.2 18914.5  1016.3 18932.1  1009.7 19018.2  1006.1 19063.1  1005.6
 19094.9  1009.1 19184.7  1010.4 19213.8  1010.9 19266.1  1013.3 19343.9  1014.9
 19411.9  1013.9 19452.4  1014.4 19493.3  1016.2 19593.6  1015.6 19647.5  1014.8
 19744.6  1015.5 19808.5  1013.7 19910.3  1013.1   20054  1012.2 20156.8  1011.7
 20242.7  1010.5 20343.9    1010 20449.6  1010.3 20484.4  1010.8 20718.2  1010.6
20748.791020.435 20754.9  1022.4 20802.7  1021.3 20917.8    1022 20992.6    1024
 21004.2    1019 21264.2  1022.8 21271.1  1021.2 21710.3    1019 21734.9  1021.9
 21769.9  1021.9 21817.5  1020.2 21841.4  1017.4 21869.1  1018.9 21889.9  1018.1
 21894.1  1020.2 21908.6  1017.2 21928.1  1016.5 21932.5  1018.5 22018.7  1019.9
 22082.6  1021.4 22098.4  1024.6   22134  1025.4   22198  1023.8 22317.1  1023.6
 22352.6  1025.6   22382  1025.9

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************************************************
 18033.7    .043 18417.8    .043 18597.1    .032 20718.2    .037 20754.9    .037

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
     18462.9420748.79             505  512.19     480             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 18033.7 18417.8    1030        F
 20754.9   22382    1030        F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         * 1021.56  * Element                  *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.12  * Wt. n-Val.               *          *    0.033  *          *
* W.S. Elev (ft)         * 1020.44  * Reach Len. (ft)          *  505.00  *  512.19  *  480.00  *
* Crit W.S. (ft)         * 1017.33  * Flow Area (sq ft)        *          *19556.29  *          *
* E.G. Slope (ft/ft)     *0.002009  * Area (sq ft)             *    0.00  *19556.29  *  657.28  *
* Q Total (cfs)          *166000.00  * Flow (cfs)               *          *166000.00  *          *
* Top Width (ft)         * 2917.06  * Top Width (ft)           *          * 2285.85  *  631.20  *
* Vel Total (ft/s)       *    8.49  * Avg. Vel. (ft/s)         *          *    8.49  *          *
* Max Chl Dpth (ft)      *   14.84  * Hydr. Depth (ft)         *          *    8.56  *          *
* Conv. Total (cfs)      *3703180.0  * Conv. (cfs)              *          *3703180.0  *          *
* Length Wtd. (ft)       *  512.19  * Wetted Per. (ft)         *          * 2291.23  *          *
* Min Ch El (ft)         * 1005.60  * Shear (lb/sq ft)         *          *    1.07  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s)   *          *    9.09  *          *
* Frctn Loss (ft)        *    0.98  * Cum Volume (acre-ft)     * 7059.94  *23879.81  * 1409.84  *
* C & E Loss (ft)        *    0.03  * Cum SA (acres)           * 2035.77  * 2515.44  *  667.54  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)         * 1021.58  * Element                  *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.11  * Wt. n-Val.               *          *    0.033  *          *
```

```
                                                                    DuplicateEffective
* W.S. Elev (ft)          * 1020.47  * Reach Len. (ft)        *  505.00  *  512.19  *  480.00  *
* Crit W.S. (ft)          * 1017.33  * Flow Area (sq ft)      *          *19622.28  *          *
* E.G. Slope (ft/ft)      *0.001987  * Area (sq ft)           *          *19622.28  *          *
* Q Total (cfs)           *166000.00  * Flow (cfs)            *          *166000.00  *          *
* Top Width (ft)          * 2285.85  * Top Width (ft)        *          * 2285.85  *          *
* Vel Total (ft/s)        *    8.46  * Avg. Vel. (ft/s)      *          *    8.46  *          *
* Max Chl Dpth (ft)       *   14.87  * Hydr. Depth (ft)      *          *    8.58  *          *
* Conv. Total (cfs)       *3723944.0  * Conv. (cfs)          *          *3723944.0  *          *
* Length Wtd. (ft)        *  512.19  * Wetted Per. (ft)      *          * 2291.29  *          *
* Min Ch El (ft)          * 1005.60  * Shear (lb/sq ft)      *          *    1.06  *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s) *          *    8.99  *          *
* Frctn Loss (ft)         *    0.96  * Cum Volume (acre-ft)  * 1290.30  *24764.19  *   34.97  *
* C & E Loss (ft)         *    0.03  * Cum SA (acres)        *  210.64  * 2520.42  *    6.81  *
*****************************************************************************************

Note:    Manning's n values were composited to a single value in the main channel.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 208.29

INPUT
Description: 208.29
Station Elevation Data    num=      71
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
 17002.6  1020.8 17033.1  1020.7   17130  1020.6 17223.7  1020.7 17316.5  1020.8
   17410    1021 17443.4    1021 17527.8  1021.3 17612.8  1021.5   17700  1022.8
 17725.5  1028.3   17746    1019 18278.7  1023.8 18304.6  1033.9 18306.7  1033.7
 18430.1  1023.3 18444.4  1021.3   18480  1020.6 18525.3  1021.4 18545.4  1030.1
 18562.61019.523 18580.2  1008.7 18645.9  1006.9 18729.8  1008.2 18813.6    1008
 18846.3  1006.7 18858.5  1011.3   18964  1010.4 19046.3  1010.7   19068  1009.9
 19095.1  1004.7 19192.2  1007.2 19204.4    1008 19237.6    1005 19274.3  1005.1
 19293.9  1010.7 19341.5  1011.4 19389.6    1015 19461.9  1012.7 19548.6  1016.1
 19665.7  1014.5 19730.4  1012.3 19830.2  1012.9 19905.4  1012.6 19969.1  1014.2
 20073.7  1013.1 20194.6  1010.4 20258.7  1012.5 20359.4  1011.5 20498.8  1009.7
 20566.1  1009.2 20843.2  1010.4 20909.3 1011.220944.071019.521 20944.4  1019.6
   20975    1023 21021.7    1024 21130.5  1022.9 21208.2  1021.6 21306.6  1021.3
 21351.8  1021.1   21367    1020   21795    1020 21802.7  1023.1 21891.9  1019.9
 21966.6  1016.6 21987.4  1019.1 22088.4    1021 22160.2  1022.7 22169.6  1026.3
   22197    1026

Manning's n Values        num=       7
     Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val
*****************************************************************************
 17002.6    .025 17725.5    .043 18545.4    .043 18645.9    .032 20909.3    .037
   20975    .037 21987.4    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       18562.620944.07             490  501.01     510            .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 17002.6 18545.4  1033.9       F
 21021.7   22197  1033.9       F

CROSS SECTION OUTPUT  Profile #PF#1
*****************************************************************************************
* E.G. Elev (ft)          * 1020.55  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    1.03  * Wt. n-Val.            *          *    0.033  *          *
* W.S. Elev (ft)          * 1019.52  * Reach Len. (ft)       *  490.00  *  501.01  *  510.00  *
* Crit W.S. (ft)          * 1016.25  * Flow Area (sq ft)     *          *20401.30  *          *
* E.G. Slope (ft/ft)      *0.001814  * Area (sq ft)          *   15.45  *20401.30  *  136.21  *
* Q Total (cfs)           *166000.00  * Flow (cfs)           *          *166000.00  *          *
* Top Width (ft)          * 2550.03  * Top Width (ft)       *   59.14  * 2381.47  *  109.42  *
* Vel Total (ft/s)        *    8.14  * Avg. Vel. (ft/s)     *          *    8.14  *          *
* Max Chl Dpth (ft)       *   14.82  * Hydr. Depth (ft)     *          *    8.57  *          *
* Conv. Total (cfs)       *3897028.0  * Conv. (cfs)         *          *3897028.0  *          *
* Length Wtd. (ft)        *  501.01  * Wetted Per. (ft)     *          * 2388.32  *          *
* Min Ch El (ft)          * 1004.70  * Shear (lb/sq ft)     *          *    0.97  *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s) *          *    7.87  *          *
* Frctn Loss (ft)         *    0.84  * Cum Volume (acre-ft)  * 7059.85  *23644.90  * 1405.47  *
* C & E Loss (ft)         *    0.05  * Cum SA (acres)        * 2035.43  * 2488.00  *  663.46  *
*****************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Manning's n values were composited to a single value in the main channel.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*****************************************************************************************
* E.G. Elev (ft)          * 1020.59  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    1.02  * Wt. n-Val.            *          *    0.033  *          *
* W.S. Elev (ft)          * 1019.57  * Reach Len. (ft)       *  490.00  *  501.01  *  510.00  *
* Crit W.S. (ft)          * 1016.25  * Flow Area (sq ft)     *          *20508.57  *          *
* E.G. Slope (ft/ft)      *0.001783  * Area (sq ft)          *          *20508.57  *          *
* Q Total (cfs)           *166000.00  * Flow (cfs)           *          *166000.00  *          *
* Top Width (ft)          * 2381.47  * Top Width (ft)       *          * 2381.47  *          *
* Vel Total (ft/s)        *    8.09  * Avg. Vel. (ft/s)     *          *    8.09  *          *
* Max Chl Dpth (ft)       *   14.87  * Hydr. Depth (ft)     *          *    8.61  *          *
* Conv. Total (cfs)       *3931101.0  * Conv. (cfs)         *          *3931101.0  *          *
* Length Wtd. (ft)        *  501.01  * Wetted Per. (ft)     *          * 2388.41  *          *
* Min Ch El (ft)          * 1004.70  * Shear (lb/sq ft)     *          *    0.96  *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s) *          *    7.74  *          *
* Frctn Loss (ft)         *    0.82  * Cum Volume (acre-ft)  * 1290.30  *24528.25  *   34.97  *
* C & E Loss (ft)         *    0.05  * Cum SA (acres)        *  210.64  * 2492.98  *    6.81  *
*****************************************************************************************

Note:    Manning's n values were composited to a single value in the main channel.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.
```

CROSS SECTION

RIVER: 1
REACH: 1 RS: 208.19

INPUT
Description: 208.19
Station Elevation Data num= 73

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16738.4	1022.5	16814.9	1021.3	16821.2	1024.1	16826.8	1024.4	16846	1022.6
16869.2	1018.1	16892.4	1020.2	17011.8	1018.9	17149.6	1018.8	17287.4	1019
17387.1	1019.5	17473.6	1019.4	17580.5	1019.5	17670	1020.5	17703.3	1019.8
17715.2	1023.4	17720.4	1019.5	18540.1	1019.5	18545.5	1021.5	18598.6	1019.7
18675.6	102018679.18		1018.788	18707.5	1009.2	18726.3	1010.8	18788	1007.7
18875.7	1008.8	18927.6	1008.9	18995.2	1007.2	19040	1004.7	19071.5	1004.8
19117	1012.1	19221.7	1012.6	19293	1010.3	19310.2	1006.5	19415.1	1005.7
19433	1005.7	19473.9	1008.3	19506.7	1017.8	19594.5	1018.2	19623.8	1016.2
19711.7	1018.6	19793	1010.9	19904.1	1011.6	19997.4	1011.8	20089.1	1012.4
20178.1	1013.8	20250.4	1007.3	20363.1	1007.4	20433.4	1005.7	20559.2	1006.9
20626.2	1007.7	20641.6	1005.9	20704.7	1010	20807.3	1012.1	20891.1	1011
21007.8	1008.2	21027.6	1007.7	21114.3	1011	21201.9	1010.7	21231.6	1010
21232	1010.8	21278.3	1014.9	21343.2	1018.788	21348.4	1019.1	21818.1	1019.2
21871.3	1019.6	22068.3	1019.1	22125.4	1020	22187	1022.1	22200.2	1026.3
22310.7	1025.1	22415.4	1025	22486	1024.5				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16738.4	.025	17715.2	.043	18675.6	.043	18707.5	.032	21348.4	.032

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
18679.18 21343.2 550 514.57 505 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
16738.4	18675.6	1024	F
21348.4	22486	1024	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1019.66	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.87	Wt. n-Val.		0.032	
W.S. Elev (ft)	1018.79	Reach Len. (ft)	550.00	514.57	505.00
Crit W.S. (ft)	1014.91	Flow Area (sq ft)		22151.56	
E.G. Slope (ft/ft)	0.001564	Area (sq ft)	3.85	22151.56	0.00
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	2675.20	Top Width (ft)	11.17	2664.02	0.02
Vel Total (ft/s)	7.49	Avg. Vel. (ft/s)		7.49	
Max Chl Dpth (ft)	14.09	Hydr. Depth (ft)		8.32	
Conv. Total (cfs)	4197702.0	Conv. (cfs)		4197702.0	
Length Wtd. (ft)	514.57	Wetted Per. (ft)		2670.29	
Min Ch El (ft)	1004.70	Shear (lb/sq ft)		0.81	
Alpha	1.00	Stream Power (lb/ft s)		6.07	
Frctn Loss (ft)	0.81	Cum Volume (acre-ft)	7059.74	23400.18	1404.67
C & E Loss (ft)	0.02	Cum SA (acres)	2035.03	2458.98	662.82

Warning: Divided flow computed for this cross-section.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1019.71	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.86	Wt. n-Val.		0.032	
W.S. Elev (ft)	1018.85	Reach Len. (ft)	550.00	514.57	505.00
Crit W.S. (ft)	1014.91	Flow Area (sq ft)		22325.38	
E.G. Slope (ft/ft)	0.001524	Area (sq ft)		22325.38	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	2664.02	Top Width (ft)		2664.02	
Vel Total (ft/s)	7.44	Avg. Vel. (ft/s)		7.44	
Max Chl Dpth (ft)	14.15	Hydr. Depth (ft)		8.38	
Conv. Total (cfs)	4252565.0	Conv. (cfs)		4252565.0	
Length Wtd. (ft)	514.57	Wetted Per. (ft)		2670.42	
Min Ch El (ft)	1004.70	Shear (lb/sq ft)		0.80	
Alpha	1.00	Stream Power (lb/ft s)		5.91	
Frctn Loss (ft)	0.78	Cum Volume (acre-ft)	1290.30	24281.92	34.97
C & E Loss (ft)	0.02	Cum SA (acres)	210.64	2463.97	6.81

Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 208.1

INPUT
Description: 208.1
Station Elevation Data num= 69

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16819.7	1020	16911.7	1020	16920.8	1021.8	17013.5	1018.3	17181.5	1017.7
17278.5	1017.9	17421.8	1018.4	17530.4	1018.9	17672.5	1019	17700.9	1021.1
17741	1041.2	17785.3	1019.8	17794.9	1019.4	18660.8	1020.4	18677.2	1019
18756.4	1019.4	18786.9	1024.5	18805.9	1022.218822.371		1018.025	18827.2	1016.8
18834.8	1016.8	18846	1012	18862.1	1009.8	18895.6	1011.5	18990.9	1008.1
19103.9	1008.1	19211.4	1009.5	19294.1	1007	19344.4	1005.3	19402.2	1005.6
19441.1	1001.9	19492.5	1001.4	19507.6	1005.4	19538.7	1004.2	19589.1	1004.9
19611.9	1009.1	19719.5	1009.4	19730.1	1011.2	19842.8	1011.2	19883.7	1010.5
19981.4	1014	20076.5	1014	20186.6	1011.8	20200.6	1004.4	20293.1	1005.3

```
                                                                  DuplicateEffective
   20440  1005.6 20518.6  1005.6 20579.1    1016 20684.7  1017.1 20777.7  1016.5
 20898.9  1016.6 20918.1  1016.7   20993  1011.1 21084.2  1010.3 21202.2  1009.9
 21318.2  1011.4 21438.8  1010.4 21535.9    1009 21597.7  1011.1 21698.8  1010.3
 21706.3  1012.821767.181018.025 21783.2  1019.4 21878.3  1019.5 21970.4  1019.6
 22184.8  1019.5 22249.1  1022.6 22375.9  1023.7   22460  1023.8

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************************************************
 16819.7    .025   17741    .043 18786.9    .043 18805.9    .032 21783.2    .032

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
     18822.3721767.18              640  558.37     480            .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 16819.7 18786.9    1030       F
 21783.2   22460    1030       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         * 1018.84  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.81  * Wt. n-Val.           *          *    0.032  *          *
* W.S. Elev (ft)         * 1018.03  * Reach Len. (ft)      *  640.00  *  558.37  *  480.00  *
* Crit W.S. (ft)         * 1014.27  * Flow Area (sq ft)    *          *22976.38  *          *
* E.G. Slope (ft/ft)     *0.001569  * Area (sq ft)         *   39.06  *22976.38  *    0.00  *
* Q Total (cfs)          *166000.00  * Flow (cfs)          *          *166000.00  *          *
* Top Width (ft)         * 3169.18  * Top Width (ft)      *  224.36  * 2944.81  *          *
* Vel Total (ft/s)       *    7.22  * Avg. Vel. (ft/s)    *          *    7.22  *          *
* Max Chl Dpth (ft)      *   16.63  * Hydr. Depth (ft)    *          *    7.80  *          *
* Conv. Total (cfs)      *4190911.0  * Conv. (cfs)        *          *4190911.0  *          *
* Length Wtd. (ft)       *  558.37  * Wetted Per. (ft)    *          * 2951.27  *          *
* Min Ch El (ft)         * 1001.40  * Shear (lb/sq ft)    *          *    0.76  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *       *    5.51  *          *
* Frctn Loss (ft)        *    0.95  * Cum Volume (acre-ft)  * 7059.47  *23133.64  * 1404.67  *
* C & E Loss (ft)        *    0.01  * Cum SA (acres)        * 2033.54  * 2425.86  *  662.82  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)         * 1018.91  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.79  * Wt. n-Val.           *          *    0.032  *          *
* W.S. Elev (ft)         * 1018.12  * Reach Len. (ft)      *  640.00  *  558.37  *  480.00  *
* Crit W.S. (ft)         * 1014.27  * Flow Area (sq ft)    *          *23258.76  *          *
* E.G. Slope (ft/ft)     *0.001506  * Area (sq ft)         *          *23258.76  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)          *          *166000.00  *          *
* Top Width (ft)         * 2944.81  * Top Width (ft)      *          * 2944.81  *          *
* Vel Total (ft/s)       *    7.14  * Avg. Vel. (ft/s)    *          *    7.14  *          *
* Max Chl Dpth (ft)      *   16.72  * Hydr. Depth (ft)    *          *    7.90  *          *
* Conv. Total (cfs)      *4276917.0  * Conv. (cfs)        *          *4276917.0  *          *
* Length Wtd. (ft)       *  558.37  * Wetted Per. (ft)    *          * 2951.47  *          *
* Min Ch El (ft)         * 1001.40  * Shear (lb/sq ft)    *          *    0.74  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *       *    5.29  *          *
* Frctn Loss (ft)        *    0.91  * Cum Volume (acre-ft)  * 1290.30  *24012.68  *   34.97  *
* C & E Loss (ft)        *    0.01  * Cum SA (acres)        *  210.64  * 2430.84  *    6.81  *
*********************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 207.99

INPUT
Description: 207.99

Left and Right Channel Bank Stations Interpolated
Station Elevation Data    num=      98
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 17809.3  1018.5 17815.5  1018.4 17825.2  1016.2 17906.9  1016.7 18020.3  1016.6
 18102.9  1017.1 18116.8  1017.8 18121.1  1019.2   18156  1021.3 18162.3  1018.5
 18168.8  1017.5 18272.9  1016.7 18288.2  1016.8 18385.1    1017 18430.3  1017.1
 18440.8  1018.3 18447.7  1016.2 18501.8  1016.4 18510.3    1018 18514.6  1015.5
 18538.2  1015.7 18541.7  1014.1 18552.7  1006.7 18579.2  1006.9 18660.4  1004.5
 18672.2  1007.9 18695.7  1012.5 18709.9  1013.9 18790.3  1015.9 18865.8  1016.8
 18884.7  1023.5 18901.5  1024.9 18919.6  1017.9 18933.3  1017.3   19008  1016.5
 19025.7  1016.3 19034.2  1018.6 19040.9  1016.9 19083.8  1019.819093.031016.923
 19108.5  1012.1 19169.3    1009   19252  1007.4   19308    1009 19330.7  1003.7
 19355.3  1004.7 19441.2  1004.1 19496.6  1000.7 19571.6   999.9 19628.3  1003.8
 19657.1  1004.6 19679.9  1006.9   19709  1005.7 19786.5  1006.6 19863.9  1009.8
 19926.2    1011 19969.4  1002.6 20043.2  1002.9 20123.4  1004.2 20199.1  1003.3
 20291.6  1005.7   20354  1006.7 20409.8  1008.7 20448.4  1011.1 20498.1  1016.9
   20579  1017.6 20660.5  1016.3 20726.3  1014.2 20743.2  1010.4 20801.5  1014.5
 20874.6  1015.4 20955.4    1016 21051.7  1015.4 21137.2  1014.3 21215.8  1012.8
 21233.3  1012.4 21267.9  1009.1 21316.4  1007.5 21351.9  1005.2 21379.5  1005.3
 21468.2  1009.5 21567.9  1011.4 21676.9  1011.6 21738.1  1010.6   21759  1009.1
 21849.9  1013.1   21881  1015.521934.421016.922 21967.4  1017.8 22054.7  1017.9
 22077.8    1018 22085.6  1018.9 22160.9  1020.4 22188.5  1022.7 22281.8  1022.9
 22357.5  1022.4   22442  1022.2 22476.6  1022.2

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************************
 17809.3    .043 19083.8    .043 19108.5    .032 22085.6    .032

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
     19093.0321934.42              475  482.29     500            .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
```

17809.3 19083.8 1021 F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1017.87	Element	Left OB	Channel	Right OB	
Vel Head (ft)	0.95	Wt. n-Val.		0.032		
W.S. Elev (ft)	1016.92	Reach Len. (ft)	475.00	482.29	500.00	
Crit W.S. (ft)	1013.04	Flow Area (sq ft)		21224.66		
E.G. Slope (ft/ft)	0.001846	Area (sq ft)	1978.07	21224.66	0.00	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00		
Top Width (ft)	3550.63	Top Width (ft)	829.67	2720.88	0.08	
Vel Total (ft/s)	7.82	Avg. Vel. (ft/s)		7.82		
Max Chl Dpth (ft)	17.02	Hydr. Depth (ft)		7.80		
Conv. Total (cfs)	3863648.0	Conv. (cfs)		3863648.0		
Length Wtd. (ft)	482.29	Wetted Per. (ft)		2725.43		
Min Ch El (ft)	999.90	Shear (lb/sq ft)		0.90		
Alpha	1.00	Stream Power (lb/ft s)		7.02		
Frctn Loss (ft)	0.73	Cum Volume (acre-ft)	7044.65	22850.34	1404.67	
C & E Loss (ft)	0.08	Cum SA (acres)	2025.80	2389.54	662.82	

Warning: Divided flow computed for this cross-section.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1018.00	Element	Left OB	Channel	Right OB	
Vel Head (ft)	0.91	Wt. n-Val.		0.032		
W.S. Elev (ft)	1017.08	Reach Len. (ft)	475.00	482.29	500.00	
Crit W.S. (ft)	1013.04	Flow Area (sq ft)		21661.21		
E.G. Slope (ft/ft)	0.001749	Area (sq ft)		21661.21		
Q Total (cfs)	166000.00	Flow (cfs)		166000.00		
Top Width (ft)	2749.34	Top Width (ft)		2749.34		
Vel Total (ft/s)	7.66	Avg. Vel. (ft/s)		7.66		
Max Chl Dpth (ft)	17.18	Hydr. Depth (ft)		7.88		
Conv. Total (cfs)	3969111.0	Conv. (cfs)		3969111.0		
Length Wtd. (ft)	482.29	Wetted Per. (ft)		2754.22		
Min Ch El (ft)	999.90	Shear (lb/sq ft)		0.86		
Alpha	1.00	Stream Power (lb/ft s)		6.58		
Frctn Loss (ft)	0.68	Cum Volume (acre-ft)	1290.30	23724.78	34.97	
C & E Loss (ft)	0.07	Cum SA (acres)	210.64	2394.34	6.81	

Warning: Divided flow computed for this cross-section.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 207.9

INPUT
Description: 207.9 - FEMA Section S

Right Channel Bank Station Interpolated
Station Elevation Data num= 89

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18318.7	1015.8	18394.8	1015.8	18463.1	1016.2	18469.7	1018.1	18472.9	1015
18724.1	1015	18761.1	1014.3	18777.9	1016.8	18795.6	1016.9	18860.1	1015.9
18896.1	1016.3	18904.8	1019.7	18929.3	1019.8	18940.1	1015.2	19033.5	1016.1
19047.9	1016	19059.8	1017.2	19066.9	1015.1	19104.7	1016	19116.7	1011.7
19126.7	1007.1	19193.6	1007.4	19285	1009.3	19371.2	1009	19445.7	1007.1
19492.9	1005.5	19566.8	1005.1	19594	1005.6	19624.6	1005.2	19638.3	1006.4
19689	1001.1	19766	1000.8	19843.4	1001.2	19860.6	1000.8	19947.8	1001.8
19955.3	1001.9	20050.4	1001.4	20071.1	1001.6	20089.1	1003.2	20118.3	1004.3
20156	1007.1	20190.3	1008	20289.9	1007.9	20381.4	1008.9	20427.9	1010.5
20531.5	1011.1	20544.8	1011.1	20560.1	1011.9	20586.4	1015.8	20608.7	1016.9
20680.6	1014.6	20727.2	1013.8	20735.8	1014.5	20764.9	1009.7	20788.6	1011.6
20822.1	1012.5	20927.9	1011.9	20963	1010.7	20994.1	1008.3	21051.7	1014.1
21082.2	1013.7	21131.1	1014.8	21213.2	1014.5	21238.4	1013.9	21256.2	1007.6
21259.2	1007.2	21307.5	1008.3	21334.5	1010	21416.2	1010.9	21507.7	1009.2
21598.5	1005.8	21681.1	1006.9	21719.6	1007.7	21776.6	1006.7	21793.9	1004.3
21872.6	1005.5	21939.8	1009	21972.8	1010.5	22032.5	1008.8	22046.3	1006.6
22111	1005.9	22137.55	1016.3	74 22143.7	1018.8	22212.8	1020.7	22232.2	1021.2
22300.9	1021	22378.9	1020.5	22421.5	1020.6	22488.9	1019.9		

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
18318.7	.043	19047.9	.032	19104.7	.032	22143.7	.032

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19104.72 22137.55 505 509.52 585 .1 .3
Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
18318.7	19059.8	1020	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1017.07	Element	Left OB	Channel	Right OB	
Vel Head (ft)	0.69	Wt. n-Val.	0.032	0.032		
W.S. Elev (ft)	1016.38	Reach Len. (ft)	505.00	509.52	585.00	
Crit W.S. (ft)	1012.13	Flow Area (sq ft)	34.04	24808.08		
E.G. Slope (ft/ft)	0.001248	Area (sq ft)	621.56	24808.08	0.00	
Q Total (cfs)	166000.00	Flow (cfs)	48.30	165951.70		
Top Width (ft)	3677.94	Top Width (ft)	672.01	3005.92		
Vel Total (ft/s)	6.68	Avg. Vel. (ft/s)	1.42	6.69		
Max Chl Dpth (ft)	15.58	Hydr. Depth (ft)	0.81	8.25		
Conv. Total (cfs)	4698084.0	Conv. (cfs)	1366.9	4696717.0		
Length Wtd. (ft)	509.50	Wetted Per. (ft)	42.31	3013.42		

```
                                                                    DuplicateEffective
* Min Ch El (ft)          * 1000.80  * Shear (lb/sq ft)        *    0.06  *    0.64  *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s) *    0.09  *    4.29  *          *
* Frctn Loss (ft)         *    0.73  * Cum Volume (acre-ft)   * 7030.48  *22595.51  * 1404.67  *
* C & E Loss (ft)         *    0.02  * Cum SA (acres)         * 2017.61  * 2357.84  *  662.82  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)          * 1017.24  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.66  * Wt. n-Val.             *          *    0.032  *          *
* W.S. Elev (ft)          * 1016.58  * Reach Len. (ft)        *  505.00  *  509.52  *  585.00  *
* Crit W.S. (ft)          * 1012.13  * Flow Area (sq ft)      *          *25415.12  *          *
* E.G. Slope (ft/ft)      *0.001158  * Area (sq ft)           *          *25415.12  *          *
* Q Total (cfs)           *166000.00  * Flow (cfs)            *          *166000.00  *          *
* Top Width (ft)          * 3016.31  * Top Width (ft)         *          * 3016.31  *          *
* Vel Total (ft/s)        *    6.53  * Avg. Vel. (ft/s)       *          *    6.53  *          *
* Max Chl Dpth (ft)       *   15.78  * Hydr. Depth (ft)       *          *    8.43  *          *
* Conv. Total (cfs)       *4877759.0  * Conv. (cfs)           *          *4877759.0  *          *
* Length Wtd. (ft)        *  509.52  * Wetted Per. (ft)       *          * 3024.60  *          *
* Min Ch El (ft)          * 1000.80  * Shear (lb/sq ft)       *          *    0.61  *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s) *          *    3.97  *          *
* Frctn Loss (ft)         *    0.68  * Cum Volume (acre-ft)   * 1290.30  *23464.17  *   34.97  *
* C & E Loss (ft)         *    0.02  * Cum SA (acres)         *  210.64  * 2362.43  *    6.81  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                RS: 207.8

INPUT
Description: 207.8

Right Channel Bank Station Interpolated
Station Elevation Data    num=      73
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 16720.8  1015.6   16820    1018 16844.2  1018.7 16848.8  1017.5 16856.8    1019
 16867.4  1017.3 16875.2  1017.8   16895  1016.2 16996.6  1015.8 17124.1  1015.3
 17221.3  1014.7 17233.7  1014.6 17327.7  1014.3 17428.5  1014.5 17461.8  1014.4
   17509  1014.7 17520.5  1015.7 17546.1  1014.2 18739.7  1014.2 18794.2  1014.4
 18801.9  1012.7 18900.8  1014.4   18913  1018.5 18934.2  1018.4 18945.1  1013.9
 19039.6  1013.5 19178.5  1013.1   19235  1013.5 19249.5    1015 19270.9  1008.6
 19304.9  1007.2 19435.5  1007.2 19520.8  1006.1 19559.8  1004.3 19673.3  1005.3
 19780.3  1005.6 19820.2  1000.5 19919.9  1000.6 20045.1  1000.2   20073  1001.1
 20160.5  1002.9   20209  1001.4 20279.2  1004.6 20310.6  1008.1 20429.9  1009.7
 20529.9  1009.3 20571.6  1009.6 20646.2    1007 20667.3  1010.8 20787.7  1013.1
 20898.5  1015.2   20915  1015.8 20928.8  1011.5   21033  1009.7   21101  1010.3
 21126.1  1013.2 21165.5  1011.3 21182.3  1008.2 21287.6  1007.8 21332.6  1005.8
 21365.6  1009.5 21456.3  1009.3 21581.9    1009 21695.3  1007.9 21776.1  1006.6
 21795.3  1002.4 21834.5   999.1 21842.9  1003.521871.221015.405 21881.2  1019.6
 21991.4  1019.8 22085.9  1019.5   22180  1020.6

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************************************************
 16720.8    .025 17520.5    .043 19039.6    .032 19249.5    .032 21881.2    .032

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       19249.521871.22             495   494.8     505            .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 16720.8   18913    1019       F
 21881.2   22180    1019       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)          * 1016.32  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.91  * Wt. n-Val.             *   0.034  *   0.032  *          *
* W.S. Elev (ft)          * 1015.41  * Reach Len. (ft)        *  495.00  *  494.80  *  505.00  *
* Crit W.S. (ft)          * 1011.92  * Flow Area (sq ft)      *  593.22  *21376.93  *          *
* E.G. Slope (ft/ft)      *0.001667  * Area (sq ft)           * 2627.09  *21376.93  *    0.00  *
* Q Total (cfs)           *166000.00  * Flow (cfs)            * 1635.28  *164364.70  *          *
* Top Width (ft)          * 4717.03  * Top Width (ft)         * 2107.30  * 2609.72  *          *
* Vel Total (ft/s)        *    7.56  * Avg. Vel. (ft/s)       *    2.76  *    7.69  *          *
* Max Chl Dpth (ft)       *   16.31  * Hydr. Depth (ft)       *    1.93  *    8.19  *          *
* Conv. Total (cfs)       *4065865.0  * Conv. (cfs)           * 40053.1  *4025812.0  *          *
* Length Wtd. (ft)        *  494.80  * Wetted Per. (ft)       *  308.44  * 2617.28  *          *
* Min Ch El (ft)          *  999.10  * Shear (lb/sq ft)       *    0.20  *    0.85  *          *
* Alpha                   *    1.03  * Stream Power (lb/ft s) *    0.55  *    6.54  *          *
* Frctn Loss (ft)         *    0.88  * Cum Volume (acre-ft)   * 7011.65  *22325.40  * 1404.67  *
* C & E Loss (ft)         *    0.01  * Cum SA (acres)         * 2001.50  * 2325.00  *  662.82  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)          * 1016.54  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.88  * Wt. n-Val.             *          *   0.032  *          *
* W.S. Elev (ft)          * 1015.66  * Reach Len. (ft)        *  495.00  *  494.80  *  505.00  *
* Crit W.S. (ft)          * 1011.92  * Flow Area (sq ft)      *          *22032.87  *          *
* E.G. Slope (ft/ft)      *0.001544  * Area (sq ft)           *          *22032.87  *          *
* Q Total (cfs)           *166000.00  * Flow (cfs)            *          *166000.00  *          *
```

```
                                                                    DuplicateEffective
* Top Width (ft)          * 2617.43  * Top Width (ft)              *          * 2617.43  *          *
* Vel Total (ft/s)        *    7.53  * Avg. Vel. (ft/s)            *          *    7.53  *          *
* Max Chl Dpth (ft)       *   16.56  * Hydr. Depth (ft)           *          *    8.42  *          *
* Conv. Total (cfs)       *4224476.0  * Conv. (cfs)               *          *4224476.0  *          *
* Length Wtd. (ft)        *  494.80  * Wetted Per. (ft)           *          * 2625.95  *          *
* Min Ch El (ft)          *  999.10  * Shear (lb/sq ft)           *          *    0.81  *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s)     *          *    6.09  *          *
* Frctn Loss (ft)         *    0.85  * Cum Volume (acre-ft)       * 1290.30  *23186.67  *   34.97  *
* C & E Loss (ft)         *    0.02  * Cum SA (acres)             *  210.64  * 2329.48  *    6.81  *
*****************************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                RS: 207.71

INPUT
Description: 207.71

Right Channel Bank Station Interpolated
Station Elevation Data    num=      69
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*************************************************************************************
 16626.2  1015.3 16668.1  1016.9 16690.7  1017.7 16699.2  1016.4 16733.9  1017.7
 16740.2  1016.3 16747.5  1017.3 16818.1  1015.6 16927.6  1015.4   17021  1015.3
 17153.4  1014.4 17242.5  1014.4 17313.4  1014.7 17424.4  1012.2   17499    1011
   17545    1013 17556.4    1015 18768.1  1013.7   18795 1011.6 18818.9  1011.4
 18826.3  1012.5 18837.7    1011 18904.5  1010.8 18932.9  1017.1 18948.7  1016.5
 18965.2  1012.7 18981.8  1010.9 19105.3  1010.4 19195.8  1010.5 19272.7  1010.8
   19360  1012.7 19373.3  1012.3 19388.1  1010.3 19485.7  1009.8 19579.6  1007.5
   19626  1005.9 19656.3    1007 19724.1  1004.1   19825  1001.9 19865.5  1001.1
 20033.4  1000.7 20147.9  1000.3 20249.8  1001.7 20337.9    1005 20425.2  1009.8
   20449    1011 20553.3  1008.9 20639.2  1006.4 20687.9  1004.5 20738.5  1010.7
 20781.1  1011.2 20925.4  1010.6 21010.9  1010.5 21099.7  1007.8 21189.9  1007.3
 21251.6  1004.6 21350.8  1006.6 21434.6    1006 21545.1  1002.4 21640.9  1004.3
 21652.1    1006 21660.7 1004.221704.111014.399 21725.4  1019.4 21784.6  1016.6
 21889.9  1018.1 21992.7  1019.3 22114.5  1018.7   22157  1018.7

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************************************************
 16626.2    .025 17556.4    .043 18981.8    .032   19360    .032 21725.4    .032

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          1936021704.11             485  487.91     485             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 16626.2 18932.9    1018        F
 21725.4   22157    1018        F

CROSS SECTION OUTPUT  Profile #PF#1
*****************************************************************************************************
* E.G. Elev (ft)          * 1015.43  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    1.03  * Wt. n-Val.             *   0.032  *   0.032  *   0.000  *
* W.S. Elev (ft)          * 1014.41  * Reach Len. (ft)        *  485.00  *  487.91  *  485.00  *
* Crit W.S. (ft)          * 1011.60  * Flow Area (sq ft)      * 1392.39  *19378.33  *    0.00  *
* E.G. Slope (ft/ft)      *0.001884  * Area (sq ft)           * 2488.16  *19378.33  *    0.00  *
* Q Total (cfs)           *166000.00  * Flow (cfs)            * 6418.99  *159581.00  *    0.00  *
* Top Width (ft)          * 3875.76  * Top Width (ft)        * 1531.62  * 2344.11  *    0.03  *
* Vel Total (ft/s)        *    7.99  * Avg. Vel. (ft/s)      *    4.61  *    8.24  *    0.05  *
* Max Chl Dpth (ft)       *   14.11  * Hydr. Depth (ft)      *    3.46  *    8.27  *    0.00  *
* Conv. Total (cfs)       *3823945.0  * Conv. (cfs)          *147866.7  *3676079.0  *     0.0  *
* Length Wtd. (ft)        *  487.81  * Wetted Per. (ft)      *  402.52  * 2346.83  *    0.03  *
* Min Ch El (ft)          * 1000.30  * Shear (lb/sq ft)      *    0.41  *    0.97  *          *
* Alpha                   *    1.03  * Stream Power (lb/ft s) *    1.88  *    8.00  *          *
* Frctn Loss (ft)         *    1.11  * Cum Volume (acre-ft)  * 6982.59  *22093.93  * 1404.67  *
* C & E Loss (ft)         *    0.05  * Cum SA (acres)        * 1980.83  * 2296.86  *  662.82  *
*****************************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*****************************************************************************************************
* E.G. Elev (ft)          * 1015.67  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    1.09  * Wt. n-Val.             *          *   0.032  *          *
* W.S. Elev (ft)          * 1014.58  * Reach Len. (ft)        *  485.00  *  487.91  *  485.00  *
* Crit W.S. (ft)          * 1011.48  * Flow Area (sq ft)      *          *19789.24  *          *
* E.G. Slope (ft/ft)      *0.001904  * Area (sq ft)           *          *19789.24  *          *
* Q Total (cfs)           *166000.00  * Flow (cfs)            *          *166000.00  *          *
* Top Width (ft)          * 2344.11  * Top Width (ft)        *          * 2344.11  *          *
* Vel Total (ft/s)        *    8.39  * Avg. Vel. (ft/s)      *          *    8.39  *          *
* Max Chl Dpth (ft)       *   14.28  * Hydr. Depth (ft)      *          *    8.44  *          *
* Conv. Total (cfs)       *3804678.0  * Conv. (cfs)          *          *3804678.0  *          *
* Length Wtd. (ft)        *  487.91  * Wetted Per. (ft)      *          * 2348.90  *          *
* Min Ch El (ft)          * 1000.30  * Shear (lb/sq ft)      *          *    1.00  *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s) *          *    8.40  *          *
* Frctn Loss (ft)         *    1.10  * Cum Volume (acre-ft)  * 1290.30  *22949.14  *   34.97  *
* C & E Loss (ft)         *    0.05  * Cum SA (acres)        *  210.64  * 2301.30  *    6.81  *
*****************************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION
```

RIVER: 1
REACH: 1 RS: 207.62

INPUT
Description: 207.62

Right Channel Bank Station Interpolated
Station Elevation Data num= 85

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16251.6	1013	16315.4	1013.5	16374.7	1014.7	16377.5	1015.5	16395.5	1014.6
16421.5	1015.7	16422	1014.7	16556.1	1013.9	16632.1	1014	16716.9	1014
16809.1	1014.3	16813.5	1014.3	16896.9	1014.4	16907.1	1014.4	16991.8	1014.6
17078.6	1013.2	17168.3	1009.6	17287	1010.1	17414.8	1010.3	17522.4	1010.6
17591.1	1013.4	17609.8	1011.4	17662	1012.1	17679.1	1013.9	17688.4	1011.8
17788.8	1010.9	17868.6	1012.4	17910.4	1011.6	17996.3	1008.9	18009.6	1010.7
18035.1	1010.4	18045.1	1011.9	18138.2	1012.6	18185.4	1012.3	18195	1014.2
18263.6	1011.9	18647.5	1012.1	18732.3	1011.6	18815.2	1006.9	18891.8	1011.1
18961.7	1011	18978.7	1015.9	18991.8	1016.8	19005.5	1010.9	19115.1	1011.1
19173.3	1010.9	19236.3	1009.2	19351.7	1010.9	19441.1	1010.7	19518.1	1010.9
19536.8	1005.8	19551.7	1003.6	19572.3	1011.7	19592.2	1007	19618.9	1009.2
19629.6	1005.5	19641.4	1008.7	19649.6	1006.2	19667.1	1010.9	19710.7	1009
19801.1	1007.5	19885.1	1000.9	20012.8	1000.7	20210.2	1000.2	20295.5	1002.1
20395.7	1005.1	20429.1	1005.7	20464.4	1011.5	20549.3	1010.6	20664.2	1007.1
20756.4	1006	20844.7	1004.1	20964.8	1003.4	21097.7	1002.5	21189.6	1001.6
21272.9	1002.2	21361.2	1003.4	21445.5	1003.8	21449.7	1003.92	1472.33	1012.741
21484	1017.3	21597.8	1018	21670.5	1017.5	21682.6	1018.4	21786	1017.2

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16251.6	.025	17591.1	.043	19005.5	.032	19518.1	.032	21484	.032

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19518.121472.33 460 465 515 .1 .3
Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
16251.6	18991.8	1018.4	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1014.28	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.51	Wt. n-Val.	0.032	0.032	0.000
W.S. Elev (ft)	1012.76	Reach Len. (ft)	460.00	465.00	515.00
Crit W.S. (ft)	1010.44	Flow Area (sq ft)	1110.37	16166.84	0.00
E.G. Slope (ft/ft)	0.002780	Area (sq ft)	4019.42	16166.84	0.00
Q Total (cfs)	166000.00	Flow (cfs)	4529.82	161470.20	0.00
Top Width (ft)	4261.97	Top Width (ft)	2307.68	1954.23	0.05
Vel Total (ft/s)	9.61	Avg. Vel. (ft/s)	4.08	9.99	0.12
Max Chl Dpth (ft)	12.56	Hydr. Depth (ft)	2.15	8.27	0.01
Conv. Total (cfs)	3148584.0	Conv. (cfs)	85918.8	3062665.0	0.0
Length Wtd. (ft)	464.83	Wetted Per. (ft)	517.34	1961.92	0.06
Min Ch El (ft)	1000.20	Shear (lb/sq ft)	0.37	1.43	
Alpha	1.06	Stream Power (lb/ft s)	1.52	14.28	
Frctn Loss (ft)	0.92	Cum Volume (acre-ft)	6946.36	21894.86	1404.67
C & E Loss (ft)	0.11	Cum SA (acres)	1959.45	2272.79	662.82

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1014.53	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.55	Wt. n-Val.	0.032	0.032	
W.S. Elev (ft)	1012.98	Reach Len. (ft)	460.00	465.00	515.00
Crit W.S. (ft)	1010.38	Flow Area (sq ft)	16.70	16585.98	
E.G. Slope (ft/ft)	0.002696	Area (sq ft)	16.70	16585.98	
Q Total (cfs)	166000.00	Flow (cfs)	56.31	165943.70	
Top Width (ft)	1962.23	Top Width (ft)	8.00	1954.23	
Vel Total (ft/s)	10.00	Avg. Vel. (ft/s)	3.37	10.01	
Max Chl Dpth (ft)	12.78	Hydr. Depth (ft)	2.09	8.49	
Conv. Total (cfs)	3196970.0	Conv. (cfs)	1084.5	3195886.0	
Length Wtd. (ft)	465.00	Wetted Per. (ft)	10.10	1962.16	
Min Ch El (ft)	1000.20	Shear (lb/sq ft)	0.28	1.42	
Alpha	1.00	Stream Power (lb/ft s)	0.94	14.24	
Frctn Loss (ft)	0.93	Cum Volume (acre-ft)	1290.21	22745.42	34.97
C & E Loss (ft)	0.09	Cum SA (acres)	210.60	2277.23	6.81

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 207.53

INPUT
Description: 207.53

Right Channel Bank Station Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16022.7	1011.1	16143.3	1011.7	16215.8	1011.5	16221.1	1014.1	16232.7	1013.9
16241.1	1012.7	16266.4	1013.7	16266.5	1014.9	16268.8	1013.2	16273.6	1014.2
16372.5	1014.1	16429	1014.9	16432.3	1013.6	16526.5	1013	16542.7	1012.9
16638.5	1012.9	16738.7	1012.6	16828.5	1012.8	16854.4	1014.1	16891.5	1014.1

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                                                                    DuplicateEffective
  16896.5  1014.8 17034.3  1011.1   17122  1009.6 17238.3  1009.7 17332.6  1009.9
  17423.9  1010.1 17511.1  1010.4 17604.5  1010.7 17620.2  1013.7 17629.7  1010.7
  17643.4  1009.3   17724    1010 17812.5  1010.1   17954    1010 18065.4  1010.1
  18155.9  1010.1 18267.1  1010.5 18354.5  1010.5 18454.3  1011.5 18527.2  1011.5
  18611.5    1010 18724.9    1010 18789.3  1010.5 18796.9  1011.3 18812.1  1007.4
  18898.8  1008.9 18986.9    1010 18999.5  1010.7 19027.1  1017.5 19046.3  1011.3
  19124.1  1011.5 19133.7  1010.3 19137.2  1008.4 19148.2  1008.1 19240.4  1009.9
  19257.7  1010.8 19302.9  1009.2 19305.5  1008.3 19314.2  1008.5   19319  1010.3
  19329.6  1007.9 19386.1  1006.6 19502.9  1006.4 19603.8  1004.2 19684.4  1002.8
  19763.2  1001.2   19791   999.1 19817.3  1000.3 19986.4  1000.3   20057  1000.3
  20190.1  1000.3 20256.8  1001.2 20303.8   999.8 20452.2   999.9 20549.1  1000.2
  20636.9  1000.2 20732.4  1000.1   20823  1000.7 20885.5  1001.5 20917.4  1004.8
  20933.9  1001.4   20947    1004   20965  1000.8 21002.6  1002.6 21159.7  1002.9
    21175 1003.865 21269.1  1009.8   21336  1012.1 21366.8  1015.8 21376.8  1013.2
  21407.7  1013.3 21446.9  1014.6 21511.1  1014.3 21572.1  1017.7 21609.7    1014
  21754.4  1013.1   21798  1013.8

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************************************************
 16022.7    .025 17620.2    .043 19124.1    .032 19502.9    .032   21336    .032

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      19502.9   21175              231     227     201             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 16022.7 19027.1    1015       F
   21175   21798    1015       F

CROSS SECTION OUTPUT  Profile #PF#1
*************************************************************************************************
* E.G. Elev (ft)         * 1013.25  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.16  * Wt. n-Val.             *   0.032  *   0.032  *          *
* W.S. Elev (ft)         * 1012.09  * Reach Len. (ft)        *  231.00  *  227.00  *  201.00  *
* Crit W.S. (ft)         * 1008.07  * Flow Area (sq ft)      * 1538.28  *18159.09  *          *
* E.G. Slope (ft/ft)     *0.001487  * Area (sq ft)           * 5537.93  *18159.09  *  570.70  *
* Q Total (cfs)          *166000.00  * Flow (cfs)            * 6641.27  *159358.70  *          *
* Top Width (ft)         * 4480.19  * Top Width (ft)        * 2647.44  * 1672.10  *  160.66  *
* Vel Total (ft/s)       *    8.43  * Avg. Vel. (ft/s)      *    4.32  *    8.78  *          *
* Max Chl Dpth (ft)      *   12.99  * Hydr. Depth (ft)      *    3.35  *   10.86  *          *
* Conv. Total (cfs)      *4305239.0  * Conv. (cfs)          *172242.4  *4132996.0  *          *
* Length Wtd. (ft)       *  227.08  * Wetted Per. (ft)      *  460.56  * 1673.42  *          *
* Min Ch El (ft)         *  999.10  * Shear (lb/sq ft)      *    0.31  *    1.01  *          *
* Alpha                  *    1.05  * Stream Power (lb/ft s) *    1.34  *    8.84  *          *
* Frctn Loss (ft)        *    0.23  * Cum Volume (acre-ft)  * 6895.89  *21711.64  * 1401.30  *
* C & E Loss (ft)        *    0.09  * Cum SA (acres)        * 1933.29  * 2253.43  *  661.87  *
*************************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*************************************************************************************************
* E.G. Elev (ft)         * 1013.51  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.26  * Wt. n-Val.             *          *   0.032  *          *
* W.S. Elev (ft)         * 1012.25  * Reach Len. (ft)        *  231.00  *  227.00  *  201.00  *
* Crit W.S. (ft)         * 1007.97  * Flow Area (sq ft)      *          *18428.21  *          *
* E.G. Slope (ft/ft)     *0.001553  * Area (sq ft)           *          *18428.21  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)            *          *166000.00  *          *
* Top Width (ft)         * 1672.10  * Top Width (ft)        *          * 1672.10  *          *
* Vel Total (ft/s)       *    9.01  * Avg. Vel. (ft/s)      *          *    9.01  *          *
* Max Chl Dpth (ft)      *   13.15  * Hydr. Depth (ft)      *          *   11.02  *          *
* Conv. Total (cfs)      *4211741.0  * Conv. (cfs)          *          *4211741.0  *          *
* Length Wtd. (ft)       *  227.00  * Wetted Per. (ft)      *          * 1687.66  *          *
* Min Ch El (ft)         *  999.10  * Shear (lb/sq ft)      *          *    1.06  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    9.54  *          *
* Frctn Loss (ft)        *    0.23  * Cum Volume (acre-ft)  * 1290.12  *22558.54  *   34.97  *
* C & E Loss (ft)        *    0.13  * Cum SA (acres)        *  210.56  * 2257.87  *    6.81  *
*************************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                  RS: 207.49

INPUT
Description: 207.49 - FEMA Section R
Station Elevation Data     num=      55
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
*********************************************************************************
   16210  1013.8 17338.3 1010.47 18388.3 1010.34 18888.3 1010.64 18938.3    1011
 18988.3  1011.5 19038.3  1012.3 19088.3  1013.2 19138.3  1014.3 19188.3  1015.6
 19288.3  1018.2 19388.3 1020.56   19455 1022.05 19465.2  1020.4 19465.3  1014.7
 19468.2  1013.7 19522.3   997.9 19560.3   997.3 19564.3   997.3 19660.3     997
 19664.3     997 19760.3   996.4 19764.3   996.4 19860.3   999.5 19864.3   999.5
 19960.3   997.4 19964.3   997.4 20060.3   994.6 20064.3   994.6 20160.3   995.5
 20164.3   995.5 20260.3   999.6 20264.3   999.6 20360.3   998.5 20364.3   998.5
 20460.3   998.9 20464.3   998.9 20560.3   996.7 20564.3   996.7 20660.3   997.9
 20664.3   997.9 20760.3     998 20764.3     998 20860.3   999.9 20864.3   999.9
 20960.3     998 20964.3     998 21027.8   992.2 21056.5  1014.7 21059.4  1014.7
 21059.5  1020.4   21080  1020.7   21115    1020   21280    1016   21875  1013.8

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
   16210    .032   19455    .032 21059.4    .032

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
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                                                                    DuplicateEffective
      19465.3 21059.4               50      54      35              .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
   16210 19465.3    1020       F
 21059.4   21875    1020       F

CROSS SECTION OUTPUT  Profile #PF#1
*************************************************************************************************
* E.G. Elev (ft)         * 1012.92  * Element                * Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.85  * Wt. n-Val.             *         *   0.032 *          *
* W.S. Elev (ft)         * 1012.07  * Reach Len. (ft)       *    0.10 *    0.10 *    0.10  *
* Crit W.S. (ft)         * 1004.75  * Flow Area (sq ft)     *         *22425.83 *          *
* E.G. Slope (ft/ft)     *0.000745  * Area (sq ft)          * 3088.62  *22425.83 *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *         *166000.00 *          *
* Top Width (ft)         * 3807.67  * Top Width (ft)        * 2228.30  * 1579.37 *          *
* Vel Total (ft/s)       *    7.40  * Avg. Vel. (ft/s)      *         *    7.40 *          *
* Max Chl Dpth (ft)      *   19.87  * Hydr. Depth (ft)      *         *   14.20 *          *
* Conv. Total (cfs)      *6081966.0  * Conv. (cfs)          *         *6081966.0 *          *
* Length Wtd. (ft)       *    0.10  * Wetted Per. (ft)      *         * 1588.81 *          *
* Min Ch El (ft)         *  992.20  * Shear (lb/sq ft)      *         *    0.66 *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *         *    4.86 *          *
* Frctn Loss (ft)        *    0.00  * Cum Volume (acre-ft)  * 6873.02  *21605.90 * 1399.98  *
* C & E Loss (ft)        *    0.01  * Cum SA (acres)        * 1920.36  * 2244.96 *  661.50  *
*************************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

CROSS SECTION OUTPUT  Profile #PF#2
*************************************************************************************************
* E.G. Elev (ft)         * 1013.15  * Element                * Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.82  * Wt. n-Val.             *         *   0.032 *          *
* W.S. Elev (ft)         * 1012.33  * Reach Len. (ft)       *    0.10 *    0.10 *    0.10  *
* Crit W.S. (ft)         * 1004.75  * Flow Area (sq ft)     *         *22830.88 *          *
* E.G. Slope (ft/ft)     *0.000702  * Area (sq ft)          *         *22830.88 *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *         *166000.00 *          *
* Top Width (ft)         * 1579.37  * Top Width (ft)        *         * 1579.37 *          *
* Vel Total (ft/s)       *    7.27  * Avg. Vel. (ft/s)      *         *    7.27 *          *
* Max Chl Dpth (ft)      *   20.13  * Hydr. Depth (ft)      *         *   14.46 *          *
* Conv. Total (cfs)      *6264807.0  * Conv. (cfs)          *         *6264807.0 *          *
* Length Wtd. (ft)       *    0.10  * Wetted Per. (ft)      *         * 1589.33 *          *
* Min Ch El (ft)         *  992.20  * Shear (lb/sq ft)      *         *    0.63 *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *         *    4.58 *          *
* Frctn Loss (ft)        *          * Cum Volume (acre-ft)  * 1290.12  *22451.03 *   34.97  *
* C & E Loss (ft)        *          * Cum SA (acres)        *  210.56  * 2249.40 *    6.81  *
*************************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

BRIDGE


RIVER: 1
REACH: 1                 RS: 207.485

INPUT
Description: 51st Avenue Bridge
Distance from Upstream XS =       .1
Deck/Roadway Width        =    50.71
Weir Coefficient          =      2.6
Upstream  Deck/Roadway Coordinates
    num=       28
     Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord
*************************************************************************
 17338.3 1010.47 1010.47 18388.3 1010.34 1010.34 18888.3 1010.64 1010.64
 18938.3    1011    1011 18988.3  1011.5  1011.5 19038.3  1012.3  1012.3
 19088.3  1013.2  1013.2 19138.3  1014.3  1014.3 19188.3  1015.6  1015.6
 19288.3  1018.2  1018.2 19388.3 1020.56 1020.56   19445 1022.05  1020.2
 19560.3  1023.4 1017.77 19660.3 1025.18 1019.47 19760.3 1026.58 1020.87
 19860.3 1027.68    1022 19960.3 1028.58 1022.87 20060.3 1029.28 1023.59
 20160.3 1029.68 1023.99 20260.3 1029.78 1024.09 20360.3 1029.68    1024
 20460.3 1029.28 1023.59 20560.3 1028.68 1023.01 20660.3 1027.88 1022.21
 20760.3 1026.68    1021 20860.3 1025.41 1019.67 20960.3 1023.68 1018.03
 21059.4  1020.6 1014.92

Upstream Bridge Cross Section Data
Station Elevation Data    num=      55
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
   16210  1013.8 17338.3 1010.47 18388.3 1010.34 18888.3 1010.64 18938.3    1011
 18988.3  1011.5 19038.3  1012.3 19088.3  1013.2 19138.3  1014.3 19188.3  1015.6
 19288.3  1018.2 19388.3 1020.56   19455 1022.05 19465.2  1020.4 19465.3  1014.7
 19468.2  1013.7 19522.3   997.9 19560.3   997.3 19564.3   997.3 19660.3     997
 19664.3     997 19760.3   996.4 19764.3   996.4 19860.3   999.5 19864.3   999.5
 19960.3   997.4 19964.3   997.4 20060.3   994.6 20064.3   994.6 20160.3   995.5
 20164.3   995.5 20260.3   999.6 20264.3   999.6 20360.3   998.5 20364.3   998.5
 20460.3   998.9 20464.3   998.9 20560.3   996.7 20564.3   996.7 20660.3   997.9
 20664.3   997.9 20760.3     998 20764.3     998 20860.3   999.9 20864.3   999.9
 20960.3     998 20964.3     998 21027.8   992.2 21056.5  1014.7 21059.4  1014.7
 21059.5  1020.4   21080  1020.7   21115    1020   21280    1016   21875  1013.8

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
   16210    .032   19455    .032 21059.4    .032

Bank Sta: Left   Right    Coeff Contr.   Expan.
      19465.3 21059.4          .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
   16210 19465.3    1020       F
 21059.4   21875    1020       F

Downstream  Deck/Roadway Coordinates
```

num= 28

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
17338.3	1010.47	1010.47	18388.3	1010.34	1010.34	18888.3	1010.64	1010.64
18938.3	1011	1011	18988.3	1011.5	1011.5	19038.3	1012.3	1012.3
19088.3	1013.2	1013.2	19138.3	1014.3	1014.3	19188.3	1015.6	1015.6
19288.3	1018.2	1018.2	19388.3	1020.56	1020.56	19445	1022.05	1020.2
19560.3	1023.4	1017.77	19660.3	1025.18	1019.47	19760.3	1026.58	1020.87
19860.3	1027.68	1022	19960.3	1028.58	1022.87	20060.3	1029.28	1023.59
20160.3	1029.68	1023.99	20260.3	1029.78	1024.09	20360.3	1029.68	1024
20460.3	1029.28	1023.59	20560.3	1028.68	1023.01	20660.3	1027.88	1022.21
20760.3	1026.68	1021	20860.3	1025.41	1019.67	20960.3	1023.68	1018.03
21059.4	1020.6	1014.92						

Downstream Bridge Cross Section Data

Station Elevation Data num= 55

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16210	1013.8	17338.3	1010.47	18388.3	1010.34	18888.3	1010.64	18938.3	1011
18988.3	1011.5	19038.3	1012.3	19088.3	1013.2	19138.3	1014.3	19188.3	1015.6
19288.3	1018.2	19388.3	1020.56	19455	1022.05	19465.2	1020.4	19465.3	1014.7
19468.2	1013.7	19522.3	997.9	19560.3	997.3	19564.3	997.3	19660.3	997
19664.3	997	19760.3	996.4	19764.3	996.4	19860.3	999.5	19864.3	999.5
19960.3	997.4	19964.3	997.4	20060.3	994.6	20064.3	994.6	20160.3	995.5
20164.3	995.5	20260.3	999.6	20264.3	999.6	20360.3	998.5	20364.3	998.5
20460.3	998.9	20464.3	998.9	20560.3	996.7	20564.3	996.7	20660.3	997.9
20664.3	997.9	20760.3	998	20764.3	998	20860.3	999.9	20864.3	999.9
20960.3	998	20964.3	998	21027.8	992.2	21056.5	1014.7	21059.4	1014.7
21059.5	1020.4	21080	1020.7	21115	1020	21280	1016	21875	1013.8

Manning's n Values num= 2

Sta	n Val	Sta	n Val
16210	.032	21059.4	.032

Bank Sta: Left Right Coeff Contr. Expan.
19465.3 21059.4 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
16210	19465.3	1020	F
21059.4	21875	1020	F

Upstream Embankment side slope = horiz. to 1.0 vertical
Downstream Embankment side slope = horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .95
Elevation at which weir flow begins = 1010.34
Energy head used in spillway design =
Spillway height used in design =
Weir crest shape = Broad Crested

Number of Piers = 15

Pier Data
Pier Station Upstream= 19562.3 Downstream= 19562.3

Upstream num= 2

Width	Elev	Width	Elev
4	997.3	4	1017.8

Downstream num= 2

Width	Elev	Width	Elev
4	997.3	4	1017.8

Pier Data
Pier Station Upstream= 19662.3 Downstream= 19662.3

Upstream num= 2

Width	Elev	Width	Elev
4	997	4	1019.54

Downstream num= 2

Width	Elev	Width	Elev
4	997	4	1019.54

Pier Data
Pier Station Upstream= 19762.3 Downstream= 19762.3

Upstream num= 2

Width	Elev	Width	Elev
4	996.4	4	1020.94

Downstream num= 2

Width	Elev	Width	Elev
4	996.4	4	1020.94

Pier Data
Pier Station Upstream= 19862.3 Downstream= 19862.3

Upstream num= 2

Width	Elev	Width	Elev
4	999.5	4	1022

Downstream num= 2

Width	Elev	Width	Elev
4	999.5	4	1022

Pier Data
Pier Station Upstream= 19962.3 Downstream= 19962.3

Upstream num= 2

Width	Elev	Width	Elev
4	997.4	4	1022.9

Downstream num= 2

Width	Elev	Width	Elev
4	997.4	4	1022.9

Pier Data
Pier Station Upstream= 20062.3 Downstream= 20062.3
Upstream num= 2
Width	Elev	Width	Elev
4	994.6	4	1023.6

Downstream num= 2
Width	Elev	Width	Elev
4	994.6	4	1023.6

Pier Data
Pier Station Upstream= 20162.3 Downstream= 20162.3
Upstream num= 2
Width	Elev	Width	Elev
4	995.5	4	1024

Downstream num= 2
Width	Elev	Width	Elev
4	995.5	4	1024

Pier Data
Pier Station Upstream= 20262.3 Downstream= 20262.3
Upstream num= 2
Width	Elev	Width	Elev
4	999.6	4	1024.1

Downstream num= 2
Width	Elev	Width	Elev
4	999.6	4	1024.1

Pier Data
Pier Station Upstream= 20362.3 Downstream= 20362.3
Upstream num= 2
Width	Elev	Width	Elev
4	998.5	4	1024

Downstream num= 2
Width	Elev	Width	Elev
4	998.5	4	1024

Pier Data
Pier Station Upstream= 20462.3 Downstream= 20462.3
Upstream num= 2
Width	Elev	Width	Elev
4	998.9	4	1023.6

Downstream num= 2
Width	Elev	Width	Elev
4	998.9	4	1023.6

Pier Data
Pier Station Upstream= 20562.3 Downstream= 20562.3
Upstream num= 2
Width	Elev	Width	Elev
4	996.7	4	1023

Downstream num= 2
Width	Elev	Width	Elev
4	996.7	4	1023

Pier Data
Pier Station Upstream= 20662.3 Downstream= 20662.3
Upstream num= 2
Width	Elev	Width	Elev
4	997.9	4	1022.2

Downstream num= 2
Width	Elev	Width	Elev
4	997.9	4	1022.2

Pier Data
Pier Station Upstream= 20762.3 Downstream= 20762.3
Upstream num= 2
Width	Elev	Width	Elev
4	998	4	1021

Downstream num= 2
Width	Elev	Width	Elev
4	998	4	1021

Pier Data
Pier Station Upstream= 20862.3 Downstream= 20862.3
Upstream num= 2
Width	Elev	Width	Elev
4	999.9	4	1019.7

Downstream num= 2
Width	Elev	Width	Elev
4	999.9	4	1019.7

Pier Data
Pier Station Upstream= 20962.3 Downstream= 20962.3
Upstream num= 2
Width	Elev	Width	Elev
4	998	4	1018

```
Downstream     num=       2
    Width   Elev    Width   Elev
*********************************
       4     998       4    1018

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
       Momentum               Cd   =     1.2
       Yarnell                KVal =    1.05
Selected Low Flow Methods = Highest Energy Answer

High Flow Method
       Pressure and Weir flow
           Submerged Inlet Cd          =
           Submerged Inlet + Outlet Cd =      .8
           Max Low Cord                =

Additional Bridge Parameters
       Add Friction component to Momentum
       Add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT  Profile #PF#1
*************************************************************************************************
* E.G. US. (ft)          *    1012.92  * Element                *Inside BR US *Inside BR DS *
* W.S. US. (ft)          *    1012.07  * E.G. Elev (ft)         *    1012.91  *    1012.86  *
* Q Total (cfs)          *  166000.00  * W.S. Elev (ft)         *    1011.98  *    1011.92  *
* Q Bridge (cfs)         *  166000.00  * Crit W.S. (ft)         *    1004.93  *    1004.93  *
* Q Weir (cfs)           *             * Max Chl Dpth (ft)      *      19.78  *      19.71  *
* Weir Sta Lft (ft)      *             * Vel Total (ft/s)       *       7.75  *       7.78  *
* Weir Sta Rgt (ft)      *             * Flow Area (sq ft)      *   21426.50  *   21324.26  *
* Weir Submerg           *             * Froude # Chl           *       0.36  *       0.37  *
* Weir Max Depth (ft)    *             * Specif Force (cu ft)   *  194745.90  *  193498.40  *
* Min El Weir Flow (ft)  *    1014.71  * Hydr Depth (ft)        *      14.11  *      14.04  *
* Min El Prs (ft)        *    1024.09  * W.P. Total (ft)        *    1957.41  *    1955.04  *
* Delta EG (ft)          *       0.09  * Conv. Total (cfs)      *  4905047.0  *  4870028.0  *
* Delta WS (ft)          *       0.11  * Top Width (ft)         *    1518.95  *    1518.64  *
* BR Open Area (sq ft)   *   35958.82  * Frctn Loss (ft)        *       0.06  *       0.00  *
* BR Open Vel (ft/s)     *       7.78  * C & E Loss (ft)        *       0.00  *       0.02  *
* Coef of Q              *             * Shear Total (lb/sq ft) *       0.78  *       0.79  *
* Br Sel Method          *Energy only  * Power Total (lb/ft s)  *       6.06  *       6.16  *
*************************************************************************************************

Note:    Momentum answer is not valid if the water surface is above the low chord or if there is weir
         flow.  The momentum answer has been disregarded.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

BRIDGE OUTPUT  Profile #PF#2
*************************************************************************************************
* E.G. US. (ft)          *    1013.15  * Element                *Inside BR US *Inside BR DS *
* W.S. US. (ft)          *    1012.33  * E.G. Elev (ft)         *    1013.11  *    1013.06  *
* Q Total (cfs)          *  166000.00  * W.S. Elev (ft)         *    1012.21  *    1012.15  *
* Q Bridge (cfs)         *  166000.00  * Crit W.S. (ft)         *    1004.93  *    1004.93  *
* Q Weir (cfs)           *             * Max Chl Dpth (ft)      *      20.01  *      19.95  *
* Weir Sta Lft (ft)      *             * Vel Total (ft/s)       *       7.62  *       7.66  *
* Weir Sta Rgt (ft)      *             * Flow Area (sq ft)      *   21773.59  *   21676.71  *
* Weir Submerg           *             * Froude # Chl           *       0.35  *       0.36  *
* Weir Max Depth (ft)    *             * Specif Force (cu ft)   *  199043.80  *  197835.10  *
* Min El Weir Flow (ft)  *    1020.81  * Hydr Depth (ft)        *      14.33  *      14.27  *
* Min El Prs (ft)        *    1024.09  * W.P. Total (ft)        *    1964.73  *    1962.26  *
* Delta EG (ft)          *       0.10  * Conv. Total (cfs)      *  5025672.0  *  4992637.0  *
* Delta WS (ft)          *       0.11  * Top Width (ft)         *    1519.37  *    1518.87  *
* BR Open Area (sq ft)   *   35895.22  * Frctn Loss (ft)        *             *             *
* BR Open Vel (ft/s)     *       7.66  * C & E Loss (ft)        *             *             *
* Coef of Q              *             * Shear Total (lb/sq ft) *       0.75  *       0.76  *
* Br Sel Method          *   Momentum  * Power Total (lb/ft s)  *       5.75  *       5.84  *
*************************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 207.48

INPUT
Description: 207.48
Station Elevation Data    num=      55
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
*********************************************************************************************
   16210   1013.8 17338.3 1010.47 18388.3 1010.34 18888.3 1010.64 18938.3    1011
 18988.3   1011.5 19038.3  1012.3 19088.3  1013.2 19138.3  1014.3 19188.3  1015.6
 19288.3   1018.2 19388.3 1020.56   19455 1022.05 19465.2  1020.4 19465.3  1014.7
 19468.2   1013.7 19522.3   997.9 19560.3   997.3 19564.3   997.3 19660.3     997
 19664.3      997 19760.3   996.4 19764.3   996.4 19860.3   999.5 19864.3   999.5
 19960.3    997.4 19964.3   997.4 20060.3   994.6 20064.3   994.6 20160.3   995.5
 20164.3    995.5 20260.3   999.6 20264.3   999.6 20360.3   998.5 20364.3   998.5
 20460.3    998.9 20464.3   998.9 20560.3   996.7 20564.3   996.7 20660.3   997.9
 20664.3    997.9 20760.3     998 20764.3     998 20860.3   999.9 20864.3   999.9
 20960.3      998 20964.3     998 21027.8   992.2 21056.5  1014.7 21059.4  1014.7
 21059.5   1020.4   21080  1020.7   21115    1020   21280    1016   21875  1013.8

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
*********************************
```

```
   16210    .032 21059.4    .032

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       19465.3 21059.4             251  245.54     316            .1       .3
Ineffective Flow     num=       2
   Sta L    Sta R    Elev  Permanent
   16210 19465.3    1020       F
 21059.4   21875    1020       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         * 1012.83  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.86  * Wt. n-Val.             *          *    0.032  *          *
* W.S. Elev (ft)         * 1011.97  * Reach Len. (ft)        *  251.00  *  245.54  *  316.00  *
* Crit W.S. (ft)         * 1004.75  * Flow Area (sq ft)      *          * 22259.18  *          *
* E.G. Slope (ft/ft)     *0.000763  * Area (sq ft)           * 2855.70  * 22259.18  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)            *          *166000.00  *          *
* Top Width (ft)         * 3764.82  * Top Width (ft)        * 2185.95  * 1578.88  *          *
* Vel Total (ft/s)       *    7.46  * Avg. Vel. (ft/s)      *          *    7.46  *          *
* Max Chl Dpth (ft)      *   19.77  * Hydr. Depth (ft)      *          *   14.10  *          *
* Conv. Total (cfs)      *6008209.0  * Conv. (cfs)          *          *6008209.0  *          *
* Length Wtd. (ft)       *  245.54  * Wetted Per. (ft)      *          * 1588.27  *          *
* Min Ch El (ft)         *  992.20  * Shear (lb/sq ft)      *          *    0.67  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    4.98  *          *
* Frctn Loss (ft)        *    0.29  * Cum Volume (acre-ft)   * 6872.91  *21579.37  * 1399.98  *
* C & E Loss (ft)        *    0.06  * Cum SA (acres)         * 1920.28  * 2243.08  *  661.50  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)         * 1013.05  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.83  * Wt. n-Val.             *          *    0.032  *          *
* W.S. Elev (ft)         * 1012.22  * Reach Len. (ft)        *  251.00  *  245.54  *  316.00  *
* Crit W.S. (ft)         * 1004.75  * Flow Area (sq ft)      *          * 22660.16  *          *
* E.G. Slope (ft/ft)     *0.000720  * Area (sq ft)           *          *22660.16  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)            *          *166000.00  *          *
* Top Width (ft)         * 1578.87  * Top Width (ft)        *          * 1578.87  *          *
* Vel Total (ft/s)       *    7.33  * Avg. Vel. (ft/s)      *          *    7.33  *          *
* Max Chl Dpth (ft)      *   20.02  * Hydr. Depth (ft)      *          *   14.35  *          *
* Conv. Total (cfs)      *6188367.0  * Conv. (cfs)          *          *6188367.0  *          *
* Length Wtd. (ft)       *  245.54  * Wetted Per. (ft)      *          * 1588.77  *          *
* Min Ch El (ft)         *  992.20  * Shear (lb/sq ft)      *          *    0.64  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    4.69  *          *
* Frctn Loss (ft)        *    0.27  * Cum Volume (acre-ft)   * 1290.12  *22424.07  *   34.97  *
* C & E Loss (ft)        *    0.06  * Cum SA (acres)         *  210.56  * 2247.51  *    6.81  *
*********************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 207.43

INPUT
Description: 207.43

Left and Right Channel Bank Stations Interpolated
Station Elevation Data    num=      79
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
   16001  1012.1 16131.4  1012.2 16228.7  1013.1 16320.3  1013.5 16407.2  1012.9
 16462.7    1013 16534.7  1009.5   16622  1009.9 16771.3  1010.1 16811.7  1010.1
 16903.6  1009.9 17000.5  1009.7 17064.3  1009.5 17157.6  1009.6   17168  1009.6
 17254.7  1009.5 17423.7  1009.1   17535  1009.1 17611.5    1010 17646.2  1011.6
 17670.8  1009.4 17760.3  1009.7 17874.6  1010.1 17964.8  1011.6 17984.9    1012
 17997.8  1016.3 18045.8  1011.1 18059.4  1010.8 18090.3  1019.1 18104.6  1011.8
 18153.8  1012.3 18156.2    1012 18391.4  1012.4 18596.1  1016.3 18654.3  1014.9
 18908.3    1012   19012  1011.9 19027.1  1014.5 19083.8  1014.7 19094.4  1012.4
 19147.4  1018.1 19153.2  1017.8 19176.4  1012.1 19237.2  1010.4 19250.8  1011.8
 19253.31010.962 19268.1    1006 19370.6  1006.3 19448.3    1005 19562.2  1000.2
 19660.1   999.2 19729.8     999 19896.9   999.1 20054.8   999.2 20143.1   999.3
 20241.9  1000.1 20361.6  1000.3 20453.3  1000.3 20539.4   999.9 20632.9  1001.1
 20689.8  1003.1 20747.1    1003   20818   999.4   20892  1000.8 20911.4  1002.3
   209401001.503 20940.1  1001.5 20958.5  1009.2 21053.7  1010.9 21146.5  1011.2
 21244.1    1013 21380.1  1013.7 21490.2  1010.1 21618.6    1011   21731  1013.6
 21751.5  1014.2 21777.8  1011.3 21912.6  1011.5   21985  1012.4

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************************************************
   16001    .025 17611.5    .043   19012    .032 19250.8    .032 21053.7    .032

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       19253.3   20940             450     471     575            .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
   16001 19250.8    1015       F
   20940   21985    1015       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
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                                                                    DuplicateEffective
* E.G. Elev (ft)         * 1012.48  * Element              *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.49  * Wt. n-Val.           *   0.000  *   0.032  *          *
* W.S. Elev (ft)         * 1010.99  * Reach Len. (ft)      *  450.00  *  471.00  *  575.00  *
* Crit W.S. (ft)         * 1007.63  * Flow Area (sq ft)    *    0.00  *16943.05  *          *
* E.G. Slope (ft/ft)     *0.002056  * Area (sq ft)         * 1799.98  *16943.05  *  263.09  *
* Q Total (cfs)          *166000.00  * Flow (cfs)          *    0.00  *166000.00  *          *
* Top Width (ft)         * 3420.35  * Top Width (ft)      * 1439.55  * 1686.70  *  294.10  *
* Vel Total (ft/s)       *    9.80  * Avg. Vel. (ft/s)    *    0.11  *    9.80  *          *
* Max Chl Dpth (ft)      *   11.99  * Hydr. Depth (ft)    *    0.01  *   10.05  *          *
* Conv. Total (cfs)      *3661078.0  * Conv. (cfs)        *     0.0  *3661078.0  *          *
* Length Wtd. (ft)       *  471.00  * Wetted Per. (ft)    *    0.08  * 1687.85  *          *
* Min Ch El (ft)         *  999.00  * Shear (lb/sq ft)    *          *    1.29  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *       *   12.62  *          *
* Frctn Loss (ft)        *    1.09  * Cum Volume (acre-ft)  * 6859.50  *21468.88  * 1399.02  *
* C & E Loss (ft)        *    0.03  * Cum SA (acres)        * 1909.83  * 2233.87  *  660.43  *
*****************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*****************************************************************************************
* E.G. Elev (ft)         * 1012.73  * Element              *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.39  * Wt. n-Val.           *   0.032  *   0.032  *          *
* W.S. Elev (ft)         * 1011.34  * Reach Len. (ft)      *  450.00  *  471.00  *  575.00  *
* Crit W.S. (ft)         * 1007.63  * Flow Area (sq ft)    *    0.03  *17535.21  *          *
* E.G. Slope (ft/ft)     *0.001848  * Area (sq ft)         *    0.03  *17535.21  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)          *    0.01  *166000.00  *          *
* Top Width (ft)         * 1686.77  * Top Width (ft)      *    0.07  * 1686.70  *          *
* Vel Total (ft/s)       *    9.47  * Avg. Vel. (ft/s)    *    0.31  *    9.47  *          *
* Max Chl Dpth (ft)      *   12.34  * Hydr. Depth (ft)    *    0.36  *   10.40  *          *
* Conv. Total (cfs)      *3861824.0  * Conv. (cfs)        *     0.2  *3861824.0  *          *
* Length Wtd. (ft)       *  471.00  * Wetted Per. (ft)    *    0.43  * 1697.68  *          *
* Min Ch El (ft)         *  999.00  * Shear (lb/sq ft)    *    0.01  *    1.19  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *    0.00  *   11.28  *          *
* Frctn Loss (ft)        *    0.94  * Cum Volume (acre-ft)  * 1290.12  *22310.78  *   34.97  *
* C & E Loss (ft)        *    0.02  * Cum SA (acres)        *  210.56  * 2238.31  *    6.81  *
*****************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                RS: 207.34

INPUT
Description: 207.34

Left and Right Channel Bank Stations Interpolated
Station Elevation Data    num=      65
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
*****************************************************************************************
  16035.2  1011.8 16177.7  1012.1 16280.1    1013 16403.9  1013.3 16481.2    1012
  16521.9  1009.6 16702.7  1009.6 16804.9  1009.5 16839.4  1009.4 16942.2  1010.3
  16976.4  1010.3 17093.8  1008.9 17125.8  1008.8 17242.3  1008.6 17266.9  1008.4
  17385.6  1008.6 17409.9  1008.6   17524  1008.8 17624.3  1009.1 17632.4  1009.2
  17642.3  1011.1 17673.2  1011.4 17693.3  1008.6 17801.9    1009 17911.5  1008.1
    17944  1007.7 17970.8  1008.9 18420.5  1010.8 18468.8  1010.2 18518.8  1009.3
  19089.4  1009.3 19158.1  1010.6 19180.5  1009.1 19194.8  1003.1 19196.9  1003.1
  19214.8  1010.1 19221.2  1005.7 19228.6  1002.1   192301001.961 19238.7  1001.1
    19249  1002.5 19288.5     997 19326.4   995.9   19381   999.5 19392.5  1002.2
  19404.7     999 19437.8  1000.9 19593.3  1002.4 19706.7  1001.8   19842  1000.3
  19946.7   998.7 20191.8   998.9 20302.5   998.8 20382.5   998.4 20416.2   996.5
  20521.3   998.7 20631.1   998.6 20696.7   998.2 20735.2  1000.8 20761.1  1007.9
20798.761009.511 20824.2  1010.6 20847.7  1013.3   20977  1014.8   20997  1014.1

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*****************************************************************************************
  16035.2    .025 17693.3    .043 19196.9    .032 19214.8    .032 20847.7    .032

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        1923020798.76              370  393.75     530             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
  16035.2   19230    1013        F

CROSS SECTION OUTPUT  Profile #PF#1
*****************************************************************************************
* E.G. Elev (ft)         * 1011.35  * Element              *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.84  * Wt. n-Val.           *          *   0.032  *          *
* W.S. Elev (ft)         * 1009.51  * Reach Len. (ft)      *  370.00  *  393.75  *  530.00  *
* Crit W.S. (ft)         * 1006.72  * Flow Area (sq ft)    *          *15262.63  *          *
* E.G. Slope (ft/ft)     *0.002647  * Area (sq ft)         * 1069.50  *15262.63  *    0.00  *
* Q Total (cfs)          *166000.00  * Flow (cfs)          *          *166000.00  *          *
* Top Width (ft)         * 3294.41  * Top Width (ft)      * 1725.65  * 1568.76  *          *
* Vel Total (ft/s)       *   10.88  * Avg. Vel. (ft/s)    *          *   10.88  *          *
* Max Chl Dpth (ft)      *   13.61  * Hydr. Depth (ft)    *          *    9.73  *          *
* Conv. Total (cfs)      *3226315.0  * Conv. (cfs)        *          *3226315.0  *          *
* Length Wtd. (ft)       *  389.43  * Wetted Per. (ft)    *          * 1571.38  *          *
* Min Ch El (ft)         *  995.90  * Shear (lb/sq ft)    *          *    1.61  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *       *   17.46  *          *
* Frctn Loss (ft)        *    1.06  * Cum Volume (acre-ft)  * 6844.68  *21294.76  * 1397.29  *
* C & E Loss (ft)        *    0.01  * Cum SA (acres)        * 1893.49  * 2216.27  *  658.49  *
*****************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
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water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1011.77	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.62	Wt. n-Val.		0.032	0.032
W.S. Elev (ft)	1010.15	Reach Len. (ft)	370.00	393.75	530.00
Crit W.S. (ft)	1006.72	Flow Area (sq ft)		16265.79	0.01
E.G. Slope (ft/ft)	0.002156	Area (sq ft)		16265.79	0.01
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	0.00
Top Width (ft)	1568.77	Top Width (ft)		1568.76	
Vel Total (ft/s)	10.21	Avg. Vel. (ft/s)		10.21	0.10
Max Chl Dpth (ft)	14.25	Hydr. Depth (ft)		10.37	0.64
Conv. Total (cfs)	3575019.0	Conv. (cfs)		3575019.0	0.0
Length Wtd. (ft)	389.48	Wetted Per. (ft)		1579.57	0.65
Min Ch El (ft)	995.90	Shear (lb/sq ft)		1.39	0.00
Alpha	1.00	Stream Power (lb/ft s)		14.15	0.00
Frctn Loss (ft)	0.81	Cum Volume (acre-ft)	1290.12	22128.04	34.97
C & E Loss (ft)	0.02	Cum SA (acres)	210.56	2220.71	6.81

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 207.27

INPUT
Description: 207.27
Station Elevation Data num= 73

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16209.3	1012.6	16252.8	1013.2	16284.2	1012	16383.8	1012.6	16415.5	1012.9
16480.2	1009.2	16601.8	1009.4	16722.1	1009.3	16901.6	1009.1	17028	1008.9
17034.7	1008.9	17132.7	1008.7	17256.4	1008.5	17345.1	1009.7	17477.8	1009
17574.2	1008.9	17623.2	1008.9	17640.8	1010.6	17654.3	1009.2	17776.8	1009.2
17890	1009.9	18017.7	1009.2	18033.8	1009.3	18373.9	1009.8	18428.4	1009.8
18529.9	1009.9	18634.4	1008.2	18686.7	1008.6	18936.9	1006.8	18965	1004.2
18981	1000.1	18990.9	999.5	19008.8	996.4	19021	989.6	19047.9	988.8
19072	996.4	19107.5	995	19123.5	989.3	19162.8	987.6	19190	994.7
19301.3	1002.1	19428.8	1005	19561.5	1003.7	19676.8	1002	19820.6	999.3
19940.6	998.8	19971.8	997.8	19986.7	993.8	20109.9	993.3	20119.1	995.5
20215.4	998.5	20300.7	998.8	20305.8	1000.2	20322.6	1001.4	20345.1	998.6
20382.4	998.7	20402.9	1000.7	20414.9	1000.4	20429.2	1001.7	20526.1	1000.4
20597.9	1002.6	20662.2	1037.1	20670.6	1034	20727.4	1003.5	20805.4	1006.4
20813.3	1010.3	20822.2	1008.4	20916.8	1009.6	21025	1009.2	21122.8	1010.2
21233.4	1010.9	21356.4	1011	21463	1011.1				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16209.3	.025	17640.8	.043	19008.8	.032	19428.8	.032	20597.9	.032

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
19428.8	20597.9	575 572.72	585	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
16209.3	18980	1037.1	F
20662.2	21463	1037.1	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1010.28	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.89	Wt. n-Val.	0.032	0.032	0.032
W.S. Elev (ft)	1008.39	Reach Len. (ft)	575.00	572.72	585.00
Crit W.S. (ft)	1006.08	Flow Area (sq ft)	5058.19	10108.26	31.28
E.G. Slope (ft/ft)	0.002803	Area (sq ft)	5411.40	10108.26	326.22
Q Total (cfs)	166000.00	Flow (cfs)	61254.46	104601.90	143.64
Top Width (ft)	2021.75	Top Width (ft)	750.70	1169.10	101.95
Vel Total (ft/s)	10.92	Avg. Vel. (ft/s)	12.11	10.35	4.59
Max Chl Dpth (ft)	20.79	Hydr. Depth (ft)	11.27	8.65	2.90
Conv. Total (cfs)	3135219.0	Conv. (cfs)	1156905.0	1975602.0	2712.9
Length Wtd. (ft)	573.43	Wetted Per. (ft)	454.31	1170.60	12.26
Min Ch El (ft)	993.30	Shear (lb/sq ft)	1.95	1.51	0.45
Alpha	1.02	Stream Power (lb/ft s)	23.60	15.64	2.05
Frctn Loss (ft)	1.23	Cum Volume (acre-ft)	6817.15	21180.10	1395.30
C & E Loss (ft)	0.20	Cum SA (acres)	1882.97	2203.90	657.87

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1010.93	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.54	Wt. n-Val.	0.032	0.032	
W.S. Elev (ft)	1009.39	Reach Len. (ft)	575.00	572.72	585.00
Crit W.S. (ft)	1006.07	Flow Area (sq ft)	5505.19	11272.65	
E.G. Slope (ft/ft)	0.002031	Area (sq ft)	5505.19	11272.65	
Q Total (cfs)	166000.00	Flow (cfs)	59634.84	106365.20	
Top Width (ft)	1617.90	Top Width (ft)	448.80	1169.10	
Vel Total (ft/s)	9.89	Avg. Vel. (ft/s)	10.83	9.44	
Max Chl Dpth (ft)	21.79	Hydr. Depth (ft)	12.27	9.64	
Conv. Total (cfs)	3683406.0	Conv. (cfs)	1323249.0	2360157.0	
Length Wtd. (ft)	573.29	Wetted Per. (ft)	463.34	1177.39	
Min Ch El (ft)	993.30	Shear (lb/sq ft)	1.51	1.21	
Alpha	1.01	Stream Power (lb/ft s)	16.32	11.45	
Frctn Loss (ft)	1.10	Cum Volume (acre-ft)	1266.74	22003.58	34.97

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                                                                    DuplicateEffective
* C & E Loss (ft)        *    0.02  * Cum SA (acres)          *  208.65  * 2208.33  *    6.81  *
*********************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 207.16

INPUT
Description: 207.16 - FEMA Section Q
Station Elevation Data    num=      96
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 16210.1  1011.7 16309.9  1011.9 16344.7  1012.7 16358.1  1011.8 16364.1  1013.5
 16438.5  1011.6 16493.9  1011.9 16557.8  1010.7 16585.8  1008.3 16700.8  1008.1
 16756.6  1008.6 16852.6  1008.6   16969  1008.6   17076  1008.4 17204.5  1008.7
 17321.8  1008.1 17421.3  1007.7 17541.4  1007.5 17638.7  1007.7 17755.6  1007.6
 17773.4  1007.2 17787.5  1009.2 17904.3  1007.5   17925  1006.5 18023.9  1007.4
 18085.4    1008   18140  1009.4 18201.1  1007.7 18218.4  1008.1 18321.4    1005
 18342.3  1005.4 18407.3  1003.8 18456.1  1009.9 18484.8  1008.2 18498.7  1005.3
 18523.8  1008.7 18528.7  1008.4 18529.5  1007.2 18545.1  1003.7 18570.4  1008.1
 18605.9  1007.9 18638.7  1000.3 18663.3   997.6 18680.3   997.7   18717   996.2
 18733.2   994.8 18778.6   996.9 18811.7   999.5 18924.2  1002.3 19046.2  1002.4
   19107  1000.2 19209.6  1000.7 19329.8  1002.2 19395.2  1003.5 19404.5  1002.1
 19419.4  1003.2 19521.4  1003.3 19614.6    1002 19721.9  1001.4 19815.6   999.6
 19920.9   996.2 19994.2   994.9 20008.7   992.7 20062.5   992.7 20094.8   994.3
 20106.3   993.1 20160.3     993 20395.5     993   20413     995 20418.4   997.1
 20436.9  1001.5 20463.3   996.6 20488.6   995.2 20609.4   995.2 20655.2     996
 20660.9   995.4   20697   996.6 20734.5  1007.6 20838.6  1008.7 20985.3  1010.1
 21116.5  1009.9 21223.5  1009.3 21316.4  1008.4 21471.6  1007.6 21595.3  1007.5
   21624  1007.5 21725.6  1009.3 21731.8  1008.9 21782.9  1010.9   21783  1010.3
 21812.5    1010 21872.1  1013.5 21911.2  1012.7 21930.8    1006 21952.5  1011.3
   21998  1010.9

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************************************************
 16210.1    .025 17204.5    .043 18605.9    .032 19521.4    .032 20734.5    .032

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.    Expan.
       19521.4 20734.5              475  463.31     475             .1       .3
Ineffective Flow     num=       2
   Sta L    Sta R     Elev  Permanent
 16210.1 18605.9     1013        F
 20734.5   21998     1013        F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         * 1008.85  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.21  * Wt. n-Val.             *   0.032  *   0.032  *          *
* W.S. Elev (ft)         * 1007.63  * Reach Len. (ft)        *  475.00  *  463.31  *  475.00  *
* Crit W.S. (ft)         * 1004.57  * Flow Area (sq ft)      * 6081.98  *13257.75  *          *
* E.G. Slope (ft/ft)     *0.001702  * Area (sq ft)           * 6715.11  *13257.75  *   24.21  *
* Q Total (cfs)          *166000.00  * Flow (cfs)            *41164.59  *124835.40  *          *
* Top Width (ft)         * 2937.65  * Top Width (ft)        * 1543.44  * 1213.10  *  181.11  *
* Vel Total (ft/s)       *    8.58  * Avg. Vel. (ft/s)      *    6.77  *    9.42  *          *
* Max Chl Dpth (ft)      *   14.93  * Hydr. Depth (ft)      *    6.65  *   10.93  *          *
* Conv. Total (cfs)      *4023740.0  * Conv. (cfs)          *997805.0  *3025935.0  *          *
* Length Wtd. (ft)       *  465.81  * Wetted Per. (ft)      *  915.82  * 1216.61  *          *
* Min Ch El (ft)         *  992.70  * Shear (lb/sq ft)      *    0.71  *    1.16  *          *
* Alpha                  *    1.06  * Stream Power (lb/ft s) *    4.78  *   10.90  *          *
* Frctn Loss (ft)        *    1.29  * Cum Volume (acre-ft)  * 6737.12  *21026.49  * 1392.95  *
* C & E Loss (ft)        *    0.19  * Cum SA (acres)        * 1867.83  * 2188.24  *  655.97  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)         * 1009.81  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.48  * Wt. n-Val.             *   0.032  *   0.032  *          *
* W.S. Elev (ft)         * 1008.33  * Reach Len. (ft)        *  475.00  *  463.31  *  475.00  *
* Crit W.S. (ft)         * 1005.08  * Flow Area (sq ft)      * 3349.65  *14100.94  *          *
* E.G. Slope (ft/ft)     *0.001825  * Area (sq ft)           * 3349.65  *14100.94  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)            *22785.48  *143214.50  *          *
* Top Width (ft)         * 1734.50  * Top Width (ft)        *  521.40  * 1213.10  *          *
* Vel Total (ft/s)       *    9.51  * Avg. Vel. (ft/s)      *    6.80  *   10.16  *          *
* Max Chl Dpth (ft)      *   15.63  * Hydr. Depth (ft)      *    6.42  *   11.62  *          *
* Conv. Total (cfs)      *3885416.0  * Conv. (cfs)          *533319.8  *3352096.0  *          *
* Length Wtd. (ft)       *  464.73  * Wetted Per. (ft)      *  527.58  * 1217.34  *          *
* Min Ch El (ft)         *  992.70  * Shear (lb/sq ft)      *    0.72  *    1.32  *          *
* Alpha                  *    1.05  * Stream Power (lb/ft s) *    4.92  *   13.41  *          *
* Frctn Loss (ft)        *    1.36  * Cum Volume (acre-ft)  * 1208.30  *21836.77  *   34.97  *
* C & E Loss (ft)        *    0.20  * Cum SA (acres)        *  202.25  * 2192.67  *    6.81  *
*********************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
```

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 207.07

INPUT
Description: 207.07

Right Channel Bank Station Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16445.4	1010.8	16477.5	1010.8	16492.9	1010.8	16495.3	1012.4	16612.3	1012.1
16706.3	1012.4	16731.4	1011.4	16754.5	1011.7	16775.6	1010.8	16823.5	1006
16897.1	1007.2	16996.9	1007.2	17084.4	1008.1	17118	1007.2	17130.1	1007.9
17215.3	1007.5	17296.8	1005.9	17391.8	1005.8	17473.1	1006.2	17581.5	1006.7
17688.2	1006.9	17793.8	1007.5	17860.3	1007.8	17918.6	1006.5	17937.7	1009.2
17950.5	1008.4	18054.6	1008.5	18145.7	1009.4	18249.2	1008.8	18339.2	1006.2
18409	1004.8	18416.3	1003.9	18490.8	1003.4	18511.6	998.8	18578.1	997.6
18602.7	998.8	18624	998.9	18705.2	1001.4	18768.4	1001.7	18825	999.3
18843.9	997.7	18938	998.1	19029.9	1000.3	19121	1004.5	19134.1	1007.4
19200.4	1009.2	19224.9	1008.7	19244.6	1006.5	19312.8	1004.4	19414.2	1003.2
19443.8	1001.8	19521.9	1001.9	19538.7	1003.4	19547.9	1003.2	19557.9	1004.4
19673.5	1001.7	19761.8	1001.1	19774.6	1001.9	19789.4	1004.7	19852.9	995.2
19935.8	993.4	19939.1	993.8	19945.4	992.8	19998	992.8	20099	992.9
20181.6	993	20237.1	993	20335	993.1	20381.8	993.2	20403	998.8
20417.1	996.1	20529.1	995.5	20635.3	995.9	20719.4	996.3	20720.5	998.7
20734.9	1003.5	20748.22	1004.3	20786.5	1006.6	20840.1	1007	20851.3	1007.9
20926.4	1009.4	21006.6	1009.9	21089.4	1010	21172.8	1009.7	21301.4	1008.9
21383.6	1008.7	21497.8	1007.9	21578.8	1007.1	21613.2	1007.3	21673.3	1011.2
21705.2	1010.3	21732.7	1013.7	21818.2	1013	21896.1	1014.4	21908.3	1013.5
21967.3	1014.4	21999.5	1014.1						

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16445.4	.043	18490.8	.032	19789.4	.032	20926.4	.032

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19789.4 20748.22 510 514.11 520 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
16445.4	18145.7	1013	F
20926.4	21999.5	1013	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1007.37	Element	Left OB	Channel / Right OB
Vel Head (ft)	3.07	Wt. n-Val.	0.032	0.032 /
W.S. Elev (ft)	1004.30	Reach Len. (ft)	510.00	514.11 / 520.00
Crit W.S. (ft)	1004.30	Flow Area (sq ft)	3660.52	9048.91 /
E.G. Slope (ft/ft)	*0.005272	Area (sq ft)	3660.52	9048.91 / 0.00
Q Total (cfs)	*166000.00	Flow (cfs)	*29886.06	*136113.90 /
Top Width (ft)	2121.27	Top Width (ft)	1165.05	956.17 / 0.05
Vel Total (ft/s)	13.06	Avg. Vel. (ft/s)	8.16	15.04 /
Max Chl Dpth (ft)	11.50	Hydr. Depth (ft)	3.14	9.46 /
Conv. Total (cfs)	*2286164.0	Conv. (cfs)	*411592.9	*1874571.0 /
Length Wtd. (ft)	513.60	Wetted Per. (ft)	1166.36	960.30 /
Min Ch El (ft)	992.80	Shear (lb/sq ft)	1.03	3.10 /
Alpha	1.16	Stream Power (lb/ft s)	8.43	46.65 /
Frctn Loss (ft)	0.83	Cum Volume (acre-ft)	6680.55	*20907.86 / 1392.82
C & E Loss (ft)	0.60	Cum SA (acres)	1853.06	2176.70 / 654.98

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1008.25	Element	Left OB	Channel / Right OB
Vel Head (ft)	3.51	Wt. n-Val.	0.032	0.032 /
W.S. Elev (ft)	1004.74	Reach Len. (ft)	510.00	514.11 / 520.00
Crit W.S. (ft)	1004.74	Flow Area (sq ft)	2266.36	9462.29 /
E.G. Slope (ft/ft)	*0.005422	Area (sq ft)	2266.36	9462.29 /
Q Total (cfs)	*166000.00	Flow (cfs)	*17617.19	*148382.80 /
Top Width (ft)	1710.74	Top Width (ft)	751.96	958.78 /
Vel Total (ft/s)	14.15	Avg. Vel. (ft/s)	7.77	15.68 /
Max Chl Dpth (ft)	11.93	Hydr. Depth (ft)	3.01	9.87 /
Conv. Total (cfs)	*2254410.0	Conv. (cfs)	*239255.3	*2015155.0 /
Length Wtd. (ft)	513.87	Wetted Per. (ft)	759.60	963.38 /
Min Ch El (ft)	992.80	Shear (lb/sq ft)	1.01	3.32 /
Alpha	1.13	Stream Power (lb/ft s)	7.85	52.14 /
Frctn Loss (ft)	0.83	Cum Volume (acre-ft)	1177.68	*21711.46 / 34.97
C & E Loss (ft)	0.71	Cum SA (acres)	195.31	2181.12 / 6.81

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for

additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 206.97

INPUT
Description: 206.97

Right Channel Bank Station Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16303.3	1009.9	16422	1010.3	16524.8	1010.6	16626.6	1010.6	16719.6	1011.3
16794.5	1009.6	16836.4	1004.7	16959	1004.6	17073.2	1004.7	17198.7	1004.8
17241.8	1005.5	17390.7	1004.8	17512.3	1005.1	17603.3	1005.3	17704.7	1005.3
17836.9	1005.5	17965	1005.2	18085.7	1005.8	18094.8	1005.9	18105	1008
18196	1007.4	18235.2	1007.2	18260.5	1005.9	18283.2	1007.6	18372.2	1006.3
18390.1	1005.1	18407.6	999.1	18518.7	997.7	18623.3	996.9	18669.1	995.6
18742.3	996.3	18834	1000.5	18925.1	1002.3	19025.7	1004.4	19072.3	1003.7
19086.7	1001.2	19181.7	1005.8	19197	1005.7	19217.7	1002.3	19234.5	1008.4
19316.9	1001.8	19405.1	1002.1	19456.4	1006.1	19566.5	1005.4	19666.3	1005.2
19736.5	1004.4	19776.5	998.7	19783.2	1000.5	19808.3	994.1	19822.1	992.8
19919.1	992.9	20108.8	993.1	20124.9	999	20128.8	998.6	20159.3	982.1
20170.6	981.8	20265.5	981.8	20360.8	981.8	20399.3	981.8	20400.1	981.8
20443.8	981.8	20457.3	981.8	20522.8	981.8	20543.7	981.8	20552.2	981.8
20558.1	981.8	20559.2	981.8	20645	981.8	20661.9	981.7	20684.6	981.8
20778.2	981.8	20792.8	981.8	20800984.2432		20814.9	989.3	20826.8	991.9
20829.6	993.6	20832.1	993.2	20841.1	988	20882.9	981.8	20888	981.8
20995.1	981.8	21051.7	981.8	21053.6	981.8	21086.6	1009	21114.5	1010.4
21124.9	1008.4	21145.7	1009.1	21151.2	1011.2	21171.8	1014.5	21174	1009.3
21270.2	1009.8	21364.9	1009.2	21463.9	1009.1	21469.9	1008.9	21475.8	1010.8
21486.9	1008.5	21498	1009.8						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16303.3	.025	16719.6	.043	18407.6	.032	19736.5	.032	21086.6	.032

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19736.5 20800 480 491.78 480 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
20800	21498	1010	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1004.80	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.07	Wt. n-Val.	0.032	0.032	
W.S. Elev (ft)	1003.73	Reach Len. (ft)	480.00	491.78	480.00
Crit W.S. (ft)	995.22	Flow Area (sq ft)	3249.01	18103.59	
E.G. Slope (ft/ft)	0.000773	Area (sq ft)	3249.01	18103.59	5405.96
Q Total (cfs)	166000.00	Flow (cfs)	11555.59	154444.40	
Top Width (ft)	2153.01	Top Width (ft)	814.01	1058.80	280.21
Vel Total (ft/s)	7.77	Avg. Vel. (ft/s)	3.56	8.53	
Max Chl Dpth (ft)	22.03	Hydr. Depth (ft)	3.99	17.10	
Conv. Total (cfs)	5970014.0	Conv. (cfs)	415584.7	5554430.0	
Length Wtd. (ft)	490.90	Wetted Per. (ft)	815.73	1065.91	
Min Ch El (ft)	981.70	Shear (lb/sq ft)	0.19	0.82	
Alpha	1.13	Stream Power (lb/ft s)	0.68	6.99	
Frctn Loss (ft)	0.31	Cum Volume (acre-ft)	6640.10	20747.63	1360.55
C & E Loss (ft)	0.07	Cum SA (acres)	1841.47	2164.81	653.31

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1005.77	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.14	Wt. n-Val.	0.032	0.032	
W.S. Elev (ft)	1004.63	Reach Len. (ft)	480.00	491.78	480.00
Crit W.S. (ft)	995.22	Flow Area (sq ft)	892.56	19057.96	
E.G. Slope (ft/ft)	0.000760	Area (sq ft)	892.56	19057.96	
Q Total (cfs)	166000.00	Flow (cfs)	1714.70	164285.30	
Top Width (ft)	1567.64	Top Width (ft)	504.14	1063.50	
Vel Total (ft/s)	8.32	Avg. Vel. (ft/s)	1.92	8.62	
Max Chl Dpth (ft)	22.93	Hydr. Depth (ft)	1.77	17.92	
Conv. Total (cfs)	6019868.0	Conv. (cfs)	62182.5	5957686.0	
Length Wtd. (ft)	491.63	Wetted Per. (ft)	509.11	1091.04	
Min Ch El (ft)	981.70	Shear (lb/sq ft)	0.08	0.83	
Alpha	1.06	Stream Power (lb/ft s)	0.16	7.15	
Frctn Loss (ft)	0.31	Cum Volume (acre-ft)	1159.19	21543.16	34.97
C & E Loss (ft)	0.07	Cum SA (acres)	187.95	2169.19	6.81

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1

REACH: 1 RS: 206.88

INPUT
Description: 206.88

Right Channel Bank Station Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16205.8	1008.1	16348.5	1008.4	16441.8	1008.4	16531.3	1008.2	16598.3	1009.2
16605	1008.5	16606.3	1010.2	16696.6	1005.4	16819.2	1004.3	16908.4	1004.4
17006	1004.7	17092.4	1003.2	17182	1004	17323.7	1003.7	17415.5	1003.8
17503.8	1003.9	17603.8	1003.9	17703.9	1004.6	17815.8	1005.9	17930.5	1006.3
18057.4	1006.3	18152.5	1006	18216	1005.3	18267.1	1005.9	18292.7	1007.3
18373.6	999.7	18386.3	996.3	18470	995.7	18533.8	995.1	18593.4	996.7
18657.8	996.4	18748.4	998	18835.7	998.9	18932.3	1000.4	18993.2	1000.9
19018.7	1003.6	19101.5	1004	19119.7	1002.9	19166.7	1006	19168.3	1006.9
19251.9	1004.5	19258.4	1005	19341.6	1001.3	19360.8	1001.1	19415.8	1004.9
19507.2	1001.3	19566.3	1004.7	19645.5	1003.4	19728.8	1003.5	19781.8	993.3
19833	992.7	19942.2	993	19947.1	996.6	19996.5	982.3	20008.3	981.8
20016.1	981.8	20105.7	981.8	20143	981.8	20146.6	981.8	20221.6	981.8
20334.4	981.8	20459.7	981.8	20546.8	981.8	20641.2	981.8	20760.8	981.8
20800	981.8	20820.9	981.8	20832	984	20842.1	983.1	20850.4	981.8
20851.4	981.8	20928.6	981.8	20948.4	981.8	21002.4	999.3	21012.9	997
21041.1	997	21047.1	998.2	21081.4	998.4	21113.7	986.4	21142	981.7
21162.6	990	21181.8	991.8	21199.6	1001.3	21208.2	1003.8	21233.9	1006.9
21251.5	1012.2	21270.1	1006.2	21313.5	1006.5	21327.6	1009.1	21361.8	1011.6
21394.4	1008.9	21440.9	1009.7	21454	1011.6	21546.5	1009	21569.8	1012.6
21605	1009.6	21674.6	1010.5						

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16205.8	.025	16696.6	.043	18386.3	.032	19728.8	.032	21251.5	.032
21605	.025								

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
19728.8	20800	480 487.71	505	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
16205.8	18292.7	1007.3	F
20800	21674.6	1012	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1004.41	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.83	Wt. n-Val.	0.032	0.032	
W.S. Elev (ft)	1003.59	Reach Len. (ft)	480.00	487.71	505.00
Crit W.S. (ft)	993.27	Flow Area (sq ft)	4121.21	20233.29	
E.G. Slope (ft/ft)	0.000528	Area (sq ft)	4133.88	20233.29	6019.31
Q Total (cfs)	166000.00	Flow (cfs)	13323.00	152677.00	
Top Width (ft)	2551.40	Top Width (ft)	1072.74	1071.20	407.46
Vel Total (ft/s)	6.82	Avg. Vel. (ft/s)	3.23	7.55	
Max Chl Dpth (ft)	21.89	Hydr. Depth (ft)	4.09	18.89	
Conv. Total (cfs)	7226234.0	Conv. (cfs)	579970.7	6646263.0	
Length Wtd. (ft)	487.04	Wetted Per. (ft)	1008.30	1075.40	
Min Ch El (ft)	981.80	Shear (lb/sq ft)	0.13	0.62	
Alpha	1.15	Stream Power (lb/ft s)	0.44	4.68	
Frctn Loss (ft)	0.25	Cum Volume (acre-ft)	6599.42	20531.22	1297.60
C & E Loss (ft)	0.04	Cum SA (acres)	1831.08	2152.79	649.52

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1005.39	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.91	Wt. n-Val.	0.032	0.032	
W.S. Elev (ft)	1004.48	Reach Len. (ft)	480.00	487.71	505.00
Crit W.S. (ft)	993.27	Flow Area (sq ft)	1430.58	21191.71	
E.G. Slope (ft/ft)	0.000533	Area (sq ft)	1430.58	21191.71	
Q Total (cfs)	166000.00	Flow (cfs)	2573.67	163426.30	
Top Width (ft)	1800.86	Top Width (ft)	729.66	1071.20	
Vel Total (ft/s)	7.34	Avg. Vel. (ft/s)	1.80	7.71	
Max Chl Dpth (ft)	22.68	Hydr. Depth (ft)	1.96	19.78	
Conv. Total (cfs)	7191503.0	Conv. (cfs)	111497.2	7080006.0	
Length Wtd. (ft)	487.55	Wetted Per. (ft)	735.78	1098.08	
Min Ch El (ft)	981.80	Shear (lb/sq ft)	0.06	0.64	
Alpha	1.09	Stream Power (lb/ft s)	0.12	4.95	
Frctn Loss (ft)	0.25	Cum Volume (acre-ft)	1146.39	21315.96	34.97
C & E Loss (ft)	0.05	Cum SA (acres)	181.15	2157.14	6.81

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 206.79

INPUT
Description: 206.79

Right Channel Bank Station Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16211.1	1006.9	16286.9	1006.9	16364.1	1007.5	16379.7	1007.6	16449.9	1007.6
16525.2	1007.8	16538.6	1008.9	16619.3	1008.5	16666.4	1006.2	16699.6	1001.9
16769.7	1002.3	16840	1002.4	16905.7	1002.4	16989.2	1002.5	17055.4	1002.7
17133	1002.7	17230.9	1002.5	17245.4	1002.4	17322.6	1003	17404	1003.7

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                                                                    DuplicateEffective
 17419.6  1003.8 17484.7  1004.3   17553  1004.8 17588.7  1004.8 17631.2    1003
 17670.6  1002.9 17748.9  1006.3 17834.7  1006.5 17871.1  1006.6 17919.1  1005.8
 17921.7  1005.2 17948.4  1004.4 18036.8  1004.9   18106  1004.9 18182.5  1004.5
 18301.7  1004.4   18337  1004.5 18378.4   997.7 18439.7   995.6 18517.1   995.3
 18604.7   996.5 18674.2   996.8 18740.3   995.7 18770.1   994.8 18841.6   996.3
   18882   997.5 18920.6  1006.8 19010.4  1005.9 19096.2  1003.2 19138.3  1000.6
 19186.5  1000.9 19206.9  1002.3 19281.9    1002 19360.7  1002.6 19391.1    1000
 19450.2  1002.2   19485  1002.5 19519.3    1004   19570  1004.1 19626.2  1001.8
 19645.2  1001.4 19653.2  1002.5 19663.1  1005.3 19671.5    1001 19690.4   994.6
 19711.8    993   19766   993.3 19929.9     994 19943.3   996.8 19952.4   996.3
 19962.3   992.6   19991   990.7 20007.7   991.1 20032.9   987.2 20042.3     985
 20082.5   982.2 20100.2   981.8 20136.1   981.8   20140   981.8 20180.6   981.8
 20309.2   981.8   20331   981.8 20390.5   981.8 20420.7   981.8 20422.7   981.8
   20425   981.8 20501.8   981.8 20576.6   981.8 20625.3   981.8 20832.1   981.8
   20847   981.8 20851.9   981.8 20865.4   988.820895.151003.436 20902.8  1007.2
 20935.6  1019.6   20986  1019.6

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************************************************
 16211.1    .025 16525.2    .043 18378.4    .032 19663.1    .032 20935.6    .032

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       19663.120895.15              495  489.96     520             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
 16211.1 17871.1    1015       F

CROSS SECTION OUTPUT  Profile #PF#1
*************************************************************************************************
* E.G. Elev (ft)         * 1004.13  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.69  * Wt. n-Val.            *   0.032  *   0.032  *          *
* W.S. Elev (ft)         * 1003.43  * Reach Len. (ft)       *  495.00  *  489.96  *  520.00  *
* Crit W.S. (ft)         *  992.85  * Flow Area (sq ft)     * 4633.73  *21710.05  *          *
* E.G. Slope (ft/ft)     *0.000488  * Area (sq ft)          * 5262.60  *21710.05  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)          *15594.29  *150405.70  *          *
* Top Width (ft)         * 3026.51  * Top Width (ft)       * 1798.11  * 1228.40  *          *
* Vel Total (ft/s)       *    6.30  * Avg. Vel. (ft/s)     *    3.37  *    6.93  *          *
* Max Chl Dpth (ft)      *   21.63  * Hydr. Depth (ft)     *    4.41  *   17.67  *          *
* Conv. Total (cfs)      *7514464.0  * Conv. (cfs)         *705920.1  *6808544.0  *          *
* Length Wtd. (ft)       *  490.43  * Wetted Per. (ft)     * 1052.75  * 1236.91  *          *
* Min Ch El (ft)         *  981.80  * Shear (lb/sq ft)     *    0.13  *    0.53  *          *
* Alpha                  *    1.12  * Stream Power (lb/ft s) *    0.45  *    3.70  *          *
* Frctn Loss (ft)        *    0.23  * Cum Volume (acre-ft)  * 6547.65  *20296.42  * 1262.71  *
* C & E Loss (ft)        *    0.05  * Cum SA (acres)        * 1815.26  * 2139.91  *  647.16  *
*************************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*************************************************************************************************
* E.G. Elev (ft)         * 1005.10  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.76  * Wt. n-Val.            *   0.032  *   0.032  *          *
* W.S. Elev (ft)         * 1004.34  * Reach Len. (ft)       *  495.00  *  489.96  *  520.00  *
* Crit W.S. (ft)         *  992.85  * Flow Area (sq ft)     * 1935.26  *22824.84  *          *
* E.G. Slope (ft/ft)     *0.000478  * Area (sq ft)          * 1935.26  *22824.84  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)          * 4403.95  *161596.00  *          *
* Top Width (ft)         * 1934.31  * Top Width (ft)       *  704.13  * 1230.18  *          *
* Vel Total (ft/s)       *    6.70  * Avg. Vel. (ft/s)     *    2.28  *    7.08  *          *
* Max Chl Dpth (ft)      *   22.54  * Hydr. Depth (ft)     *    2.75  *   18.55  *          *
* Conv. Total (cfs)      *7590998.0  * Conv. (cfs)         *201387.9  *7389610.0  *          *
* Length Wtd. (ft)       *  490.08  * Wetted Per. (ft)     *  714.47  * 1239.81  *          *
* Min Ch El (ft)         *  981.80  * Shear (lb/sq ft)     *    0.08  *    0.55  *          *
* Alpha                  *    1.09  * Stream Power (lb/ft s) *    0.18  *    3.89  *          *
* Frctn Loss (ft)        *    0.22  * Cum Volume (acre-ft)  * 1127.84  *21069.55  *   34.97  *
* C & E Loss (ft)        *    0.06  * Cum SA (acres)        *  173.25  * 2144.26  *    6.81  *
*************************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                  RS: 206.7

INPUT
Description: 206.7 - FEMA Section P
Station Elevation Data    num=      96
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 16235.4  1006.6 16247.5  1006.6 16320.8  1007.1 16332.7    1007 16402.3  1007.2
 16479.2    1008 16505.8  1007.5 16527.3    1008 16552.4    1002 16640.8  1001.4
 16727.5  1001.8 16815.4  1001.7 16889.1  1001.5 16902.1  1001.5 16968.1  1001.2
 17043.4  1001.3   17155  1000.9 17251.1  1001.1 17317.4  1002.1 17335.4  1002.3
 17401.1  1002.9 17430.7  1003.1 17519.9  1003.5 17616.5  1003.3 17699.9    1004
 17823.5  1005.8 17891.6  1004.8 17962.7  1005.6 18043.4  1006.2 18125.2  1006.2
 18207.9  1005.3 18257.6    1003 18280.3   995.2 18285.8   995.2 18301.4   997.1
 18329.6   998.9 18423.4   998.8 18488.5     996 18559.6   995.2 18629.1   994.8
 18690.8   994.6 18728.6   993.3 18746.4   994.2 18779.5   994.4 18815.2   996.6
 18848.2  1004.6 18945.8    1005 19021.2  1004.8 19092.1  1004.4 19150.1  1003.8
 19192.4  1001.5 19285.5  1002.1 19293.9  1002.1 19370.4   999.7 19431.5   999.7
 19468.9  1000.2 19510.1  1003.7 19543.9  1002.8 19624.5   994.6 19647.2   992.9
 19711.3   993.2 19814.1   993.4 19871.2   993.4 19882.5   995.3 19901.9   992.6
 19941.1   991.3 20015.4   991.6 20098.2   993.9 20143.5     994 20167.9   992.9
 20185.2  1000.4 20197.8   994.4 20212.7   993.7 20259.6   993.7 20275.9   991.3
 20314.8   981.8 20318.5   981.8 20393.8   981.8 20691.8   981.8 20713.3   981.8
 20963.1   981.8 21002.8   981.8 21076.8   981.8 21102.7   981.8   21120   988.8
   21131   999.6 21138.8  1004.7 21146.9  1002.8   21207  1004.5 21234.3  1006.1
 21262.4  1006.4   21329  1008.1 21422.5  1007.5 21452.5  1018.4 21484.3  1017.2
   21488  1018.6
```

DuplicateEffective

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16235.4	.025	16640.8	.043	18329.6	.032	19510.1	.032	21138.8	.032

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19510.1 21138.8 500 500.23 500 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
16235.4	18110	1015	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1003.85	Element	Left OB	Channel / Right OB
Vel Head (ft)	0.53	Wt. n-Val.	0.033	0.032 / 0.032
W.S. Elev (ft)	1003.32	Reach Len. (ft)	500.00	500.23 / 500.00
Crit W.S. (ft)	994.04	Flow Area (sq ft)	4836.21	24990.17 / 5.40
E.G. Slope (ft/ft)	0.000441	Area (sq ft)	6375.55	24990.17 / 5.40
Q Total (cfs)	166000.00	Flow (cfs)	15339.89	150658.00 / 2.14
Top Width (ft)	3518.68	Top Width (ft)	1885.60	1612.40 / 20.68
Vel Total (ft/s)	5.56	Avg. Vel. (ft/s)	3.17	6.03 / 0.40
Max Chl Dpth (ft)	21.52	Hydr. Depth (ft)	5.15	15.50 / 0.26
Conv. Total (cfs)	7908733.0	Conv. (cfs)	730837.9	7177793.0 / 102.1
Length Wtd. (ft)	500.20	Wetted Per. (ft)	941.74	1624.44 / 20.75
Min Ch El (ft)	981.80	Shear (lb/sq ft)	0.14	0.42 / 0.01
Alpha	1.10	Stream Power (lb/ft s)	0.45	2.55 / 0.00
Frctn Loss (ft)	0.28	Cum Volume (acre-ft)	6481.52	20033.78 / 1262.68
C & E Loss (ft)	0.01	Cum SA (acres)	1794.33	2123.94 / 647.04

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1004.82	Element	Left OB	Channel / Right OB
Vel Head (ft)	0.58	Wt. n-Val.	0.032	0.032 /
W.S. Elev (ft)	1004.25	Reach Len. (ft)	500.00	500.23 / 500.00
Crit W.S. (ft)	994.04	Flow Area (sq ft)	1493.50	26493.02 /
E.G. Slope (ft/ft)	0.000429	Area (sq ft)	1493.50	26493.02 /
Q Total (cfs)	166000.00	Flow (cfs)	3212.54	162787.50 /
Top Width (ft)	2093.13	Top Width (ft)	465.13	1628.01 /
Vel Total (ft/s)	5.93	Avg. Vel. (ft/s)	2.15	6.14 /
Max Chl Dpth (ft)	22.45	Hydr. Depth (ft)	3.21	16.27 /
Conv. Total (cfs)	8015485.0	Conv. (cfs)	155121.0	7860364.0 /
Length Wtd. (ft)	500.22	Wetted Per. (ft)	475.87	1640.33 /
Min Ch El (ft)	981.80	Shear (lb/sq ft)	0.08	0.43 /
Alpha	1.05	Stream Power (lb/ft s)	0.18	2.66 /
Frctn Loss (ft)	0.27	Cum Volume (acre-ft)	1108.36	20792.19 / 34.97
C & E Loss (ft)	0.02	Cum SA (acres)	166.61	2128.18 / 6.81

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 206.6

INPUT
Description: 206.6

Right Channel Bank Station Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
15752.8	1005.9	15777	1004.9	15795.8	1006	15801	1003.8	15809.3	1007.3
15819.9	1006.1	15842.8	1009.5	15850.1	1008	15855.5	1009.8	15868.1	1009.5
15879.9	1006.9	15895.6	1008.4	15904.2	1005.4	15941.1	1007.3	16035.3	1006.2
16155.5	1005.7	16243.9	1005.6	16347.4	1004.9	16444.6	1004.9	16555.6	1004.8
16645	1004.4	16756.4	1003.6	16845.8	1003.1	16944.2	1003.4	17049.2	1002.3
17143.6	1001.7	17249.3	1001.2	17366.6	1001	17501.5	1003.7	17624.2	1003.7
17723.3	1004.1	17790.8	1004	17818	998.9	17847.9	1003.1	17937.7	1002.9
17956.2	1002.7	17971.4	998.8	17988.6	1001.2	18083.6	1001.7	18173.1	1001.7
18217.2	1001.9	18242.2	997.1	18334.4	996.5	18436.5	995	18542.1	993.8
18633.3	993.9	18742.2	997.5	18817.7	997.8	18852.6	1003.9	18965.8	1004.2
19055.2	1003.8	19184.3	1003.1	19243.2	1000	19325.9	998.4	19358	993.4
19395.9	993.2	19452.5	996.6	19546.1	997.7	19580.1	996.6	19611.2	993.1
19679	993.4	19778	993.3	19846.4	993.3	19854.8	995.6	19874.7	992.9
19953.8	992.1	20043.5	994.5	20146.1	995.4	20262.3	995.5	20371.5	995.1
20435.5	995.1	20475.7	981.8	20489.7	981.8	20608.9	981.8	20609	981.8
20738.4	981.8	20854.4	981.8	20866.2	981.8	20903.7	981.8	20931.2	981.8
20996	981.8	21003.4	981.8	21042	988.8	21050.2	99521066.25	1002.898	
21069.1	1004.3	21182.2	1006.4	21270.7	1006.8	21401.9	1007.6	21495.5	1008
21503.1	1008	21594.4	1008.1	21688	1008.4	21840.4	1008.8	21940.4	1009.3
21957.8	1009.5	21998	1007.2						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
15752.8	.025	16944.2	.043	18334.4	.032	19546.1	.032	21069.1	.032

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19546.121066.25 515 504.63 520 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
15752.8	17847.9	1009	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1003.56	Element	Left OB	Channel / Right OB
Vel Head (ft)	0.66	Wt. n-Val.	0.033	0.032 /

				DuplicateEffective		
* W.S. Elev (ft)	* 1002.90	* Reach Len. (ft)	* 515.00	* 504.63	* 520.00	*
* Crit W.S. (ft)	* 996.86	* Flow Area (sq ft)	* 6694.45	*20182.76	*	*
* E.G. Slope (ft/ft)	*0.000710	* Area (sq ft)	* 7349.03	*20182.76	*	*
* Q Total (cfs)	*166000.00	* Flow (cfs)	*26458.02	*139542.00	*	*
* Top Width (ft)	* 3305.80	* Top Width (ft)	* 1785.65	* 1520.15	*	*
* Vel Total (ft/s)	* 6.18	* Avg. Vel. (ft/s)	* 3.95	* 6.91	*	*
* Max Chl Dpth (ft)	* 21.10	* Hydr. Depth (ft)	* 5.28	* 13.28	*	*
* Conv. Total (cfs)	*6230824.0	* Conv. (cfs)	*993104.0	*5237720.0	*	*
* Length Wtd. (ft)	* 507.00	* Wetted Per. (ft)	* 1269.01	* 1527.59	*	*
* Min Ch El (ft)	* 981.80	* Shear (lb/sq ft)	* 0.23	* 0.59	*	*
* Alpha	* 1.12	* Stream Power (lb/ft s)	* 0.92	* 4.05	*	*
* Frctn Loss (ft)	* 0.48	* Cum Volume (acre-ft)	* 6402.76	*19774.40	* 1262.65	*
* C & E Loss (ft)	* 0.04	* Cum SA (acres)	* 1773.26	* 2105.95	* 646.92	*

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 1004.54	* Element	* Left OB	* Channel	* Right OB	*
* Vel Head (ft)	* 0.75	* Wt. n-Val.	* 0.032	* 0.032	*	*
* W.S. Elev (ft)	* 1003.79	* Reach Len. (ft)	* 515.00	* 504.63	* 520.00	*
* Crit W.S. (ft)	* 996.68	* Flow Area (sq ft)	* 3388.69	*21538.87	*	*
* E.G. Slope (ft/ft)	*0.000695	* Area (sq ft)	* 3388.69	*21538.87	*	*
* Q Total (cfs)	*166000.00	* Flow (cfs)	*12208.77	*153791.20	*	*
* Top Width (ft)	* 2185.35	* Top Width (ft)	* 665.20	* 1520.15	*	*
* Vel Total (ft/s)	* 6.66	* Avg. Vel. (ft/s)	* 3.60	* 7.14	*	*
* Max Chl Dpth (ft)	* 21.99	* Hydr. Depth (ft)	* 5.09	* 14.17	*	*
* Conv. Total (cfs)	*6298256.0	* Conv. (cfs)	*463216.7	*5835039.0	*	*
* Length Wtd. (ft)	* 506.14	* Wetted Per. (ft)	* 674.84	* 1528.48	*	*
* Min Ch El (ft)	* 981.80	* Shear (lb/sq ft)	* 0.22	* 0.61	*	*
* Alpha	* 1.09	* Stream Power (lb/ft s)	* 0.78	* 4.36	*	*
* Frctn Loss (ft)	* 0.48	* Cum Volume (acre-ft)	* 1080.34	*20516.39	* 34.97	*
* C & E Loss (ft)	* 0.04	* Cum SA (acres)	* 160.12	* 2110.11	* 6.81	*

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 206.51

INPUT
Description: 206.51
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
15913.8	1005.6	15956.7	1007.2	15960.5	1006.2	15969.2	1008	16053.6	1008.2
16067.4	1005.5	16150.9	1004.8	16244	1004.8	16317.6	1004.8	16358.5	1004.6
16454.2	1004.5	16463	1004.5	16544	1004.3	16655.6	1003.2	16728.4	1002.6
16756.4	1002.5	16830	1001.9	16942.4	1001.6	16965.9	1001.5	17053.8	1001.7
17131.5	1001.6	17218.7	1001.1	17306.1	1000.9	17382.1	1001.5	17467	1001.9
17537	1002.2	17549.6	1001.2	17642.5	1001.4	17732.1	999	17805.5	999.3
17867.7	1000	17906.8	1001.8	17982.4	1001.1	18024.8	1000	18113.4	1001
18197.5	1001.3	18210.2	1000.8	18235.8	995.8	18284.9	994.8	18353.6	996.2
18430.7	989.4	18472.3	992.6	18563.8	993.1	18633.6	994.5	18690.9	995.9
18720.1	998	18725.5	999	18780.9	997.9	18793	996.9	18839.1	995.7
18912.5	997.1	18936.6	997.3	18950.4	998.8	18982	1000.3	19017.4	998.8
19041	995.2	19046.4	993.8	19117.4	994.6	19184.9	992.6	19190.6	992.6
19209.6	996.5	19283.6	998.8	19380.8	997	19450	996.8	19458	996.8
19546.2	997.4	19586.4	996.5	19645.9	993.2	19653.5	993.3	19813.4	992.5
19869.8	992.3	19881.5	997.9	19911.8	995.3	19937.5	994.2	19964.8	991.9
19978.6	992.1	20019.7	990.5	20038.1	988.7	20070.3	987.9	20113.5	982.4
20192.5	982	20272.4	981.8	20353.1	981.8	20395.6	982.6	20485.4	993.1
20530.4	997	20546.7	997.4	20554.3	995.6	20599.9	998.6	20622.1	999.3
20634.8	998.6	20716.6	1000	20819.1	1001.3	20897.8	1001.5	20989.4	1002.8
21021	1008								

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
15913.8	.025	17218.7	.043	18235.8	.032	19546.2	.032	20622.1	.032

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
19546.2	20622.1	495 496.45	500	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
15913.8	17700	1008	F
20615	21021	1008	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 1003.04	* Element	* Left OB	* Channel	* Right OB	*
* Vel Head (ft)	* 1.02	* Wt. n-Val.	* 0.032	* 0.032	*	*
* W.S. Elev (ft)	* 1002.02	* Reach Len. (ft)	* 495.00	* 496.45	* 500.00	*
* Crit W.S. (ft)	* 998.52	* Flow Area (sq ft)	* 9128.32	*12982.93	*	*
* E.G. Slope (ft/ft)	*0.001348	* Area (sq ft)	* 9628.89	*13003.06	* 461.29	*
* Q Total (cfs)	*166000.00	* Flow (cfs)	*49265.64	*116734.40	*	*
* Top Width (ft)	* 4076.37	* Top Width (ft)	* 2687.89	* 1075.90	* 312.58	*
* Vel Total (ft/s)	* 7.51	* Avg. Vel. (ft/s)	* 5.40	* 8.99	*	*
* Max Chl Dpth (ft)	* 20.22	* Hydr. Depth (ft)	* 4.94	* 12.15	*	*
* Conv. Total (cfs)	*4521128.0	* Conv. (cfs)	*1341785.0	*3179343.0	*	*
* Length Wtd. (ft)	* 495.96	* Wetted Per. (ft)	* 1848.59	* 1072.00	*	*
* Min Ch El (ft)	* 981.80	* Shear (lb/sq ft)	* 0.42	* 1.02	*	*
* Alpha	* 1.16	* Stream Power (lb/ft s)	* 2.24	* 9.16	*	*
* Frctn Loss (ft)	* 0.69	* Cum Volume (acre-ft)	* 6302.39	*19582.18	* 1259.89	*
* C & E Loss (ft)	* 0.03	* Cum SA (acres)	* 1746.82	* 2090.91	* 645.05	*

Warning: Divided flow computed for this cross-section.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1004.02	Element	Left OB	Channel / Right OB
Vel Head (ft)	1.18	Wt. n-Val.	0.032	0.032 /
W.S. Elev (ft)	1002.84	Reach Len. (ft)	495.00	496.45 / 500.00
Crit W.S. (ft)	999.19	Flow Area (sq ft)	6259.99	13856.29 /
E.G. Slope (ft/ft)	0.001341	Area (sq ft)	6259.99	13882.22 /
Q Total (cfs)	166000.00	Flow (cfs)	36248.43	129751.60 /
Top Width (ft)	2060.75	Top Width (ft)	984.85	1075.90 /
Vel Total (ft/s)	8.25	Avg. Vel. (ft/s)	5.79	9.36 /
Max Chl Dpth (ft)	21.04	Hydr. Depth (ft)	6.36	12.96 /
Conv. Total (cfs)	4533739.0	Conv. (cfs)	990005.6	3543734.0 /
Length Wtd. (ft)	496.07	Wetted Per. (ft)	995.97	1072.00 /
Min Ch El (ft)	981.80	Shear (lb/sq ft)	0.53	1.08 /
Alpha	1.11	Stream Power (lb/ft s)	3.05	10.13 /
Frctn Loss (ft)	0.69	Cum Volume (acre-ft)	1023.30	20311.22 / 34.97
C & E Loss (ft)	0.03	Cum SA (acres)	150.37	2095.07 / 6.81

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 206.41

INPUT
Description: 206.41

Right Channel Bank Station Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16072.3	1004.6	16106.4	1006.4	16110	1005.1	16145.4	1008.7	16171	1008.7
16201.9	1005.9	16207.2	1004	16245.8	1004.3	16311.3	1003.5	16339	1003.3
16410.7	1003.1	16479.2	1003.2	16504.4	1003.2	16587.4	1003	16660.5	1002.5
16723.1	1001.7	16801.8	1001.5	16828.5	1001.3	16901.2	1001.1	16957.6	1001.1
17046.4	1001	17111	1001.2	17185.4	1001	17248.3	1000.1	17325.6	999.8
17339.6	999.7	17404.5	999.4	17486.4	999.7	17508.2	999.5	17572.4	999.3
17623.9	997.5	17651.1	1000.3	17677.5	1000.2	17744.8	1000	17841.4	1000
17924.2	1000	17975.5	1001.6	18054.4	997.3	18144.7	995.9	18247.4	997.4
18279.8	997.6	18300.2	993.9	18302.9	992.5	18313.4	993.5	18405.6	991.3
18469.8	989.6	18495.7	988.3	18533.5	989.6	18556.8	987.7	18575.5	988.9
18582.4	987.8	18584.3	989.6	18620.5	992.5	18634.5	992.5	18697.7	996.9
18786	998.9	18861.4	999.4	18929.1	999.3	18999.1	996.6	19037	995.4
19069.4	992.6	19082.5	992.4	19169.3	990.8	19285.4	995	19369.2	996.5
19395.7	996.5	19466.6	996.5	19539.8	996.4	19622.9	997.3	19694.4	996.7
19720.5	996.5	19730.2	994.5	19748.7	992.6	19835.1	990.8	19895.8	991.8
19904.5	990.4	19996.1	990.2	20002.5	990.4	20015.5	997.7	20035	990
20091.8	991.6	20171.9	991.2	20269.1	991.6	20343.1	990.4	20356.9	990
20360	988.9	20373.3	988	20379.2	986.7	20421	985.4	20490.4	985.8
20544.3	985.8	20576.7	983.8	20636.9	982.5	20685.2	1001.4	16 20690.8	1003.6
20719.8	1001.5	20729	1007.4						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16072.3	.025	17185.4	.043	18300.2	.032	19622.9	.032	20690.8	.032

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19622.9 20685.22 495 494.64 490 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
16072.3	17111	1008	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1002.32	Element	Left OB	Channel / Right OB
Vel Head (ft)	0.91	Wt. n-Val.	0.033	0.032 /
W.S. Elev (ft)	1001.41	Reach Len. (ft)	495.00	494.64 / 490.00
Crit W.S. (ft)	997.88	Flow Area (sq ft)	11582.17	11788.77 /
E.G. Slope (ft/ft)	0.001436	Area (sq ft)	11668.10	11788.77 /
Q Total (cfs)	166000.00	Flow (cfs)	63303.79	102696.20 /
Top Width (ft)	3862.05	Top Width (ft)	2799.74	1062.31 /
Vel Total (ft/s)	7.10	Avg. Vel. (ft/s)	5.47	8.71 /
Max Chl Dpth (ft)	18.91	Hydr. Depth (ft)	4.63	11.10 /
Conv. Total (cfs)	4380634.0	Conv. (cfs)	1670546.0	2710087.0 /
Length Wtd. (ft)	494.78	Wetted Per. (ft)	2505.07	1070.20 /
Min Ch El (ft)	982.50	Shear (lb/sq ft)	0.41	0.99 /
Alpha	1.16	Stream Power (lb/ft s)	2.27	8.60 /
Frctn Loss (ft)	0.72	Cum Volume (acre-ft)	6181.39	19440.90 / 1257.25
C & E Loss (ft)	0.03	Cum SA (acres)	1715.64	2078.73 / 643.26

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1003.30	Element	Left OB	Channel / Right OB
Vel Head (ft)	1.09	Wt. n-Val.	0.032	0.032 /
W.S. Elev (ft)	1002.21	Reach Len. (ft)	495.00	494.64 / 490.00
Crit W.S. (ft)	998.36	Flow Area (sq ft)	7928.85	12640.94 /
E.G. Slope (ft/ft)	0.001435	Area (sq ft)	7928.85	12640.94 /
Q Total (cfs)	166000.00	Flow (cfs)	50717.68	115282.30 /
Top Width (ft)	2190.50	Top Width (ft)	1128.19	1062.31 /
Vel Total (ft/s)	8.07	Avg. Vel. (ft/s)	6.40	9.12 /
Max Chl Dpth (ft)	19.71	Hydr. Depth (ft)	7.03	11.90 /
Conv. Total (cfs)	4381569.0	Conv. (cfs)	1338693.0	3042876.0 /
Length Wtd. (ft)	494.75	Wetted Per. (ft)	1143.59	1071.00 /

				Duplicate	Effective	
* Min Ch El (ft)	* 982.50	* Shear (lb/sq ft)	* 0.62	* 1.06	*	*
* Alpha	* 1.08	* Stream Power (lb/ft s)	* 3.97	* 9.65	*	*
* Frctn Loss (ft)	* 0.73	* Cum Volume (acre-ft)	* 942.69	*20160.08	* 34.97	*
* C & E Loss (ft)	* 0.03	* Cum SA (acres)	* 138.36	* 2082.88	* 6.81	*

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 206.32

INPUT
Description: 206.32 - FEMA Section O

Right Channel Bank Station Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16817.7	1002.2	16831.7	1004.4	16847.7	1000.1	16903	997.6	16998.5	999.5
17015.9	999.8	17073.2	995.7	17113.2	998.3	17193.6	998.2	17277.8	999.4
17336.8	998.4	17343.9	998.8	17416.7	997.2	17461	999.1	17530.2	1000
17612	1000.6	17634.8	999.5	17703.3	1001.3	17735.8	1000.4	17761.4	998.4
17843.7	998.5	17853.7	998	17875.9	994.2	17903.4	993.9	17962.9	996.3
18028.7	995.2	18096.2	993.6	18102.6	993.3	18134.8	1001.1	18154.4	1000.2
18192.6	1000.1	18243.3	992.5	18301.4	992.6	18329.8	993.4	18404.3	989.6
18429.4	987.7	18495.6	987.8	18512.7	986.5	18544.6	986.5	18577	989.5
18647	992.5	18707.1	997.1	18782.1	996.8	18869.6	997.5	18885	997.8
18895.7	996.8	18922.1	996.8	18939.9	995.3	18961.5	991.6	18990.7	990
19055.1	991.9	19120.2	992.7	19199.6	995.3	19288	998.1	19351.7	998.3
19433.6	998.5	19488.7	998.2	19527.8	996.5	19535	995.3	19546.5	994.9
19619.6	996.5	19696.3	996.5	19801.3	996.5	19818	996	19830.1	994.5
19917.7	993.3	19992.8	991.2	20076.4	989.2	20107.3	989	20181.4	989.5
20194.5	994.9	20217.3	987.2	20265.3	989.9	20314.9	990.8	20362.4	989.9
20372.9	988.8	20409.1	988.6	20435	986.4	20447.1	986.7	20565.6	989.2
20589.2	986.1	20647.7	982.8	20703.3	983.2	20732.7	988.7	20805.2	991
20816.2	997.6	20847.3	998.3	20854.91	000.773	20855.6	1001	20889.3	1002
20959.7	1001.8	20988.9	1002.7	21076.4	1002.8	21150.5	1002.8	21226.3	1002.8
21295.2	1002.7	21368	1003.3						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16817.7	.043	18404.3	.032	19488.7	.032	20889.3	.032	20988.9	.025

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19488.7 20854.9 515 513.83 520 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
16817.7	17150	1004	F
20899.3	21368	1004	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 1001.56	* Element	* Left OB * Channel	* Right OB *
* Vel Head (ft)	* 0.80	* Wt. n-Val.	* 0.035 * 0.032	* *
* W.S. Elev (ft)	* 1000.76	* Reach Len. (ft)	* 515.00 * 513.83	* 520.00 *
* Crit W.S. (ft)	* 997.04	* Flow Area (sq ft)	*11528.58 *13024.99	* *
* E.G. Slope (ft/ft)	*0.001495	* Area (sq ft)	*12280.60 *13024.99	* *
* Q Total (cfs)	*166000.00	* Flow (cfs)	*61169.30 *104830.70	* *
* Top Width (ft)	* 3961.10	* Top Width (ft)	* 2594.93 * 1366.17	* *
* Vel Total (ft/s)	* 6.76	* Avg. Vel. (ft/s)	* 5.31 * 8.05	* *
* Max Chl Dpth (ft)	* 17.96	* Hydr. Depth (ft)	* 5.03 * 9.53	* *
* Conv. Total (cfs)	*4293590.0	* Conv. (cfs)	*1582144.0 *2711446.0	* *
* Length Wtd. (ft)	* 514.23	* Wetted Per. (ft)	* 2293.48 * 1372.18	* *
* Min Ch El (ft)	* 982.80	* Shear (lb/sq ft)	* 0.47 * 0.89	* *
* Alpha	* 1.12	* Stream Power (lb/ft s)	* 2.49 * 7.13	* *
* Frctn Loss (ft)	* 0.85	* Cum Volume (acre-ft)	* 6045.31 *19300.02	* 1257.25 *
* C & E Loss (ft)	* 0.01	* Cum SA (acres)	* 1684.99 * 2064.94	* 643.26 *

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 1002.55	* Element	* Left OB * Channel	* Right OB *
* Vel Head (ft)	* 0.99	* Wt. n-Val.	* 0.032 * 0.032	* *
* W.S. Elev (ft)	* 1001.56	* Reach Len. (ft)	* 515.00 * 513.83	* 520.00 *
* Crit W.S. (ft)	* 997.90	* Flow Area (sq ft)	* 7081.88 *14109.49	* *
* E.G. Slope (ft/ft)	*0.001498	* Area (sq ft)	* 7081.88 *14109.49	* *
* Q Total (cfs)	*166000.00	* Flow (cfs)	*46127.79 *119872.20	* *
* Top Width (ft)	* 2377.93	* Top Width (ft)	* 1011.76 * 1366.17	* *
* Vel Total (ft/s)	* 7.83	* Avg. Vel. (ft/s)	* 6.51 * 8.50	* *
* Max Chl Dpth (ft)	* 18.76	* Hydr. Depth (ft)	* 7.00 * 10.33	* *
* Conv. Total (cfs)	*4288577.0	* Conv. (cfs)	*1191702.0 *3096875.0	* *
* Length Wtd. (ft)	* 514.13	* Wetted Per. (ft)	* 1026.57 * 1372.97	* *
* Min Ch El (ft)	* 982.80	* Shear (lb/sq ft)	* 0.65 * 0.96	* *
* Alpha	* 1.04	* Stream Power (lb/ft s)	* 4.20 * 8.17	* *
* Frctn Loss (ft)	* 0.83	* Cum Volume (acre-ft)	* 857.40 *20008.20	* 34.97 *
* C & E Loss (ft)	* 0.00	* Cum SA (acres)	* 126.21 * 2069.10	* 6.81 *

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 206.22

```
INPUT
Description: 206.22

Right Channel Bank Station Interpolated
Station Elevation Data    num=      97
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 16557.5  1004.3 16639.4    1004 16713.7  1003.6 16806.6  1001.8 16878.4     999
 16892.3   998.9 16946.1  1002.9 16955.9  1004.8 16975.7   997.5 16981.9   999.4
 16987.4   998.1 17046.8   996.8 17159.7     997 17260.1   998.5 17320.1   997.5
 17343.9   994.5 17380.4   994.5 17400.6   996.8   17408   996.8 17477.4   998.9
 17541.1   999.5 17596.5   998.4 17631.6   996.8 17724.8   998.9 17740.4   998.5
 17771.5   991.4 17846.4   992.8 17904.5   993.5   17940   995.6 18004.2   995.6
 18016.1   997.5 18035.4   995.9 18079.4   996.3 18103.6   997.7 18147.1   997.6
 18161.3   993.8 18238.9   993.7 18321.5   992.4 18333.6   991.4 18443.6   991.4
 18455.9   991.4 18507.4   994.4 18550.2   989.5 18634.4   989.6 18723.2   987.6
 18759.4   986.3 18833.1   991.5 18933.1   991.9 18987.8   992.5   19058   994.5
 19110.4   996.4 19138.8   999.5 19223.6  1000.6 19278.4  1001.5 19361.2  1000.2
 19370.9   998.6 19381.6  1000.1 19456.3   999.5 19512.1   996.4   19583   994.5
 19660.7   994.4 19691.9   994.4 19781.3   994.4 19826.6   994.4   19870   992.6
 19877.4   990.6 19912.2     990 20004.6   991.9   20079   991.3 20117.2   990.7
 20188.2   986.9   20282   986.7 20306.6   994.7 20332.7   985.9 20338.2   985.9
 20423.1   985.1 20525.8     983 20611.1   984.7 20700.7   989.7 20755.5   992.3
 20766.6   995.9 20807.8   996.5 20844.2   994.9 20887.6   996.6 20898.1   998.3
 20968.3     999 20974.6  999.120977.35999.8423 20990.9  1003.5 21017.9  1001.7
 21148.3  1002.6 21222.8  1003.1 21294.4  1003.3 21307.8  1003.3 21385.2  1003.5
 21467.9  1003.9   21480    1004

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************************
 16557.5    .043 19278.4    .043   19583    .032 20990.9    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       19278.420977.35              500  502.44     460             .1      .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 16557.5 16955.9    1004        F
   21480   21480    1004        F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************************
* E.G. Elev (ft)         * 1000.70  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.87  * Wt. n-Val.            *   0.043  *   0.032  *          *
* W.S. Elev (ft)         *  999.83  * Reach Len. (ft)       *  500.00  *  502.44  *  460.00  *
* Crit W.S. (ft)         *  996.54  * Flow Area (sq ft)     *11715.22  *13207.08  *          *
* E.G. Slope (ft/ft)     *0.001855  * Area (sq ft)          *11741.90  *13207.08  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *53201.89  *112798.10  *          *
* Top Width (ft)         * 3819.75  * Top Width (ft)       * 2242.04  * 1577.71  *          *
* Vel Total (ft/s)       *    6.66  * Avg. Vel. (ft/s)     *    4.54  *    8.54  *          *
* Max Chl Dpth (ft)      *   16.83  * Hydr. Depth (ft)     *    5.34  *    8.37  *          *
* Conv. Total (cfs)      *3853835.0  * Conv. (cfs)         *1235128.0  *2618707.0  *          *
* Length Wtd. (ft)       *  501.63  * Wetted Per. (ft)     * 2198.36  * 1582.28  *          *
* Min Ch El (ft)         *  983.00  * Shear (lb/sq ft)     *    0.62  *    0.97  *          *
* Alpha                  *    1.27  * Stream Power (lb/ft s) *    2.80  *    8.26  *          *
* Frctn Loss (ft)        *    0.99  * Cum Volume (acre-ft)  * 5903.31  *19145.30  * 1257.25  *
* C & E Loss (ft)        *    0.00  * Cum SA (acres)        * 1656.39  * 2047.58  *  643.26  *
*********************************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************************
* E.G. Elev (ft)         * 1001.72  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.03  * Wt. n-Val.            *   0.043  *   0.032  *          *
* W.S. Elev (ft)         * 1000.69  * Reach Len. (ft)       *  500.00  *  502.44  *  460.00  *
* Crit W.S. (ft)         *  996.71  * Flow Area (sq ft)     * 6624.84  *14611.29  *          *
* E.G. Slope (ft/ft)     *0.001734  * Area (sq ft)          * 6624.84  *14611.29  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *38880.52  *127119.50  *          *
* Top Width (ft)         * 2441.77  * Top Width (ft)       *  794.27  * 1647.50  *          *
* Vel Total (ft/s)       *    7.82  * Avg. Vel. (ft/s)     *    5.87  *    8.70  *          *
* Max Chl Dpth (ft)      *   17.69  * Hydr. Depth (ft)     *    8.34  *    8.87  *          *
* Conv. Total (cfs)      *3986076.0  * Conv. (cfs)         *933618.8  *3052457.0  *          *
* Length Wtd. (ft)       *  501.89  * Wetted Per. (ft)     *  804.40  * 1652.99  *          *
* Min Ch El (ft)         *  983.00  * Shear (lb/sq ft)     *    0.89  *    0.96  *          *
* Alpha                  *    1.08  * Stream Power (lb/ft s) *    5.23  *    8.33  *          *
* Frctn Loss (ft)        *    1.04  * Cum Volume (acre-ft)  *  776.37  *19838.81  *   34.97  *
* C & E Loss (ft)        *    0.02  * Cum SA (acres)        *  115.53  * 2051.32  *    6.81  *
*********************************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 206.13

INPUT
Description: 206.13

Right Channel Bank Station Interpolated
Station Elevation Data    num=      97
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 16722.1  1002.8 16785.1  1002.2 16877.3  1002.1 16908.3  1000.9 16979.6  1000.9
 17014.5  1000.3 17057.5   998.5 17070.3   997.5 17183.2   997.5 17222.6   994.5
 17342.3   992.1 17417.8   994.4 17490.8   994.6   17494   994.7 17613.2   996.3
 17668.4   995.8 17699.1   991.3 17790.1   992.3 17861.7   993.7 17934.2   993.6
 17996.1   993.2 18017.5   997.2 18080.8   996.1 18121.2   996.9 18147.1   992.3
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                                                                    DuplicateEffective
 18166.8   991.3 18235.4   991.3 18302.6   991.3   18386   991.3 18421.8   989.5
   18432   988.4 18469.5   988.4 18475.1   989.5 18500.2   989.3 18504.2   988.4
 18568.5   987.1 18688.1   988.4 18765.4   989.5 18782.8   992.5 18860.9   996.5
   18915   999.2 18980.4   995.4 19020.4   994.5 19089.1   997.3 19153.9  1000.5
   19162  1001.6   19203  1003.8 19205.7  1003.2 19223.2    1003 19263.9  1000.5
   19294   999.3 19352.5   999.3 19369.3   998.5 19381.9   996.4 19450.5   995.7
 19547.3   995.6 19615.3   994.4 19675.1   990.6 19753.3   990.5 19774.8   990.4
 19852.5   988.3 19926.3   986.6 19938.1   987.1 19943.1   987.8   19956   986.6
   19959   986.7 20036.9   986.5 20105.4   986.3 20129.5   986.8 20164.8   990.8
 20183.5   987.1 20270.6   987.9 20276.8   988.6 20297.8   988.6 20342.4   987.5
 20366.8   987.4 20431.3   985.5 20458.7   984.6 20505.9   984.6 20523.1   985.6
 20557.7   986.6 20563.2   987.2   20637   987.5   20656   988.4 20660.4     988
   20685   996.6 20699.6     998 20710.6   997.6 20766.4   997.9 20788.2     997
 20848.3   996.7 20868.5     996 20903.4   995.720914.99998.8712 20934.1  1004.1
 20964.8  1000.3 20989.1  1000.6

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
 16722.1    .043   19203    .033 20934.1    .032

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         1920320914.99              490  483.44     540             .1      .3

CROSS SECTION OUTPUT  Profile #PF#1
*************************************************************************************************
* E.G. Elev (ft)         *  999.71  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.86  * Wt. n-Val.            *   0.043  *    0.033  *          *
* W.S. Elev (ft)         *  998.84  * Reach Len. (ft)       *  490.00  *  483.44  *  540.00  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)     *11343.04  *12898.46  *          *
* E.G. Slope (ft/ft)     *0.002097  * Area (sq ft)          *11343.04  *12898.46  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)          *57077.14  *108922.90  *          *
* Top Width (ft)         * 3610.69  * Top Width (ft)       * 2057.86  * 1552.83  *          *
* Vel Total (ft/s)       *    6.85  * Avg. Vel. (ft/s)     *    5.03  *    8.44  *          *
* Max Chl Dpth (ft)      *   14.24  * Hydr. Depth (ft)     *    5.51  *    8.31  *          *
* Conv. Total (cfs)      *3625268.0  * Conv. (cfs)         *1246506.0  *2378763.0  *          *
* Length Wtd. (ft)       *  485.81  * Wetted Per. (ft)     * 2060.23  * 1556.11  *          *
* Min Ch El (ft)         *  984.60  * Shear (lb/sq ft)     *    0.72  *    1.08  *          *
* Alpha                  *    1.18  * Stream Power (lb/ft s) *   3.63  *    9.16  *          *
* Frctn Loss (ft)        *    1.19  * Cum Volume (acre-ft)  * 5770.82  *18994.74  * 1257.25  *
* C & E Loss (ft)        *    0.04  * Cum SA (acres)        * 1631.71  * 2029.52  *  643.26  *
*************************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT  Profile #PF#2
*************************************************************************************************
* E.G. Elev (ft)         * 1000.66  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.23  * Wt. n-Val.            *   0.043  *    0.033  *          *
* W.S. Elev (ft)         *  999.43  * Reach Len. (ft)       *  490.00  *  483.44  *  540.00  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)     * 5507.57  *13816.21  *          *
* E.G. Slope (ft/ft)     *0.002539  * Area (sq ft)          * 5507.57  *13816.21  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)          *35563.61  *130436.40  *          *
* Top Width (ft)         * 2386.31  * Top Width (ft)       *  762.20  * 1624.11  *          *
* Vel Total (ft/s)       *    8.59  * Avg. Vel. (ft/s)     *    6.46  *    9.44  *          *
* Max Chl Dpth (ft)      *   14.83  * Hydr. Depth (ft)     *    7.23  *    8.51  *          *
* Conv. Total (cfs)      *3294110.0  * Conv. (cfs)         *705725.5  *2588384.0  *          *
* Length Wtd. (ft)       *  484.60  * Wetted Per. (ft)     *  771.32  * 1627.99  *          *
* Min Ch El (ft)         *  984.60  * Shear (lb/sq ft)     *    1.13  *    1.35  *          *
* Alpha                  *    1.07  * Stream Power (lb/ft s) *   7.31  *   12.70  *          *
* Frctn Loss (ft)        *    1.44  * Cum Volume (acre-ft)  *  706.74  *19674.86  *   34.97  *
* C & E Loss (ft)        *    0.06  * Cum SA (acres)        *  106.60  * 2032.45  *    6.81  *
*************************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

CROSS SECTION


RIVER: 1
REACH: 1                  RS: 206.03

INPUT
Description: 206.03
Station Elevation Data    num=      96
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 16802.9  1002.4 16810.4    1002 16813.6  1000.9   16824  1002.4 16844.6  1000.6
 16890.3  1000.8 16957.6   998.6 16974.2   996.3   17051   996.3 17118.7     996
 17158.8   996.3 17238.1   994.4 17268.4   993.9 17337.7   992.2 17429.7   992.2
 17531.5   992.2 17538.3   993.5 17547.2   994.4 17602.5   996.5   17662   996.6
 17711.8   998.8 17753.6   997.9 17811.8   999.7 17868.4   998.8   17876   996.8
 17888.6   992.2 17921.7   991.3 17955.9   991.3 18046.3   991.3   18129   992.2
 18208.5   993.4 18309.7   993.6 18420.9   993.3 18447.9   989.4 18457.8   986.4
 18517.5   985.1 18549.4   986.9   18588     984 18644.4   992.4 18712.4   995.4
 18774.2   998.9   18830   995.4 18904.6   994.2 18908.3   994.2 18995.9   996.3
 19086.5  1000.5   19177  1002.9 19201.9  1004.4 19226.8  1002.9 19249.6  1003.2
 19274.5  1000.5 19281.8   998.5 19300.1   995.7 19315.7   994.3 19390.1   994.3
 19400.5   994.3 19413.5   991.2 19424.9   989.1 19482.5   986.8 19510.1   986.8
 19554.4   985.8 19658.8   985.8 19753.3   985.9 19822.1   985.9 19854.2   986.9
 19870.5   986.6 19902.2   987.2 19919.6   986.6 19994.1   987.8 20078.9   988.1
 20133.4   987.5 20176.6   991.9 20201.4   992.1 20216.4   992.9 20292.1   994.2
   20354     993 20378.4     992   20392   989.3 20410.4   989.1 20427.7   986.6
 20479.5   986.9   20548   985.1 20601.3   984.5 20610.2   984.8 20660.5   989.4
 20711.9   992.7 20772.6   995.4 20851.6   995.1 20876.8     995 20972.6   994.7
 21099.7   995.7 21122.5   995.9 21132.1   998.6 21160.4  1005.3 21175.8   999.9
 21184.2   999.9

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
```

```
**********************************************
 16802.9    .043 19201.9    .033 20772.6    .032

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       19201.9 20772.6             590   513.6     510            .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
 16802.9   16900    1003       F

CROSS SECTION OUTPUT  Profile #PF#1
*************************************************************************************************
* E.G. Elev (ft)         *  998.47  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.28  * Wt. n-Val.             *   0.043  *   0.033  *   0.032  *
* W.S. Elev (ft)         *  997.19  * Reach Len. (ft)        *  590.00  *  513.60  *  510.00  *
* Crit W.S. (ft)         *  995.40  * Flow Area (sq ft)      * 7301.57  *12448.57  *  718.57  *
* E.G. Slope (ft/ft)     *0.002920  * Area (sq ft)           * 7301.57  *12448.57  *  718.57  *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *38067.28  *125045.60  * 2887.13  *
* Top Width (ft)         * 3627.33  * Top Width (ft)        * 1790.61  * 1482.23  *  354.48  *
* Vel Total (ft/s)       *    8.11  * Avg. Vel. (ft/s)      *    5.21  *   10.04  *    4.02  *
* Max Chl Dpth (ft)      *   13.19  * Hydr. Depth (ft)      *    4.08  *    8.40  *    2.03  *
* Conv. Total (cfs)      *3071777.0  * Conv. (cfs)          *704422.8  *2313929.0  * 53425.3  *
* Length Wtd. (ft)       *  528.46  * Wetted Per. (ft)      * 1793.59  * 1484.21  *  354.67  *
* Min Ch El (ft)         *  984.50  * Shear (lb/sq ft)      *    0.74  *    1.53  *    0.37  *
* Alpha                  *    1.25  * Stream Power (lb/ft s) *    3.87  *   15.36  *    1.48  *
* Frctn Loss (ft)        *    1.19  * Cum Volume (acre-ft)  * 5665.95  *18854.09  * 1252.79  *
* C & E Loss (ft)        *    0.12  * Cum SA (acres)        * 1610.07  * 2012.68  *  641.06  *
*************************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT  Profile #PF#2
*************************************************************************************************
* E.G. Elev (ft)         *  999.15  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.78  * Wt. n-Val.             *   0.043  *   0.033  *          *
* W.S. Elev (ft)         *  997.37  * Reach Len. (ft)        *  590.00  *  513.60  *  510.00  *
* Crit W.S. (ft)         *  995.41  * Flow Area (sq ft)      * 3391.07  *12720.36  *          *
* E.G. Slope (ft/ft)     *0.003548  * Area (sq ft)           * 3391.07  *12720.36  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *23329.40  *142670.60  *          *
* Top Width (ft)         * 2131.13  * Top Width (ft)        *  647.70  * 1483.43  *          *
* Vel Total (ft/s)       *   10.30  * Avg. Vel. (ft/s)      *    6.88  *   11.22  *          *
* Max Chl Dpth (ft)      *   13.37  * Hydr. Depth (ft)      *    5.24  *    8.57  *          *
* Conv. Total (cfs)      *2786996.0  * Conv. (cfs)          *391680.3  *2395315.0  *          *
* Length Wtd. (ft)       *  524.67  * Wetted Per. (ft)      *  653.26  * 1487.40  *          *
* Min Ch El (ft)         *  984.50  * Shear (lb/sq ft)      *    1.15  *    1.89  *          *
* Alpha                  *    1.08  * Stream Power (lb/ft s) *    7.91  *   21.24  *          *
* Frctn Loss (ft)        *    1.16  * Cum Volume (acre-ft)  *  656.69  *19527.61  *   34.97  *
* C & E Loss (ft)        *    0.28  * Cum SA (acres)        *   98.67  * 2015.21  *    6.81  *
*************************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                RS: 205.94

INPUT
Description: 205.94
Station Elevation Data    num=      96
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
**********************************************************************************
 16903.8  1000.5 16909.4    1000 16920.9  1001.6 16972.5  1001.2 16975.5  1000.3
 16985.1  1001.6 17007.6   998.7 17082.9   996.3 17151.6   996.3   17234   996.3
 17267.9   996.3 17336.5   996.2   17426   996.4 17508.2   996.2 17592.3   996.3
 17688.9   994.4 17733.4     994 17754.7   991.9 17830.3   991.2   17928   993.4
 17928.3   993.4 18000.5   993.2 18041.8   993.1 18116.7   993.3 18216.4   993.4
 18279.7   991.1 18294.7   987.3 18302.5   986.7 18362.5   986.9 18376.8   985.1
 18407.6   986.2 18496.1   984.1 18565.5   985.4 18614.9   987.2 18629.5   988.4
 18642.1   988.5 18669.8   994.1 18756.5   994.7 18817.1   995.6 18869.8   993.4
 18916.1   992.8 18941.2   994.2 19004.1     991 19053.5   981.9 19123.4   981.8
 19199.3     982   19250   981.9 19337.5   981.5 19354.9   982.2 19448.6     985
 19535.3     985 19613.6   984.8 19703.6   985.4 19775.9   989.5 19831.1   990.2
 19926.3   989.4 19994.7   989.1 20082.6   988.9 20106.6   989.1 20111.2   988.5
 20149.5   990.4 20183.7   994.3   20237   990.7 20262.2   991.4 20291.7   989.3
   20345   989.3 20445.6   986.5 20507.2   982.5 20519.9   982.9 20520.2   982.1
 20569.1     981 20589.6     984   20612   989.6   20643   991.1 20662.1   992.9
 20686.6   992.8 20704.4   994.4   20767   996.6 20871.9   997.4 20903.2   996.9
 20938.8   991.7 20969.6   993.5 21038.9   995.4   21103   995.9 21150.3   993.9
 21195.3   994.9 21265.8   994.7 21288.8     994 21309.9   995.5 21385.6   995.9
 21402.4   995.6 21473.1   995.1 21527.7   994.8   21551   998.8 21641.3   999.1
   21683  1001.6

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
**************************************************************
 16903.8    .043 18817.1    .033   20767    .032 20938.8    .037

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       18817.1   20767             505  506.69     510            .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
   21215   21683     999       F

CROSS SECTION OUTPUT  Profile #PF#1
*************************************************************************************************
```

				DuplicateEffective		
				Left OB	Channel	Right OB
E.G. Elev (ft)	997.17	Element		Left OB	Channel	Right OB
Vel Head (ft)	0.89	Wt. n-Val.		0.043	0.033	0.036
W.S. Elev (ft)	996.28	Reach Len. (ft)		505.00	506.69	510.00
Crit W.S. (ft)	992.36	Flow Area (sq ft)		6215.99	17060.13	528.54
E.G. Slope (ft/ft)	0.001782	Area (sq ft)		6215.99	17060.13	877.89
Q Total (cfs)	166000.00	Flow (cfs)		26725.95	137949.00	1325.10
Top Width (ft)	3972.87	Top Width (ft)		1403.39	1940.66	628.82
Vel Total (ft/s)	6.97	Avg. Vel. (ft/s)		4.30	8.09	2.51
Max Chl Dpth (ft)	15.28	Hydr. Depth (ft)		4.43	8.79	1.72
Conv. Total (cfs)	3932557.0	Conv. (cfs)		633140.5	3268024.0	31391.7
Length Wtd. (ft)	506.47	Wetted Per. (ft)		1404.90	1944.24	307.99
Min Ch El (ft)	981.00	Shear (lb/sq ft)		0.49	0.98	0.19
Alpha	1.18	Stream Power (lb/ft s)		2.12	7.89	0.48
Frctn Loss (ft)	0.66	Cum Volume (acre-ft)		5574.41	18680.13	1243.45
C & E Loss (ft)	0.07	Cum SA (acres)		1588.44	1992.50	635.31

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

				Left OB	Channel	Right OB
E.G. Elev (ft)	997.71	Element		Left OB	Channel	Right OB
Vel Head (ft)	0.86	Wt. n-Val.		0.043	0.033	
W.S. Elev (ft)	996.85	Reach Len. (ft)		505.00	506.69	510.00
Crit W.S. (ft)	992.30	Flow Area (sq ft)		4747.93	18184.85	
E.G. Slope (ft/ft)	0.001519	Area (sq ft)		4747.93	18184.85	
Q Total (cfs)	166000.00	Flow (cfs)		24792.00	141208.00	
Top Width (ft)	2567.00	Top Width (ft)		617.10	1949.90	
Vel Total (ft/s)	7.24	Avg. Vel. (ft/s)		5.22	7.77	
Max Chl Dpth (ft)	15.85	Hydr. Depth (ft)		7.69	9.33	
Conv. Total (cfs)	4259277.0	Conv. (cfs)		636120.4	3623156.0	
Length Wtd. (ft)	506.48	Wetted Per. (ft)		621.93	1953.74	
Min Ch El (ft)	981.00	Shear (lb/sq ft)		0.72	0.88	
Alpha	1.06	Stream Power (lb/ft s)		3.78	6.85	
Frctn Loss (ft)	0.59	Cum Volume (acre-ft)		601.57	19345.41	34.97
C & E Loss (ft)	0.06	Cum SA (acres)		90.10	1994.97	6.81

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 205.84

INPUT
Description: 205.84
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17154.7	999.5	17167.6	998.3	17173.7	999	17242.7	999.3	17319.2	999.3
17395.4	998.8	17445.8	998.6	17482.3	997.2	17534.1	997.5	17544.3	997.1
17572.5	997.3	17612.4	996.5	17644.3	993.7	17719.4	994.2	17735.7	993.6
17775	993.6	17842.8	992.3	17862.2	987.5	17958.9	987.6	17969.5	989.4
18029.4	989.1	18042.3	990.1	18085.3	986.5	18121.7	984.6	18194.4	985
18242.1	986.4	18267.7	987.9	18304.8	988.6	18343.6	988.3	18423.5	987.9
18487.6	987.3	18519.2	980.3	18575.4	985.3	18594.1	984.3	18599.2	983
18611.3	981.7	18624.5	979.5	18698.1	979.6	18782.8	980.6	18852.2	980.4
18868.5	982.8	18970.3	982.9	19086.6	984.3	19137.9	986	19161.5	987.5
19244.2	986.1	19262.6	985.8	19339.3	985.7	19420.2	986.1	19521.7	987.3
19606.4	989.5	19664.7	990.4	19734.4	992	19762.4	991.1	19876.6	990.8
19965.5	989.4	20028.7	988.2	20132.7	984.3	20147.5	983.5	20176	983
20199.7	984.8	20287.6	984.2	20364.3	982.3	20417.7	981.2	20446.2	981.5
20481.4	989.8	20508	994.7	20535.7	996	20575.3	996.4	20613.9	995.2
20691.5	994.7	20737.2	994.6	20809.8	995.7	20816.4	996	20875	995.1
20909.1	992.8	20953.5	994.7	21021.3	995.7	21074.7	995.5	21087.2	993.8
21126.7	992.2	21139.8	993.2	21222.1	993.7	21281.4	994.3	21334.2	993
21367.3	994.1	21398.1	992.4	21450.5	994.8	21460	991.6	21508.8	993.1
21563.2	993.7	21607.4	993.3	21622.3	993.7	21634.1	995.7	21671.2	996.7
21696	999.5								

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
17154.7	.043	18487.6	.043	18575.4	.032	20535.7	.032	20875	.037

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
18487.6	20535.7	495	496	480	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
21450	21696	999	F

CROSS SECTION OUTPUT Profile #PF#1

				Left OB	Channel	Right OB
E.G. Elev (ft)	996.43	Element		Left OB	Channel	Right OB
Vel Head (ft)	0.64	Wt. n-Val.		0.043	0.033	0.036
W.S. Elev (ft)	995.78	Reach Len. (ft)		495.00	496.00	480.00
Crit W.S. (ft)	991.10	Flow Area (sq ft)		5827.68	20747.91	1226.92
E.G. Slope (ft/ft)	0.001006	Area (sq ft)		5827.68	20747.91	1697.20
Q Total (cfs)	166000.00	Flow (cfs)		22730.35	141072.70	2196.97
Top Width (ft)	3933.88	Top Width (ft)		867.04	2043.50	1023.33
Vel Total (ft/s)	5.97	Avg. Vel. (ft/s)		3.90	6.80	1.79
Max Chl Dpth (ft)	16.28	Hydr. Depth (ft)		6.72	10.15	1.47
Conv. Total (cfs)	5233237.0	Conv. (cfs)		716586.3	4447390.0	69260.5
Length Wtd. (ft)	495.56	Wetted Per. (ft)		868.21	2046.96	836.58
Min Ch El (ft)	979.50	Shear (lb/sq ft)		0.42	0.64	0.09
Alpha	1.16	Stream Power (lb/ft s)		1.64	4.33	0.16
Frctn Loss (ft)	0.65	Cum Volume (acre-ft)		5504.60	18460.23	1228.37
C & E Loss (ft)	0.00	Cum SA (acres)		1575.28	1969.33	625.63

Warning: Divided flow computed for this cross-section.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 997.06	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 0.67	* Wt. n-Val.	* 0.043	* 0.033	*
* W.S. Elev (ft)	* 996.39	* Reach Len. (ft)	* 495.00	* 496.00	* 480.00 *
* Crit W.S. (ft)	* 991.10	* Flow Area (sq ft)	* 3668.58	*21988.48	*
* E.G. Slope (ft/ft)	*0.000928	* Area (sq ft)	* 3668.58	*21988.48	*
* Q Total (cfs)	*166000.00	* Flow (cfs)	*16967.54	*149032.50	* *
* Top Width (ft)	* 2435.70	* Top Width (ft)	* 387.60	* 2048.10	*
* Vel Total (ft/s)	* 6.47	* Avg. Vel. (ft/s)	* 4.63	* 6.78	*
* Max Chl Dpth (ft)	* 16.89	* Hydr. Depth (ft)	* 9.46	* 10.74	*
* Conv. Total (cfs)	*5449105.0	* Conv. (cfs)	*556975.2	*4892130.0	* *
* Length Wtd. (ft)	* 495.95	* Wetted Per. (ft)	* 398.36	* 2051.95	*
* Min Ch El (ft)	* 979.50	* Shear (lb/sq ft)	* 0.53	* 0.62	*
* Alpha	* 1.04	* Stream Power (lb/ft s)	* 2.47	* 4.21	*
* Frctn Loss (ft)	* 0.58	* Cum Volume (acre-ft)	* 552.78	*19111.76	* 34.97 *
* C & E Loss (ft)	* 0.01	* Cum SA (acres)	* 84.28	* 1971.72	* 6.81 *

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 205.75

INPUT
Description: 205.75
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17305.3	998.9	17323.7	996.7	17395.5	996.8	17486.9	996.4	17509.8	996.4
17581.1	996.2	17666.5	995.9	17680.3	996	17753.1	996.5	17853.4	996.5
17864.9	996.5	17966.3	996	18048	994.8	18136.2	989.8	18199.9	985.9
18204.5	985.7	18238.3	975.2	18303	975.1	18340.9	977.7	18362.6	983.3
18414.2	984.2	18425.5	978.9	18465.2	978.9	18482	983.4	18487.5	980.6
18502.7	981.5	18551.9	977.5	18634.1	978.7	18705.8	979.9	18783.7	983.6
18852.2	983.7	18938.1	983.3	19031.5	983.4	19132.6	984.5	19156	984.8
19231.1	986.4	19292.3	989.2	19362.3	991.3	19410.6	989.7	19510.1	990.4
19547	990.4	19564.3	991.1	19608.3	991.1	19685.9	990.7	19759.4	989.7
19806.7	989.9	19819.8	990.5	19830.2	990.2	19906.7	988.4	19984.6	988.8
20051.4	988.1	20065.4	987.5	20101.2	975.7	20131.5	973.9	20148.4	974.7
20183.3	981	20265.9	982.2	20296.1	983.6	20320.1	985.5	20338.8	985.9
20373.3	988.6	20450.3	990	20500.5	990.7	20583.6	992.4	20674.8	995.6
20691.1	996.1	20754.7	995.2	20833.9	994.8	20900.7	994.8	20927.8	993.3
20929.3	994.1	20943.9	991.9	20951.5	991.7	20989	994	21037.1	991.6
21060.1	993.2	21120.9	992.7	21131.3	991.3	21198.6	991.5	21306.4	993.9
21377	994.4	21386.2	994.7	21449.8	995	21502.3	995.3	21567.5	995.7
21648.1	996.3	21682	996.5	21789	996.8	21807.7	996.8	21902.8	997.4
21921	997.6	22001	997.7	22076.6	997.7	22142.9	997.7	22143.7	999
22145	998.9								

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
17305.3	.043	18048	.043	20583.6	.043	21131.3	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
18048	20450.3	825	642	490	.1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
21400	22145	999	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 995.78	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 0.68	* Wt. n-Val.	* 0.043	* 0.043	* 0.035 *
* W.S. Elev (ft)	* 995.10	* Reach Len. (ft)	* 825.00	* 642.00	* 490.00 *
* Crit W.S. (ft)	* 989.59	* Flow Area (sq ft)	* 2.98	*23920.56	* 1754.13 *
* E.G. Slope (ft/ft)	*0.001766	* Area (sq ft)	* 2.98	*23920.56	* 1765.56 *
* Q Total (cfs)	*166000.00	* Flow (cfs)	* 1.21	*160405.70	* 5593.08 *
* Top Width (ft)	* 3323.85	* Top Width (ft)	* 20.14	* 2402.30	* 901.40 *
* Vel Total (ft/s)	* 6.46	* Avg. Vel. (ft/s)	* 0.41	* 6.71	* 3.19 *
* Max Chl Dpth (ft)	* 21.20	* Hydr. Depth (ft)	* 0.15	* 9.96	* 2.10 *
* Conv. Total (cfs)	*3950065.0	* Conv. (cfs)	* 28.8	*3816946.0	*133090.7 *
* Length Wtd. (ft)	* 634.92	* Wetted Per. (ft)	* 20.15	* 2410.71	* 835.61 *
* Min Ch El (ft)	* 973.90	* Shear (lb/sq ft)	* 0.02	* 1.09	* 0.23 *
* Alpha	* 1.05	* Stream Power (lb/ft s)	* 0.01	* 7.34	* 0.74 *
* Frctn Loss (ft)	* 0.66	* Cum Volume (acre-ft)	* 5471.47	*18205.92	* 1209.29 *
* C & E Loss (ft)	* 0.05	* Cum SA (acres)	* 1570.24	* 1944.02	* 615.03 *

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 996.48	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 0.65	* Wt. n-Val.	*	* 0.043	* *
* W.S. Elev (ft)	* 995.83	* Reach Len. (ft)	* 825.00	* 642.00	* 490.00 *
* Crit W.S. (ft)	* 989.59	* Flow Area (sq ft)	*	*25689.44	* *
* E.G. Slope (ft/ft)	*0.001497	* Area (sq ft)	*	*25689.44	* *
* Q Total (cfs)	*166000.00	* Flow (cfs)	*	*166000.00	* *
* Top Width (ft)	* 2402.30	* Top Width (ft)	*	* 2402.30	* *
* Vel Total (ft/s)	* 6.46	* Avg. Vel. (ft/s)	*	* 6.46	* *
* Max Chl Dpth (ft)	* 21.93	* Hydr. Depth (ft)	*	* 10.69	* *
* Conv. Total (cfs)	*4290733.0	* Conv. (cfs)	*	*4290733.0	* *
* Length Wtd. (ft)	* 642.00	* Wetted Per. (ft)	*	* 2417.57	* *

								DuplicateEffective			
* Min Ch El (ft)	*	973.90	* Shear (lb/sq ft)	*		*	0.99	*		*	
* Alpha	*	1.00	* Stream Power (lb/ft s)	*		*	6.42	*		*	
* Frctn Loss (ft)	*	0.62	* Cum Volume (acre-ft)	*	531.94	*	18840.32	*	34.97	*	
* C & E Loss (ft)	*	0.02	* Cum SA (acres)	*	82.07	*	1946.38	*	6.81	*	

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 205.62

INPUT
Description: 205.62
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16987.1	998.1	17010.8	998	17131	997.7	17220.3	997.9	17312.3	997.2
17337.5	997.1	17349.7	993.8	17415.9	993.4	17452.1	994.5	17456	993.6
17462.6	995.4	17470.7	993.9	17481.8	995.3	17536.8	995.9	17541.4	995
17548.6	996.6	17570.5	992.9	17606.9	994.3	17705.6	994.3	17778.6	994
17854.3	993.6	17935.8	992.6	18000.5	991.8	18066.9	989.1	18154.7	990.1
18182.6	989.5	18216	991.5	18272.9	988.7	18345.5	987	18362.3	985.3
18364.3	986.4	18412.4	980.4	18471.7	977.8	18582.6	976.6	18682.4	977.6
18758.9	978.6	18831.8	982	18915	981.6	18928.4	981.8	18994.8	981.7
19088.8	983.1	19188.8	983.9	19260.2	983.8	19272.1	983.6	19307.3	987.6
19315.9	987.5	19391.2	986.5	19461.1	986.8	19526.5	987.3	19591.7	987.7
19623.7	987.9	19690.2	986.9	19701.7	986.9	19732.4	983.9	19808.3	985.5
19928.6	988.8	19968.4	987.6	20009.8	976	20075.5	976.6	20117.2	979
20204.9	979.7	20242.3	978.4	20253.8	980.5	20285.7	981	20339.5	984.7
20409.9	988.4	20450.1	989.3	20468.3	987	20504.3	986.9	20542.3	986
20605.7	986.7	20698.9	989.9	20708.2	990.1	20715.6	995	20780.9	994.9
20847	991.9	20932.4	991	21003.2	991.1	21102.3	991.6	21194.4	992
21286.6	992.7	21318.6	992.9	21388	993.6	21473.6	994.3	21596.5	994.7
21668.5	995	21758.9	995.6	21817	996.1	21920.7	996.9	21963.3	997.1
22043.7	997.1	22107.3	997.1	22215.9	997.1	22261	998.1	22277.9	997.6
22288.5	999.4								

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16987.1	.025	17481.8	.043	18216	.043	18471.7	.032	20715.6	.032
20847	.025								

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
18216	20450.1	560	523	510	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
16987.1	17548.6	999.4	F
21480	22288.5	999.4	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	*	995.07	* Element	*	Left OB	*	Channel	*	Right OB	*	
* Vel Head (ft)	*	0.52	* Wt. n-Val.	*	0.043	*	0.033	*	0.030	*	
* W.S. Elev (ft)	*	994.55	* Reach Len. (ft)	*	560.00	*	523.00	*	510.00	*	
* Crit W.S. (ft)	*	988.70	* Flow Area (sq ft)	*	1396.51	*	25301.81	*	3417.37	*	
* E.G. Slope (ft/ft)	*	0.000680	* Area (sq ft)	*	1488.28	*	25301.81	*	3425.27	*	
* Q Total (cfs)	*	166000.00	* Flow (cfs)	*	2083.18	*	151545.10	*	12371.75	*	
* Top Width (ft)	*	4036.31	* Top Width (ft)	*	776.42	*	2234.10	*	1025.79	*	
* Vel Total (ft/s)	*	5.51	* Avg. Vel. (ft/s)	*	1.49	*	5.99	*	3.62	*	
* Max Chl Dpth (ft)	*	18.55	* Hydr. Depth (ft)	*	2.13	*	11.33	*	3.57	*	
* Conv. Total (cfs)	*	6366636.0	* Conv. (cfs)	*	79896.5	*	5812243.0	*	474496.4	*	
* Length Wtd. (ft)	*	523.01	* Wetted Per. (ft)	*	655.56	*	2237.69	*	957.78	*	
* Min Ch El (ft)	*	976.00	* Shear (lb/sq ft)	*	0.09	*	0.48	*	0.15	*	
* Alpha	*	1.11	* Stream Power (lb/ft s)	*	0.13	*	2.87	*	0.55	*	
* Frctn Loss (ft)	*	0.30	* Cum Volume (acre-ft)	*	5457.35	*	17843.20	*	1180.10	*	
* C & E Loss (ft)	*	0.02	* Cum SA (acres)	*	1562.69	*	1909.85	*	604.19	*	

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	*	995.85	* Element	*	Left OB	*	Channel	*	Right OB	*	
* Vel Head (ft)	*	0.59	* Wt. n-Val.	*		*	0.033	*		*	
* W.S. Elev (ft)	*	995.25	* Reach Len. (ft)	*	560.00	*	523.00	*	510.00	*	
* Crit W.S. (ft)	*	988.65	* Flow Area (sq ft)	*		*	26878.39	*		*	
* E.G. Slope (ft/ft)	*	0.000671	* Area (sq ft)	*		*	26878.39	*		*	
* Q Total (cfs)	*	166000.00	* Flow (cfs)	*		*	166000.00	*		*	
* Top Width (ft)	*	2234.10	* Top Width (ft)	*		*	2234.10	*		*	
* Vel Total (ft/s)	*	6.18	* Avg. Vel. (ft/s)	*		*	6.18	*		*	
* Max Chl Dpth (ft)	*	19.25	* Hydr. Depth (ft)	*		*	12.03	*		*	
* Conv. Total (cfs)	*	6407340.0	* Conv. (cfs)	*		*	6407340.0	*		*	
* Length Wtd. (ft)	*	523.00	* Wetted Per. (ft)	*		*	2247.40	*		*	
* Min Ch El (ft)	*	976.00	* Shear (lb/sq ft)	*		*	0.50	*		*	
* Alpha	*	1.00	* Stream Power (lb/ft s)	*		*	3.10	*		*	
* Frctn Loss (ft)	*	0.31	* Cum Volume (acre-ft)	*	531.94	*	18452.94	*	34.97	*	
* C & E Loss (ft)	*	0.00	* Cum SA (acres)	*	82.07	*	1912.21	*	6.81	*	

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 205.52

```
INPUT
Description: 205.52
Station Elevation Data    num=      96
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 17458.9   998.2 17496.2   998.1 17528.6   993.9   17537     994 17538.2   993.3
 17605.2   993.8 17611.5   994.9 17615.9   993.3 17622.8     995 17635.1   992.9
 17665.3     993 17698.1   994.2 17701.5   993.5 17707.3   995.3 17718.9     995
 17731.8   991.3 17820.7   991.9   17894   991.4 17966.9   990.6 18049.9   988.1
 18115.3   988.8 18176.3   990.1 18241.5     990 18289.2   989.7 18376.9   989.8
 18458.3   990.2 18560.9   990.7 18591.6   991.1 18628.8   988.9 18702.3   978.1
   18778   976.8 18843.9   975.9 18919.8   976.6 19003.3   977.9   19078     982
 19149.6   982.2 19216.6   981.8 19294.8   981.6 19381.8   980.6 19438.9   979.8
 19513.6   979.7 19597.1   981.3 19627.4   982.2 19649.8   981.4 19768.3   982.9
 19791.5   982.7 19851.9   983.6 19974.7   981.4 20083.4   978.3   20118   977.6
 20126.6   978.1 20161.7   976.5 20215.1   976.5 20237.4   983.2 20307.8   986.1
 20375.9   986.4 20411.3   986.8 20436.2   983.2 20454.8   985.7 20472.6   986.8
 20567.5   986.1 20573.3     986 20590.7   989.7 20611.5   992.8 20623.9   992.6
 20656.5   990.1 20672.2   990.7 20688.3   988.5 20695.2   989.1 20701.5   986.9
 20769.2   978.7 20789.2   977.6 20827.6   986.2 20844.7   988.1 20936.4   989.8
 21007.2   990.9 21024.7   991.2 21032.1   992.9 21046.7   990.6 21139.1   991.6
 21236.4     992 21330.9   992.2 21420.6   992.8 21530.8   993.2 21637.9   993.3
 21722.2   993.8   21801   994.3 21909.2   994.5 22026.9   995.2 22127.5   995.8
 22175.4   995.9 22246.4   996.2 22303.2   996.7   22383   996.1 22389.5   996.1
   22400   997.5

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************************************************
 17458.9    .043 18591.6    .043 18628.8    .032 20611.5    .032 21032.1    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       18591.6 20611.5             430     470     400             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 17458.9   17650   998.2       F
   21400   22400   998.2       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         *  994.75  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.46  * Wt. n-Val.            *   0.043  *   0.032  *   0.031  *
* W.S. Elev (ft)         *  994.29  * Reach Len. (ft)       *  430.00  *  470.00  *  400.00  *
* Crit W.S. (ft)         *  987.07  * Flow Area (sq ft)     * 3557.10  *25803.02  * 3782.11  *
* E.G. Slope (ft/ft)     *0.000496  * Area (sq ft)          * 3641.27  *25803.02  * 4150.32  *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *  6878.15  *146272.50  *12849.30  *
* Top Width (ft)         * 4244.89  * Top Width (ft)       * 1036.57  * 2019.90  * 1188.42  *
* Vel Total (ft/s)       *    5.01  * Avg. Vel. (ft/s)     *    1.93  *    5.67  *    3.40  *
* Max Chl Dpth (ft)      *   18.39  * Hydr. Depth (ft)     *    3.85  *   12.77  *    4.80  *
* Conv. Total (cfs)      *7454148.0  * Conv. (cfs)         *  308860.0  *6568297.0  *576991.5  *
* Length Wtd. (ft)       *  462.67  * Wetted Per. (ft)     *  924.99  * 2023.22  *  791.15  *
* Min Ch El (ft)         *  975.90  * Shear (lb/sq ft)     *    0.12  *    0.39  *    0.15  *
* Alpha                  *    1.17  * Stream Power (lb/ft s) *    0.23  *    2.24  *    0.50  *
* Frctn Loss (ft)        *    0.24  * Cum Volume (acre-ft)  * 5424.37  *17536.40  * 1135.75  *
* C & E Loss (ft)        *    0.01  * Cum SA (acres)        * 1551.04  * 1884.32  *  591.23  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)         *  995.53  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.58  * Wt. n-Val.            *          *   0.032  *          *
* W.S. Elev (ft)         *  994.95  * Reach Len. (ft)       *  430.00  *  470.00  *  400.00  *
* Crit W.S. (ft)         *  987.28  * Flow Area (sq ft)     *          *27121.18  *          *
* E.G. Slope (ft/ft)     *0.000543  * Area (sq ft)          *          *27121.18  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *          *166000.00  *          *
* Top Width (ft)         * 2019.90  * Top Width (ft)       *          * 2019.90  *          *
* Vel Total (ft/s)       *    6.12  * Avg. Vel. (ft/s)     *          *    6.12  *          *
* Max Chl Dpth (ft)      *   19.05  * Hydr. Depth (ft)     *          *   13.43  *          *
* Conv. Total (cfs)      *7126233.0  * Conv. (cfs)         *          *7126233.0  *          *
* Length Wtd. (ft)       *  470.00  * Wetted Per. (ft)     *          * 2029.21  *          *
* Min Ch El (ft)         *  975.90  * Shear (lb/sq ft)     *          *    0.45  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    2.77  *          *
* Frctn Loss (ft)        *    0.28  * Cum Volume (acre-ft)  *  531.94  *18128.76  *   34.97  *
* C & E Loss (ft)        *    0.01  * Cum SA (acres)        *   82.07  * 1886.68  *    6.81  *
*********************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 205.43

INPUT
Description: 205.43
Station Elevation Data    num=      96
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 17577.6     999 17651.4     999 17676.6   993.3 17745.1   993.5 17753.8   994.9
 17756.2     993 17761.9   994.1 17779.1   992.9 17827.8   993.4   17837   994.7
   17842   993.6 17850.1   995.1 17856.3   994.6 17874.1   989.8 17945.8   990.5
 18015.5   989.2   18089   988.6 18171.5   988.1   18272     989 18345.2   989.6
 18417.8   988.9 18513.1   989.6 18555.5   988.8 18590.9   983.9 18653.7   980.2
 18675.6   981.9 18718.1   992.1   18755   996.2 18831.5     994 18917.5   994.6
   18981   993.6 18995.7   991.7 19013.2   983.5 19029.3   979.6   19078   977.3
 19159.1   977.1 19235.8     977 19329.8   976.7 19401.3   976.1 19408.1   977.1
 19408.2   976.1 19472.5   977.8 19481.8   976.1 19482.8   979.9 19504.5   976.3
 19572.1   976.7 19685.1   976.7   19752   976.5 19776.2   976.6 19871.8   985.4
 19922.1   984.5 19948.6   982.8 19969.8     979 19994.4   976.5 20009.7   976.5
```

DuplicateEffective

20115.4	976.5	20173.1	982	20198.5	982.2	20281.7	985.3	20371.1	985.5
20444.6	985.5	20542.7	985.9	20552.8	986	20628.8	985.9	20672.4	986.4
20739.7	988.8	20745.5	988.9	20770.4	996.3	20821.2	987.3	20830.8	986.4
20857.3	988.8	20888.7	988.5	20910.3	984	20959.4	986.1	21024	983.6
21078.8	987.2	21088.9	990.3	21171.4	991.7	21190.4	992.1	21193.4	991.5
21282.9	992	21368	992.7	21454.5	993.1	21528.9	993.3	21613.1	993.6
21695.1	993.6	21768.9	993.9	21849.3	994.3	21923.6	994.4	21927.2	994.4
21997.3	994.6	22016.9	994.6	22089.4	994.6	22155	995.4	22231.3	997.7
22285	998.6								

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
17577.6	.043	18917.5	.043	18981	.032	20770.4	.032	21088.9	.025

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

18917.5	20770.4		175	171.89	125	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17577.6	17800	999	F
21400	22285	999	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	994.50	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.51	Wt. n-Val.	0.043	0.032	0.031
W.S. Elev (ft)	994.00	Reach Len. (ft)	175.00	171.89	125.00
Crit W.S. (ft)	986.93	Flow Area (sq ft)	4969.00	23600.69	2927.41
E.G. Slope (ft/ft)	0.000544	Area (sq ft)	5044.07	23600.69	3139.66
Q Total (cfs)	166000.00	Flow (cfs)	12628.18	142595.00	10776.84
Top Width (ft)	3841.68	Top Width (ft)	1030.23	1806.76	1004.68
Vel Total (ft/s)	5.27	Avg. Vel. (ft/s)	2.54	6.04	3.68
Max Chl Dpth (ft)	17.90	Hydr. Depth (ft)	5.45	13.06	4.75
Conv. Total (cfs)	7116273.0	Conv. (cfs)	541359.1	6112920.0	461993.6
Length Wtd. (ft)	169.60	Wetted Per. (ft)	915.10	1815.66	618.55
Min Ch El (ft)	976.10	Shear (lb/sq ft)	0.18	0.44	0.16
Alpha	1.18	Stream Power (lb/ft s)	0.47	2.67	0.59
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)	5381.51	17269.88	1102.28
C & E Loss (ft)	0.03	Cum SA (acres)	1540.84	1863.67	581.16

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	995.24	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.71	Wt. n-Val.		0.032	
W.S. Elev (ft)	994.53	Reach Len. (ft)	175.00	171.89	125.00
Crit W.S. (ft)	986.96	Flow Area (sq ft)		24572.45	
E.G. Slope (ft/ft)	0.000647	Area (sq ft)		24572.45	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	1842.37	Top Width (ft)		1842.37	
Vel Total (ft/s)	6.76	Avg. Vel. (ft/s)		6.76	
Max Chl Dpth (ft)	18.43	Hydr. Depth (ft)		13.34	
Conv. Total (cfs)	6524281.0	Conv. (cfs)		6524281.0	
Length Wtd. (ft)	171.89	Wetted Per. (ft)		1851.35	
Min Ch El (ft)	976.10	Shear (lb/sq ft)		0.54	
Alpha	1.00	Stream Power (lb/ft s)		3.62	
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)	531.94	17849.88	34.97
C & E Loss (ft)	0.05	Cum SA (acres)	82.07	1865.84	6.81

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 205.4

INPUT
Description: 205.4
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17511.1	996.9	17519.9	996.9	17605.2	997.3	17609	997.3	17712.9	997.8
17756.7	992.2	17854.3	993.8	17914.6	991.3	17916.5	991.2	17968.9	990.2
18031	989.2	18084.1	988.8	18154.5	988.3	18213.4	988.3	18281.7	988.2
18304.7	988.2	18362.5	988.2	18388.7	988.6	18461.3	988.1	18529.4	988.4
18564.6	988.5	18633.4	988.7	18712.8	988.5	18774.2	988.2	18787.4	988.1
18843.8	987.9	18915.9	985.1	18943.3	984.3	19013.3	982.5	19020	982.2985
19079.8	980.5	19133	979.1	19154.8	978.5	19196.1	978.7	19231.1	977.1
19260.1	977.2	19291.7	976.5	19304.1	976.8	19364.1	975.5	19377.1	975.5
19436	975.7	19498.9	975.9	19564	975.7	19635.3	976.2	19694.9	976.3
19718.4	976.2	19774.1	976.1	19840.5	976	19902.9	976	19988.4	976
20047.6	976.1	20060.4	976.2	20120.1	976.4	20173.6	976.9	20230.4	977.5
20290.1	977.8	20348.4	979	20391.6	980.6	20448.9	982.1	20522.8	983.7
20592.3	985.3	20647.3	986.7	20692.4	987.2	20767.8	987.4	20829.1	987.4
20894.3	987.9	20922.5	988.1	20978.2	988.9	21055.7	989.4	21057.2	989.4
21142	989.4	21212	990.9	21270.2	991	21321.8	991.1	21338.9	991.2
21394.1	991.7	21407.6	991.9	21469.8	992.7	21547.3	993.5	21598.6	992.6
21619.5	993.7	21690.3	993.7	21721.2	993.7	21811.7	993.8	21872.4	994.2
21923.6	995.3	21941	995.5	22005.1	996.1	22017	996.2	22078.7	996.7
22181.1	997.7	22194.2	997.8	22249.3	998.6	22318.8	999	22386.3	999.2
22404.4	998.5	22455.6	999.3						

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
17511.1	.043	18843.8	.043	19079.8	.032	20767.8	.032

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

19020	20767.8		305	315	370	.1	.3

```
Ineffective Flow     num=       2
   Sta L    Sta R    Elev  Permanent
 17511.1   17800   999.3       F
   21450 22455.6   999.3       F
Blocked Obstructions     num=       1
   Sta L    Sta R    Elev
**********************
 17511.1   19020     988

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         *  994.40  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.41  * Wt. n-Val.             *   0.043  *   0.032  *   0.032  *
* W.S. Elev (ft)         *  993.99  * Reach Len. (ft)        *  305.00  *  315.00  *  370.00  *
* Crit W.S. (ft)         *  984.67  * Flow Area (sq ft)      * 6163.18  *26799.69  * 2955.52  *
* E.G. Slope (ft/ft)     *0.000362  * Area (sq ft)           * 6237.80  *26799.69  * 3171.98  *
* Q Total (cfs)          *164000.00  * Flow (cfs)           *11964.37  *145098.40  * 6937.21  *
* Top Width (ft)         * 4097.71  * Top Width (ft)        * 1277.30  * 1747.80  * 1072.61  *
* Vel Total (ft/s)       *    4.57  * Avg. Vel. (ft/s)      *    1.94  *    5.41  *    2.35  *
* Max Chl Dpth (ft)      *   18.49  * Hydr. Depth (ft)      *    5.05  *   15.33  *    4.33  *
* Conv. Total (cfs)      *8621961.0  * Conv. (cfs)          *629002.0  *7628250.0  *364709.5  *
* Length Wtd. (ft)       *  317.46  * Wetted Per. (ft)      * 1220.09  * 1753.75  *  682.23  *
* Min Ch El (ft)         *  975.50  * Shear (lb/sq ft)      *    0.11  *    0.35  *    0.10  *
* Alpha                  *    1.27  * Stream Power (lb/ft s) *    0.22  *    1.87  *    0.23  *
* Frctn Loss (ft)        *    0.18  * Cum Volume (acre-ft)  * 5358.84  *17170.44  * 1093.22  *
* C & E Loss (ft)        *    0.02  * Cum SA (acres)        * 1536.20  * 1856.66  *  578.18  *
*********************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)         *  995.10  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.54  * Wt. n-Val.             *          *   0.032  *          *
* W.S. Elev (ft)         *  994.56  * Reach Len. (ft)        *  305.00  *  315.00  *  370.00  *
* Crit W.S. (ft)         *  984.67  * Flow Area (sq ft)      *          *27793.38  *          *
* E.G. Slope (ft/ft)     *0.000413  * Area (sq ft)           *          *27793.38  *          *
* Q Total (cfs)          *164000.00  * Flow (cfs)           *          *164000.00  *          *
* Top Width (ft)         * 1747.80  * Top Width (ft)        *          * 1747.80  *          *
* Vel Total (ft/s)       *    5.90  * Avg. Vel. (ft/s)      *          *    5.90  *          *
* Max Chl Dpth (ft)      *   19.06  * Hydr. Depth (ft)      *          *   15.90  *          *
* Conv. Total (cfs)      *8073093.0  * Conv. (cfs)          *          *8073093.0  *          *
* Length Wtd. (ft)       *  314.90  * Wetted Per. (ft)      *          * 1767.46  *          *
* Min Ch El (ft)         *  975.50  * Shear (lb/sq ft)      *          *    0.41  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    2.39  *          *
* Frctn Loss (ft)        *    0.21  * Cum Volume (acre-ft)  *  531.94  *17746.57  *   34.97  *
* C & E Loss (ft)        *    0.03  * Cum SA (acres)        *   82.07  * 1858.76  *    6.81  *
*********************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                RS: 205.34

INPUT
Description: 205.34 - FEMA Cross Section M
Station Elevation Data    num=     268
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
**********************************************************************************
13687.27   990.713918.08  990.6813941.26   990.714074.31  990.7414097.95  990.77
 14379.8   991.214502.02  991.2714504.17  991.3214654.78  991.4514667.42  991.12
14692.66     99314709.75  992.96 14715.8  991.19   14721  993.2814723.16  993.14
14738.13   990.914750.87  991.8914755.59   992.514795.12   991.614806.23  991.16
14847.09   991.615017.82  991.6715028.83  991.05 15074.2   990.915389.93  990.38
15426.63   990.415457.08  991.7615497.69  991.9115548.79  991.7415599.83  990.06
15624.82   992.515632.81  992.1815645.65  991.2715655.09  992.7415660.02  991.59
 15665.1   993.615682.98  994.8415701.37  993.3215707.96  993.3215720.14  993.51
15863.53   993.415962.36  993.7816143.17   993.716302.48  993.5316434.69     994
16540.11   994.5 16630.9  994.0316710.83  993.4216732.11  994.2916741.14  994.53
16755.65   994.816763.06  993.9916780.42  993.7616789.57   993.416811.41  992.38
16945.01   992.917037.42  993.3817118.17   992.917138.04  992.7817279.36  992.27
17420.37   992.117527.98  992.75 17560.1  992.78 17728.5  991.3317729.54  991.26
17753.81   988.517789.02   988.817833.72   989.117845.57  991.9517853.64   990.8
17860.73     99217869.58    99217881.45  991.8417895.69  992.1317897.64  994.57
17904.21   994.517909.94  991.8217920.11  988.7917940.57  989.6117986.35  989.54
18002.56   989.718065.95  989.1618080.07  988.8318116.41  988.3818122.12  987.76
18187.93   987.418195.48  987.3618246.02  987.5818264.37  987.6418314.54  986.65
18327.91   986.818350.36  988.1118365.79  988.5818392.98  988.6518415.65  990.57
   18418     99118432.37  990.8218481.36  991.38 18548.7  990.7218596.12  990.95
 18645.9     99518660.36  994.9818676.98  995.0618724.18  991.4718772.07  990.61
18787.28   990.318822.48  988.85 18833.8  988.7918853.31  988.4818883.89  988.52
 18895.6   987.7 18912.2  992.1218970.58  990.1619022.37  991.3519035.55  989.07
19043.96   988.619066.14  988.56 19076.9  991.3319096.79  993.0719099.41  993.11
19116.55   988.419170.12   987.719232.28   987.219252.59  986.66 19258.9  986.61
19276.73   986.119284.34  985.9919293.57  985.3919297.05  984.9419318.57  978.71
 19328.6   976.919337.34    97619422.11  976.1819470.05  976.22 19524.9  976.33
19562.89   976.719632.66  976.0919705.72  976.4319754.05  976.6319843.53  976.95
19853.47     97719865.48   976.519880.46  976.3619890.89  975.8119912.96  977.83
 19933.5   976.919947.42   976.619979.26  976.26 20010.7  976.0820051.63  975.84
20062.33   975.720073.85  975.5720119.54  976.87 20199.2  978.2920212.26  978.81
20258.32   980.920264.39  980.66 20329.9  980.6420332.62  980.4120369.18  979.74
   20375   980.1 20380.1  980.6320381.06  981.0320388.75  983.0320395.38  983.51
20436.76   985.120502.38  985.6120525.59   985.520561.61  985.7420587.94  985.95
20626.14   985.820644.89  985.7420678.28  985.5520707.29  986.1820742.96     987
20746.96   986.620752.64  985.5420762.54  985.0520787.99  983.0120822.69  985.52
20836.01   987.120844.69  986.9620890.92  987.1920931.14  987.6220978.97  988.36
 21006.5   988.721057.23  989.3821083.41   989.721100.77  990.25 21161.6  990.89
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                                                                    DuplicateEffective
21172.71     99121247.07  990.97 21252.7  990.9921266.22  990.7621277.98  990.73
21290.76   992.8   21299  991.1421333.63  991.1321435.22   991.221524.43  991.65
21554.31   991.6 21567.7  991.7221625.82   992.321657.32  992.4221684.03  992.58
21782.19   993.421851.31  993.7221863.14   993.921872.38  994.1621891.44  994.52
21949.81   994.621975.44  994.9221995.48  994.9122007.76  995.2522037.54  996.24
22051.44   996.622075.07  997.6322125.13  998.6122139.54  998.9522159.57  998.78
22179.58   998.822264.13   998.322280.55  998.0322353.16  997.9122369.37  997.91
22404.01     99822463.45  998.2722491.06   998.822531.57  998.5222560.64  998.76
22593.64   998.8 22617.2  999.0722646.25  999.1222676.56  998.9422686.88  999.19
22731.76  1000.522770.23 1000.7922779.44 1001.3422789.67 1000.9722824.65 1001.12
22886.17  1001.722901.04 1001.6722978.01 1002.0623003.78 1002.23 23080.5 1002.51
23154.45  1002.823270.34 1003.4323291.75 1003.5623364.66 1004.1223410.89 1004.31
23481.28  1004.623504.95 1004.7623548.34 1004.8523582.71 1004.8423645.08 1005.05
 23678.1  1005.223738.97 1005.2323762.47 1005.11 23813.7 1005.1223872.53 1005.28
23908.97  1005.423920.45 1005.5423934.72 1004.9423951.14 1004.4623976.71 1005.57
23998.12  1003.624004.04 1002.9424049.64 1002.74

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
13687.27    .04318481.36    .04320931.14    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      19284.3420742.96              485     492     450             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
13687.27   17900    1000       F
   2140024049.64    1000       F

CROSS SECTION OUTPUT  Profile #PF#1
*****************************************************************************************************
* E.G. Elev (ft)         *  994.20  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.57  * Wt. n-Val.             *   0.043  *   0.043  *   0.033  *
* W.S. Elev (ft)         *  993.64  * Reach Len. (ft)        *  485.00  *  492.00  *  450.00  *
* Crit W.S. (ft)         *  986.68  * Flow Area (sq ft)      * 5631.66  *20854.99  * 3037.04  *
* E.G. Slope (ft/ft)     *0.001005  * Area (sq ft)           *12323.51  *20854.99  * 3643.00  *
* Q Total (cfs)          *164000.00  * Flow (cfs)           *16574.24  *134496.80  *12928.94  *
* Top Width (ft)         * 7348.85  * Top Width (ft)        * 4799.29  * 1458.62  * 1090.94  *
* Vel Total (ft/s)       *    5.55  * Avg. Vel. (ft/s)      *    2.94  *    6.45  *    4.26  *
* Max Chl Dpth (ft)      *   18.07  * Hydr. Depth (ft)      *    4.29  *   14.30  *    4.62  *
* Conv. Total (cfs)      *5172262.0  * Conv. (cfs)          *522721.4  *4241786.0  *407755.4  *
* Length Wtd. (ft)       *  488.72  * Wetted Per. (ft)      * 1315.08  * 1460.47  *  657.80  *
* Min Ch El (ft)         *  975.57  * Shear (lb/sq ft)      *    0.27  *    0.90  *    0.29  *
* Alpha                  *    1.18  * Stream Power (lb/ft s) *    0.79  *    5.78  *    1.23  *
* Frctn Loss (ft)        *    0.38  * Cum Volume (acre-ft)  * 5293.86  *16998.13  * 1064.28  *
* C & E Loss (ft)        *    0.00  * Cum SA (acres)        * 1514.93  * 1845.07  *  568.99  *
*****************************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*****************************************************************************************************
* E.G. Elev (ft)         *  994.85  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.87  * Wt. n-Val.             *   0.043  *   0.043  *          *
* W.S. Elev (ft)         *  993.98  * Reach Len. (ft)        *  485.00  *  492.00  *  450.00  *
* Crit W.S. (ft)         *  986.65  * Flow Area (sq ft)      *  729.56  *21354.97  *          *
* E.G. Slope (ft/ft)     *0.001336  * Area (sq ft)           *  729.56  *21354.97  *          *
* Q Total (cfs)          *164000.00  * Flow (cfs)           * 3238.55  *160761.50  *          *
* Top Width (ft)         * 1562.96  * Top Width (ft)        *  104.34  * 1458.62  *          *
* Vel Total (ft/s)       *    7.43  * Avg. Vel. (ft/s)      *    4.44  *    7.53  *          *
* Max Chl Dpth (ft)      *   18.41  * Hydr. Depth (ft)      *    6.99  *   14.64  *          *
* Conv. Total (cfs)      *4487226.0  * Conv. (cfs)          * 88610.4  *4398616.0  *          *
* Length Wtd. (ft)       *  491.57  * Wetted Per. (ft)      *  110.72  * 1467.45  *          *
* Min Ch El (ft)         *  975.57  * Shear (lb/sq ft)      *    0.55  *    1.21  *          *
* Alpha                  *    1.01  * Stream Power (lb/ft s) *    2.44  *    9.14  *          *
* Frctn Loss (ft)        *    0.51  * Cum Volume (acre-ft)  *  529.39  *17568.86  *   34.97  *
* C & E Loss (ft)        *    0.00  * Cum SA (acres)        *   81.71  * 1847.16  *    6.81  *
*****************************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 205.25

INPUT
Description: 205.25
Station Elevation Data    num=      96
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
*************************************************************************************
 16580.4      994 16657.1      994 16708.3    993.9 16776.5    993.6 16819.1    994.5
 16845.8    992.8 16892.9    992.2 16971.6    992.3 17154.1    993.1 17172.8    993.1
 17289.2    992.5 17431.5    991.8 17455.8    991.6 17644.6    992.5 17718.9    992.3
 17808.9    991.8 17842.7    989.1 17907.9    989.9 17920.6    992.1 17926.4    990.6
 17933.2    992.4 17964.3    990.4 17989.2    990.3 17999.1    987.6   18061    989.2
 18108.7    990.1   18179    988.3 18216.3      987 18244.2    987.5 18311.6    987.2
 18329.2    987.8 18392.2    987.8 18457.1    988.6 18493.2    989.2 18509.7    988.5
 18583.8      989 18614.2    989.1 18647.4      988 18708.8    987.6 18775.5    989.5
 18807.1      990 18886.3    989.2 18946.4      989 18990.4    988.1 19012.5    989.2
   19101    990.2 19156.3    989.9 19179.1    987.1 19186.7    985.4 19228.7    983.3
 19242.4      982 19306.5    983.4 19368.3    983.9 19442.9    983.5 19503.3    984.6
   19563    981.8 19581.1    985.9 19632.5    986.1 19671.9    987.3 19726.2    975.8
 19815.7    975.6 19878.1    976.2   19957    975.9   20042    975.5 20112.8    975.3
 20121.8    975.7 20160.5    973.8   20242    973.4 20260.5    974.6 20329.5      975
 20404.8    975.5 20471.4    978.3 20486.8    979.5 20522.9    977.9   20526    975.8
 20552.9    975.9 20584.6    974.1 20632.4    973.9   20697    975.7   20712    975.7
 20738.9    981.7 20741.5    980.7 20782.3    986.4 20848.1    987.4 20923.8    989.9
 21014.3    990.6 21121.3    991.6 21201.7    992.1 21283.6    992.1 21338.5    993.1
 21347.9    993.8 21358.2    992.2 21370.3    995.6 21409.5    995.7   21424    994.5
 21499.5    993.3
```

```
Manning's n Values          num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************************
 16580.4    .025 18108.7    .037 19671.9    .037 20782.3    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       19671.9 20782.3             505     506     485            .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 16580.4   17950   995.7       F
 21347.9 21499.5   995.7       F

CROSS SECTION OUTPUT  Profile #PF#1
*****************************************************************************************
* E.G. Elev (ft)         *  993.82  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.57  * Wt. n-Val.             *   0.036  *   0.037  *   0.025  *
* W.S. Elev (ft)         *  993.26  * Reach Len. (ft)        *  505.00  *  506.00  *  485.00  *
* Crit W.S. (ft)         *  985.26  * Flow Area (sq ft)      *10028.25  *18998.26  * 1514.65  *
* E.G. Slope (ft/ft)     *0.000623  * Area (sq ft)           *11314.22  *18998.26  * 1520.24  *
* Q Total (cfs)          *164000.00  * Flow (cfs)            *33461.27  *126169.00  * 4369.76  *
* Top Width (ft)         * 4512.59  * Top Width (ft)        * 2833.29  * 1110.40  *  568.90  *
* Vel Total (ft/s)       *    5.37  * Avg. Vel. (ft/s)      *    3.34  *    6.64  *    2.89  *
* Max Chl Dpth (ft)      *   19.86  * Hydr. Depth (ft)      *    5.82  *   17.11  *    2.71  *
* Conv. Total (cfs)      *6571525.0  * Conv. (cfs)          *1340802.0  *5055625.0  *175097.6  *
* Length Wtd. (ft)       *  505.35  * Wetted Per. (ft)      * 1723.55  * 1113.81  *  558.39  *
* Min Ch El (ft)         *  973.40  * Shear (lb/sq ft)      *    0.23  *    0.66  *    0.11  *
* Alpha                  *    1.26  * Stream Power (lb/ft s) *    0.75  *    4.40  *    0.30  *
* Frctn Loss (ft)        *    0.52  * Cum Volume (acre-ft)  * 5162.27  *16773.07  * 1037.61  *
* C & E Loss (ft)        *    0.09  * Cum SA (acres)        * 1472.44  * 1830.56  *  560.42  *
*****************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*****************************************************************************************
* E.G. Elev (ft)         *  994.34  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.85  * Wt. n-Val.             *   0.037  *   0.037  *          *
* W.S. Elev (ft)         *  993.49  * Reach Len. (ft)        *  505.00  *  506.00  *  485.00  *
* Crit W.S. (ft)         *  985.16  * Flow Area (sq ft)      * 3415.04  *19253.09  *          *
* E.G. Slope (ft/ft)     *0.000817  * Area (sq ft)           * 3415.04  *19253.09  *          *
* Q Total (cfs)          *164000.00  * Flow (cfs)            *16866.33  *147133.70  *          *
* Top Width (ft)         * 1482.30  * Top Width (ft)        *  371.90  * 1110.40  *          *
* Vel Total (ft/s)       *    7.23  * Avg. Vel. (ft/s)      *    4.94  *    7.64  *          *
* Max Chl Dpth (ft)      *   20.09  * Hydr. Depth (ft)      *    9.18  *   17.34  *          *
* Conv. Total (cfs)      *5737392.0  * Conv. (cfs)          *590053.3  *5147338.0  *          *
* Length Wtd. (ft)       *  505.72  * Wetted Per. (ft)      *  382.69  * 1120.90  *          *
* Min Ch El (ft)         *  973.40  * Shear (lb/sq ft)      *    0.46  *    0.88  *          *
* Alpha                  *    1.05  * Stream Power (lb/ft s) *    2.25  *    6.70  *          *
* Frctn Loss (ft)        *    0.59  * Cum Volume (acre-ft)  *  506.31  *17339.53  *   34.97  *
* C & E Loss (ft)        *    0.06  * Cum SA (acres)        *   79.06  * 1832.65  *    6.81  *
*****************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                RS: 205.15

INPUT
Description: 205.15
Station Elevation Data    num=      96
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 18001.2     994 18008.5   992.8 18015.6   994.9 18038.3   990.9 18047.4   991.8
 18061.5   992.1 18077.6   991.6 18146.4   988.8 18170.1   988.9 18200.6   988.3
   18243   988.8 18269.7   988.5 18292.3   988.8 18341.7   989.8 18374.9   990.2
 18415.6   990.6 18438.3   991.1 18547.3     991 18558.8   991.1 18618.4   991.8
 18625.4   991.9 18687.7   991.3 18696.2   991.3 18745.4   991.4 18794.1   991.1
   18810   991.2 18866.4     991 18894.1   991.2 18920.9   990.7 18973.2   990.3
 19018.9   989.8 19055.8   989.7 19109.2   989.4 19141.8   988.8 19181.8   988.8
 19228.5   988.7 19285.2   989.2 19335.5   988.1 19346.3   987.8 19386.8   986.1
 19394.2   985.9 19440.1   984.4 19443.6   984.3   19490   983.7 19506.7   983.8
 19532.2   982.8 19587.2   983.3 19612.4   983.6 19619.1   984.1 19660.7   983.9
 19705.1   983.1 19747.1   983.7 19787.1   984.9 19805.2   976.8 19822.3   973.4
 19827.6   974.7 19829.5   974.2   19853   974.2 19880.4   973.6 19881.2   973.1
 19908.4     980 19918.9   982.2   19934   984.3 19978.1   984.9 20006.4   984.1
 20054.3   983.8 20064.2   983.5 20106.6     982 20110.7   981.8 20166.7     979
 20196.8   978.1 20246.3   976.6 20250.4   976.4 20298.9   975.4 20340.8   975.5
 20371.6   975.7 20436.2     974   20495   974.1 20608.2   975.2   20651   975.7
 20691.5   977.2 20705.2   979.5 20746.3   987.3 20793.1   987.9   20838   988.7
 20896.6   989.6 20910.7   990.1 20968.3   990.3   20999   990.6 21039.8   990.8
   21107   991.7 21127.2   991.3 21170.3   994.1 21206.9   995.7 21258.6   996.3
   21293   996.4

Manning's n Values          num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************************
 18001.2    .025 18146.4    .037 19787.1    .037 20746.3    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       19787.1 20746.3             495  495.39     495            .1       .3
Ineffective Flow     num=       2
```

Sta L	Sta R	Elev	Permanent
18001.2	18061.5	995	F
21293	21293	996.4	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	993.21	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.46	Wt. n-Val.	0.037	0.037	0.025
W.S. Elev (ft)	991.76	Reach Len. (ft)	495.00	495.39	495.00
Crit W.S. (ft)	987.66	Flow Area (sq ft)	5457.16	13249.56	742.57
E.G. Slope (ft/ft)	0.002039	Area (sq ft)	5462.93	13249.56	742.57
Q Total (cfs)	164000.00	Flow (cfs)	23077.22	137850.70	3072.08
Top Width (ft)	3049.28	Top Width (ft)	1702.17	959.20	387.91
Vel Total (ft/s)	8.43	Avg. Vel. (ft/s)	4.23	10.40	4.14
Max Chl Dpth (ft)	18.66	Hydr. Depth (ft)	3.23	13.81	1.91
Conv. Total (cfs)	3632205.0	Conv. (cfs)	511104.8	3053061.0	68039.3
Length Wtd. (ft)	495.35	Wetted Per. (ft)	1688.95	964.03	387.96
Min Ch El (ft)	973.10	Shear (lb/sq ft)	0.41	1.75	0.24
Alpha	1.32	Stream Power (lb/ft s)	1.74	18.20	1.01
Frctn Loss (ft)	0.97	Cum Volume (acre-ft)	5065.02	16585.77	1025.01
C & E Loss (ft)	0.02	Cum SA (acres)	1446.15	1818.54	555.09

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	993.69	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.44	Wt. n-Val.	0.037	0.037	0.025
W.S. Elev (ft)	992.25	Reach Len. (ft)	495.00	495.39	495.00
Crit W.S. (ft)	987.65	Flow Area (sq ft)	3367.91	13720.96	365.73
E.G. Slope (ft/ft)	0.001819	Area (sq ft)	3367.91	13720.96	365.73
Q Total (cfs)	164000.00	Flow (cfs)	23553.24	138039.00	2407.76
Top Width (ft)	1445.00	Top Width (ft)	402.10	959.20	83.70
Vel Total (ft/s)	9.40	Avg. Vel. (ft/s)	6.99	10.06	6.58
Max Chl Dpth (ft)	19.15	Hydr. Depth (ft)	8.38	14.30	4.37
Conv. Total (cfs)	3844879.0	Conv. (cfs)	552191.1	3236240.0	56448.5
Length Wtd. (ft)	495.36	Wetted Per. (ft)	408.28	964.03	87.40
Min Ch El (ft)	973.10	Shear (lb/sq ft)	0.94	1.62	0.48
Alpha	1.05	Stream Power (lb/ft s)	6.55	16.26	3.13
Frctn Loss (ft)	0.90	Cum Volume (acre-ft)	466.99	17148.02	32.93
C & E Loss (ft)	0.00	Cum SA (acres)	74.57	1820.63	6.35

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 205.06

INPUT
Description: 205.06
Station Elevation Data num= 129

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17971	990.9	18065.3	988.6	18104.6	990.4	18115.6	988.2	18128.9	991.2
18143.2	991.5	18167.1	990.4	18222.4	988.9	18239	988.9	18268	988.1
18295.2	989	18314.3	988.5	18358.9	987.5	18410.5	986.7	18435.8	988.1
18478.4	994.2	18515	994	18541.2	993.6	18567.7	993	18668.2	993.4
18694.6	996.3	18716.8	994.1	18733	990.9	18773.1	991.2	18799	993.8
18844	996.4	18879.8	994	18912.8	991.3	18929.6	990.6	18948.8	990.9
18974.6	992.4	18989	991.8	18996.9	990.8	19026.5	996.8	19033.3	997.5
19038.3	998.5	19071.8	995.8	19078.5	994.1	19097.2	986.1	19133.8	987
19136.4	990.2	19142.8	992.6	19151.6	994.3	19202.7	994.1	19217.4	994.9
19226.3	988.3	19230.3	986.5	19252.3	985.8	19287.1	985.9	19329.2	986.2
19380.3	987.3	19388.1	987.3	19434.5	987.8	19445.1	987.8	19500.6	988.4
19538.9	988.7	19598.7	988.7	19648.7	990	19669.4	989.9	19722.7	988.3
19771.5	986.5	19803.6	986.4	19827.5	985.6	19841.3	984.7	19887	983.6
19904.2	973.1	19931.3	971.2	19981.6	971.1	19982.8	971.1	20027.4	970.5
20053.2	971.3	20073.5	976.1	20120.4	976.2	20137.3	976.4	20147.5	981
20155.4	983.6	20196	987.3	20208.9	986.1	20221.7	985.3	20253.8	981
20275.4	981	20301.5	975.4	20306.9	975.1	20315.2	975.1	20365	974.5
20425.5	974.6	20470.1	974.5	20497.9	974.4	20563.5	973.5	20601.9	973.2
20671.9	974	20850.2	976	20856.8	977.9	20880.3	977.7	20892.4	984.3
20905.3	990.8	20927.2	991.2	20971.3	992	21020.6	993	21062.7	993.2
21101.6	993.3	21146	993.7	21204.6	993.9	21256.1	994.5	21300.3	994.8
21336.3	994.9	21378.2	995	21414.7	995.2	21457.8	995.2	21484.8	995.4
21512.4	994.7	21514.5	995.9	21516.2	996.3	21518.9	995.5	21525.9	994.3
21532.1	994.6	21537.4	995.2	21546	995	21560.5	995.3	21575	995
21602.5	996.4	21628.8	996.3	21672.8	996.3	21709.9	996.5	21754.4	996.4
21826.9	996.1	21895.5	996.5	21951.4	996.6	21997.9	996.4		

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
17971	.037	19026.5	.037	19669.4	.037	20905.3	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
19669.4	20905.3	505	505	530 .1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17971	18080	998.5	F
21997.9	21997.9	998.5	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	992.22	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.37	Wt. n-Val.	0.037	0.037	0.025
W.S. Elev (ft)	990.85	Reach Len. (ft)	505.00	505.00	530.00
Crit W.S. (ft)	984.95	Flow Area (sq ft)	2335.51	16204.32	0.06
E.G. Slope (ft/ft)	0.001875	Area (sq ft)	2466.89	16204.32	0.06

				DuplicateEffective	
* Q Total (cfs)	*164000.00	* Flow (cfs)	* 8135.07	*155864.90	* 0.01 *
* Top Width (ft)	* 2210.68	* Top Width (ft)	* 972.31	* 1235.90	* 2.47 *
* Vel Total (ft/s)	* 8.85	* Avg. Vel. (ft/s)	* 3.48	* 9.62	* 0.21 *
* Max Chl Dpth (ft)	* 20.35	* Hydr. Depth (ft)	* 2.70	* 13.11	* 0.02 *
* Conv. Total (cfs)	*3787357.0	* Conv. (cfs)	*187868.3	*3599489.0	* 0.3 *
* Length Wtd. (ft)	* 505.01	* Wetted Per. (ft)	* 870.33	* 1245.68	* 2.47 *
* Min Ch El (ft)	* 970.50	* Shear (lb/sq ft)	* 0.31	* 1.52	* 0.00 *
* Alpha	* 1.13	* Stream Power (lb/ft s)	* 1.09	* 14.65	* 0.00 *
* Frctn Loss (ft)	* 0.72	* Cum Volume (acre-ft)	* 5019.96	*16418.28	* 1020.79 *
* C & E Loss (ft)	* 0.19	* Cum SA (acres)	* 1430.95	* 1806.05	* 552.87 *

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 992.79	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 1.43	* Wt. n-Val.	* 0.037	* 0.037	* *
* W.S. Elev (ft)	* 991.36	* Reach Len. (ft)	* 505.00	* 505.00	* 530.00 *
* Crit W.S. (ft)	* 984.95	* Flow Area (sq ft)	* 491.43	*16837.05	* *
* E.G. Slope (ft/ft)	*0.001795	* Area (sq ft)	* 491.43	*16837.05	* *
* Q Total (cfs)	*164000.00	* Flow (cfs)	* 1508.81	*162491.20	* *
* Top Width (ft)	* 1435.30	* Top Width (ft)	* 199.40	* 1235.90	* *
* Vel Total (ft/s)	* 9.46	* Avg. Vel. (ft/s)	* 3.07	* 9.65	* *
* Max Chl Dpth (ft)	* 20.86	* Hydr. Depth (ft)	* 2.46	* 13.62	* *
* Conv. Total (cfs)	*3871248.0	* Conv. (cfs)	* 35615.7	*3835632.0	* *
* Length Wtd. (ft)	* 505.00	* Wetted Per. (ft)	* 202.71	* 1246.24	* *
* Min Ch El (ft)	* 970.50	* Shear (lb/sq ft)	* 0.27	* 1.51	* *
* Alpha	* 1.03	* Stream Power (lb/ft s)	* 0.83	* 14.61	* *
* Frctn Loss (ft)	* 0.82	* Cum Volume (acre-ft)	* 445.07	*16974.25	* 30.85 *
* C & E Loss (ft)	* 0.10	* Cum SA (acres)	* 71.15	* 1808.15	* 5.87 *

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 204.97

INPUT
Description: 204.97

Left Channel Bank Station Interpolated
Station Elevation Data num= 86

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16000	993.3	16025.7	992.1	16060.7	991.7	16273.1	992.3	16303.1	992.4
16597.7	992.1	16613.7	992	16818.7	992	16912.8	992.3	17061.4	992.3
17169.3	991.7	17232.9	991.8	17259.7	989	17316.4	990.2	17470.6	990.2
17483.4	990.2	17700.5	989.9	17786.2	989.2	17832.4	989	17894.5	988.9
17924.8	989.2	17933.3	990.5	17979.7	992.1	17985.3	991.5	17994.8	988.7
18008.6	988.7	18105.1	987.6	18137.2	986.9	18189.2	987.8	18201.2	986.8
18216.4	989.2	18243.6	989.2	18301.9	989	18377.5	989.6	18462.9	990.2
18523.7	988.6	18573.9	986	18643	986.6	18672	985.8	18672.9	984.9
18697.7	984.3	18729.6	988.3	18807.2	987.9	18833	984	18865.3	987.3
18888.3	985.4	18917	987.8	18955.4	987.9	18987.3	984.9	19046.8	987.1
19093.5	986.8	19152.6	983.5	19285.8	983.8	19317.6	981.5	19332.9	979.1
19418.6	978	19438.3	978.8	19545	978.843	19934.7	979	19938.2	981.1
19945.9	981.9	20008.7	980.8	20068.2	980.2	20091.8	979.6	20151.8	979.3
20225.8	978.1	20300.7	979	20367.2	979.3	20442.3	978.7	20509.6	977.2
20568	974.8	20659.1	973.3	20662.9	973.3	20925.5	975.4	20961.3	988.6
20999.4	990.2	21056.8	990.8	21126.2	991.7	21187	992.8	21200.2	992.9
21265.2	993	21340.5	993	21356.1	993	21427.5	993.4	21492.8	993.1
21496	993.1								

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16000	.025	18301.9	.037	19046.8	.037	20961.3	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
19545	20961.3	510	503	550	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
16000	18200	993.4	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 991.30	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 0.74	* Wt. n-Val.	* 0.037	* 0.037	* 0.025 *
* W.S. Elev (ft)	* 990.56	* Reach Len. (ft)	* 510.00	* 503.00	* 550.00 *
* Crit W.S. (ft)	* 984.97	* Flow Area (sq ft)	* 6790.54	*17977.87	* 50.64 *
* E.G. Slope (ft/ft)	*0.001134	* Area (sq ft)	* 7908.25	*17977.87	* 50.64 *
* Q Total (cfs)	*164000.00	* Flow (cfs)	*31810.39	*132110.10	* 79.50 *
* Top Width (ft)	* 3736.09	* Top Width (ft)	* 2246.92	* 1416.30	* 72.86 *
* Vel Total (ft/s)	* 6.61	* Avg. Vel. (ft/s)	* 4.68	* 7.35	* 1.57 *
* Max Chl Dpth (ft)	* 17.26	* Hydr. Depth (ft)	* 5.05	* 12.69	* 0.70 *
* Conv. Total (cfs)	*4869981.0	* Conv. (cfs)	*944609.8	*3923010.0	* 2360.8 *
* Length Wtd. (ft)	* 504.14	* Wetted Per. (ft)	* 1347.14	* 1419.41	* 72.90 *
* Min Ch El (ft)	* 973.30	* Shear (lb/sq ft)	* 0.36	* 0.90	* 0.05 *
* Alpha	* 1.09	* Stream Power (lb/ft s)	* 1.67	* 6.59	* 0.08 *
* Frctn Loss (ft)	* 0.47	* Cum Volume (acre-ft)	* 4959.82	*16220.14	* 1020.49 *
* C & E Loss (ft)	* 0.04	* Cum SA (acres)	* 1412.29	* 1790.68	* 552.41 *

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	991.87	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.11	Wt. n-Val.	0.037	0.037	
W.S. Elev (ft)	990.76	Reach Len. (ft)	510.00	503.00	550.00
Crit W.S. (ft)	985.05	Flow Area (sq ft)	1194.17	18262.88	
E.G. Slope (ft/ft)	0.001485	Area (sq ft)	1194.17	18262.88	
Q Total (cfs)	164000.00	Flow (cfs)	8955.43	155044.60	
Top Width (ft)	1516.30	Top Width (ft)	100.00	1416.30	
Vel Total (ft/s)	8.43	Avg. Vel. (ft/s)	7.50	8.49	
Max Chl Dpth (ft)	17.46	Hydr. Depth (ft)	11.94	12.89	
Conv. Total (cfs)	4255498.0	Conv. (cfs)	232376.8	4023121.0	
Length Wtd. (ft)	503.24	Wetted Per. (ft)	111.96	1421.57	
Min Ch El (ft)	973.30	Shear (lb/sq ft)	0.99	1.19	
Alpha	1.00	Stream Power (lb/ft s)	7.42	10.11	
Frctn Loss (ft)	0.59	Cum Volume (acre-ft)	435.30	16770.79	30.85
C & E Loss (ft)	0.08	Cum SA (acres)	69.42	1792.78	5.87

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 204.87

INPUT
Description: 204.87

Right Channel Bank Station Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17067.4	991.5	17111.3	991.5	17255	990.6	17291.2	991.6	17298.2	992.1
17315.9	991	17328.2	990.9	17345.3	988.6	17426.3	988	17520.6	988.2
17594.7	988.5	17781.4	988.6	17822.3	988.5	17925.1	988.2	18001	987.2
18108.5	987.1	18221.3	987.3	18261.7	986.3	18269.2	986.9	18279.6	985.4
18296.9	986.8	18325.5	986.8	18352.2	985.5	18429.1	985.3	18501.3	985.6
18553	984.4	18559.8	986.3	18565.9	988.9	18578.6	987.7	18604.1	983.9
18645.9	981.4	18657.3	984	18678.8	986.2	18730	987.6	18832.5	987.5
18855.2	985.7	18859.7	984.6	18874.5	986.6	18920.1	984.6	18942.9	980.4
18960	980.8	18970.7	982.4	19015.9	985.9	19104.6	986.7	19209.9	985.7
19234.9	985	19264.2	982.7	19275.4	983.5	19297.4	981	19382.3	981.4
19462.8	981	19532.8	979	19555.4	979.1	19566	978.5	19579.4	978.5
19588.4	976.2	19598.7	976.3	19623.4	978.5	19628	979.5	19642.3	981
19714.7	981	19730.8	981	19759.9	975.9	19765	976.4	19772.7	975.9
19854.5	975.9	19859.5	975.9	19861.3	977.3	19877.6	980.8	19890	975.9
19903.3	969.9	19909.9	970	19919.2	968.1	20001	968.1	20022.9	968.1
20059.2	975.3	20126.4	976.2	20213.9	975.3	20298.1	974.9	20351	974.8
20377.2	977.3	20393.3	977.5	20505.4	975.8	20559.1	974.3	20612	976.5
20624.2	974.6	20654.3	973.2	20826.7	974.3	20919.3	974.9	20939.9	984.7
20954.3	4991.1	405 20961.2	994.2	20981.5	994.3	21037.9	989.4	21047	990.3
21137.3	991.2	21197.6	991.4						

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
17067.4	.025	18221.3	.037	19462.8	.037	20961.2	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
19462.8	20954.34	495	499	505 .1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17067.4	18300	994.3	F
20961.2	21197.6	994.3	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	990.80	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.61	Wt. n-Val.	0.037	0.037	
W.S. Elev (ft)	990.19	Reach Len. (ft)	495.00	499.00	505.00
Crit W.S. (ft)	982.94	Flow Area (sq ft)	6202.87	21657.82	
E.G. Slope (ft/ft)	0.000767	Area (sq ft)	8399.19	21657.82	6.71
Q Total (cfs)	164000.00	Flow (cfs)	21030.64	142969.40	
Top Width (ft)	3635.74	Top Width (ft)	2129.31	1489.40	17.03
Vel Total (ft/s)	5.89	Avg. Vel. (ft/s)	3.39	6.60	
Max Chl Dpth (ft)	22.09	Hydr. Depth (ft)	5.33	14.54	
Conv. Total (cfs)	5920537.0	Conv. (cfs)	759223.6	5161313.0	
Length Wtd. (ft)	498.39	Wetted Per. (ft)	1165.78	1498.26	
Min Ch El (ft)	968.10	Shear (lb/sq ft)	0.25	0.69	
Alpha	1.14	Stream Power (lb/ft s)	0.86	4.57	
Frctn Loss (ft)	0.30	Cum Volume (acre-ft)	4864.36	15991.30	1020.12
C & E Loss (ft)	0.05	Cum SA (acres)	1386.67	1773.90	551.85

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	991.20	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.84	Wt. n-Val.	0.037	0.037	
W.S. Elev (ft)	990.37	Reach Len. (ft)	495.00	499.00	505.00
Crit W.S. (ft)	982.85	Flow Area (sq ft)	487.55	21921.99	
E.G. Slope (ft/ft)	0.000942	Area (sq ft)	487.55	21921.99	
Q Total (cfs)	164000.00	Flow (cfs)	2378.75	161621.30	
Top Width (ft)	1542.20	Top Width (ft)	52.80	1489.40	
Vel Total (ft/s)	7.32	Avg. Vel. (ft/s)	4.88	7.37	
Max Chl Dpth (ft)	22.27	Hydr. Depth (ft)	9.23	14.72	
Conv. Total (cfs)	5343764.0	Conv. (cfs)	77509.1	5266255.0	
Length Wtd. (ft)	498.86	Wetted Per. (ft)	61.90	1498.43	
Min Ch El (ft)	968.10	Shear (lb/sq ft)	0.46	0.86	
Alpha	1.01	Stream Power (lb/ft s)	2.26	6.34	

```
                                                                    DuplicateEffective
* Frctn Loss (ft)        *    0.37  * Cum Volume (acre-ft)    *  425.45  *16538.78  *   30.85  *
* C & E Loss (ft)        *    0.06  * Cum SA (acres)         *   68.52  * 1776.00  *    5.87  *
*********************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 204.78

INPUT
Description: 204.78

Right Channel Bank Station Interpolated
Station Elevation Data    num=      87
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 16026.1   987.6 16094.8   987.3 16113.5   986.9 16143.6   989.2 16147.7   990.2
 16176.4   990.8 16200.6   988.8 16231.8   988.4 16338.9   988.8 16416.1   988.9
 16579.2   988.9   16686   989.1 16786.7   989.1 16866.8   989.3 17093.1   989.3
 17192.6   989.3 17283.5     988 17369.3     988 17407.5   989.7 17420.2     988
 17479.3     987 17521.2   986.9 17670.9     988 17754.2   987.8 17912.8   987.4
 17952.6   987.1 18028.5     987 18174.7   986.5 18221.6   986.3 18279.6   986.1
 18350.4   984.9 18361.8     983 18373.6   985.9 18402.3   985.9 18413.2   983.6
 18427.5   987.2 18487.5   986.4   18504   984.4 18585.3   983.7 18598.2   984.9
 18667.6   983.9 18753.3   984.6 18756.1   984.9 18767.8   981.3 18836.7     981
 19173.1   979.8 19219.1   979.8 19295.8   977.2 19323.7   977.5 19337.5     981
 19356.4     981 19398.6     983 19409.2   982.4 19419.8   979.2 19429.6   977.4
 19432.3   975.9 19489.4   975.9 19561.1   974.8 19621.6     973 19660.7   972.1
 19667.7   970.8 19677.1   967.6 19767.4   968.8   19768   968.8 19935.5     968
 19986.5     968 20033.8   975.7 20056.9   977.8 20073.7   975.3 20160.4     975
 20170.8   975.3 20229.5     975 20246.7     975 20324.8   974.9   20340     975
   20452   975.9 20510.9     973 20530.9   973.1 20662.3   973.7 20706.1   973.8
 20782.6   974.9 20801.8   975.120832.33990.9976 20840.4   995.2 20866.6   994.5
 20921.2   988.9 20982.7   988.3

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************************
 16026.1    .025 18427.5    .037 19398.6    .037 20840.4    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       19398.620832.33              505     515     550             .1      .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 16026.1   18400   995.2       F
 20840.4 20982.7   995.2       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)          *  990.45  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.45  * Wt. n-Val.             *   0.037  *   0.037  *          *
* W.S. Elev (ft)          *  990.01  * Reach Len. (ft)        *  505.00  *  515.00  *  550.00  *
* Crit W.S. (ft)          *  980.93  * Flow Area (sq ft)      * 8139.91  *23734.97  *          *
* E.G. Slope (ft/ft)      *0.000477  * Area (sq ft)           *12728.28  *23734.97  *   92.43  *
* Q Total (cfs)           *164000.00  * Flow (cfs)            *29111.40  *134888.60  *          *
* Top Width (ft)          * 4837.51  * Top Width (ft)        * 3333.40  * 1431.83  *   72.28  *
* Vel Total (ft/s)        *    5.15  * Avg. Vel. (ft/s)      *    3.58  *    5.68  *          *
* Max Chl Dpth (ft)       *   22.41  * Hydr. Depth (ft)      *    8.15  *   16.58  *          *
* Conv. Total (cfs)       *7512086.0  * Conv. (cfs)          *1333460.0  *6178626.0  *          *
* Length Wtd. (ft)        *  513.16  * Wetted Per. (ft)      * 1000.57  * 1438.22  *          *
* Min Ch El (ft)          *  967.60  * Shear (lb/sq ft)      *    0.24  *    0.49  *          *
* Alpha                   *    1.09  * Stream Power (lb/ft s) *    0.87  *    2.79  *          *
* Frctn Loss (ft)         *    0.33  * Cum Volume (acre-ft)  * 4744.32  *15731.30  * 1019.55  *
* C & E Loss (ft)         *    0.03  * Cum SA (acres)        * 1355.64  * 1757.17  *  551.33  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)          *  990.77  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.63  * Wt. n-Val.             *   0.037  *   0.037  *          *
* W.S. Elev (ft)          *  990.13  * Reach Len. (ft)        *  505.00  *  515.00  *  550.00  *
* Crit W.S. (ft)          *  980.78  * Flow Area (sq ft)      * 2009.30  *23919.55  *          *
* E.G. Slope (ft/ft)      *0.000611  * Area (sq ft)           * 2009.30  *23919.55  *          *
* Q Total (cfs)           *164000.00  * Flow (cfs)            * 9303.23  *154696.80  *          *
* Top Width (ft)          * 1620.43  * Top Width (ft)        *  188.60  * 1431.83  *          *
* Vel Total (ft/s)        *    6.33  * Avg. Vel. (ft/s)      *    4.63  *    6.47  *          *
* Max Chl Dpth (ft)       *   22.53  * Hydr. Depth (ft)      *   10.65  *   16.71  *          *
* Conv. Total (cfs)       *6634912.0  * Conv. (cfs)          *376378.6  *6258533.0  *          *
* Length Wtd. (ft)        *  514.26  * Wetted Per. (ft)      *  199.46  * 1438.35  *          *
* Min Ch El (ft)          *  967.60  * Shear (lb/sq ft)      *    0.38  *    0.63  *          *
* Alpha                   *    1.02  * Stream Power (lb/ft s) *    1.78  *    4.10  *          *
* Frctn Loss (ft)         *    0.42  * Cum Volume (acre-ft)  *  411.26  *16276.21  *   30.85  *
* C & E Loss (ft)         *    0.04  * Cum SA (acres)        *   67.15  * 1759.27  *    5.87  *
*********************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 204.68

INPUT
Description: 204.68
```

DuplicateEffective

Right Channel Bank Station Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17501.1	986.1	17554.2	985.7	17607.9	985.5	17645.5	987.6	17657	986.8
17668.8	987.1	17674.9	990.2	17682.2	987.8	17691	985.7	17742.4	986.2
17748.2	986.3	17778	988.7	17792.2	990.8	17806.1	988.7	17807.3	988.9
17839.5	987.8	17848.5	986.9	17867.4	986.8	17881.2	986.2	17970.4	985.8
18016.4	985.9	18087.9	985.4	18189.8	985	18231.2	984.8	18295.5	984.9
18354.5	984.6	18412.6	984.3	18437.1	982.9	18472.2	984	18491.1	983.4
18518.9	981.6	18530.8	984.6	18531.9	985.1	18550.1	982.9	18601.2	983.1
18621.4	983.6	18662.6	982.9	18685.1	983	18736.6	981.7	18767.6	980.4
18849.4	980.3	18886.2	980.2	18950.6	980	19029.6	979.9	19057.5	983
19071.2	980.7	19099.7	980.9	19114	981.6	19143.3	981.3	19197.1	981.7
19249.9	983.3	19284.9	981.9	19308.1	982.1	19314.7	984.6	19321.8	985
19357.4	981	19361.7	979.6	19368.2	980.1	19394.4	978.2	19398.6	975.9
19415.9	975.9	19458.6	973.3	19479.3	973.1	19513.5	971.9	19564.9	971.9
19621.8	972.2	19668.2	973.2	19691.4	975.5	19719	976.9	19734.6	976.2
19779.1	971.8	19814.3	971.4	19869.4	971.6	19901	972.5	19927.9	972.8
19942.8	973.9	20011.2	975.3	20053.7	976.3	20121.8	976.1	20137.2	975.6
20206.4	975.5	20256.1	973.7	20273.3	974.7	20295	973	20348.3	973.2
20369.6	973.3	20516.3	974.1	20548.6	1990.5028	20548.8	990.6	20582.8	991.5
20647	987.5	20715.7	987.8	20786.9	988	20814	988	20872.4	988.2
20904.2	988.1	20971	988.4						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
17501.1	.025	18472.2	.037	19321.8	.037	20548.8	.037	20582.8	.025

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19321.8 20548.61 325 407 570 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17501.1	18455	991.5	F
20582.8	20971	991.5	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	990.10	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.73	Wt. n-Val.	0.037	0.037	
W.S. Elev (ft)	989.36	Reach Len. (ft)	325.00	407.00	570.00
Crit W.S. (ft)	982.91	Flow Area (sq ft)	6628.41	18234.16	
E.G. Slope (ft/ft)	0.000903	Area (sq ft)	10032.96	18234.16	473.96
Q Total (cfs)	164000.00	Flow (cfs)	31211.30	132788.70	
Top Width (ft)	3375.81	Top Width (ft)	1797.31	1224.57	353.93
Vel Total (ft/s)	6.60	Avg. Vel. (ft/s)	4.71	7.28	
Max Chl Dpth (ft)	17.96	Hydr. Depth (ft)	7.65	14.89	
Conv. Total (cfs)	5457597.0	Conv. (cfs)	1038650.0	4418946.0	
Length Wtd. (ft)	390.47	Wetted Per. (ft)	868.45	1230.06	
Min Ch El (ft)	971.40	Shear (lb/sq ft)	0.43	0.84	
Alpha	1.08	Stream Power (lb/ft s)	2.03	6.09	
Frctn Loss (ft)	0.43	Cum Volume (acre-ft)	4612.38	15483.21	1015.97
C & E Loss (ft)	0.03	Cum SA (acres)	1325.89	1741.47	548.64

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	990.31	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.99	Wt. n-Val.	0.037	0.037	
W.S. Elev (ft)	989.32	Reach Len. (ft)	325.00	407.00	570.00
Crit W.S. (ft)	982.81	Flow Area (sq ft)	2820.76	18179.75	
E.G. Slope (ft/ft)	0.001151	Area (sq ft)	2820.76	18179.75	
Q Total (cfs)	164000.00	Flow (cfs)	14831.20	149168.80	
Top Width (ft)	1586.28	Top Width (ft)	361.80	1224.48	
Vel Total (ft/s)	7.81	Avg. Vel. (ft/s)	5.26	8.21	
Max Chl Dpth (ft)	17.92	Hydr. Depth (ft)	7.80	14.85	
Conv. Total (cfs)	4834418.0	Conv. (cfs)	437196.3	4397221.0	
Length Wtd. (ft)	395.87	Wetted Per. (ft)	372.04	1229.96	
Min Ch El (ft)	971.40	Shear (lb/sq ft)	0.54	1.06	
Alpha	1.05	Stream Power (lb/ft s)	2.86	8.71	
Frctn Loss (ft)	0.51	Cum Volume (acre-ft)	383.27	16027.35	30.85
C & E Loss (ft)	0.02	Cum SA (acres)	63.96	1743.57	5.87

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 204.61

INPUT
Description: 204.61
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
14501.4	987.8	14573.3	990	14582.2	987.6	14618.2	988.2	14777.3	988.3
14862.5	988	15060	988.1	15169	988.1	15293.6	988.1	15349.5	988
15354.3	989.1	15407.2	987.7	15581	987.7	15683.1	987.7	15895.1	987.7
15973.3	987.8	16138.5	987.8	16253	987.3	16305.2	988.9	16356.5	986.6
16502.7	987	16642.3	986.6	16753.7	986.8	16913.6	986.7	17015.2	986.4
17201.6	986.5	17292.3	986.1	17385	986.2	17492.5	986.6	17525.7	986
17544.8	987	17555.9	984.9	17607.1	987.6	17733.4	988	17760.1	988.2
17907	986.4	17945.4	985.9	18071.1	985.8	18171.7	984.9	18250.5	986.1
18300.1	984.4	18402.9	984.9	18466.2	984.6	18493.6	983.5	18498.9	981.8
18563.6	983.3	18578.3	983	18591.3	980.7	18665.2	981.8	18677.5	983.2
18687.3	985.4	18775.1	988.2	18821.3	988.9	18834.2	979.9	18973.9	980.4
19090.8	980.1	19180.1	979.7	19288	980.1	19386.4	980.8	19428.1	982.7

DuplicateEffective

19471.3	983.1	19479.7	979.4	19500.4	973.3	19642.8	973.3	19760.9	972.7
19781	972.7	19928.9	973.4	20022	973.4	20085.3	975.2	20097.7	972.6
20188.3	973	20275.9	973.4	20374.8	973.9	20426.1	974.2	20456.1	987.8
20482.9	988.5	20507	986.5	20620.9	986.8	20726.9	987	20849.8	987.1
20944.2	987.1	21033.3	987.2	21060.5	987.3	21176.6	986.9	21261.7	986.8
21362.3	986.7	21489.6	987	21584.7	987.7	21599.3	987.7	21697.6	987.5
21835.5	987.5	21887.1	988.6	21890.1	987.2	21897.8	989.2	21930.6	990.8
21963.1	990.8								

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
14501.4	.025	18498.9	.037	19471.3	.037	20482.9	.025

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

19471.3	20482.9		395	449	545	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
14501.4	18570	990.8	F
20482.9	21963.1	990.8	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	989.64	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.05	Wt. n-Val.	0.037	0.037	
W.S. Elev (ft)	988.59	Reach Len. (ft)	395.00	449.00	545.00
Crit W.S. (ft)	983.53	Flow Area (sq ft)	6207.90	14692.94	
E.G. Slope (ft/ft)	0.001360	Area (sq ft)	12682.15	14692.94	2059.67
Q Total (cfs)	164000.00	Flow (cfs)	34891.40	129108.60	
Top Width (ft)	7282.60	Top Width (ft)	4858.98	1011.60	1412.02
Vel Total (ft/s)	7.85	Avg. Vel. (ft/s)	5.62	8.79	
Max Chl Dpth (ft)	15.99	Hydr. Depth (ft)	7.05	14.52	
Conv. Total (cfs)	4447568.0	Conv. (cfs)	946230.9	3501337.0	
Length Wtd. (ft)	441.21	Wetted Per. (ft)	883.70	1016.51	
Min Ch El (ft)	972.60	Shear (lb/sq ft)	0.60	1.23	
Alpha	1.10	Stream Power (lb/ft s)	3.35	10.78	
Frctn Loss (ft)	0.69	Cum Volume (acre-ft)	4527.64	15329.38	999.40
C & E Loss (ft)	0.02	Cum SA (acres)	1301.06	1731.02	537.08

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	989.78	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.16	Wt. n-Val.	0.037	0.037	
W.S. Elev (ft)	988.62	Reach Len. (ft)	395.00	449.00	545.00
Crit W.S. (ft)	983.47	Flow Area (sq ft)	4821.31	14720.97	
E.G. Slope (ft/ft)	0.001462	Area (sq ft)	4821.31	14720.97	
Q Total (cfs)	164000.00	Flow (cfs)	29704.86	134295.10	
Top Width (ft)	1602.90	Top Width (ft)	591.30	1011.60	
Vel Total (ft/s)	8.39	Avg. Vel. (ft/s)	6.16	9.12	
Max Chl Dpth (ft)	16.02	Hydr. Depth (ft)	8.15	14.55	
Conv. Total (cfs)	4289077.0	Conv. (cfs)	776868.4	3512208.0	
Length Wtd. (ft)	442.77	Wetted Per. (ft)	599.90	1016.63	
Min Ch El (ft)	972.60	Shear (lb/sq ft)	0.73	1.32	
Alpha	1.07	Stream Power (lb/ft s)	4.52	12.06	
Frctn Loss (ft)	0.74	Cum Volume (acre-ft)	354.76	15873.64	30.85
C & E Loss (ft)	0.02	Cum SA (acres)	60.41	1733.12	5.87

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 204.53

INPUT
Description: 204.53
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17504.9	987.8	17516.3	987.9	17522.8	987.1	17597	987.9	17615.7	987.3
17634.6	987.5	17637.7	988.1	17645.9	986.3	17657.9	988	17704.2	989.7
17740.1	1006.3	17784.7	1004.7	17850.8	1006.5	17875.5	988.5	17970.4	986.9
18011.9	987.2	18027.9	986.1	18091.1	986.1	18155.5	985.2	18204.4	984.7
18283.5	984.5	18320.2	984.4	18443	984.3	18501.9	983.9	18579.8	983.6
18647	982.6	18678.7	980.4	18706.4	982.9	18747	982.6	18757	983.3
18815.9	983.6	18827.1	980.6	18916.2	981.2	18927.3	982	19007.2	982.5
19073.9	982.8	19175.3	983.2	19185.4	983.5	19240.3	981	19276	975.9
19293	975	19359.2	979.5	19386	976	19409.2	976.4	19468.7	973.1
19520.6	973	19547.6	973.9	19571.2	975.5	19585.1	972.9	19610.7	972.7
19729.3	972.9	19787.3	973	19805.5	973.5	19860.6	976.1	19930.7	975.8
19979.8	973.4	19994.9	973.6	20150.7	974	20174.8	974	20434.3	974.4
20443.5	974.5	20465.7	985.2	20495.9	987.1	20550.8	986.4	20566	984.8
20629.6	984.7	20701.1	984.8	20780.4	985	20872.2	985	20943	985.1
21022.1	985.1	21052.3	985	21118.4	984.9	21183.9	984.8	21260.2	985
21337.7	986.1	21351.7	986.3	21381.4	984.7	21472.3	984.9	21564.8	985.3
21626.7	986.2	21653.6	986.5	21678.1	985.5	21716.4	985.3	21781	984.7
21817.6	987.6	21875.1	987.3	21880.1	988.5	21884.2	988.1	21885	988.9
21887.9	987.2	21894.1	988.4	21914.7	989.1	21935.1	988.6	21999.2	989.8
22011	990.1								

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
17504.9	.025	18647	.037	19185.4	.037	20495.9	.037	20566	.025

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

19185.4	20495.9		570	552	525	.1	.3

```
Ineffective Flow     num=       2
   Sta L    Sta R    Elev  Permanent
 17504.9   18730    1000       F
 20495.9   22011    1000       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         *  988.93  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.25  * Wt. n-Val.            *   0.037  *   0.037  *          *
* W.S. Elev (ft)         *  987.68  * Reach Len. (ft)       *  570.00  *  552.00  *  525.00  *
* Crit W.S. (ft)         *  982.99  * Flow Area (sq ft)     * 2401.60  *16442.59  *          *
* E.G. Slope (ft/ft)     *0.001814  * Area (sq ft)          * 4931.95  *16442.59  * 3265.12  *
* Q Total (cfs)          *164000.00  * Flow (cfs)           *12437.51  *151562.50  *          *
* Top Width (ft)         * 4061.16  * Top Width (ft)       * 1366.62  * 1310.50  * 1384.04  *
* Vel Total (ft/s)       *    8.70  * Avg. Vel. (ft/s)     *    5.18  *    9.22  *          *
* Max Chl Dpth (ft)      *   14.98  * Hydr. Depth (ft)     *    5.27  *   12.55  *          *
* Conv. Total (cfs)      *3850514.0  * Conv. (cfs)         *292017.1  *3558497.0  *          *
* Length Wtd. (ft)       *  552.82  * Wetted Per. (ft)     *  455.86  * 1314.36  *          *
* Min Ch El (ft)         *  972.70  * Shear (lb/sq ft)     *    0.60  *    1.42  *          *
* Alpha                  *    1.06  * Stream Power (lb/ft s) *  3.09  *   13.06  *          *
* Frctn Loss (ft)        *    1.15  * Cum Volume (acre-ft)  * 4447.78  *15168.91  *  966.09  *
* C & E Loss (ft)        *    0.01  * Cum SA (acres)        * 1272.84  * 1719.05  *  519.59  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)         *  989.03  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.35  * Wt. n-Val.            *   0.037  *   0.037  *          *
* W.S. Elev (ft)         *  987.68  * Reach Len. (ft)       *  570.00  *  552.00  *  525.00  *
* Crit W.S. (ft)         *  982.94  * Flow Area (sq ft)     * 1560.11  *16445.87  *          *
* E.G. Slope (ft/ft)     *0.001919  * Area (sq ft)          * 1560.11  *16445.87  *          *
* Q Total (cfs)          *164000.00  * Flow (cfs)           * 8110.36  *155889.60  *          *
* Top Width (ft)         * 1610.90  * Top Width (ft)       *  300.40  * 1310.50  *          *
* Vel Total (ft/s)       *    9.11  * Avg. Vel. (ft/s)     *    5.20  *    9.48  *          *
* Max Chl Dpth (ft)      *   14.98  * Hydr. Depth (ft)     *    5.19  *   12.55  *          *
* Conv. Total (cfs)      *3743779.0  * Conv. (cfs)         *185142.7  *3558637.0  *          *
* Length Wtd. (ft)       *  552.45  * Wetted Per. (ft)     *  307.13  * 1314.94  *          *
* Min Ch El (ft)         *  972.70  * Shear (lb/sq ft)     *    0.61  *    1.50  *          *
* Alpha                  *    1.05  * Stream Power (lb/ft s) *  3.16  *   14.20  *          *
* Frctn Loss (ft)        *    1.21  * Cum Volume (acre-ft)  *  325.82  *15713.02  *   30.85  *
* C & E Loss (ft)        *    0.01  * Cum SA (acres)        *   56.36  * 1721.15  *    5.87  *
*********************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                RS: 204.42

INPUT
Description: 204.42

Right Channel Bank Station Interpolated
Station Elevation Data    num=      90
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
*********************************************************************************
   17576   985.4 17608.5   985.2   17708   984.7 17783.2   985.9 17832.4   987.2
 17853.5   986.1 17871.5   986.6 17926.9     986 17956.8   985.7 18023.8   985.6
 18149.3   988.2 18169.7   988.1 18191.3   988.5 18226.7   987.2   18239   992.9
 18240.3   993.2 18241.4   992.8 18249.3     987 18255.2   986.8 18279.8   990.2
 18308.3   987.7 18322.1   985.5 18347.4   985.3 18488.4   983.7 18517.8     983
 18560.8   983.8 18635.1   982.4 18650.1     983 18667.7     983 18723.8   982.5
 18733.2   982.4 18795.2   981.7 18839.1   981.2 18874.1   983.2 18899.1   981.9
 18955.6   982.5 18998.6   983.3 19025.4   984.6 19040.4   981.3   19045   980.6
 19052.9   980.4 19095.4   981.9 19166.1   982.1 19255.9     982 19280.2     982
 19341.8   981.8 19381.9   981.6   19437   981.1 19475.3     981 19500.2   980.6
 19543.1   978.9 19552.9   979.1 19561.9   978.3 19576.9   979.5 19599.7   980.5
 19616.5   980.7 19649.2   979.5   19653   978.6 19672.9   972.5   19732   972.5
 19781.3   972.6 19794.7   975.8 19805.4   972.9 19824.4   972.6 19905.9   971.4
   19930   972.8 19954.4   972.4 19966.8   973.5   19992   972.4 20006.4   972.1
 20057.7   972.3 20101.5     973 20150.5     972 20162.2   972.1 20303.9   972.1
 20322.7   972.1 20397.5   972.3 20434.6   971.9 20454.2   972.5 20468.3   973.3
 20548.4   973.9 20577.1   973.9 20609.6   973.2 20616.9   972.5   20646   972.8
20682.09987.6656 20689.7   990.8 20701.7   992.2 20714.4   988.5   20967   988.5

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************************************************
   17576    .025 18839.1    .037 19025.4    .037 20689.7    .037 20701.7    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      19025.420682.09              430     453     500             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
   17576 18874.1   993.2       F
 20689.7   20967   993.2       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         *  987.76  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.36  * Wt. n-Val.            *   0.037  *   0.037  *          *
* W.S. Elev (ft)         *  986.40  * Reach Len. (ft)       *  430.00  *  453.00  *  500.00  *
* Crit W.S. (ft)         *  982.76  * Flow Area (sq ft)     *  550.34  *17165.11  *          *
* E.G. Slope (ft/ft)     *0.002432  * Area (sq ft)          * 2664.73  *17165.11  *          *
* Q Total (cfs)          *164000.00  * Flow (cfs)           * 2577.06  *161422.90  *          *
```

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                                                                    DuplicateEffective
* Top Width (ft)          * 2778.70  * Top Width (ft)          * 1125.08  * 1653.63  *          *
* Vel Total (ft/s)        *    9.26  * Avg. Vel. (ft/s)       *    4.68  *    9.40  *          *
* Max Chl Dpth (ft)       *   15.00  * Hydr. Depth (ft)       *    3.64  *   10.38  *          *
* Conv. Total (cfs)       *3325542.0  * Conv. (cfs)            * 52256.9  *3273285.0  *          *
* Length Wtd. (ft)        *  452.82  * Wetted Per. (ft)       *  151.38  * 1658.94  *          *
* Min Ch El (ft)          *  971.40  * Shear (lb/sq ft)       *    0.55  *    1.57  *          *
* Alpha                   *    1.02  * Stream Power (lb/ft s) *    2.58  *   14.77  *          *
* Frctn Loss (ft)         *    1.11  * Cum Volume (acre-ft)   * 4398.08  *14955.97  *  946.41  *
* C & E Loss (ft)         *    0.00  * Cum SA (acres)         * 1256.53  * 1700.27  *  511.25  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)          *  987.81  * Element              *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    1.42  * Wt. n-Val.           *          *   0.037  *          *
* W.S. Elev (ft)          *  986.38  * Reach Len. (ft)      *  430.00  *  453.00  *  500.00  *
* Crit W.S. (ft)          *  982.73  * Flow Area (sq ft)    *          *17129.48  *          *
* E.G. Slope (ft/ft)      *0.002531  * Area (sq ft)         *          *17129.48  *          *
* Q Total (cfs)           *164000.00  * Flow (cfs)          *          *164000.00  *          *
* Top Width (ft)          * 1653.57  * Top Width (ft)      *          * 1653.57  *          *
* Vel Total (ft/s)        *    9.57  * Avg. Vel. (ft/s)     *          *    9.57  *          *
* Max Chl Dpth (ft)       *   14.98  * Hydr. Depth (ft)     *          *   10.36  *          *
* Conv. Total (cfs)       *3259710.0  * Conv. (cfs)         *          *3259710.0  *          *
* Length Wtd. (ft)        *  453.00  * Wetted Per. (ft)     *          * 1660.67  *          *
* Min Ch El (ft)          *  971.40  * Shear (lb/sq ft)     *          *    1.63  *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s) *          *   15.61  *          *
* Frctn Loss (ft)         *    1.13  * Cum Volume (acre-ft)   *  315.62  *15500.28  *   30.85  *
* C & E Loss (ft)         *    0.02  * Cum SA (acres)         *   54.40  * 1702.37  *    5.87  *
*********************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 204.34

INPUT
Description: 204.34

Left and Right Channel Bank Stations Interpolated
Station Elevation Data    num=      74
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 18066.2   985.2 18081.3     985 18158.1   983.7   18200   983.2   18226     984
 18228.2   983.4 18283.2   983.4 18339.1   987.8 18395.4   986.8 18498.7   986.6
 18514.4   986.2   18516   986.7 18586.8   985.6 18638.2   981.3 18678.3     981
 18721.9   979.9 18774.5   984.6 18806.4   982.8 18806.6   981.1 18864.9   982.2
 18888.3   975.4 18906.9   980.7 18919.1   979.8 18932.5   981.8 18936.3   983.3
 18988.6   982.9 19004.9   982.1 19086.4   981.7   19100981.6723 19184.5   981.5
 19245.5     981 19310.8   980.7 19329.3   980.7 19389.4   980.3 19453.4   979.8
 19487.9   979.5   19552   979.2 19615.6   978.7 19689.1   978.5 19736.5   978.7
 19757.1   988.9 19782.1   971.2 19783.9   970.6 19819.5   969.3 19835.1   971.8
   19891     971 19954.9   970.8 20009.4   971.2 20054.1   972.9 20100.5   973.1
 20107.5   972.7 20175.2   972.5   20253   971.7 20324.6   971.9 20395.6   971.7
 20465.2   971.4 20539.7   971.3 20603.2   971.5 20661.9   971.9 20671.8     972
 20743.2   970.2 20773.2     970 20795.3   976.920816.23986.0935 20827.4     991
 20878.6   990.5 20887.2     987 22239.1   987.1 22248.4   987.2 22254.3   988.2
 22259.5   985.8 22266.1   987.7 22287.1   988.3 22317.8     988

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************************
 18066.2    .025 18774.5    .037 20827.4    .037 20878.6    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        1910020816.23             495     488     480             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 18066.2   19100     991       F
 20827.4 22317.8     991       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)          *  986.65  * Element              *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    1.37  * Wt. n-Val.           *          *   0.037  *          *
* W.S. Elev (ft)          *  985.28  * Reach Len. (ft)      *  495.00  *  488.00  *  480.00  *
* Crit W.S. (ft)          *  981.45  * Flow Area (sq ft)    *          *17462.96  *          *
* E.G. Slope (ft/ft)      *0.002470  * Area (sq ft)         * 2117.99  *17462.96  *          *
* Q Total (cfs)           *164000.00  * Flow (cfs)          *          *164000.00  *          *
* Top Width (ft)          * 2452.20  * Top Width (ft)      *  750.25  * 1701.95  *          *
* Vel Total (ft/s)        *    9.39  * Avg. Vel. (ft/s)     *          *    9.39  *          *
* Max Chl Dpth (ft)       *   15.98  * Hydr. Depth (ft)     *          *   10.26  *          *
* Conv. Total (cfs)       *3299565.0  * Conv. (cfs)         *          *3299565.0  *          *
* Length Wtd. (ft)        *  488.00  * Wetted Per. (ft)     *          * 1711.20  *          *
* Min Ch El (ft)          *  969.30  * Shear (lb/sq ft)     *          *    1.57  *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s) *          *   14.78  *          *
* Frctn Loss (ft)         *    1.97  * Cum Volume (acre-ft)   * 4374.47  *14775.92  *  946.41  *
* C & E Loss (ft)         *    0.22  * Cum SA (acres)         * 1247.28  * 1682.83  *  511.25  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
```

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	986.66	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.37	Wt. n-Val.		0.037	
W.S. Elev (ft)	985.29	Reach Len. (ft)	495.00	488.00	480.00
Crit W.S. (ft)	981.45	Flow Area (sq ft)		17480.30	
E.G. Slope (ft/ft)	0.002469	Area (sq ft)		17480.30	
Q Total (cfs)	164000.00	Flow (cfs)		164000.00	
Top Width (ft)	1701.99	Top Width (ft)		1701.99	
Vel Total (ft/s)	9.38	Avg. Vel. (ft/s)		9.38	
Max Chl Dpth (ft)	15.99	Hydr. Depth (ft)		10.27	
Conv. Total (cfs)	3300310.0	Conv. (cfs)		3300310.0	
Length Wtd. (ft)	488.00	Wetted Per. (ft)		1714.87	
Min Ch El (ft)	969.30	Shear (lb/sq ft)		1.57	
Alpha	1.00	Stream Power (lb/ft s)		14.74	
Frctn Loss (ft)	1.97	Cum Volume (acre-ft)	315.62	15320.32	30.85
C & E Loss (ft)	0.22	Cum SA (acres)	54.40	1684.92	5.87

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 204.25

INPUT
Description: 204.25

Left and Right Channel Bank Stations Interpolated
Station Elevation Data num= 202

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
13993.51	986.91	14130.56	987.41	14486.44	987.43	14755.8	987.03	14937.72	987.04
15050.6	988.11	15090.94	987.57	15102.07	987.57	15109.44	988.64	15116.98	989.38
15128.77	988.11	15132.01	987.97	15140	988.47	15148.98	986.93	15153.86	985.73
15173.36	986.21	15690.75	986.18	15878.25	985.18	15889.67	986.28	15904.51	988.05
15907.38	988.11	15919.42	987.92	15924.1	987.47	15931.02	985.83	15970.22	986.25
16049	986.11	16175.22	986.02	16450.56	986.16	16463.91	986.29	16480.31	987.87
16486.56	987.41	16495.93	987.11	16504.19	987.79	16511.66	987.91	16518.49	987.78
16535.99	985.81	16542.09	985.62	16555	985.55	16564.89	984.28	16584.86	984.26
16687.99	984.81	16810.65	985.29	16823.94	985.32	16873.9	984.73	16893.09	984.53
16922.74	984.6	16941.4	984.26	16960.75	984.66	16990.05	984.33	17020.18	984.79
17048.94	986.61	17091.64	985.28	17177.92	98517	208.14	985.11	7249.69	984.95
17398.31	984.31	17414.87	984.49	17522.6	984.39	17556.82	984.21	17600.03	984.35
17721.19	984.21	17812.48	984.25	17851.5	984.81	17861.89	984.59	17867.1	984.93
17880.92	98517	892.56	984.35	17898.26	983.92	17932.23	986.49	17944.09	986.98
17988.7	986.71	8005.49	986.89	18050.6	987.57	18083.28	987.62	18106.23	986.76
18158.97	986.81	8174.45	987.11	8185.88	987.12	18240.34	986.92	18277.05	986.27
18300.85	986.11	8323.52	985.55	18372.65	985.14	18410.49	985.08	18449.87	985.08
18490.27	985.5	18520.4	985.15	18569.61	985.8	18587.9	985.76	18609.93	985.4
18633.73	984.81	8652.28	984.25	18660.4	983.85	18672.96	983.41	18703.66	978.51
18719.46	976.21	8724.94	975.71	8730.59	976.28	18765.73	981.38	18788.83	981.86
18812.39	98218	851.86	982.67	18856.84	982.02	18876.79	980.93	18917.58	980.72
18958.37	980.81	8990.64	980.15	19005.3	981.3	19038	982.55	19054.34	981.71
19061.47	981.91	9088.33	981.03	19097.24	980.61	19117.27	982.08	19126.5	981.33
19134.63	980.81	9139.73	980.79	19178.34	980.99	19189.92	980.91	19237.27	980.78
19263.33	980.21	9297.08	979.95	19300	979.93	619332.52	979.78	19361.32	979.52
19438.75	979.41	19458.3	979.51	9506.35	978.71	9519.13	978.85	19527.66	978.72
19542.19	978.73	19623.64	978.61	9631.41	978.61	9649.23	978.63	19696.73	978.82
19703.53	975.71	19717.53	970.2	19739	971.31	9747.27	974.51	19771.1	974.27
20035.47	970.88	20227.56	972.42	0273.64	972.36	20297.51	972.19	20307.7	971.98
20309.92	971.74	20357.54	969.8	20436.7	969.44	20448.29	969.45	20499.51	969.22
20526.05	969.29	20588.3	969.72	0612.99	970.14	20643.57	971.08	20655.61	971.37
20680.85	971.24	20705.02	971.52	0710.67	971.37	20740.01	974.14	20776.89	977.31
20818.53	981.02	5320830.46	982.09	20922.2	989.62	0964.06	989.95	20995.89	990.41
21004.86	987.39	21018.73	981.08	21052.72	981.12	1087.73	980.79	21108.33	980.92
21157.66	981.42	1178.54	981.52	21210.73	981.22	1262.99	982.63	21279.42	982.45
21290.06	979.45	21361.92	980.42	21408.6	981.22	1446.51	981.42	1456.08	981.58
21481.84	981.61	21499.03	981.71	21649.19	981.92	1681.55	982.07	21787.28	982.66
21862.63	982.92	1876.61	982.95	21939.71	983.42	1983.01	983.38	22043.39	983.78
22083.67	984.17	22130.05	984.43	22172.04	984.42	2225.83	984.58	22265.02	984.87
22339.34	986.35	22389.33	985.46	22416.26	985.92	2438.79	986.03	22474.98	986.32
22486.29	987.52	22500.35	987.24						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
13993.51	.035	18812.39	.032	21290.06	.025

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19300 20818.53 510 508 500 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
13993.51	19300	990	F
20922.22	22500.35	990	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	984.46	Element	Left OB	Channel	Right OB

```
                                                                    Duplicate Effective
* Vel Head (ft)          *    3.56  * Wt. n-Val.                   *         *   0.032  *          *
* W.S. Elev (ft)         *  980.90  * Reach Len. (ft)             *  510.00 *  508.00  *  500.00  *
* Crit W.S. (ft)          *  980.90  * Flow Area (sq ft)           *         *10836.44  *          *
* E.G. Slope (ft/ft)     *0.007742  * Area (sq ft)                *  277.23 *10836.44  *   82.25  *
* Q Total (cfs)          *164000.00  * Flow (cfs)                 *         *164000.00  *          *
* Top Width (ft)         * 1993.93  * Top Width (ft)              *  339.61 * 1517.18  *  137.15  *
* Vel Total (ft/s)       *   15.13  * Avg. Vel. (ft/s)           *         *   15.13  *          *
* Max Chl Dpth (ft)      *   11.68  * Hydr. Depth (ft)           *         *    7.14  *          *
* Conv. Total (cfs)      *1863855.0  * Conv. (cfs)                *         *1863855.0  *          *
* Length Wtd. (ft)       *  508.00  * Wetted Per. (ft)           *         * 1520.08  *          *
* Min Ch El (ft)         *  969.22  * Shear (lb/sq ft)           *         *    3.45  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s)     *         *   52.15  *          *
* Frctn Loss (ft)        *    1.15  * Cum Volume (acre-ft)       * 4360.86 *14617.40  *  945.96  *
* C & E Loss (ft)        *    0.79  * Cum SA (acres)             * 1241.09 * 1664.79  *  510.50  *
*****************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*****************************************************************************************
* E.G. Elev (ft)         *  984.46  * Element                  *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    3.57  * Wt. n-Val.               *         *   0.032  *          *
* W.S. Elev (ft)         *  980.89  * Reach Len. (ft)          *  510.00 *  508.00  *  500.00  *
* Crit W.S. (ft)         *  980.89  * Flow Area (sq ft)        *         *10810.89  *          *
* E.G. Slope (ft/ft)     *0.007809  * Area (sq ft)             *         *10810.89  *          *
* Q Total (cfs)          *164000.00  * Flow (cfs)              *         *164000.00  *          *
* Top Width (ft)         * 1516.99  * Top Width (ft)           *         * 1516.99  *          *
* Vel Total (ft/s)       *   15.17  * Avg. Vel. (ft/s)        *         *   15.17  *          *
* Max Chl Dpth (ft)      *   11.67  * Hydr. Depth (ft)        *         *    7.13  *          *
* Conv. Total (cfs)      *1855915.0  * Conv. (cfs)             *         *1855915.0  *          *
* Length Wtd. (ft)       *  508.00  * Wetted Per. (ft)        *         * 1520.84  *          *
* Min Ch El (ft)         *  969.22  * Shear (lb/sq ft)        *         *    3.47  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s)  *         *   52.57  *          *
* Frctn Loss (ft)        *    1.15  * Cum Volume (acre-ft)    *  315.62 *15161.85  *   30.85  *
* C & E Loss (ft)        *    0.80  * Cum SA (acres)          *   54.40 * 1666.89  *    5.87  *
*****************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                RS: 204.15

INPUT
Description: 204.15

Left and Right Channel Bank Stations Interpolated
Station Elevation Data    num=      80
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
 16507.2   984.4   16600     985 16650.2   986.1 16657.8   983.8 16666.8     986
 16708.7   983.2 16800.2   983.6 16895.3   983.8 16963.7   983.3 17111.7   982.5
 17141.8   982.4 17289.1   982.7   17397   983.7 17427.8   983.8 17571.9   983.4
 17609.8   983.3 17719.7   983.5 17833.6     983 17949.9   982.8 18031.8   984.3
 18081.2   983.6   18087   981.9 18093.6   985.1 18094.5   983.7 18130.3     986
 18214.6   985.6 18280.4   986.6 18357.2   984.7 18446.1   985.5 18578.2   984.4
 18725.8   984.7 18824.1   985.3 18862.3   983.1 18888.3   980.6   18907   981.1
 18955.1     980 19045.1   979.6 19065.5   979.9 19074.1   976.8   19104     969
 19192.6   971.7   19200   971.7 19310.3   971.7 19331.3   970.9 19446.3   971.9
 19486.8   971.6 19501.3   966.1   19595     966 19644.2   966.2   19661   973.6
   19681   970.2 19769.8   971.6 19860.6   972.7 19968.4   974.8 20027.5   972.3
 20066.1   967.9 20074.7   967.9 20209.5     968 20337.2   968.2 20441.7   967.7
 20540.9   966.7 20554.5   966.5 20580.4   968.8 20679.7   967.8 20753.2   967.1
 20790.2   968.9 20795.8   969.9 20814.5   969.5 20911.6   969.2   20940   967.1
 20986.5   968.3 21033.3 8981.5872 21042.6   984.2 21131.4   985.3 21379.2   985.3
 22652.4   985.2 22684.9   986.3   22693   983.9 22700.1   985.5 22708.9   985.4

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************************
 16507.2    .035 18824.1    .032 21131.4    .025 21379.2    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          19200 21033.38             510     509     510             .1      .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
 16507.2   19200   986.6        F

CROSS SECTION OUTPUT  Profile #PF#1
```

DuplicateEffective

* E.G. Elev (ft)	*	982.09	* Element	*	Left OB	*	Channel	*	Right OB	*
* Vel Head (ft)	*	0.93	* Wt. n-Val.	*		*	0.032	*		*
* W.S. Elev (ft)	*	981.17	* Reach Len. (ft)	*	510.00	*	509.00	*	510.00	*
* Crit W.S. (ft)	*	975.82	* Flow Area (sq ft)	*		*	21240.76	*		*
* E.G. Slope (ft/ft)	*	0.001058	* Area (sq ft)	*	1488.78	*	21240.76	*		*
* Q Total (cfs)	*	164000.00	* Flow (cfs)	*		*	164000.00	*		*
* Top Width (ft)	*	2149.48	* Top Width (ft)	*	317.59	*	1831.90	*		*
* Vel Total (ft/s)	*	7.72	* Avg. Vel. (ft/s)	*		*	7.72	*		*
* Max Chl Dpth (ft)	*	15.17	* Hydr. Depth (ft)	*		*	11.59	*		*
* Conv. Total (cfs)	*	5042939.0	* Conv. (cfs)	*		*	5042939.0	*		*
* Length Wtd. (ft)	*	509.00	* Wetted Per. (ft)	*		*	1837.25	*		*
* Min Ch El (ft)	*	966.00	* Shear (lb/sq ft)	*		*	0.76	*		*
* Alpha	*	1.00	* Stream Power (lb/ft s)	*		*	5.89	*		*
* Frctn Loss (ft)	*	0.68	* Cum Volume (acre-ft)	*	4350.52	*	14430.35	*	945.48	*
* C & E Loss (ft)	*	0.02	* Cum SA (acres)	*	1237.24	*	1645.27	*	509.71	*

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	*	982.11	* Element	*	Left OB	*	Channel	*	Right OB	*
* Vel Head (ft)	*	0.92	* Wt. n-Val.	*		*	0.032	*		*
* W.S. Elev (ft)	*	981.18	* Reach Len. (ft)	*	510.00	*	509.00	*	510.00	*
* Crit W.S. (ft)	*	975.82	* Flow Area (sq ft)	*		*	21274.63	*		*
* E.G. Slope (ft/ft)	*	0.001059	* Area (sq ft)	*		*	21274.63	*		*
* Q Total (cfs)	*	164000.00	* Flow (cfs)	*		*	164000.00	*		*
* Top Width (ft)	*	1831.89	* Top Width (ft)	*		*	1831.89	*		*
* Vel Total (ft/s)	*	7.71	* Avg. Vel. (ft/s)	*		*	7.71	*		*
* Max Chl Dpth (ft)	*	15.18	* Hydr. Depth (ft)	*		*	11.61	*		*
* Conv. Total (cfs)	*	5038994.0	* Conv. (cfs)	*		*	5038994.0	*		*
* Length Wtd. (ft)	*	509.00	* Wetted Per. (ft)	*		*	1846.75	*		*
* Min Ch El (ft)	*	966.00	* Shear (lb/sq ft)	*		*	0.76	*		*
* Alpha	*	1.00	* Stream Power (lb/ft s)	*		*	5.87	*		*
* Frctn Loss (ft)	*	0.68	* Cum Volume (acre-ft)	*	315.62	*	14974.75	*	30.85	*
* C & E Loss (ft)	*	0.02	* Cum SA (acres)	*	54.40	*	1647.37	*	5.87	*

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 204.05

INPUT
Description: 204.05

Left and Right Channel Bank Stations Interpolated
Station Elevation Data num= 73

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18304.1	982.1	18322.9	981.3	18412.7	981.2	18490.1	981.1	18499.9	981.4
18523	980.8	18527.4	981.7	18530.5	980.8	18552.5	980.6	18585.3	987.2
18649.8	986.5	18710.4	987.1	18782.2	985.8	18858.9	986.9	18882.3	985.9
18903.8	986.2	18952	984.5	18962.59	980.697	18970.1	978	18992.5	968.5
19020.9	971.4	19097.5	973.6	19099.9	973.6	19168.9	971.6	19234.1	970.7
19315.1	973.1	19401.3	974.1	19432.4	974.2	19453	972.9	19510.9	971.5
19570.9	965.6	19644.7	967.7	19662	968.9	19741.3	971.7	19784.3	975.1
19860.9	975.2	19946.2	976.1	20026.3	975.5	20061.6	973.5	20142.4	974.9
20200.7	974.3	20222.7	972.5	20272.6	972.8	20286.9	973.4	20327.7	971.7
20354.5	969.2	20434.3	970.9	20491.6	971.4	20536	969.7	20605	969.1
20618.5	968.7	20679.5	965	20701.3	965.4	20715.6	967	20746.4	966
20828.1	965.9	20914.2	966.5	20930	968.1	20994	968.4	21024.5	966.7
21045.1	967	21067.8	975.8	21081.76	980.698	21090.6	983.8	21160.1	983.8
22668.7	984.2	22676.7	984.2	22773.1	984.3	22829	984.6	22836.3	985.6
22843	983.5	22852.2	986	22860.7	985.9				

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
18304.1	.05	18552.5	.035	18858.9	.032	21090.6	.025

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
18962.59 21081.76 510 505 520 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
18304.1	18750	987.2	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	*	981.39	* Element	*	Left OB	*	Channel	*	Right OB	*
* Vel Head (ft)	*	1.12	* Wt. n-Val.	*		*	0.032	*		*
* W.S. Elev (ft)	*	980.27	* Reach Len. (ft)	*	510.00	*	505.00	*	520.00	*
* Crit W.S. (ft)	*	976.80	* Flow Area (sq ft)	*		*	19320.37	*		*
* E.G. Slope (ft/ft)	*	0.001759	* Area (sq ft)	*		*	19320.37	*		*
* Q Total (cfs)	*	164000.00	* Flow (cfs)	*		*	164000.00	*		*
* Top Width (ft)	*	2116.76	* Top Width (ft)	*		*	2116.76	*		*
* Vel Total (ft/s)	*	8.49	* Avg. Vel. (ft/s)	*		*	8.49	*		*
* Max Chl Dpth (ft)	*	15.27	* Hydr. Depth (ft)	*		*	9.13	*		*
* Conv. Total (cfs)	*	3910438.0	* Conv. (cfs)	*		*	3910438.0	*		*
* Length Wtd. (ft)	*	505.00	* Wetted Per. (ft)	*		*	2123.09	*		*
* Min Ch El (ft)	*	965.00	* Shear (lb/sq ft)	*		*	1.00	*		*
* Alpha	*	1.00	* Stream Power (lb/ft s)	*		*	8.48	*		*
* Frctn Loss (ft)	*	1.42	* Cum Volume (acre-ft)	*	4341.81	*	14193.37	*	945.48	*
* C & E Loss (ft)	*	0.10	* Cum SA (acres)	*	1235.38	*	1622.20	*	509.71	*

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	981.41	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.11	Wt. n-Val.		0.032	
W.S. Elev (ft)	980.29	Reach Len. (ft)	510.00	505.00	520.00
Crit W.S. (ft)	976.80	Flow Area (sq ft)		19370.37	
E.G. Slope (ft/ft)	0.001744	Area (sq ft)		19370.37	
Q Total (cfs)	164000.00	Flow (cfs)		164000.00	
Top Width (ft)	2116.76	Top Width (ft)		2116.76	
Vel Total (ft/s)	8.47	Avg. Vel. (ft/s)		8.47	
Max Chl Dpth (ft)	15.29	Hydr. Depth (ft)		9.15	
Conv. Total (cfs)	3927263.0	Conv. (cfs)		3927263.0	
Length Wtd. (ft)	505.00	Wetted Per. (ft)		2123.13	
Min Ch El (ft)	965.00	Shear (lb/sq ft)		0.99	
Alpha	1.00	Stream Power (lb/ft s)		8.41	
Frctn Loss (ft)	1.35	Cum Volume (acre-ft)	315.62	14737.29	30.85
C & E Loss (ft)	0.09	Cum SA (acres)	54.40	1624.30	5.87

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 203.96

INPUT
Description: 203.96

Right Channel Bank Staion Interpolated
Station Elevation Data num= 91

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16511.6	983.5	16713.4	983.8	16774.3	983.9	16908.7	984.4	16963.5	986.3
16968.1	982.5	16973.8	984.3	17039.3	980.6	17126.9	980	17138.9	980
17175.8	974.9	17222.8	980.2	17277.4	983.2	17284.8	982.3	17330	982.5
17366.5	984.4	17465.6	982.2	17576.8	981.2	17680.4	980.6	17774.7	979.6
17869.9	981.4	17958.4	981.2	18010.3	980.8	18015.8	982.2	18024.6	982.8
18047.1	980.2	18070.6	981.5	18128.1	982.9	18242.5	983.3	18284.4	984.3
18384	982.4	18469.6	983.6	18481.1	980.9	18496.2	979.1	18583.4	978
18607.3	975.5	18626.7	976.9	18657.9	976	18690	978.1	18723.2	976.2
18730.8	978.5	18760	974.5	18783.2	969.3	18801.2	968.9	18811.7	967.4
18891.8	971.9	18902.5	971.8	18997.2	971.4	19057.4	972	19069.5	973.6
19145.7	973.5	19201.5	971.8	19284.9	973.5	19375	977.1	19427.1	976
19471.7	976.7	19531.2	976.1	19556.4	976.8	19606.4	965.6	19696.9	968.3
19784.2	968.9	19847.3	971.5	19965.6	970.7	19998.5	972.3	20089.8	973.2
20179.8	972.3	20254.9	970.6	20367	970.8	20411.5	970.7	20421.4	969.4
20435.9	965.4	20451.7	964.7	20529.6	965	20554.9	967	20642.7	965.7
20735.2	964.2	20738.9	964.1	20767.7	971.2	20790.3	8978.7	393	20803.5
20835.5	994.9	20850.3	995.2	20872.5	997.5	20910.1	984.2	20997.3	981.9
21108.2	981.9	21539.6	982	21552	986.1	21559.4	984.2	21657.7	986.4
21694	988.5								

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16511.6	.025	17175.8	.043	18469.6	.043	18902.5	.032	20835.5	.037

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
18730.8	20790.38	495	502	505	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
16511.6	18730.8	997.5	F
20835.5	21694	997.5	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	979.86	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.15	Wt. n-Val.		0.033	
W.S. Elev (ft)	977.71	Reach Len. (ft)	495.00	502.00	505.00
Crit W.S. (ft)	976.71	Flow Area (sq ft)		13938.65	
E.G. Slope (ft/ft)	0.005220	Area (sq ft)	202.34	13938.65	
Q Total (cfs)	164000.00	Flow (cfs)		164000.00	
Top Width (ft)	2225.53	Top Width (ft)	174.77	2050.76	
Vel Total (ft/s)	11.77	Avg. Vel. (ft/s)		11.77	
Max Chl Dpth (ft)	13.61	Hydr. Depth (ft)		6.80	
Conv. Total (cfs)	2269861.0	Conv. (cfs)		2269861.0	
Length Wtd. (ft)	502.00	Wetted Per. (ft)		2056.12	
Min Ch El (ft)	964.10	Shear (lb/sq ft)		2.21	
Alpha	1.00	Stream Power (lb/ft s)		25.99	
Frctn Loss (ft)	0.90	Cum Volume (acre-ft)	4340.62	14000.58	945.48
C & E Loss (ft)	0.43	Cum SA (acres)	1234.36	1598.04	509.71

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	979.97	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.99	Wt. n-Val.		0.033	
W.S. Elev (ft)	977.98	Reach Len. (ft)	495.00	502.00	505.00
Crit W.S. (ft)	976.71	Flow Area (sq ft)		14478.25	
E.G. Slope (ft/ft)	0.004601	Area (sq ft)		14478.25	
Q Total (cfs)	164000.00	Flow (cfs)		164000.00	
Top Width (ft)	2050.76	Top Width (ft)		2050.76	
Vel Total (ft/s)	11.33	Avg. Vel. (ft/s)		11.33	
Max Chl Dpth (ft)	13.88	Hydr. Depth (ft)		7.06	
Conv. Total (cfs)	2417852.0	Conv. (cfs)		2417852.0	
Length Wtd. (ft)	502.00	Wetted Per. (ft)		2056.64	
Min Ch El (ft)	964.10	Shear (lb/sq ft)		2.02	
Alpha	1.00	Stream Power (lb/ft s)		22.90	
Frctn Loss (ft)	0.83	Cum Volume (acre-ft)	315.62	14541.08	30.85
C & E Loss (ft)	0.39	Cum SA (acres)	54.40	1600.14	5.87

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 203.86

INPUT
Description: 203.86

Right Channel Bank Staion Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17504.9	979.4	17555	980.7	17589.4	982.1	17613.5	980.8	17620.6	979.8
17657.6	978.3	17694.3	979.8	17718.4	978.9	17729	980.8	17762.1	977.4
17780.7	978.7	17821.9	984.3	17861.6	984.2	17888.2	982.4	17897.5	983.2
17930.6	983.2	17969.6	984.1	17989.1	983.6	18013.3	984	18044.9	981.7
18064.4	979.2	18096.7	981.5	18136.8	979.8	18171.7	980	18207.5	982
18243.1	982.7	18290.8	981.3	18353.7	982	18421.5	981.7	18458.6	982.1
18488.1	978.2	18540.3	978.5	18564	971	18599.5	968.8	18660.4	971
18700.2	971.8	18760.2	970	18806.7	971.3	18853.4	969.4	18891.2	969
18974.3	973.5	19064.8	976.5	19077.3	975.8	19161.8	973.4	19223.1	970.5
19246.5	967.4	19268.5	965.8	19288.8	962.4	19365.2	962.6	19365.7	962.6
19450.7	962.8	19451.6	962.8	19539.2	963.1	19611.5	963	19690.6	962.4
19743.6	962.3	19811.2	962.7	19858.2	963.1	19928.9	963.6	19992.8	963.8
20013.5	963.8	20076.4	964	20099.2	964	20196.1	964.2	20254.4	964.2
20298.4	964.5	20318.1	968.2	20429.2	967.6	20486.9	967.6	20543.1	968.6
20555	966.5	20576	964.2	20634.3	964.2	20650.7	964.2	20663.3	965.7
20676.9	965.8	20697.7	967.2	20730.9	976.1	20735.9	978.6	323 20761.9	991.8
20803.3	981	20878.5	982.5	20946.4	982.5	20965.7	981.1	21031.2	980.5
21099.9	980.6	21167.6	980.7	21198.2	981	21258.8	981.1	21324.9	981
21359.8	980.5	21368.4	981	21395.8	980.4	21405.9	982.4	21411.7	980.4
21482.6	980.2	21488.8	980.2						

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
17504.9	.043	18243.1	.043	18891.2	.032	20761.9	.037

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
18488.1	20735.9	505	498	480	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17504.9	18243.1	991.8	F
20761.9	21488.8	991.8	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	978.53	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.72	Wt. n-Val.		0.033	
W.S. Elev (ft)	977.81	Reach Len. (ft)	505.00	498.00	480.00
Crit W.S. (ft)	971.84	Flow Area (sq ft)		24032.73	
E.G. Slope (ft/ft)	0.000902	Area (sq ft)	2.00	24032.73	
Q Total (cfs)	164000.00	Flow (cfs)		164000.00	
Top Width (ft)	2201.58	Top Width (ft)	9.80	2191.78	
Vel Total (ft/s)	6.82	Avg. Vel. (ft/s)		6.82	
Max Chl Dpth (ft)	15.51	Hydr. Depth (ft)		10.96	
Conv. Total (cfs)	5460451.0	Conv. (cfs)		5460451.0	
Length Wtd. (ft)	498.00	Wetted Per. (ft)		2196.27	
Min Ch El (ft)	962.30	Shear (lb/sq ft)		0.62	
Alpha	1.00	Stream Power (lb/ft s)		4.21	
Frctn Loss (ft)	0.44	Cum Volume (acre-ft)	4339.46	13781.79	945.48
C & E Loss (ft)	0.03	Cum SA (acres)	1233.31	1573.59	509.71

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	978.75	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.69	Wt. n-Val.		0.033	
W.S. Elev (ft)	978.06	Reach Len. (ft)	505.00	498.00	480.00
Crit W.S. (ft)	971.84	Flow Area (sq ft)		24588.83	
E.G. Slope (ft/ft)	0.000838	Area (sq ft)		24588.83	
Q Total (cfs)	164000.00	Flow (cfs)		164000.00	

				DuplicateEffective		
* Top Width (ft)	* 2191.78	* Top Width (ft)	*	* 2191.78	*	*
* Vel Total (ft/s)	* 6.67	* Avg. Vel. (ft/s)	*	* 6.67	*	*
* Max Chl Dpth (ft)	* 15.76	* Hydr. Depth (ft)	*	* 11.22	*	*
* Conv. Total (cfs)	*5666380.0	* Conv. (cfs)	*	*5666380.0	*	*
* Length Wtd. (ft)	* 498.00	* Wetted Per. (ft)	*	* 2196.77	*	*
* Min Ch El (ft)	* 962.30	* Shear (lb/sq ft)	*	* 0.59	*	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 3.90	*	*
* Frctn Loss (ft)	* 0.41	* Cum Volume (acre-ft)	* 315.62	*14315.97	* 30.85	*
* C & E Loss (ft)	* 0.03	* Cum SA (acres)	* 54.40	* 1575.69	* 5.87	*

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 203.77

INPUT
Description: 203.77

Left and Right Channel Bank Staions Interpolated
Station Elevation Data num= 98

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
15516.5	980.4	15611.3	979.8	15668.7	980.9	15700.1	979.6	15734.7	982.9
15797.9	987.2	15835	986	15865.2	981.2	15920	981.4	15937.6	976.9
15947.6	978.2	15969.6	982.9	15985.2	984.3	16056.9	984.3	16076.8	983.7
16103.9	981.6	16184.4	981.2	16265.9	982.1	16312.5	981.7	16348.3	982.1
16366.7	978.9	16400.4	980.3	16452.6	980.5	16569.1	980.4	16622.2	980.5
16857.6	980.3	17032.7	979.9	17052.5	979.9	17220.4	979.9	17326.1	979.2
17424.8	979	17450	979.3	17461.6	980.3	17495.9	980.1	17515.6	978.2
17558.9	979.2	17678.1	978.7	17709.3	979.1	17747.1	977.4	17826.8	982.9
17879.9	983.7	17902.1	982.1	17924.4	981.6	18003.9	982.8	18091.9	980.7
18117.2	979.8	18191	981.8	18222.6	1978.2	686 18227.7	977.7	18281.9	974.6
18343.8	974.4	18371.2	970.5	18451.7	968.1	18515.7	969.6	18591.7	968.7
18603.5	969.7	18721.8	967.3	18770.9	970.5	18803.6	971.5	18834.8	974.6
18888.2	976.1	18941.5	973.8	18956.3	972.3	18974.2	976.6	18983.5	976.3
19032.5	965.6	19113.9	965.1	19224	964.8	19282.2	964.6	19290.6	969.7
19307.6	974.2	19313.1	973.7	19322.8	969.5	19338.6	967.2	19345.7	964.7
19426.8	964.5	19492.9	964.4	19606.6	964.2	19685.9	964.3	19717.5	964.1
19865.4	964.1	19957	963.3	20019.3	964.3	20221.9	964.3	20253.9	964.3
20282.3	966.5	20325.8	965.1	20328.7	964.2	20338.6	965.4	20430	966.2
20524.9	966.2	20609.1	966.4	20684.8	966.7	20728.9	97120745.61978.2692		
20746.6	978.7	20820.8	981.2	20854	997.6				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
15516.5	.025	17495.9	.043	18191	.043	18803.6	.032	20820.8	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
18222.6	20745.61	490	498	480	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
15516.5	18191	997.6	F
20820.8	20854	997.6	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 978.06	* Element	* Left OB	* Channel	* Right OB
* Vel Head (ft)	* 0.63	* Wt. n-Val.	*	* 0.033	*
* W.S. Elev (ft)	* 977.43	* Reach Len. (ft)	* 490.00	* 498.00	* 480.00
* Crit W.S. (ft)	* 971.58	* Flow Area (sq ft)	*	*25746.39	*
* E.G. Slope (ft/ft)	*0.000873	* Area (sq ft)	* 1.65	*25746.39	*
* Q Total (cfs)	*164000.00	* Flow (cfs)	*	*164000.00	*
* Top Width (ft)	* 2518.56	* Top Width (ft)	* 7.28	* 2511.27	*
* Vel Total (ft/s)	* 6.37	* Avg. Vel. (ft/s)	*	* 6.37	*
* Max Chl Dpth (ft)	* 14.13	* Hydr. Depth (ft)	*	* 10.25	*
* Conv. Total (cfs)	*5549798.0	* Conv. (cfs)	*	*5549798.0	*
* Length Wtd. (ft)	* 497.87	* Wetted Per. (ft)	*	* 2519.23	*
* Min Ch El (ft)	* 963.30	* Shear (lb/sq ft)	*	* 0.56	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 3.55	*
* Frctn Loss (ft)	* 0.45	* Cum Volume (acre-ft)	* 4339.44	*13497.24	* 945.48
* C & E Loss (ft)	* 0.00	* Cum SA (acres)	* 1233.21	* 1546.71	* 509.71

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 978.32	* Element	* Left OB	* Channel	* Right OB
* Vel Head (ft)	* 0.60	* Wt. n-Val.	*	* 0.033	*
* W.S. Elev (ft)	* 977.72	* Reach Len. (ft)	* 490.00	* 498.00	* 480.00
* Crit W.S. (ft)	* 971.58	* Flow Area (sq ft)	*	*26473.99	*
* E.G. Slope (ft/ft)	*0.000799	* Area (sq ft)	*	*26473.99	*
* Q Total (cfs)	*164000.00	* Flow (cfs)	*	*164000.00	*
* Top Width (ft)	* 2511.27	* Top Width (ft)	*	* 2511.27	*
* Vel Total (ft/s)	* 6.19	* Avg. Vel. (ft/s)	*	* 6.19	*
* Max Chl Dpth (ft)	* 14.42	* Hydr. Depth (ft)	*	* 10.54	*
* Conv. Total (cfs)	*5803637.0	* Conv. (cfs)	*	*5803637.0	*
* Length Wtd. (ft)	* 497.94	* Wetted Per. (ft)	*	* 2519.80	*
* Min Ch El (ft)	* 963.30	* Shear (lb/sq ft)	*	* 0.52	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 3.24	*
* Frctn Loss (ft)	* 0.42	* Cum Volume (acre-ft)	* 315.62	*14024.08	* 30.85
* C & E Loss (ft)	* 0.01	* Cum SA (acres)	* 54.40	* 1548.81	* 5.87

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 203.67

INPUT
Description: 203.67

Right Channel Bank Staion Interpolated
Station Elevation Data num= 74

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
15401.1	982.5	15424.7	984.1	15508.1	982.3	15591.4	979.1	15681.8	979.9
15787.8	979.3	15920	979.3	16055.7	978.9	16157.5	979.1	16260.6	979.3
16282.2	979.2	16477	979.1	16627.1	979.9	16750.8	980.1	16865.7	979.3
16957.3	981.3	16980.5	980.6	17002.4	977.7	17014.1	979.2	17103.7	973.3
17179.5	973.2	17215.7	975.7	17267.4	969.7	17366.5	975.6	17541.8	974.3
17694.8	973.7	17837.2	974.1	17962.6	973.8	17982.5	973.7	18104.5	972.8
18289.3	972.9	18348.9	975.3	18350.2	973.2	18394.8	968.7	18516.9	971.1
18627.3	969.9	18690.1	970.4	18740.2	966.8	18787.4	966.3	18802.9	968.2
18941.9	973.8	19049	974.1	19155.9	972.4	19180.7	975.8	19211.3	962.3
19411.4	963.8	19519	963.9	19654.3	964.2	19798.6	964.3	19832.9	964.3
20036.1	964.3	20137.2	965.3	20302.2	963	20432.8	965.2	20537.5	965.2
20656.2	965.3	20661.5	965.6	20693.5	975.1	20699.3	977.8	20708.7	982.2
20796	983.8	20827.7	980.1	20837	982.9	20858.2	981.6	21858.6	983.5
21904.3	982.5	23520.4	980	23527.3	982.8	23545.1	983.5	23556.1	980.2
23584.2	981.5	23593	977.2	23603.5	980.1	23621	979.7		

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
15401.1	.025	16957.3	.037	18348.9	.037	18941.9	.032	20708.7	.032
20796	.025								

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
18348.9 20699.3 470 490 505 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
15401.1	17837.2	984.1	F
20708.7	23621	984.1	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	977.61	Element	Left OB	Channel / Right OB
Vel Head (ft)	0.67	Wt. n-Val.	0.037	0.033 /
W.S. Elev (ft)	976.93	Reach Len. (ft)	470.00	490.00 / 505.00
Crit W.S. (ft)	971.58	Flow Area (sq ft)	1810.56	23835.66 /
E.G. Slope (ft/ft)	0.000940	Area (sq ft)	4152.06	23835.66 /
Q Total (cfs)	164000.00	Flow (cfs)	5176.53	158823.50 /
Top Width (ft)	3648.91	Top Width (ft)	1300.39	2348.53 /
Vel Total (ft/s)	6.39	Avg. Vel. (ft/s)	2.86	6.66 /
Max Chl Dpth (ft)	14.63	Hydr. Depth (ft)	3.54	10.15 /
Conv. Total (cfs)	5348655.0	Conv. (cfs)	168825.9	5179829.0 /
Length Wtd. (ft)	489.59	Wetted Per. (ft)	511.75	2355.25 /
Min Ch El (ft)	962.30	Shear (lb/sq ft)	0.21	0.59 /
Alpha	1.06	Stream Power (lb/ft s)	0.59	3.96 /
Frctn Loss (ft)	0.46	Cum Volume (acre-ft)	4316.08	13213.81 / 945.48
C & E Loss (ft)	0.00	Cum SA (acres)	1225.85	1518.93 / 509.71

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	977.89	Element	Left OB	Channel / Right OB
Vel Head (ft)	0.66	Wt. n-Val.	0.037	0.033 /
W.S. Elev (ft)	977.23	Reach Len. (ft)	470.00	490.00 / 505.00
Crit W.S. (ft)	971.58	Flow Area (sq ft)	882.63	24525.28 /
E.G. Slope (ft/ft)	0.000885	Area (sq ft)	882.63	24525.28 /
Q Total (cfs)	164000.00	Flow (cfs)	2635.92	161364.10 /
Top Width (ft)	2567.43	Top Width (ft)	218.90	2348.53 /
Vel Total (ft/s)	6.45	Avg. Vel. (ft/s)	2.99	6.58 /
Max Chl Dpth (ft)	14.93	Hydr. Depth (ft)	4.03	10.44 /
Conv. Total (cfs)	5512272.0	Conv. (cfs)	88597.1	5423675.0 /
Length Wtd. (ft)	489.82	Wetted Per. (ft)	223.36	2355.54 /
Min Ch El (ft)	962.30	Shear (lb/sq ft)	0.22	0.58 /
Alpha	1.03	Stream Power (lb/ft s)	0.65	3.79 /
Frctn Loss (ft)	0.43	Cum Volume (acre-ft)	310.65	13732.55 / 30.85
C & E Loss (ft)	0.01	Cum SA (acres)	53.17	1521.03 / 5.87

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 203.58

INPUT
Description: 203.58

Right Channel Bank Staion Interpolated
Station Elevation Data num= 75

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
15526.8	983.1	15573.8	984.7	15577.9	981.7	15586.4	984.8	15648.9	982.8
15684.7	983.7	15735.5	978.7	15806.7	977.9	15925.6	978.3	15954.8	978.2
16031.7	974.4	16204.9	973.9	16321.4	974.3	16490.9	975.4	16570	975.3
16706.6	974.9	16819.9	975.7	16971.3	975.7	17120	975.1	17136.9	976.6
17168.4	976.1	17202.6	978.2	17251.4	973.9	17388.1	976	17458.2	974.6
17489	971.8	17596.3	976.7	17707.8	975.2	17790.7	972.4	17873.7	975.6
17978	974.3	18064.9	975.2	18204	975.9	18355.4	971.3	18433.8	971.3
18553.6	967.4	18636	970.5	18664.8	967.3	18681	970.8	18724	969.1

DuplicateEffective

18765.5	971	18876.6	970.7	18988.9	970	19101.4	968.2	19228.7	965.4		
19261.3	964.2	19337.3	967.8	19426.3	965.2	19456.9	967.4	19474	963.9		
19482.9	963.9	19725.9	963.6	19842.5	963.6	19929.1	963.8	20222.2	963.5		
20355.7	963.9	20380	963.9	20543.8	963.6	20636	963.9	20645.5	962.1		
20704.9	8977.3	868 20706.2	977.7	20767.4	979.5	20782.3	981.3	20788.1	979.3		
20818.3	979.5	20825.7	982.3	20859.8	981.5	22062.2	983.3	22098	982.2		
23711.2	980	23724.5	982.4	23738.8	982.8	23750.9	979.2	23783	979.2		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
15526.8	.025	17202.6	.037	18204	.037	18681	.032	20782.3	.025

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

1820	420704.98		560	513	495	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
15526.8	17707.8	984.8	F
20782.3	23783	984.8	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 977.14	* Element	* Left OB *	Channel * Right OB *
* Vel Head (ft)	* 0.68	* Wt. n-Val.	* 0.037 *	0.032 *
* W.S. Elev (ft)	* 976.47	* Reach Len. (ft)	* 560.00 *	513.00 * 495.00 *
* Crit W.S. (ft)	* 971.52	* Flow Area (sq ft)	* 859.98 *	24480.33 *
* E.G. Slope (ft/ft)	*0.000945	* Area (sq ft)	* 3274.81 *	24480.33 *
* Q Total (cfs)	*164000.00	* Flow (cfs)	* 1532.00 *	162468.00 *
* Top Width (ft)	* 4630.96	* Top Width (ft)	* 2133.56 *	2497.40 *
* Vel Total (ft/s)	* 6.47	* Avg. Vel. (ft/s)	* 1.78 *	6.64 *
* Max Chl Dpth (ft)	* 14.37	* Hydr. Depth (ft)	* 1.73 *	9.80 *
* Conv. Total (cfs)	*5333542.0	* Conv. (cfs)	* 49822.9 *	5283719.0 *
* Length Wtd. (ft)	* 514.20	* Wetted Per. (ft)	* 496.32 *	2500.83 *
* Min Ch El (ft)	* 962.10	* Shear (lb/sq ft)	* 0.10 *	0.58 *
* Alpha	* 1.04	* Stream Power (lb/ft s)	* 0.18 *	3.83 *
* Frctn Loss (ft)	* 0.56	* Cum Volume (acre-ft)	* 4276.01 *	12942.06 * 945.48 *
* C & E Loss (ft)	* 0.00	* Cum SA (acres)	* 1207.33 *	1491.67 * 509.71 *

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 977.46	* Element	* Left OB *	Channel * Right OB *
* Vel Head (ft)	* 0.65	* Wt. n-Val.	* 0.037 *	0.032 *
* W.S. Elev (ft)	* 976.81	* Reach Len. (ft)	* 560.00 *	513.00 * 495.00 *
* Crit W.S. (ft)	* 971.52	* Flow Area (sq ft)	* 248.33 *	25349.32 *
* E.G. Slope (ft/ft)	*0.000858	* Area (sq ft)	* 248.33 *	25349.32 *
* Q Total (cfs)	*164000.00	* Flow (cfs)	* 360.60 *	163639.40 *
* Top Width (ft)	* 2676.39	* Top Width (ft)	* 179.00 *	2497.39 *
* Vel Total (ft/s)	* 6.41	* Avg. Vel. (ft/s)	* 1.45 *	6.46 *
* Max Chl Dpth (ft)	* 14.71	* Hydr. Depth (ft)	* 1.39 *	10.15 *
* Conv. Total (cfs)	*5599491.0	* Conv. (cfs)	* 12312.0 *	5587179.0 *
* Length Wtd. (ft)	* 513.05	* Wetted Per. (ft)	* 181.03 *	2501.17 *
* Min Ch El (ft)	* 962.10	* Shear (lb/sq ft)	* 0.07 *	0.54 *
* Alpha	* 1.01	* Stream Power (lb/ft s)	* 0.11 *	3.50 *
* Frctn Loss (ft)	* 0.52	* Cum Volume (acre-ft)	* 304.55 *	13452.04 * 30.85 *
* C & E Loss (ft)	* 0.00	* Cum SA (acres)	* 51.02 *	1493.77 * 5.87 *

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 203.48

INPUT
Description: 203.48

Right Channel Bank Staion Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
15578.8	977.1	15693.5	976.9	15717.9	977	15814.4	976.9	15880.9	978.5
15900.7	978.2	15967.5	973.1	16013.9	973.9	16068.7	973.5	16168.1	973.8
16324.7	974	16419.6	974.1	16584.4	974.1	16657.7	974.3	16810.8	974.5
16932.4	974.5	17066.5	974.6	17177.1	974.2	17201.7	974.2	17312.2	975.1
17331.6	976	17341.7	975.7	17369.6	978.2	17434.9	970.7	17473.9	969.3
17535.6	971.3	17609.4	970.9	17714.8	972.8	17721.6	972.8	17841.5	973.7
17932.6	974	18016.7	972.4	18039.3	972.1	18120.3	973.5	18171.8	968
18184	969.1	18267.5	973.4	18353.5	970.9	18380.1	969.8	18439	969.7
18521.1	965.52	18538.6	965.3	18561.3	969.6	18571.7	970	18619.2	968.6
18635.6	969.2	18675.5	973.1	18730.7	972.2	18817.1	970.9	18956	969.1
18991.1	970.6	19035.5	973.7	19082.7	974.1	19116.8	968.9	19177.6	972.2
19217.3	970.5	19332.9	970.5	19399.6	962.9	19491.7	962.7	19584.5	965.1
19624.3	962.2	19645.8	962.3	19669.3	965	19679.4	965.3	19794.5	963.4
19884.7	963.3	19987.2	964.5	20013.9	964.4	20199.2	964	20220.6	964.7
20227.4	967.6	20231.3	963.9	20325.6	963.9	20342.5	963.9	20345.7	965.5
20353.5	967.3	20358.6	964.3	20404	963.2	20433.1	965.2	20458.7	965
20480	963.1	20588.9	964.7	20638.4	966.8	20725.1	968.7	20785.1	971.2
20856.7	6976.9	083 20866.7	977.7	20886.7	979.4	20901.8	978.6	20909.2	979.5
20915.7	978.5	20925.9	979.4	20953.9	979.4	20960.7	978.7	20985.4	978.7
20989.2	980.3	20999	981.2						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
15578.8	.025	17369.6	.037	17932.6	.037	18619.2	.032	20886.7	.025

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

17932.6	20856.76		500	505.82	515	.1	.3

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Ineffective Flow     num=       2
   Sta L    Sta R    Elev  Permanent
 15578.8 17369.6   981.2        F
   20999   20999   981.2        F

CROSS SECTION OUTPUT  Profile #PF#1
*************************************************************************************************
* E.G. Elev (ft)          *  976.58  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.67  * Wt. n-Val.             *   0.037  *   0.032  *          *
* W.S. Elev (ft)          *  975.92  * Reach Len. (ft)        *  500.00  *  505.82  *  515.00  *
* Crit W.S. (ft)          *  972.02  * Flow Area (sq ft)      * 2009.24  *23608.84  *          *
* E.G. Slope (ft/ft)      *0.001248  * Area (sq ft)           * 4384.68  *23608.84  *          *
* Q Total (cfs)           *164000.00  * Flow (cfs)           *  6815.32  *157184.70  *          *
* Top Width (ft)          * 4863.77  * Top Width (ft)        * 1952.06  * 2911.72  *          *
* Vel Total (ft/s)        *    6.40  * Avg. Vel. (ft/s)      *    3.39  *    6.66  *          *
* Max Chl Dpth (ft)       *   13.72  * Hydr. Depth (ft)      *    3.70  *    8.11  *          *
* Conv. Total (cfs)       *4642347.0  * Conv. (cfs)          *  192921.2  *4449426.0  *          *
* Length Wtd. (ft)        *  505.61  * Wetted Per. (ft)      *  543.50  * 2918.40  *          *
* Min Ch El (ft)          *  962.20  * Shear (lb/sq ft)      *    0.29  *    0.63  *          *
* Alpha                   *    1.05  * Stream Power (lb/ft s) *    0.98  *    4.20  *          *
* Frctn Loss (ft)         *    0.65  * Cum Volume (acre-ft)  * 4226.78  *12658.89  *  945.48  *
* C & E Loss (ft)         *    0.00  * Cum SA (acres)        * 1181.07  * 1459.82  *  509.71  *
*************************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*************************************************************************************************
* E.G. Elev (ft)          *  976.94  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.69  * Wt. n-Val.             *          *   0.033  *          *
* W.S. Elev (ft)          *  976.25  * Reach Len. (ft)        *  500.00  *  505.82  *  515.00  *
* Crit W.S. (ft)          *  971.97  * Flow Area (sq ft)      *          *24567.80  *          *
* E.G. Slope (ft/ft)      *0.001196  * Area (sq ft)           *          *24567.80  *          *
* Q Total (cfs)           *164000.00  * Flow (cfs)           *          *164000.00  *          *
* Top Width (ft)          * 2911.71  * Top Width (ft)        *          * 2911.71  *          *
* Vel Total (ft/s)        *    6.68  * Avg. Vel. (ft/s)      *          *    6.68  *          *
* Max Chl Dpth (ft)       *   14.05  * Hydr. Depth (ft)      *          *    8.44  *          *
* Conv. Total (cfs)       *4742364.0  * Conv. (cfs)          *          *4742364.0  *          *
* Length Wtd. (ft)        *  505.82  * Wetted Per. (ft)      *          * 2920.97  *          *
* Min Ch El (ft)          *  962.20  * Shear (lb/sq ft)      *          *    0.63  *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s) *          *    4.19  *          *
* Frctn Loss (ft)         *    0.62  * Cum Volume (acre-ft)  *  302.96  *13158.11  *   30.85  *
* C & E Loss (ft)         *    0.00  * Cum SA (acres)        *   49.87  * 1461.92  *    5.87  *
*************************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 203.39

INPUT
Description: 203.39
Station Elevation Data    num=      96
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
*************************************************************************************
   15500   974.4 15548.5   978.1 15604.9   974.8 15609.8   975.3 15717.3   976.3
 15722.2   976.3 15836.5   975.1 15864.7   976.6 15875.6     973 15888.1   975.4
 15914.3   976.1 16076.8   976.1 16271.9   976.2 16290.8   976.1 16376.9   976.2
 16390.2   976.2 16520.6     976 16549.4   977.1 16694.9   973.2 16751.5   970.2
 16832.2   968.6   16901   973.2 17053.7   971.4 17105.6   971.5   17120   974.9
 17136.1   970.9 17147.5   974.3   17212   975.5 17260.9   972.8 17296.2   974.2
   17353   971.2 17382.3   974.9 17417.1   974.8 17453.9   976.4 17519.2   968.1
 17602.4   973.1 17694.4   971.8 17733.8   970.7 17815.5     973 17901.2   972.3
 17947.7   972.1 17970.8     973   18042   972.8   18114   969.5 18199.7   969.1
 18207.5   968.6 18224.3   964.4 18259.9   963.8 18330.5   967.6 18418.7   967.4
 18507.8   969.8 18601.7   972.8 18629.1   974.7 18686.7   980.9   18738   974.3
 18773.9   975.9 18902.4     975 19023.2   970.3 19056.6   971.7 19105.2   965.4
 19218.1   968.3 19268.2     972 19346.8   971.4 19370.8   969.4 19397.9   965.7
 19418.4   960.4 19479.4   959.9 19491.4     962   19633   960.6 19736.1     965
 19770.9   965.7 19800.9   963.8 19816.1   965.5 19916.4     965 20010.4   963.8
 20159.5   964.6 20260.9   963.8 20303.7   964.2 20330.3   963.1   20346   964.4
 20389.8   962.9 20483.7   964.2 20485.1   964.9 20576.8   964.7 20682.1   965.3
 20789.2   969.4 20834.2   971.9 20922.2   969.5 20993.5   968.3 21038.8   975.6
 21082.9   975.6 21098.5   976.5 21138.2   977.4 21143.6   978.2 21153.1   976.5
   21223   978.3

Manning's n Values        num=       5
     Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val
*************************************************************************************
   15500    .025 16832.2    .037 17970.8    .037 18601.7    .032 21038.8    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.    Expan.
       17970.8 21038.8             500     505     500             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
   15500 17519.2   980.9        F
 21223.3   21223   980.9        F

CROSS SECTION OUTPUT  Profile #PF#1
*************************************************************************************************
* E.G. Elev (ft)          *  975.93  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.70  * Wt. n-Val.             *   0.037  *   0.033  *          *
* W.S. Elev (ft)          *  975.23  * Reach Len. (ft)        *  500.00  *  505.00  *  500.00  *
* Crit W.S. (ft)          *  971.15  * Flow Area (sq ft)      * 1495.78  *23366.65  *          *
* E.G. Slope (ft/ft)      *0.001331  * Area (sq ft)           * 3866.15  *23366.65  *          *
* Q Total (cfs)           *164000.00  * Flow (cfs)           *  4867.25  *159132.80  *          *
* Top Width (ft)          * 4207.76  * Top Width (ft)        * 1350.37  * 2857.40  *          *
* Vel Total (ft/s)        *    6.60  * Avg. Vel. (ft/s)      *    3.25  *    6.81  *          *
* Max Chl Dpth (ft)       *   15.33  * Hydr. Depth (ft)      *    3.31  *    8.18  *          *
* Conv. Total (cfs)       *4495896.0  * Conv. (cfs)          *  133430.7  *4362466.0  *          *
```

```
                                                                  DuplicateEffective
* Length Wtd. (ft)       *  504.81  * Wetted Per. (ft)        *  451.83  * 2861.57  *          *
* Min Ch El (ft)         *  959.90  * Shear (lb/sq ft)        *    0.28  *    0.68  *          *
* Alpha                  *    1.04  * Stream Power (lb/ft s) *    0.89  *    4.62  *          *
* Frctn Loss (ft)        *    0.73  * Cum Volume (acre-ft)   * 4179.42  *12386.15  *  945.48  *
* C & E Loss (ft)        *    0.00  * Cum SA (acres)         * 1162.11  * 1426.33  *  509.71  *
*****************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*****************************************************************************************
* E.G. Elev (ft)         *  976.32  * Element              *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.69  * Wt. n-Val.           *          *    0.033  *          *
* W.S. Elev (ft)         *  975.62  * Reach Len. (ft)      *  500.00  *  505.00  *  500.00  *
* Crit W.S. (ft)         *  971.10  * Flow Area (sq ft)    *          *24520.14  *          *
* E.G. Slope (ft/ft)     *0.001254  * Area (sq ft)         *          *24520.14  *          *
* Q Total (cfs)          *164000.00  * Flow (cfs)          *          *164000.00  *          *
* Top Width (ft)         * 2930.05  * Top Width (ft)      *          * 2930.05  *          *
* Vel Total (ft/s)       *    6.69  * Avg. Vel. (ft/s)    *          *    6.69  *          *
* Max Chl Dpth (ft)      *   15.72  * Hydr. Depth (ft)    *          *    8.37  *          *
* Conv. Total (cfs)      *4631119.0  * Conv. (cfs)        *          *4631119.0  *          *
* Length Wtd. (ft)       *  505.00  * Wetted Per. (ft)    *          * 2937.30  *          *
* Min Ch El (ft)         *  959.90  * Shear (lb/sq ft)    *          *    0.65  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    4.37  *          *
* Frctn Loss (ft)        *    0.69  * Cum Volume (acre-ft)   *  302.96  *12873.10  *   30.85  *
* C & E Loss (ft)        *    0.01  * Cum SA (acres)         *   49.87  * 1428.00  *    5.87  *
*****************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                RS: 203.29

INPUT
Description: 203.29

Right Channel Bank Staion Interpolated
Station Elevation Data    num=      97
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
 14306.7   975.2 14398.4   975.7 14462.6   975.2   14487   977.9 14491.6   976.6
 14498.9   977.7 14515.3   976.7   14528     974 14553.9   972.7 14670.7   972.7
 14687.5   972.7 14856.4   972.7 14867.5   972.7 15002.5   972.7 15006.1   972.7
 15100.1   972.9 15122.5   975.2 15172.8   972.4 15364.8   972.7 15484.5     974
 15649.2   973.6 15701.1   973.4   15710   975.9 15724.5   974.3 15776.8   976.4
 15815.8     974 15918.9   974.9 15999.4   974.9 16112.9   975.4 16114.8   975.5
 16293.6   975.5   16301   975.5 16411.1     976 16465.5     976 16664.1     976
 16733.3   975.8 16808.3   976.1 16968.8   976.1 17062.2   976.1   17153   976.2
 17251.7   975.1 17286.9   974.6 17327.4   969.3 17410.1   970.5 17467.7   974.5
 17469.8   973.6   17539   974.4   17590   968.4 17649.5   971.4 17775.2   971.1
 17888.5   970.4 17987.9   968.4 18065.6   972.5 18117.7   969.6 18146.3   971.6
 18204.1   968.8 18247.3   971.6 18266.5   967.8 18378.2   963.9   18464   968.2
 18535.2   966.5 18593.9   967.2 18627.7   974.8 18719.2   971.5 18838.7   974.7
   18920   973.9 18947.9   969.3 19046.6   972.7 19166.7   971.8   19269   971.6
 19295.1   965.4 19325.9   960.7 19447.7   960.9 19552.4   961.6 19655.6   961.1
 19756.7   962.1 19849.6   963.4 19945.3     963   20028   965.9 20124.9   965.7
   20226   965.2 20297.8   963.6 20378.8   964.4 20396.1   961.9 20494.8   962.8
   20586   966.7 20676.2   969.1 20796.8     969 20894.8   969.2 20935.1   968.4
 20981.6   969.2 21027.6   966.621082.58975.7482 21088.3   976.7   21155   977.1
 21257.1   975.6   21295   976.3

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*****************************************************************************
 14306.7    .025 16968.8    .037 18065.6    .037 18535.2    .032 21088.3    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.    Expan.
       18065.621082.58              620     535     420             .1       .3
Ineffective Flow     num=       2
   Sta L    Sta R    Elev  Permanent
 14306.7   17590   977.9       F
 21088.3   21295   977.9       F

CROSS SECTION OUTPUT  Profile #PF#1
*****************************************************************************************
* E.G. Elev (ft)         *  975.20  * Element              *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.73  * Wt. n-Val.           *   0.037  *   0.033  *          *
* W.S. Elev (ft)         *  974.46  * Reach Len. (ft)      *  620.00  *  535.00  *  420.00  *
* Crit W.S. (ft)         *  970.77  * Flow Area (sq ft)    * 1911.74  *22390.42  *          *
* E.G. Slope (ft/ft)     *0.001572  * Area (sq ft)         * 4404.29  *22390.42  *          *
* Q Total (cfs)          *164000.00  * Flow (cfs)          * 7692.92  *156307.10  *          *
* Top Width (ft)         * 4967.77  * Top Width (ft)      * 2002.07  * 2965.71  *          *
* Vel Total (ft/s)       *    6.75  * Avg. Vel. (ft/s)    *    4.02  *    6.98  *          *
* Max Chl Dpth (ft)      *   13.76  * Hydr. Depth (ft)    *    4.02  *    7.55  *          *
* Conv. Total (cfs)      *4136567.0  * Conv. (cfs)        *194038.3  *3942529.0  *          *
* Length Wtd. (ft)       *  540.60  * Wetted Per. (ft)    *  475.81  * 2970.14  *          *
* Min Ch El (ft)         *  960.70  * Shear (lb/sq ft)    *    0.39  *    0.74  *          *
* Alpha                  *    1.04  * Stream Power (lb/ft s) *    1.59  *    5.16  *          *
* Frctn Loss (ft)        *    0.91  * Cum Volume (acre-ft)   * 4131.96  *12120.92  *  945.48  *
* C & E Loss (ft)        *    0.01  * Cum SA (acres)         * 1142.87  * 1392.57  *  509.71  *
*****************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*****************************************************************************************
```

				DuplicateEffective		
E.G. Elev (ft)	975.63	Element	Left OB	Channel	Right OB	
Vel Head (ft)	0.75	Wt. n-Val.		0.033		
W.S. Elev (ft)	974.88	Reach Len. (ft)	620.00	535.00	420.00	
Crit W.S. (ft)	970.71	Flow Area (sq ft)		23633.34		
E.G. Slope (ft/ft)	0.001478	Area (sq ft)		23633.34		
Q Total (cfs)	164000.00	Flow (cfs)		164000.00		
Top Width (ft)	3009.26	Top Width (ft)		3009.26		
Vel Total (ft/s)	6.94	Avg. Vel. (ft/s)		6.94		
Max Chl Dpth (ft)	14.18	Hydr. Depth (ft)		7.85		
Conv. Total (cfs)	4265774.0	Conv. (cfs)		4265774.0		
Length Wtd. (ft)	535.03	Wetted Per. (ft)		3016.54		
Min Ch El (ft)	960.70	Shear (lb/sq ft)		0.72		
Alpha	1.00	Stream Power (lb/ft s)		5.02		
Frctn Loss (ft)	0.88	Cum Volume (acre-ft)	302.96	12593.97	30.85	
C & E Loss (ft)	0.00	Cum SA (acres)	49.87	1393.58	5.87	

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 203.19

INPUT
Description: 203.19

Right Channel Bank Staion Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16639.2	974.6	16696.5	974.6	16879.5	976.3	16960.6	976.7	16982.2	976.1
16987.1	975.2	16999.5	976.6	17045.2	975.2	17145.4	975	17180.8	974.8
17306.9	974	17389.7	974.5	17513.2	972.9	17539	972.7	17596.6	969.7
17650.2	971	17690.3	968.3	17762.5	967.5	17781.9	968.4	17812.7	966.2
17893.5	967.8	17945.6	971.7	18023.5	971.3	18058.7	964.6	18099.2	971.6
18139.8	972.1	18185.8	967.2	18251.5	970.8	18282.1	971.9	18338.2	971.3
18384.4	969	18406.2	969.7	18445.9	965.2	18495.1	966.4	18521	969
18558.4	964.7	18605.8	963.2	18623.9	961.2	18659	961.4	18701.5	965.4
18712.2	964.5	18734.5	964.5	18797.4	970	18848.7	968.9	18911.7	969.9
18983.1	969.7	19009.9	968.7	19025	967.1	19031	968.2	19080.8	968.8
19095.4	970.3	19159	970.9	19191.3	967.9	19256	967.2	19294.3	960.1
19346.5	959	19442.2	956.7	19471.8	962.7	19542.3	963	19643.7	963.4
19644.6	963.4	19721.9	962.3	19788.7	962.7	19870	964.6	19925.6	962.6
19971.9	966.8	20041.3	966	20111.2	965.3	20142.5	963.8	20233.9	963.3
20336.2	963.2	20384.6	963.4	20398.2	962.6	20462.1	962.2	20541.1	965.2
20570.6	966.9	20635.2	967.1	20669.2	965.5	20696.2	966.5	20752.9	964.7
20795.4	967.4	20825.2	966.9	20848.9	967.5	20865.3	966.7	20898.7	966.8
20928.5	970.1	20952.6	973.8	20965.3	9974.9	827 20981.8	976.5	20999	975.6
21013	977.9	21075.8	975.9	21096.9	975.8	21174.9	976.1	21273.9	975.8
21344.5	975.8	21380	975.6						

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16639.2	.025	17762.5	.043	18282.1	.043	18734.5	.037	20981.8	.025
21013	.025								

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
18282.1	20965.39	535	520	485	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
16639.2	17587	978	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	974.28	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.69	Wt. n-Val.	0.036	0.038	
W.S. Elev (ft)	973.59	Reach Len. (ft)	535.00	520.00	485.00
Crit W.S. (ft)	970.04	Flow Area (sq ft)	3019.47	22027.15	
E.G. Slope (ft/ft)	0.001787	Area (sq ft)	3161.07	22027.15	
Q Total (cfs)	164000.00	Flow (cfs)	13926.43	150073.60	
Top Width (ft)	3491.38	Top Width (ft)	822.24	2669.14	
Vel Total (ft/s)	6.55	Avg. Vel. (ft/s)	4.61	6.81	
Max Chl Dpth (ft)	16.89	Hydr. Depth (ft)	4.34	8.25	
Conv. Total (cfs)	3879641.0	Conv. (cfs)	329448.5	3550193.0	
Length Wtd. (ft)	521.19	Wetted Per. (ft)	697.10	2673.29	
Min Ch El (ft)	956.70	Shear (lb/sq ft)	0.48	0.92	
Alpha	1.03	Stream Power (lb/ft s)	2.23	6.26	
Frctn Loss (ft)	1.01	Cum Volume (acre-ft)	4078.12	11848.15	945.48
C & E Loss (ft)	0.01	Cum SA (acres)	1122.77	1357.97	509.71

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	974.74	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.79	Wt. n-Val.	0.043	0.038	
W.S. Elev (ft)	973.95	Reach Len. (ft)	535.00	520.00	485.00
Crit W.S. (ft)	970.04	Flow Area (sq ft)	48.25	22993.21	
E.G. Slope (ft/ft)	0.001849	Area (sq ft)	48.25	22993.21	
Q Total (cfs)	164000.00	Flow (cfs)	118.21	163881.80	
Top Width (ft)	2689.14	Top Width (ft)	20.00	2669.14	
Vel Total (ft/s)	7.12	Avg. Vel. (ft/s)	2.45	7.13	
Max Chl Dpth (ft)	17.25	Hydr. Depth (ft)	2.41	8.61	
Conv. Total (cfs)	3814345.0	Conv. (cfs)	2749.4	3811596.0	
Length Wtd. (ft)	520.03	Wetted Per. (ft)	22.78	2673.65	
Min Ch El (ft)	956.70	Shear (lb/sq ft)	0.24	0.99	
Alpha	1.00	Stream Power (lb/ft s)	0.60	7.07	
Frctn Loss (ft)	1.04	Cum Volume (acre-ft)	302.61	12307.64	30.85

DuplicateEffective

* C & E Loss (ft)	* 0.02	* Cum SA (acres)	* 49.73	* 1358.71	* 5.87	*

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 203.09

INPUT
Description: 203.09

Right Channel Bank Staion Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16077.3	972.6	16108.8	973.2	16114.5	973.9	16141.2	974.9	16147	976.1
16177.1	975.5	16186.3	974.5	16217.9	974.3	16296.3	973.5	16396.3	973.6
16495.1	973.6	16619.4	973.4	16649.6	973.4	16802.2	973.6	16847.8	974.3
16927.3	974.4	16967.8	974.4	17063.1	975.3	17138.5	975.2	17150.2	974.9
17158.9	972.7	17171.5	974	17175.5	975.3	17183.4	974.2	17268	973.7
17382	973.8	17583.9	974.5	17588.1	974.4	17656.3	973	17724.5	971.9
17787.2	966	17835	968.2	17878.2	968.6	17889.9	967.6	17960.8	969
18034.5	970.7	18151.5	966.1	18178.5	966.8	18202.2	966.1	18277.6	970
18313.5	969.4	18321.1	969.7	18364.1	965.2	18437	969.5	18507	971.4
18541.2	970.5	18605.3	962.2	18681.6	963	18770.4	960.8	18814.5	971
18875.7	969	18992.4	969.2	19035.2	968.4	19104.8	968.6	19136.4	968
19190.2	961.9	19211.5	961.8	19247.1	964	19266.9	960.3	19282.4	958.7
19461.8	959.9	19573.5	959.6	19585.9	960.2	19653.1	960.1	19682.3	962.4
19752.6	963.1	19757	963.1	19865.5	961.3	19934.1	962.2	20005.1	964.6
20113.7	965.7	20184.3	965.7	20264.8	966	20287.7	966.2	20364.7	966.6
20397.2	966.4	20469.2	966.1	20498.9	964.4	20517.6	961.6	20546.5	960.5
20610.5	960.6	20636.9	964.4	20681.6	965.4	20709.6	964.4	20742.1	962.1
20765.3	962.2	20780	963.2	20812.8	959.6	20837.9	961.3	20914.8	2973.8
20917.3	974.3	20926.9	975.4	20942.8	974.2	20972.4	973.4	21023.3	975.3
21111.6	973.6	21171	974.1						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16077.3	.025	17588.1	.043	18507	.043	18814.5	.037	20917.3	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
18507	20914.82	520	518	500 .1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
16077.3	17583.9	976.1	F
20917.3	21171	976.1	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 973.25	* Element	* Left OB	* Channel	* Right OB	*
* Vel Head (ft)	* 0.83	* Wt. n-Val.	* 0.043	* 0.038	*	*
* W.S. Elev (ft)	* 972.42	* Reach Len. (ft)	* 520.00	* 518.00	* 500.00	*
* Crit W.S. (ft)	* 969.19	* Flow Area (sq ft)	* 3133.13	*20204.47	*	*
* E.G. Slope (ft/ft)	*0.002112	* Area (sq ft)	* 3133.13	*20204.47	*	*
* Q Total (cfs)	*164000.00	* Flow (cfs)	*12200.67	*151799.30	*	*
* Top Width (ft)	* 3213.89	* Top Width (ft)	* 815.04	* 2398.85	*	*
* Vel Total (ft/s)	* 7.03	* Avg. Vel. (ft/s)	* 3.89	* 7.51	*	*
* Max Chl Dpth (ft)	* 13.72	* Hydr. Depth (ft)	* 3.84	* 8.42	*	*
* Conv. Total (cfs)	*3568365.0	* Conv. (cfs)	*265466.2	*3302899.0	*	*
* Length Wtd. (ft)	* 518.12	* Wetted Per. (ft)	* 816.06	* 2403.51	*	*
* Min Ch El (ft)	* 958.70	* Shear (lb/sq ft)	* 0.51	* 1.11	*	*
* Alpha	* 1.08	* Stream Power (lb/ft s)	* 1.97	* 8.33	*	*
* Frctn Loss (ft)	* 0.99	* Cum Volume (acre-ft)	* 4039.47	*11596.08	* 945.48	*
* C & E Loss (ft)	* 0.02	* Cum SA (acres)	* 1112.72	* 1327.72	* 509.71	*

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 973.69	* Element	* Left OB	* Channel	* Right OB	*
* Vel Head (ft)	* 0.94	* Wt. n-Val.	* 0.043	* 0.038	*	*
* W.S. Elev (ft)	* 972.75	* Reach Len. (ft)	* 520.00	* 518.00	* 500.00	*
* Crit W.S. (ft)	* 968.97	* Flow Area (sq ft)	* 185.01	*20978.55	*	*
* E.G. Slope (ft/ft)	*0.002162	* Area (sq ft)	* 185.01	*20978.55	*	*
* Q Total (cfs)	*164000.00	* Flow (cfs)	* 516.86	*163483.10	*	*
* Top Width (ft)	* 2475.85	* Top Width (ft)	* 77.00	* 2398.85	*	*
* Vel Total (ft/s)	* 7.75	* Avg. Vel. (ft/s)	* 2.79	* 7.79	*	*
* Max Chl Dpth (ft)	* 14.05	* Hydr. Depth (ft)	* 2.40	* 8.75	*	*
* Conv. Total (cfs)	*3526911.0	* Conv. (cfs)	* 11115.5	*3515796.0	*	*
* Length Wtd. (ft)	* 518.00	* Wetted Per. (ft)	* 80.70	* 2403.84	*	*
* Min Ch El (ft)	* 958.70	* Shear (lb/sq ft)	* 0.31	* 1.18	*	*
* Alpha	* 1.01	* Stream Power (lb/ft s)	* 0.86	* 9.18	*	*
* Frctn Loss (ft)	* 0.98	* Cum Volume (acre-ft)	* 301.18	*12045.18	* 30.85	*
* C & E Loss (ft)	* 0.04	* Cum SA (acres)	* 49.13	* 1328.46	* 5.87	*

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1

REACH: 1 RS: 202.99

INPUT
Description: 202.99
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17058.5	973.2	17114.3	973.5	17267.7	973.8	17289	973.9	17305.6	974.4
17316.7	973.3	17329.5	974.7	17397.2	973.4	17508.3	973.5	17530.6	972.5
17571.7	973.2	17646.3	973.1	17659.9	972.5	17696.1	969.8	17713.5	970
17723.9	969.1	17781.1	967.5	17850.9	965.7	17864.6	967.2	17879.9	968
17893	968.2	17922	965.3	17941	964	17984.7	968.4	18035.6	970
18091.7	969.9	18126.6	969.7	18186.5	969.9	18238.3	970	18288.7	964.3
18293.1	963.9	18346.5	968.2	18360.3	967.9	18420.8	969.3	18469.4	969.3
18497.6	968.2	18580.4	968.7	18586.2	968.9	18608.3	967.1	18619.4	964.4
18650.8	965	18666.5	962.2	18686.7	961.6	18748.1	962.5	18789.2	962.8
18875	962.8	18906.3	963.4	18945.7	961.5	18988.8	963.5	19005.4	963.6
19058	964.4	19119.4	964.2	19128.8	964.3	19182	965.3	19208.5	964.3
19269.4	961.7	19318.8	960.3	19334.7	959.8	19391.3	959.8	19415.3	959.6
19435.9	960	19527.6	959.5	19609.2	959.5	19725.7	959.2	19759.9	960.9
19828.4	961.4	19945.2	960.7	19948	960.7	20028.5	959.3	20090	960.7
20131.7	963.1	20172.8	964.1	20227.9	965.4	20241.1	965.3	20304	965
20364.7	965.9	20422.1	964.9	20460.6	964.9	20528.6	963.3	20552.5	959.7
20558.2	959.8	20619.9	962.6	20665.6	962	20682.4	960.6	20692.5	959.3
20713.5	960.1	20748.9	960	20773.8	959.3	20789	960.3	20808	960.6
20818.5	963.8	20841.7	963.9	20894.5	963.1	20926.9	970.2	20960.7	976.4
20976	975.9								

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
17058.5	.025	17646.3	.043	18469.4	.043	19058	.037	20926.9	.043

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
18469.4	20926.9	480	456	424	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
17058.5	17646.3	976	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	972.24	Element	Left OB	Channel / Right OB
Vel Head (ft)	0.75	Wt. n-Val.	0.043	0.038 / 0.043
W.S. Elev (ft)	971.50	Reach Len. (ft)	480.00	456.00 / 424.00
Crit W.S. (ft)	967.56	Flow Area (sq ft)	2580.34	22030.56 / 4.58
E.G. Slope (ft/ft)	0.001726	Area (sq ft)	2580.34	22030.56 / 4.58
Q Total (cfs)	164000.00	Flow (cfs)	8104.63	155890.50 / 4.86
Top Width (ft)	3260.60	Top Width (ft)	796.04	2457.50 / 7.06
Vel Total (ft/s)	6.66	Avg. Vel. (ft/s)	3.14	7.08 / 1.06
Max Chl Dpth (ft)	12.30	Hydr. Depth (ft)	3.24	8.96 / 0.65
Conv. Total (cfs)	3947903.0	Conv. (cfs)	195099.2	3752686.0 / 117.1
Length Wtd. (ft)	457.42	Wetted Per. (ft)	797.26	2460.41 / 7.18
Min Ch El (ft)	959.20	Shear (lb/sq ft)	0.35	6.83 / 0.07
Alpha	1.08	Stream Power (lb/ft s)	1.10	6.83 / 0.07
Frctn Loss (ft)	0.68	Cum Volume (acre-ft)	4005.36	11344.96 / 945.46
C & E Loss (ft)	0.04	Cum SA (acres)	1103.10	1298.84 / 509.67

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	972.66	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.79	Wt. n-Val.		0.038	
W.S. Elev (ft)	971.87	Reach Len. (ft)	480.00	456.00	424.00
Crit W.S. (ft)	967.53	Flow Area (sq ft)		22949.27	
E.G. Slope (ft/ft)	0.001673	Area (sq ft)		22949.27	
Q Total (cfs)	164000.00	Flow (cfs)		164000.00	
Top Width (ft)	2457.50	Top Width (ft)		2457.50	
Vel Total (ft/s)	7.15	Avg. Vel. (ft/s)		7.15	
Max Chl Dpth (ft)	12.67	Hydr. Depth (ft)		9.34	
Conv. Total (cfs)	4009597.0	Conv. (cfs)		4009597.0	
Length Wtd. (ft)	456.00	Wetted Per. (ft)		2464.65	
Min Ch El (ft)	959.20	Shear (lb/sq ft)		0.97	
Alpha	1.00	Stream Power (lb/ft s)		6.95	
Frctn Loss (ft)	0.67	Cum Volume (acre-ft)	300.08	11784.00	30.85
C & E Loss (ft)	0.04	Cum SA (acres)	48.67	1299.58	5.87

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 202.9

INPUT
Description: 202.9

Right Channel Bank Staion Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16149.3	972.1	16219	972.6	16381.4	973.3	16446.1	973.3	16495.7	974.5
16526.4	971.9	16579.2	972.6	16597.9	974.5	16618	973.6	16631.4	972.3
16699.5	972.9	16755	974.1	16804	971.3	16823.8	973.1	16887.1	972.5
16957.5	972.2	16968.8	972.6	17046.9	971.4	17089.7	971.9	17151.8	972
17172.3	972.1	17235.7	971.8	17304.6	971.3	17369.1	970.9	17440.5	971.3
17504.7	971	17572.9	970.6	17644	970	17676.2	972.2	17699.3	970.6
17772.5	968.5	17815	965.7	17875.4	965.2	17896.7	963.8	17966.8	965.8
18000.2	967.5	18046.2	967	18087.7	964.4	18148.3	968.4	18203.5	967.3
18258.7	965	18308.6	967.1	18383	966.5	18433.6	966.6	18455.6	968.2
18517.5	967.7	18563	962.4	18611.6	961.8	18646	958.2	18714	961.6

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                                                                  DuplicateEffective
 18808.1   961.6 18872.7   961.1   18917   963.4 18971.7   963.8 19054.2   965.2
 19121.2   965.8 19211.2   964.4 19215.4     966 19303.3   961.5 19368.9   960.3
 19378.2   959.7 19431.8   961.6 19460.5   960.1 19592.2   957.9 19666.6   958.3
 19722.9   960.9 19833.6     959 19903.1   959.5 19944.9     961 20063.7   959.6
 20145.5   959.8 20206.7   960.4 20250.7   959.4 20318.7   958.5 20412.7   962.7
 20460.7   961.4 20488.5   963.8 20502.9     964   20545   960.1   20596   959.7
 20624.3   960.6 20694.4     959 20754.9   958.5 20806.5   956.5 20831.6   957.9
 20858.2   961.1 20861.7   962.3 20936.5   969.5 20988.5   971.9 20993.5   972.3
   21011   973.7 21025.1   975.7 21027.9   980.1 21042.4     977 21052.5   978.4
 21066.1   978.5   21080   974.2

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************************************************
 16149.3    .025   17815    .043 18455.6    .043 18872.7    .037   21011    .043

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       18455.6 20993.5             575     538     460             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
 16149.3   17500   980.1       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         *  971.52  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.60  * Wt. n-Val.            *   0.041  *   0.038  *          *
* W.S. Elev (ft)         *  970.92  * Reach Len. (ft)       *  575.00  *  538.00  *  460.00  *
* Crit W.S. (ft)         *  966.33  * Flow Area (sq ft)     * 3303.01  *23985.46  *          *
* E.G. Slope (ft/ft)     *0.001285  * Area (sq ft)          * 3303.09  *23985.46  *          *
* Q Total (cfs)          *164000.00  * Flow (cfs)          *11302.34  *152697.70  *          *
* Top Width (ft)         * 3419.52  * Top Width (ft)       *  907.81  * 2511.71  *          *
* Vel Total (ft/s)       *    6.01  * Avg. Vel. (ft/s)     *    3.42  *    6.37  *          *
* Max Chl Dpth (ft)      *   14.42  * Hydr. Depth (ft)     *    3.67  *    9.55  *          *
* Conv. Total (cfs)      *4574160.0  * Conv. (cfs)         *315236.0  *4258924.0  *          *
* Length Wtd. (ft)       *  540.74  * Wetted Per. (ft)     *  901.08  * 2514.33  *          *
* Min Ch El (ft)         *  956.50  * Shear (lb/sq ft)     *    0.29  *    0.77  *          *
* Alpha                  *    1.07  * Stream Power (lb/ft s) *  1.01  *    4.87  *          *
* Frctn Loss (ft)        *    0.66  * Cum Volume (acre-ft)  * 3972.95  *11104.10  *  945.44  *
* C & E Loss (ft)        *    0.02  * Cum SA (acres)        * 1093.71  * 1272.83  *  509.63  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)         *  971.95  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.67  * Wt. n-Val.            *          *   0.038  *          *
* W.S. Elev (ft)         *  971.28  * Reach Len. (ft)       *  575.00  *  538.00  *  460.00  *
* Crit W.S. (ft)         *  966.26  * Flow Area (sq ft)     *          *24881.66  *          *
* E.G. Slope (ft/ft)     *0.001315  * Area (sq ft)          *          *24881.66  *          *
* Q Total (cfs)          *164000.00  * Flow (cfs)          *          *164000.00  *          *
* Top Width (ft)         * 2511.71  * Top Width (ft)       *          * 2511.71  *          *
* Vel Total (ft/s)       *    6.59  * Avg. Vel. (ft/s)     *          *    6.59  *          *
* Max Chl Dpth (ft)      *   14.78  * Hydr. Depth (ft)     *          *    9.91  *          *
* Conv. Total (cfs)      *4523109.0  * Conv. (cfs)         *          *4523109.0  *          *
* Length Wtd. (ft)       *  538.00  * Wetted Per. (ft)     *          * 2517.77  *          *
* Min Ch El (ft)         *  956.50  * Shear (lb/sq ft)     *          *    0.81  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *         *    5.35  *          *
* Frctn Loss (ft)        *    0.68  * Cum Volume (acre-ft)  *  300.08  *11533.64  *   30.85  *
* C & E Loss (ft)        *    0.02  * Cum SA (acres)        *   48.67  * 1273.57  *    5.87  *
*********************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 202.8

INPUT
Description: 202.8

Right Channel Bank Staion Interpolated
Station Elevation Data    num=      97
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
*********************************************************************************
 16524.8   970.3 16556.4   971.5 16586.6   971.3 16591.4   972.2 16622.9   972.3
 16660.4   974.1 16671.5   973.8 16699.8   970.7   16750   971.8 16768.2   970.7
   16810   971.7 16908.3   970.6 16968.5   970.2 16997.3   973.4 17058.9   971.8
   17081   970.9 17148.9     971 17188.6   970.2 17279.5   971.1 17348.6     971
   17423   970.4 17488.6   969.6 17496.3   969.7 17556.3   970.2 17607.5   969.3
 17662.7   971.7 17678.2   969.4 17755.1   968.2 17771.4   968.3 17836.1   965.5
 17897.9   964.9 17974.2   962.8 18017.4   962.7 18037.3   963.4 18039.7     964
 18135.1   964.3 18137.8   964.2   18205   963.3 18273.4   965.1 18313.6   965.5
 18348.1   967.5 18390.8   968.8 18406.9   966.2 18434.5   959.9   18478   958.9
 18492.5   956.4 18526.7   958.4   18618   960.3 18696.7   962.9 18716.3   963.1
 18761.6   962.1 18858.8   963.6 18897.8   963.7 18966.5   960.9 18996.3   959.9
 19072.2   959.5   19083   959.6 19151.4   960.5 19243.7   960.1 19333.5   960.5
 19396.1   960.6 19435.5   960.4 19525.6   959.5 19621.8   960.4 19685.6   961.9
 19750.9   962.5 19813.5   963.5 19828.2   963.6 19893.3   963.5 19985.3   961.5
 20027.7     961 20127.3   961.5 20220.9     962 20261.5   962.8 20325.2   962.5
 20339.8   963.1 20397.5   960.8   20461   959.3 20525.1   958.4 20576.6   957.1
 20634.6   957.7 20682.6   958.4 20759.8   957.1 20823.5   956.8 20855.2   957.6
 20859.5   958.4   20873   957.9 20906.1   958.3 20955.4   956.8 20983.8   959.2
 20987.6   962.6 21013.7     97121014.96971.6307 21019.3   973.8 21057.4   987.6
 21082.8     986   21093   986.3

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************************************************
 16524.8    .025 17771.4    .043 18390.8    .043 19243.7    .037 21019.3    .043
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                                                                  DuplicateEffective
Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.    Expan.
       18390.821014.96               600   555.5     450             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
 16524.8 17279.5   987.6       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         *  970.84  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.52  * Wt. n-Val.            *   0.042  *   0.039  *          *
* W.S. Elev (ft)         *  970.32  * Reach Len. (ft)       *  600.00  *  555.50  *  450.00  *
* Crit W.S. (ft)         *  965.61  * Flow Area (sq ft)     * 3650.87  *25399.50  *          *
* E.G. Slope (ft/ft)     *0.001157  * Area (sq ft)          * 3652.99  *25399.50  *          *
* Q Total (cfs)          *164000.00  * Flow (cfs)          *13003.14  *150996.90  *          *
* Top Width (ft)         * 3577.40  * Top Width (ft)       *  956.63  * 2620.78  *          *
* Vel Total (ft/s)       *    5.65  * Avg. Vel. (ft/s)     *    3.56  *    5.94  *          *
* Max Chl Dpth (ft)      *   13.92  * Hydr. Depth (ft)     *    3.97  *    9.69  *          *
* Conv. Total (cfs)      *4820928.0  * Conv. (cfs)         *382239.1  *4438689.0  *          *
* Length Wtd. (ft)       *  558.84  * Wetted Per. (ft)     *  920.28  * 2625.07  *          *
* Min Ch El (ft)         *  956.40  * Shear (lb/sq ft)     *    0.29  *    0.70  *          *
* Alpha                  *    1.05  * Stream Power (lb/ft s) *  1.02  *    4.16  *          *
* Frctn Loss (ft)        *    0.71  * Cum Volume (acre-ft)  * 3927.04  *10799.13  *  945.44  *
* C & E Loss (ft)        *    0.01  * Cum SA (acres)        * 1081.41  * 1241.14  *  509.63  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)         *  971.25  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.61  * Wt. n-Val.            *          *   0.039  *          *
* W.S. Elev (ft)         *  970.64  * Reach Len. (ft)       *  600.00  *  555.50  *  450.00  *
* Crit W.S. (ft)         *  965.52  * Flow Area (sq ft)     *          *26258.33  *          *
* E.G. Slope (ft/ft)     *0.001223  * Area (sq ft)          *          *26258.33  *          *
* Q Total (cfs)          *164000.00  * Flow (cfs)          *          *164000.00  *          *
* Top Width (ft)         * 2620.78  * Top Width (ft)       *          * 2620.78  *          *
* Vel Total (ft/s)       *    6.25  * Avg. Vel. (ft/s)     *          *    6.25  *          *
* Max Chl Dpth (ft)      *   14.24  * Hydr. Depth (ft)     *          *   10.02  *          *
* Conv. Total (cfs)      *4688712.0  * Conv. (cfs)         *          *4688712.0  *          *
* Length Wtd. (ft)       *  555.50  * Wetted Per. (ft)     *          * 2627.25  *          *
* Min Ch El (ft)         *  956.40  * Shear (lb/sq ft)     *          *    0.76  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *         *    4.77  *          *
* Frctn Loss (ft)        *    0.75  * Cum Volume (acre-ft)  *  300.08  *11217.83  *   30.85  *
* C & E Loss (ft)        *    0.01  * Cum SA (acres)        *   48.67  * 1241.88  *    5.87  *
*********************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 202.69

INPUT
Description: 202.69

Right Channel Bank Staion Interpolated
Station Elevation Data    num=      97
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
*********************************************************************************************
 17011.6    967.7 17023.5    967.7 17027.5    969.7 17103.8    970.9 17146.9    971.1
 17176.2    972.4 17191.8    969.4 17194.6    968.5   17229    967.1 17294.2    968.5
 17355.9    968.4 17445.9      967 17473.9    966.6   17539    968.1 17612.5    967.1
 17670.9    967.5 17744.3    967.8 17814.2    967.3   17864      971 17864.9    969.3
   17868    967.6 17892.1    965.9 17941.9    963.7 18000.1    961.6 18034.8    963.6
 18086.5    962.2 18149.2    965.2 18155.1    964.6 18181.7    966.5 18238.5    967.5
 18278.8    966.4 18296.3      967 18357.8    968.5 18371.8    972.9 18377.8    973.6
 18394.4    971.5 18484.4      971 18522.7    971.5 18539.1    964.7 18552.9    960.1
 18644.5    957.3   18707    953.7 18734.1    956.4 18813.8      956 18848.2    955.5
 18893.1    956.3   18953    954.8 19004.8    957.3 19084.1    957.6 19157.7    958.3
 19178.7    958.5 19240.7    959.5 19322.9    960.8 19365.9    962.7 19411.4    962.6
 19474.6    962.5 19548.6    961.5 19628.5    961.4 19720.2    962.7 19779.3      961
 19788.6    961.1 19848.4      962 19949.8    964.6 20005.6    961.1 20016.8    961.1
 20083.2      961 20101.5    960.8 20164.7    959.6 20249.5    962.2 20340.4      963
 20436.6    963.5 20463.4    963.4 20522.8    963.7 20592.1    963.4 20658.5    962.2
 20698.9    961.2 20768.7    958.6 20856.6    958.8 20890.1    958.6 21023.8    956.8
 21070.8    960.8 21077.4    967.1 21081.8970.8403 21085.4    973.9   21098    980.8
 21103.6    981.6 21111.1    978.1 21139.5    981.1 21166.7    979.8 21198.8    976.9
 21211.8    978.5 21216.7    978.5 21220.2    977.8 21223.7    977.9 21225.4    978.5
 21238.2    975.1   21274    973.3

Manning's n Values        num=       5
     Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val
*********************************************************************************************
 17011.6     .025   17868     .043 18377.8     .043 19084.1     .037 21103.6     .043

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.    Expan.
       18377.8 21081.8               585   566.1     510             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 17011.6 17176.2   981.6       F
 21274.4   21274   981.6       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         *  970.12  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.61  * Wt. n-Val.            *   0.037  *   0.039  *          *
* W.S. Elev (ft)         *  969.50  * Reach Len. (ft)       *  585.00  *  566.10  *  510.00  *
* Crit W.S. (ft)         *  965.26  * Flow Area (sq ft)     * 3370.61  *23641.28  *          *
* E.G. Slope (ft/ft)     *0.001416  * Area (sq ft)          * 3395.31  *23641.28  *          *
* Q Total (cfs)          *164000.00  * Flow (cfs)          *11595.49  *152404.50  *          *
```

```
                                                                  DuplicateEffective
* Top Width (ft)          * 3716.99  * Top Width (ft)          * 1164.28  * 2552.71  *          *
* Vel Total (ft/s)        *    6.07  * Avg. Vel. (ft/s)        *    3.44  *    6.45  *          *
* Max Chl Dpth (ft)       *   15.80  * Hydr. Depth (ft)        *    2.93  *    9.26  *          *
* Conv. Total (cfs)       *4357701.0  * Conv. (cfs)            *308107.7  *4049594.0  *          *
* Length Wtd. (ft)        *  567.45  * Wetted Per. (ft)        * 1150.25  * 2558.76  *          *
* Min Ch El (ft)          *  953.70  * Shear (lb/sq ft)        *    0.26  *    0.82  *          *
* Alpha                   *    1.07  * Stream Power (lb/ft s)  *    0.89  *    5.27  *          *
* Frctn Loss (ft)         *    0.88  * Cum Volume (acre-ft)    * 3878.50  *10486.43  *  945.44  *
* C & E Loss (ft)         *    0.01  * Cum SA (acres)          * 1066.80  * 1208.15  *  509.63  *
*****************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*****************************************************************************************
* E.G. Elev (ft)          *  970.49  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.70  * Wt. n-Val.            *          *    0.039  *          *
* W.S. Elev (ft)          *  969.79  * Reach Len. (ft)       *  585.00  *  566.10  *  510.00  *
* Crit W.S. (ft)          *  965.27  * Flow Area (sq ft)     *          *24379.59  *          *
* E.G. Slope (ft/ft)      *0.001483  * Area (sq ft)          *          *24379.59  *          *
* Q Total (cfs)           *164000.00  * Flow (cfs)           *          *164000.00  *          *
* Top Width (ft)          * 2553.41  * Top Width (ft)       *          * 2553.41  *          *
* Vel Total (ft/s)        *    6.73  * Avg. Vel. (ft/s)      *          *    6.73  *          *
* Max Chl Dpth (ft)       *   16.09  * Hydr. Depth (ft)      *          *    9.55  *          *
* Conv. Total (cfs)       *4258962.0  * Conv. (cfs)          *          *4258962.0  *          *
* Length Wtd. (ft)        *  566.10  * Wetted Per. (ft)      *          * 2559.81  *          *
* Min Ch El (ft)          *  953.70  * Shear (lb/sq ft)      *          *    0.88  *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s) *          *    5.93  *          *
* Frctn Loss (ft)         *    0.93  * Cum Volume (acre-ft)  *  300.08  *10894.95  *   30.85  *
* C & E Loss (ft)         *    0.01  * Cum SA (acres)        *   48.67  * 1208.88  *    5.87  *
*****************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                RS: 202.59

INPUT
Description: 202.59

Right Channel Bank Staion Interpolated
Station Elevation Data    num=      97
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
*****************************************************************************
 17002.6    972.3 17024.4    972.3 17044.5    970.3 17059.2      968 17094.8    969.6
 17174.4    971.6 17206.5    971.5   17240    970.3 17269.6    966.5 17294.8    968.3
 17332.9    969.6 17346.3      969 17365.3    965.5 17382.1    965.5 17399.6    966.6
 17456.2    967.4 17523.1    966.7 17531.4    966.1 17557.2      966 17651.6    966.7
 17719.5    967.2 17792.8    966.6 17824.5      966 17874.3    968.6 17886.2    967.6
 17905.4    963.2 17965.1    963.4 18022.2    961.6 18100.5    965.1 18174.1    965.7
 18210.5    964.5 18233.1    965.7 18298.3    968.6 18346.1    966.9 18416.7    969.6
 18505.8    969.5 18556.9    967.5 18622.3      970 18641.7      970 18695.8    961.6
 18704.2    959.5 18757.3      962 18789.4    959.6 18857.2    957.4 18891.5    955.7
   18960    953.7 18984.2    957.3 19041.9    957.5 19094.7    960.1 19217.7    959.4
 19264.1    960.3 19322.3    963.2 19396.6    964.3 19407.1    961.9 19425.6      960
   19426    960.9 19488.2    960.7 19564.4    961.7 19640.1    961.8 19698.4    962.2
 19757.8    961.8 19850.5    959.2 19935.3    960.1 19956.2      961 19994.3    961.1
 20000.8    960.6 20005.1    959.6 20026.1    957.7 20112.1    958.6 20156.3    960.2
 20218.5    960.8 20291.8    962.8 20371.5    961.1 20441.9      962 20501.9    959.5
 20592.8    959.1   20699    957.2   20711      957 20803.1      957 20825.8    957.1
 20901.9    957.5   20941    958.6 20978.1    956.7   21025    956.8 21152.1    957.5
21195.09969.8993 21199.6    971.2 21234.1    969.1 21236.8    970.4 21264.7    967.7
 21299.7    971.3 21305.5    967.6 21325.7    957.4 21362.7    958.8 21403.9      974
 21429.1      977   21478    977.8

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*****************************************************************************
 17002.6    .025 18022.2    .043 18416.7    .043 19217.7    .037 21403.9    .043

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       18416.721195.09             400   561.2     640             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 17002.6 17332.9   977.8       F
   21200   21478   977.8       F

CROSS SECTION OUTPUT  Profile #PF#1
*****************************************************************************************
* E.G. Elev (ft)          *  969.23  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.68  * Wt. n-Val.            *   0.030  *   0.038  *          *
* W.S. Elev (ft)          *  968.55  * Reach Len. (ft)       *  400.00  *  561.20  *  640.00  *
* Crit W.S. (ft)          *  964.73  * Flow Area (sq ft)     * 2690.62  *22510.76  *          *
* E.G. Slope (ft/ft)      *0.001710  * Area (sq ft)          * 2741.01  *22510.76  *  645.31  *
* Q Total (cfs)           *164000.00  * Flow (cfs)           *11762.68  *152237.30  *          *
* Top Width (ft)          * 3795.64  * Top Width (ft)       * 1100.09  * 2593.47  *  102.09  *
* Vel Total (ft/s)        *    6.51  * Avg. Vel. (ft/s)      *    4.37  *    6.76  *          *
* Max Chl Dpth (ft)       *   14.85  * Hydr. Depth (ft)      *    2.60  *    8.68  *          *
* Conv. Total (cfs)       *3966361.0  * Conv. (cfs)          *284481.9  *3681879.0  *          *
* Length Wtd. (ft)        *  549.75  * Wetted Per. (ft)      * 1037.30  * 2598.01  *          *
* Min Ch El (ft)          *  953.70  * Shear (lb/sq ft)      *    0.28  *    0.92  *          *
* Alpha                   *    1.03  * Stream Power (lb/ft s) *    1.21  *    6.25  *          *
* Frctn Loss (ft)         *    0.91  * Cum Volume (acre-ft)  * 3837.29  *10186.54  *  941.66  *
* C & E Loss (ft)         *    0.01  * Cum SA (acres)        * 1051.60  * 1174.71  *  509.04  *
*****************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.
```

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	969.56	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.78	Wt. n-Val.		0.038	
W.S. Elev (ft)	968.77	Reach Len. (ft)	400.00	561.20	640.00
Crit W.S. (ft)	964.70	Flow Area (sq ft)		23099.83	
E.G. Slope (ft/ft)	0.001832	Area (sq ft)		23099.83	
Q Total (cfs)	164000.00	Flow (cfs)		164000.00	
Top Width (ft)	2606.65	Top Width (ft)		2606.65	
Vel Total (ft/s)	7.10	Avg. Vel. (ft/s)		7.10	
Max Chl Dpth (ft)	15.07	Hydr. Depth (ft)		8.86	
Conv. Total (cfs)	3831880.0	Conv. (cfs)		3831880.0	
Length Wtd. (ft)	561.08	Wetted Per. (ft)		2611.44	
Min Ch El (ft)	953.70	Shear (lb/sq ft)		1.01	
Alpha	1.00	Stream Power (lb/ft s)		7.18	
Frctn Loss (ft)	1.02	Cum Volume (acre-ft)	300.08	10586.43	30.85
C & E Loss (ft)	0.00	Cum SA (acres)	48.67	1175.35	5.87

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 202.48

INPUT
Description: 202.48

Right Channel Bank Staion Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17009.6	967.6	17022.6	967.5	17087.4	968.9	17103.6	970.4	17112.7	969.9
17147.3	972	17156.9	971.8	17158.2	972.3	17178.9	971	17194.4	968
17247.5	968.9	17346.9	969.1	17398.9	969.9	17439.3	968.6	17487.9	968.6
17510.1	966.5	17588.4	966.2	17656.6	965	17699.5	965.1	17766.7	963.2
17818.3	961.3	17890	963.8	17903.9	964.7	17928.8	961.3	17945.4	959.8
17990.2	960.1	18038.4	959.4	18049.4	960.1	18123	963.9	18190.8	965.8
18202.9	966.1	18268.8	964.1	18281.9	963.4	18373.9	966.8	18446.2	967.8
18518.9	965.4	18575.8	971.2	18611.2	970.9	18639.1	969.5	18713	961.6
18741.6	959.3	18784.7	961.7	18862.1	959	18930.8	954.4	19044.5	952.5
19074.6	956.5	19142.6	957.5	19190.4	959.1	19212.4	958.4	19300.6	961.8
19319.9	962.4	19391.1	961.2	19413.8	960.8	19449.5	958.2	19532.2	958.9
19643.4	959	19750	959.8	19755	959.8	19836.5	958.7	19940.1	961.4
20015	957.1	20042.9	956.5	20093.3	957.6	20148	959.8	20169.8	958.7
20238.1	957.7	20350.9	956.9	20382.1	955.8	20443.3	956.5	20518.7	957.1
20582.5	957.3	20605	956.3	20635.4	956.3	20720.3	959.3	20738.9	959.4
20761.4	962.7	20791.3	965.4	20855.9	962.6	20874.6	962	20962.4	963.2
21037.1	963.2	21067	962.7	21100.7	957.5	21141.9	956.9	21226.2	955.6
21274.2	959.7	21307.36	968.958	21309.3	969.5	21365.5	967.8	21385.7	965.3
21411.6	965.6	21424.5	960.8	21433.2	956.4	21477.4	957.2	21505.2	969
21532	978.5	21590.9	977.9						

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
17009.6	.043	18575.8	.043	19074.6	.037	21532	.043

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
18575.821307.36 700 576.2 385 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17009.6	17398.9	978.5	F
21309.3	21590.9	978.5	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	968.30	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.65	Wt. n-Val.	0.043	0.038	
W.S. Elev (ft)	967.66	Reach Len. (ft)	700.00	576.20	385.00
Crit W.S. (ft)	963.72	Flow Area (sq ft)	3546.47	22956.75	
E.G. Slope (ft/ft)	0.001617	Area (sq ft)	3548.41	22956.75	824.39
Q Total (cfs)	164000.00	Flow (cfs)		11539.59	152460.40
Top Width (ft)	3830.22	Top Width (ft)	1048.52	2646.34	135.36
Vel Total (ft/s)	6.19	Avg. Vel. (ft/s)	3.25	6.64	
Max Chl Dpth (ft)	15.16	Hydr. Depth (ft)	3.45	8.67	
Conv. Total (cfs)	4078760.0	Conv. (cfs)		286995.3	3791765.0
Length Wtd. (ft)	585.03	Wetted Per. (ft)	1029.25	2650.03	
Min Ch El (ft)	952.50	Shear (lb/sq ft)	0.35	0.87	
Alpha	1.09	Stream Power (lb/ft s)	1.13	5.81	
Frctn Loss (ft)	0.91	Cum Volume (acre-ft)	3808.41	9893.65	930.86
C & E Loss (ft)	0.02	Cum SA (acres)	1041.73	1140.96	507.29

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	968.54	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.77	Wt. n-Val.	0.043	0.038	
W.S. Elev (ft)	967.77	Reach Len. (ft)	700.00	576.20	385.00
Crit W.S. (ft)	963.79	Flow Area (sq ft)	163.17	23252.06	
E.G. Slope (ft/ft)	0.001789	Area (sq ft)	163.17	23252.06	
Q Total (cfs)	164000.00	Flow (cfs)	236.09	163763.90	
Top Width (ft)	2826.14	Top Width (ft)	178.75	2647.39	
Vel Total (ft/s)	7.00	Avg. Vel. (ft/s)	1.45	7.04	

```
                                                                    DuplicateEffective
* Max Chl Dpth (ft)      *   15.27  * Hydr. Depth (ft)       *    0.91  *    8.78  *          *
* Conv. Total (cfs)      *3877911.0  * Conv. (cfs)           *  5582.5  *3872328.0  *          *
* Length Wtd. (ft)       *  576.90  * Wetted Per. (ft)       *  180.40  * 2651.19  *          *
* Min Ch El (ft)         *  952.50  * Shear (lb/sq ft)       *    0.10  *    0.98  *          *
* Alpha                  *    1.01  * Stream Power (lb/ft s) *    0.15  *    6.90  *          *
* Frctn Loss (ft)        *    1.00  * Cum Volume (acre-ft)   *  299.33  *10287.85  *   30.85  *
* C & E Loss (ft)        *    0.02  * Cum SA (acres)         *   47.85  * 1141.51  *    5.87  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                RS: 202.37

INPUT
Description: 202.37

Right Channel Bank Staion Interpolated
Station Elevation Data    num=      97
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 17046.5     966 17144.2   966.4 17159.7   966.4 17174.6   968.6 17199.8   968.8
 17234.1   972.8 17240.1   970.8 17243.5   970.9 17244.9   973.1 17262.2     972
 17288.2   966.3 17339.4   966.6 17390.7   968.1 17480.2   967.1 17572.6   967.5
 17609.6   965.2 17687.4   964.4   17729   964.2 17762.4   962.8 17818.6   964.2
 17908.4   962.3 17967.5   961.6 18000.2     964 18038.7   964.1 18072.2   959.7
 18099.8   957.9 18104.7   958.4 18151.6   958.4 18194.7   959.1 18243.6   962.8
 18315.7   961.8 18394.4   965.8 18412.7   966.2 18470.8   964.2 18481.7   964.7
 18501.3   969.1 18508.1     970 18598.8   969.5 18602.7   969.6 18648.3   963.8
 18679.8   963.2   18704   957.9 18743.6   960.5 18769.5   961.1 18842.5   955.2
 18917.4   955.9 18993.6   955.2 19026.1   956.5 19078.6   954.6 19116.4   956.7
 19134.5   956.6 19275.2   955.9 19317.5   959.5 19392.9   961.2 19411.7   961.2
 19457.9   957.5 19505.5   956.4 19577.4   956.1 19580.5   956.2 19670.2   956.8
 19746.9   961.5 19839.2   958.9 19936.5   957.1   20045   956.9 20086.7   957.3
 20169.3   956.2 20237.2   955.3 20328.5     958 20334.1   957.4 20399.8     957
 20463.4   959.2 20513.6     962 20602.6   959.9 20704.3   960.7 20742.9     961
 20844.4   960.5 20908.1   960.2 20950.1   961.7 21049.7   960.9 21054.1   960.9
 21135.1   960.3 21179.1   960.2 21212.7   956.8 21338.5   957.1 21366.3   957.1
 21382.6   961.2 21402.5   967.3 21411.9   966.7 21431.9   963.9 21452.4   962.7
   21480   964.4 21496.8     956 21544.1   956.621581.78968.0081 21601.9   974.1
 21642.4     975   21693   974.4

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************************************************
 17046.5    .025 17390.7    .043 18508.1    .043 18743.6    .037 21601.9    .043

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       18508.121581.78              430   400.7     360            .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
 17046.5 17390.7     975       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         *  967.38  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.58  * Wt. n-Val.            *   0.043  *   0.037  *          *
* W.S. Elev (ft)         *  966.79  * Reach Len. (ft)       *  430.00  *  400.70  *  360.00  *
* Crit W.S. (ft)         *  962.77  * Flow Area (sq ft)     * 3570.38  *24155.44  *          *
* E.G. Slope (ft/ft)     *0.001487  * Area (sq ft)          * 3653.85  *24155.44  *          *
* Q Total (cfs)          *164000.00  * Flow (cfs)          *11849.87  *152150.10  *          *
* Top Width (ft)         * 4026.46  * Top Width (ft)       * 1083.03  * 2943.43  *          *
* Vel Total (ft/s)       *    5.92  * Avg. Vel. (ft/s)     *    3.32  *    6.30  *          *
* Max Chl Dpth (ft)      *   12.19  * Hydr. Depth (ft)     *    3.94  *    8.21  *          *
* Conv. Total (cfs)      *4253334.0  * Conv. (cfs)         *307326.0  *3946008.0  *          *
* Length Wtd. (ft)       *  401.97  * Wetted Per. (ft)     *  908.19  * 2950.76  *          *
* Min Ch El (ft)         *  954.60  * Shear (lb/sq ft)     *    0.36  *    0.76  *          *
* Alpha                  *    1.07  * Stream Power (lb/ft s) *    1.21  *    4.79  *          *
* Frctn Loss (ft)        *    0.43  * Cum Volume (acre-ft)   * 3750.54  * 9582.06  *  927.22  *
* C & E Loss (ft)        *    0.06  * Cum SA (acres)         * 1024.61  * 1103.99  *  506.69  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)         *  967.52  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.69  * Wt. n-Val.            *   0.043  *   0.037  *          *
* W.S. Elev (ft)         *  966.82  * Reach Len. (ft)       *  430.00  *  400.70  *  360.00  *
* Crit W.S. (ft)         *  963.06  * Flow Area (sq ft)     *  598.51  *24244.56  *          *
* E.G. Slope (ft/ft)     *0.001673  * Area (sq ft)          *  598.51  *24244.56  *          *
* Q Total (cfs)          *164000.00  * Flow (cfs)          * 1619.72  *162380.30  *          *
* Top Width (ft)         * 3165.40  * Top Width (ft)       *  221.16  * 2944.24  *          *
* Vel Total (ft/s)       *    6.60  * Avg. Vel. (ft/s)     *    2.71  *    6.70  *          *
* Max Chl Dpth (ft)      *   12.22  * Hydr. Depth (ft)     *    2.71  *    8.23  *          *
* Conv. Total (cfs)      *4009107.0  * Conv. (cfs)         * 39595.2  *3969512.0  *          *
* Length Wtd. (ft)       *  400.84  * Wetted Per. (ft)     *  225.94  * 2951.60  *          *
* Min Ch El (ft)         *  954.60  * Shear (lb/sq ft)     *    0.28  *    0.86  *          *
* Alpha                  *    1.02  * Stream Power (lb/ft s) *    0.75  *    5.75  *          *
* Frctn Loss (ft)        *    0.45  * Cum Volume (acre-ft)   *  293.21  * 9973.71  *   30.85  *
* C & E Loss (ft)        *    0.09  * Cum SA (acres)         *   44.64  * 1104.53  *    5.87  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
```

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 202.29

INPUT
Description: 202.29
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17300	969.4	17300.2	969.4	17310.5	971.8	17342.5	971.5	17346.7	971.3
17352.1	970.9	17359.3	970.4	17377.2	970.2	17388.5	970.1	17410.3	969.8
17443.6	969.4	17469.5	969.2	17494.3	969	17512.1	968.3	17537.2	968.2
17551.3	968.6	17580.1	968.2	17588.6	968.1	17610.9	968	17662.1	967.6
17695.1	967.2	17731.2	966.7	17756	966.3	17772.6	965.6	17783.7	965.5
17806	965.9	17845.1	965.4	17859.1	965.2	17870.8	965.1	17909	964.8
17939.7	964.2	17948.3	964	17978	963.3	17983.9	963.1	18035.9	962.8
18043.8	962.7	18050.9	962.7	18093.6	962.3	18093.8	962.8	18107.2	962.7
18151	961.8	18180	961.8	18197.4	961.8	18203.9	961.7	18212.7	961.5
18297.3	960.6	18444	959	18520.4	958	18577.3	957.8	18667.8	958.1
18744.1	957.7	18943.8	956.4	18989.6	956.6	19224.4	957.4	19228.7	957.4
19485.5	956.7	19523.1	956.9	19553.4	956.9	19827.7	956.8	19864.8	956.1
19898	956.1	20171.5	956.3	20383.2	955.7	20442.4	955.9	20499.8	957.2
20499.9	957.2	20696.8	957.3	20777.7	957.4	20879.1	956.5	20964	956.5
21129.5	956.9	21176.5	956.6	21222.8	956.1	21262.9	955.8	21273.6	955.5
21305.8	956.3	21343.7	957	21400.4	957.2	21410.8	957.3	21495.3	956.7
21550.9	957.9	21563.4	959.3	21703.1	961	21803	962.3	21973.7	964.9
22093.3	966.9	22138.1	968.1	22178	968.7	22302.7	970.7	22344.1	970.7
22388.8	970.9	22553.3	971.9	22676.5	971.2	22717.7	971.3	22766.5	972.1
22785.4	971.9								

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
17300	.025	17469.5	.043	18197.4	.043	18989.6	.037	21563.4	.043
21803	.043								

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
18197.4 21803 590 583.1 600 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
21803	22785.4	972.1	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	966.88	Element	Left OB	Channel / Right OB
Vel Head (ft)	0.37	Wt. n-Val.	0.043	0.038 /
W.S. Elev (ft)	966.51	Reach Len. (ft)	590.00	583.10 / 600.00
Crit W.S. (ft)	961.30	Flow Area (sq ft)	1223.63	33003.69 /
E.G. Slope (ft/ft)	0.000809	Area (sq ft)	1223.63	33003.69 / 575.33
Q Total (cfs)	164000.00	Flow (cfs)	2326.17	161673.80 /
Top Width (ft)	4327.50	Top Width (ft)	454.68	3605.60 / 267.22
Vel Total (ft/s)	4.79	Avg. Vel. (ft/s)	1.90	4.90 /
Max Chl Dpth (ft)	11.01	Hydr. Depth (ft)	2.69	9.15 /
Conv. Total (cfs)	5764473.0	Conv. (cfs)	81763.2	5682710.0 /
Length Wtd. (ft)	583.21	Wetted Per. (ft)	455.07	3605.80 /
Min Ch El (ft)	955.50	Shear (lb/sq ft)	0.14	0.46 /
Alpha	1.03	Stream Power (lb/ft s)	0.26	2.27 /
Frctn Loss (ft)	0.64	Cum Volume (acre-ft)	3726.47	9319.16 / 924.84
C & E Loss (ft)	0.02	Cum SA (acres)	1017.02	1073.87 / 505.59

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	966.97	Element	Left OB	Channel / Right OB
Vel Head (ft)	0.38	Wt. n-Val.		0.038 /
W.S. Elev (ft)	966.59	Reach Len. (ft)	590.00	583.10 / 600.00
Crit W.S. (ft)	961.30	Flow Area (sq ft)		33283.39 /
E.G. Slope (ft/ft)	0.000812	Area (sq ft)		33283.39 /
Q Total (cfs)	164000.00	Flow (cfs)		164000.00 /
Top Width (ft)	3605.60	Top Width (ft)		3605.60 /
Vel Total (ft/s)	4.93	Avg. Vel. (ft/s)		4.93 /
Max Chl Dpth (ft)	11.09	Hydr. Depth (ft)		9.23 /
Conv. Total (cfs)	5756355.0	Conv. (cfs)		5756355.0 /
Length Wtd. (ft)	583.10	Wetted Per. (ft)		3614.88 /
Min Ch El (ft)	955.50	Shear (lb/sq ft)		0.47 /
Alpha	1.00	Stream Power (lb/ft s)		2.30 /
Frctn Loss (ft)	0.64	Cum Volume (acre-ft)	290.25	9709.12 / 30.85
C & E Loss (ft)	0.02	Cum SA (acres)	43.55	1074.40 / 5.87

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 202.18

INPUT
Description: 202.18

Right Channel Bank Staion Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17052.9	966.6	17168.5	966	17288.7	965.2	17328.5	965.5	17342.3	968
17346	967	17354.3	968	17364.1	966.7	17396.2	967.4	17415.4	969

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                                                                    DuplicateEffective
 17507.1   967.7 17613.8   965.1 17631.5   964.7 17747.4   962.9 17748.5   962.9
 17865.9   962.4 17961.7   963.1 18017.5   963.4 18100.5   963.8 18139.7   964.7
 18194.4   960.2   18256   959.9 18292.6   958.2 18331.5   958.9 18344.2   960.8
   18389   961.7 18415.9   960.6 18473.5   964.7 18525.3   966.1 18612.9   966.4
 18643.2   962.4 18672.1   961.3 18707.1   957.3   18769   952.6 18804.3   955.4
 18910.2   957.1   18976   956.3 19019.3   958.4 19048.9   958.7 19085.4   956.1
 19142.3     957 19169.3   958.6 19183.3   960.5 19235.6   960.8 19285.1     963
 19369.7   960.1 19472.8   957.3 19559.8   955.6 19630.4   954.7 19686.5   951.8
 19727.7   955.4 19747.8   950.7 19844.5   951.9 19893.9     954   19954     950
   20009     954 20067.8     952 20110.4   954.4 20177.3   963.5 20231.5   963.4
 20240.9   962.3 20277.5   960.8 20351.6     962   20380   959.9 20405.9   959.3
 20492.4   961.5 20578.7   962.9 20684.9   962.3 20769.5   960.5 20826.3   963.1
 20876.8   962.2 20900.3   963.5 20997.2   958.5 21014.5   957.4 21075.2   957.9
 21127.2   959.8 21207.6   957.2   21255   956.2 21287.8   957.6 21353.8   957.8
 21374.8   961.6 21414.6   960.9 21415.3   960.1 21444.1   956.6 21527.2   959.6
 21591.2   960.1 21643.6   958.8 21685.6     954 21737.8   955.1 21787.2   954.7
 21808.8   955.3 21829.3   951.8 21869.4   951.7 21919.3   955.921938.41966.7695
 21957.1   977.4   21992   978.3

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************************************************
 17052.9    .025 17415.4    .043 18139.7    .043   18976    .037 21957.1    .043

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       18139.721938.41             525  511.84     500             .1       .3
Ineffective Flow     num=       1
   Sta L    Sta R    Elev  Permanent
 17052.9 17415.4   978.3       F

CROSS SECTION OUTPUT  Profile #PF#1
*************************************************************************************************
* E.G. Elev (ft)         *  966.23  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.53  * Wt. n-Val.             *   0.043  *   0.038  *          *
* W.S. Elev (ft)         *  965.70  * Reach Len. (ft)        *  525.00  *  511.84  *  500.00  *
* Crit W.S. (ft)         *  961.75  * Flow Area (sq ft)      * 1254.37  *27384.83  *          *
* E.G. Slope (ft/ft)     *0.001545  * Area (sq ft)           * 1287.41  *27384.83  *          *
* Q Total (cfs)          *164000.00  * Flow (cfs)            * 2949.36  *161050.60  *          *
* Top Width (ft)         * 4356.13  * Top Width (ft)        *  666.91  * 3689.21  *          *
* Vel Total (ft/s)       *    5.73  * Avg. Vel. (ft/s)      *    2.35  *    5.88  *          *
* Max Chl Dpth (ft)      *   15.70  * Hydr. Depth (ft)      *    2.28  *    7.42  *          *
* Conv. Total (cfs)      *4172957.0  * Conv. (cfs)          * 75045.9  *4097911.0  *          *
* Length Wtd. (ft)       *  512.05  * Wetted Per. (ft)      *  550.64  * 3697.85  *          *
* Min Ch El (ft)         *  950.00  * Shear (lb/sq ft)      *    0.22  *    0.71  *          *
* Alpha                  *    1.04  * Stream Power (lb/ft s) *    0.52  *    4.20  *          *
* Frctn Loss (ft)        *    1.19  * Cum Volume (acre-ft)  * 3709.47  * 8914.98  *  920.88  *
* C & E Loss (ft)        *    0.04  * Cum SA (acres)        * 1009.42  * 1025.04  *  503.75  *
*************************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*************************************************************************************************
* E.G. Elev (ft)         *  966.31  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.55  * Wt. n-Val.             *          *   0.038  *          *
* W.S. Elev (ft)         *  965.77  * Reach Len. (ft)        *  525.00  *  511.84  *  500.00  *
* Crit W.S. (ft)         *  961.75  * Flow Area (sq ft)      *          *27619.54  *          *
* E.G. Slope (ft/ft)     *0.001559  * Area (sq ft)           *          *27619.54  *          *
* Q Total (cfs)          *164000.00  * Flow (cfs)            *          *164000.00  *          *
* Top Width (ft)         * 3692.06  * Top Width (ft)        *          * 3692.06  *          *
* Vel Total (ft/s)       *    5.94  * Avg. Vel. (ft/s)      *          *    5.94  *          *
* Max Chl Dpth (ft)      *   15.77  * Hydr. Depth (ft)      *          *    7.48  *          *
* Conv. Total (cfs)      *4154161.0  * Conv. (cfs)          *          *4154161.0  *          *
* Length Wtd. (ft)       *  511.84  * Wetted Per. (ft)      *          * 3701.82  *          *
* Min Ch El (ft)         *  950.00  * Shear (lb/sq ft)      *          *    0.73  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    4.31  *          *
* Frctn Loss (ft)        *    1.19  * Cum Volume (acre-ft)  *  290.25  * 9301.49  *   30.85  *
* C & E Loss (ft)        *    0.04  * Cum SA (acres)        *   43.55  * 1025.56  *    5.87  *
*************************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                  RS: 202.09

INPUT
Description: 202.09

Right Channel Bank Staion Interpolated
Station Elevation Data    num=      97
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 12423.7   965.6 17099.8   965.6   17186   965.4 17264.6   965.3 17349.3     965
 17358.9   964.8   17418   967.1 17422.9   965.6 17428.2   966.9   17452   965.9
 17476.4   966.1 17491.8   967.5 17574.4     967 17614.9   967.2 17693.5   967.2
 17814.7   961.1 17920.2   960.8 17951.8   961.2 18050.9   963.8 18132.1   964.1
 18212.9   964.4 18247.5   964.7   18306   959.3 18322.2   960.3 18340.5   958.1
 18363.8   957.3 18389.5   962.4 18475.1   961.1 18485.9   960.9 18523.3   964.1
 18558.3   962.3 18573.3   963.2 18621.2   963.3 18652.7   957.8 18708.8   958.1
 18748.7   952.2 18769.9   955.2 18859.3   957.7 18962.1   957.3 18975.3   957.3
   19086   957.5 19165.3   959.6 19217.9     961 19287.9   955.2 19344.8     963
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                                                                    DuplicateEffective
 19434.4   961.7 19513.8   958.9 19564.6   953.8 19623.2   957.6 19686.2   956.9
 19738.7   957.5 19783.4   954.5 19908.5   952.6 19947.2     952 20093.1     950
 20106.3     950 20143.3   952.6 20167.6   955.5 20187.3   956.2 20207.9     958
   20254   956.6 20271.4   957.6 20297.7   960.4 20396.6   960.4 20472.8   959.6
 20529.3   963.3 20613.6   962.6   20698   962.2 20720.5   961.5 20787.7   964.2
 20816.2   959.4 20866.2   961.1 20916.3   960.7 20996.8   963.3 21047.5   963.6
 21101.6   961.6   21155   960.7 21221.6   961.5 21280.8   956.9 21370.9   957.5
 21444.4   956.7 21456.1   957.6 21466.3   959.4 21503.9     959 21516.7   956.6
 21530.5   955.5 21561.3     958 21627.9   959.2   21709   959.7 21751.4   954.3
 21825.3   953.8 21856.2   951.2 21912.9   951.7 21928.2   955.721938.26 965.332
   21947   973.7   21985   973.7

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************************************************
 12423.7    .025 17491.8    .043 18212.9    .043   19086    .037   21947    .043

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.    Expan.
       18212.921938.26              510  509.32     500             .1       .3
Ineffective Flow      num=       1
   Sta L    Sta R     Elev  Permanent
 12423.7 17491.8   973.7        F

CROSS SECTION OUTPUT  Profile #PF#1
*************************************************************************************************
* E.G. Elev (ft)         *  965.01  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.92  * Wt. n-Val.            *   0.043  *   0.038  *          *
* W.S. Elev (ft)         *  964.09  * Reach Len. (ft)       *  510.00  *  509.32  *  500.00  *
* Crit W.S. (ft)         *  961.98  * Flow Area (sq ft)     *  685.44  *20909.31  *          *
* E.G. Slope (ft/ft)     *0.003848  * Area (sq ft)          *  685.44  *20909.31  *          *
* Q Total (cfs)          *164000.00  * Flow (cfs)          *  2203.35  *161796.70  *          *
* Top Width (ft)         * 4052.05  * Top Width (ft)       *  373.14  * 3678.91  *          *
* Vel Total (ft/s)       *    7.59  * Avg. Vel. (ft/s)     *    3.21  *    7.74  *          *
* Max Chl Dpth (ft)      *   14.09  * Hydr. Depth (ft)     *    1.84  *    5.68  *          *
* Conv. Total (cfs)      *2643855.0  * Conv. (cfs)         *  35520.3  *2608335.0  *          *
* Length Wtd. (ft)       *  509.33  * Wetted Per. (ft)     *  373.25  * 3688.94  *          *
* Min Ch El (ft)         *  950.00  * Shear (lb/sq ft)     *    0.44  *    1.36  *          *
* Alpha                  *    1.03  * Stream Power (lb/ft s) *    1.42  *   10.54  *          *
* Frctn Loss (ft)        *    1.03  * Cum Volume (acre-ft)  * 3697.58  * 8631.24  *  920.88  *
* C & E Loss (ft)        *    0.10  * Cum SA (acres)        * 1003.15  *  981.75  *  503.75  *
*************************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*************************************************************************************************
* E.G. Elev (ft)         *  965.09  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.93  * Wt. n-Val.            *          *   0.038  *          *
* W.S. Elev (ft)         *  964.16  * Reach Len. (ft)       *  510.00  *  509.32  *  500.00  *
* Crit W.S. (ft)         *  961.95  * Flow Area (sq ft)     *          *21163.39  *          *
* E.G. Slope (ft/ft)     *0.003803  * Area (sq ft)          *          *21163.39  *          *
* Q Total (cfs)          *164000.00  * Flow (cfs)          *          *164000.00  *          *
* Top Width (ft)         * 3682.20  * Top Width (ft)       *          * 3682.20  *          *
* Vel Total (ft/s)       *    7.75  * Avg. Vel. (ft/s)     *          *    7.75  *          *
* Max Chl Dpth (ft)      *   14.16  * Hydr. Depth (ft)     *          *    5.75  *          *
* Conv. Total (cfs)      *2659472.0  * Conv. (cfs)         *          *2659472.0  *          *
* Length Wtd. (ft)       *  509.32  * Wetted Per. (ft)     *          * 3692.31  *          *
* Min Ch El (ft)         *  950.00  * Shear (lb/sq ft)     *          *    1.36  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   10.54  *          *
* Frctn Loss (ft)        *    1.02  * Cum Volume (acre-ft)  *  290.25  * 9014.89  *   30.85  *
* C & E Loss (ft)        *    0.11  * Cum SA (acres)        *   43.55  *  982.23  *    5.87  *
*************************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                  RS: 201.99

INPUT
Description: 201.99

Right Channel Bank Staion Interpolated
Station Elevation Data    num=      97
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 12423.7   962.9 12792.3   963.8 13061.9   964.2 13286.8   963.1 13510.3     962
 13746.9   961.3   13984   962.2 14217.9   962.9 14443.4   963.1 14690.7   964.7
 14908.9   964.6 14956.9   968.1 14966.2   964.3   15216   964.5 15450.3   964.3
 15717.5   963.6 15947.7     963 16170.3   962.3 16226.7   962.5 16243.5   964.4
 16481.8   963.7   16706   964.8 16931.9   964.5 17163.9     965 17409.1   965.4
 17507.7   965.1 17760.7   967.9 18000.5   959.7 18235.1   962.5 18353.1   960.5
 18417.7   956.5   18440   960.5 18639.2     962   18674   954.8 18737.7   957.9
 18818.4   957.6 18843.9   951.9 18894.5     956 19104.7   956.3 19162.4   959.4
   19182   952.7 19244.4   958.4   19290   953.9 19357.8   953.9 19392.3   959.4
 19476.2   956.3 19599.7   958.8 19757.3   956.9 19806.8   958.1 19854.1   952.5
 20078.1   951.3 20095.8     953 20192.9   950.6 20250.9   959.6 20290.2   950.4
 20347.4   962.9 20368.6   965.8 20433.1     963 20465.1   950.1 20577.2   949.5
   20589   951.7 20619.5   951.7 20638.1   949.5 20700.3   949.5 20727.6   954.8
 20735.3   964.1 20750.8   961.1 20862.1   965.2   20904   975.7 20956.4   975.3
 20989.8   964.1 21038.3   963.3 21074.1   972.2 21105.1     970   21109   967.5
 21138.5   968.2 21163.6   953.1 21180.4   949.1 21267.5   949.1 21538.3   949.1
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                                                                    DuplicateEffective
 21555.3   949.1   21578   958.4 21595.4   955.8 21617.3   955.7 21641.7   951.9
 21676.1   954.4 21726.5   948.7 21821.2   953.2 21862.8   963.621892.71964.4166
   21991   967.1 22006.5     964 22019.9   967.9 22243.3   966.9 22585.6     967
 22917.2   966.9 23024.3   966.9

Manning's n Values        num=       7
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************************************************
 12423.7    .025 17507.7    .043 17760.7    .043 19357.8    .032 20250.9    .037
   21991    .037 22006.5    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       18235.121892.71             470  477.46     490             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 12423.7 17760.7   975.7       F
 21990.9 23024.3   975.7       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         *  963.87  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.58  * Wt. n-Val.            *   0.043  *   0.036  *          *
* W.S. Elev (ft)         *  963.29  * Reach Len. (ft)       *  470.00  *  477.46  *  490.00  *
* Crit W.S. (ft)         *  958.65  * Flow Area (sq ft)     *  702.50  *26531.65  *          *
* E.G. Slope (ft/ft)     *0.001252  * Area (sq ft)          * 2110.20  *26531.65  *          *
* Q Total (cfs)          *164000.00  * Flow (cfs)           * 1394.28  *162605.70  *          *
* Top Width (ft)         * 5331.46  * Top Width (ft)       * 2122.37  * 3209.09  *          *
* Vel Total (ft/s)       *    6.02  * Avg. Vel. (ft/s)     *    1.98  *    6.13  *          *
* Max Chl Dpth (ft)      *   14.59  * Hydr. Depth (ft)     *    2.07  *    8.27  *          *
* Conv. Total (cfs)      *4634981.0  * Conv. (cfs)         * 39405.2  *4595576.0  *          *
* Length Wtd. (ft)       *  477.43  * Wetted Per. (ft)     *  339.69  * 3231.97  *          *
* Min Ch El (ft)         *  948.70  * Shear (lb/sq ft)     *    0.16  *    0.64  *          *
* Alpha                  *    1.03  * Stream Power (lb/ft s) *  0.32  *    3.93  *          *
* Frctn Loss (ft)        *    0.47  * Cum Volume (acre-ft)  * 3681.21  * 8353.90  *  920.88  *
* C & E Loss (ft)        *    0.05  * Cum SA (acres)        *  988.54  *  941.48  *  503.75  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)         *  963.96  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.58  * Wt. n-Val.            *          *   0.036  *          *
* W.S. Elev (ft)         *  963.38  * Reach Len. (ft)       *  470.00  *  477.46  *  490.00  *
* Crit W.S. (ft)         *  958.65  * Flow Area (sq ft)     *          *26811.01  *          *
* E.G. Slope (ft/ft)     *0.001241  * Area (sq ft)          *          *26811.01  *          *
* Q Total (cfs)          *164000.00  * Flow (cfs)           *          *164000.00  *          *
* Top Width (ft)         * 3219.77  * Top Width (ft)       *          * 3219.77  *          *
* Vel Total (ft/s)       *    6.12  * Avg. Vel. (ft/s)     *          *    6.12  *          *
* Max Chl Dpth (ft)      *   14.68  * Hydr. Depth (ft)     *          *    8.33  *          *
* Conv. Total (cfs)      *4655852.0  * Conv. (cfs)         *          *4655852.0  *          *
* Length Wtd. (ft)       *  477.46  * Wetted Per. (ft)     *          * 3243.71  *          *
* Min Ch El (ft)         *  948.70  * Shear (lb/sq ft)     *          *    0.64  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *         *    3.92  *          *
* Frctn Loss (ft)        *    0.46  * Cum Volume (acre-ft)  *  290.25  * 8734.42  *   30.85  *
* C & E Loss (ft)        *    0.05  * Cum SA (acres)        *   43.55  *  941.88  *    5.87  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 201.9

INPUT
Description: 201.9

Right Channel Bank Staion Interpolated
Station Elevation Data    num=      97
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
   12498   962.4 12680.7     963 12847.7   963.1 13015.1   963.3 13199.8   963.2
 13361.7   963.7 13371.9   960.2 13574.5   962.7 13724.8   961.4 13908.8   961.8
 14082.1   962.6   14282   963.2 14504.3   963.3 14674.9     963 14875.2   963.6
   15026   967.2 15036.6   963.6 15225.9   964.3 15398.3   964.4 15600.8   964.2
 15790.8   963.8 15996.8   963.9 16181.7   962.7 16294.9   962.8 16309.4   964.3
 16331.6     962 16525.6   962.6 16699.1   963.6 16881.9   964.4 17117.4   963.7
 17353.6   965.3 17563.8   966.2   17569   964.3 17769.9   966.6 17941.7     966
 17954.3   963.8 18181.9   958.7 18226.6   955.3 18260.2   960.7 18291.8   960.5
 18303.9   958.6 18480.2   961.7 18648.9   961.8 18745.5     962 18798.7   956.2
 18820.8   957.2 18854.3   951.8 18909.2   955.3 19138.4   956.3   19200   953.3
 19336.3   962.3 19389.1   958.9 19449.9   951.5 19624.1   955.9 19782.3   957.2
 19911.4   951.6 20081.9   950.6 20221.5   952.6 20269.4   959.3 20331.6   955.1
   20356   957.7 20398.9   948.7 20567.7   948.5 20744.7   949.1 20888.3   947.2
 20954.4   949.9 21000.8     949 21037.1   957.5 21099.1     956 21139.7   949.7
 21300.7   952.4 21411.2   949.7 21444.1   955.9 21487.9   956.1 21503.4     949
 21546.8     949 21556.2   952.2 21567.4   960.5   21588   955.9 21628.6   952.2
 21667.7   955.7 21698.6     949 21736.9     950 21748.7   952.4 21786.7   952.8
21827.41963.9898   21842     968 21955.2   963.2 21982.2   967.4 22181.8     966
 22228.4   965.8 22400.7   965.8 22432.3   965.9 22634.3   966.5 22801.2   966.1
 23008.7     966   23096   965.3

Manning's n Values        num=       7
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************************************************
   12498    .025   17569    .043 17769.9    .043 19389.1    .032 20331.6    .037
   21842    .037 21982.2    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
```

```
                                                                    DuplicateEffective
      17954.321827.41             500   495.8     500              .1       .3
Ineffective Flow      num=       2
   Sta L   Sta R    Elev  Permanent
  12498 17769.9     968       F
 21842.1   23096     968       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         *  963.35  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.41  * Wt. n-Val.             *          *    0.036  *          *
* W.S. Elev (ft)         *  962.94  * Reach Len. (ft)        *  500.00  *  495.80  *  500.00  *
* Crit W.S. (ft)         *  957.27  * Flow Area (sq ft)      *          * 31873.70  *          *
* E.G. Slope (ft/ft)     *0.000785  * Area (sq ft)           * 1051.08  * 31873.70  *          *
* Q Total (cfs)          *164000.00  * Flow (cfs)            *          *164000.00  *          *
* Top Width (ft)         * 5241.54  * Top Width (ft)        * 1410.58  * 3830.97  *          *
* Vel Total (ft/s)       *    5.15  * Avg. Vel. (ft/s)      *          *    5.15  *          *
* Max Chl Dpth (ft)      *   15.74  * Hydr. Depth (ft)      *          *    8.32  *          *
* Conv. Total (cfs)      *5852611.0  * Conv. (cfs)           *          *5852611.0  *          *
* Length Wtd. (ft)       *  495.80  * Wetted Per. (ft)      *          * 3845.63  *          *
* Min Ch El (ft)         *  947.20  * Shear (lb/sq ft)      *          *    0.41  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    2.09  *          *
* Frctn Loss (ft)        *    0.34  * Cum Volume (acre-ft)   * 3664.16  * 8033.81  *  920.88  *
* C & E Loss (ft)        *    0.02  * Cum SA (acres)         *  969.48  *  902.90  *  503.75  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)         *  963.45  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.40  * Wt. n-Val.             *          *    0.036  *          *
* W.S. Elev (ft)         *  963.05  * Reach Len. (ft)        *  500.00  *  495.80  *  500.00  *
* Crit W.S. (ft)         *  957.27  * Flow Area (sq ft)      *          * 32284.29  *          *
* E.G. Slope (ft/ft)     *0.000756  * Area (sq ft)           *          * 32284.29  *          *
* Q Total (cfs)          *164000.00  * Flow (cfs)            *          *164000.00  *          *
* Top Width (ft)         * 3830.97  * Top Width (ft)        *          * 3830.97  *          *
* Vel Total (ft/s)       *    5.08  * Avg. Vel. (ft/s)      *          *    5.08  *          *
* Max Chl Dpth (ft)      *   15.85  * Hydr. Depth (ft)      *          *    8.43  *          *
* Conv. Total (cfs)      *5964132.0  * Conv. (cfs)           *          *5964132.0  *          *
* Length Wtd. (ft)       *  495.80  * Wetted Per. (ft)      *          * 3845.85  *          *
* Min Ch El (ft)         *  947.20  * Shear (lb/sq ft)      *          *    0.40  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    2.01  *          *
* Frctn Loss (ft)        *    0.33  * Cum Volume (acre-ft)   *  290.25  * 8410.55  *   30.85  *
* C & E Loss (ft)        *    0.02  * Cum SA (acres)         *   43.55  *  903.24  *    5.87  *
*********************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                  RS: 201.81

INPUT
Description: 201.81

Left and Right Channel Bank Staions Interpolated
Station Elevation Data    num=      98
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
*********************************************************************************************
 12574.1    961.8 12761.8      962 12923.9    962.6 13108.8    962.8 13276.3      963
 13435.2    962.8 13461.6    960.9 13640.2    962.7 13758.3    961.2 13887.4    962.7
 14049.5    962.4 14230.8    962.1   14408    962.7 14585.1    963.8 14774.2    962.7
 14940.9    962.1 15056.2    964.1   15099    967.8 15104.2    963.1 15275.2    964.2
 15444.5    964.1 15610.6    963.9 15771.8    963.8 15946.1    963.3 16142.1    962.7
 16322.1      962 16382.5    963.6 16475.3    960.8 16709.7    962.1 16947.6    962.4
   17136      963   17301    963.8 17538.6    963.1 17700.9    964.2 17890.2    965.6
 17935.7  965.617946.89963.6227   17964    960.6   18130      958 18246.7    956.1
 18277.1    959.5 18483.2    960.9 18556.4    960.8 18619.6    964.6 18716.1    963.4
   18765    964.3 18860.5    957.6   18955    958.4 19006.4    951.6 19072.9    957.9
 19139.8    953.9 19294.5    954.6 19378.9    957.7 19550.9    954.4 19605.4    951.1
 19693.5    953.4 19720.4    950.1 19883.7    950.2 20049.4      953 20182.8    953.5
 20285.8    953.2 20377.1    957.6 20392.1    962.6 20421.1    948.6   20597    946.8
   20665    946.7 20832.3    946.1 20846.8    951.1 20855.6    956.4 20869.8    954.4
 20881.2    950.3 20908.5    949.6   20924    952.5 20962.6    950.9 21000.7    946.6
 21169.8      946 21187.6    953.2 21244.2    956.3 21263.5    960.4 21295.1    951.3
 21322.9    946.6 21496.1    948.5 21522.9    951.7 21690.5    950.7   21775    950.9
21803.27963.6213   21811    967.1   21860    969.2 21904.1    961.6 21929.9      965
 21975.7    963.6 22175.4    965.3 22352.1      965   22654    963.5 22715.1    963.5
 22875.2    962.8 23093.9    964.4 23169.5    964.2

Manning's n Values        num=       7
     Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val
*********************************************************************************************
 12574.1    .025 17700.9    .065 17935.7    .065 19378.9    .032 20392.1    .037
   21860    .025 21975.7    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      17946.8921803.27             535  511.61     515             .1       .3
Ineffective Flow      num=       2
   Sta L   Sta R    Elev  Permanent
 12574.1 17935.7   969.2       F
 21859.6 23169.5   969.2       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         *  962.99  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.36  * Wt. n-Val.             *          *    0.037  *          *
* W.S. Elev (ft)         *  962.64  * Reach Len. (ft)        *  535.00  *  511.61  *  515.00  *
* Crit W.S. (ft)         *  955.84  * Flow Area (sq ft)      *          * 34251.95  *          *
* E.G. Slope (ft/ft)     *0.000619  * Area (sq ft)           * 1201.75  * 34251.95  *    7.18  *
```

						DuplicateEffective					
* Q Total (cfs)	*164000.00	* Flow (cfs)		*		*164000.00	*				*
* Top Width (ft)	* 5916.44	* Top Width (ft)		* 2255.78		* 3646.80	*	13.87	*		
* Vel Total (ft/s)	* 4.79	* Avg. Vel. (ft/s)		*		* 4.79	*		*		
* Max Chl Dpth (ft)	* 16.64	* Hydr. Depth (ft)		*		* 9.39	*		*		
* Conv. Total (cfs)	*6592084.0	* Conv. (cfs)		*		*6592084.0	*				*
* Length Wtd. (ft)	* 511.64	* Wetted Per. (ft)		*		* 3662.92	*		*		
* Min Ch El (ft)	* 946.00	* Shear (lb/sq ft)		*		* 0.36	*		*		
* Alpha	* 1.00	* Stream Power (lb/ft s)		*		* 1.73	*		*		
* Frctn Loss (ft)	* 0.51	* Cum Volume (acre-ft)		* 3651.23		* 7657.48	*	920.84	*		
* C & E Loss (ft)	* 0.02	* Cum SA (acres)		* 948.44		* 860.35	*	503.67	*		

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 963.10	* Element		* Left OB		* Channel	*	Right OB	*		
* Vel Head (ft)	* 0.35	* Wt. n-Val.		*		* 0.037	*		*		
* W.S. Elev (ft)	* 962.75	* Reach Len. (ft)		* 535.00		* 511.61	*	515.00	*		
* Crit W.S. (ft)	* 955.84	* Flow Area (sq ft)		*		*34684.20	*		*		
* E.G. Slope (ft/ft)	*0.000597	* Area (sq ft)		*		*34684.20	*		*		
* Q Total (cfs)	*164000.00	* Flow (cfs)		*		*164000.00	*				*
* Top Width (ft)	* 3650.46	* Top Width (ft)		*		* 3650.46	*		*		
* Vel Total (ft/s)	* 4.73	* Avg. Vel. (ft/s)		*		* 4.73	*		*		
* Max Chl Dpth (ft)	* 16.75	* Hydr. Depth (ft)		*		* 9.50	*		*		
* Conv. Total (cfs)	*6711267.0	* Conv. (cfs)		*		*6711267.0	*				*
* Length Wtd. (ft)	* 511.61	* Wetted Per. (ft)		*		* 3666.82	*		*		
* Min Ch El (ft)	* 946.00	* Shear (lb/sq ft)		*		* 0.35	*		*		
* Alpha	* 1.00	* Stream Power (lb/ft s)		*		* 1.67	*		*		
* Frctn Loss (ft)	* 0.49	* Cum Volume (acre-ft)		* 290.25		* 8029.43	*	30.85	*		
* C & E Loss (ft)	* 0.03	* Cum SA (acres)		* 43.55		* 860.66	*	5.87	*		

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 201.71

INPUT
Description: 201.71

Left Channel Bank Staion Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12659.2	961.6	12855.6	961	13000	961	13129.9	960.8	13180.2	962.1
13187.7	959.3	13371.2	960	13521.5	960.3	13689.3	960.5	13844.9	960.6
13979.7	960.3	14193.8	960.9	14324.5	960.9	14461	961	14593.2	960.9
14774.5	961.4	14909.4	960.6	15132.5	961.7	15192.9	963.1	15384.5	962.1
15537.8	962.3	15716.6	961.2	15856.1	961.1	16082.6	960.9	16210.7	961.2
16383	961	16543.7	961	16684.4	961.3	16813.5	961.2	16941.4	961.7
17106.2	961.5	17255.2	962	17388.3	961.5	17585.2	961.5	17706.7	962.1
17766.4	963.8	17769.2	962.5	17794.4	964.5	17957.8	964.3	18096.3	964.8
18107.05	962.8899	18140.2	957	18197.6	953.2	18356.6	956.6	18441.5	961.3
18556.1	957.7	18600.1	958.6	18651.3	956.4	18676.1	956.9	18707	951.3
18764	957	18831.5	958.2	19007.5	955.3	19076.4	952	19279.5	954.1
19409.2	953.7	19475.6	949.9	19555.7	955.6	19660.9	959	19739.3	954.2
19763.1	949.4	19910.3	951	19978.4	951.1	20023.1	954.8	20199	956
20304.5	951.4	20347.1	954.9	20447.3	951.1	20499.8	956.3	20554.9	954.5
20692.6	956.1	20848.5	954.8	20899.8	950.2	20984.5	949.7	21011.3	946
21148.8	948.4	21186.8	951.7	21268.1	954.5	21355	953.1	21433.7	954.9
21490.6	959.4	21528.5	960.3	21661.1	959.7	21837.7	959.7	21975.8	962.2
22098	963.6	22111.4	961.1	22160.6	964.1	22190.7	962.9	22353.1	963.4
22385.7	963.3	22516.6	964.2	22615.8	964.3	22832.1	963.4	22981.6	963.4
23127.8	962.8	23246	962						

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
12659.2	.025	17706.7	.065	18096.3	.065	19660.9	.032	20554.9	.037
21355	.025	21528.5	.025						

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
18107.05	21528.5	505 489.63	495	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
12659.2	18096.3	966	F
22098	23246	966	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 962.46	* Element		* Left OB		* Channel	*	Right OB	*		
* Vel Head (ft)	* 0.59	* Wt. n-Val.		*		* 0.040	*	0.025	*		
* W.S. Elev (ft)	* 961.87	* Reach Len. (ft)		* 505.00		* 489.63	*	495.00	*		
* Crit W.S. (ft)	* 958.21	* Flow Area (sq ft)		*		*25898.28	*	759.85	*		
* E.G. Slope (ft/ft)	*0.001826	* Area (sq ft)		* 3860.96		*25898.28	*	766.25	*		
* Q Total (cfs)	*164000.00	* Flow (cfs)		*		*161174.80	*	2825.19	*		
* Top Width (ft)	* 8308.19	* Top Width (ft)		* 4446.92		* 3415.69	*	445.58	*		
* Vel Total (ft/s)	* 6.15	* Avg. Vel. (ft/s)		*		* 6.22	*	3.72	*		
* Max Chl Dpth (ft)	* 15.87	* Hydr. Depth (ft)		*		* 7.58	*	1.77	*		
* Conv. Total (cfs)	*3838417.0	* Conv. (cfs)		*		*3772294.0	*	66123.6	*		
* Length Wtd. (ft)	* 489.70	* Wetted Per. (ft)		*		* 3420.11	*	428.91	*		
* Min Ch El (ft)	* 946.00	* Shear (lb/sq ft)		*		* 0.86	*	0.20	*		
* Alpha	* 1.01	* Stream Power (lb/ft s)		*		* 5.37	*	0.75	*		

```
                                                                    DuplicateEffective
* Frctn Loss (ft)        *    0.78  * Cum Volume (acre-ft)   * 3620.14  * 7304.25  *  916.27  *
* C & E Loss (ft)        *    0.02  * Cum SA (acres)         *  907.28  *  818.87  *  500.95  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)          *  962.58  * Element              *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.60  * Wt. n-Val.           *          *   0.040  *          *
* W.S. Elev (ft)          *  961.98  * Reach Len. (ft)      *  505.00  *  489.63  *  495.00  *
* Crit W.S. (ft)          *  958.21  * Flow Area (sq ft)    *          * 26277.29  *          *
* E.G. Slope (ft/ft)      *0.001807  * Area (sq ft)         *          * 26277.29  *          *
* Q Total (cfs)           *164000.00  * Flow (cfs)          *          *164000.00  *          *
* Top Width (ft)          * 3415.69  * Top Width (ft)      *          * 3415.69  *          *
* Vel Total (ft/s)        *    6.24  * Avg. Vel. (ft/s)     *          *    6.24  *          *
* Max Chl Dpth (ft)       *   15.98  * Hydr. Depth (ft)     *          *    7.69  *          *
* Conv. Total (cfs)       *3858296.0  * Conv. (cfs)         *          *3858296.0  *          *
* Length Wtd. (ft)        *  489.63  * Wetted Per. (ft)     *          * 3421.90  *          *
* Min Ch El (ft)          *  946.00  * Shear (lb/sq ft)     *          *    0.87  *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s) *          *    5.41  *          *
* Frctn Loss (ft)         *    0.76  * Cum Volume (acre-ft)   *  290.25  * 7671.43  *   30.85  *
* C & E Loss (ft)         *    0.03  * Cum SA (acres)         *   43.55  *  819.17  *    5.87  *
*********************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                RS: 201.62

INPUT
Description: 201.62

Left Channel Bank Station Interpolated
Station Elevation Data    num=      97
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 12723.6   960.1 12862.6   960.3 13017.9   960.4 13156.4   960.4 13253.3   961.5
 13267.4     959 13436.1   959.9 13621.5   960.4 13766.2   960.5 13909.8   960.4
 14075.1   960.4 14269.1   960.4 14410.3   960.9 14542.3   960.9 14677.4     961
 14845.4   961.8 15072.7     961 15207.9   961.9 15344.9   961.6 15510.2   961.6
 15676.2     961   15821   960.6 15995.5   960.4 16157.9   960.8   16296   961.1
 16491.6   961.1 16630.4   960.7 16799.9   960.5 16987.6   960.1 17022.4     962
 17197.5   958.5 17331.6   959.3 17350.4   962.3   17555   961.1 17693.7   961.5
 17788.7   963.5 17792.9   962.2 17963.6   963.3   18107   962.8 18229.7   963.9
 18233.5962.1533 18253.2   953.1 18417.5   953.4 18563.5   953.4 18723.5   952.3
 18864.3   951.9 18956.1   956.6 19045.2   956.9 19129.4   952.1 19159.3   954.5
 19237.7   952.1 19435.3   953.3   19483   951.6   19522   953.4   19577   948.8
 19677.3   954.6 19737.2   953.8 19772.7   949.2 19918.1   949.3 20064.6   953.2
 20213.3   953.8 20358.7   952.9 20472.9     952 20509.2     950 20584.5   955.3
 20619.5   953.2 20653.6   948.7 20723.6   953.3 20794.2   955.3 20904.8   954.6
 20962.2   949.9 20990.6   945.6 21150.5   945.9 21165.2   946.9 21199.1   955.3
   21351   951.4 21457.3   955.6 21477.5   960.2 21514.2   959.4 21654.6   959.9
   21824   959.8 21964.5   960.6 22074.2     961   22085   959.8 22090.5   961.3
 22197.1   961.9 22233.4   963.7 22249.4   962.1   22301   963.2 22456.6   963.4
 22491.4   963.3 22714.7   962.8 22775.6   962.8 22945.1   962.7 23131.5   962.5
 23268.1   960.6 23318.4   961.5

Manning's n Values        num=       9
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************************************************
 12723.6    .025 16799.9     .15 17197.5    .025 17792.9    .065 18229.7    .065
   19577    .032 20509.2    .037   21351    .025 21477.5    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       18233.5 21477.5             485  486.48     510             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 12723.6 18229.7     965       F
 22233.4 23318.4   963.9       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)          *  961.66  * Element              *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.51  * Wt. n-Val.           *          *   0.041  *   0.025  *
* W.S. Elev (ft)          *  961.15  * Reach Len. (ft)      *  485.00  *  486.48  *  510.00  *
* Crit W.S. (ft)          *  956.72  * Flow Area (sq ft)    *          * 28110.98  *  662.38  *
* E.G. Slope (ft/ft)      *0.001385  * Area (sq ft)         * 2551.77  * 28110.98  *  681.56  *
* Q Total (cfs)           *164000.00  * Flow (cfs)          *          *162456.50  * 1543.48  *
* Top Width (ft)          * 7614.80  * Top Width (ft)      * 3690.53  * 3241.81  *  682.45  *
* Vel Total (ft/s)        *    5.70  * Avg. Vel. (ft/s)     *          *    5.78  *    2.33  *
* Max Chl Dpth (ft)       *   15.55  * Hydr. Depth (ft)     *          *    8.67  *    1.08  *
* Conv. Total (cfs)       *4406350.0  * Conv. (cfs)         *          *4364879.0  * 41470.3  *
* Length Wtd. (ft)        *  486.98  * Wetted Per. (ft)     *          * 3247.77  *  612.70  *
* Min Ch El (ft)          *  945.60  * Shear (lb/sq ft)     *          *    0.75  *    0.09  *
* Alpha                   *    1.02  * Stream Power (lb/ft s) *          *    4.33  *    0.22  *
* Frctn Loss (ft)         *    0.78  * Cum Volume (acre-ft)   * 3582.97  * 7000.71  *  908.04  *
* C & E Loss (ft)         *    0.02  * Cum SA (acres)         *  860.11  *  781.46  *  494.54  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)          *  961.80  * Element              *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.51  * Wt. n-Val.           *          *   0.041  *          *
```

```
                                                                    DuplicateEffective
* W.S. Elev (ft)          *  961.28  * Reach Len. (ft)          *  485.00  *  486.48  *  510.00  *
* Crit W.S. (ft)          *  956.72  * Flow Area (sq ft)        *          *28552.62  *          *
* E.G. Slope (ft/ft)      *0.001343  * Area (sq ft)             *          *28552.62  *          *
* Q Total (cfs)           *164000.00  * Flow (cfs)              *          *164000.00  *          *
* Top Width (ft)          * 3241.81  * Top Width (ft)          *          * 3241.81  *          *
* Vel Total (ft/s)        *    5.74  * Avg. Vel. (ft/s)        *          *    5.74  *          *
* Max Chl Dpth (ft)       *   15.68  * Hydr. Depth (ft)        *          *    8.81  *          *
* Conv. Total (cfs)       *4475808.0  * Conv. (cfs)            *          *4475808.0  *          *
* Length Wtd. (ft)        *  486.48  * Wetted Per. (ft)        *          * 3248.99  *          *
* Min Ch El (ft)          *  945.60  * Shear (lb/sq ft)        *          *    0.74  *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s) *          *    4.23  *          *
* Frctn Loss (ft)         *    0.77  * Cum Volume (acre-ft)    *  290.25  * 7363.28  *   30.85  *
* C & E Loss (ft)         *    0.01  * Cum SA (acres)          *   43.55  *  781.75  *    5.87  *
*****************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 201.52

INPUT
Description: 201.52

Left Channel Bank Station Interpolated
Station Elevation Data    num=      97
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
*************************************************************************************
 12786.6    960.2 12939.6    960.1    13099    960.1 13244.9    960.2 13300.5    962.8
 13357.3    959.7 13501.3    960.4 13678.7    959.8 13830.9      960 14035.1    959.9
 14185.2    959.4 14386.6    959.8    14539    959.6 14722.7    959.3 14894.1    959.5
 15114.2    959.2 15254.5    962.1 15427.2    959.8 15592.7    959.9 15779.1    959.7
 15959.1    959.6 16138.8    959.3 16313.2    960.4 16492.7    958.5 16665.8      959
 16834.1      958 17009.5    957.5 17081.3    959.5 17261.7      956 17408.3    957.9
   17566      960 17731.1    959.6 17842.3    960.3 17845.2    962.9 17943.7 3961.3971
 18009.1    960.4 18087.6    959.9 18104.5      954 18264.9    951.7 18427.6    949.5
 18577.1    948.4 18651.6    946.4 18699.1    952.7 18753.8      949 18784.8    949.1
 18848.6    953.1 18893.8      954 18925.3      958 19065.9    958.5    19153    954.3
 19223.7    956.3    19377    949.7 19404.1    948.6 19480.7    949.5 19540.9    947.7
 19607.6    951.7    19748    954.6 19781.1    954.1 19818.6    949.6 19876.6    948.4
   19936    956.7 20100.5    954.2    20244    952.7 20403.3    950.4 20550.4    948.2
 20608.4      948 20715.6    953.3 20891.6    948.2 20923.4    941.8 20972.4    940.9
 20990.6    945.3 21048.3      948    21178    947.3 21216.5    954.8 21254.9      957
 21391.4    958.4 21554.4      958 21596.8    958.1 21777.9    958.2 21934.4    958.6
 21995.7    958.3 22004.2    960.1 22157.3    959.4 22212.5    961.1 22218.9    959.2
 22225.8    961.6 22299.7    963.1 22311.3    960.4 22338.4    962.5 22478.8    962.4
 22674.4    962.5 22848.1    961.1 22905.9    961.6 23058.8    963.2 23081.5    963.2
 23263.4    961.3    23370    959.8

Manning's n Values        num=       7
     Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val
*************************************************************************************
 12786.6    .025 17009.5      .15 17261.7    .025 17845.2      .15 19480.7    .032
   20244    .037 21391.4    .025

Bank Sta: Left    Right    Lengths: Left Channel    Right      Coeff Contr.    Expan.
      17943.73 21391.4                 495  492.06     495              .1       .3
Ineffective Flow     num=       2
   Sta L    Sta R     Elev  Permanent
 12786.6 17845.2   963.2        F
 22212.5    23370   963.2        F

CROSS SECTION OUTPUT  Profile #PF#1
*****************************************************************************************
* E.G. Elev (ft)          *  960.87  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.46  * Wt. n-Val.             *          *    0.049  *    0.025  *
* W.S. Elev (ft)          *  960.41  * Reach Len. (ft)        *  495.00  *  492.06  *  495.00  *
* Crit W.S. (ft)          *  955.39  * Flow Area (sq ft)      *          *28831.95  * 1431.09  *
* E.G. Slope (ft/ft)      *0.001854  * Area (sq ft)           * 4789.06  *28831.95  * 1448.82  *
* Q Total (cfs)           *164000.00  * Flow (cfs)            *          *158597.90  * 5402.08  *
* Top Width (ft)          * 8984.51  * Top Width (ft)        * 4752.04  * 3382.87  *  849.60  *
* Vel Total (ft/s)        *    5.42  * Avg. Vel. (ft/s)      *          *    5.50  *    3.77  *
* Max Chl Dpth (ft)       *   19.51  * Hydr. Depth (ft)      *          *    8.52  *    1.79  *
* Conv. Total (cfs)       *3808935.0  * Conv. (cfs)          *          *3683471.0  *125464.6  *
* Length Wtd. (ft)        *  492.14  * Wetted Per. (ft)      *          * 3388.49  *  798.86  *
* Min Ch El (ft)          *  940.90  * Shear (lb/sq ft)      *          *    0.98  *    0.21  *
* Alpha                   *    1.01  * Stream Power (lb/ft s) *          *    5.42  *    0.78  *
* Frctn Loss (ft)         *    0.85  * Cum Volume (acre-ft)  * 3542.10  * 6682.74  *  895.57  *
* C & E Loss (ft)         *    0.01  * Cum SA (acres)        *  813.11  *  744.46  *  485.58  *
*****************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*****************************************************************************************
* E.G. Elev (ft)          *  961.02  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.49  * Wt. n-Val.             *          *    0.049  *          *
* W.S. Elev (ft)          *  960.53  * Reach Len. (ft)        *  495.00  *  492.06  *  495.00  *
* Crit W.S. (ft)          *  955.39  * Flow Area (sq ft)      *          *29242.62  *          *
* E.G. Slope (ft/ft)      *0.001898  * Area (sq ft)           *          *29242.62  *          *
* Q Total (cfs)           *164000.00  * Flow (cfs)            *          *164000.00  *          *
* Top Width (ft)          * 3382.85  * Top Width (ft)        *          * 3382.85  *          *
* Vel Total (ft/s)        *    5.61  * Avg. Vel. (ft/s)      *          *    5.61  *          *
* Max Chl Dpth (ft)       *   19.63  * Hydr. Depth (ft)      *          *    8.64  *          *
* Conv. Total (cfs)       *3764143.0  * Conv. (cfs)          *          *3764143.0  *          *
* Length Wtd. (ft)        *  492.06  * Wetted Per. (ft)      *          * 3390.73  *          *
* Min Ch El (ft)          *  940.90  * Shear (lb/sq ft)      *          *    1.02  *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s) *          *    5.73  *          *
* Frctn Loss (ft)         *    0.86  * Cum Volume (acre-ft)  *  290.25  * 7040.55  *   30.85  *
* C & E Loss (ft)         *    0.01  * Cum SA (acres)        *   43.55  *  744.76  *    5.87  *
```

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 201.43

INPUT
Description: 201.43

Left Channel Bank Station Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12790.4	959.2	12931.7	959.4	13106.1	959.5	13261.9	959.6	13426.6	960.3
13574.8	960.1	13719.2	960	13863.6	960.3	14015.4	959.4	14162.1	960.1
14260	960.7	14418.2	961.9	14556.8	961.4	14697.8	960.6	14846.1	959.1
15008.5	959.1	15194.6	958.6	15331.7	959.1	15511.6	959.4	15657.5	959.5
15799.1	959.9	15827.9	961.5	15973.4	960.8	16110.8	960.5	16254.2	959.9
16478.5	958.1	16617.9	958	16780.3	959.8	16924.1	959.3	17061.9	956
17202.1	956.4	17374.3	959	17594.2	959.4	17734	959.4	17844.3	960.3
17853.5	961.9	17859.2	959.6	18001.4	960.7	18014.99	60.4907	18053	959.9
18066.9	952.8	18179.7	952.8	18317	950.6	18459.7	949.9	18597.4	947.5
18738.8	948.8	18799.8	954.8	18924.3	958	19076.8	958.9	19195.5	956.6
19253.6	950.7	19403.4	947	19416.1	948.3	19450.8	947.6	19528.4	954.4
19671.9	955.8	19712.9	955.8	19744.1	948.3	19847.5	947.6	19851.7	953.1
19996.8	955.1	20141.7	954.2	20303.2	954.8	20474.6	951.5	20649	946.3
20689.8	947.9	20719.5	943.8	20747.5	947.5	20911.6	947	20951.8	947.8
20976.3	941.3	21080.6	942.7	21100.4	945.1	21136.4	946.2	21179.1	944.6
21271.5	950.5	21342.1	957.5	21353.3	959.8	21363.1	957.2	21516.4	957.7
21676.7	958.3	21814.1	958.7	21883	958.4	22035.4	957.9	22182.8	959.4
22322.3	960.9	22328.9	958.7	22340	962.3	22362.8	960.4	22606.3	961.2
22648.5	961.2	22787	960.2	22945.6	960.3	23094.6	961.1	23289.3	961
23341.9	960.2	23387.4	958.8						

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
12790.4	.043	15827.9	.065	17202.1	.025	17853.5	.15	19253.6	.032
20649	.037	21342.1	.025						

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
18014.9	21342.1	555	519.88	505	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
12790.4	18000	962.3	F
22322.3	23387.4	962.3	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	960.01	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.55	Wt. n-Val.		0.042	0.025
W.S. Elev (ft)	959.46	Reach Len. (ft)	555.00	519.88	505.00
Crit W.S. (ft)	954.87	Flow Area (sq ft)		26895.29	1076.51
E.G. Slope (ft/ft)	0.001619	Area (sq ft)	1820.20	26895.29	1085.40
Q Total (cfs)	164000.00	Flow (cfs)		160971.10	3028.85
Top Width (ft)	6526.99	Top Width (ft)	2369.07	3288.24	869.68
Vel Total (ft/s)	5.86	Avg. Vel. (ft/s)		5.99	2.81
Max Chl Dpth (ft)	18.16	Hydr. Depth (ft)		8.18	1.28
Conv. Total (cfs)	4076199.0	Conv. (cfs)		4000917.0	75281.8
Length Wtd. (ft)	519.63	Wetted Per. (ft)		3296.86	844.04
Min Ch El (ft)	941.30	Shear (lb/sq ft)		0.82	0.13
Alpha	1.03	Stream Power (lb/ft s)		4.93	0.36
Frctn Loss (ft)	0.94	Cum Volume (acre-ft)	3504.55	6367.99	881.17
C & E Loss (ft)	0.01	Cum SA (acres)	772.65	706.78	475.81

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	960.15	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.56	Wt. n-Val.		0.042	
W.S. Elev (ft)	959.60	Reach Len. (ft)	555.00	519.88	505.00
Crit W.S. (ft)	954.87	Flow Area (sq ft)		27334.01	
E.G. Slope (ft/ft)	0.001604	Area (sq ft)		27334.01	
Q Total (cfs)	164000.00	Flow (cfs)		164000.00	
Top Width (ft)	3288.24	Top Width (ft)		3288.24	
Vel Total (ft/s)	6.00	Avg. Vel. (ft/s)		6.00	
Max Chl Dpth (ft)	18.30	Hydr. Depth (ft)		8.31	
Conv. Total (cfs)	4094692.0	Conv. (cfs)		4094692.0	
Length Wtd. (ft)	519.88	Wetted Per. (ft)		3299.09	
Min Ch El (ft)	941.30	Shear (lb/sq ft)		0.83	
Alpha	1.00	Stream Power (lb/ft s)		4.98	
Frctn Loss (ft)	0.92	Cum Volume (acre-ft)	290.25	6721.00	30.85
C & E Loss (ft)	0.01	Cum SA (acres)	43.55	707.08	5.87

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 201.33

INPUT
Description: 201.33

```
Left ChannelBank Station Interpolated
Station Elevation Data    num=      97
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 12785.7   957.8 12951.9   958.1 13134.4   958.1 13293.5   958.1 13493.4   958.4
 13649.5   958.9 13744.1   960.9 13758.6   959.4 13925.5     959 14085.7   958.6
 14255.8   961.3 14420.6   961.4 14593.6   961.2 14794.8   960.7 14992.6   959.3
   15164   957.6 15345.7   958.5 15520.6   959.3 15694.3   959.9 15854.4   959.9
 16014.9   960.3 16184.1   960.4 16362.7   960.3 16517.9   960.6 16680.1   958.6
 16837.4   958.7   16937   956.7 17109.2   956.2 17266.3   958.7 17288.5   957.8
 17465.9   959.2 17667.7     959 17831.2   959.5   17862   961.6 17929.5   961.8
 17948.2  960.418049.52959.5026 18072.4   959.3 18086.6     953 18242.2   954.4
 18398.7   954.5 18556.7   954.3 18607.2   952.5 18626.2   948.5 18634.2     950
 18715.7   949.6   18791   954.8 18874.7   955.9 18937.2   954.7 18984.3     948
 19116.8   949.1 19140.9     943 19269.7   945.9   19315   948.3 19489.9   950.7
 19565.6   952.4 19588.8   955.2 19608.2   948.1 19752.9     948 19806.6     953
 19969.5   952.2 20134.6   953.3 20171.4   952.2 20226.7   955.4 20293.9   954.2
 20341.3   955.5 20424.9   951.7 20512.5   950.6 20548.8   944.7 20652.6     950
 20769.7   946.7 20843.2     955 21006.1   948.3 21057.8   946.6 21076.8   943.6
 21236.1   944.8 21304.1   946.3 21310.7     945   21357   957.5 21381.8   958.1
 21545.7   957.7 21548.3   957.8 21799.8   956.8 21810.6   956.8 22056.9   957.1
 22107.8   957.3   22115   958.6 22356.1   957.9 22513.8   959.5 22624.6   962.2
 22794.7   960.7 22966.1     961 23037.1   962.1 23192.4   961.3 23366.6   961.5
 23397.6   960.4   23444   960.7

Manning's n Values        num=       7
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************************************************
 12785.7    .043 15854.4    .065 17266.3    .025 17929.5     .15 19116.8    .032
   19315    .037 21381.8    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      18049.52 21381.8              515  514.62     515             .1       .3
Ineffective Flow     num=       2
   Sta L    Sta R    Elev  Permanent
 12785.7 17929.5   962.2       F
 22624.6   23444   962.2       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         *  959.06  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.63  * Wt. n-Val.            *          *   0.042  *   0.025  *
* W.S. Elev (ft)         *  958.44  * Reach Len. (ft)       *  515.00  *  514.62  *  515.00  *
* Crit W.S. (ft)         *  954.88  * Flow Area (sq ft)     *          * 25245.53  *  889.59  *
* E.G. Slope (ft/ft)     *0.002024  * Area (sq ft)          *  944.14  * 25245.53  *  889.59  *
* Q Total (cfs)          *164000.00  * Flow (cfs)          *          * 161537.10  * 2462.93  *
* Top Width (ft)         * 5745.25  * Top Width (ft)       * 1467.85  * 3307.46  *  969.94  *
* Vel Total (ft/s)       *    6.28  * Avg. Vel. (ft/s)     *          *    6.40  *    2.77  *
* Max Chl Dpth (ft)      *   15.44  * Hydr. Depth (ft)     *          *    7.63  *    0.92  *
* Conv. Total (cfs)      *3645795.0  * Conv. (cfs)         *          * 3591043.0  * 54752.0  *
* Length Wtd. (ft)       *  514.63  * Wetted Per. (ft)     *          * 3316.01  *  970.05  *
* Min Ch El (ft)         *  943.00  * Shear (lb/sq ft)     *          *    0.96  *    0.12  *
* Alpha                  *    1.03  * Stream Power (lb/ft s) *        *    6.15  *    0.32  *
* Frctn Loss (ft)        *    1.00  * Cum Volume (acre-ft)  * 3486.94  * 6056.85  *  869.72  *
* C & E Loss (ft)        *    0.01  * Cum SA (acres)        *  748.21  *  667.42  *  465.14  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)         *  959.23  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.63  * Wt. n-Val.            *          *   0.042  *          *
* W.S. Elev (ft)         *  958.60  * Reach Len. (ft)       *  515.00  *  514.62  *  515.00  *
* Crit W.S. (ft)         *  954.88  * Flow Area (sq ft)     *          * 25785.53  *          *
* E.G. Slope (ft/ft)     *0.001959  * Area (sq ft)          *          * 25785.53  *          *
* Q Total (cfs)          *164000.00  * Flow (cfs)          *          * 164000.00  *          *
* Top Width (ft)         * 3307.45  * Top Width (ft)       *          * 3307.45  *          *
* Vel Total (ft/s)       *    6.36  * Avg. Vel. (ft/s)     *          *    6.36  *          *
* Max Chl Dpth (ft)      *   15.60  * Hydr. Depth (ft)     *          *    7.80  *          *
* Conv. Total (cfs)      *3705386.0  * Conv. (cfs)         *          * 3705386.0  *          *
* Length Wtd. (ft)       *  514.62  * Wetted Per. (ft)     *          * 3316.67  *          *
* Min Ch El (ft)         *  943.00  * Shear (lb/sq ft)     *          *    0.95  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *        *    6.05  *          *
* Frctn Loss (ft)        *    0.96  * Cum Volume (acre-ft)  *  290.25  * 6404.02  *   30.85  *
* C & E Loss (ft)        *    0.01  * Cum SA (acres)        *   43.55  *  667.72  *    5.87  *
*********************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 201.24

INPUT
Description: 201.24

Left Channel Bank Station Interpolated
Station Elevation Data    num=      97
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
   12806   955.8 12962.7   956.3 13145.6   957.3 13331.4   956.5 13517.2   956.2
 13697.1   957.3 13855.5   957.4 14010.3     957 14164.7   956.7 14318.4   958.2
   14482   958.5   14660   956.8 14688.4   957.7 14821.8   955.2   14989   957.8
   15156   956.9 15324.8   957.6 15476.8     959 15632.7   959.6   15787   959.8
 15939.5     959 16132.2   958.4 16296.2   957.9 16464.6   957.9 16632.1   958.1
 16801.9   956.7 16986.8   954.6 17117.8   954.3 17180.2   958.7 17353.5   957.6
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                                                                    DuplicateEffective
 17566.1   957.4 17719.1   957.9 17947.6   957.8 18063.5   959.918067.36958.4367
 18084.6   951.9 18123.2   954.4 18273.7   954.7 18463.7   954.1 18640.4   954.1
 18769.1   951.5 18834.7   946.6 18852.7   947.7   18957   944.8 19101.5   944.9
 19190.4   949.6 19365.4   949.8 19479.4   950.7 19501.5   945.5 19659.5   947.2
 19709.9     951 19861.9   951.5 20036.3   950.6 20116.5     953 20174.4   956.4
 20272.4   956.3 20322.3   953.3 20397.8   952.3 20534.1   946.8 20728.3   949.3
 20901.9   952.6 21060.4   953.1 21108.8   948.4 21143.3   943.1 21322.6     943
   21477   945.1 21515.7   945.4 21547.4   956.4   21570   957.6 21573.6   955.3
 21742.9   955.8 21840.8   955.8 22073.6   956.2 22315.2   956.6 22474.6   957.8
 22660.5   959.5 22837.1   960.3   23006   960.7   23189   960.3 23372.7   959.3
 23535.3   958.6 23693.7   960.2 23701.8   958.7 23728.6   959.3 23733.9   957.9
 23745.1   960.6 23895.9   959.5 24055.3   959.7   24212     959 24364.3   958.6
 24523.2     960 24683.9   959.1 24867.9   960.4 25044.2   960.6 25240.9   961.6
 25449.6   962.7   25490   964.7

Manning's n Values        num=       9
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************************************************
   12806    .043 16132.2    .065 17180.2    .025 17947.6     .15 18063.5     .15
   18957    .037 19659.5    .032 20174.4    .037   21570    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
     18067.36   21570             485  488.56     490             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
   12806 18063.5   964.7       F
   23006   25490   964.7       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)          *  958.06  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.59  * Wt. n-Val.             *          *   0.040  *   0.025  *
* W.S. Elev (ft)          *  957.46  * Reach Len. (ft)        *  485.00  *  488.56  *  490.00  *
* Crit W.S. (ft)          *  953.61  * Flow Area (sq ft)      *          * 25746.25 * 1138.86  *
* E.G. Slope (ft/ft)      *0.001852  * Area (sq ft)           * 2208.10  * 25746.25 * 1138.86  *
* Q Total (cfs)           *164000.00  * Flow (cfs)           *          *160488.90  * 3511.11  *
* Top Width (ft)          * 6935.04  * Top Width (ft)        * 2577.63  * 3497.54  *  859.88  *
* Vel Total (ft/s)        *    6.10  * Avg. Vel. (ft/s)      *          *    6.23  *    3.08  *
* Max Chl Dpth (ft)       *   14.46  * Hydr. Depth (ft)      *          *    7.36  *    1.32  *
* Conv. Total (cfs)       *3811227.0  * Conv. (cfs)          *          *3729632.0  * 81595.2  *
* Length Wtd. (ft)        *  488.58  * Wetted Per. (ft)      *          * 3502.73  *  860.52  *
* Min Ch El (ft)          *  943.00  * Shear (lb/sq ft)      *          *    0.85  *    0.15  *
* Alpha                   *    1.03  * Stream Power (lb/ft s) *          *    5.30  *    0.47  *
* Frctn Loss (ft)         *    0.68  * Cum Volume (acre-ft)  * 3468.30  * 5755.64  *  857.73  *
* C & E Loss (ft)         *    0.05  * Cum SA (acres)        *  724.29  *  627.23  *  454.33  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)          *  958.26  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.60  * Wt. n-Val.             *          *   0.040  *          *
* W.S. Elev (ft)          *  957.66  * Reach Len. (ft)        *  485.00  *  488.56  *  490.00  *
* Crit W.S. (ft)          *  953.61  * Flow Area (sq ft)      *          * 26420.07  *          *
* E.G. Slope (ft/ft)      *0.001790  * Area (sq ft)           *          * 26420.07  *          *
* Q Total (cfs)           *164000.00  * Flow (cfs)           *          *164000.00  *          *
* Top Width (ft)          * 3500.08  * Top Width (ft)        *          * 3500.08  *          *
* Vel Total (ft/s)        *    6.21  * Avg. Vel. (ft/s)      *          *    6.21  *          *
* Max Chl Dpth (ft)       *   14.66  * Hydr. Depth (ft)      *          *    7.55  *          *
* Conv. Total (cfs)       *3876386.0  * Conv. (cfs)          *          *3876386.0  *          *
* Length Wtd. (ft)        *  488.56  * Wetted Per. (ft)      *          * 3505.53  *          *
* Min Ch El (ft)          *  943.00  * Shear (lb/sq ft)      *          *    0.84  *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s) *          *    5.23  *          *
* Frctn Loss (ft)         *    0.65  * Cum Volume (acre-ft)  *  290.25  * 6095.64  *   30.85  *
* C & E Loss (ft)         *    0.06  * Cum SA (acres)        *   43.55  *  627.51  *    5.87  *
*********************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                  RS: 201.14

INPUT
Description: 201.14

Left Channel Bank Station Interpolated
Station Elevation Data    num=      97
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 12823.9   955.7 12999.4   956.2 13212.7   955.6 13428.9     956 13645.2   955.7
 13816.9   955.8 13992.2     956 14163.4   956.5 14335.2   955.8 14527.3   956.5
 14708.6   956.3 14909.6   955.2 15093.8   955.5   15267   954.8 15439.6   956.4
 15609.9   956.4   15791   956.8 15950.3     959 16129.2   957.7 16303.6     956
   16475   953.7 16660.8     955 16839.9   953.5 17004.5   951.4 17082.5   958.8
 17162.8   956.1 17184.4   958.7 17362.4   957.4 17598.4   957.1 17832.2   956.8
 18017.1     960   18032   960.218037.86957.9083 18056.8   950.5 18241.1   949.4
 18415.6   950.8 18585.7   951.8 18725.4   952.4 18733.1   949.9 18790.6   949.1
 18818.8   941.6 18850.4   943.3 18986.4   943.9 19077.9   949.8 19149.1   948.9
 19305.2     951 19389.8   945.3 19562.7   946.4   19610   949.5 19790.7   949.7
   19961   950.3 20069.8   955.8 20203.6   953.6 20241.8   949.2 20445.4   947.5
 20553.6     952 20738.9   949.5 20840.4   947.3 20887.4   943.5 20941.4   948.4
 20992.7   949.8 21019.8     942 21063.4   942.9 21079.7   945.4 21128.6     946
   21160   941.1 21202.5   940.4 21278.6   945.6 21455.1   945.3 21569.3   940.9
 21644.4   944.5 21697.9   954.5   21721   955.2 21725.6   953.1 21741.2     955
 22051.3   955.9 22155.8   956.1 22389.7   956.4 22512.4   956.8 22725.1   956.9
 22832.8     959 22857.1     957 23030.8     959 23238.6   958.8   23414   958.9
 23606.9   957.7 23803.1     958 24052.9   958.2 24291.1   958.1 24471.3   958.5
 24625.1   958.9 24632.8   957.3 24637.8   958.9 24815.7   959.6 25013.4   960.6
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 25215.4   961.6 25365.2   962.4

Manning's n Values        num=       8
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************************************************
 12823.9    .043 16303.6    .065 17184.4    .025   18032     .15 18850.4    .037
   19610    .032 20553.6    .037   21721    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      18037.86   21721             480  481.53     485             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 12823.9   18032   962.4       F
 22832.8 25365.2   962.4       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         *  957.32  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.42  * Wt. n-Val.            *          *   0.040  *   0.025  *
* W.S. Elev (ft)         *  956.91  * Reach Len. (ft)       *  480.00  *  481.53  *  485.00  *
* Crit W.S. (ft)         *  952.08  * Flow Area (sq ft)     *          *31262.79  *  806.56  *
* E.G. Slope (ft/ft)     *0.001090  * Area (sq ft)          * 5150.77  *31262.79  *  806.56  *
* Q Total (cfs)          *164000.00  * Flow (cfs)          *          *162632.90  * 1367.12  *
* Top Width (ft)         * 8631.33  * Top Width (ft)       * 3946.34  * 3680.58  * 1004.42  *
* Vel Total (ft/s)       *    5.11  * Avg. Vel. (ft/s)     *          *    5.20  *    1.70  *
* Max Chl Dpth (ft)      *   16.51  * Hydr. Depth (ft)     *          *    8.49  *    0.80  *
* Conv. Total (cfs)      *4966393.0  * Conv. (cfs)         *          *4924992.0  * 41400.3  *
* Length Wtd. (ft)       *  481.58  * Wetted Per. (ft)     *          * 3687.66  * 1004.99  *
* Min Ch El (ft)         *  940.40  * Shear (lb/sq ft)     *          *    0.58  *    0.05  *
* Alpha                  *    1.03  * Stream Power (lb/ft s) *        *    3.00  *    0.09  *
* Frctn Loss (ft)        *    0.50  * Cum Volume (acre-ft)  * 3427.33  * 5435.94  *  846.79  *
* C & E Loss (ft)        *    0.03  * Cum SA (acres)        *  687.97  *  586.97  *  443.84  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)         *  957.55  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.40  * Wt. n-Val.            *          *   0.040  *          *
* W.S. Elev (ft)         *  957.15  * Reach Len. (ft)       *  480.00  *  481.53  *  485.00  *
* Crit W.S. (ft)         *  952.08  * Flow Area (sq ft)     *          *32150.13  *          *
* E.G. Slope (ft/ft)     *0.001017  * Area (sq ft)          *          *32150.13  *          *
* Q Total (cfs)          *164000.00  * Flow (cfs)          *          *164000.00  *          *
* Top Width (ft)         * 3680.58  * Top Width (ft)       *          * 3680.58  *          *
* Vel Total (ft/s)       *    5.10  * Avg. Vel. (ft/s)     *          *    5.10  *          *
* Max Chl Dpth (ft)      *   16.75  * Hydr. Depth (ft)     *          *    8.74  *          *
* Conv. Total (cfs)      *5142934.0  * Conv. (cfs)         *          *5142934.0  *          *
* Length Wtd. (ft)       *  481.53  * Wetted Per. (ft)     *          * 3689.85  *          *
* Min Ch El (ft)         *  940.40  * Shear (lb/sq ft)     *          *    0.55  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *        *    2.82  *          *
* Frctn Loss (ft)        *    0.47  * Cum Volume (acre-ft)  *  290.25  * 5767.18  *   30.85  *
* C & E Loss (ft)        *    0.03  * Cum SA (acres)        *   43.55  *  587.24  *    5.87  *
*********************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 201.05

INPUT
Description: 201.05

Left Channel Bank Station Interpolated
Station Elevation Data    num=      97
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 12848.3   954.5 13055.4   953.7 13276.2   955.4 13483.1   957.1 13684.3   954.7
 13886.2   954.5 14079.9     955 14267.8   955.7 14489.3   955.5   14686   954.3
 14893.9   954.8 15093.5   953.8 15286.8     955   15508   955.8 15694.8   955.4
 15890.9   955.3 16093.3   955.3 16296.5   955.9 16489.7   956.3 16687.2   954.3
 16876.1   953.1 17029.6   951.4   17090   955.6 17177.7   953.2 17211.7   959.1
 17239.8   956.7 17474.3   956.9 17712.8   956.3 17920.1   957.3 17947.8   957.7
17948.21 957.514 17963.9   950.4 18149.7   948.9 18366.7   949.3 18552.6   947.7
   18642   947.2 18662.5   941.8 18877.7   942.9 18965.7   942.8 19025.5   948.9
 19069.3   949.7   19115     948 19146.2   943.8 19305.4   944.7 19341.4   942.6
 19450.5   944.4   19486   951.1 19656.3   948.4 19742.2   949.2 19800.5   946.7
 19926.9     951 19979.4   950.2 20027.5   955.4 20105.3   953.3 20157.5   947.1
 20233.6   946.1 20272.3   948.2 20302.6   946.7 20402.5   950.2 20615.4   948.5
 20746.4   950.2 20793.3     949 20816.3   941.7 20964.1   941.5 20993.4   945.9
 21193.9   949.2 21384.8   948.9 21582.1     946 21750.2   942.4 21815.9   945.1
   21849   955.5 21881.2   953.7 21901.6   955.1   21907   953.3 21990.8   953.6
 22189.8   954.8 22244.5   955.2 22537.9   955.5 22570.5   955.5   22835   955.8
 22894.6   957.1 22905.9     959 22934.1   957.4 23165.2   957.6   23380     958
   23414     957 23451.8   959.3 23684.3   956.6 23933.2     957 24126.1   957.5
   24400   957.7 24595.1   958.4 24603.3   957.1 24622.7   959.8 24638.5   957.6
 24836.5   959.9 24997.1   961.2

Manning's n Values        num=       8
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************************************************
 12848.3    .043 16687.2     .15 17177.7    .025 17947.8     .15 18965.7    .037
   19486    .032 20402.5    .037   21849    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      17948.21   21849             520  512.89     510             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 12848.3 17947.8   961.2       F
```

22905.9 24997.1 961.2 F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	956.80	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.31	Wt. n-Val.		0.045	0.025
W.S. Elev (ft)	956.49	Reach Len. (ft)	520.00	512.89	510.00
Crit W.S. (ft)	950.99	Flow Area (sq ft)		35607.62	1502.82
E.G. Slope (ft/ft)	0.000974	Area (sq ft)	6743.27	35607.62	1502.82
Q Total (cfs)	164000.00	Flow (cfs)		160385.10	3614.90
Top Width (ft)	9249.94	Top Width (ft)	4334.00	3898.52	1017.42
Vel Total (ft/s)	4.42	Avg. Vel. (ft/s)		4.50	2.41
Max Chl Dpth (ft)	14.99	Hydr. Depth (ft)		9.13	1.48
Conv. Total (cfs)	5254537.0	Conv. (cfs)		5138716.0	115820.9
Length Wtd. (ft)	512.83	Wetted Per. (ft)		3906.11	1017.82
Min Ch El (ft)	941.50	Shear (lb/sq ft)		0.55	0.09
Alpha	1.02	Stream Power (lb/ft s)		2.50	0.22
Frctn Loss (ft)	0.41	Cum Volume (acre-ft)	3361.80	5066.33	833.93
C & E Loss (ft)	0.01	Cum SA (acres)	642.35	545.08	432.59

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	957.06	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.31	Wt. n-Val.		0.045	
W.S. Elev (ft)	956.74	Reach Len. (ft)	520.00	512.89	510.00
Crit W.S. (ft)	950.99	Flow Area (sq ft)		36618.90	
E.G. Slope (ft/ft)	0.000928	Area (sq ft)		36618.90	
Q Total (cfs)	164000.00	Flow (cfs)		164000.00	
Top Width (ft)	3898.52	Top Width (ft)		3898.52	
Vel Total (ft/s)	4.48	Avg. Vel. (ft/s)		4.48	
Max Chl Dpth (ft)	15.24	Hydr. Depth (ft)		9.39	
Conv. Total (cfs)	5383665.0	Conv. (cfs)		5383665.0	
Length Wtd. (ft)	512.89	Wetted Per. (ft)		3907.62	
Min Ch El (ft)	941.50	Shear (lb/sq ft)		0.54	
Alpha	1.00	Stream Power (lb/ft s)		2.43	
Frctn Loss (ft)	0.39	Cum Volume (acre-ft)	290.25	5387.08	30.85
C & E Loss (ft)	0.01	Cum SA (acres)	43.55	545.35	5.87

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 200.95

INPUT
Description: 200.95

Left Channel Bank Station Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12874.8	952.5	13039.9	952	13212.3	952.3	13372.8	953.5	13537.8	953.7
13708.5	953.7	13872.8	954	14042.5	953.4	14205.3	953.3	14401.9	953.5
14603.1	953.1	14762	954.2	14934	952.2	15127.8	952.8	15312.6	953.8
15422.3	957.2	15583	954.7	15746.4	955	15906.8	956.3	15988.2	955.4
16164.6	957.4	16332.4	957.6	16504.4	956.6	16673	957.2	16861.4	956.7
17049	953.4	17207.8	951.7	17274	955.6	17440.2	954.4	17613.5	957.4
17631.7	953.8	17653.9	958.1	17824.4	958	17905.8	956.9	189	17952.4
17964.6	951.3	18135.4	946.6	18219.9	947	18317.2	949.6	18410.9	946.7
18428.8	949	18651.9	947.8	18690.8	946.2	18729.3	940.1	18914	943.4
19040.9	943.9	19102.9	941.9	19126.2	943.3	19190.9	941.9	19216.4	943.8
19237.2	941.5	19420.9	944.3	19517.6	943.7	19555.3	947.7	19758.1	946.5
19818.9	950.2	19947.1	951.5	20006.8	955.9	20184.2	954.1	20323.1	951.3
20414.3	945.7	20527.8	944.2	20653.3	949.4	20684.2	940.5	20842.4	942.7
20989.1	947.8	21069.4	948.4	21262.3	947.7	21448.8	948.8	21631.4	946.7
21802	942.6	21869.1	939.8	21909.3	943.4	21954	953.2	22148.5	954.1
22306.3	954	22378	955.4	22594.8	954	22757.8	954.9	22935.8	954.8
23107.3	956.2	23275.4	955.9	23411.6	954.8	23573.4	957.7	23629.1	956.7
23796.3	955.8	23971.7	955.8	24129.8	956	24294.4	955.8	24466.5	955.4
24623.6	955.4	24630	955.3	24639.7	957.8	24648.4	954.6	24662.5	958.2
24836.4	959.8	24988.3	960.7						

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
12874.8	.043	17824.4	.15	18729.3	.037	19517.6	.032	20323.1	.037
21954	.035								

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
17905.8	21954	475 474.38	480	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
12874.8	17824.4	960.7	F
23100	24988.3	960.7	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	956.38	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.29	Wt. n-Val.		0.041	0.035
W.S. Elev (ft)	956.09	Reach Len. (ft)	475.00	474.38	480.00
Crit W.S. (ft)	949.86	Flow Area (sq ft)		37268.25	1788.89
E.G. Slope (ft/ft)	0.000668	Area (sq ft)	8739.61	37268.25	2273.76
Q Total (cfs)	164000.00	Flow (cfs)		161348.80	2651.20
Top Width (ft)	10045.22	Top Width (ft)	3687.99	4001.09	2356.15
Vel Total (ft/s)	4.20	Avg. Vel. (ft/s)		4.33	1.48
Max Chl Dpth (ft)	16.29	Hydr. Depth (ft)		9.31	1.57

```
                                                                    DuplicateEffective
* Conv. Total (cfs)      *6344019.0  * Conv. (cfs)            *          *6241462.0  *102556.5  *
* Length Wtd. (ft)       *  474.50  * Wetted Per. (ft)       *          * 4006.72  * 1140.01  *
* Min Ch El (ft)         *  939.80  * Shear (lb/sq ft)       *          *    0.39  *    0.07  *
* Alpha                  *    1.05  * Stream Power (lb/ft s) *          *    1.68  *    0.10  *
* Frctn Loss (ft)        *    0.44  * Cum Volume (acre-ft)   * 3269.39  * 4637.30  *  811.82  *
* C & E Loss (ft)        *    0.00  * Cum SA (acres)         *  594.47  *  498.58  *  412.84  *
*****************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*****************************************************************************************
* E.G. Elev (ft)         *  956.66  * Element              *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.28  * Wt. n-Val.           *          *    0.041  *          *
* W.S. Elev (ft)         *  956.38  * Reach Len. (ft)      *  475.00  *  474.38  *  480.00  *
* Crit W.S. (ft)         *  949.86  * Flow Area (sq ft)    *          *38407.73  *          *
* E.G. Slope (ft/ft)     *0.000629  * Area (sq ft)         *          *38407.73  *          *
* Q Total (cfs)          *164000.00  * Flow (cfs)          *          *164000.00  *          *
* Top Width (ft)         * 4001.09  * Top Width (ft)      *          * 4001.09  *          *
* Vel Total (ft/s)       *    4.27  * Avg. Vel. (ft/s)    *          *    4.27  *          *
* Max Chl Dpth (ft)      *   16.58  * Hydr. Depth (ft)    *          *    9.60  *          *
* Conv. Total (cfs)      *6536869.0  * Conv. (cfs)         *          *6536869.0  *          *
* Length Wtd. (ft)       *  474.38  * Wetted Per. (ft)     *          * 4010.18  *          *
* Min Ch El (ft)         *  939.80  * Shear (lb/sq ft)     *          *    0.38  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    1.61  *          *
* Frctn Loss (ft)        *    0.41  * Cum Volume (acre-ft)   *  290.25  * 4945.39  *   30.85  *
* C & E Loss (ft)        *    0.00  * Cum SA (acres)         *   43.55  *  498.84  *    5.87  *
*****************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                RS: 200.86

INPUT
Description: 200.86

Left Channel Bank Station Interpolated
Station Elevation Data    num=      98
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
   12893   952.7 13071.4   952.1 13217.7   954.6 13366.3   951.7 13513.8   953.9
   13666   954.4 13820.1   953.4 13963.2   953.3   14149   953.3 14333.5   952.5
 14509.1   952.1 14688.3   953.1 14861.7   952.4 15054.1   951.6 15210.6   951.7
 15424.6     955 15571.3   952.8 15782.9   955.2 16020.2   955.6 16192.2   953.9
 16399.2   952.8 16559.9     953 16714.8   953.3 16760.5   954.7 16916.6   953.9
 17003.1   954.6 17168.1   950.1 17285.1   949.5 17360.5   954.6 17520.2     953
 17694.7     956 17869.8     957 17934.1   958.117992.44956.5698 17995.1   956.5
 17996956.3408 18052.8   946.3 18288.3   948.1 18449.5   947.1 18628.5   947.7
   18762   951.3 18912.7   950.4 19061.6   946.8   19092   945.3 19141.3   938.5
 19175.6   940.7 19336.6   941.9 19619.6   944.7 19730.8   944.7 19826.2   949.9
 19922.8   951.3 20011.5   955.4 20112.1   951.4 20184.7   943.1   20254   952.1
 20308.4   952.8 20438.4   949.3 20464.9   944.1 20568.6   943.9 20744.1   941.1
 20840.6   941.3 20896.7   945.9 20979.1   947.3   21100   946.2 21279.3   951.2
 21459.1   946.8 21602.1   945.3 21642.4   941.5 21792.5   940.9 21831.9   940.3
 21865.4   942.7   21898     952   22032   954.1 22187.6   953.7 22377.3   953.4
 22522.7   953.4 22725.4   952.8 22947.9   954.9 23137.5     955 23294.6   956.1
 23413.1   955.8   23420   954.5 23482.2   956.5 23641.6   956.7 23647.7   954.4
   23806   955.4 23951.6   954.9   24112   954.8 24269.9   954.6 24426.7   954.8
 24604.6   954.9 24656.8   954.3 24670.5   956.8 24680.8     954 24693.9   958.2
 24856.4   958.5 25029.7     959   25175   960.2

Manning's n Values        num=      6
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*****************************************************************************
   12893    .043 17934.1     .15 19619.6    .032 20308.4    .037   21898    .035
   22032    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          17996  22032             525  523.32     525            .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
   12893   17750   960.2        F
   23360   25175   960.2        F

CROSS SECTION OUTPUT  Profile #PF#1
*****************************************************************************************
* E.G. Elev (ft)         *  955.94  * Element              *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.31  * Wt. n-Val.           *          *   0.053  *   0.035  *
* W.S. Elev (ft)         *  955.63  * Reach Len. (ft)      *  525.00  *  523.32  *  525.00  *
* Crit W.S. (ft)         *  949.69  * Flow Area (sq ft)    *          *35548.44  * 2059.19  *
* E.G. Slope (ft/ft)     *0.001346  * Area (sq ft)         *11394.54  *35548.44  * 2898.59  *
* Q Total (cfs)          *164000.00  * Flow (cfs)          *          *159393.20  * 4606.83  *
* Top Width (ft)         *11080.59  * Top Width (ft)      * 4780.42  * 4032.00  * 2268.17  *
* Vel Total (ft/s)       *    4.36  * Avg. Vel. (ft/s)    *          *    4.48  *    2.24  *
* Max Chl Dpth (ft)      *   17.13  * Hydr. Depth (ft)    *          *    8.82  *    1.72  *
* Conv. Total (cfs)      *4470468.0  * Conv. (cfs)         *          *4344891.0  *125577.2  *
* Length Wtd. (ft)       *  523.36  * Wetted Per. (ft)     *          * 4037.40  * 1196.09  *
* Min Ch El (ft)         *  938.50  * Shear (lb/sq ft)     *          *    0.74  *    0.14  *
* Alpha                  *    1.03  * Stream Power (lb/ft s) *          *    3.32  *    0.32  *
* Frctn Loss (ft)        *    0.59  * Cum Volume (acre-ft)   * 3159.61  * 4240.80  *  783.33  *
* C & E Loss (ft)        *    0.00  * Cum SA (acres)         *  548.30  *  454.83  *  387.36  *
*****************************************************************************************

Warning: Divided flow computed for this cross-section.
```

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	956.24	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.31	Wt. n-Val.		0.053	
W.S. Elev (ft)	955.94	Reach Len. (ft)	525.00	523.32	525.00
Crit W.S. (ft)	949.69	Flow Area (sq ft)		36762.91	
E.G. Slope (ft/ft)	0.001276	Area (sq ft)		36762.91	
Q Total (cfs)	164000.00	Flow (cfs)		164000.00	
Top Width (ft)	4032.00	Top Width (ft)		4032.00	
Vel Total (ft/s)	4.46	Avg. Vel. (ft/s)		4.46	
Max Chl Dpth (ft)	17.44	Hydr. Depth (ft)		9.12	
Conv. Total (cfs)	4591685.0	Conv. (cfs)		4591685.0	
Length Wtd. (ft)	523.32	Wetted Per. (ft)		4039.54	
Min Ch El (ft)	938.50	Shear (lb/sq ft)		0.72	
Alpha	1.00	Stream Power (lb/ft s)		3.23	
Frctn Loss (ft)	0.55	Cum Volume (acre-ft)	290.25	4536.07	30.85
C & E Loss (ft)	0.00	Cum SA (acres)	43.55	455.10	5.87

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 200.77

INPUT
Description: 200.77
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12925.1	950.1	13101.8	952.3	13250.4	951	13436.7	950.7	13651.1	951.4
13804.4	951.9	14027	953.4	14249.5	951.8	14401.1	950.7	14592.6	949.7
14752.3	950.6	14873.3	950.3	15006	952.1	15110.8	950.9	15249.1	953.3
15443.8	954.5	15631.2	955.3	15702.9	951.3	15936.9	951	16108.8	954.5
16172	955.8	16295.1	951.4	16462	950.7	16530.6	949.9	16652.3	952.8
16854.8	954	17022.2	952.1	17185.4	949.9	17349.4	948.1	17402.8	955.2
17473.6	951.6	17660.6	954.4	17828.8	955.3	17926.5	954	17969.3	948
18147.9	944.4	18302.9	946.4	18524.1	946.1	18650.9	949	18815.8	948.8
18902.5	949.8	18913.4	952	19097	950.8	19277	951.3	19280.8	951.9
19280.9	949.5	19321.8	951.3	19557.8	943.7	19720.4	945.1	19857.8	946.5
19911.9	942.9	19989.5	951.1	20140.5	950.2	20288.5	945.2	20339.4	948.6
20362.3	944.7	20388.7	942.6	20487.8	944	20788	936.9	20804.9	937.1
20829.2	942.4	20906.3	944.7	21056	944.4	21222.9	942.6	21375.1	940.2
21524.6	940.4	21559.7	941	21581	950.6	21785.8	951.3	21951	952.4
22102.3	952.1	22329.8	953.2	22461	953	22651.4	953.3	22824.9	954.7
23050.7	954.8	23217.5	954.9	23380.5	954.5	23421.7	954.3	23434.6	956
23439.7	954.3	23489.2	957.2	23506.4	952.5	23514.1	955.4	23706.9	954.3
23876.7	954.3	24057.8	954.4	24216.1	954.4	24385.4	954.2	24554.4	953.9
24685.3	953.1	24698.2	956.8	24704.7	952.7	24723.6	958.6	24886.7	958.9
24978	959.5								

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
12925.1	.043	17828.8	.15	19321.8	.032	19857.8	.037	21785.8	.025
21951	.035								

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
17828.8	21951	500 495.64	520	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
12925.1	17630	960	F
23630	24978	960	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	955.35	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.33	Wt. n-Val.	0.043	0.043	0.035
W.S. Elev (ft)	955.02	Reach Len. (ft)	500.00	495.64	520.00
Crit W.S. (ft)	949.21	Flow Area (sq ft)	62.55	34826.94	1951.25
E.G. Slope (ft/ft)	0.000950	Area (sq ft)	14814.58	34826.94	2840.32
Q Total (cfs)	164000.00	Flow (cfs)	37.64	160936.30	3026.04
Top Width (ft)	11449.90	Top Width (ft)	4718.53	4101.49	2629.89
Vel Total (ft/s)	4.45	Avg. Vel. (ft/s)	0.60	4.62	1.55
Max Chl Dpth (ft)	18.12	Hydr. Depth (ft)	0.42	8.49	1.25
Conv. Total (cfs)	5320745.0	Conv. (cfs)	1221.1	5221349.0	98175.5
Length Wtd. (ft)	496.09	Wetted Per. (ft)	147.30	4108.72	1557.74
Min Ch El (ft)	936.90	Shear (lb/sq ft)	0.03	0.50	0.07
Alpha	1.06	Stream Power (lb/ft s)	0.02	2.32	0.12
Frctn Loss (ft)	0.55	Cum Volume (acre-ft)	3001.67	3818.06	748.74
C & E Loss (ft)	0.01	Cum SA (acres)	491.06	405.98	357.84

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	955.70	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.32	Wt. n-Val.		0.043	
W.S. Elev (ft)	955.38	Reach Len. (ft)	500.00	495.64	520.00
Crit W.S. (ft)	949.21	Flow Area (sq ft)		36283.86	
E.G. Slope (ft/ft)	0.000875	Area (sq ft)		36283.86	
Q Total (cfs)	164000.00	Flow (cfs)		164000.00	
Top Width (ft)	4122.20	Top Width (ft)		4122.20	
Vel Total (ft/s)	4.52	Avg. Vel. (ft/s)		4.52	
Max Chl Dpth (ft)	18.48	Hydr. Depth (ft)		8.80	

```
                                                                    DuplicateEffective
* Conv. Total (cfs)       *5545445.0  * Conv. (cfs)                 *          *5545445.0  *          *
* Length Wtd. (ft)        *  495.65  * Wetted Per. (ft)            *          * 4132.49  *          *
* Min Ch El (ft)          *  936.90  * Shear (lb/sq ft)            *          *    0.48  *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s)      *          *    2.17  *          *
* Frctn Loss (ft)         *    0.50  * Cum Volume (acre-ft)        *  290.25  * 4097.29  *   30.85  *
* C & E Loss (ft)         *    0.00  * Cum SA (acres)              *   43.55  *  406.12  *    5.87  *
*****************************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 200.67

INPUT
Description: 200.67
Station Elevation Data    num=      96
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*************************************************************************
 12952.7   947.8 13129.5   948.3 13308.2   948.8 13483.1   949.2   13641   952.6
   13766     952 13870.6   949.3 14073.7   950.3   14282   951.5 14535.6   948.8
 14746.4   948.7 14899.4   949.8 15045.4   950.6 15138.5   953.1 15312.3   952.8
 15471.5   952.2 15651.1   951.4 15730.3   949.9 15964.5     954 16199.7   953.8
 16438.6   948.9 16643.2   952.3 16796.2     954 17002.3   953.9 17133.8   952.2
 17211.9   946.7 17315.9     947 17376.2   954.8 17384.7   952.3 17551.8   953.1
 17732.2   954.1 17919.3   952.9   17950   943.8 18101.5   944.9 18330.6   947.4
 18498.9   943.9   18565   943.8 18742.3   948.8 18888.2     952 18925.4   946.6
 18962.8   948.9 19023.7   947.4 19040.9   949.6 19238.5   952.4 19366.3   948.8
 19569.2   947.1 19719.3   940.8 19796.7   942.1 19832.7   943.8   19969     943
 20047.1     949   20111   948.4   20263   939.8 20444.8   942.7   20609   942.6
 20782.8   941.1 20963.8   942.2 20998.9   941.8 21090.6   944.3 21256.2   942.8
 21298.3   943.3   21316   950.6 21367.7   945.7 21427.5   950.4   21604   951.9
 21649.3   952.3 21939.5   952.7 21971.5   952.7   22194   953.4 22217.8   954.7
 22233.1     953 22256.3   952.8 22476.8   953.9 22513.4   953.9 22711.5   955.1
 22773.4   955.2 22873.4   959.1 23051.6   959.3 23158.6   956.6 23168.5   958.8
 23393.6   957.5   23430   957.4 23431.7   955.9 23584.2   954.6 23749.1   953.9
 23939.2     954 24125.4   954.8 24292.4   954.6 24492.9   954.3 24643.7   954.1
 24725.3   954.1 24731.8   955.7 24741.4   953.7 24755.2   960.7   24923   959.7
 24996.7     960

Manning's n Values        num=       8
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************************************
 12952.7    .043 17919.3     .15 18962.8    .032 19040.9     .15 19366.3    .032
   20263    .043   21604    .025 21649.3    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       17919.3 21649.3             500  503.34     510             .1       .3
Ineffective Flow     num=       3
   Sta L   Sta R    Elev  Permanent
 12952.7   17540     960       F
   22230   23500     960       F
   23915 24996.7     960       F

CROSS SECTION OUTPUT  Profile #PF#1
*****************************************************************************************************
* E.G. Elev (ft)          *  954.80  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.38  * Wt. n-Val.              *   0.043  *   0.047  *   0.025  *
* W.S. Elev (ft)          *  954.42  * Reach Len. (ft)         *  500.00  *  503.34  *  510.00  *
* Crit W.S. (ft)          *  948.98  * Flow Area (sq ft)       *  337.22  *32402.02  * 1045.48  *
* E.G. Slope (ft/ft)      *0.001288  * Area (sq ft)            *15971.37  *32402.02  * 1461.47  *
* Q Total (cfs)           *164000.00  * Flow (cfs)             *  386.70  *160716.40  * 2896.93  *
* Top Width (ft)          *10368.24  * Top Width (ft)         * 4962.41  * 3730.00  * 1675.83  *
* Vel Total (ft/s)        *    4.85  * Avg. Vel. (ft/s)       *    1.15  *    4.96  *    2.77  *
* Max Chl Dpth (ft)       *   14.62  * Hydr. Depth (ft)       *    0.89  *    8.69  *    1.21  *
* Conv. Total (cfs)       *4569344.0  * Conv. (cfs)           * 10774.2  *4477856.0  * 80713.9  *
* Length Wtd. (ft)        *  503.48  * Wetted Per. (ft)       *  379.31  * 3734.79  *  862.41  *
* Min Ch El (ft)          *  939.80  * Shear (lb/sq ft)       *    0.07  *    0.70  *    0.10  *
* Alpha                   *    1.03  * Stream Power (lb/ft s) *    0.08  *    3.46  *    0.27  *
* Frctn Loss (ft)         *    0.65  * Cum Volume (acre-ft)   * 2824.98  * 3435.59  *  723.07  *
* C & E Loss (ft)         *    0.00  * Cum SA (acres)         *  435.50  *  361.42  *  332.14  *
*****************************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*****************************************************************************************************
* E.G. Elev (ft)          *  955.20  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.36  * Wt. n-Val.              *   0.043  *   0.047  *          *
* W.S. Elev (ft)          *  954.84  * Reach Len. (ft)         *  500.00  *  503.34  *  510.00  *
* Crit W.S. (ft)          *  948.98  * Flow Area (sq ft)       *  341.27  *33939.87  *          *
* E.G. Slope (ft/ft)      *0.001158  * Area (sq ft)            *  341.27  *33939.87  *          *
* Q Total (cfs)           *164000.00  * Flow (cfs)             *  457.27  *163542.70  *          *
* Top Width (ft)          * 4009.30  * Top Width (ft)         *  279.30  * 3730.00  *          *
* Vel Total (ft/s)        *    4.78  * Avg. Vel. (ft/s)       *    1.34  *    4.82  *          *
* Max Chl Dpth (ft)       *   15.04  * Hydr. Depth (ft)       *    1.22  *    9.10  *          *
* Conv. Total (cfs)       *4819677.0  * Conv. (cfs)           * 13438.4  *4806238.0  *          *
* Length Wtd. (ft)        *  503.33  * Wetted Per. (ft)       *  280.55  * 3737.32  *          *
* Min Ch El (ft)          *  939.80  * Shear (lb/sq ft)       *    0.09  *    0.66  *          *
* Alpha                   *    1.01  * Stream Power (lb/ft s) *    0.12  *    3.16  *          *
* Frctn Loss (ft)         *    0.59  * Cum Volume (acre-ft)   *  288.29  * 3697.77  *   30.85  *
* C & E Loss (ft)         *    0.00  * Cum SA (acres)         *   41.94  *  361.45  *    5.87  *
*****************************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION
```

RIVER: 1
REACH: 1 RS: 200.58

INPUT
Description: 200.58

Right Channel Bank Station Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
13004.2	946.1	13252.7	946	13406.6	945.2	13565.9	944.9	13774.2	944.6
13943.1	945.5	14116.9	945	14279.1	946.6	14438.8	947.7	14609	948.4
14768.3	947.1	14929	947.1	15050.5	947.2	15202.4	950.2	15286.6	950.1
15344.6	952	15501.3	950.2	15638.8	948.6	15758.4	951.1	15992.6	950.5
16109.8	952.6	16227.7	949.4	16451.3	948.4	16610.1	950.8	16708	953.4
16925.1	953.5	17149.3	953.1	17163.9	953.3	17234.2	944.5	17318.9	945.5
17387.8	953.1	17544.8	952.5	17768	953.3	17947	953.3	18120.4	944.7
18239.5	947	18479.6	944.5	18689.4	943	18899.8	947.1	18982.6	947.4
19060.5	950.5	19193.4	946.5	19239.2	951	19272	950.3	19281	947.8
19435	949.5	19481.5	950.8	19780.1	939.9	19839	939.1	20105.5	937.6
20341.3	941.2	20411.6	945.7	20456.8	943.9	20469.2	941.9	20590	941.2
20660	946.3	20712.1	943.5	20803.5	943.1	20830.7	941.2	21002.3	943.4
21117.8	946.3	21272	946.4	21425	950.4	21450	950.6778	21452	950.7
21643	952.3	21667.2	952.4	21820.3	952	21847.8	952	22017.1	952.7
22213.8	952.2	22244.2	960.6	22257.8	957.2	22270.2	958.5	22289.1	952.8
22392.9	953.3	22566.6	953.5	22797.3	954.2	22998.5	955.3	23151	955.4
23322.6	954.9	23399.1	953.2	23498	953.6	23506	952.3	23516.9	955.5
23555.1	955.9	23578.4	953.2	23779.1	953.4	23989.5	954.5	24174.8	954.3
24351.4	954.1	24538.2	953.8	24699.8	953.7	24771.3	955.3	24776.5	952.9
24795.5	960.4	24969.5	959.5						

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
13004.2	.15	14609	.043	17947	.15	19481.5	.032	20105.5	.043
21425	.025	21643	.025						

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
17947	21450	475 479.55	530	.1	.3

Ineffective Flow num= 3

Sta L	Sta R	Elev	Permanent
13004.2	17460	960	F
22800	23380	960	F
24200	24969.5	960	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	954.14	Element	Left OB	Channel / Right OB
Vel Head (ft)	0.39	Wt. n-Val.	0.043	0.048 / 0.025
W.S. Elev (ft)	953.76	Reach Len. (ft)	475.00	479.55 / 530.00
Crit W.S. (ft)	948.29	Flow Area (sq ft)	366.16	*31612.27 / 1563.34
E.G. Slope (ft/ft)	*0.001313	Area (sq ft)	*23418.66	*31612.27 / 1568.20
Q Total (cfs)	*164000.00	Flow (cfs)	379.05	*159405.60 / 4215.36
Top Width (ft)	*10091.02	Top Width (ft)	4942.80	3503.00 / 1645.22
Vel Total (ft/s)	4.89	Avg. Vel. (ft/s)	1.04	5.04 / 2.70
Max Chl Dpth (ft)	16.16	Hydr. Depth (ft)	0.75	9.02 / 1.02
Conv. Total (cfs)	*4526509.0	Conv. (cfs)	10462.2	*4399700.0 / *116346.8
Length Wtd. (ft)	481.45	Wetted Per. (ft)	487.00	3505.02 / 1540.52
Min Ch El (ft)	937.60	Shear (lb/sq ft)	0.06	0.74 / 0.08
Alpha	1.04	Stream Power (lb/ft s)	0.06	3.73 / 0.22
Frctn Loss (ft)	0.53	Cum Volume (acre-ft)	2598.92	3065.74 / 705.33
C & E Loss (ft)	0.02	Cum SA (acres)	378.65	319.63 / 312.70

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	954.60	Element	Left OB	Channel / Right OB
Vel Head (ft)	0.37	Wt. n-Val.	0.043	0.048 /
W.S. Elev (ft)	954.23	Reach Len. (ft)	475.00	479.55 / 530.00
Crit W.S. (ft)	948.29	Flow Area (sq ft)	521.74	*33271.84 /
E.G. Slope (ft/ft)	*0.001187	Area (sq ft)	521.74	*33271.84 /
Q Total (cfs)	*164000.00	Flow (cfs)	697.49	*163302.50 /
Top Width (ft)	3940.00	Top Width (ft)	437.00	3503.00 /
Vel Total (ft/s)	4.85	Avg. Vel. (ft/s)	1.34	4.91 /
Max Chl Dpth (ft)	16.63	Hydr. Depth (ft)	1.19	9.50 /
Conv. Total (cfs)	*4759369.0	Conv. (cfs)	20241.6	*4739127.0 /
Length Wtd. (ft)	479.52	Wetted Per. (ft)	438.60	3508.58 /
Min Ch El (ft)	937.60	Shear (lb/sq ft)	0.09	0.70 /
Alpha	1.02	Stream Power (lb/ft s)	0.12	3.45 /
Frctn Loss (ft)	0.49	Cum Volume (acre-ft)	283.34	3309.45 / 30.85
C & E Loss (ft)	0.01	Cum SA (acres)	37.83	319.66 / 5.87

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 200.49

INPUT
Description: 200.49
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
13048.9	945.6	13261.8	944.9	13471.4	944.9	13640.6	945.6	13821.9	945.7
13998.1	945.5	14204.4	944.8	14399.4	943.8	14586.6	943.4	14763.6	943
14951.3	943.1	15156.1	943.2	15371.2	945.2	15548.1	948.1	15769.6	946.9
15979.3	948.4	16200.3	947.6	16375.3	947.1	16493.4	953	16719	952.8

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                                                                  DuplicateEffective
 16949.5     951 17106.4   951.7 17132.4   947.4   17168   952.5 17198.4   950.8
 17234.4   945.1 17404.6   947.6 17536.5   952.7 17719.3   953.3 17750.3   952.7
 17791.5   947.5 17816.7   949.6 17852.9     949 17862.5   950.8 18012.9   951.3
 18153.1   947.1 18273.7   941.6 18480.3   943.2 18739.9     945 18856.4   944.7
 19028.1   939.7   19085   944.7 19190.4   945.3 19261.7   948.1 19342.5   943.7
 19490.6   939.8   19542   943.5 19650.1   948.1 19854.1   940.8 19947.1   937.5
   20192   936.9 20201.4   940.9 20275.4   939.8 20324.1     944 20367.7   939.3
 20425.1   937.8   20452   941.7 20573.6   946.4 20608.5   941.9   20627   944.1
 20638.3   940.9 20706.1   939.4 20811.1   939.3 20837.1   942.5 20956.7   943.3
 20975.1   941.9 21136.8   944.8   21171   950.3 21342.1   950.2 21559.3   950.8
 21830.5   950.9 21861.8   951.1 21876.9   959.1 21891.8     959 21905.4   951.7
 22133.6   952.2   22336   952.4 22590.8   952.7 22633.1   952.7 22813.2   952.3
 23018.2   953.8 23185.8   954.6 23401.6   954.5   23519     954 23540.6   951.9
 23589.4   954.7 23609.6     952 23780.4   952.4 23946.1   952.4   24145   952.4
 24343.4   952.9 24514.6   953.3 24725.8   953.2 24810.9   953.5 24835.6     958
 24956.8   957.1

Manning's n Values        num=       7
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************************************************
 13048.9     .15 15548.1    .043 17719.3    .043 18273.7     .15 19342.5    .032
   20192    .043   21171    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       17719.3   21171             510  497.59     510             .1      .3
Ineffective Flow     num=       4
   Sta L   Sta R    Elev  Permanent
 13048.9   17380     960       F
   21840   22160     960       F
   22950   23300     960       F
   24485 24956.8     960       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         *  953.59  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.32  * Wt. n-Val.            *   0.043  *   0.047  *   0.025  *
* W.S. Elev (ft)         *  953.28  * Reach Len. (ft)       *  510.00  *  497.59  *  510.00  *
* Crit W.S. (ft)         *  946.97  * Flow Area (sq ft)     *  607.04  *33688.59  * 3074.81  *
* E.G. Slope (ft/ft)     *0.000940  * Area (sq ft)          *29543.49  *33688.59  * 3468.71  *
* Q Total (cfs)          *164000.00  * Flow (cfs)           *  961.51  *154777.40  * 8261.14  *
* Top Width (ft)         *10978.11  * Top Width (ft)       * 4663.19  * 3450.48  * 2864.45  *
* Vel Total (ft/s)       *    4.39  * Avg. Vel. (ft/s)     *    1.58  *    4.59  *    2.69  *
* Max Chl Dpth (ft)      *   16.38  * Hydr. Depth (ft)     *    1.83  *    9.76  *    1.29  *
* Conv. Total (cfs)      *5347928.0  * Conv. (cfs)         * 31354.1  *5047184.0  *269389.9  *
* Length Wtd. (ft)       *  498.40  * Wetted Per. (ft)     *  332.19  * 3455.46  * 2378.92  *
* Min Ch El (ft)         *  936.90  * Shear (lb/sq ft)     *    0.11  *    0.57  *    0.08  *
* Alpha                  *    1.05  * Stream Power (lb/ft s) *    0.17  *    2.63  *    0.20  *
* Frctn Loss (ft)        *    0.41  * Cum Volume (acre-ft)  * 2310.15  * 2706.29  *  674.69  *
* C & E Loss (ft)        *    0.01  * Cum SA (acres)        *  326.27  *  281.36  *  285.27  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)         *  954.10  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.33  * Wt. n-Val.            *   0.043  *   0.047  *          *
* W.S. Elev (ft)         *  953.77  * Reach Len. (ft)       *  510.00  *  497.59  *  510.00  *
* Crit W.S. (ft)         *  946.97  * Flow Area (sq ft)     *  775.44  *35402.63  *          *
* E.G. Slope (ft/ft)     *0.000893  * Area (sq ft)          *  775.44  *35402.63  *          *
* Q Total (cfs)          *164000.00  * Flow (cfs)           * 1371.76  *162628.30  *          *
* Top Width (ft)         * 3791.00  * Top Width (ft)       *  339.30  * 3451.70  *          *
* Vel Total (ft/s)       *    4.53  * Avg. Vel. (ft/s)     *    1.77  *    4.59  *          *
* Max Chl Dpth (ft)      *   16.87  * Hydr. Depth (ft)     *    2.29  *   10.26  *          *
* Conv. Total (cfs)      *5487085.0  * Conv. (cfs)         * 45896.2  *5441189.0  *          *
* Length Wtd. (ft)       *  497.80  * Wetted Per. (ft)     *  345.94  * 3460.15  *          *
* Min Ch El (ft)         *  936.90  * Shear (lb/sq ft)     *    0.13  *    0.57  *          *
* Alpha                  *    1.02  * Stream Power (lb/ft s) *    0.22  *    2.62  *          *
* Frctn Loss (ft)        *    0.39  * Cum Volume (acre-ft)  *  276.27  * 2931.44  *   30.85  *
* C & E Loss (ft)        *    0.01  * Cum SA (acres)        *   33.60  *  281.38  *    5.87  *
*********************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 200.39

INPUT
Description: 200.39
Station Elevation Data    num=      96
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 13083.9   945.2 13254.6   945.3 13486.8   945.5 13742.8   945.8 14008.5     946
 14273.9   945.9 14454.3   945.6 14637.7   945.4 14834.7   945.2 15022.8   944.7
 15192.5   944.4 15417.5   944.4 15642.9   944.4 15819.7   943.9 16016.8   943.5
 16254.5   943.6 16478.3   943.8 16652.7   943.9 16819.7   947.8 16875.2   949.8
 16928.9   948.8 16992.7   951.1 17168.8   950.1 17242.1     945   17439   948.6
 17484.9     949 17507.9   946.2 17527.7   949.5 17682.5   952.2 17714.9   945.6
 17726.7   949.9   17781   947.5 17966.7   946.8 18026.8   945.7 18050.3   941.5
   18183   941.3 18379.8   942.6 18534.2     941 18751.2   942.5 18800.2   941.7
 18918.7   944.9 19025.6   941.5 19161.9   944.8 19220.8   943.5 19267.5   947.7
 19444.5   940.9 19506.7     939 19763.7   940.6   19785   940.5 20110.3   939.9
 20152.6     937   20199   940.6 20240.6   941.7 20272.3   938.7 20460.6   948.4
 20515.5   946.8 20585.3   946.5 20659.8   939.5 20714.2   938.7   20742   943.3
 20788.5   938.9 20812.7   939.9 20854.3   937.8 20978.7   940.9   21041   951.3
   21062   949.6 21134.2   949.8 21326.6   949.6 21342.1   949.6 21606.3     951
 21865.7   950.7 21893.4   950.9 21911.5     958 21918.5   956.7 21925.9   957.8
 21937.7   950.6 22152.6   950.7 22336.4   951.5 22566.3   951.6 22807.6   951.9
 23031.4   952.1 23203.3   953.2 23429.6   953.3 23573.8     952   23600   955.9
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                                                                    DuplicateEffective
 23653.9   951.2   23829   950.5 24004.5   950.7 24185.9   951.4 24362.4   951.7
 24572.6   951.5 24742.1   951.6 24842.9   953.7 24848.9   951.1 24857.3   956.6
 24952.5   957.6

Manning's n Values        num=       7
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************************************************
 13083.9     .15 16875.2    .043 17682.5    .043 18751.2     .15 19506.7    .032
   20199    .043   21041    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       17682.5   21041              550   506.5     480             .1      .3
Ineffective Flow     num=       3
   Sta L   Sta R    Elev  Permanent
   13080   17300     960       F
   21400   22680     960       F
   24775 24952.5     960       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         *  953.17  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.28  * Wt. n-Val.             *   0.043  *   0.045  *   0.025  *
* W.S. Elev (ft)         *  952.89  * Reach Len. (ft)        *  550.00  *  506.50  *  480.00  *
* Crit W.S. (ft)         *  946.26  * Flow Area (sq ft)      * 1497.02  *34887.88  * 3429.20  *
* E.G. Slope (ft/ft)     *0.000739  * Area (sq ft)           *33168.13  *34887.88  * 5797.26  *
* Q Total (cfs)          *164000.00  * Flow (cfs)            * 3488.42  *151819.00  * 8692.53  *
* Top Width (ft)         *11315.74  * Top Width (ft)        * 4598.60  * 3358.50  * 3358.64  *
* Vel Total (ft/s)       *    4.12  * Avg. Vel. (ft/s)      *    2.33  *    4.35  *    2.53  *
* Max Chl Dpth (ft)      *   15.89  * Hydr. Depth (ft)      *    3.91  *   10.39  *    1.65  *
* Conv. Total (cfs)      *6034760.0  * Conv. (cfs)          *128364.4  *5586533.0  *319861.9  *
* Length Wtd. (ft)       *  507.09  * Wetted Per. (ft)      *  382.99  * 3363.45  * 2078.59  *
* Min Ch El (ft)         *  937.00  * Shear (lb/sq ft)      *    0.18  *    0.48  *    0.08  *
* Alpha                  *    1.06  * Stream Power (lb/ft s) *    0.42  *    2.08  *    0.19  *
* Frctn Loss (ft)        *    0.54  * Cum Volume (acre-ft)  * 1943.04  * 2314.62  *  620.44  *
* C & E Loss (ft)        *    0.02  * Cum SA (acres)        *  272.06  *  242.47  *  248.84  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)         *  953.70  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.29  * Wt. n-Val.             *   0.043  *   0.045  *          *
* W.S. Elev (ft)         *  953.40  * Reach Len. (ft)        *  550.00  *  506.50  *  480.00  *
* Crit W.S. (ft)         *  946.26  * Flow Area (sq ft)      * 1694.62  *36622.89  *          *
* E.G. Slope (ft/ft)     *0.000702  * Area (sq ft)           * 1694.62  *36622.89  *          *
* Q Total (cfs)          *164000.00  * Flow (cfs)            * 4130.06  *159869.90  *          *
* Top Width (ft)         * 3741.00  * Top Width (ft)        *  382.50  * 3358.50  *          *
* Vel Total (ft/s)       *    4.28  * Avg. Vel. (ft/s)      *    2.44  *    4.37  *          *
* Max Chl Dpth (ft)      *   16.40  * Hydr. Depth (ft)      *    4.43  *   10.90  *          *
* Conv. Total (cfs)      *6188329.0  * Conv. (cfs)          *155842.5  *6032486.0  *          *
* Length Wtd. (ft)       *  508.20  * Wetted Per. (ft)      *  390.34  * 3365.56  *          *
* Min Ch El (ft)         *  937.00  * Shear (lb/sq ft)      *    0.19  *    0.48  *          *
* Alpha                  *    1.02  * Stream Power (lb/ft s) *    0.46  *    2.08  *          *
* Frctn Loss (ft)        *    0.49  * Cum Volume (acre-ft)  *  261.81  * 2520.06  *   30.85  *
* C & E Loss (ft)        *    0.02  * Cum SA (acres)        *   29.37  *  242.48  *    5.87  *
*********************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 200.3

INPUT
Description: 200.3
Station Elevation Data    num=      96
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 13125.5   945.5   13316   945.5 13495.7   945.7 13687.9   945.9 13882.5   945.7
 14123.9   945.2 14361.2   945.8 14546.2   945.8 14737.5   945.3 14938.1   945.4
 15122.2   945.1   15335   945.6   15433   945.6 15567.6   939.4 15743.1   943.1
 15926.3   943.9 16194.5   945.4 16429.4   944.1 16628.2     944 16879.3   943.5
 17113.8   942.4 17377.6   941.9 17498.6   943.3 17607.2   938.9 17628.8   936.3
 17658.3   936.3   17675   944.5 17697.5   951.2 17780.4   950.6 17838.1     947
 17867.7   942.5 17967.1     945 18084.3     942 18261.2   944.6 18437.1   945.1
 18628.2   943.1 18829.4   943.7   19025   944.9 19214.9   946.9 19248.3   947.6
 19276.7   941.7 19395.7   940.8 19474.4   946.5 19525.1   941.1 19863.4   942.3
 20078.8   940.7 20263.9   939.9 20310.8   939.3 20322.1   942.6 20372.8     938
 20488.5   939.3 20499.7   937.7 20594.1   938.9 20626.9   940.5 20657.3   939.8
 20690.1   946.3 20711.8   945.7 20725.9   942.7 20819.1   942.7 20861.5   948.6
 20879.4   947.5   20896     957   20906     955   20980   955.9   20990   954.6
 21051.2   955.9 21071.8   953.9 21206.4     955 21247.3   956.9 21438.7     956
 21607.6   952.1 21652.6   956.5   21832   957.6 22017.2   957.7 22136.9     954
 22358.1   956.8 22480.5   957.8 22661.3   957.9 22684.8   957.8 22918.3   956.9
 22985.5   956.5 23086.3   950.7 23165.3   950.8 23400.3     954 23576.8   954.1
   23691   953.2 23717.5   950.5 23919.1   949.7 24108.8   949.5 24379.6   950.1
 24590.3   950.3 24795.9   950.7 24878.3   952.9 24883.6   950.7   24903   957.1
 24983.7   956.7

Manning's n Values        num=       7
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************************************************
 13125.5     .15 17780.4     .15 18261.2    .065 19395.7    .032 20263.9    .043
   20896    .043 21206.4    .053

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       17780.4   20896              520  515.72     560             .1      .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
```

DuplicateEffective

13125 17205 960 F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	952.61	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.49	Wt. n-Val.	0.150	0.046	0.053
W.S. Elev (ft)	952.12	Reach Len. (ft)	520.00	515.72	560.00
Crit W.S. (ft)	947.18	Flow Area (sq ft)	5257.79	28732.01	2497.26
E.G. Slope (ft/ft)	0.001603	Area (sq ft)	35712.51	28732.01	2497.26
Q Total (cfs)	179750.00	Flow (cfs)	9082.61	166347.00	4320.39
Top Width (ft)	9118.91	Top Width (ft)	4654.90	3107.07	1356.93
Vel Total (ft/s)	4.93	Avg. Vel. (ft/s)	1.73	5.79	1.73
Max Chl Dpth (ft)	15.82	Hydr. Depth (ft)	9.14	9.25	1.84
Conv. Total (cfs)	4488975.0	Conv. (cfs)	226824.0	4154256.0	107895.0
Length Wtd. (ft)	517.47	Wetted Per. (ft)	578.54	3112.25	1357.60
Min Ch El (ft)	937.70	Shear (lb/sq ft)	0.91	0.92	0.18
Alpha	1.29	Stream Power (lb/ft s)	1.57	5.35	0.32
Frctn Loss (ft)	0.93	Cum Volume (acre-ft)	1508.19	1944.74	574.75
C & E Loss (ft)	0.01	Cum SA (acres)	213.64	204.88	222.85

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	953.18	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.46	Wt. n-Val.	0.150	0.046	
W.S. Elev (ft)	952.73	Reach Len. (ft)	520.00	515.72	560.00
Crit W.S. (ft)	947.17	Flow Area (sq ft)	5605.86	30611.86	
E.G. Slope (ft/ft)	0.001382	Area (sq ft)	5605.86	30611.86	
Q Total (cfs)	179750.00	Flow (cfs)	9271.11	170478.90	
Top Width (ft)	3683.53	Top Width (ft)	575.40	3108.13	
Vel Total (ft/s)	4.96	Avg. Vel. (ft/s)	1.65	5.57	
Max Chl Dpth (ft)	16.43	Hydr. Depth (ft)	9.74	9.85	
Conv. Total (cfs)	4835241.0	Conv. (cfs)	249391.0	4585850.0	
Length Wtd. (ft)	516.00	Wetted Per. (ft)	589.04	3113.47	
Min Ch El (ft)	937.70	Shear (lb/sq ft)	0.82	0.85	
Alpha	1.20	Stream Power (lb/ft s)	1.36	4.72	
Frctn Loss (ft)	0.80	Cum Volume (acre-ft)	215.72	2129.17	30.85
C & E Loss (ft)	0.01	Cum SA (acres)	23.33	204.89	5.87

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 200.2

INPUT
Description: 200.2

Left Channel Bank Station Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
13153.3	944.6	13349.8	941	13453.5	941.7	13506.2	944.4	13667.2	944.5
13896.4	944.4	14116.1	944.3	14330.9	944.2	14491.6	944.1	14677.3	943.8
14757.1	939.6	14939.8	944.1	15110.7	943.8	15278.6	943.3	15461.1	943.2
15632.4	943.3	15866.9	943.9	16084.9	943.3	16260.8	943.4	16458.2	942.6
16696.4	943.8	16928.4	942.2	17115942.0292		17146.9	942	17406.4	942.7
17643.4	942.6	17703.7	941.7	17728.1	936.2	17754.7	936.2	17774.2	941
17960.5	949.6	18052.3	948	18086.8	939.2	18113.1	940.7	18233.7	939.8
18402.1	943	18511.7	944.8	18531.7	941.8	18707.3	944.7	18794.8	941.3
19017.2	943.2	19081.1	945.2	19247.5	944.2	19313.2	945.7	19482.3	942.9
19591.6	942.6	20062.3	940.4	20235.8	940	20296.5	940.6	20329.2	937.6
20402.2	940.4	20578.4	937.9	20633	938.7	20676	937	20686.1	939.7
20744	948	20822.3	948	20949.1	954.9	21027.6	947.5	21215	947.3
21338.5	947.2	21527.5	948.5	21746	948.8	21841.7	948.3	22059	949.1
22185.4	949.1	22507.1	948.8	22551.2	949	22836.7	949.8	22992.3	949.2
23156.3	950.7	23327.5	950.2	23492.3	951.2	23633.4	950.7	23641.6	948.8
23667.9	953.3	23785.4	949.4	23980	949	24145.7	948.5	24326	947.5
24336.6	946.6	24353.9	949.4	24529.6	949.2	24626.1	949.5	24679.5	947.3
24861.6	949.3	24983.4	948.5	24990.2	949.6	24999.2	947	25138.6	950
25169.5	955.5	25202.4	950.9	25239.2	950	25434.2	953.6	25474.7	955.9
25481.6	954.7	25498.7	958.4						

Manning's n Values num= 8

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
13153.3	.15	17960.5	.15	18233.7	.065	19482.3	.032	20235.8	.043
20744	.043	21215	.025	23667.9	.053				

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
17960.5 20744 535 525.73 515 .1 .3

Ineffective Flow num= 3

Sta L	Sta R	Elev	Permanent
13150	17115	960	F
20744	23100	960	F
25169.5	25498.7	960	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	951.67	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.56	Wt. n-Val.	0.150	0.046	0.051
W.S. Elev (ft)	951.10	Reach Len. (ft)	535.00	525.73	515.00
Crit W.S. (ft)	946.78	Flow Area (sq ft)	7123.41	24953.69	3542.48
E.G. Slope (ft/ft)	0.002027	Area (sq ft)	37700.66	24953.69	9020.27
Q Total (cfs)	179750.00	Flow (cfs)	13140.99	158890.60	7718.37
Top Width (ft)	11857.73	Top Width (ft)	4807.20	2783.50	4267.03
Vel Total (ft/s)	5.05	Avg. Vel. (ft/s)	1.84	6.37	2.18

				DuplicateEffective	
* Max Chl Dpth (ft)	* 14.90	* Hydr. Depth (ft)	* 8.43	* 8.96	* 1.84 *
* Conv. Total (cfs)	*3992119.0	* Conv. (cfs)	*291851.9	*3528848.0	*171419.5 *
* Length Wtd. (ft)	* 525.91	* Wetted Per. (ft)	* 846.90	* 2786.31	* 1924.34 *
* Min Ch El (ft)	* 937.00	* Shear (lb/sq ft)	* 1.06	* 1.13	* 0.23 *
* Alpha	* 1.43	* Stream Power (lb/ft s)	* 1.96	* 7.22	* 0.51 *
* Frctn Loss (ft)	* 0.98	* Cum Volume (acre-ft)	* 1070.00	* 1626.94	* 500.71 *
* C & E Loss (ft)	* 0.03	* Cum SA (acres)	* 157.16	* 170.01	* 186.70 *

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 952.38	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 0.55	* Wt. n-Val.	* 0.150	* 0.046	* *
* W.S. Elev (ft)	* 951.83	* Reach Len. (ft)	* 535.00	* 525.73	* 515.00 *
* Crit W.S. (ft)	* 946.77	* Flow Area (sq ft)	* 7740.51	*26985.25	* *
* E.G. Slope (ft/ft)	*0.001732	* Area (sq ft)	* 7740.51	*26985.25	* *
* Q Total (cfs)	*179750.00	* Flow (cfs)	*13843.60	*165906.40	* *
* Top Width (ft)	* 3629.00	* Top Width (ft)	* 845.50	* 2783.50	* *
* Vel Total (ft/s)	* 5.18	* Avg. Vel. (ft/s)	* 1.79	* 6.15	* *
* Max Chl Dpth (ft)	* 15.63	* Hydr. Depth (ft)	* 9.15	* 9.69	* *
* Conv. Total (cfs)	*4319022.0	* Conv. (cfs)	*332633.1	*3986389.0	* *
* Length Wtd. (ft)	* 526.30	* Wetted Per. (ft)	* 856.71	* 2790.14	* *
* Min Ch El (ft)	* 937.00	* Shear (lb/sq ft)	* 0.98	* 1.05	* *
* Alpha	* 1.31	* Stream Power (lb/ft s)	* 1.75	* 6.43	* *
* Frctn Loss (ft)	* 0.81	* Cum Volume (acre-ft)	* 136.06	* 1788.21	* 30.85 *
* C & E Loss (ft)	* 0.04	* Cum SA (acres)	* 14.85	* 170.01	* 5.87 *

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 200.1

INPUT
Description: 200.1
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
13401.5	961.6	13404.9	959.9	13406.7	957.2	13436.1	949.3	13438.3	947.2
13608.9	944.8	13771.4	944.1	13861.6	946.2	14093.6	944.2	14363	943.5
14599.1	944	14804.9	943.5	14985.6	943.6	15188.8	942.7	15425.2	942.8
15650.8	942.8	15834.1	942.9	16015.4	942.8	16214.7	941.9	16467.4	941.6
16641.3	942.8	16821.1	944	17077.9	942.2	17313	941.7	17523.7	941.6
17672.5	940.7	17733.3	943.5	17903.5	943	18097	942	18197	940.9
18244	934.9	18278.2	934.7	18280	936.9	18289	936.2	18327.6	941.8
18505.3	941.8	18602	941.2	18752.8	944.8	18927.6	940.3	19044.3	938.9
19072.3	941.3	19130.7	943	19301.3	943.1	19402.1	944.8	19524.2	937.7
19631.9	945.9	19875.1	939.3	20104.9	934.9	20306.5	934.5	20329.5	935.2
20520.9	935.5	20604.1	936.7	20643	947.2	20857.2	946.5	21112.6	946.5
21165.6	945.5	21339.7	946.3	21499.9	947.4	21673.2	947.4	21692.7	947.4
21938.1	947.6	21976.2	947.6	22310	947.7	22366.6	947.7	22620.5	948
22748	948.7	23104.3	950.4	23323.4	950.8	23521	950.1	23671.5	950.7
23677.2	948.1	23730.1	951.6	23754.2	948.1	23760.8	950.1	23949.5	948.5
24132.7	948.8	24309.4	949	24354.9	949.5	24372.1	946.9	24561.3	948.7
24717.9	946.9	24773.6	949.1	24952.8	948.5	25016.6	946.2	25028.8	948.4
25039.1	944.7	25073.4	947.5	25256.1	949.3	25287.2	954.4	25301	949.1
25375.9	953.1	25528.9	956	25539.2	957.4	25551.8	955.4	25735.3	957.8
25963	960								

Manning's n Values num= 8

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
13401.5	.15	15425.2	.043	16821.1	.15	18752.8	.15	19524.2	.032
20643	.043	21165.6	.025	23730.1	.053				

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
17733.3	20643	490 491.65	495	.1	.3

Ineffective Flow num= 3

Sta L	Sta R	Elev	Permanent
13400	17030	960	F
20800	23000	960	F
25287.2	25965	960	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 950.66	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 0.47	* Wt. n-Val.	* 0.150	* 0.050	* 0.050 *
* W.S. Elev (ft)	* 950.19	* Reach Len. (ft)	* 490.00	* 491.65	* 495.00 *
* Crit W.S. (ft)	* 945.22	* Flow Area (sq ft)	* 5946.08	*28462.42	* 3251.01 *
* E.G. Slope (ft/ft)	*0.001730	* Area (sq ft)	*30238.28	*28462.42	* 9247.00 *
* Q Total (cfs)	*179750.00	* Flow (cfs)	*10167.66	*163284.20	* 6298.19 *
* Top Width (ft)	*11254.10	* Top Width (ft)	* 4300.50	* 2909.70	* 4043.90 *
* Vel Total (ft/s)	* 4.77	* Avg. Vel. (ft/s)	* 1.71	* 5.74	* 1.94 *
* Max Chl Dpth (ft)	* 15.69	* Hydr. Depth (ft)	* 8.45	* 9.78	* 1.79 *
* Conv. Total (cfs)	*4321296.0	* Conv. (cfs)	*244436.5	*3925447.0	*151412.3 *
* Length Wtd. (ft)	* 491.84	* Wetted Per. (ft)	* 703.37	* 2913.88	* 1823.03 *
* Min Ch El (ft)	* 934.50	* Shear (lb/sq ft)	* 0.91	* 1.06	* 0.19 *
* Alpha	* 1.33	* Stream Power (lb/ft s)	* 1.56	* 6.05	* 0.37 *
* Frctn Loss (ft)	* 0.58	* Cum Volume (acre-ft)	* 652.79	* 1304.60	* 392.73 *
* C & E Loss (ft)	* 0.06	* Cum SA (acres)	* 101.23	* 135.65	* 137.58 *

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	951.53	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.42	Wt. n-Val.	0.150	0.051	0.043
W.S. Elev (ft)	951.11	Reach Len. (ft)	490.00	491.65	495.00
Crit W.S. (ft)	945.22	Flow Area (sq ft)	6594.26	*31144.08	653.90
E.G. Slope (ft/ft)	*0.001392	Area (sq ft)	6594.26	*31144.08	653.90
Q Total (cfs)	*179750.00	Flow (cfs)	*10748.50	*166859.30	* 2142.24 *
Top Width (ft)	* 3770.00	Top Width (ft)	703.30	* 2909.70	157.00
Vel Total (ft/s)	4.68	Avg. Vel. (ft/s)	1.63	5.36	3.28
Max Chl Dpth (ft)	16.61	Hydr. Depth (ft)	9.38	10.70	4.16
Conv. Total (cfs)	*4818061.0	Conv. (cfs)	*288105.3	*4472535.0	* 57421.1 *
Length Wtd. (ft)	491.67	Wetted Per. (ft)	711.94	* 2913.88	161.42
Min Ch El (ft)	934.50	Shear (lb/sq ft)	0.80	0.93	0.35
Alpha	1.23	Stream Power (lb/ft s)	1.31	4.98	1.15
Frctn Loss (ft)	0.51	Cum Volume (acre-ft)	48.03	* 1437.43	26.99
C & E Loss (ft)	0.04	Cum SA (acres)	5.33	* 135.65	4.95

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 200

INPUT
Description: 200
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
13751.9	957.5	13774.9	950.4	13899.2	945.3	14075.2	943.6	14247.4	943.4
14390.2	944.1	14410.8	941.9	14489.5	944.7	14707.6	944.7	14871.6	945
15032.5	944.4	15300.2	944.1	15460.8	944.8	15628	944.3	15784.9	944.2
15958.7	943.4	16114	943.3	16279	942.4	16452	942.3	16652.4	942.7
16843.9	942.3	17008.1	943.8	17197.2	943.5	17388.9	942.5	17552.5	941.8
17738.6	942.2	17904	942.1	18074.8	942.9	18250.5	943.4	18433.6	942.2
18601	942.2	18626	940.2	18638.8	934	18658.5	933.4	18693.5	940.2
18768.9	944.3	18874.7	940.2	19043.7	940.6	19233.3	941.2	19416.4	942.6
19566.9	941.6	19720.1	935.8	19796.8	938.8	19975	934.4	20272.3	934.1
20276.6	934.2	20626.2	936.3	20790.5	935.3	20829	944.5	21085.6	944
21172.7	942.8	21329.4	945.1	21406.2	952.7	21433.8	946.6	21513.2	947.1
21713.7	947	21747.4	947	21906.5	946.8	21920.3	946.8	22147.8	946
22206.3	945.8	22451.9	946.8	22701.3	947.9	22901.9	948.3	23151.7	949.3
23234.2	950.1	23323.5	948.7	23510.9	949.9	23672.1	949.6	23707.3	949.9
23712.7	946.9	23720.9	949.2	23769.1	950.4	23820.8	947.8	23989.1	947.8
24020.6	947.1	24029.2	945.6	24038	947.6	24198.6	947	24361	947.2
24513.5	945.6	24672.5	946.4	24863.2	946.6	25018.9	946.3	25064.3	946
25075.8	943.9	25087.5	947.1	25163.5	947.5	25181.3	953.2	25200.7	953.7
25211	947.8	25384.8	952.1	25573.3	956	25602.8	956.1	25616.3	960.7
25622.7	961.4								

Manning's n Values num= 9

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
13751.9	.15	15628	.043	17008.1	.15	18601	.15	19566.9	.032
20829	.032	21329.4	.043	21713.7	.025	23769.1	.053		

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
17008.1 20829 520 521.67 525 .1 .3

Ineffective Flow num= 3

Sta L	Sta R	Elev	Permanent
13751	16950	960	F
21350	23200	960	F
25200.7	25625	960	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	950.01	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.	0.043	0.049	0.039
W.S. Elev (ft)	949.74	Reach Len. (ft)	520.00	521.67	525.00
Crit W.S. (ft)	944.16	Flow Area (sq ft)	360.81	*37062.06	* 7114.48
E.G. Slope (ft/ft)	*0.000864	Area (sq ft)	*18898.55	*37062.06	*11612.06
Q Total (cfs)	*179750.00	Flow (cfs)	* 1238.45	*158884.00	*19627.52 *
Top Width (ft)	*11193.60	Top Width (ft)	* 3217.23	* 3820.90	* 4155.47
Vel Total (ft/s)	4.04	Avg. Vel. (ft/s)	3.43	4.29	2.76
Max Chl Dpth (ft)	16.34	Hydr. Depth (ft)	6.21	9.70	3.14
Conv. Total (cfs)	*6113840.0	Conv. (cfs)	* 42123.5	*5404126.0	*667591.3 *
Length Wtd. (ft)	521.96	Wetted Per. (ft)	58.10	* 3824.60	* 2271.73
Min Ch El (ft)	933.40	Shear (lb/sq ft)	0.34	0.52	0.17
Alpha	1.05	Stream Power (lb/ft s)	1.15	2.24	0.47
Frctn Loss (ft)	0.40	Cum Volume (acre-ft)	376.42	934.82	274.21
C & E Loss (ft)	0.02	Cum SA (acres)	58.95	97.67	90.99

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	950.98	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.28	Wt. n-Val.	0.043	0.050	0.032
W.S. Elev (ft)	950.70	Reach Len. (ft)	520.00	521.67	525.00
Crit W.S. (ft)	944.16	Flow Area (sq ft)	416.36	*40715.75	* 1418.00
E.G. Slope (ft/ft)	*0.000792	Area (sq ft)	416.36	*40715.75	* 1418.00
Q Total (cfs)	*179750.00	Flow (cfs)	* 1388.62	*172089.50	* 6271.86 *
Top Width (ft)	* 4100.00	Top Width (ft)	58.10	* 3820.90	221.00
Vel Total (ft/s)	4.22	Avg. Vel. (ft/s)	3.34	4.23	4.42
Max Chl Dpth (ft)	17.30	Hydr. Depth (ft)	7.17	10.66	6.42
Conv. Total (cfs)	*6388853.0	Conv. (cfs)	* 49355.8	*6116576.0	*222920.5 *
Length Wtd. (ft)	521.71	Wetted Per. (ft)	65.53	* 3824.60	227.63
Min Ch El (ft)	933.40	Shear (lb/sq ft)	0.31	0.53	0.31

```
                                                                    DuplicateEffective
* Alpha                  *    1.00  * Stream Power (lb/ft s) *    1.05  *    2.22  *    1.36  *
* Frctn Loss (ft)        *    0.35  * Cum Volume (acre-ft)   *    8.60  * 1031.90  *   15.22  *
* C & E Loss (ft)        *    0.02  * Cum SA (acres)         *    1.05  *   97.67  *    2.80  *
*********************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 199.91

INPUT
Description: 199.91
Station Elevation Data    num=      96
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
   14357     952 14390.5   944.3 14519.8   944.3 14639.2     944 14799.9   943.3
   14919   943.3 15064.9   943.3 15201.6   943.3 15338.6   943.4 15454.7   943.3
 15584.5   943.3 15701.7   943.3 15826.7     943 15946.8   942.7 16066.9   942.8
   16186   942.4 16318.5   941.2 16444.9   941.2   16595   941.2 16734.2   941.2
 16862.4   941.9 16985.5   941.6 17123.4   941.2 17256.1   940.2 17418.5   940.8
 17583.3   941.1 17747.3   940.1 17924.2   940.7 18048.2   942.2   18185   942.2
 18189.1   942.2 18396.1   942.1 18544.2   943.4 18752.1     941 18756.5   940.1
 18757.1   941.1 18776.4   938.5 18875.1   932.1 19009.5   940.1 19154.1   941.2
 19274.4   940.6 19412.9   940.1 19433.2   938.2   19665   944.1 19683.4   944.3
   20122   935.3   20357   935.3 20396.2   935.2 20513.6   938.9 20603.3   938.2
 20817.6   934.9 20841.2   934.9   21013   935.1 21078.3   935.1 21141.2   941.5
 21181.1   941.5 21315.9     945 21377.5   952.3 21405.6   945.7 21555.3   946.7
 21673.9   946.5 21886.3   946.2 22065.2   946.2 22189.8   945.7 22354.3   945.2
   22462   946.4 22675.7   948.1   22731   948.3 22992.2   947.3 23079.5   947.2
 23195.8   947.1 23332.1   947.2   23499   947.4 23628.6   947.3 23678.5   948.1
 23685.3   950.9 23692.1   948.2 23702.9   950.2 23747.7   949.7 23766.7   947.4
 23890.2   946.9   24000   946.9 24127.8   946.1 24323.2   945.3 24446.3   945.3
 24602.1   944.4 24749.8   944.2 24887.7   943.5 25018.7   945.8 25033.6   942.4
 25046.9   947.2 25137.9   947.1 25214.4   951.6 25285.5   947.1 25444.7   950.8
 25559.1   953.2

Manning's n Values        num=      10
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************************************************
   14357     .15 16318.5    .043 17747.3     .15 18544.2     .15 19433.2    .032
   21013    .043 21315.9    .043 21377.5    .025 23702.9    .053 25018.7    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.    Expan.
       16862.4 21315.9               465  466.41     465             .1       .3
Ineffective Flow     num=       3
   Sta L   Sta R     Elev  Permanent
   14357   16800      960       F
   21330   23050      960       F
   25200 25559.1      960       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         *  949.60  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.21  * Wt. n-Val.             *   0.043  *   0.046  *   0.044  *
* W.S. Elev (ft)         *  949.39  * Reach Len. (ft)        *  465.00  *  466.41  *  465.00  *
* Crit W.S. (ft)         *  943.36  * Flow Area (sq ft)      *  477.76  *43007.52  * 6769.67  *
* E.G. Slope (ft/ft)     *0.000668  * Area (sq ft)           *16319.12  *43007.52  *11526.39  *
* Q Total (cfs)          *179750.00  * Flow (cfs)            * 1657.71  *164523.10  *13569.20  *
* Top Width (ft)         *10846.61  * Top Width (ft)        * 2494.03  * 4453.50  * 3899.08  *
* Vel Total (ft/s)       *    3.58  * Avg. Vel. (ft/s)      *    3.47  *    3.83  *    2.00  *
* Max Chl Dpth (ft)      *   17.29  * Hydr. Depth (ft)      *    7.66  *    9.66  *    3.25  *
* Conv. Total (cfs)      *6954198.0  * Conv. (cfs)          * 64133.8  *6365097.0  *524967.6  *
* Length Wtd. (ft)       *  466.19  * Wetted Per. (ft)      *   62.40  * 4455.54  * 2083.72  *
* Min Ch El (ft)         *  932.10  * Shear (lb/sq ft)      *    0.32  *    0.40  *    0.14  *
* Alpha                  *    1.08  * Stream Power (lb/ft s) *    1.11  *    1.54  *    0.27  *
* Frctn Loss (ft)        *    0.50  * Cum Volume (acre-ft)  *  166.22  *  455.37  *  134.77  *
* C & E Loss (ft)        *    0.01  * Cum SA (acres)        *   24.86  *   48.12  *   42.45  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)         *  950.61  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.22  * Wt. n-Val.             *   0.043  *   0.046  *   0.043  *
* W.S. Elev (ft)         *  950.39  * Reach Len. (ft)        *  465.00  *  466.41  *  465.00  *
* Crit W.S. (ft)         *  943.36  * Flow Area (sq ft)      *  540.67  *47497.17  *   64.28  *
* E.G. Slope (ft/ft)     *0.000573  * Area (sq ft)           *  540.67  *47497.17  *   64.28  *
* Q Total (cfs)          *179750.00  * Flow (cfs)            * 1727.02  *177898.40  *  124.56  *
* Top Width (ft)         * 4530.00  * Top Width (ft)        *   62.40  * 4453.50  *   14.10  *
* Vel Total (ft/s)       *    3.74  * Avg. Vel. (ft/s)      *    3.19  *    3.75  *    1.94  *
* Max Chl Dpth (ft)      *   18.29  * Hydr. Depth (ft)      *    8.66  *   10.67  *    4.56  *
* Conv. Total (cfs)      *7510252.0  * Conv. (cfs)          * 72157.5  *7432890.0  *  5204.4  *
* Length Wtd. (ft)       *  466.37  * Wetted Per. (ft)      *   71.24  * 4455.54  *   17.92  *
* Min Ch El (ft)         *  932.10  * Shear (lb/sq ft)      *    0.27  *    0.38  *    0.13  *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *    0.87  *    1.43  *    0.25  *
* Frctn Loss (ft)        *    0.47  * Cum Volume (acre-ft)  *    2.89  *  503.68  *    6.28  *
* C & E Loss (ft)        *    0.00  * Cum SA (acres)        *    0.33  *   48.12  *    1.38  *
*********************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION
```

RIVER: 1
REACH: 1 RS: 199.82

INPUT
Description: 199.82

Left Channel Bank Station Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
14626.5	957.7	14665	955.3	14714.8	947.7	14731.9	943.6	14878.2	942.2
15038.4	942.1	15177.1	942.1	15312	942.9	15442.8	943.5	15572.5	942.6
15710.4	942.1	15843.3	942.2	15981.6	942	16111.7	941.9	16269.4	941.3
16337.7	941.1	16490	941.8	16647.8	941.2	16807.1	940.1	16870	940.1
16937.5	940.1	17070.8	940.1	17202.5	940.1	17339.2	940.1	17503.8	940.1
17635.5	940.1	17774.7	939.1	17955.5	939.8	18107	939.8	18236.3	940.2
18376.6	941.1	18554.9	941.8	18684.9	940.6	18768.3	940	18787.7	931.4
18818.1	931.2	18845.4	938.1	18894.5	940	19032.4	940.6	19165.1	939.3
19236.6	938.1	19354.5	941.6	19458.6	938.6	20124.2	939.3	20322.3	939.2
20533.6	938.6	20766.2	939.3	20910.7	936.7	20926	937.9	21009.9	936.6
21146.9	939.7	21241.8	942.2	21405.4	944.5	21551.8	945.7	21756.1	945.8
21937.2	945.7	22121.7	945.7	22347.1	945.6	22491.6	945.9	22657.2	946.2
22790.5	945.6	22925.1	946.5	23055.8	946.4	23218.3	946.1	23364.5	946.1
23514.8	945.8	23642	948.2	23655.7	947.2	23663.6	949.2	23669.7	947
23724.8	949.5	23780.9	946.5	23947	945	24077.1	944.4	24199.5	945.5
24210.3	943.6	24214.2	944.9	24354.9	943.6	24545.8	943	24742.9	943.3
24928.6	944	25002.7	943.7	25010.2	942.2	25023.6	945.4	25153.6	945.8
25304.8	946.9	25434.7	948.1	25588.5	950.5	25663.5	951.7	25798.3	956.3
25810.1	957.9	25834.3	954.9	25859.3	957.7	25991.9	960.7	26149.5	962.1
26241.6	962.1	26277	964.4						

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
14626.5	.15	18554.9	.15	19165.1	.065	21405.4	.025	23724.8	.053
25002.7	.025								

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
16870 21405.4 0 0 0 .1 .3

Ineffective Flow num= 3

Sta L	Sta R	Elev	Permanent
14626.5	16870	960	F
21650	22900	960	F
25350	26127	960	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	949.09	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	Wt. n-Val.		0.089	0.039
W.S. Elev (ft)	948.90	Reach Len. (ft)			
Crit W.S. (ft)	943.28	Flow Area (sq ft)		42049.83	9729.14
E.G. Slope (ft/ft)	0.002007	Area (sq ft)	14822.50	42049.83	13723.95
Q Total (cfs)	179750.00	Flow (cfs)		138919.60	40830.43
Top Width (ft)	10752.57	Top Width (ft)	2163.06	4535.40	4054.11
Vel Total (ft/s)	3.47	Avg. Vel. (ft/s)		3.30	4.20
Max Chl Dpth (ft)	17.70	Hydr. Depth (ft)		9.27	3.65
Conv. Total (cfs)	4012368.0	Conv. (cfs)		3100954.0	911414.0
Length Wtd. (ft)		Wetted Per. (ft)		4538.42	2669.79
Min Ch El (ft)	931.20	Shear (lb/sq ft)		1.16	0.46
Alpha	1.03	Stream Power (lb/ft s)		3.84	1.92
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	950.14	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.24	Wt. n-Val.		0.089	0.025
W.S. Elev (ft)	949.90	Reach Len. (ft)			
Crit W.S. (ft)	943.25	Flow Area (sq ft)		46585.23	1112.80
E.G. Slope (ft/ft)	0.002185	Area (sq ft)		46585.23	1112.80
Q Total (cfs)	179750.00	Flow (cfs)		171357.00	8392.96
Top Width (ft)	4780.00	Top Width (ft)		4535.40	244.60
Vel Total (ft/s)	3.77	Avg. Vel. (ft/s)		3.68	7.54
Max Chl Dpth (ft)	18.70	Hydr. Depth (ft)		10.27	4.55
Conv. Total (cfs)	3845833.0	Conv. (cfs)		3666262.0	179571.2
Length Wtd. (ft)		Wetted Per. (ft)		4548.22	248.76
Min Ch El (ft)	931.20	Shear (lb/sq ft)		1.40	0.61
Alpha	1.10	Stream Power (lb/ft s)		5.14	4.60
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

SUMMARY OF MANNING'S N VALUES

River:1

Reach	River Sta.	n1	n2	n3	n4	n5	n6	n7	n8	n9	n10
1	214.14	.04	.035	.04							
1	214.04	.04	.035	.04							
1	213.95	.04	.035	.04							
1	213.85	.04	.035	.04							
1	213.75	.037	.032	.037							
1	213.745	Bridge									
1	213.74	.037	.032	.037							
1	213.66	.037	.032	.037							

						DuplicateEffective						
*1	*	213.57	* .037*	.032*	.037*	*	*	*	*	*	*	*
*1	*	213.47	* .037*	.032*	.037*	*	*	*	*	*	*	*
*1	*	213.38	* .037*	.032*	.037*	*	*	*	*	*	*	*
*1	*	213.33	* .037*	.032*	.037*	*	*	*	*	*	*	*
*1	*	213.26	* .037*	.032*	.037*	*	*	*	*	*	*	*
*1	*	213.255	*Bridge *	*	*	*	*	*	*	*	*	*	*
*1	*	213.25	* .037*	.032*	.037*	*	*	*	*	*	*	*
*1	*	213.21	* .037*	.032*	.037*	*	*	*	*	*	*	*
*1	*	213.11	* .037*	.032*	.037*	*	*	*	*	*	*	*
*1	*	213.03	* .037*	.032*	.037*	*	*	*	*	*	*	*
*1	*	212.93	* .037*	.032*	.037*	*	*	*	*	*	*	*
*1	*	212.84	* .037*	.032*	.037*	*	*	*	*	*	*	*
*1	*	212.74	* .037*	.032*	.037*	*	*	*	*	*	*	*
*1	*	212.68	* .037*	.032*	.037*	*	*	*	*	*	*	*
*1	*	212.675	*Bridge *	*	*	*	*	*	*	*	*	*	*
*1	*	212.67	* .037*	.032*	.037*	*	*	*	*	*	*	*
*1	*	212.56	* .037*	.032*	.037*	*	*	*	*	*	*	*
*1	*	212.46	* .037*	.032*	.037*	*	*	*	*	*	*	*
*1	*	212.37	* .037*	.032*	.037*	*	*	*	*	*	*	*
*1	*	212.27	* .045*	.033*	.04*	*	*	*	*	*	*	*
*1	*	212.18	* .045*	.033*	.04*	*	*	*	*	*	*	*
*1	*	212.08	* .045*	.033*	.04*	*	*	*	*	*	*	*
*1	*	211.99	* .045*	.033*	.04*	*	*	*	*	*	*	*
*1	*	211.89	* .045*	.033*	.04*	*	*	*	*	*	*	*
*1	*	211.79	* .045*	.033*	.04*	*	*	*	*	*	*	*
*1	*	211.71	* .045*	.033*	.04*	*	*	*	*	*	*	*
*1	*	211.64	* .045*	.033*	.04*	*	*	*	*	*	*	*
*1	*	211.54	* .037*	.032*	.037*	*	*	*	*	*	*	*
*1	*	211.525	*Bridge *	*	*	*	*	*	*	*	*	*	*
*1	*	211.51	* .037*	.032*	.037*	*	*	*	*	*	*	*
*1	*	211.41	* .037*	.032*	.037*	*	*	*	*	*	*	*
*1	*	211.31	* .037*	.032*	.037*	*	*	*	*	*	*	*
*1	*	211.21	* .037*	.032*	.037*	*	*	*	*	*	*	*
*1	*	211.12	* .037*	.032*	.037*	*	*	*	*	*	*	*
*1	*	211.02	* .037*	.032*	.037*	*	*	*	*	*	*	*
*1	*	210.93	* .037*	.032*	.037*	*	*	*	*	*	*	*
*1	*	210.83	* .037*	.032*	.037*	*	*	*	*	*	*	*
*1	*	210.74	* .037*	.032*	.037*	*	*	*	*	*	*	*
*1	*	210.64	* .037*	.032*	.037*	*	*	*	*	*	*	*
*1	*	210.55	* .037*	.032*	.037*	*	*	*	*	*	*	*
*1	*	210.46	* .037*	.032*	.037*	.037*	.025*	*	*	*	*	*
*1	*	210.36	* .032*	.037*	.025*	.025*	*	*	*	*	*	*
*1	*	210.26	* .037*	.032*	.037*	.037*	.025*	*	*	*	*	*
*1	*	210.17	* .037*	.032*	.037*	.025*	*	*	*	*	*	*
*1	*	210.07	* .032*	.037*	.037*	.025*	*	*	*	*	*	*
*1	*	209.98	* .037*	.032*	.037*	*	*	*	*	*	*	*
*1	*	209.88	* .037*	.032*	.037*	.025*	*	*	*	*	*	*
*1	*	209.79	* .037*	.032*	.035*	.025*	*	*	*	*	*	*
*1	*	209.69	* .037*	.032*	.035*	.025*	*	*	*	*	*	*
*1	*	209.6	* .037*	.032*	.035*	.025*	*	*	*	*	*	*
*1	*	209.54	* .025*	.037*	.032*	.037*	.025*	*	*	*	*	*
*1	*	209.535	*Bridge *	*	*	*	*	*	*	*	*	*	*
*1	*	209.53	* .025*	.037*	.032*	.037*	.025*	*	*	*	*	*
*1	*	209.42	* .037*	.032*	.03*	.025*	*	*	*	*	*	*
*1	*	209.33	* .037*	.032*	.025*	*	*	*	*	*	*	*
*1	*	209.24	* .037*	.032*	.032*	.037*	.037*	.025*	*	*	*	*
*1	*	209.14	* .037*	.032*	.037*	.025*	*	*	*	*	*	*
*1	*	209.04	* .037*	.037*	.032*	.037*	.025*	*	*	*	*	*
*1	*	208.95	* .037*	.037*	.032*	.037*	*	*	*	*	*	*
*1	*	208.85	* .037*	.032*	.037*	.037*	*	*	*	*	*	*
*1	*	208.75	* .037*	.032*	.037*	.025*	*	*	*	*	*	*
*1	*	208.67	* .037*	.037*	.032*	.037*	.037*	.025*	*	*	*	*
*1	*	208.57	* .037*	.037*	.032*	.032*	.037*	*	*	*	*	*
*1	*	208.48	* .043*	.043*	.032*	.037*	.037*	.025*	*	*	*	*
*1	*	208.39	* .043*	.043*	.032*	.037*	.037*	*	*	*	*	*
*1	*	208.29	* .025*	.043*	.043*	.032*	.037*	.037*	.025*	*	*	*
*1	*	208.19	* .025*	.043*	.043*	.032*	.032*	*	*	*	*	*
*1	*	208.1	* .025*	.043*	.043*	.032*	.032*	*	*	*	*	*
*1	*	207.99	* .043*	.043*	.032*	.032*	*	*	*	*	*	*
*1	*	207.9	* .043*	.032*	.032*	.032*	*	*	*	*	*	*
*1	*	207.8	* .025*	.043*	.032*	.032*	.032*	*	*	*	*	*
*1	*	207.71	* .025*	.043*	.032*	.032*	.032*	*	*	*	*	*
*1	*	207.62	* .025*	.043*	.032*	.032*	.032*	*	*	*	*	*
*1	*	207.53	* .025*	.043*	.032*	.032*	.032*	*	*	*	*	*
*1	*	207.49	* .032*	.032*	.032*	*	*	*	*	*	*	*
*1	*	207.485	*Bridge *	*	*	*	*	*	*	*	*	*	*
*1	*	207.48	* .032*	.032*	*	*	*	*	*	*	*	*
*1	*	207.43	* .025*	.043*	.032*	.032*	.032*	*	*	*	*	*
*1	*	207.34	* .025*	.043*	.032*	.032*	.032*	*	*	*	*	*
*1	*	207.27	* .025*	.043*	.032*	.032*	.032*	*	*	*	*	*
*1	*	207.16	* .025*	.043*	.032*	.032*	.032*	*	*	*	*	*
*1	*	207.07	* .043*	.032*	.032*	.032*	*	*	*	*	*	*
*1	*	206.97	* .025*	.043*	.032*	.032*	.032*	*	*	*	*	*
*1	*	206.88	* .025*	.043*	.032*	.032*	.032*	.025*	*	*	*	*
*1	*	206.79	* .025*	.043*	.032*	.032*	.032*	*	*	*	*	*
*1	*	206.7	* .025*	.043*	.032*	.032*	.032*	*	*	*	*	*
*1	*	206.6	* .025*	.043*	.032*	.032*	.032*	*	*	*	*	*
*1	*	206.51	* .025*	.043*	.032*	.032*	.032*	*	*	*	*	*
*1	*	206.41	* .025*	.043*	.032*	.032*	.032*	*	*	*	*	*
*1	*	206.32	* .043*	.032*	.032*	.032*	.025*	*	*	*	*	*
*1	*	206.22	* .043*	.043*	.032*	.025*	*	*	*	*	*	*
*1	*	206.13	* .043*	.033*	.032*	*	*	*	*	*	*	*
*1	*	206.03	* .043*	.033*	.032*	*	*	*	*	*	*	*
*1	*	205.94	* .043*	.033*	.032*	.037*	*	*	*	*	*	*
*1	*	205.84	* .043*	.043*	.032*	.032*	.037*	*	*	*	*	*
*1	*	205.75	* .043*	.043*	.043*	.025*	*	*	*	*	*	*
*1	*	205.62	* .025*	.043*	.043*	.032*	.032*	.025*	*	*	*	*
*1	*	205.52	* .043*	.043*	.032*	.032*	.025*	*	*	*	*	*
*1	*	205.43	* .043*	.043*	.032*	.032*	.025*	*	*	*	*	*
*1	*	205.4	* .043*	.043*	.032*	.032*	*	*	*	*	*	*
*1	*	205.34	* .043*	.043*	.025*	*	*	*	*	*	*	*
*1	*	205.25	* .025*	.037*	.037*	.025*	*	*	*	*	*	*
*1	*	205.15	* .025*	.037*	.037*	.025*	*	*	*	*	*	*
*1	*	205.06	* .037*	.037*	.037*	.025*	*	*	*	*	*	*
*1	*	204.97	* .025*	.037*	.037*	.025*	*	*	*	*	*	*
*1	*	204.87	* .025*	.037*	.037*	.025*	*	*	*	*	*	*

						DuplicateEffective					
*1	*	204.78	* .025*	.037*	.037*	.025*	*	*	*	*	*
*1	*	204.68	* .025*	.037*	.037*	.037*	.025*	*	*	*	*
*1	*	204.61	* .025*	.037*	.037*	.025*	*	*	*	*	*
*1	*	204.53	* .025*	.037*	.037*	.037*	.025*	*	*	*	*
*1	*	204.42	* .025*	.037*	.037*	.037*	.025*	*	*	*	*
*1	*	204.34	* .025*	.037*	.037*	.025*	*	*	*	*	*
*1	*	204.25	* .035*	.032*	.025*	*	*	*	*	*	*
*1	*	204.15	* .035*	.032*	.025*	.025*	*	*	*	*	*
*1	*	204.05	* .05*	.035*	.032*	.025*	*	*	*	*	*
*1	*	203.96	* .025*	.043*	.043*	.032*	.037*	*	*	*	*
*1	*	203.86	* .043*	.043*	.032*	.037*	*	*	*	*	*
*1	*	203.77	* .025*	.043*	.043*	.032*	.025*	*	*	*	*
*1	*	203.67	* .025*	.037*	.037*	.032*	.032*	.025*	*	*	*
*1	*	203.58	* .025*	.037*	.037*	.032*	.025*	*	*	*	*
*1	*	203.48	* .025*	.037*	.037*	.032*	.025*	*	*	*	*
*1	*	203.39	* .025*	.037*	.037*	.032*	.025*	*	*	*	*
*1	*	203.29	* .025*	.037*	.037*	.032*	.025*	*	*	*	*
*1	*	203.19	* .025*	.043*	.043*	.037*	.025*	.025*	*	*	*
*1	*	203.09	* .025*	.043*	.043*	.037*	.025*	*	*	*	*
*1	*	202.99	* .025*	.043*	.043*	.037*	.043*	*	*	*	*
*1	*	202.9	* .025*	.043*	.043*	.037*	.043*	*	*	*	*
*1	*	202.8	* .025*	.043*	.043*	.037*	.043*	*	*	*	*
*1	*	202.69	* .025*	.043*	.043*	.037*	.043*	*	*	*	*
*1	*	202.59	* .025*	.043*	.043*	.037*	.043*	*	*	*	*
*1	*	202.48	* .043*	.043*	.037*	.043*	*	*	*	*	*
*1	*	202.37	* .025*	.043*	.043*	.037*	.043*	*	*	*	*
*1	*	202.29	* .025*	.043*	.043*	.037*	.043*	.043*	*	*	*
*1	*	202.18	* .025*	.043*	.043*	.037*	.043*	*	*	*	*
*1	*	202.09	* .025*	.043*	.043*	.037*	.043*	*	*	*	*
*1	*	201.99	* .025*	.043*	.043*	.032*	.037*	.037*	.025*	*	*
*1	*	201.9	* .025*	.043*	.043*	.032*	.037*	.037*	.025*	*	*
*1	*	201.81	* .025*	.065*	.065*	.032*	.037*	.025*	.025*	*	*
*1	*	201.71	* .025*	.065*	.065*	.032*	.037*	.025*	.025*	*	*
*1	*	201.62	* .025*	.15*	.025*	.065*	.065*	.032*	.037*	.025*	.025*
*1	*	201.52	* .025*	.15*	.025*	.15*	.032*	.037*	.025*	*	*
*1	*	201.43	* .043*	.065*	.025*	.15*	.032*	.037*	.025*	*	*
*1	*	201.33	* .043*	.065*	.025*	.15*	.032*	.037*	.025*	*	*
*1	*	201.24	* .043*	.065*	.025*	.15*	.15*	.037*	.032*	.037*	.025*
*1	*	201.14	* .043*	.065*	.025*	.15*	.037*	.032*	.037*	.025*	*
*1	*	201.05	* .043*	.15*	.025*	.15*	.037*	.032*	.037*	.025*	*
*1	*	200.95	* .043*	.15*	.037*	.032*	.037*	.035*	*	*	*
*1	*	200.86	* .043*	.15*	.032*	.037*	.035*	.035*	*	*	*
*1	*	200.77	* .043*	.15*	.032*	.037*	.025*	.035*	*	*	*
*1	*	200.67	* .043*	.15*	.032*	.15*	.032*	.043*	.025*	.025*	*
*1	*	200.58	* .15*	.043*	.15*	.032*	.043*	.025*	.025*	*	*
*1	*	200.49	* .15*	.043*	.043*	.15*	.032*	.043*	.025*	*	*
*1	*	200.39	* .15*	.043*	.043*	.15*	.032*	.043*	.025*	*	*
*1	*	200.3	* .15*	.15*	.065*	.032*	.043*	.043*	.053*	*	*
*1	*	200.2	* .15*	.15*	.065*	.032*	.043*	.043*	.025*	.053*	*
*1	*	200.1	* .15*	.043*	.15*	.15*	.032*	.043*	.025*	.053*	*
*1	*	200	* .15*	.043*	.15*	.15*	.032*	.032*	.043*	.025*	.053*
*1	*	199.91	* .15*	.043*	.15*	.15*	.032*	.043*	.043*	.025*	.053*
*1	*	199.82	* .15*	.15*	.065*	.025*	.053*	.025*	*	*	*

SUMMARY OF REACH LENGTHS

River: 1

Reach	River Sta.	Left	Channel	Right
*1	* 214.14	* 475*	510.51*	570*
*1	* 214.04	* 495*	493.12*	480*
*1	* 213.95	* 500*	504.25*	500*
*1	* 213.85	* 521*	520.04*	541*
*1	* 213.75	* 125*	116.36*	120*
*1	* 213.745	*Bridge *	*	*
*1	* 213.74	* 391*	373.47*	361*
*1	* 213.66	* 490*	491.08*	495*
*1	* 213.57	* 650*	500.37*	390*
*1	* 213.47	* 500*	493.66*	485*
*1	* 213.38	* 210*	290.06*	395*
*1	* 213.33	* 266*	316.41*	426*
*1	* 213.26	* 155*	152.22*	155*
*1	* 213.255	*Bridge *	*	*
*1	* 213.25	* 121*	123.36*	121*
*1	* 213.21	* 450*	531.57*	745*
*1	* 213.11	* 425*	459.38*	565*
*1	* 213.03	* 475*	495*	525*
*1	* 212.93	* 495*	501.9*	535*
*1	* 212.84	* 565*	538.19*	480*
*1	* 212.74	* 296*	242.17*	66*
*1	* 212.68	* 155*	154.01*	155*
*1	* 212.675	*Bridge *	*	*
*1	* 212.67	* 481*	557.08*	901*
*1	* 212.56	* 495*	502.71*	525*
*1	* 212.46	* 495*	497.81*	510*
*1	* 212.37	* 500*	495.84*	485*
*1	* 212.27	* 510*	495*	475*
*1	* 212.18	* 500*	502.53*	485*
*1	* 212.08	* 510*	519.85*	475*
*1	* 211.99	* 740*	489.19*	710*
*1	* 211.89	* 507*	527.46*	640*
*1	* 211.79	* 680*	450.74*	290*
*1	* 211.71	* 780*	392.06*	500*
*1	* 211.64	* 481*	521.13*	221*
*1	* 211.54	* 125*	125.49*	120*
*1	* 211.525	*Bridge *	*	*
*1	* 211.51	* 541*	562.88*	606*
*1	* 211.41	* 500*	501.53*	505*
*1	* 211.31	* 540*	523.28*	460*
*1	* 211.21	* 495*	493.11*	475*
*1	* 211.12	* 500*	505.73*	500*
*1	* 211.02	* 485*	493.19*	495*

							DuplicateEffective
*1	*	210.93	*	505*	505.14*		505*
*1	*	210.83	*	505*	505.61*		500*
*1	*	210.74	*	495*	503.39*		500*
*1	*	210.64	*	520*	515.29*		495*
*1	*	210.55	*	475*	473.19*		495*
*1	*	210.46	*	520*	522.28*		505*
*1	*	210.36	*	480*	487.62*		480*
*1	*	210.26	*	505*	512.65*		520*
*1	*	210.17	*	505*	497.78*		495*
*1	*	210.07	*	495*	490.15*		505*
*1	*	209.98	*	549.53*	500.89*		495.04*
*1	*	209.88	*	504.67*	500.86*		499.29*
*1	*	209.79	*	492.06*	500.22*		508.91*
*1	*	209.69	*	500.2*	544.5*		694.57*
*1	*	209.6	*	256*	290*		340.7*
*1	*	209.54	*	116*	116*		116*
*1	*	209.535	*Bridge	*	*		*
*1	*	209.53	*	566*	647*		655*
*1	*	209.42	*	522.18*	501.19*		560.6*
*1	*	209.33	*	505.94*	495.23*		518.99*
*1	*	209.24	*	510*	515*		525*
*1	*	209.14	*	500*	504.56*		485*
*1	*	209.04	*	495*	493.26*		500*
*1	*	208.95	*	505*	506.69*		505*
*1	*	208.85	*	510*	519.42*		530*
*1	*	208.75	*	440*	443.83*		450*
*1	*	208.67	*	495*	511.45*		475*
*1	*	208.57	*	560*	514.75*		370*
*1	*	208.48	*	500*	476.54*		525*
*1	*	208.39	*	505*	512.19*		480*
*1	*	208.29	*	490*	501.01*		510*
*1	*	208.19	*	550*	514.57*		505*
*1	*	208.1	*	640*	558.37*		480*
*1	*	207.99	*	475*	482.29*		500*
*1	*	207.9	*	505*	509.52*		585*
*1	*	207.8	*	495*	494.8*		505*
*1	*	207.71	*	485*	487.91*		485*
*1	*	207.62	*	460*	465*		515*
*1	*	207.53	*	231*	227*		201*
*1	*	207.49	*	50*	54*		35*
*1	*	207.485	*Bridge	*	*		*
*1	*	207.48	*	251*	245.54*		316*
*1	*	207.43	*	450*	471*		575*
*1	*	207.34	*	370*	393.75*		530*
*1	*	207.27	*	575*	572.72*		585*
*1	*	207.16	*	475*	463.31*		475*
*1	*	207.07	*	510*	514.11*		520*
*1	*	206.97	*	480*	491.78*		480*
*1	*	206.88	*	480*	487.71*		505*
*1	*	206.79	*	495*	489.96*		520*
*1	*	206.7	*	500*	500.23*		500*
*1	*	206.6	*	515*	504.63*		520*
*1	*	206.51	*	495*	496.45*		500*
*1	*	206.41	*	495*	494.64*		490*
*1	*	206.32	*	515*	513.83*		520*
*1	*	206.22	*	500*	502.44*		460*
*1	*	206.13	*	490*	483.44*		540*
*1	*	206.03	*	590*	513.6*		510*
*1	*	205.94	*	505*	506.69*		510*
*1	*	205.84	*	495*	496*		480*
*1	*	205.75	*	825*	642*		490*
*1	*	205.62	*	560*	523*		510*
*1	*	205.52	*	430*	470*		400*
*1	*	205.43	*	175*	171.89*		125*
*1	*	205.4	*	305*	315*		370*
*1	*	205.34	*	485*	492*		450*
*1	*	205.25	*	505*	506*		485*
*1	*	205.15	*	495*	495.39*		495*
*1	*	205.06	*	505*	505*		530*
*1	*	204.97	*	510*	503*		550*
*1	*	204.87	*	495*	499*		505*
*1	*	204.78	*	505*	515*		550*
*1	*	204.68	*	325*	407*		570*
*1	*	204.61	*	395*	449*		545*
*1	*	204.53	*	570*	552*		525*
*1	*	204.42	*	430*	453*		500*
*1	*	204.34	*	495*	488*		480*
*1	*	204.25	*	510*	508*		500*
*1	*	204.15	*	510*	509*		510*
*1	*	204.05	*	510*	505*		520*
*1	*	203.96	*	495*	502*		505*
*1	*	203.86	*	505*	498*		480*
*1	*	203.77	*	490*	498*		480*
*1	*	203.67	*	470*	490*		505*
*1	*	203.58	*	560*	513*		495*
*1	*	203.48	*	500*	505.82*		515*
*1	*	203.39	*	500*	505*		500*
*1	*	203.29	*	620*	535*		420*
*1	*	203.19	*	535*	520*		485*
*1	*	203.09	*	520*	518*		500*
*1	*	202.99	*	480*	456*		424*
*1	*	202.9	*	575*	538*		460*
*1	*	202.8	*	600*	555.5*		450*
*1	*	202.69	*	585*	566.1*		510*
*1	*	202.59	*	400*	561.2*		640*
*1	*	202.48	*	700*	576.2*		385*
*1	*	202.37	*	430*	400.7*		360*
*1	*	202.29	*	590*	583.1*		600*
*1	*	202.18	*	525*	511.84*		500*
*1	*	202.09	*	510*	509.32*		500*
*1	*	201.99	*	470*	477.46*		490*
*1	*	201.9	*	500*	495.8*		500*
*1	*	201.81	*	535*	511.61*		515*
*1	*	201.71	*	505*	489.63*		495*
*1	*	201.62	*	485*	486.48*		510*
*1	*	201.52	*	495*	492.06*		495*

						DuplicateEffective
*1	*	201.43	*	555*	519.88*	505*
*1	*	201.33	*	515*	514.62*	515*
*1	*	201.24	*	485*	488.56*	490*
*1	*	201.14	*	480*	481.53*	485*
*1	*	201.05	*	520*	512.89*	510*
*1	*	200.95	*	475*	474.38*	480*
*1	*	200.86	*	525*	523.32*	525*
*1	*	200.77	*	500*	495.64*	520*
*1	*	200.67	*	500*	503.34*	510*
*1	*	200.58	*	475*	479.55*	530*
*1	*	200.49	*	510*	497.59*	510*
*1	*	200.39	*	550*	506.5*	480*
*1	*	200.3	*	520*	515.72*	560*
*1	*	200.2	*	535*	525.73*	515*
*1	*	200.1	*	490*	491.65*	495*
*1	*	200	*	520*	521.67*	525*
*1	*	199.91	*	465*	466.41*	465*
*1	*	199.82	*	0*	0*	0*

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: 1

* Reach	* River Sta.	* Contr.	* Expan. *
*1	* 214.14	* .1*	.3*
*1	* 214.04	* .1*	.3*
*1	* 213.95	* .1*	.3*
*1	* 213.85	* .1*	.3*
*1	* 213.75	* .1*	.3*
*1	* 213.745 *Bridge	*	*
*1	* 213.74	* .1*	.3*
*1	* 213.66	* .1*	.3*
*1	* 213.57	* .1*	.3*
*1	* 213.47	* .1*	.3*
*1	* 213.38	* .1*	.3*
*1	* 213.33	* .1*	.3*
*1	* 213.26	* .1*	.3*
*1	* 213.255 *Bridge	*	*
*1	* 213.25	* .1*	.3*
*1	* 213.21	* .1*	.3*
*1	* 213.11	* .1*	.3*
*1	* 213.03	* .1*	.3*
*1	* 212.93	* .1*	.3*
*1	* 212.84	* .1*	.3*
*1	* 212.74	* .1*	.3*
*1	* 212.68	* .1*	.3*
*1	* 212.675 *Bridge	*	*
*1	* 212.67	* .1*	.3*
*1	* 212.56	* .1*	.3*
*1	* 212.46	* .1*	.3*
*1	* 212.37	* .1*	.3*
*1	* 212.27	* .1*	.3*
*1	* 212.18	* .1*	.3*
*1	* 212.08	* .1*	.3*
*1	* 211.99	* .1*	.3*
*1	* 211.89	* .1*	.3*
*1	* 211.79	* .1*	.3*
*1	* 211.71	* .1*	.3*
*1	* 211.64	* .1*	.3*
*1	* 211.54	* .1*	.3*
*1	* 211.525 *Bridge	*	*
*1	* 211.51	* .1*	.3*
*1	* 211.41	* .1*	.3*
*1	* 211.31	* .1*	.3*
*1	* 211.21	* .1*	.3*
*1	* 211.12	* .1*	.3*
*1	* 211.02	* .1*	.3*
*1	* 210.93	* .1*	.3*
*1	* 210.83	* .1*	.3*
*1	* 210.74	* .1*	.3*
*1	* 210.64	* .1*	.3*
*1	* 210.55	* .1*	.3*
*1	* 210.46	* .1*	.3*
*1	* 210.36	* .1*	.3*
*1	* 210.26	* .1*	.3*
*1	* 210.17	* .1*	.3*
*1	* 210.07	* .1*	.3*
*1	* 209.98	* .1*	.3*
*1	* 209.88	* .1*	.3*
*1	* 209.79	* .1*	.3*
*1	* 209.69	* .1*	.3*
*1	* 209.6	* .1*	.3*
*1	* 209.54	* .3*	.5*
*1	* 209.535 *Bridge	*	*
*1	* 209.53	* .3*	.5*
*1	* 209.42	* .1*	.3*
*1	* 209.33	* .1*	.3*
*1	* 209.24	* .1*	.3*
*1	* 209.14	* .1*	.3*
*1	* 209.04	* .1*	.3*
*1	* 208.95	* .1*	.3*
*1	* 208.85	* .1*	.3*
*1	* 208.75	* .1*	.3*
*1	* 208.67	* .1*	.3*
*1	* 208.57	* .1*	.3*
*1	* 208.48	* .1*	.3*
*1	* 208.39	* .1*	.3*
*1	* 208.29	* .1*	.3*
*1	* 208.19	* .1*	.3*
*1	* 208.1	* .1*	.3*
*1	* 207.99	* .1*	.3*
*1	* 207.9	* .1*	.3*

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*1              *    207.8   *       .1*       .3*
*1              *    207.71  *       .1*       .3*
*1              *    207.62  *       .1*       .3*
*1              *    207.53  *       .1*       .3*
*1              *    207.49  *       .1*       .3*
*1              *    207.485 *Bridge   *         *
*1              *    207.48  *       .1*       .3*
*1              *    207.43  *       .1*       .3*
*1              *    207.34  *       .1*       .3*
*1              *    207.27  *       .1*       .3*
*1              *    207.16  *       .1*       .3*
*1              *    207.07  *       .1*       .3*
*1              *    206.97  *       .1*       .3*
*1              *    206.88  *       .1*       .3*
*1              *    206.79  *       .1*       .3*
*1              *    206.7   *       .1*       .3*
*1              *    206.6   *       .1*       .3*
*1              *    206.51  *       .1*       .3*
*1              *    206.41  *       .1*       .3*
*1              *    206.32  *       .1*       .3*
*1              *    206.22  *       .1*       .3*
*1              *    206.13  *       .1*       .3*
*1              *    206.03  *       .1*       .3*
*1              *    205.94  *       .1*       .3*
*1              *    205.84  *       .1*       .3*
*1              *    205.75  *       .1*       .3*
*1              *    205.62  *       .1*       .3*
*1              *    205.52  *       .1*       .3*
*1              *    205.43  *       .1*       .3*
*1              *    205.4   *       .1*       .3*
*1              *    205.34  *       .1*       .3*
*1              *    205.25  *       .1*       .3*
*1              *    205.15  *       .1*       .3*
*1              *    205.06  *       .1*       .3*
*1              *    204.97  *       .1*       .3*
*1              *    204.87  *       .1*       .3*
*1              *    204.78  *       .1*       .3*
*1              *    204.68  *       .1*       .3*
*1              *    204.61  *       .1*       .3*
*1              *    204.53  *       .1*       .3*
*1              *    204.42  *       .1*       .3*
*1              *    204.34  *       .1*       .3*
*1              *    204.25  *       .1*       .3*
*1              *    204.15  *       .1*       .3*
*1              *    204.05  *       .1*       .3*
*1              *    203.96  *       .1*       .3*
*1              *    203.86  *       .1*       .3*
*1              *    203.77  *       .1*       .3*
*1              *    203.67  *       .1*       .3*
*1              *    203.58  *       .1*       .3*
*1              *    203.48  *       .1*       .3*
*1              *    203.39  *       .1*       .3*
*1              *    203.29  *       .1*       .3*
*1              *    203.19  *       .1*       .3*
*1              *    203.09  *       .1*       .3*
*1              *    202.99  *       .1*       .3*
*1              *    202.9   *       .1*       .3*
*1              *    202.8   *       .1*       .3*
*1              *    202.69  *       .1*       .3*
*1              *    202.59  *       .1*       .3*
*1              *    202.48  *       .1*       .3*
*1              *    202.37  *       .1*       .3*
*1              *    202.29  *       .1*       .3*
*1              *    202.18  *       .1*       .3*
*1              *    202.09  *       .1*       .3*
*1              *    201.99  *       .1*       .3*
*1              *    201.9   *       .1*       .3*
*1              *    201.81  *       .1*       .3*
*1              *    201.71  *       .1*       .3*
*1              *    201.62  *       .1*       .3*
*1              *    201.52  *       .1*       .3*
*1              *    201.43  *       .1*       .3*
*1              *    201.33  *       .1*       .3*
*1              *    201.24  *       .1*       .3*
*1              *    201.14  *       .1*       .3*
*1              *    201.05  *       .1*       .3*
*1              *    200.95  *       .1*       .3*
*1              *    200.86  *       .1*       .3*
*1              *    200.77  *       .1*       .3*
*1              *    200.67  *       .1*       .3*
*1              *    200.58  *       .1*       .3*
*1              *    200.49  *       .1*       .3*
*1              *    200.39  *       .1*       .3*
*1              *    200.3   *       .1*       .3*
*1              *    200.2   *       .1*       .3*
*1              *    200.1   *       .1*       .3*
*1              *    200     *       .1*       .3*
*1              *    199.91  *       .1*       .3*
*1              *    199.82  *       .1*       .3*
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Profile Output Table - CHECKRAS

Reach	River Sta	Froude # Chl	Top Wdth Act	Conv. Total	Prof Delta WS	Left Sta Eff	Enc Sta L	Center Station	Enc Sta R	Rght Sta Eff	Min Ch El	Left Stagn	Right Stagn
			(ft)	(cfs)	(ft)	(ft)	(ft)	(ft)		(ft)	(ft)	(ft)	(ft)
1	214.14		0.36	726.91			19654.95		20020.10				
	21089.67	1048.70											
1	214.14		0.36	726.86	5963943.0	0.01	19654.97	19654.97	20020.10				
20381.83	20381.83	1048.70											

							DuplicateEffective					
* 1	* 214.04	*	0.36 *	733.94 *	5809707.0 *	*	19637.86 *	*	20006.70 *			
* 20922.39 *	1048.80 *	*		*	*	*	*	*	*			
* 1	* 214.04	*	0.36 *	733.89 *	5812338.0 *	0.01 *	19637.88 *	19637.88 *	20006.70 *			
20371.77 *	20371.77 *	1048.80 *	*	*	*	*	*	*	*			
*	*	*	*	*	*	*	*	*	*			
* 1	* 213.95	*	0.43 *	745.37 *	4843418.0 *	*	19586.39 *	*	19935.90 *			
* 20814.54 *	1049.30 *	*		*	*	*	*	*	*			
* 1	* 213.95	*	0.43 *	745.19 *	4846870.0 *	0.01 *	19586.54 *	19586.54 *	19935.90 *			
20331.73 *	20331.73 *	1049.30 *	*	*	*	*	*	*	*			
*	*	*	*	*	*	*	*	*	*			
* 1	* 213.85	*	0.58 *	702.64 *	3578540.0 *	*	19618.33 *	*	20057.05 *			
* 20320.97 *	1048.10 *	*		*	*	*	*	*	*			
* 1	* 213.85	*	0.58 *	702.59 *	3579632.0 *	0.01 *	19618.33 *	19618.33 *	20057.05 *			
20320.92 *	20320.92 *	1048.10 *	*	*	*	*	*	*	*			
*	*	*	*	*	*	*	*	*	*			
* 1	* 213.75	*	0.41 *	656.45 *	5575129.0 *	*	19640.95 *	*	19969.30 *			
* 20297.39 *	1044.60 *	*		*	*	*	*	*	*			
* 1	* 213.75	*	0.41 *	656.35 *	5578780.0 *	0.01 *	19641.00 *	19641.00 *	19969.30 *			
20297.35 *	20297.35 *	1044.60 *	*	*	*	*	*	*	*			
*	*	*	*	*	*	*	*	*	*			
* 1	* 213.745 BR U *		0.44 *	634.96 *	4375788.0 *	*	19641.74 *	*	19969.30 *			
* 20296.71 *	1044.60 *	*		*	*	*	*	*	*			
* 1	* 213.745 BR U *		0.44 *	635.01 *	4378146.0 *	0.01 *	19641.72 *	19641.00 *	19969.30 *			
20297.35 *	20296.73 *	1044.60 *	*	*	*	*	*	*	*			
*	*	*	*	*	*	*	*	*	*			
* 1	* 213.745 BR D *		0.44 *	633.79 *	4316097.0 *	*	19642.37 *	*	19969.30 *			
* 20296.16 *	1044.60 *	*		*	*	*	*	*	*			
* 1	* 213.745 BR D *		0.44 *	633.84 *	4318510.0 *	0.01 *	19642.35 *	19641.87 *	19969.30 *			
20296.60 *	20296.18 *	1044.60 *	*	*	*	*	*	*	*			
*	*	*	*	*	*	*	*	*	*			
* 1	* 213.74	*	0.42 *	654.76 *	5459470.0 *	*	19641.85 *	*	19969.30 *			
* 20296.61 *	1044.60 *	*		*	*	*	*	*	*			
* 1	* 213.74	*	0.42 *	654.73 *	5462967.0 *	0.01 *	19641.87 *	19641.87 *	19969.30 *			
20296.60 *	20296.60 *	1044.60 *	*	*	*	*	*	*	*			
*	*	*	*	*	*	*	*	*	*			
* 1	* 213.66	*	0.62 *	566.02 *	3604114.0 *	*	19599.41 *	*	19986.45 *			
* 20253.57 *	1047.60 *	*		*	*	*	*	*	*			
* 1	* 213.66	*	0.62 *	565.99 *	3608339.0 *	0.01 *	19687.57 *	19687.57 *	19986.45 *			
20253.56 *	20253.56 *	1047.60 *	*	*	*	*	*	*	*			
*	*	*	*	*	*	*	*	*	*			
* 1	* 213.57	*	0.55 *	852.17 *	3949740.0 *	*	19095.13 *	*	19929.15 *			
* 20336.67 *	1046.70 *	*		*	*	*	*	*	*			
* 1	* 213.57	*	0.55 *	852.16 *	3953934.0 *	0.02 *	19484.50 *	19484.50 *	19929.15 *			
20336.66 *	20336.66 *	1046.70 *	*	*	*	*	*	*	*			
*	*	*	*	*	*	*	*	*	*			
* 1	* 213.47	*	0.52 *	1023.14 *	4106424.0 *	*	18842.44 *	*	19758.75 *			
* 20266.44 *	1045.80 *	*		*	*	*	*	*	*			
* 1	* 213.47	*	0.52 *	1023.12 *	4110138.0 *	0.02 *	19243.30 *	19243.30 *	19758.75 *			
20266.42 *	20266.42 *	1045.80 *	*	*	*	*	*	*	*			
*	*	*	*	*	*	*	*	*	*			
* 1	* 213.38	*	0.37 *	1101.78 *	5943323.0 *	*	19196.18 *	*	19909.55 *			
* 20447.88 *	1045.40 *	*		*	*	*	*	*	*			
* 1	* 213.38	*	0.37 *	1101.75 *	5937578.0 *	0.02 *	19346.10 *	19346.10 *	19909.55 *			
20447.85 *	20447.85 *	1045.40 *	*	*	*	*	*	*	*			
*	*	*	*	*	*	*	*	*	*			
* 1	* 213.33	*	0.33 *	1185.64 *	6865352.0 *	*	19328.90 *	*	19921.90 *			
* 20514.54 *	1045.40 *	*		*	*	*	*	*	*			
* 1	* 213.33	*	0.33 *	1185.62 *	6854778.0 *	0.01 *	19328.90 *	19328.90 *	19921.90 *			
20514.52 *	20514.52 *	1045.40 *	*	*	*	*	*	*	*			
*	*	*	*	*	*	*	*	*	*			
* 1	* 213.26	*	0.32 *	881.25 *	7091407.0 *	*	19497.16 *	*	19938.05 *			
* 20378.41 *	1040.40 *	*		*	*	*	*	*	*			
* 1	* 213.26	*	0.32 *	881.21 *	7098897.0 *	0.01 *	19497.18 *	19497.18 *	19938.05 *			
20378.39 *	20378.39 *	1040.40 *	*	*	*	*	*	*	*			
*	*	*	*	*	*	*	*	*	*			
* 1	* 213.255 BR U *		0.34 *	860.74 *	5381226.0 *	*	19497.36 *	*	19938.05 *			
* 20378.10 *	1040.40 *	*		*	*	*	*	*	*			
* 1	* 213.255 BR U *		0.34 *	860.81 *	5386143.0 *	0.01 *	19497.33 *	19497.18 *	19938.05 *			
20378.39 *	20378.14 *	1040.40 *	*	*	*	*	*	*	*			
*	*	*	*	*	*	*	*	*	*			
* 1	* 213.255 BR D *		0.34 *	859.92 *	5322311.0 *	*	19497.68 *	*	19938.05 *			
* 20377.60 *	1040.40 *	*		*	*	*	*	*	*			
* 1	* 213.255 BR D *		0.34 *	859.99 *	5327335.0 *	0.01 *	19497.65 *	19497.55 *	19938.05 *			
20377.79 *	20377.64 *	1040.40 *	*	*	*	*	*	*	*			
*	*	*	*	*	*	*	*	*	*			
* 1	* 213.25	*	0.33 *	880.24 *	6986536.0 *	*	19497.55 *	*	19938.05 *			
* 20377.79 *	1040.40 *	*		*	*	*	*	*	*			
* 1	* 213.25	*	0.33 *	880.24 *	6994050.0 *	0.01 *	19497.55 *	19497.55 *	19938.05 *			
20377.79 *	20377.79 *	1040.40 *	*	*	*	*	*	*	*			
*	*	*	*	*	*	*	*	*	*			
* 1	* 213.21	*	0.31 *	1010.19 *	7351368.0 *	*	19408.31 *	*	19954.40 *			
* 20418.50 *	1044.90 *	*		*	*	*	*	*	*			
* 1	* 213.21	*	0.31 *	928.20 *	7227547.0 *	0.01 *	19490.30 *	19490.30 *	19954.40 *			
20418.50 *	20418.50 *	1044.90 *	*	*	*	*	*	*	*			
*	*	*	*	*	*	*	*	*	*			
* 1	* 213.11	*	0.40 *	927.80 *	5493675.0 *	*	19616.88 *	*	20102.60 *			
* 20544.67 *	1047.60 *	*		*	*	*	*	*	*			
* 1	* 213.11	*	0.40 *	927.79 *	5496745.0 *	0.01 *	19616.88 *	19616.88 *	20102.60 *			
20544.67 *	20544.67 *	1047.60 *	*	*	*	*	*	*	*			

1	213.03		0.42	965.60	5167811.0			19602.70		20131.96	
	20591.83	1046.70									
1	213.03		0.42	919.76	5170676.0	0.01		19672.07	19672.00	20131.96	
20591.83	20591.83	1046.70									
1	212.93		0.48	798.99	4575514.0			19690.76		20090.25	
	20754.14	1045.40									
1	212.93		0.48	798.99	4579008.0	0.01		19690.76	19690.76	20090.25	
20489.75	20489.75	1045.40									
1	212.84		0.58	635.75	3778154.0			19711.50		20029.38	
	20347.25	1043.10									
1	212.84		0.58	635.75	3782263.0	0.01		19711.50	19711.50	20029.38	
20347.25	20347.25	1043.10									
1	212.74		0.51	676.59	4336312.0			19690.61		20028.90	
	20367.19	1041.60									
1	212.74		0.51	676.59	4341428.0	0.01		19690.61	19690.61	20028.90	
20367.20	20367.20	1041.60									
1	212.68		0.44	629.02	5173112.0			19501.07		19815.59	
	20130.09	1036.90									
1	212.68		0.44	629.03	5178275.0	0.01		19501.07	19501.07	19815.59	
20130.10	20130.10	1036.90									
1	212.675 BR U		0.46	603.60	3867106.0			19501.78		19815.59	
	20129.38	1036.90									
1	212.675 BR U		0.47	603.16	3846322.0	-0.09		19502.00	19501.07	19815.59	
20130.10	20129.17	1036.90									
1	212.675 BR D		0.48	601.64	3774164.0			19502.77		19815.59	
	20128.41	1036.90									
1	212.675 BR D		0.48	601.23	3754689.0	-0.08		19502.97	19502.33	19815.59	
20128.84	20128.20	1036.90									
1	212.67		0.45	626.50	4999902.0			19502.34		19815.59	
	20128.83	1036.90									
1	212.67		0.45	626.51	5002046.0	0.01		19502.33	19502.33	19815.59	
20128.84	20128.84	1036.90									
1	212.56		0.90	520.87	2374592.0			19731.19		19991.60	
	20452.05	1039.30									
1	212.56		0.89	521.09	2400832.0	0.11		19731.05	19731.05	19991.60	
20252.14	20252.14	1039.30									
1	212.46		0.72	557.52	3013623.0			19743.48		20022.17	
	20301.00	1037.20									
1	212.46		0.72	557.66	2974752.0	0.06		19743.34	19743.34	20022.17	
20301.00	20301.00	1037.20									
1	212.37		0.87	573.58	2432248.0			19745.66		20032.38	
	20319.25	1036.60									
1	212.37		0.87	573.63	2435146.0	0.01		19745.64	19744.06	20032.38	
20320.69	20319.27	1036.60									
1	212.27		0.89	605.55	2297156.0			19720.16		20022.80	
	20325.71	1035.10									
1	212.27		0.89	605.70	2303734.0	0.03		19720.08	19715.25	20022.80	
20330.35	20325.78	1035.10									
1	212.18		0.66	627.55	3203782.0			19706.96		20020.71	
	20334.51	1030.80									
1	212.18		0.65	627.68	3213324.0	0.03		19706.88	19706.85	20020.71	
20334.57	20334.56	1030.80									
1	212.08		0.49	589.65	4417610.0			19681.17		19975.99	
	20270.83	1025.90									
1	212.08		0.49	589.77	4428936.0	0.04		19681.11	19681.09	19975.99	
20270.90	20270.88	1025.90									
1	211.99		0.55	549.29	3893922.0			18069.24		19974.71	
	20249.15	1025.39									
1	211.99		0.55	549.74	3905949.0	0.05		19699.79	19699.77	19974.71	
20249.64	20249.53	1025.39									
1	211.89		0.52	564.78	4156215.0			19685.85		19968.25	
	20250.63	1024.19									
1	211.89		0.52	564.94	4171896.0	0.05		19685.78	19685.75	19968.25	
20250.74	20250.72	1024.19									
1	211.79		0.52	567.58	4132806.0			18953.78		19933.79	
	20217.57	1023.84									
1	211.79		0.52	567.77	4151454.0	0.06		19649.90	19649.87	19933.79	
20217.70	20217.67	1023.84									
1	211.71		0.52	569.11	4130222.0			19628.57		19913.13	
	20197.68	1023.19									

DuplicateEffective
* 1 * 211.71 * 0.52 * 569.33 * 4151491.0 * 0.07 * 19628.47 * 19628.43 * 19913.13 *
20197.84 * 20197.80 * 1023.19 * * *
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* 1 * 211.64 * 0.55 * 561.75 * 3941953.0 * * 19657.87 * * 19938.75 *
* 20599.27 * 1022.58 * * *
* 1 * 211.64 * 0.54 * 562.02 * 3966851.0 * 0.08 * 19657.74 * 19657.70 * 19938.75 *
20219.80 * 20219.76 * 1022.58 * * *
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* 1 * 211.54 * 0.63 * 525.50 * 3482746.0 * * 19603.89 * * 19830.70 *
* 20129.39 * 1021.90 * * *
* 1 * 211.54 * 0.63 * 525.86 * 3518758.0 * 0.13 * 19603.71 * 19603.65 * 19830.70 *
20129.64 * 20129.57 * 1021.90 * * *
* * * * * * * * *
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* 1 * 211.525 BR U * 0.72 * 493.62 * 2511687.0 * * 19605.33 * * 19830.70 *
* 20127.96 * 1021.90 * * *
* 1 * 211.525 BR U * 0.71 * 494.09 * 2542505.0 * 0.16 * 19605.09 * 19603.65 * 19830.70 *
20129.64 * 20128.19 * 1021.90 * * *
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* 1 * 211.525 BR D * 0.78 * 495.01 * 2341905.0 * * 19617.96 * * 19876.38 *
* 20136.17 * 1021.80 * * *
* 1 * 211.525 BR D * 0.76 * 495.38 * 2392157.0 * 0.26 * 19617.96 * 19615.19 * 19876.38 *
20137.39 * 20136.54 * 1021.80 * * *
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* 1 * 211.51 * 0.71 * 521.31 * 3070642.0 * * 19615.63 * * 19876.38 *
* 20136.94 * 1021.80 * * *
* 1 * 211.51 * 0.70 * 521.98 * 3132976.0 * 0.24 * 19615.30 * 19615.19 * 19876.38 *
20137.39 * 20137.28 * 1021.80 * * *
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* 1 * 211.41 * 0.59 * 565.86 * 3761447.0 * * 19638.65 * * 19922.07 *
* 20204.51 * 1018.30 * * *
* 1 * 211.41 * 0.57 * 567.44 * 3840224.0 * 0.27 * 19638.23 * 19638.10 * 19922.07 *
20206.06 * 20205.67 * 1018.30 * * *
* * * * * * * * *
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* 1 * 211.31 * 0.70 * 821.06 * 2963673.0 * * 19532.35 * * 19943.65 *
* 20353.41 * 1020.80 * * *
* 1 * 211.31 * 0.67 * 823.96 * 3112242.0 * 0.43 * 19531.48 * 19531.21 * 19943.65 *
20356.09 * 20355.44 * 1020.80 * * *
* * * * * * * * *
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* 1 * 211.21 * 0.60 * 989.51 * 3429417.0 * * 19530.23 * * 20025.00 *
* 20519.74 * 1021.10 * * *
* 1 * 211.21 * 0.57 * 991.82 * 3677597.0 * 0.59 * 19529.09 * 19528.75 * 20025.00 *
20521.25 * 20520.91 * 1021.10 * * *
* * * * * * * * *
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* 1 * 211.12 * 0.34 * 1060.56 * 6543288.0 * * 19499.53 * * 20035.33 *
* 20560.09 * 1015.70 * * *
* 1 * 211.12 * 0.32 * 1081.14 * 6851806.0 * 0.54 * 19498.71 * 19498.47 * 20035.33 *
20610.00 * 20610.00 * 1015.70 * * *
* * * * * * * * *
* * * * *

* 1 * 211.02 * 0.49 * 1310.75 * 4385797.0 * * 19488.55 * * 19940.71 *
* 21302.72 * 1019.40 * * *
* 1 * 211.02 * 0.47 * 1005.42 * 4606872.0 * 0.61 * 19487.61 * 19487.12 * 19940.71 *
20550.00 * 20550.00 * 1019.40 * * *
* * * * * * * * *
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* 1 * 210.93 * 0.47 * 2048.87 * 4499064.0 * * 19481.01 * * 19946.96 *
* 21576.00 * 1018.70 * * *
* 1 * 210.93 * 0.53 * 1173.11 * 4002269.0 * 0.05 * 19480.93 * 19479.13 * 19946.96 *
20700.00 * 20700.00 * 1018.70 * * *
* * * * * * * * *
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* 1 * 210.83 * 0.46 * 2225.61 * 4572343.0 * * 19452.65 * * 19930.41 *
* 21722.11 * 1019.10 * * *
* 1 * 210.83 * 0.51 * 1303.30 * 4129675.0 * -0.04 * 19452.71 * 19450.42 * 19930.41 *
20800.00 * 20800.00 * 1019.10 * * *
* * * * * * * * *
* * * * *

* 1 * 210.74 * 0.41 * 2325.61 * 5244781.0 * * 19428.40 * * 19929.91 *
* 21790.52 * 1018.20 * * *
* 1 * 210.74 * 0.42 * 1365.70 * 5083538.0 * 0.11 * 19428.24 * 19426.13 * 19929.91 *
20830.00 * 20830.00 * 1018.20 * * *
* * * * * * * * *
* * * * *

* 1 * 210.64 * 0.37 * 2379.09 * 5743728.0 * * 19389.05 * * 19924.60 *
* 21800.00 * 1017.70 * * *
* 1 * 210.64 * 0.40 * 1479.19 * 5368837.0 * 0.01 * 19388.98 * 19388.60 * 19924.60 *
20900.00 * 20900.00 * 1017.70 * * *
* * * * * * * * *
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* 1 * 210.55 * 0.41 * 1930.65 * 5210137.0 * * 19327.73 * * 19902.68 *
* 21300.00 * 1018.00 * * *
* 1 * 210.55 * 0.40 * 1743.43 * 5330421.0 * 0.26 * 19326.98 * 19322.17 * 19902.68 *
21110.00 * 21110.00 * 1018.00 * * *
* * * * * * * * *
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* 1 * 210.46 * 0.21 * 1904.94 * 9356502.0 * * 19377.00 * * 20330.50 *
* 21281.98 * 1016.30 * * *
* 1 * 210.46 * 0.21 * 1905.27 * 9515830.0 * 0.25 * 19377.00 * 19377.00 * 20330.50 *
21284.00 * 21282.27 * 1016.30 * * *
* * * * * * * * *
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* 1 * 210.36 * 0.29 * 1908.19 * 7131869.0 * * 19378.10 * * 20333.16 *
* 21286.29 * 1017.40 * * *
* 1 * 210.36 * 0.28 * 1909.31 * 7359590.0 * 0.27 * 19377.68 * 19375.17 * 20333.16 *
21291.16 * 21286.99 * 1017.40 * * *
* * * * * * * * *
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* 1	* 210.26	*	0.26 *	1943.97 *	7711693.0 *	*	19380.62 *	*	20354.45 *			
*	21324.59 *	1016.90 *	*	*	*	*	*	*	*			
* 1	* 210.26	*	0.25 *	1945.53 *	7955870.0 *	0.29 *	19380.11 *	19377.08 *	20354.45 *			
21331.80 *	21325.63 *	1016.90 *	*	*	*	*	*	*	*			
*	*	*	*	*	*	*	*	*	*			
*	*	*	*	*	*	*	*	*	*			
* 1	* 210.17	*	0.30 *	1974.59 *	6728709.0 *	*	19354.60 *	*	20344.66 *			
*	21329.19 *	1014.70 *	*	*	*	*	*	*	*			
* 1	* 210.17	*	0.29 *	1975.40 *	6982102.0 *	0.31 *	19354.60 *	19354.60 *	20344.66 *			
21334.72 *	21330.00 *	1014.70 *	*	*	*	*	*	*	*			
*	*	*	*	*	*	*	*	*	*			
*	*	*	*	*	*	*	*	*	*			
* 1	* 210.07	*	0.26 *	2110.06 *	7123192.0 *	*	19210.00 *	*	20077.75 *			
*	21320.05 *	1018.70 *	*	*	*	*	*	*	*			
* 1	* 210.07	*	0.26 *	2015.00 *	7236885.0 *	0.31 *	19210.00 *	19210.00 *	20077.75 *			
21225.00 *	21225.00 *	1018.70 *	*	*	*	*	*	*	*			
*	*	*	*	*	*	*	*	*	*			
*	*	*	*	*	*	*	*	*	*			
* 1	* 209.98	*	0.17 *	2344.97 *	12960820.0 *	*	584.16 *	*	1871.19 *			
*	2948.12 *	998.62 *	*	*	*	*	*	*	*			
* 1	* 209.98	*	0.18 *	1842.97 *	12481800.0 *	0.28 *	949.70 *	949.70 *	1871.19 *			
2792.67 *	2792.67 *	998.62 *	*	*	*	*	*	*	*			
*	*	*	*	*	*	*	*	*	*			
*	*	*	*	*	*	*	*	*	*			
* 1	* 209.88	*	0.20 *	1821.60 *	11715260.0 *	*	1138.61 *	*	1959.73 *			
*	2960.21 *	997.42 *	*	*	*	*	*	*	*			
* 1	* 209.88	*	0.20 *	1650.94 *	11288030.0 *	0.26 *	1138.08 *	1130.44 *	1959.73 *			
2789.02 *	2789.02 *	997.42 *	*	*	*	*	*	*	*			
*	*	*	*	*	*	*	*	*	*			
*	*	*	*	*	*	*	*	*	*			
* 1	* 209.79	*	0.19 *	1840.66 *	11536480.0 *	*	1137.82 *	*	1964.68 *			
*	2978.48 *	1003.93 *	*	*	*	*	*	*	*			
* 1	* 209.79	*	0.20 *	1686.12 *	10862060.0 *	0.25 *	1137.35 *	1105.89 *	1964.68 *			
2823.47 *	2823.47 *	1003.93 *	*	*	*	*	*	*	*			
*	*	*	*	*	*	*	*	*	*			
*	*	*	*	*	*	*	*	*	*			
* 1	* 209.69	*	0.28 *	1773.41 *	7393035.0 *	*	982.56 *	*	1838.46 *			
*	2848.81 *	1004.96 *	*	*	*	*	*	*	*			
* 1	* 209.69	*	0.30 *	1666.72 *	6712772.0 *	0.17 *	979.67 *	965.68 *	1838.46 *			
2711.24 *	2711.24 *	1004.96 *	*	*	*	*	*	*	*			
*	*	*	*	*	*	*	*	*	*			
*	*	*	*	*	*	*	*	*	*			
* 1	* 209.6	*	0.25 *	1627.99 *	8951574.0 *	*	1072.01 *	*	1556.79 *			
*	2700.00 *	1003.48 *	*	*	*	*	*	*	*			
* 1	* 209.6	*	0.28 *	1328.11 *	8007438.0 *	0.05 *	1071.89 *	937.97 *	1556.79 *			
2400.00 *	2400.00 *	1003.48 *	*	*	*	*	*	*	*			
*	*	*	*	*	*	*	*	*	*			
*	*	*	*	*	*	*	*	*	*			
* 1	* 209.54	*	0.41 *	1093.87 *	5840043.0 *	*	-453.58 *	*	364.07 *			
*	640.28 *	1005.00 *	*	*	*	*	*	*	*			
* 1	* 209.54	*	0.40 *	1050.00 *	5882311.0 *	0.22 *	-430.00 *	-430.00 *	364.07 *			
620.00 *	620.00 *	1005.00 *	*	*	*	*	*	*	*			
*	*	*	*	*	*	*	*	*	*			
*	*	*	*	*	*	*	*	*	*			
* 1	* 209.535 BR U *		0.42 *	1013.87 *	4357145.0 *	*	-453.58 *	*	364.07 *			
*	640.28 *	1005.00 *	*	*	*	*	*	*	*			
* 1	* 209.535 BR U *		0.42 *	970.00 *	4403094.0 *	0.22 *	-430.00 *	-430.00 *	364.07 *			
620.00 *	620.00 *	1005.00 *	*	*	*	*	*	*	*			
*	*	*	*	*	*	*	*	*	*			
*	*	*	*	*	*	*	*	*	*			
* 1	* 209.535 BR D *		0.43 *	1013.87 *	4297493.0 *	*	-453.58 *	*	364.07 *			
*	640.28 *	1005.00 *	*	*	*	*	*	*	*			
* 1	* 209.535 BR D *		0.43 *	970.00 *	4346859.0 *	0.23 *	-430.00 *	-430.00 *	364.07 *			
620.00 *	620.00 *	1005.00 *	*	*	*	*	*	*	*			
*	*	*	*	*	*	*	*	*	*			
*	*	*	*	*	*	*	*	*	*			
* 1	* 209.53	*	0.42 *	1093.87 *	5676541.0 *	*	-453.58 *	*	364.07 *			
*	640.28 *	1005.00 *	*	*	*	*	*	*	*			
* 1	* 209.53	*	0.41 *	1050.00 *	5726011.0 *	0.23 *	-430.00 *	-430.00 *	364.07 *			
620.00 *	620.00 *	1005.00 *	*	*	*	*	*	*	*			
*	*	*	*	*	*	*	*	*	*			
*	*	*	*	*	*	*	*	*	*			
* 1	* 209.42	*	0.35 *	1664.70 *	6035340.0 *	*	542.53 *	*	1390.58 *			
*	2207.23 *	1003.87 *	*	*	*	*	*	*	*			
* 1	* 209.42	*	0.34 *	1636.60 *	6218621.0 *	0.26 *	571.09 *	571.09 *	1390.58 *			
2210.07 *	2207.69 *	1003.87 *	*	*	*	*	*	*	*			
*	*	*	*	*	*	*	*	*	*			
*	*	*	*	*	*	*	*	*	*			
* 1	* 209.33	*	0.27 *	1805.66 *	7866844.0 *	*	601.98 *	*	1408.40 *			
*	2407.64 *	996.31 *	*	*	*	*	*	*	*			
* 1	* 209.33	*	0.27 *	1585.47 *	7985517.0 *	0.26 *	615.66 *	615.66 *	1408.40 *			
2201.13 *	2201.13 *	996.31 *	*	*	*	*	*	*	*			
*	*	*	*	*	*	*	*	*	*			
*	*	*	*	*	*	*	*	*	*			
* 1	* 209.24	*	0.44 *	1984.37 *	4716374.0 *	*	18865.63 *	*	19828.90 *			
*	20850.00 *	1008.90 *	*	*	*	*	*	*	*			
* 1	* 209.24	*	0.47 *	1637.72 *	4431403.0 *	-0.01 *	19212.28 *	19212.28 *	19828.90 *			
20850.00 *	20850.00 *	1008.90 *	*	*	*	*	*	*	*			
*	*	*	*	*	*	*	*	*	*			
*	*	*	*	*	*	*	*	*	*			
* 1	* 209.14	*	0.45 *	2147.65 *	4648719.0 *	*	18952.35 *	*	19878.60 *			
*	21100.00 *	1010.60 *	*	*	*	*	*	*	*			
* 1	* 209.14	*	0.48 *	1899.79 *	4347684.0 *	-0.09 *	19200.21 *	19200.21 *	19878.60 *			
21100.00 *	21100.00 *	1010.60 *	*	*	*	*	*	*	*			
*	*	*	*	*	*	*	*	*	*			
*	*	*	*	*	*	*	*	*	*			
* 1	* 209.04	*	0.37 *	2170.30 *	5812813.0 *	*	19029.70 *	*	19888.35 *			
*	21200.00 *	1012.20 *	*	*	*	*	*	*	*			
* 1	* 209.04	*	0.38 *	1980.00 *	5581269.0 *	-0.06 *	19220.00 *	19220.00 *	19888.35 *			
21200.00 *	21200.00 *	1012.20 *	*	*	*	*	*	*	*			
*	*	*	*	*	*	*	*	*	*			
*	*	*	*	*	*	*	*	*	*			
* 1	* 208.95	*	0.77 *	2059.33 *	2702037.0 *	*	19140.67 *	*	19630.65 *			
*	21200.00 *	1013.80 *	*	*	*	*	*	*	*			
* 1	* 208.95	*	0.77 *	2058.96 *	2706599.0 *	0.01 *	19141.04 *	19141.04 *	19630.65 *			
21200.00 *	21200.00 *	1013.80 *	*	*	*	*	*	*	*			

*	*	*	*	*	*	*	*	*	*	*	*
* 1	* 208.85	*	0.54	* 1951.08 *	3676905.0	*	* 19135.36 *	*	19973.14	*	
*	21150.00 *	1013.40	*	*			*				
* 1	* 208.85	*	0.54	* 1945.66 *	3678330.0	*	0.01 * 19204.34 *	19199.70	*	19973.14	*
21150.00 *	21150.00 *	1013.40	*	*			*				
*	*	*	*	*	*	*	*	*	*	*	*
* 1	* 208.75	*	0.44	* 1548.90 *	4623178.0	*	* 19250.30 *	*	20024.25	*	
*	20799.20 *	1005.20	*	*			*				
* 1	* 208.75	*	0.44	* 1548.90 *	4613830.0	*	0.01 * 19250.29 *	19192.90	*	20024.25	*
20799.20 *	20799.20 *	1005.20	*	*			*				
*	*	*	*	*	*	*	*	*	*	*	*
* 1	* 208.67	*	0.48	* 1822.25 *	4132509.0	*	* 19322.90 *	*	20112.59	*	
*	21150.00 *	1007.60	*	*			*				
* 1	* 208.67	*	0.48	* 1585.22 *	4131094.0	*	0.00 * 19322.89 *	19118.22	*	20112.59	*
20908.11 *	20908.11 *	1007.60	*	*			*				
*	*	*	*	*	*	*	*	*	*	*	*
* 1	* 208.57	*	1.00	* 1241.44 *	1929565.0	*	* 19398.56 *	*	20014.15	*	
*	20986.72 *	1007.60	*	*			*				
* 1	* 208.57	*	1.00	* 1241.44 *	1924572.0	*	0.00 * 19398.56 *	19087.13	*	20014.15	*
20640.00 *	20640.00 *	1007.60	*	*			*				
*	*	*	*	*	*	*	*	*	*	*	*
* 1	* 208.48	*	0.49	* 2170.30 *	3977183.0	*	* 18510.56 *	*	19595.71	*	
*	20680.86 *	1007.60	*	*			*				
* 1	* 208.48	*	0.49	* 2170.30 *	3989798.0	*	0.02 * 18510.56 *	18510.56	*	19595.71	*
20680.86 *	20680.86 *	1007.60	*	*			*				
*	*	*	*	*	*	*	*	*	*	*	*
* 1	* 208.39	*	0.51	* 2285.86 *	3703180.0	*	* 18462.94 *	*	19605.86	*	
*	20748.79 *	1005.60	*	*			*				
* 1	* 208.39	*	0.51	* 2285.85 *	3723944.0	*	0.03 * 18462.94 *	18462.94	*	19605.86	*
20748.79 *	20748.79 *	1005.60	*	*			*				
*	*	*	*	*	*	*	*	*	*	*	*
* 1	* 208.29	*	0.49	* 2381.48 *	3897028.0	*	* 18562.60 *	*	19753.34	*	
*	20944.08 *	1004.70	*	*			*				
* 1	* 208.29	*	0.49	* 2381.47 *	3931101.0	*	0.05 * 18562.60 *	18562.60	*	19753.34	*
20944.07 *	20944.07 *	1004.70	*	*			*				
*	*	*	*	*	*	*	*	*	*	*	*
* 1	* 208.19	*	0.46	* 2664.04 *	4197702.0	*	* 18679.18 *	*	20011.19	*	
*	21343.21 *	1004.70	*	*			*				
* 1	* 208.19	*	0.45	* 2664.02 *	4252565.0	*	0.07 * 18679.18 *	18679.18	*	20011.19	*
21343.20 *	21343.20 *	1004.70	*	*			*				
*	*	*	*	*	*	*	*	*	*	*	*
* 1	* 208.1	*	0.46	* 2944.82 *	4190911.0	*	* 18822.37 *	*	20294.77	*	
*	21767.19 *	1001.40	*	*			*				
* 1	* 208.1	*	0.45	* 2944.81 *	4276917.0	*	0.10 * 18822.37 *	18822.37	*	20294.77	*
21767.18 *	21767.18 *	1001.40	*	*			*				
*	*	*	*	*	*	*	*	*	*	*	*
* 1	* 207.99	*	0.49	* 2720.96 *	3863648.0	*	* 19093.03 *	*	20513.72	*	
*	21934.50 *	999.90	*	*			*				
* 1	* 207.99	*	0.48	* 2749.34 *	3969111.0	*	0.16 * 19093.03 *	19093.03	*	20513.72	*
21934.42 *	21934.42 *	999.90	*	*			*				
*	*	*	*	*	*	*	*	*	*	*	*
* 1	* 207.9	*	0.41	* 3048.05 *	4698084.0	*	* 19062.58 *	*	20621.13	*	
*	22137.56 *	1000.80	*	*			*				
* 1	* 207.9	*	0.40	* 3016.31 *	4877759.0	*	0.20 * 19104.70 *	19104.70	*	20621.13	*
22137.55 *	22137.55 *	1000.80	*	*			*				
*	*	*	*	*	*	*	*	*	*	*	*
* 1	* 207.8	*	0.47	* 2917.79 *	4065865.0	*	* 18941.44 *	*	20560.36	*	
*	21871.23 *	999.10	*	*			*				
* 1	* 207.8	*	0.46	* 2617.43 *	4224476.0	*	0.25 * 19249.50 *	19249.50	*	20560.36	*
21871.22 *	21871.22 *	999.10	*	*			*				
*	*	*	*	*	*	*	*	*	*	*	*
* 1	* 207.71	*	0.50	* 2746.35 *	3823945.0	*	* 18957.79 *	*	20532.05	*	
*	21704.14 *	1000.30	*	*			*				
* 1	* 207.71	*	0.51	* 2344.11 *	3804678.0	*	0.18 * 19360.00 *	19360.00	*	20532.05	*
21704.11 *	21704.11 *	1000.30	*	*			*				
*	*	*	*	*	*	*	*	*	*	*	*
* 1	* 207.62	*	0.61	* 2471.21 *	3148584.0	*	* 19001.18 *	*	20495.21	*	
*	21472.38 *	1000.20	*	*			*				
* 1	* 207.62	*	0.61	* 1962.23 *	3196970.0	*	0.21 * 19510.10 *	19510.10	*	20495.21	*
21472.33 *	21472.33 *	1000.20	*	*			*				
*	*	*	*	*	*	*	*	*	*	*	*
* 1	* 207.53	*	0.47	* 2131.14 *	4305239.0	*	* 19043.86 *	*	20338.95	*	
*	21175.00 *	999.10	*	*			*				
* 1	* 207.53	*	0.48	* 1672.10 *	4211741.0	*	0.16 * 19502.90 *	19502.90	*	20338.95	*
21175.00 *	21175.00 *	999.10	*	*			*				
*	*	*	*	*	*	*	*	*	*	*	*
* 1	* 207.49	*	0.35	* 1579.37 *	6081966.0	*	* 19473.78 *	*	20262.35	*	
*	21053.15 *	992.20	*	*			*				
* 1	* 207.49	*	0.34	* 1579.37 *	6264807.0	*	0.26 * 19473.78 *	19473.78	*	20262.35	*
21053.15 *	21053.15 *	992.20	*	*			*				
*	*	*	*	*	*	*	*	*	*	*	*
* 1	* 207.485 BR U	*	0.36	* 1518.95 *	4905047.0	*	* 19474.08 *	*	20262.35	*	
*	21053.03 *	992.20	*	*			*				
* 1	* 207.485 BR U	*	0.35	* 1519.37 *	5025672.0	*	0.23 * 19473.78 *	19473.78	*	20262.35	*
21053.15 *	21053.15 *	992.20	*	*			*				
*	*	*	*	*	*	*	*	*	*	*	*
* 1	* 207.485 BR D	*	0.37	* 1518.64 *	4870028.0	*	* 19474.31 *	*	20262.35	*	
*	21052.95 *	992.20	*	*							

												DuplicateEffective		
1	207.485	BR D		0.36		1518.87	4992637.0		0.23		19474.14	19474.14		20262.35
21053.01	21053.01	992.20												
1	207.48			0.35		1578.88	6008209.0				16831.47			20262.35
	21053.01	992.20												
1	207.48			0.34		1578.87	6188367.0		0.25		19474.14	19474.14		20262.35
21053.01	21053.01	992.20												
1	207.43			0.54		1686.77	3661078.0				19253.23			20096.65
	20940.00	999.00												
1	207.43			0.52		1686.77	3861824.0		0.35		19253.23	19253.23		20096.65
20940.00	20940.00	999.00												
1	207.34			0.61		1568.77	3226315.0				19230.00			20014.38
	20798.77	995.90												
1	207.34			0.56		1568.77	3575019.0		0.64		19230.00	19230.00		20014.38
20798.77	20798.77	995.90												
1	207.27			0.62		1628.70	3135219.0				18980.00			20013.35
	20608.70	993.30												
1	207.27			0.54		1617.90	3683406.0		1.00		18980.00	18980.00		20013.35
20597.90	20597.90	993.30												
1	207.16			0.50		2127.45	4023740.0				18607.05			20127.95
	20734.50	992.70												
1	207.16			0.52		1734.50	3885416.0		0.70		19000.00	19000.00		20127.95
20734.50	20734.50	992.70												
1	207.07			0.86		2121.27	2286164.0				18413.03			20268.81
	20748.27	992.80												
1	207.07			0.88		1710.74	2254410.0		0.43		18857.57	18857.57		20268.81
20748.18	20748.18	992.80												
1	206.97			0.36		1872.81	5970014.0				18394.10			20268.25
	20800.00	981.70												
1	206.97			0.36		1567.64	6019868.0		0.90		18850.00	18850.00		20268.25
20800.00	20800.00	981.70												
1	206.88			0.31		2078.38	7226234.0				18332.23			20264.40
	20800.00	981.80												
1	206.88			0.31		1800.86	7191503.0		0.89		18838.93	18838.93		20264.40
20800.00	20800.00	981.80												
1	206.79			0.29		2279.32	7514464.0				18343.49			20279.13
	20895.15	981.80												
1	206.79			0.29		1934.31	7590998.0		0.91		18806.01	18806.01		20279.13
20895.15	20895.15	981.80												
1	206.7			0.27		2572.12	7908733.0				18250.64			20324.45
	21165.35	981.80												
1	206.7			0.27		2093.13	8015485.0		0.93		18784.84	18784.84		20324.45
21138.80	21138.11	981.80												
1	206.6			0.33		2786.93	6230824.0				17938.02			20306.18
	21066.25	981.80												
1	206.6			0.33		2185.35	6298256.0		0.89		18675.58	18675.58		20306.18
21066.25	21066.25	981.80												
1	206.51			0.45		2915.00	4521128.0				17700.00			20084.15
	20615.00	981.80												
1	206.51			0.46		2053.65	4533739.0		0.82		18561.35	18561.35		20084.15
20622.10	20615.00	981.80												
1	206.41			0.46		3564.70	4380634.0				17111.00			20154.06
	20685.21	982.50												
1	206.41			0.47		2190.50	4381569.0		0.80		18494.71	18494.71		20154.06
20685.21	20685.21	982.50												
1	206.32			0.46		3656.33	4293590.0				17150.00			20171.80
	20854.87	982.80												
1	206.32			0.47		2377.93	4288577.0		0.79		18476.94	18476.94		20171.80
20854.87	20854.87	982.80												
1	206.22			0.52		3772.23	3853835.0				16969.39			20127.88
	20977.29	983.00												
1	206.22			0.51		2441.77	3986076.0		0.87		18435.00	18435.00		20127.88
20977.29	20977.29	983.00												
1	206.13			0.52		3610.69	3625268.0				17049.27			20059.00
	20914.89	984.60												
1	206.13			0.57		2386.31	3294110.0		0.58		18370.00	18370.00		20059.00
20914.89	20914.89	984.60												
1	206.03			0.61		3627.33	3071777.0				16967.78			19987.25
	21127.08	984.50												
1	206.03			0.67		2131.13	2786996.0		0.18		18320.00	18320.00		19987.25
20772.60	20772.60	984.50												

1	205.94		0.48	3651.58	3932557.0		17284.78		19792.05		
	21215.00	981.00									
1	205.94		0.45	2567.00	4259277.0	0.58	18200.00	18200.00	19792.05		
20767.00	20767.00	981.00									
1	205.84		0.38	3746.65	5233237.0		17620.55		19511.65		
	21450.00	979.50									
1	205.84		0.36	2435.70	5449105.0	0.61	18100.00	18100.00	19511.65		
20535.70	20535.70	979.50									
1	205.75		0.37	3257.26	3950065.0		18027.86		19249.15		
	21400.00	973.90									
1	205.75		0.35	2402.30	4290733.0	0.74	18048.00	18048.00	19249.15		
20450.30	20450.30	973.90									
1	205.62		0.31	3845.50	6366636.0		17560.75		19333.05		
	21480.00	976.00									
1	205.62		0.31	2234.10	6407340.0	0.71	18216.00	18216.00	19333.05		
20450.10	20450.10	976.00									
1	205.52		0.28	3732.69	7454148.0		17650.00		19601.55		
	21400.00	975.90									
1	205.52		0.29	2019.90	7126233.0	0.65	18591.60	18591.60	19601.55		
20611.50	20611.50	975.90									
1	205.43		0.29	3335.92	7116273.0		17800.00		19843.95		
	21400.00	976.10									
1	205.43		0.33	1842.37	6524281.0	0.53	18922.07	18917.50	19843.95		
20770.40	20764.44	976.10									
1	205.4		0.24	3650.00	8621961.0		17800.00		19893.90		
	21450.00	975.50									
1	205.4		0.26	1747.80	8073093.0	0.57	19020.00	19020.00	19893.90		
20767.80	20767.80	975.50									
1	205.34		0.30	3427.47	5172262.0		17906.05		20013.65		
	21400.00	975.57									
1	205.34		0.35	1562.96	4487226.0	0.34	19180.00	19180.00	20013.65		
20742.96	20742.96	975.57									
1	205.25		0.28	3390.62	6571525.0		17950.00		20227.10		
	21340.62	973.40									
1	205.25		0.32	1482.30	5737392.0	0.23	19300.00	19300.00	20227.10		
20782.30	20782.30	973.40									
1	205.15		0.49	3035.78	3632205.0		18072.60		20266.70		
	21134.21	973.10									
1	205.15		0.47	1445.00	3844879.0	0.49	19385.00	19385.00	20266.70		
20830.00	20830.00	973.10									
1	205.06		0.47	2103.93	3787357.0		18080.00		20287.35		
	20907.77	970.50									
1	205.06		0.46	1435.30	3871248.0	0.51	19470.00	19470.00	20287.35		
20905.30	20905.30	970.50									
1	204.97		0.36	2834.16	4869981.0		18200.00		20253.15		
	21034.16	973.30									
1	204.97		0.42	1516.30	4255498.0	0.20	19445.00	19445.00	20253.15		
20961.30	20961.30	973.30									
1	204.87		0.31	2652.20	5920537.0		18300.00		20208.57		
	20952.20	968.10									
1	204.87		0.34	1542.20	5343764.0	0.18	19410.00	19410.00	20208.57		
20952.20	20952.20	968.10									
1	204.78		0.25	2430.43	7512086.0		18400.00		20115.46		
	20830.43	967.60									
1	204.78		0.28	1620.43	6634912.0	0.13	19210.00	19210.00	20115.46		
20830.43	20830.43	967.60									
1	204.68		0.33	2091.37	5457597.0		18455.00		19935.21		
	20546.37	971.40									
1	204.68		0.38	1586.28	4834418.0	-0.04	18960.00	18960.00	19935.21		
20546.37	20546.28	971.40									
1	204.61		0.41	1891.94	4447568.0		18570.00		19977.10		
	20482.90	972.60									
1	204.61		0.42	1602.90	4289077.0	0.03	18880.00	18880.00	19977.10		
20482.90	20482.90	972.60									
1	204.53		0.46	1765.90	3850514.0		18730.00		19840.65		
	20495.90	972.70									
1	204.53		0.47	1610.90	3743779.0	0.00	18885.00	18885.00	19840.65		
20495.90	20495.90	972.70									
1	204.42		0.51	1804.93	3325542.0		18874.10		19853.75		
	20679.03	971.40									
1	204.42		0.52	1653.57	3259710.0	-0.02	19025.40	19025.40	19853.75		
20679.03	20678.97	971.40									

1	204.34		0.52	1701.95	3299565.0		19100.00		19958.12	20814.38	969.30
1	204.34		0.52	1701.99	3300310.0	0.01	19100.00	19100.00	19958.12	20814.38	20814.38	969.30
1	204.25		1.00	1517.18	1863855.0		19300.00		20059.27	20817.18	969.22
1	204.25		1.00	1516.99	1855915.0	-0.02	19300.00	19300.00	20059.27	20817.18	20816.99	969.22
1	204.15		0.40	1831.90	5042939.0		18882.41		20116.69	21031.89	966.00
1	204.15		0.40	1831.89	5038994.0	0.02	19200.00	19200.00	20116.69	21031.89	21031.89	966.00
1	204.05		0.50	2116.76	3910438.0		18963.78		20022.18	21080.54	965.00
1	204.05		0.49	2116.76	3927263.0	0.02	18963.78	18963.78	20022.18	21080.54	21080.54	965.00
1	203.96		0.80	2050.76	2269861.0		18736.54		19760.59	20787.30	964.10
1	203.96		0.75	2050.76	2417852.0	0.26	18736.54	18736.54	19760.59	20787.30	20787.30	964.10
1	203.86		0.36	2191.78	5460451.0		18542.49		19612.00	20734.27	962.30
1	203.86		0.35	2191.78	5666380.0	0.25	18542.49	18542.49	19612.00	20734.27	20734.27	962.30
1	203.77		0.35	2511.27	5549798.0		18232.41		19484.11	20743.68	963.30
1	203.77		0.34	2511.27	5803637.0	0.29	18232.41	18232.41	19484.11	20743.68	20743.68	963.30
1	203.67		0.37	2860.23	5348655.0		17837.20		19524.10	20697.43	962.30
1	203.67		0.36	2567.43	5512272.0	0.29	18130.00	18130.00	19524.10	20697.43	20697.43	962.30
1	203.58		0.37	2993.59	5333542.0		17707.80		19454.49	20701.39	962.10
1	203.58		0.36	2676.39	5599491.0	0.35	18025.00	18025.00	19454.49	20701.39	20701.39	962.10
1	203.48		0.41	3454.84	4642347.0		17389.48		19394.68	20844.31	962.20
1	203.48		0.40	2911.71	4742364.0	0.33	17932.60	17932.60	19394.68	20844.31	20844.31	962.20
1	203.39		0.42	3309.00	4495896.0		17519.20		19504.80	21036.48	959.90
1	203.39		0.41	2930.05	4631119.0	0.40	17970.80	17970.80	19504.80	21036.47	21036.47	959.90
1	203.29		0.45	3441.31	4136567.0		17590.00		19574.09	21074.86	960.70
1	203.29		0.44	3009.26	4265774.0	0.41	18065.60	18065.60	19574.09	21074.86	21074.86	960.70
1	203.19		0.42	3364.24	3879641.0		17587.00		19623.75	20951.24	956.70
1	203.19		0.43	2689.14	3814345.0	0.36	18262.10	18262.10	19623.75	20951.24	20951.24	956.70
1	203.09		0.46	3213.89	3568365.0		17691.96		19710.91	20905.85	958.70
1	203.09		0.46	2475.85	3526911.0	0.32	18430.00	18430.00	19710.91	20905.85	20905.85	958.70
1	202.99		0.42	3260.60	3947903.0		17673.37		19698.15	20933.96	959.20
1	202.99		0.41	2457.50	4009597.0	0.37	18469.40	18469.40	19698.15	20926.90	20926.90	959.20
1	202.9		0.36	3412.11	4574160.0		17518.03		19724.55	20967.30	956.50
1	202.9		0.37	2511.71	4523109.0	0.36	18455.60	18455.60	19724.55	20967.31	20967.31	956.50
1	202.8		0.34	3540.65	4820928.0		17429.80		19702.88	21011.58	956.40
1	202.8		0.35	2620.78	4688712.0	0.33	18390.80	18390.80	19702.88	21011.58	21011.58	956.40
1	202.69		0.37	3701.48	4357701.0		17191.27		19729.80	21080.23	953.70

				DuplicateEffective					
* 1	* 202.69	*	0.38 *	2553.41 *	4258962.0 *	0.29 *	18526.82 *	18377.80 *	19729.80 *
21080.23 *	21080.23 *	953.70 *		*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*
* 1	* 202.59	*	0.40 *	3629.52 *	3966361.0 *	*	17348.76 *	*	19805.89 *
*	21190.40 *	953.70 *	*	*	*	*	*	*	*
* 1	* 202.59	*	0.42 *	2606.65 *	3831880.0 *	0.23 *	18524.37 *	18416.70 *	19805.89 *
21190.40 *	21190.40 *	953.70 *	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*
* 1	* 202.48	*	0.40 *	3674.66 *	4078760.0 *	*	17497.88 *	*	19941.58 *
*	21302.69 *	952.50 *	*	*	*	*	*	*	*
* 1	* 202.48	*	0.42 *	2826.14 *	3877911.0 *	0.11 *	18360.00 *	18360.00 *	19941.58 *
21302.70 *	21302.70 *	952.50 *	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*
* 1	* 202.37	*	0.39 *	3850.50 *	4253334.0 *	*	17583.96 *	*	20044.94 *
*	21577.77 *	954.60 *	*	*	*	*	*	*	*
* 1	* 202.37	*	0.41 *	3165.40 *	4009107.0 *	0.03 *	18270.00 *	18270.00 *	20044.94 *
21577.77 *	21577.77 *	954.60 *	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*
* 1	* 202.29	*	0.29 *	4060.28 *	5764473.0 *	*	17742.72 *	*	20000.20 *
*	21803.00 *	955.50 *	*	*	*	*	*	*	*
* 1	* 202.29	*	0.29 *	3605.60 *	5756355.0 *	0.08 *	18197.40 *	18197.40 *	20000.20 *
21803.00 *	21803.00 *	955.50 *	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*
* 1	* 202.18	*	0.38 *	4239.81 *	4172957.0 *	*	17589.10 *	*	20039.05 *
*	21936.53 *	950.00 *	*	*	*	*	*	*	*
* 1	* 202.18	*	0.38 *	3692.06 *	4154161.0 *	0.06 *	18139.70 *	18139.70 *	20039.05 *
21936.54 *	21936.54 *	950.00 *	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*
* 1	* 202.09	*	0.57 *	4052.05 *	2643855.0 *	*	17755.36 *	*	20075.58 *
*	21936.96 *	950.00 *	*	*	*	*	*	*	*
* 1	* 202.09	*	0.57 *	3682.20 *	2659472.0 *	0.07 *	18253.40 *	18212.90 *	20075.58 *
21936.96 *	21936.96 *	950.00 *	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*
* 1	* 201.99	*	0.38 *	3548.70 *	4634981.0 *	*	17895.49 *	*	20063.91 *
*	21861.56 *	948.70 *	*	*	*	*	*	*	*
* 1	* 201.99	*	0.37 *	3219.77 *	4655852.0 *	0.09 *	18235.10 *	18235.10 *	20063.91 *
21861.56 *	21861.56 *	948.70 *	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*
* 1	* 201.9	*	0.31 *	3830.97 *	5852611.0 *	*	17992.63 *	*	19890.86 *
*	21823.60 *	947.20 *	*	*	*	*	*	*	*
* 1	* 201.9	*	0.31 *	3830.97 *	5964132.0 *	0.11 *	17992.63 *	17992.63 *	19890.86 *
21823.60 *	21823.60 *	947.20 *	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*
* 1	* 201.81	*	0.28 *	3646.80 *	6592084.0 *	*	17952.48 *	*	19875.08 *
*	21801.08 *	946.00 *	*	*	*	*	*	*	*
* 1	* 201.81	*	0.27 *	3650.46 *	6711267.0 *	0.12 *	17952.48 *	17952.48 *	19875.08 *
21801.08 *	21801.08 *	946.00 *	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*
* 1	* 201.71	*	0.40 *	3844.58 *	3838417.0 *	*	18112.81 *	*	19817.78 *
*	21957.39 *	946.00 *	*	*	*	*	*	*	*
* 1	* 201.71	*	0.40 *	3415.69 *	3858296.0 *	0.11 *	18112.81 *	18112.81 *	19817.78 *
21528.50 *	21528.50 *	946.00 *	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*
* 1	* 201.62	*	0.35 *	3854.25 *	4406350.0 *	*	18235.69 *	*	19855.50 *
*	22089.94 *	945.60 *	*	*	*	*	*	*	*
* 1	* 201.62	*	0.34 *	3241.81 *	4475808.0 *	0.14 *	18235.69 *	18235.69 *	19855.50 *
21477.50 *	21477.50 *	945.60 *	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*
* 1	* 201.52	*	0.33 *	4181.52 *	3808935.0 *	*	18008.54 *	*	19667.57 *
*	22190.05 *	940.90 *	*	*	*	*	*	*	*
* 1	* 201.52	*	0.34 *	3382.85 *	3764143.0 *	0.12 *	18008.55 *	18008.55 *	19667.57 *
21391.40 *	21391.40 *	940.90 *	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*
* 1	* 201.43	*	0.37 *	4131.77 *	4076199.0 *	*	18053.86 *	*	19678.50 *
*	22188.55 *	941.30 *	*	*	*	*	*	*	*
* 1	* 201.43	*	0.37 *	3288.24 *	4094692.0 *	0.13 *	18053.86 *	18053.86 *	19678.50 *
21342.10 *	21342.10 *	941.30 *	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*
* 1	* 201.33	*	0.41 *	4277.40 *	3645795.0 *	*	18074.35 *	*	19715.66 *
*	22408.97 *	943.00 *	*	*	*	*	*	*	*
* 1	* 201.33	*	0.40 *	3307.45 *	3705386.0 *	0.16 *	18074.35 *	18074.35 *	19715.66 *
21381.80 *	21381.80 *	943.00 *	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*
* 1	* 201.24	*	0.40 *	4357.41 *	3811227.0 *	*	18069.92 *	*	19818.68 *
*	22430.09 *	943.00 *	*	*	*	*	*	*	*
* 1	* 201.24	*	0.40 *	3500.08 *	3876386.0 *	0.19 *	18069.92 *	18069.92 *	19818.68 *
21570.00 *	21570.00 *	943.00 *	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*
* 1	* 201.14	*	0.31 *	4685.00 *	4966393.0 *	*	18040.42 *	*	19879.43 *
*	22725.42 *	940.40 *	*	*	*	*	*	*	*
* 1	* 201.14	*	0.30 *	3680.58 *	5142934.0 *	0.24 *	18040.42 *	18040.42 *	19879.43 *
21721.00 *	21721.00 *	940.40 *	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*
* 1	* 201.05	*	0.26 *	4915.94 *	5254537.0 *	*	17950.48 *	*	19898.61 *
*	22866.42 *	941.50 *	*	*	*	*	*	*	*
* 1	* 201.05	*	0.26 *	3898.52 *	5383665.0 *	0.26 *	17950.48 *	17950.48 *	19898.61 *
21849.00 *	21849.00 *	941.50 *	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*

* 1	* 200.95	*	0.25 *	5141.07 *	6344019.0 *	*	17952.91 *	*	19929.90 *		
*	23093.98 *	939.80 *	*	*	*	*	*	*	*		
* 1	* 200.95	*	0.24 *	4001.09 *	6536869.0 *	0.28 *	17952.91 *	17952.91 *	19929.90 *		
21954.00 *	21954.00 *	939.80 *	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
* 1	* 200.86	*	0.27 *	5228.08 *	4470468.0 *	*	18000.00 *	*	20014.00 *		
*	23228.08 *	938.50 *	*	*	*	*	*	*	*		
* 1	* 200.86	*	0.26 *	4032.00 *	4591685.0 *	0.30 *	18000.00 *	18000.00 *	20014.00 *		
22032.00 *	22032.00 *	938.50 *	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
* 1	* 200.77	*	0.28 *	5805.53 *	5320745.0 *	*	17630.00 *	*	19889.90 *		
*	23630.00 *	936.90 *	*	*	*	*	*	*	*		
* 1	* 200.77	*	0.27 *	4122.20 *	5545445.0 *	0.35 *	17828.80 *	17828.80 *	19889.90 *		
21951.00 *	21951.00 *	936.90 *	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
* 1	* 200.67	*	0.30 *	4971.62 *	4569344.0 *	*	17540.00 *	*	19784.30 *		
*	23915.00 *	939.80 *	*	*	*	*	*	*	*		
* 1	* 200.67	*	0.28 *	4009.30 *	4819677.0 *	0.41 *	17640.00 *	17640.00 *	19784.30 *		
21649.30 *	21649.30 *	939.80 *	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
* 1	* 200.58	*	0.30 *	5529.80 *	4526509.0 *	*	17460.00 *	*	19698.50 *		
*	23847.47 *	937.60 *	*	*	*	*	*	*	*		
* 1	* 200.58	*	0.28 *	3940.00 *	4759369.0 *	0.47 *	17510.00 *	17510.00 *	19698.50 *		
21450.00 *	21450.00 *	937.60 *	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
* 1	* 200.49	*	0.26 *	6161.28 *	5347928.0 *	*	17380.00 *	*	19445.15 *		
*	24485.00 *	936.90 *	*	*	*	*	*	*	*		
* 1	* 200.49	*	0.25 *	3791.00 *	5487085.0 *	0.50 *	17380.00 *	17380.00 *	19445.15 *		
21171.00 *	21171.00 *	936.90 *	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
* 1	* 200.39	*	0.24 *	5819.36 *	6034760.0 *	*	17300.00 *	*	19361.75 *		
*	24775.00 *	937.00 *	*	*	*	*	*	*	*		
* 1	* 200.39	*	0.23 *	3741.00 *	6188329.0 *	0.52 *	17300.00 *	17300.00 *	19361.75 *		
21041.00 *	21041.00 *	937.00 *	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
* 1	* 200.3	*	0.34 *	5039.41 *	4488975.0 *	*	17205.00 *	*	19338.20 *		
*	24887.90 *	937.70 *	*	*	*	*	*	*	*		
* 1	* 200.3	*	0.31 *	3683.53 *	4835241.0 *	0.60 *	17205.00 *	17205.00 *	19338.20 *		
20896.00 *	20888.53 *	937.70 *	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
* 1	* 200.2	*	0.37 *	5551.98 *	3992119.0 *	*	17115.00 *	*	19352.25 *		
*	25144.80 *	937.00 *	*	*	*	*	*	*	*		
* 1	* 200.2	*	0.35 *	3629.00 *	4319022.0 *	0.73 *	17115.00 *	17115.00 *	19352.25 *		
20744.00 *	20744.00 *	937.00 *	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
* 1	* 200.1	*	0.32 *	5433.71 *	4321296.0 *	*	17030.00 *	*	19188.15 *		
*	25261.51 *	934.50 *	*	*	*	*	*	*	*		
* 1	* 200.1	*	0.29 *	3770.00 *	4818061.0 *	0.92 *	17030.00 *	17030.00 *	19188.15 *		
20800.00 *	20800.00 *	934.50 *	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
* 1	* 200	*	0.24 *	6148.14 *	6113840.0 *	*	16950.00 *	*	18918.55 *		
*	25170.51 *	933.40 *	*	*	*	*	*	*	*		
* 1	* 200	*	0.23 *	4100.00 *	6388853.0 *	0.96 *	16950.00 *	16950.00 *	18918.55 *		
21050.00 *	21050.00 *	933.40 *	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
* 1	* 199.91	*	0.22 *	6597.49 *	6954198.0 *	*	16800.00 *	*	19089.15 *		
*	25176.77 *	932.10 *	*	*	*	*	*	*	*		
* 1	* 199.91	*	0.20 *	4530.00 *	7510252.0 *	1.01 *	16800.00 *	16800.00 *	19089.15 *		
21330.00 *	21330.00 *	932.10 *	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
* 1	* 199.82	*	0.19 *	7203.54 *	4012368.0 *	*	16870.00 *	*	19137.70 *		
*	25350.00 *	931.20 *	*	*	*	*	*	*	*		
* 1	* 199.82	*	0.20 *	4780.00 *	3845833.0 *	1.00 *	16870.00 *	16870.00 *	19137.70 *		
21650.00 *	21650.00 *	931.20 *	*	*	*	*	*	*	*		

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ERRORS WARNINGS AND NOTES
Errors Warnings and Notes for Plan : DupEff

River: 1 Reach: 1 RS: 214.14 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 214.14 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 214.04 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 214.04 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 213.95 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 213.95 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was

used.
River: 1 Reach: 1 RS: 213.85 Profile: PF#1
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 213.85 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 213.75 Profile: PF#1
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 213.75 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 213.745 Profile: PF#1 Upstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 213.745 Profile: PF#1 Downstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 213.745 Profile: PF#2 Upstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 213.745 Profile: PF#2 Downstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 213.74 Profile: PF#1
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 213.74 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 213.66 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 213.66 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 213.57 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 213.57 Profile: PF#2
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 213.47 Profile: PF#1
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 213.47 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 213.38 Profile: PF#1
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 213.38 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 213.33 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 213.33 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 213.26 Profile: PF#1
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 213.26 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 213.255 Profile: PF#1 Upstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 213.255 Profile: PF#1 Downstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 213.255 Profile: PF#2 Upstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 213.255 Profile: PF#2 Downstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 213.25 Profile: PF#1
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 213.25 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 213.21 Profile: PF#1
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was

used.
River: 1 Reach: 1 RS: 213.21 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 213.11 Profile: PF#1
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 213.11 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 213.03 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 213.03 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 212.93 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 212.93 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 212.84 Profile: PF#1
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 212.84 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 212.74 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 212.74 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 212.68 Profile: PF#1
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 212.68 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 212.675 Profile: PF#1
Note: Momentum answer is not valid if the water surface is above the low chord or if there is weir flow. The momentum answer has been disregarded.
River: 1 Reach: 1 RS: 212.675 Profile: PF#1 Upstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 212.675 Profile: PF#1 Downstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 212.675 Profile: PF#2 Upstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 212.675 Profile: PF#2 Downstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 212.67 Profile: PF#1
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 212.67 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 212.56 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 212.56 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 212.46 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 212.46 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 212.37 Profile: PF#1
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 212.37 Profile: PF#2

Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 212.27 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 212.27 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 212.18 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 212.18 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 212.08 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 212.08 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 211.99 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 211.99 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 211.89 Profile: PF#1
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 211.89 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 211.79 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 211.79 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 211.71 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 211.71 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 211.64 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 211.64 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 211.54 Profile: PF#1
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

River: 1 Reach: 1 RS: 211.54 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

River: 1 Reach: 1 RS: 211.525 Profile: PF#1 Upstream
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

River: 1 Reach: 1 RS: 211.525 Profile: PF#1 Downstream
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

River: 1 Reach: 1 RS: 211.525 Profile: PF#2 Upstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

River: 1 Reach: 1 RS: 211.525 Profile: PF#2 Downstream
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

River: 1 Reach: 1 RS: 211.51 Profile: PF#1
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

River: 1 Reach: 1 RS: 211.51 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

River: 1 Reach: 1 RS: 211.41 Profile: PF#1
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: 1 Reach: 1 RS: 211.41 Profile: PF#2
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: 1 Reach: 1 RS: 211.31 Profile: PF#1
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 211.31 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 211.21 Profile: PF#1
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 211.21 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 211.12 Profile: PF#1
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 211.12 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 211.02 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 211.02 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 210.93 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 210.93 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 210.83 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 210.83 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 210.74 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 210.74 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 210.64 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 210.64 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 210.55 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 210.55 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 210.46 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 210.46 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 210.36 Profile: PF#1

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 210.36 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 210.26 Profile: PF#1
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 210.26 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 210.17 Profile: PF#1
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 210.17 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 210.07 Profile: PF#1
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 210.07 Profile: PF#2
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 209.98 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 209.98 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 209.88 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 209.88 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 209.79 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 209.79 Profile: PF#2
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 209.69 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 209.69 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 209.6 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 209.6 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 209.54 Profile: PF#1
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 209.54 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 209.535 Profile: PF#1 Upstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 209.535 Profile: PF#1 Downstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 209.535 Profile: PF#2 Upstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 209.535 Profile: PF#2 Downstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 209.53 Profile: PF#1
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 209.53 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 209.42 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 209.42 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 209.33 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was

used.
River: 1 Reach: 1 RS: 209.33 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 209.24 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 209.24 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 209.14 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 209.14 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 209.04 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 209.04 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 208.95 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 208.95 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 208.85 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 208.85 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 208.75 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 208.75 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 208.67 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 208.67 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 208.57 Profile: PF#1
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 208.57 Profile: PF#2
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 208.48 Profile: PF#1
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 208.48 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 208.39 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 208.39 Profile: PF#2
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 208.29 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 208.29 Profile: PF#2
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 208.19 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 208.19 Profile: PF#2
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 208.1 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 208.1 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 207.99 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 207.99 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 207.9 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 207.9 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 207.8 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 207.8 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 207.71 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 207.71 Profile: PF#2
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 207.62 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 207.62 Profile: PF#2
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 207.53 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 207.53 Profile: PF#2
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 207.49 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 207.49 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 207.485 Profile: PF#1
Note: Momentum answer is not valid if the water surface is above the low chord or if there is weir flow. The momentum answer has been disregarded.
River: 1 Reach: 1 RS: 207.485 Profile: PF#1 Upstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 207.485 Profile: PF#1 Downstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 207.485 Profile: PF#2 Upstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 207.485 Profile: PF#2 Downstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 207.48 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 207.48 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 207.43 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 207.43 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 207.34 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 207.34 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 207.27 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 207.27 Profile: PF#2
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 207.16 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 207.16 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 207.07 Profile: PF#1
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 207.07 Profile: PF#2
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 206.97 Profile: PF#1

Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 206.97 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 206.88 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 206.88 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 206.79 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 206.79 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 206.7 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 206.7 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 206.6 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 206.6 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 206.51 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 206.51 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 206.41 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 206.41 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 206.32 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 206.32 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 206.22 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 206.22 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 206.13 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: 1 Reach: 1 RS: 206.13 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: 1 Reach: 1 RS: 206.03 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: 1 Reach: 1 RS: 206.03 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 205.94 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 205.94 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 205.84 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 205.84 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 205.75 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 205.75 Profile: PF#2
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 205.62 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 205.62 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 205.52 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 205.52 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 205.43 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 205.43 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 205.4 Profile: PF#1
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 205.4 Profile: PF#2
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 205.34 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 205.34 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 205.25 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 205.25 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 205.15 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 205.15 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 205.06 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 205.06 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 204.97 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 204.97 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 204.87 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 204.87 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 204.78 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 204.78 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 204.68 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 204.68 Profile: PF#2

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 204.61 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 204.61 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 204.53 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 204.53 Profile: PF#2
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 204.42 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 204.42 Profile: PF#2
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 204.34 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 204.34 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 204.25 Profile: PF#1
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 204.25 Profile: PF#2
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 204.15 Profile: PF#1
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 204.15 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 204.05 Profile: PF#1
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 204.05 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 203.96 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

cHECk-RAS Report

HEC-RAS Project: *duplicateeffective.prj*
Plan File: *duplicateeffective.p01*
Geometry File: *duplicateeffective.g02*
Flow File: *duplicateeffective.f01*
Report Date: *8/23/2013*

Message ID	Message	Cross sections affected	Comments
BR LF 01	This is ($strucname$). The selected profile is $profilename$. Type of flow is low flow because, 1. EGEL 3 of $egel3$ is less than or equal to MinTopRd of $minelweirflow$. 2. EGEL 3 of $egel3$ is less than MxLoCdU of $mxlocdu$.	209.535(Bridge-UP); 211.525(Bridge-UP); 213.255(Bridge-UP); 213.745(Bridge-UP)	
BR LW 02	This is a Bridge Section. The selected profile is $profilename$. EGEL of $egel3$ at Section 3 is higher than the MinTopRd of $minelweirflow$. However, weir flow is not computed at this structure. Please investigate the problem.	212.675(Bridge-UP)	
BR PW 02	This is a Bridge Section. The selected profile is $profilename$. Type of flow is submerged pressure and weir flow because, 1. EGEL 3 of $egel3$ is greater than MinTopRd of $minelweirflow$. 2. EGEL 3 of $egel3$ is equal to or greater than MxLoCdU of $mxlocdu$. 3. WSEL 2 of $wsel2$ is equal to or greater than MxLoCdD of $mxlocdd$.	212.675(Bridge-UP)	
BR PW 05	This is a Bridge Section. The selected profile is $profilename$. EGEL of $egel3$ at Section 3 is higher than the MinTopRd of $minelweirflow$. However, weir flow is not computed at this structure. Please investigate the problem.	212.675(Bridge-UP)	
FW FW 01L	The Left encroachment station is within the channel. The Left encroachment station $encrstal$ is more than left channel bank station $stalob$. The left encroachment station should be the same as the left channel bank station.	200.86; 200.95; 201.05; 201.14; 201.24; 201.33; 201.43; 201.52; 201.62; 201.71; 201.81; 201.9; 203.77; 203.86; 203.96; 204.05; 208.95; 210.26; 210.36; 210.55; 210.74; 210.83; 210.93; 211.12; 211.21; 211.31; 211.41; 213.11; 213.66; 213.95; 214.04; 214.14	
FW FW 01R	The Right encroachment station is within the channel. The Right encroachment station $encrstar$ is less than right channel bank station $starob$. The right encroachment station should be the same as the right channel bank station.	201.81; 201.9; 201.99; 202.09; 202.18; 202.37; 202.48; 202.59; 202.69; 202.8; 202.9; 203.09; 203.19; 203.29; 203.39; 203.48; 203.58; 203.67; 203.77; 203.86; 203.96; 204.05; 204.15; 204.25; 204.34; 204.42; 204.68; 204.78; 204.87; 206.13; 206.22; 206.32; 206.41; 207.07; 210.26; 210.36; 211.21; 211.31; 211.79; 211.99; 213.11; 213.33; 213.38; 213.47; 213.57; 213.66; 213.85; 213.95; 214.04; 214.14	

FW FW 03L	The left channel bank elevation of $lobelev$ is higher than the 1-percent-annual-chance WSEL of $wsel$. Relocate the left channel bank station at or below the 1-percent-annual-chance WSEL. Do not place the bank stations at the bottom of the channel. Do not place the bank stations at the low flow channel. Use the Horizontal Variation in "n" Values option in HEC-RAS to assign different "n" values to the left bank slope, low flow channel, and the right bank slope. Let HEC-RAS compute the composite "n" value based on the depth of flow.	200.49; 200.77; 201.05; 201.9; 202.09; 202.37; 202.48; 202.59; 202.69; 203.86; 203.96; 204.05; 205.43; 206.03; 206.13; 206.22; 206.7; 206.79; 206.97; 207.07; 208.57; 208.67; 208.75; 208.85; 208.95; 209.6; 209.69; 209.79; 209.88; 210.64; 211.12; 211.41; 211.71; 213.11; 213.66; 213.95; 214.04; 214.14	
FW FW 03R	The right channel bank elevation of $robelev$ is higher than the 1-percent annual chance WSEL of $wsel$. Relocate the right channel bank station at or below the 1-percent annual chance WSEL. Do not place the bank stations at the bottom of the channel. Do not place the bank stations at the low flow channel. Use the Horizontal Variation in "n" Values option in HEC-RAS to assign different "n" values to the left bank slope, low flow channel, and the right bank slope. Let HEC-RAS compute the composite "n" value based on the depth of flow.	200.3; 201.24; 202.09; 202.48; 202.9; 203.39; 205.43; 205.84; 205.94; 206.7; 209.42; 210.17; 210.46; 210.55; 210.64; 210.74; 210.83; 210.93; 211.02; 211.12; 211.71; 211.89; 212.08; 213.11; 213.33; 213.38; 213.47; 213.57; 213.66; 213.85; 213.95; 214.04; 214.14	
FW FW 05L	The 1-percent annual chance flood is contained within the channel. The Left encroachment station $encstal$ is outside the channel. The Left channel bank station is $stalob$. Adjust the left encroachment station so that it is the same as the left channel bank station.	208.57; 208.67; 208.75	
FW FW 05R	The 1-percent annual chance flood is contained within the channel. The Right encroachment station $encstar$ is outside the channel. Right channel bank station is $starob$. Adjust the right encroachment station so that it is the same as the right channel bank station..	211.12; 212.08	
FW FW 06L	The left side of the floodway boundary is within the channel. The left station effective of $ineffstal$ for the floodway profile is more than the left channel bank station of $stalob$. The left encroachment station of $encstal$ is less than the left channel bank station. Adjust the left encroachment station so that it is the same as the left channel bank station.	208.57; 208.67; 208.75; 208.85	
FW FW 06R	The right side of the floodway boundary is within the channel. The right station effective of $ineffstar$ for the floodway profile is less than the right channel bank station of $starob$. The right encroachment station of $encstar$ is more than the right channel bank station. Adjust the right encroachment station so that it is the same as the right channel bank station.	212.08	

FW SC 02	The surcharge value of $surcharge$ is greater than the maximum allowable value of $allowsurchrg$. Use the suggestions from the Help section to reduce the computed surcharge value to be no more than $allowsurchrg$.	199.91	
FW ST 03S2L	This is Section 2 of a hydraulic structure. The left encroachment station is within the structure opening area. The left station effective of $ineffstal$ for the 1%-annual-chance profile is less than the left most abutment station of $abutstal$. The 1%-annual-chance floodplain is outside the structure opening. The left encroachment station of $encstal$ is greater than the left most abutment station of $abutstal$. Enc_Sta_L should be relocated outside of the structure opening area.	207.48	
FW ST 04BDL	This is ($strucname$) downstream internal section. The left encroachment station is within the channel. The left encroachment station of $encstal$ is greater than the left bank station of $stalob$. The leftencroachment station should be the same as the left channel bank station.	213.255(Bridge-DN); 213.745(Bridge-DN)	
FW ST 04BDR	This is ($strucname$) downstream internal section. The right encroachment station is within the channel. The right encroachment station of $encstar$ is less than the right bank station of $starob$. The right encroachment station should be the same as the right channel bank station.	213.255(Bridge-DN)	
FW ST 04BUL	This is ($strucname$) upstream internal section. The left encroachment station is within the channel. The left encroachment station of $encstal$ is greater than the left bank station of $stalob$. The left encroachment station should be the same as the left channel bank station.	211.525(Bridge-UP); 213.255(Bridge-UP); 213.745(Bridge-UP)	
FW ST 04BUR	This is ($strucname$) upstream internal section. The right encroachment station is within the channel. The right encroachment station of $encstar$ is less than the right bank station of $starob$. The right encroachment station should be the same as the right channel bank station.	213.255(Bridge-UP)	
FW ST 04S2L	This is Section 2 of a hydraulic structure. The left encroachment station is within the channel. The left encroachment station of $encstal$ is greater than the left bank station of $stalob$. The left encroachment station should be the same as the left channel bank station.	207.48; 211.51; 213.25; 213.74	

FW ST 04S2R	This is Section 2 of a hydraulic structure. The right encroachment station is within the channel. The right encroachment station of $encstar$ is less than the right bank station of $starob$. The right encroachment station should be the same as right channel bank station.	207.48; 211.51; 213.25; 213.74	
FW ST 04S3L	This is Section 3 of a hydraulic structure. The Left Channel Bank station is outside the Left Abutment station. The left encroachment station is within the channel. The left encroachment station of $encstal$ is greater than the left bank station of $stalob$. The left encroachment station should be the same as the left channel bank station.	207.49; 211.54; 213.26; 213.75	
FW ST 04S3R	This is Section 3 of a hydraulic structure. The right encroachment station is within the channel. The right encroachment station of $encstar$ is less than the right bank station of $starob$. The right encroachment station should be the same as the right channel bank station.	207.49; 211.54; 213.26; 213.75	
FW ST 06BU	This is the Upstream Bridge Internal Section. Negative surcharge value of $negsurchrg$ occurs at this section. Use the suggestions from the Help section such that negative surcharge value will not be less than (-0.09) foot.	212.675(Bridge-UP)	
MP SW 01DK	The name of the stream is ($streamname$). The flow regime is subcritical or mixed flow. Starting water-surface elevations are computed from Known WSELs as the downstream boundary condition. Provide backup information on Known water-surface elevations or use same energy slope for all the profiles as the starting boundary condition and rerun the plan.		
NT RC 05	The left overbank n-value of $nlob$ and the right overbank n-value of $nrob$ are less than or equal to the channel n-value of nch. Follow the procedure in (FHWA, 1984) to compute the n-value for the natural floodplain and the channel. Or follow the procedure in (USGS, 1977) to compute the n-value for urban development. Please submit supporting information on the evaluation of n-values.	204.42; 204.53; 204.61; 204.68; 204.78; 204.87; 205.06; 205.15; 205.25; 205.75; 206.32; 206.41; 206.51; 206.6; 206.7; 206.79; 206.88; 206.97; 207.07; 207.16; 207.27; 207.53; 207.62; 207.71; 207.8; 207.9; 209.24; 209.69; 210.07; 210.26; 210.46	

NT RS 02BDC	This is the Downstream Bridge Section (BRD). The channel n value of $chldn$ for the downstream internal bridge opening section is equal to or larger than the channel n value of $chl2$ at Section 2. Usually, the channel "n" value of the bridge opening section represents the area below the bridge deck and is less than the channel "n" value of Section 2. The "n" value for Section 2 represents the natural valley channel section roughness for the reach between Section 3 and Section 4. Please change the "n" value of the internal bridge opening section or provide supporting information for the use of the higher "n" value.	209.535(Bridge-DN); 211.525(Bridge-DN); 213.255(Bridge-DN); 213.745(Bridge-DN)	
NT RS 02BUC	This is the Upstream Bridge Section (BRU). The channel n value of $chlup$ for the upstream internal bridge opening section is equal to or larger than the channel n value of $chl3$ at Section 3. Usually, the channel "n" value of the bridge opening section represents the area below the bridge deck and is less than the channel "n" value of Section 3. The "n" value for Section 3 represents the natural valley channel section roughness for the reach between Section 3 and Section 4. Please change the "n" value of the internal bridge opening section or provide supporting information for the use of a higher "n" value.	209.535(Bridge-UP); 211.525(Bridge-UP); 212.675(Bridge-UP); 213.255(Bridge-UP); 213.745(Bridge-UP)	
NT TL 01S2	This is Section2 of a hydraulic structure. The contraction and expansion loss coefficients are cc and ce. They should be equal to 0.3 and 0.5, respectively, for typical structure sections according to page 5-8 of the HEC-RAS Hydraulic Reference Manual (HEC, 2010).	207.48; 211.51; 212.67; 213.25; 213.74	
NT TL 01S3	This is Section3 of a hydraulic structure. The contraction and expansion loss coefficients are cc and ce. They should be equal to 0.3 and 0.5, respectively, for typical structure sections according to page 5-8 of the HEC-RAS Hydraulic Reference Manual (HEC, 2010).	207.49; 211.54; 212.68; 213.26; 213.75	
NT TL 01S4	This is Section 4 of a hydraulic structure. The contraction and expansion loss coefficients are cc and ce. They should be equal to 0.3 and 0.5, respectively according to page 5-8 of the HEC-RAS Hydraulic Reference Manual (HEC, 2010)..	207.53; 209.6; 211.64; 212.74; 213.33; 213.85	

ST DT 01B	This is ($strucname$). 'Upstream Dist' of $distup$ in "Bridge Width Table" is less than the height of the bridge opening of $height$. This indicates that Section 3 may not be placed at the foot of the road embankment or wing walls and may not represent the natural valley cross section. Section 3 should be relocated or provide a statement that it represents the natural valley cross section. The HEC-RAS geometry file may need to be recreated using a GIS program. Lengths at Sections 4, 3 and 2 and 'Upstream Dist' should be adjusted.	207.485(Bridge-UP); 209.535(Bridge-UP); 211.525(Bridge-UP); 213.255(Bridge-UP); 213.745(Bridge-UP)	
ST DT 02B	This is ($strucname$). 'Downstream Dist' of $distdn$ in 'Bridge Width Table' is less than the height of the bridge opening of $height$. This indicates that Section 2 may not be placed at the foot of the road embankment or wing walls and may not represent the natural valley cross section. Section 2 should be relocated or provide a statement that it represents the natural valley cross section. A HEC-RAS geometry file may need to be recreated using a GIS program. Lengths at Sections 3 and 2 should be adjusted.	207.485(Bridge-DN); 209.535(Bridge-DN); 211.525(Bridge-DN); 213.255(Bridge-DN); 213.745(Bridge-DN)	
ST DT 03	This is ($Structure$) section. The Contraction Length is longer than the Expansion Length. Section 4 channel distance of $Length_Chnl4$ is longer than Section 2 channel distance of $Length_Chnl2$. Section 4 and Section 1 should be relocated. The HEC-RAS geometry file may need to be recreated using a GIS program.	213.255(Bridge-UP); 213.745(Bridge-UP)	
ST GD 06	Left and/or right abutment station computed by the cHECk-RAS program is equal to zero. cHECk-RAS cannot evaluate this structure.	212.675(Bridge)	
ST IF 03S2L	This is Section 2. The selected profile is $profilename$. Weir flow occurs at ($strucname$). However, the left ineffective flow elevation of $ineffelr$ at the left ineffective flow station $ineffstal$ is equal to or higher than the WSEL of $wsel2$. The ineffective flow elevation should be lower than the WSEL at Section 2.	207.48(Bridge)	

ST IF 03S3L	This is Section 3. The selected profile is $profilename$. Weir flow occurs at ($strucname$). However, the left ineffective flow elevation of $ineffelr$ at the left ineffective flow station $ineffstal$ is equal to or higher than the WSEL of $wsel3$. The computed upstream LMnTpRd is $lmntprdu$. The ineffective flow elevation should be equal to or lower than the computed LMnTpRdU. It should also be lower than the WSEL at Section 3.	207.49(Bridge)	
ST IF 04S2R	This is Section 2. The selected profile is $profilename$. Weir flow occurs at ($strucname$). However, the right ineffective flow elevation of $ineffell$ at the right ineffective flow station $ineffstar$ is equal to or higher than the WSEL of $wsel2$. The upstream RMnTpRu is $rmntprdu$. The ineffective flow elevation should be lower than the WSEL at Section 2.	207.48(Bridge)	
ST IF 04S3R	This is Section 3. The selected profile is $profilename$. Weir flow occurs at ($strucname$). However, the right ineffective flow elevation of $ineffell$ at the right ineffective flow station $ineffstar$ is equal to or higher than the WSEL of $wsel3$. The computed upstream RMnTpRd is $rmntprdu$. The ineffective flow elevation should be equal to the computed RMnTpRdU.	207.49(Bridge)	
ST IF 05S2L	This is Section 2 of a hydraulic structure. The left ineffective flow station is within the opening area of the structure. The left ineffective flow station of $ineffstal$ is greater than the downstream left abutment station of $abutstal$ at ($strucname$). The Left ineffective flow station should be adjusted.	211.51(Bridge); 212.67(Bridge)	
ST IF 05S2R	This is Section 2 of a hydraulic structure. The right ineffective flow station is within the opening area of the structure. The right ineffective flow station of $ineffstar$ is less than the upstream right abutment station of $abutstar$ at ($strucname$). The Right ineffective flow station should be adjusted.	211.51(Bridge)	
ST IF 05S3L	This is Section 3 of a hydraulic structure. The left ineffective flow station is within the opening area of the structure. The left ineffective flow station of $ineffstal$ is greater than the upstream left abutment station of $abutstal$ at ($strucname$). The Left ineffective flow station should be adjusted.	212.68(Bridge)	

ST IF 05S3R	This is Section 3 of a hydraulic structure. The right ineffective flow station is within the opening area of the structure. The right ineffective flow station of $ineffstar$ is less than the upstream right abutment station of $abutstar$ at ($strucname$). The Right ineffective flow station should be adjusted.	211.54(Bridge)	
ST IF 06S2L	This is Section 2. The selected profile is $profilename$. Low or pressure flow occurs at ($strucname$). The Dn_Dist of $dndist$ at the structure is less than the opening height of $openheight$ of the structure. The cHECk-RAS computed left ineffective flow station of $compineffstal$ is less than the input left ineffective flow station of $ineffstal$. The left ineffective flow station should be adjusted per the help instructions and the HEC-RAS manual.	211.51(Bridge); 213.74(Bridge)	
ST IF 06S2R	This is Section 2. The selected profile is $profilename$. Low or pressure flow occurs at ($strucname$). The Dn_Dist of $dndist$ at the structure is less than the opening height of $openheight$ of the structure. The cHECk-RAS computed right ineffective flow station of $compineffstar$ is greater than the input right ineffective flow station of $ineffstar$. The right ineffective flow station should be adjusted per the help instructions and the HEC-RAS manual.	211.51(Bridge); 213.74(Bridge)	
ST IF 06S3L	This is Section 3. The selected profile is $profilename$. Low or pressure flow occurs at ($strucname$). The Up_Dist of $updist$ at the structure is less than the opening height of $openheight$ of the structure. The cHECk-RAS computed left ineffective flow station of $compineffstal$ is less than the input left ineffective flow station of $ineffstal$. The left ineffective flow station should be adjusted per the help instructions and the HEC-RAS manual.	213.75(Bridge)	

ST IF 06S3R	This is Section 3. The selected profile is $profilename$. Low or pressure flow occurs at ($strucname$). The Up_Dist of $updist$ at the structure is less than the opening height of $openheight$ of the structure. The cHECk-RAS computed right ineffective flow station of $compineffstar$ is greater than the input right ineffective flow station of $ineffstar$. The right ineffective flow station should be adjusted per the help instructions and the HEC-RAS manual.	211.54(Bridge); 213.75(Bridge)	
ST IF 07S1L	This is Section 1. Left Ineffective flow option was considered at this section. However, it should be a fully expanded cross section. Ineffective flow stations and elevations should be cleared from this section, unless the areas beyond the ineffective flow stations are not within the flow path of the stream. This message should be ignored if this section is Section 3 of the downstream structure.	207.43(Bridge); 209.42(Bridge); 212.56(Bridge); 213.21(Bridge); 213.66(Bridge)	
ST IF 07S1R	This is Section 1. Right Ineffective flow option was considered at this section. However, it should be a fully expanded cross section. Ineffective flow stations and elevations should be cleared from this section, unless the areas beyond the ineffective flow stations are not within the flow path of the stream. This message should be ignored if this section is Section 3 of the downstream structure.	207.43(Bridge); 209.42(Bridge); 212.56(Bridge); 213.21(Bridge); 213.66(Bridge)	
ST IF 07S4L	This is Section 4. Left Ineffective flow option was considered at this section. However, it should be a fully expanded cross section. Ineffective flow stations and elevations should be cleared from this section, unless the areas beyond the ineffective flow stations are not within the flow path of the stream. This message should be ignored if this section is Section 2 of the upstream structure.	207.53(Bridge); 209.6(Bridge); 212.74(Bridge); 213.33(Bridge); 213.85(Bridge)	
ST IF 07S4R	This is Section 4. Right Ineffective flow option was considered at this section. However, it should be a fully expanded cross section. Ineffective flow stations and elevations should be cleared from this section, unless the areas beyond the ineffective flow stations are not within the flow path of the stream. This message should be ignored if this section is Section 2 of the upstream structure.	207.53(Bridge); 209.6(Bridge); 212.74(Bridge); 213.33(Bridge); 213.85(Bridge)	

XS CD 01	Critical Depth occurs at $assignedname$ flood. Flow Code will be "C". The Ineffective flow option is used. The Ineffective Flow elevation is equal to or higher than the Critical WSEL. Please investigate whether this selection is appropriate.	204.25; 207.07; 208.57	
XS DC 01	Discharge decreases in the downstream direction for $assignedname$ flood. There are no lateral structures. Documentation of hydrologic analysis is required or provide explanation.	205.4; 213.21	
XS DT 01	Both the right overbank distance of rob and the left overbank distance of lob are longer than the channel distance of chl . Please review the creation of left overbank, channel and right overbank distances. The HEC-RAS geometry file may need to be recreated using a GIS program. Please resolve the differences among the distances.	211.71; 211.99	
XS IF 03R	The Right Ineffective Flow Station is within the channel. The Right Ineffective Flow Station of $ineffstar$ is less than the RightBankSta of $bankstar$. The Right Ineffective Flow Station or the RightBankSta should be adjusted.	206.51	
XS SW 01DK	The name of the stream is $streamname$. The flow regime is subcritical or mixed flow. Starting WSEL is computed from Known WSEL as the downstream boundary for $Assigned_Name$ flood. Provide backup information on Known WSEL or use energy slope as the downstream boundary.	199.82	

APPENDIX D

PRE-PROJECT MODEL

HEC-RAS Plan: PrePrj River: 1 Reach: 1

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
1	214.14	169000.00	1048.70	1075.50	1062.66	1077.01	0.000804	9.84	17180.89	1312.52	0.36
1	214.14	169000.00	1048.70	1075.51	1062.66	1077.01	0.000803	9.83	17184.88	726.86	0.36
1	214.04	169000.00	1048.80	1075.04	1062.64	1076.58	0.000846	9.95	16977.45	813.60	0.36
1	214.04	169000.00	1048.80	1075.05	1062.64	1076.59	0.000845	9.95	16981.83	733.89	0.36
1	213.95	169000.00	1049.30	1074.16	1063.67	1076.05	0.001218	11.04	15307.12	777.40	0.43
1	213.95	169000.00	1049.30	1074.16	1063.67	1076.06	0.001216	11.04	15312.49	745.19	0.43
1	213.85	169000.00	1048.10	1071.66	1065.14	1075.08	0.002230	14.98	11764.97	1017.61	0.58
1	213.85	169000.00	1048.10	1071.66	1065.14	1075.09	0.002229	14.98	11769.51	702.59	0.58
1	213.75	169000.00	1044.60	1071.97	1060.91	1073.93	0.000919	11.25	15022.46	656.45	0.41
1	213.75	169000.00	1044.60	1071.98	1060.91	1073.94	0.000918	11.25	15027.91	656.35	0.41
1	213.745	Bridge									
1	213.74	169000.00	1044.60	1071.66	1060.91	1073.68	0.000958	11.40	14818.63	654.76	0.42
1	213.74	169000.00	1044.60	1071.67	1060.91	1073.69	0.000957	11.40	14824.30	654.73	0.42
1	213.66	169000.00	1047.60	1069.25	1063.62	1072.99	0.002199	15.51	10898.94	586.13	0.62
1	213.66	169000.00	1047.60	1069.27	1063.62	1073.00	0.002194	15.50	10906.67	565.99	0.62
1	213.57	169000.00	1046.70	1069.19	1063.08	1071.61	0.001831	12.49	13535.60	1275.10	0.55
1	213.57	169000.00	1046.70	1069.20	1063.08	1071.62	0.001827	12.47	13548.71	852.16	0.55
1	213.47	169000.00	1045.80	1068.60	1061.42	1070.60	0.001694	11.35	14886.30	1424.00	0.52
1	213.47	169000.00	1045.80	1068.62	1061.42	1070.62	0.001691	11.34	14903.79	1023.12	0.52
1	213.38	169000.00	1045.40	1068.60	1059.34	1069.81	0.000809	8.83	19139.19	1251.70	0.37
1	213.38	169000.00	1045.40	1068.61	1059.34	1069.82	0.000810	8.82	19155.73	1101.75	0.37
1	213.33	169000.00	1045.40	1068.57	1057.70	1069.53	0.000606	7.87	21480.53	1371.95	0.33
1	213.33	169000.00	1045.40	1068.58	1057.70	1069.54	0.000608	7.86	21497.32	1185.62	0.33
1	213.26	169000.00	1040.40	1068.16	1055.61	1069.32	0.000568	8.67	19493.06	881.25	0.32
1	213.26	169000.00	1040.40	1068.17	1055.61	1069.34	0.000567	8.66	19505.43	881.21	0.32
1	213.255	Bridge									
1	213.25	169000.00	1040.40	1067.95	1055.61	1069.14	0.000585	8.75	19310.07	880.24	0.33
1	213.25	169000.00	1040.40	1067.96	1055.61	1069.15	0.000584	8.75	19322.76	880.24	0.33
1	213.21	166000.00	1044.90	1067.99	1055.88	1069.03	0.000510	8.17	20358.92	1540.79	0.31
1	213.21	166000.00	1044.90	1068.00	1055.88	1069.04	0.000528	8.17	20315.02	928.20	0.31
1	213.11	166000.00	1047.60	1067.16	1058.35	1068.63	0.000913	9.73	17066.41	927.80	0.40
1	213.11	166000.00	1047.60	1067.16	1058.35	1068.63	0.000912	9.72	17072.18	927.79	0.40
1	213.03	166000.00	1046.70	1066.57	1058.30	1068.17	0.001032	10.14	16391.47	965.60	0.42
1	213.03	166000.00	1046.70	1066.58	1058.30	1068.17	0.001031	10.13	16382.68	919.76	0.42
1	212.93	166000.00	1045.40	1065.48	1058.04	1067.55	0.001316	11.53	14402.09	850.19	0.48
1	212.93	166000.00	1045.40	1065.49	1058.04	1067.55	0.001314	11.52	14408.82	798.99	0.48
1	212.84	166000.00	1043.10	1063.54	1057.57	1066.65	0.001930	14.14	11737.26	635.75	0.58
1	212.84	166000.00	1043.10	1063.56	1057.57	1066.66	0.001926	14.13	11745.09	635.75	0.58
1	212.74	166000.00	1041.60	1063.06	1055.53	1065.57	0.001465	12.71	13064.60	721.72	0.51
1	212.74	166000.00	1041.60	1063.08	1055.53	1065.58	0.001462	12.70	13074.10	676.59	0.51
1	212.68	166000.00	1036.90	1063.02	1052.69	1065.16	0.001030	11.74	14139.91	629.02	0.44
1	212.68	166000.00	1036.90	1063.04	1052.69	1065.17	0.001028	11.73	14148.66	629.03	0.44
1	212.675	Bridge									
1	212.67	166000.00	1036.90	1062.53	1052.69	1064.77	0.001102	12.00	13830.37	626.50	0.45
1	212.67	166000.00	1036.90	1062.54	1052.69	1064.77	0.001101	12.00	13834.12	626.51	0.45
1	212.56	166000.00	1039.30	1056.87	1055.74	1063.23	0.004887	20.23	8207.39	521.49	0.90
1	212.56	166000.00	1039.30	1056.98	1055.74	1063.25	0.004781	20.09	8264.06	521.09	0.89
1	212.46	166000.00	1037.20	1056.23	1052.77	1060.78	0.003034	17.11	9703.67	1555.15	0.72
1	212.46	166000.00	1037.20	1056.29	1052.77	1060.80	0.003114	17.05	9738.24	557.66	0.72

HEC-RAS Plan: PrePrj River: 1 Reach: 1 (Continued)

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
1	212.37	166000.00	1036.60	1053.09	1051.73	1058.81	0.004662	19.19	8648.65	573.56	0.87
1	212.37	166000.00	1036.60	1053.09	1051.73	1058.81	0.004657	19.19	8651.94	573.59	0.87
1	212.27	166000.00	1035.10	1050.67	1049.57	1056.35	0.005236	19.12	8681.56	2800.96	0.89
1	212.27	166000.00	1035.10	1050.67	1049.57	1056.35	0.005237	19.12	8681.05	605.47	0.89
1	212.18	166000.00	1030.80	1050.25	1045.89	1053.95	0.002692	15.42	10761.93	2340.52	0.66
1	212.18	166000.00	1030.80	1050.25	1045.89	1053.94	0.002692	15.43	10761.62	627.48	0.66
1	212.08	166000.00	1025.90	1050.04	1041.45	1052.67	0.001415	13.00	12773.65	2180.71	0.49
1	212.08	166000.00	1025.90	1050.04	1041.45	1052.67	0.001415	12.99	12774.58	589.61	0.49
1	211.99	166000.00	1025.39	1048.55	1041.17	1051.77	0.001822	14.40	11524.10	1310.27	0.55
1	211.99	166000.00	1025.39	1048.55	1041.17	1051.78	0.001822	14.40	11525.16	549.11	0.55
1	211.89	166000.00	1024.19	1047.93	1039.97	1050.85	0.001601	13.70	12113.21	564.71	0.52
1	211.89	166000.00	1024.19	1047.93	1039.97	1050.85	0.001600	13.70	12114.25	564.72	0.52
1	211.79	166000.00	1023.84	1047.07	1039.26	1050.00	0.001620	13.72	12095.82	1185.33	0.52
1	211.79	166000.00	1023.84	1047.08	1039.26	1050.00	0.001619	13.72	12097.01	567.51	0.52
1	211.71	166000.00	1023.19	1046.34	1038.56	1049.27	0.001623	13.72	12101.39	635.05	0.52
1	211.71	166000.00	1023.19	1046.35	1038.56	1049.27	0.001622	13.72	12102.79	569.02	0.52
1	211.64	166000.00	1022.58	1045.45	1038.24	1048.58	0.001783	14.19	11700.11	828.72	0.55
1	211.64	166000.00	1022.58	1045.46	1038.24	1048.58	0.001783	14.19	11701.82	561.65	0.55
1	211.54	166000.00	1021.90	1043.47	1038.07	1047.44	0.002293	15.99	10380.02	525.33	0.63
1	211.54	166000.00	1021.90	1043.48	1038.07	1047.45	0.002291	15.99	10382.65	525.34	0.63
1	211.525	Bridge									
1	211.51	166000.00	1021.80	1041.77	1037.98	1046.46	0.002980	17.37	9557.08	520.99	0.71
1	211.51	166000.00	1021.80	1041.78	1037.98	1046.46	0.002975	17.36	9562.35	521.01	0.71
1	211.41	166000.00	1018.30	1041.28		1044.73	0.001988	14.89	11147.00	565.09	0.59
1	211.41	166000.00	1018.30	1041.30		1044.73	0.001984	14.88	11153.71	565.16	0.59
1	211.31	166000.00	1020.80	1039.90	1037.24	1043.44	0.003368	15.11	10986.59	819.02	0.73
1	211.31	166000.00	1020.80	1039.93	1037.24	1043.46	0.003344	15.08	11010.89	819.22	0.72
1	211.21	166000.00	1021.10	1039.00	1035.55	1041.61	0.002621	12.98	12789.38	987.73	0.64
1	211.21	166000.00	1021.10	1039.04	1035.55	1041.64	0.002591	12.93	12835.33	987.91	0.63
1	211.12	166000.00	1015.70	1039.45	1029.88	1040.57	0.000691	8.47	19590.56	1059.19	0.35
1	211.12	166000.00	1015.70	1039.50	1029.88	1040.61	0.000686	8.45	19635.17	1059.33	0.35
1	211.02	166000.00	1019.40	1037.87	1032.11	1039.96	0.001615	11.66	14591.32	1081.97	0.52
1	211.02	166000.00	1019.40	1037.86	1032.11	1039.99	0.001637	11.73	14249.35	945.81	0.52
1	210.93	166000.00	1018.70	1037.31	1034.18	1039.02	0.001714	11.10	17838.63	2652.64	0.52
1	210.93	166000.00	1018.70	1037.34	1034.18	1039.04	0.001704	11.07	17881.22	2037.03	0.52
1	210.83	166000.00	1019.10	1036.06	1032.21	1038.07	0.001953	11.76	16578.41	2245.21	0.56
1	210.83	166000.00	1019.10	1036.07	1032.19	1038.08	0.001956	11.78	16522.82	2196.26	0.56
1	210.74	166000.00	1018.20	1035.63	1029.79	1037.14	0.001245	10.09	17688.53	1394.20	0.45
1	210.74	166000.00	1018.20	1035.65	1029.79	1037.15	0.001240	10.08	17711.68	1394.33	0.45
1	210.64	166000.00	1017.70	1035.01	1029.00	1036.50	0.001271	10.00	18839.19	2977.49	0.45
1	210.64	166000.00	1017.70	1035.04	1029.00	1036.52	0.001264	9.98	18889.35	2362.04	0.45
1	210.55	166000.00	1018.00	1033.98	1028.55	1035.74	0.001597	10.66	15652.07	1785.17	0.50
1	210.55	166000.00	1018.00	1034.00	1028.55	1035.76	0.001589	10.64	15630.04	1378.23	0.50
1	210.46	166000.00	1016.30	1034.51	1025.05	1035.00	0.000445	5.64	29423.11	2040.40	0.25
1	210.46	166000.00	1016.30	1034.53	1025.05	1035.02	0.000449	5.63	29459.85	1881.52	0.25
1	210.36	166000.00	1017.40	1033.83	1027.55	1034.65	0.000899	7.26	22870.90	1899.91	0.37
1	210.36	166000.00	1017.40	1033.85	1027.55	1034.67	0.000894	7.25	22909.63	1900.00	0.37
1	210.26	166000.00	1016.90	1033.51	1026.47	1034.20	0.000775	6.69	24798.02	1932.18	0.33
1	210.26	166000.00	1016.90	1033.53	1026.47	1034.22	0.000771	6.68	24841.19	1932.30	0.33

HEC-RAS Plan: PrePrj River: 1 Reach: 1 (Continued)

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
1	210.17	166000.00	1014.70	1032.74	1027.95	1033.69	0.001224	7.80	21294.67	2172.18	0.42
1	210.17	166000.00	1014.70	1032.77	1027.95	1033.71	0.001214	7.78	21350.17	1968.06	0.42
1	210.07	166000.00	1009.00	1032.62	1024.08	1033.17	0.000565	5.89	28406.75	2455.28	0.26
1	210.07	166000.00	1009.00	1032.64	1023.80	1033.19	0.000587	6.01	28089.07	2015.00	0.27
1	209.98	166000.00	999.33	1032.54	1020.16	1032.95	0.000255	5.37	33526.53	1907.06	0.21
1	209.98	166000.00	999.33	1032.54	1019.84	1032.96	0.000266	5.49	32641.61	1833.73	0.22
1	209.88	166000.00	997.69	1032.27	1018.95	1032.80	0.000282	6.24	29856.24	1597.15	0.23
1	209.88	166000.00	997.69	1032.28	1018.95	1032.81	0.000284	6.26	29664.39	1570.95	0.23
1	209.79	166000.00	1002.93	1032.21	1018.56	1032.63	0.000266	5.59	32601.16	2124.66	0.22
1	209.79	166000.00	1002.93	1032.22	1018.56	1032.64	0.000269	5.62	32400.34	1764.08	0.22
1	209.69	166000.00	1004.31	1031.51	1021.24	1032.38	0.000722	7.11	22319.18	1880.40	0.34
1	209.69	166000.00	1004.31	1031.51	1021.24	1032.39	0.000726	7.13	22182.87	1407.56	0.34
1	209.60	166000.00	1004.15	1030.41	1024.57	1031.78	0.001473	9.51	17809.45	2205.70	0.49
1	209.60	166000.00	1004.15	1030.41	1024.59	1031.79	0.001484	9.55	17807.95	1582.46	0.49
1	209.54	166000.00	1004.27	1030.18	1021.90	1031.42	0.000866	8.96	18530.88	1096.35	0.38
1	209.54	166000.00	1004.27	1030.18	1021.90	1031.43	0.000865	8.96	18535.69	1096.36	0.38
1	209.535	Bridge									
1	209.53	166000.00	1004.27	1029.83	1021.90	1031.13	0.000926	9.14	18154.68	1095.30	0.40
1	209.53	166000.00	1004.27	1029.84	1021.90	1031.13	0.000925	9.14	18160.03	1095.33	0.40
1	209.42	166000.00	998.44	1028.88	1023.49	1030.40	0.001432	9.87	16825.82	1341.42	0.48
1	209.42	166000.00	998.44	1028.89	1023.49	1030.40	0.001430	9.86	16834.28	1258.70	0.48
1	209.33	166000.00	993.71	1028.74	1019.27	1029.68	0.000900	7.81	21285.19	1846.34	0.38
1	209.33	166000.00	993.71	1028.74	1019.27	1029.69	0.000898	7.80	21271.72	1587.64	0.38
1	209.24	166000.00	1003.00	1027.66	1023.98	1029.02	0.001727	7.87	18342.50	3253.83	0.49
1	209.24	166000.00	1003.00	1027.66	1023.92	1029.02	0.001733	7.96	18240.50	1837.88	0.49
1	209.14	166000.00	1002.87	1026.70	1023.36	1028.02	0.002091	8.18	18286.32	2920.83	0.52
1	209.14	166000.00	1002.87	1026.70	1023.39	1028.02	0.002095	8.30	18193.35	2015.26	0.52
1	209.04	166000.00	1007.02	1026.13	1021.52	1027.00	0.001480	7.61	22158.54	2879.88	0.45
1	209.04	166000.00	1007.02	1026.13	1021.52	1027.00	0.001472	7.67	22144.66	2229.47	0.44
1	208.95	166000.00	997.33	1025.58	1018.20	1026.45	0.000834	7.48	22428.04	2457.28	0.36
1	208.95	166000.00	997.33	1025.59	1018.20	1026.45	0.000833	7.47	22427.83	1796.50	0.36
1	208.85	166000.00	998.88	1024.64	1020.18	1025.84	0.001533	8.85	19077.56	2503.80	0.47
1	208.85	166000.00	998.88	1024.64	1020.18	1025.85	0.001530	8.84	19088.28	1908.84	0.47
1	208.75	166000.00	1000.44	1024.13	1017.95	1025.18	0.001099	8.25	20164.69	2367.21	0.43
1	208.75	166000.00	1000.44	1024.13	1017.95	1025.19	0.001097	8.24	20138.36	1732.32	0.43
1	208.67	166000.00	1003.03	1022.72	1019.08	1024.33	0.001934	10.26	16624.84	2041.05	0.54
1	208.67	166000.00	1003.03	1022.74	1019.08	1024.33	0.001927	10.25	16642.84	1612.41	0.54
1	208.57	166000.00	1002.61	1020.24	1018.75	1023.00	0.004009	13.35	12466.07	1408.38	0.77
1	208.57	166000.00	1002.61	1020.26	1018.75	1023.02	0.003991	13.33	12454.02	1338.18	0.77
1	208.48	166000.00	998.70	1019.72	1016.90	1020.98	0.002203	9.01	18421.86	2180.58	0.55
1	208.48	166000.00	998.70	1019.76	1016.90	1021.01	0.002170	8.97	18507.17	2180.73	0.54
1	208.39	166000.00	998.71	1018.82	1015.82	1020.02	0.002140	8.79	18883.13	2250.69	0.53
1	208.39	166000.00	998.71	1018.88	1015.82	1020.06	0.002091	8.73	19020.83	2250.88	0.53
1	208.29	166000.00	1002.85	1017.69	1014.81	1018.90	0.002223	8.84	18779.47	2317.98	0.55
1	208.29	166000.00	1002.85	1017.80	1014.81	1018.98	0.002120	8.71	19049.38	2318.35	0.53
1	208.19	166000.00	1001.01	1016.79	1013.53	1017.78	0.001820	7.99	20772.68	2550.99	0.49
1	208.19	166000.00	1001.01	1016.97	1013.53	1017.92	0.001707	7.82	21233.04	2569.65	0.48
1	208.10	166000.00	999.34	1015.84	1012.70	1016.86	0.001771	8.40	21145.93	2881.27	0.50
1	208.10	166000.00	999.34	1016.14	1012.70	1017.08	0.001567	8.07	21985.19	2828.04	0.47

HEC-RAS Plan: PrePrj River: 1 Reach: 1 (Continued)

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
1	207.99	166000.00	996.98	1014.47	1012.00	1015.86	0.002225	9.93	18376.68	2515.31	0.56
1	207.99	166000.00	996.98	1014.96	1011.99	1016.21	0.001889	9.43	19328.08	2625.07	0.52
1	207.90	166000.00	991.51	1013.80	1010.85	1014.78	0.001713	8.45	21572.66	2938.81	0.49
1	207.90	166000.00	991.51	1014.50	1010.85	1015.31	0.001299	7.72	23686.78	3027.09	0.43
1	207.80	166000.00	992.47	1012.20	1009.50	1013.72	0.001994	10.68	18131.66	2391.44	0.55
1	207.80	166000.00	992.47	1012.87	1009.36	1014.40	0.001834	10.58	17851.93	2093.48	0.53
1	207.71	166000.00	992.51	1010.84	1008.26	1012.64	0.002165	11.51	16812.95	2121.42	0.58
1	207.71	166000.00	992.51	1011.34	1008.53	1013.35	0.002198	11.88	15793.05	1893.18	0.60
1	207.62	166000.00	990.12	1010.06	1007.03	1011.65	0.001612	11.09	17790.25	1909.13	0.51
1	207.62	166000.00	990.12	1010.12	1007.20	1012.29	0.002044	12.52	15011.23	1444.32	0.58
1	207.49	166000.00	984.35	1009.45	1005.21	1010.81	0.001643	9.35	17760.41	2016.46	0.49
1	207.49	166000.00	984.35	1009.97	1005.21	1011.21	0.001415	8.93	18589.01	1661.94	0.46
1	207.485	Bridge									
1	207.48	166000.00	984.35	1008.36	1005.21	1010.03	0.002306	10.36	16016.13	1589.66	0.58
1	207.48	166000.00	984.35	1009.13	1005.21	1010.57	0.001814	9.63	17236.84	1595.08	0.52
1	207.43	166000.00	983.56	1007.83	1004.49	1009.49	0.002236	10.32	16148.90	1660.26	0.57
1	207.43	166000.00	983.56	1008.74	1004.49	1010.13	0.001701	9.49	17493.35	1569.10	0.50
1	207.34	166000.00	983.49	1007.54	1000.99	1008.60	0.000956	8.30	20174.96	1583.79	0.39
1	207.34	166000.00	983.49	1008.48	1000.97	1009.43	0.000791	7.85	21155.80	1422.33	0.36
1	207.27	166000.00	982.68	1007.12	997.48	1008.19	0.000668	8.37	20628.88	1449.48	0.34
1	207.27	166000.00	982.68	1008.07	997.48	1009.08	0.000587	8.07	20566.80	1047.92	0.32
1	207.16	166000.00	969.66	1007.50	986.51	1007.86	0.000127	4.91	37551.92	2625.39	0.16
1	207.16	166000.00	969.66	1008.40	986.51	1008.78	0.000126	4.98	33336.06	1107.07	0.16
1	207.07	166000.00	992.80	1004.30	1004.30	1007.37	0.005272	15.04	12709.44	2121.27	0.86
1	207.07	166000.00	992.80	1004.74	1004.74	1008.25	0.005422	15.68	11728.65	1710.74	0.88
1	206.97	166000.00	981.70	1003.73	995.22	1004.80	0.000773	8.53	21352.60	2153.01	0.36
1	206.97	166000.00	981.70	1004.63	995.22	1005.77	0.000760	8.62	19950.52	1567.64	0.36
1	206.88	166000.00	981.80	1003.59	993.27	1004.41	0.000528	7.55	24354.50	2551.40	0.31
1	206.88	166000.00	981.80	1004.48	993.27	1005.39	0.000533	7.71	22622.29	1800.86	0.31
1	206.79	166000.00	981.80	1003.43	992.85	1004.13	0.000488	6.93	26343.78	3026.51	0.29
1	206.79	166000.00	981.80	1004.34	992.85	1005.10	0.000478	7.08	24760.10	1934.31	0.29
1	206.7	166000.00	981.80	1003.32	994.04	1003.85	0.000441	6.03	29831.77	3518.68	0.27
1	206.7	166000.00	981.80	1004.25	994.04	1004.82	0.000429	6.14	27986.52	2093.13	0.27
1	206.6	166000.00	981.80	1002.90	996.86	1003.56	0.000710	6.91	26877.21	3305.80	0.33
1	206.6	166000.00	981.80	1003.79	996.68	1004.54	0.000695	7.14	24927.56	2185.35	0.33
1	206.51	166000.00	981.80	1002.02	998.52	1003.04	0.001348	8.99	22111.25	4076.37	0.45
1	206.51	166000.00	981.80	1002.84	999.19	1004.02	0.001341	9.36	20116.29	2060.75	0.46
1	206.41	166000.00	982.50	1001.41	997.88	1002.32	0.001436	8.71	23370.94	3862.05	0.46
1	206.41	166000.00	982.50	1002.21	998.36	1003.30	0.001435	9.12	20569.79	2190.50	0.47
1	206.32	166000.00	982.80	1000.76	997.04	1001.56	0.001495	8.05	24553.57	3961.10	0.46
1	206.32	166000.00	982.80	1001.56	997.90	1002.55	0.001498	8.50	21191.37	2377.93	0.47
1	206.22	166000.00	983.00	999.83	996.54	1000.70	0.001855	8.54	24922.30	3819.75	0.52
1	206.22	166000.00	983.00	1000.69	996.71	1001.72	0.001734	8.70	21236.13	2441.77	0.51
1	206.13	166000.00	984.60	998.84		999.71	0.002097	8.44	24241.50	3610.69	0.52
1	206.13	166000.00	984.60	999.43		1000.66	0.002539	9.44	19323.79	2386.31	0.57
1	206.03	166000.00	984.50	997.19	995.40	998.47	0.002920	10.04	20468.71	3627.33	0.61
1	206.03	166000.00	984.50	997.37	995.41	999.15	0.003548	11.22	16111.43	2131.13	0.67
1	205.94	166000.00	981.00	996.28	992.36	997.17	0.001782	8.09	23804.66	3972.87	0.48
1	205.94	166000.00	981.00	996.85	992.30	997.71	0.001519	7.77	22932.78	2567.00	0.45

HEC-RAS Plan: PrePrj River: 1 Reach: 1 (Continued)

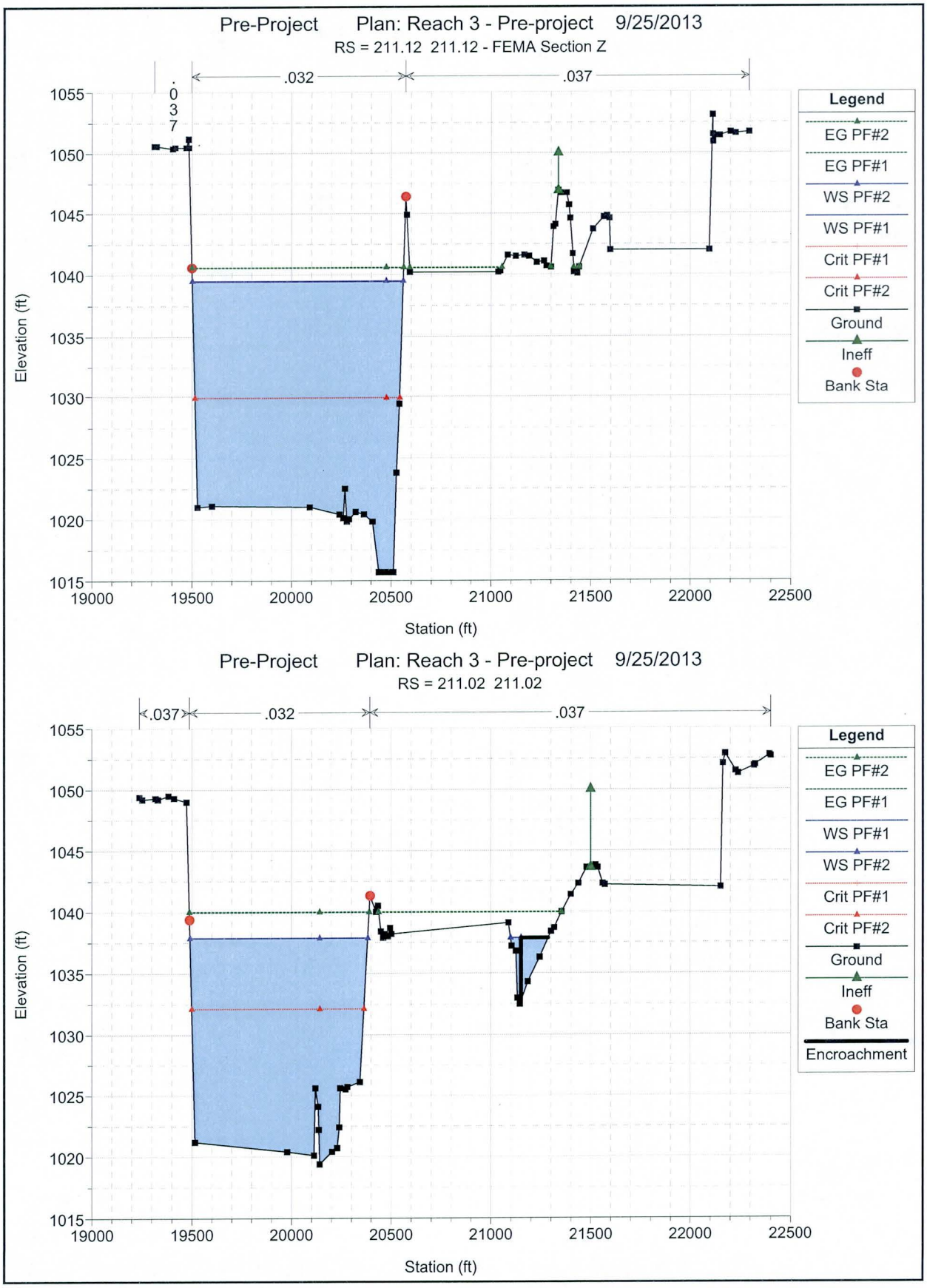
Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
1	205.84	166000.00	979.50	995.78	991.10	996.43	0.001006	6.80	27802.52	3933.88	0.38
1	205.84	166000.00	979.50	996.39	991.10	997.06	0.000928	6.78	25657.05	2435.70	0.36
1	205.75	166000.00	973.90	995.10	989.59	995.78	0.001766	6.71	25677.68	3323.85	0.37
1	205.75	166000.00	973.90	995.83	989.59	996.48	0.001497	6.46	25689.44	2402.30	0.35
1	205.62	166000.00	976.00	994.55	988.70	995.07	0.000680	5.99	30115.70	4036.31	0.31
1	205.62	166000.00	976.00	995.25	988.65	995.85	0.000671	6.18	26878.39	2234.10	0.31
1	205.52	166000.00	975.90	994.29	987.07	994.75	0.000496	5.67	33142.23	4244.89	0.28
1	205.52	166000.00	975.90	994.95	987.28	995.53	0.000543	6.12	27121.18	2019.90	0.29
1	205.43	166000.00	976.10	994.00	986.93	994.50	0.000544	6.04	31497.11	3841.68	0.29
1	205.43	166000.00	976.10	994.53	986.96	995.24	0.000647	6.76	24572.45	1842.37	0.33
1	205.4	164000.00	975.50	993.99	984.67	994.40	0.000362	5.41	35918.39	4097.71	0.24
1	205.4	164000.00	975.50	994.56	984.67	995.10	0.000413	5.90	27793.38	1747.80	0.26
1	205.34	164000.00	975.57	993.64	986.68	994.20	0.001005	6.45	29523.69	7348.85	0.30
1	205.34	164000.00	975.57	993.98	986.65	994.85	0.001336	7.53	22084.53	1562.96	0.35
1	205.25	164000.00	973.40	993.26	985.26	993.82	0.000623	6.64	30541.15	4512.59	0.28
1	205.25	164000.00	973.40	993.49	985.16	994.34	0.000817	7.64	22668.13	1482.30	0.32
1	205.15	164000.00	973.10	991.76	987.66	993.21	0.002039	10.40	19449.29	3049.28	0.49
1	205.15	164000.00	973.10	992.25	987.65	993.69	0.001819	10.06	17454.60	1445.00	0.47
1	205.06	164000.00	970.50	990.85	984.95	992.22	0.001875	9.62	18539.88	2210.68	0.47
1	205.06	164000.00	970.50	991.36	984.95	992.79	0.001795	9.65	17328.48	1435.30	0.46
1	204.97	164000.00	973.30	990.56	984.97	991.30	0.001134	7.35	24819.05	3736.09	0.36
1	204.97	164000.00	973.30	990.76	985.05	991.87	0.001485	8.49	19457.05	1516.30	0.42
1	204.87	164000.00	968.10	990.19	982.94	990.80	0.000767	6.60	27860.69	3635.74	0.31
1	204.87	164000.00	968.10	990.37	982.85	991.20	0.000942	7.37	22409.55	1542.20	0.34
1	204.78	164000.00	967.60	990.01	980.93	990.45	0.000477	5.68	31874.88	4837.51	0.25
1	204.78	164000.00	967.60	990.13	980.78	990.77	0.000611	6.47	25928.85	1620.43	0.28
1	204.68	164000.00	971.40	989.36	982.91	990.10	0.000903	7.28	24862.56	3375.81	0.33
1	204.68	164000.00	971.40	989.32	982.81	990.31	0.001151	8.21	21000.50	1586.28	0.38
1	204.61	164000.00	972.60	988.59	983.53	989.64	0.001360	8.79	20900.84	7282.60	0.41
1	204.61	164000.00	972.60	988.62	983.47	989.78	0.001462	9.12	19542.28	1602.90	0.42
1	204.53	164000.00	972.70	987.68	982.99	988.93	0.001814	9.22	18844.19	4061.16	0.46
1	204.53	164000.00	972.70	987.68	982.94	989.03	0.001919	9.48	18005.97	1610.90	0.47
1	204.42	164000.00	971.40	986.40	982.76	987.76	0.002432	9.40	17715.45	2778.70	0.51
1	204.42	164000.00	971.40	986.38	982.73	987.81	0.002531	9.57	17129.48	1653.57	0.52
1	204.34	164000.00	969.30	985.28	981.45	986.65	0.002470	9.39	17462.96	2452.20	0.52
1	204.34	164000.00	969.30	985.29	981.45	986.66	0.002469	9.38	17480.30	1701.99	0.52
1	204.25	164000.00	969.22	980.90	980.90	984.46	0.007742	15.13	10836.44	1993.93	1.00
1	204.25	164000.00	969.22	980.89	980.89	984.46	0.007809	15.17	10810.89	1516.99	1.00
1	204.15	164000.00	966.00	981.17	975.82	982.09	0.001058	7.72	21240.76	2149.48	0.40
1	204.15	164000.00	966.00	981.18	975.82	982.11	0.001059	7.71	21274.63	1831.89	0.40
1	204.05	164000.00	965.00	980.27	976.80	981.39	0.001759	8.49	19320.37	2116.76	0.50
1	204.05	164000.00	965.00	980.29	976.80	981.41	0.001744	8.47	19370.37	2116.76	0.49
1	203.96	164000.00	964.10	977.71	976.71	979.86	0.005220	11.77	13938.65	2225.53	0.80
1	203.96	164000.00	964.10	977.98	976.71	979.97	0.004601	11.33	14478.25	2050.76	0.75
1	203.86	164000.00	962.30	977.81	971.84	978.53	0.000902	6.82	24032.73	2201.58	0.36
1	203.86	164000.00	962.30	978.06	971.84	978.75	0.000838	6.67	24588.83	2191.78	0.35
1	203.77	164000.00	963.30	977.43	971.58	978.06	0.000873	6.37	25746.39	2518.56	0.35
1	203.77	164000.00	963.30	977.72	971.58	978.32	0.000799	6.19	26473.99	2511.27	0.34
1	203.67	164000.00	962.30	976.93	971.58	977.61	0.000940	6.66	25646.21	3648.91	0.37

HEC-RAS Plan: PrePrj River: 1 Reach: 1 (Continued)

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
1	203.67	164000.00	962.30	977.23	971.58	977.89	0.000885	6.58	25407.91	2567.43	0.36
1	203.58	164000.00	962.10	976.47	971.52	977.14	0.000945	6.64	25340.30	4630.96	0.37
1	203.58	164000.00	962.10	976.81	971.52	977.46	0.000858	6.46	25597.65	2676.39	0.36
1	203.48	164000.00	962.20	975.92	972.02	976.58	0.001248	6.66	25618.08	4863.77	0.41
1	203.48	164000.00	962.20	976.25	971.97	976.94	0.001196	6.68	24567.80	2911.71	0.40
1	203.39	164000.00	959.90	975.23	971.15	975.93	0.001331	6.81	24862.43	4207.76	0.42
1	203.39	164000.00	959.90	975.62	971.10	976.32	0.001254	6.69	24520.14	2930.05	0.41
1	203.29	164000.00	960.70	974.46	970.77	975.20	0.001572	6.98	24302.16	4967.77	0.45
1	203.29	164000.00	960.70	974.88	970.71	975.63	0.001478	6.94	23633.34	3009.26	0.44
1	203.19	164000.00	956.70	973.59	970.04	974.28	0.001787	6.81	25046.62	3491.38	0.42
1	203.19	164000.00	956.70	973.95	970.04	974.74	0.001849	7.13	23041.46	2689.14	0.43
1	203.09	164000.00	958.70	972.42	969.19	973.25	0.002112	7.51	23337.60	3213.89	0.46
1	203.09	164000.00	958.70	972.75	968.97	973.69	0.002162	7.79	21163.56	2475.85	0.46
1	202.99	164000.00	959.20	971.50	967.56	972.24	0.001726	7.08	24615.47	3260.60	0.42
1	202.99	164000.00	959.20	971.87	967.53	972.66	0.001673	7.15	22949.27	2457.50	0.41
1	202.9	164000.00	956.50	970.92	966.33	971.52	0.001285	6.37	27288.47	3419.52	0.36
1	202.9	164000.00	956.50	971.28	966.26	971.95	0.001315	6.59	24881.66	2511.71	0.37
1	202.8	164000.00	956.40	970.32	965.61	970.84	0.001157	5.94	29050.37	3577.40	0.34
1	202.8	164000.00	956.40	970.64	965.52	971.25	0.001223	6.25	26258.33	2620.78	0.35
1	202.69	164000.00	953.70	969.50	965.26	970.12	0.001416	6.45	27011.89	3716.99	0.37
1	202.69	164000.00	953.70	969.79	965.27	970.49	0.001483	6.73	24379.59	2553.41	0.38
1	202.59	164000.00	953.70	968.55	964.73	969.23	0.001710	6.76	25201.38	3795.64	0.40
1	202.59	164000.00	953.70	968.77	964.70	969.56	0.001832	7.10	23099.83	2606.65	0.42
1	202.48	164000.00	952.50	967.66	963.72	968.30	0.001617	6.64	26503.22	3830.22	0.40
1	202.48	164000.00	952.50	967.77	963.79	968.54	0.001789	7.04	23415.23	2826.14	0.42
1	202.37	164000.00	954.60	966.79	962.77	967.38	0.001487	6.30	27725.82	4026.46	0.39
1	202.37	164000.00	954.60	966.82	963.06	967.52	0.001673	6.70	24843.07	3165.40	0.41
1	202.29	164000.00	955.50	966.51	961.30	966.88	0.000809	4.90	34227.32	4327.50	0.29
1	202.29	164000.00	955.50	966.59	961.30	966.97	0.000812	4.93	33283.39	3605.60	0.29
1	202.18	164000.00	950.00	965.70	961.75	966.23	0.001545	5.88	28639.20	4356.13	0.38
1	202.18	164000.00	950.00	965.77	961.75	966.31	0.001559	5.94	27619.54	3692.06	0.38
1	202.09	164000.00	950.00	964.09	961.98	965.01	0.003848	7.74	21594.75	4052.05	0.57
1	202.09	164000.00	950.00	964.16	961.95	965.09	0.003803	7.75	21163.39	3682.20	0.57
1	201.99	164000.00	948.70	963.29	958.65	963.87	0.001252	6.13	27234.15	5331.46	0.38
1	201.99	164000.00	948.70	963.38	958.65	963.96	0.001241	6.12	26811.01	3219.77	0.37
1	201.9	164000.00	947.20	962.94	957.27	963.35	0.000785	5.15	31873.70	5241.54	0.31
1	201.9	164000.00	947.20	963.05	957.27	963.45	0.000756	5.08	32284.29	3830.97	0.31
1	201.81	164000.00	946.00	962.64	955.84	962.99	0.000619	4.79	34251.95	5916.44	0.28
1	201.81	164000.00	946.00	962.75	955.84	963.10	0.000597	4.73	34684.20	3650.46	0.27
1	201.71	164000.00	946.00	961.87	958.21	962.46	0.001826	6.22	26658.13	8308.19	0.40
1	201.71	164000.00	946.00	961.98	958.21	962.58	0.001807	6.24	26277.29	3415.69	0.40
1	201.62	164000.00	945.60	961.15	956.72	961.66	0.001385	5.78	28773.37	7614.80	0.35
1	201.62	164000.00	945.60	961.28	956.72	961.80	0.001343	5.74	28552.62	3241.81	0.34
1	201.52	164000.00	940.90	960.41	955.39	960.87	0.001854	5.50	30263.04	8984.51	0.33
1	201.52	164000.00	940.90	960.53	955.39	961.02	0.001898	5.61	29242.62	3382.85	0.34
1	201.43	164000.00	941.30	959.46	954.87	960.01	0.001619	5.99	27971.80	6526.99	0.37
1	201.43	164000.00	941.30	959.60	954.87	960.15	0.001604	6.00	27334.01	3288.24	0.37
1	201.33	164000.00	943.00	958.44	954.88	959.06	0.002024	6.40	26135.11	5745.25	0.41
1	201.33	164000.00	943.00	958.60	954.88	959.23	0.001959	6.36	25785.53	3307.45	0.40

HEC-RAS Plan: PrePrj River: 1 Reach: 1 (Continued)

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
1	201.24	164000.00	943.00	957.46	953.61	958.06	0.001852	6.23	26885.10	6935.04	0.40
1	201.24	164000.00	943.00	957.66	953.61	958.26	0.001790	6.21	26420.07	3500.08	0.40
1	201.14	164000.00	940.40	956.91	952.08	957.32	0.001090	5.20	32069.34	8631.33	0.31
1	201.14	164000.00	940.40	957.15	952.08	957.55	0.001017	5.10	32150.13	3680.58	0.30
1	201.05	164000.00	941.50	956.49	950.99	956.80	0.000974	4.50	37110.44	9249.94	0.26
1	201.05	164000.00	941.50	956.74	950.99	957.06	0.000928	4.48	36618.90	3898.52	0.26
1	200.95	164000.00	939.80	956.09	949.86	956.38	0.000668	4.33	39057.14	10045.22	0.25
1	200.95	164000.00	939.80	956.38	949.86	956.66	0.000629	4.27	38407.73	4001.09	0.24
1	200.86	164000.00	938.50	955.63	949.69	955.94	0.001346	4.48	37607.63	11080.59	0.27
1	200.86	164000.00	938.50	955.94	949.69	956.24	0.001276	4.46	36762.91	4032.00	0.26
1	200.77	164000.00	936.90	955.02	949.21	955.35	0.000950	4.62	36840.73	11449.90	0.28
1	200.77	164000.00	936.90	955.38	949.21	955.70	0.000875	4.52	36283.86	4122.20	0.27
1	200.67	164000.00	939.80	954.42	948.98	954.80	0.001288	4.96	33784.71	10368.24	0.30
1	200.67	164000.00	939.80	954.84	948.98	955.20	0.001158	4.82	34281.14	4009.30	0.28
1	200.58	164000.00	937.60	953.76	948.29	954.14	0.001313	5.04	33541.77	10091.02	0.30
1	200.58	164000.00	937.60	954.23	948.29	954.60	0.001187	4.91	33793.59	3940.00	0.28
1	200.49	164000.00	936.90	953.28	946.97	953.59	0.000940	4.59	37370.44	10978.11	0.26
1	200.49	164000.00	936.90	953.77	946.97	954.10	0.000893	4.59	36178.07	3791.00	0.25
1	200.39	164000.00	937.00	952.89	946.26	953.17	0.000739	4.35	39814.10	11315.74	0.24
1	200.39	164000.00	937.00	953.40	946.26	953.70	0.000702	4.37	38317.51	3741.00	0.23
1	200.3	179750.00	937.70	952.12	947.18	952.61	0.001603	5.79	36487.07	9118.91	0.34
1	200.3	179750.00	937.70	952.73	947.17	953.18	0.001382	5.57	36217.73	3683.53	0.31
1	200.2	179750.00	937.00	951.10	946.78	951.67	0.002027	6.37	35619.57	11857.73	0.37
1	200.2	179750.00	937.00	951.83	946.77	952.38	0.001732	6.15	34725.75	3629.00	0.35
1	200.1	179750.00	934.50	950.19	945.22	950.66	0.001730	5.74	37659.50	11254.10	0.32
1	200.1	179750.00	934.50	951.11	945.22	951.53	0.001392	5.36	38392.25	3770.00	0.29
1	200	179750.00	933.40	949.74	944.16	950.01	0.000864	4.29	44537.34	11193.60	0.24
1	200	179750.00	933.40	950.70	944.16	950.98	0.000792	4.23	42550.11	4100.00	0.23
1	199.91	179750.00	932.10	949.39	943.36	949.60	0.000668	3.83	50254.95	10846.61	0.22
1	199.91	179750.00	932.10	950.39	943.36	950.61	0.000573	3.75	48102.12	4530.00	0.20
1	199.82	179750.00	931.20	948.90	943.28	949.09	0.002007	3.30	51778.97	10752.57	0.19
1	199.82	179750.00	931.20	949.90	943.25	950.14	0.002185	3.68	47698.04	4780.00	0.20


Pre-Project Plan: Reach 3 - Pre-project 9/25/2013
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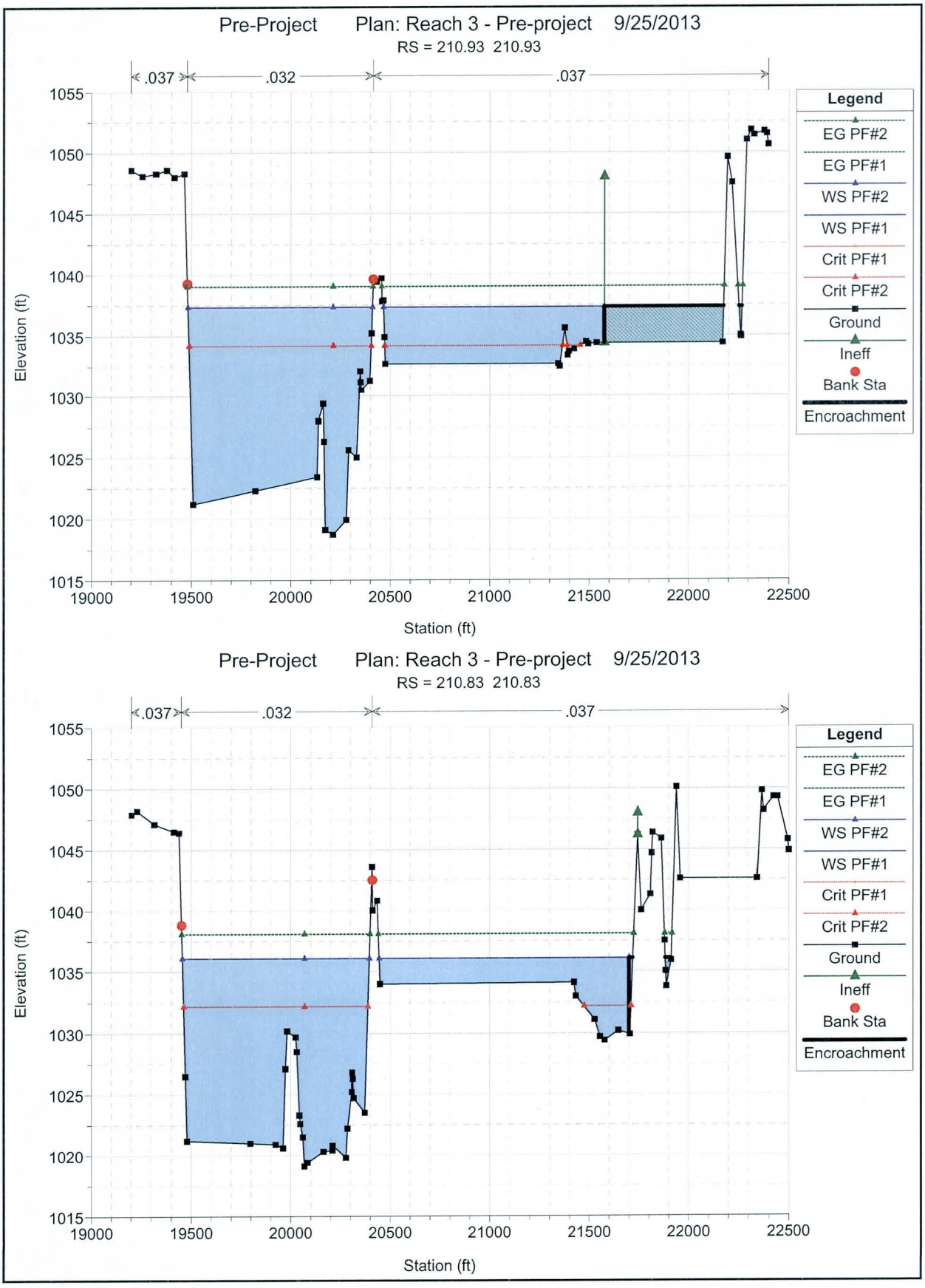
.037
.032
.037
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
Pre-Project Plan: Reach 3 - Pre-project 9/25/2013
RS = 211.02 211.02
.037
.032
.037
Legend
EG PF#2
EG PF#1
WS PF#1
WS PF#2
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


Pre-Project Plan: Reach 3 - Pre-project 9/25/2013
RS = 210.93 210.93
.037
.032
.037
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
1055
1050
1045
1040
1035
1030
1025
1020
1015
19000
19500
20000
20500
21000
21500
22000
22500
Station (ft)
Pre-Project Plan: Reach 3 - Pre-project 9/25/2013
RS = 210.83 210.83
.037
.032
.037
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
1055
1050
1045
1040
1035
1030
1025
1020
1015
19000
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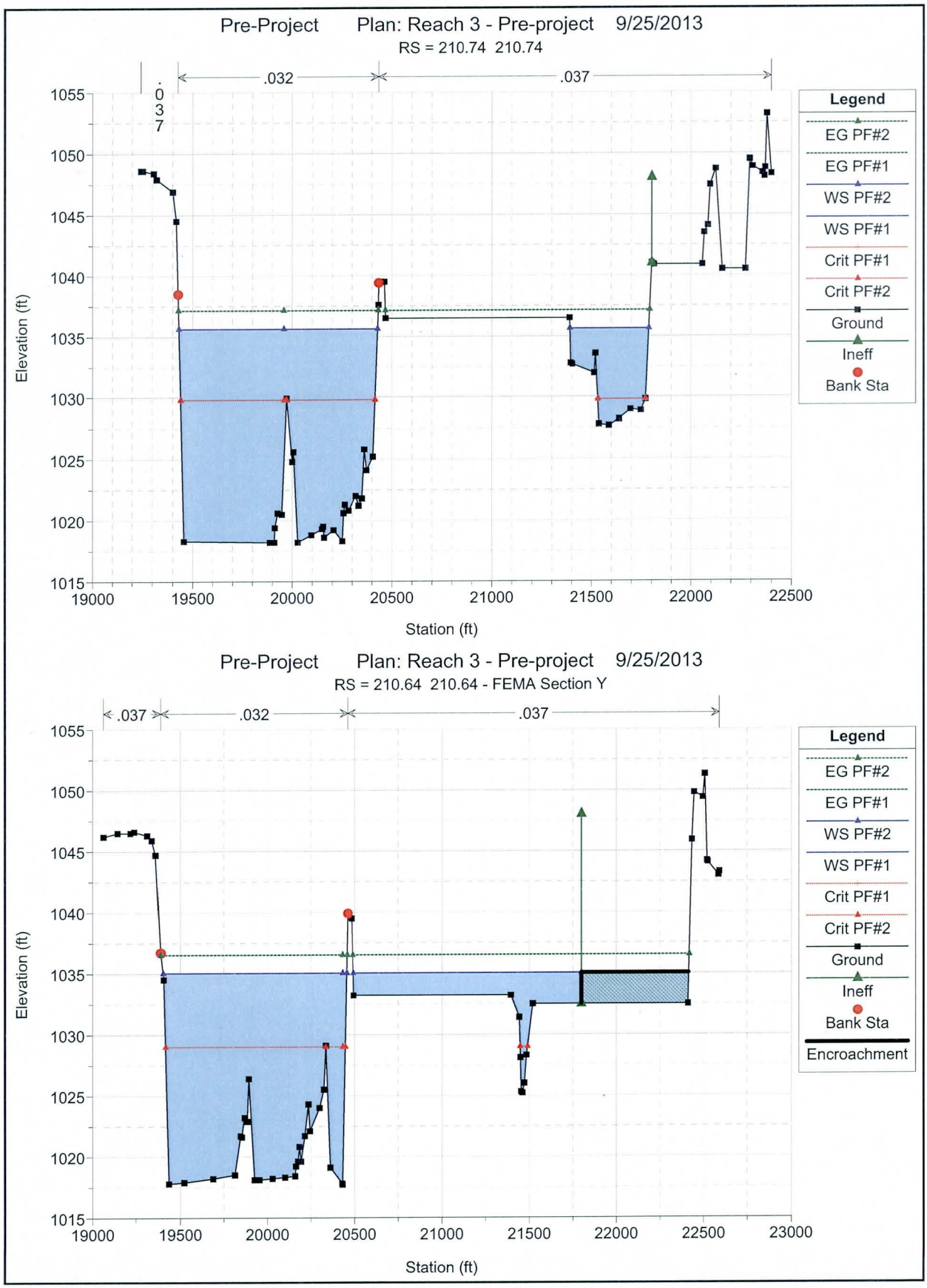
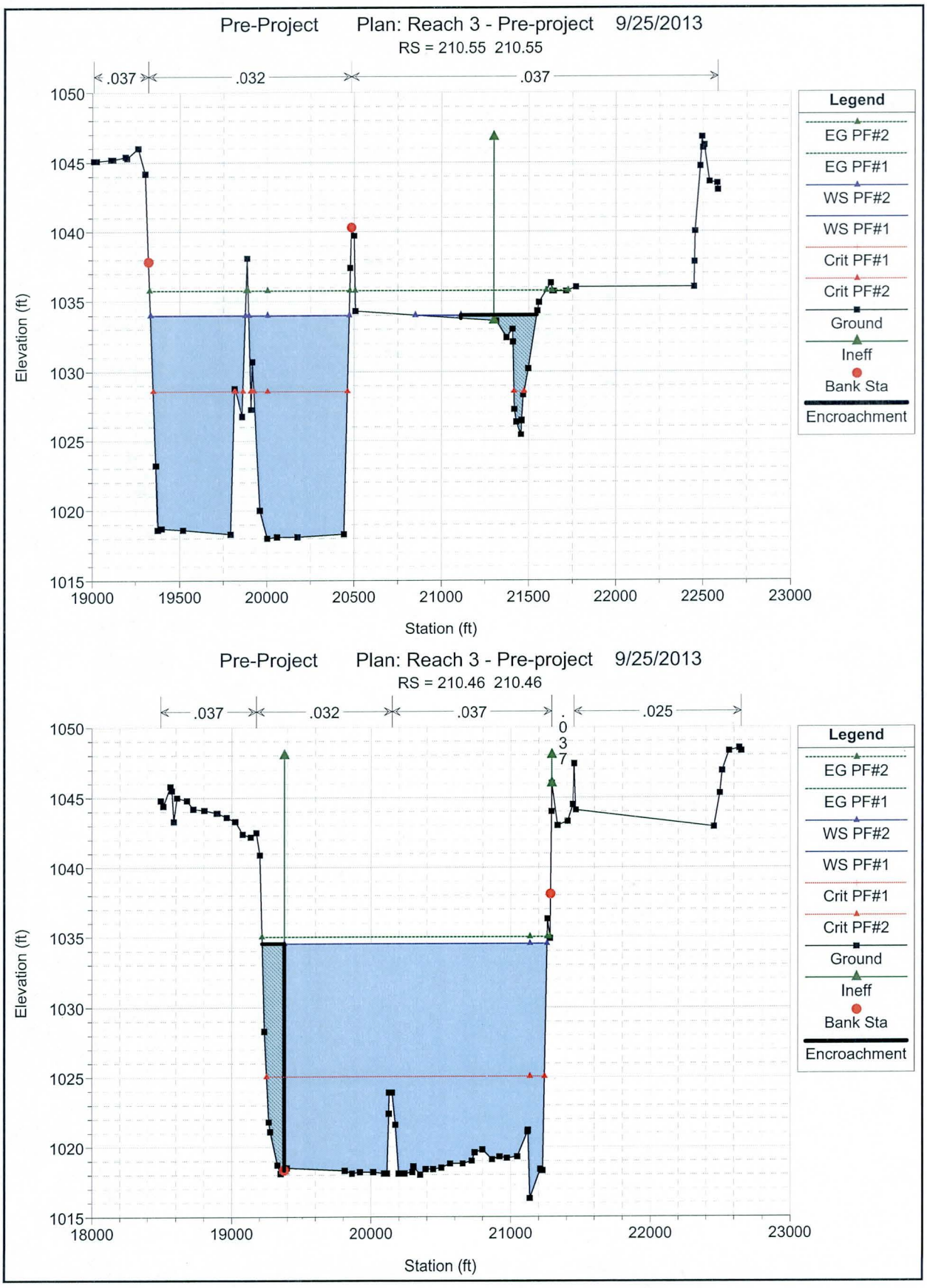
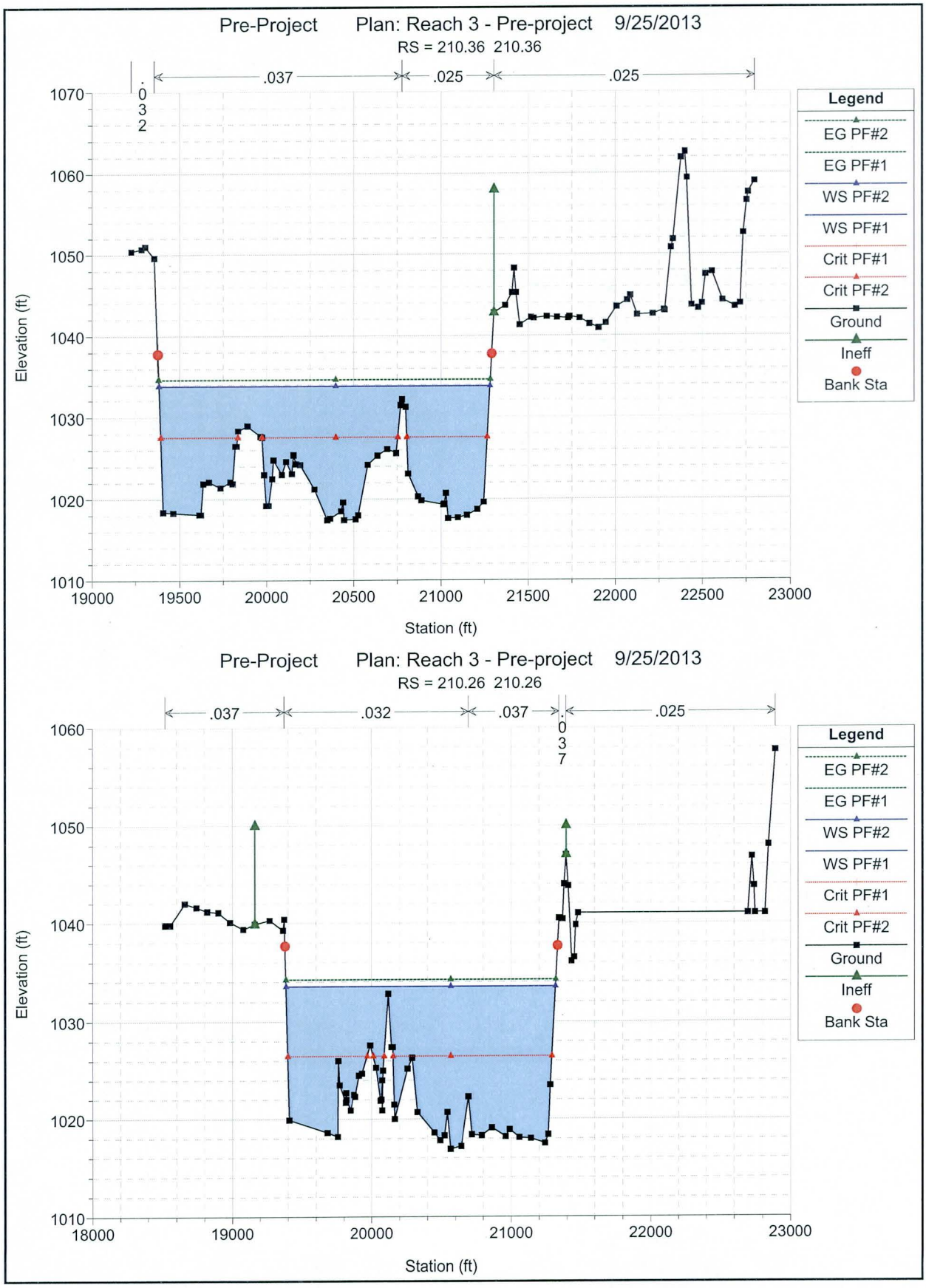
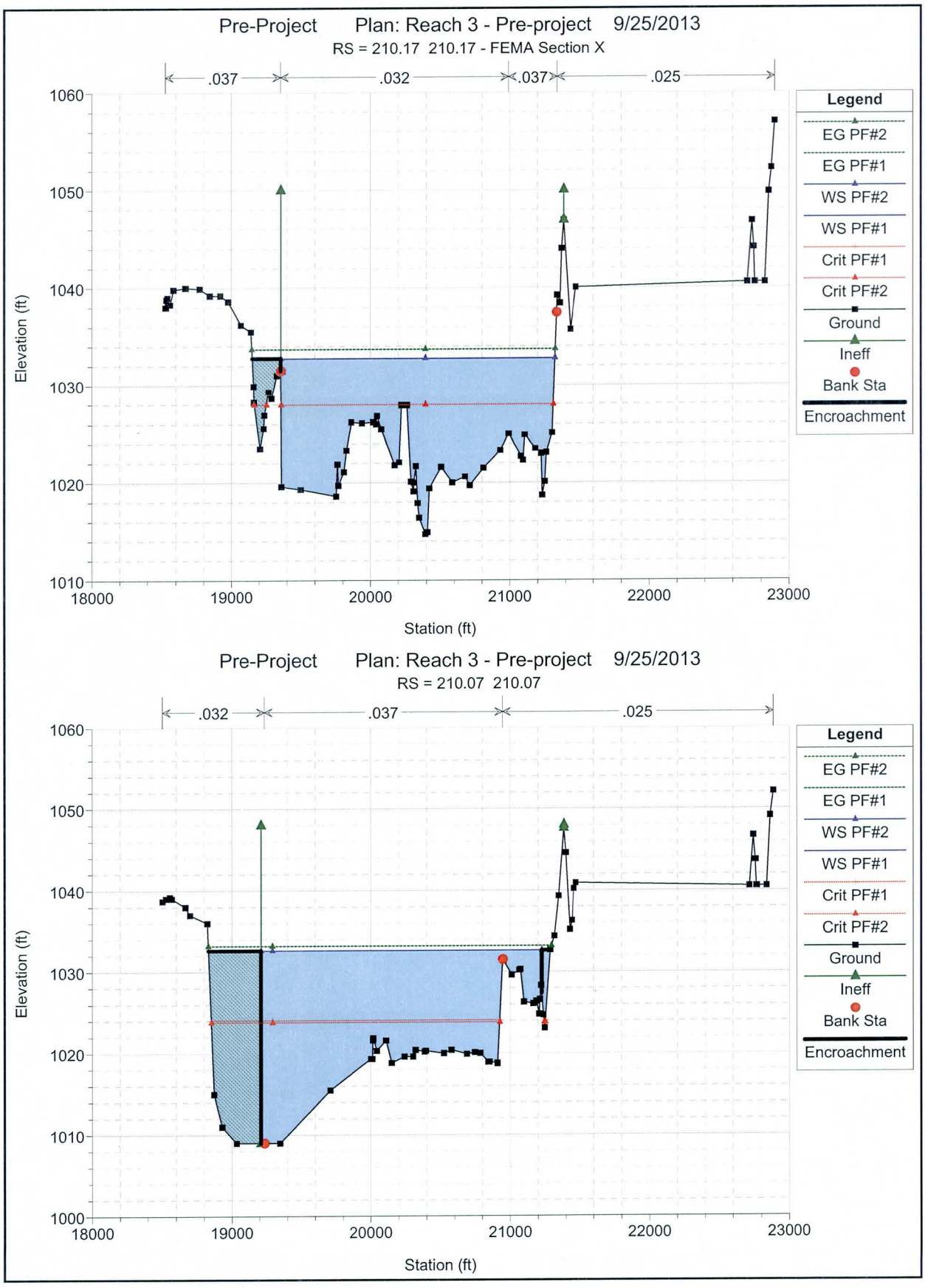
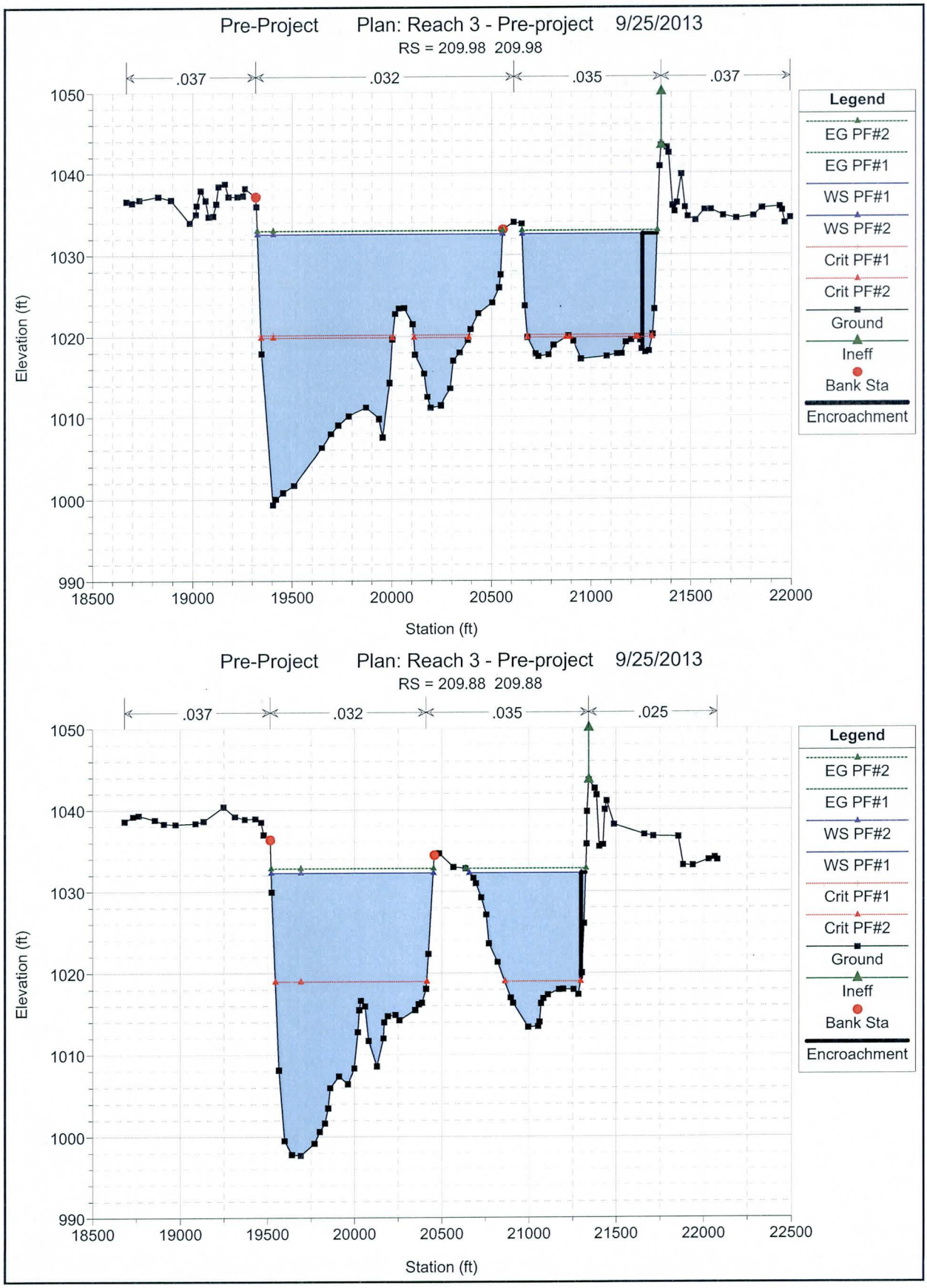
20500
21000
21500
22000
22500
Station (ft)


Pre-Project Plan: Reach 3 - Pre-project 9/25/2013
RS = 210.74 210.74
.037
.032
.037
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
Pre-Project Plan: Reach 3 - Pre-project 9/25/2013
RS = 210.64 210.64 - FEMA Section Y
.037
.032
.037
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


Pre-Project Plan: Reach 3 - Pre-project 9/25/2013
RS = 210.55 210.55
.037
.032
.037
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
Pre-Project Plan: Reach 3 - Pre-project 9/25/2013
RS = 210.46 210.46
.037
.032
.037
.037
.025
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


Pre-Project Plan: Reach 3 - Pre-project 9/25/2013
RS = 210.36 210.36
.037
.025
.025
.032
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
1070
1060
1050
1040
1030
1020
1010
19000
19500
20000
20500
21000
21500
22000
22500
23000
Pre-Project Plan: Reach 3 - Pre-project 9/25/2013
RS = 210.26 210.26
.037
.032
.037
.025
.037
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
1060
1050
1040
1030
1020
1010
18000
19000
20000
21000
22000
23000


Pre-Project Plan: Reach 3 - Pre-project 9/25/2013
RS = 210.17 210.17 - FEMA Section X
.037
.032
.037
.025
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
Pre-Project Plan: Reach 3 - Pre-project 9/25/2013
RS = 210.07 210.07
.032
.037
.025
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


Pre-Project Plan: Reach 3 - Pre-project 9/25/2013
RS = 209.98 209.98
.037
.032
.035
.037
Legend
EG PF#2
EG PF#1
WS PF#1
WS PF#2
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
1050
1040
1030
1020
1010
1000
990
18500
19000
19500
20000
20500
21000
21500
22000
Station (ft)
Pre-Project Plan: Reach 3 - Pre-project 9/25/2013
RS = 209.88 209.88
.037
.032
.035
.025
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
1050
1040
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18500
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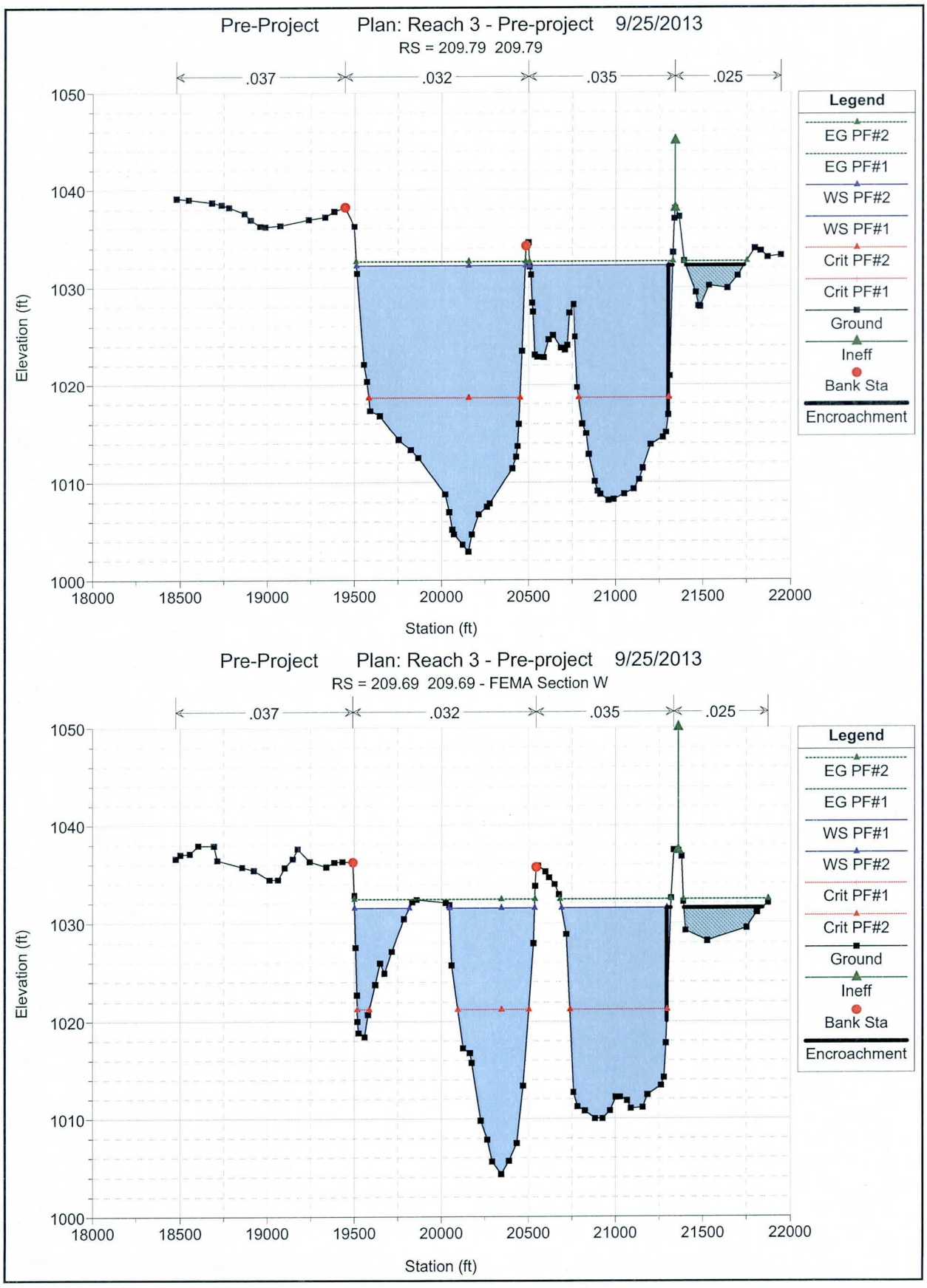
19500
20000
20500
21000
21500
22000
22500
Station (ft)


Pre-Project Plan: Reach 3 - Pre-project 9/25/2013
RS = 209.79 209.79
.037
.032
.035
.025
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#2
Crit PF#1
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
1050
1040
1030
1020
1010
1000
18000
18500
19000
19500
20000
20500
21000
21500
22000
Station (ft)
Pre-Project Plan: Reach 3 - Pre-project 9/25/2013
RS = 209.69 209.69 - FEMA Section W
.037
.032
.035
.025
Legend
EG PF#2
EG PF#1
WS PF#1
WS PF#2
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
1050
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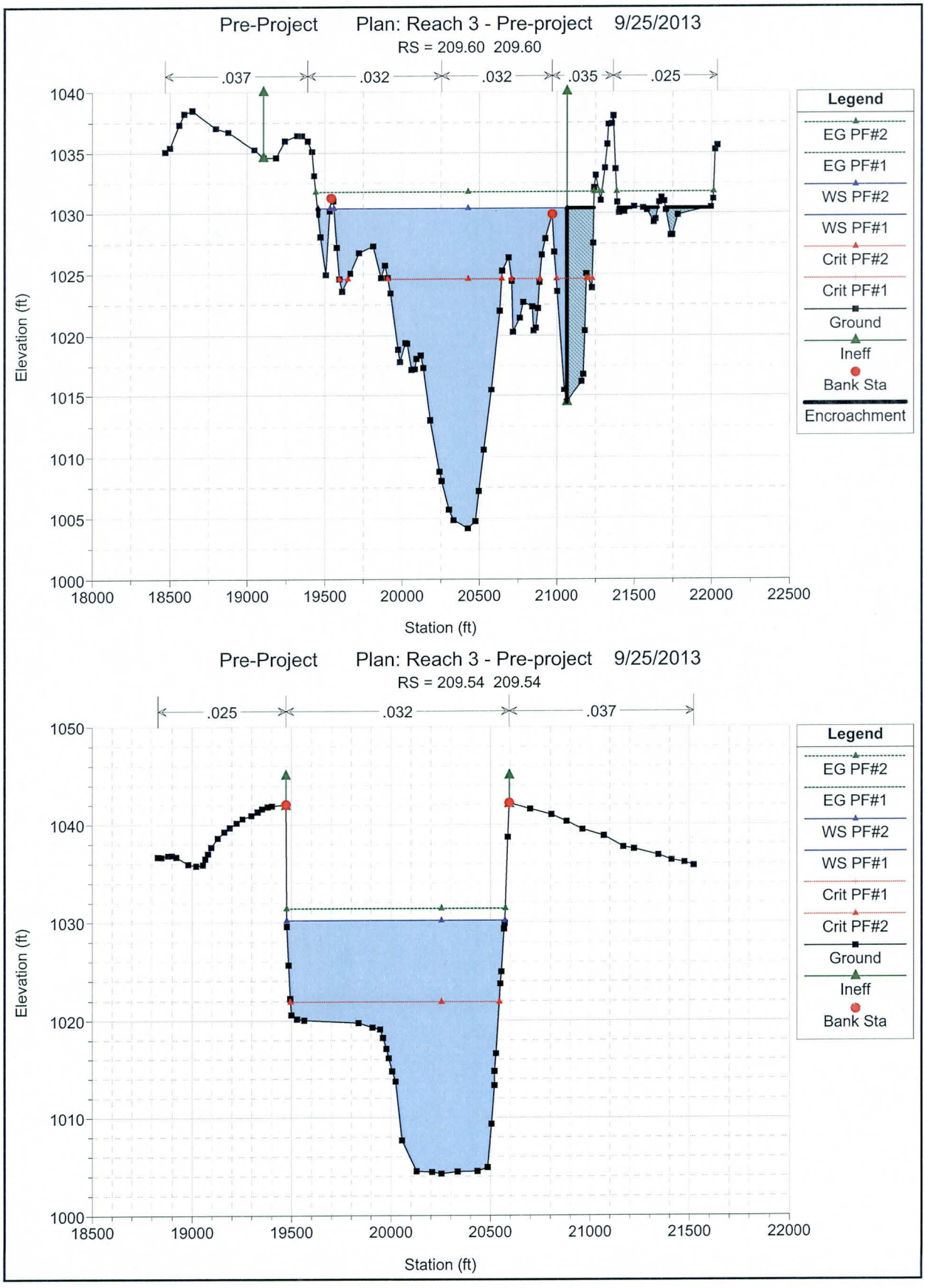
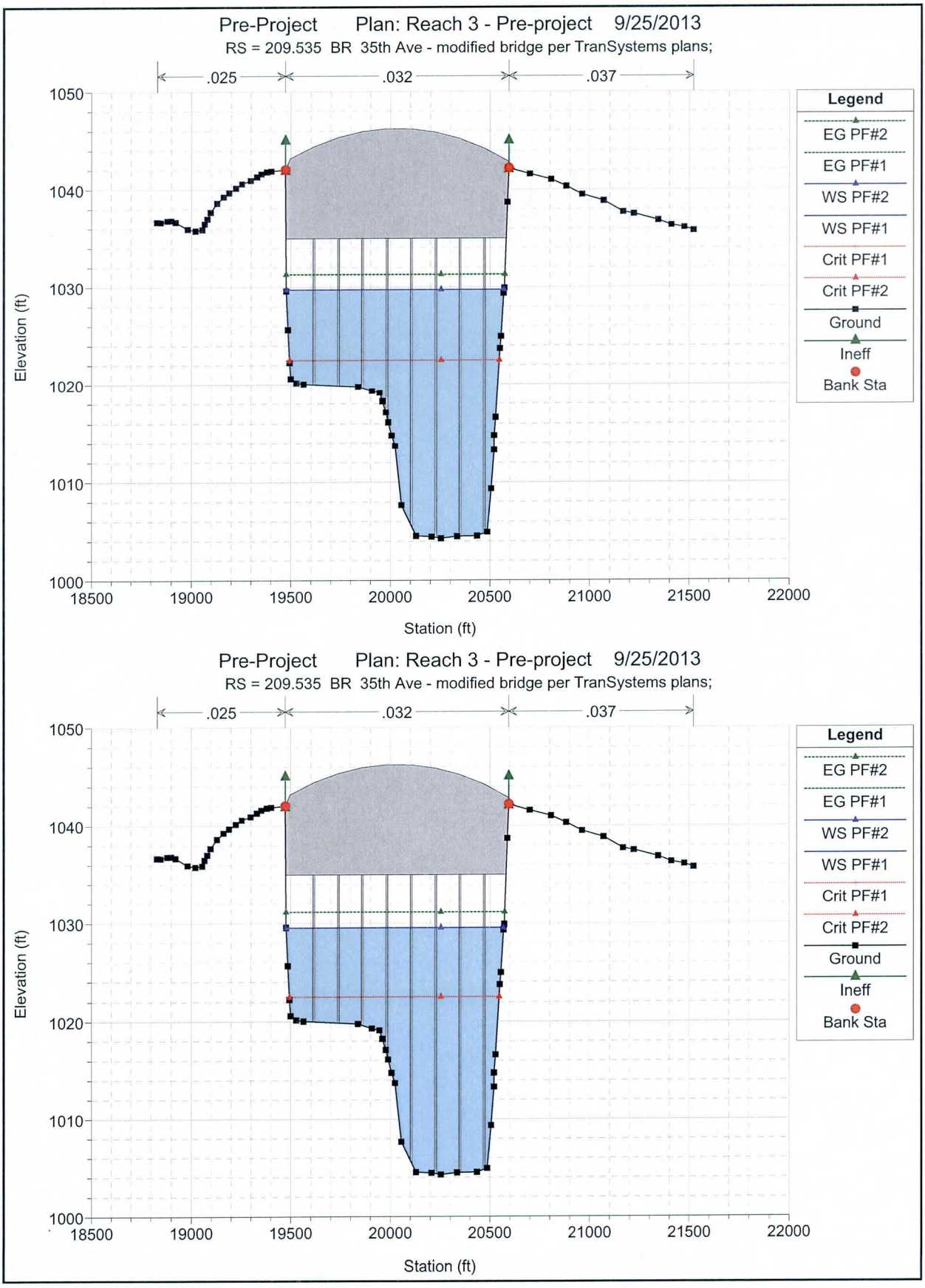
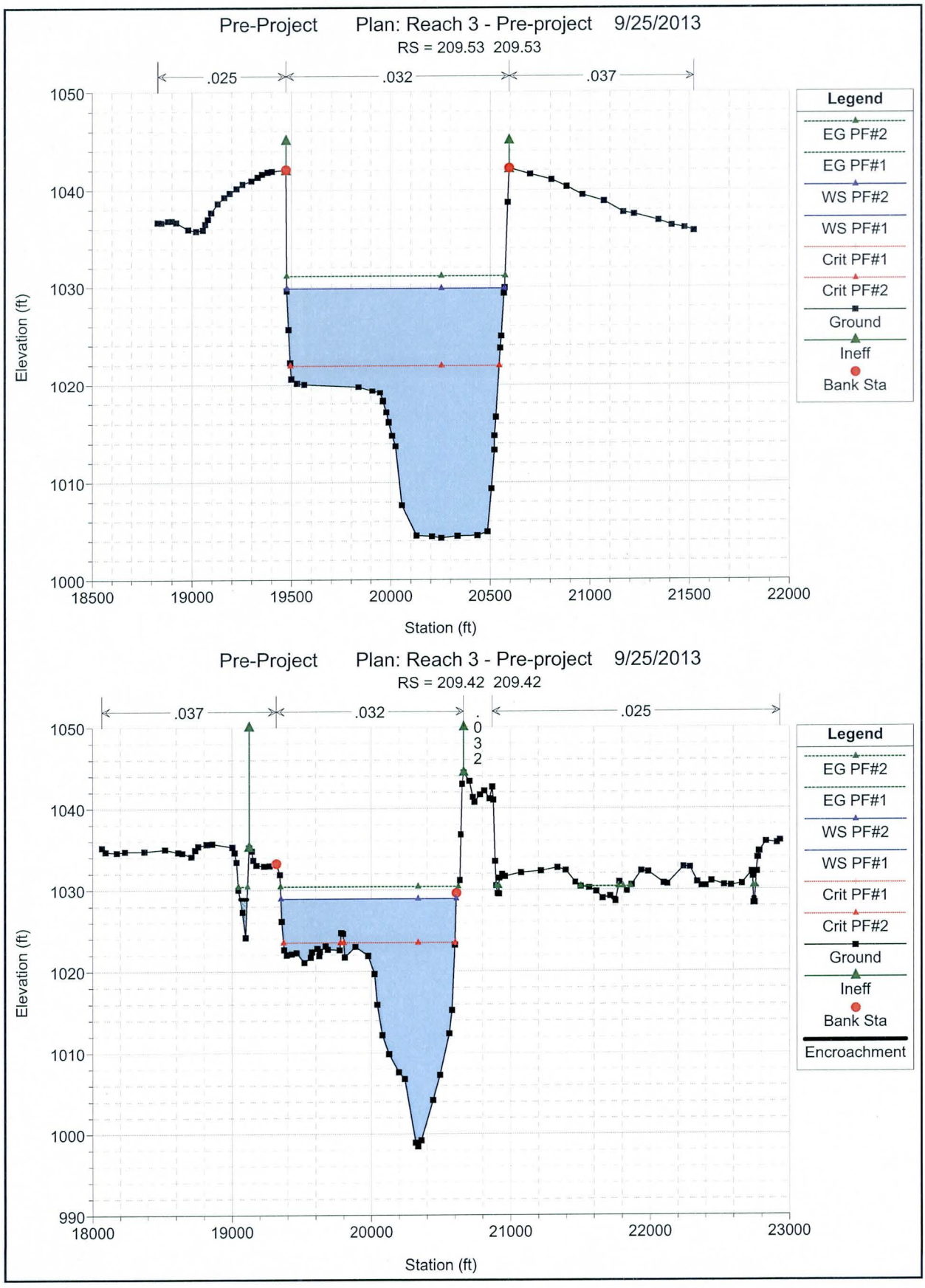
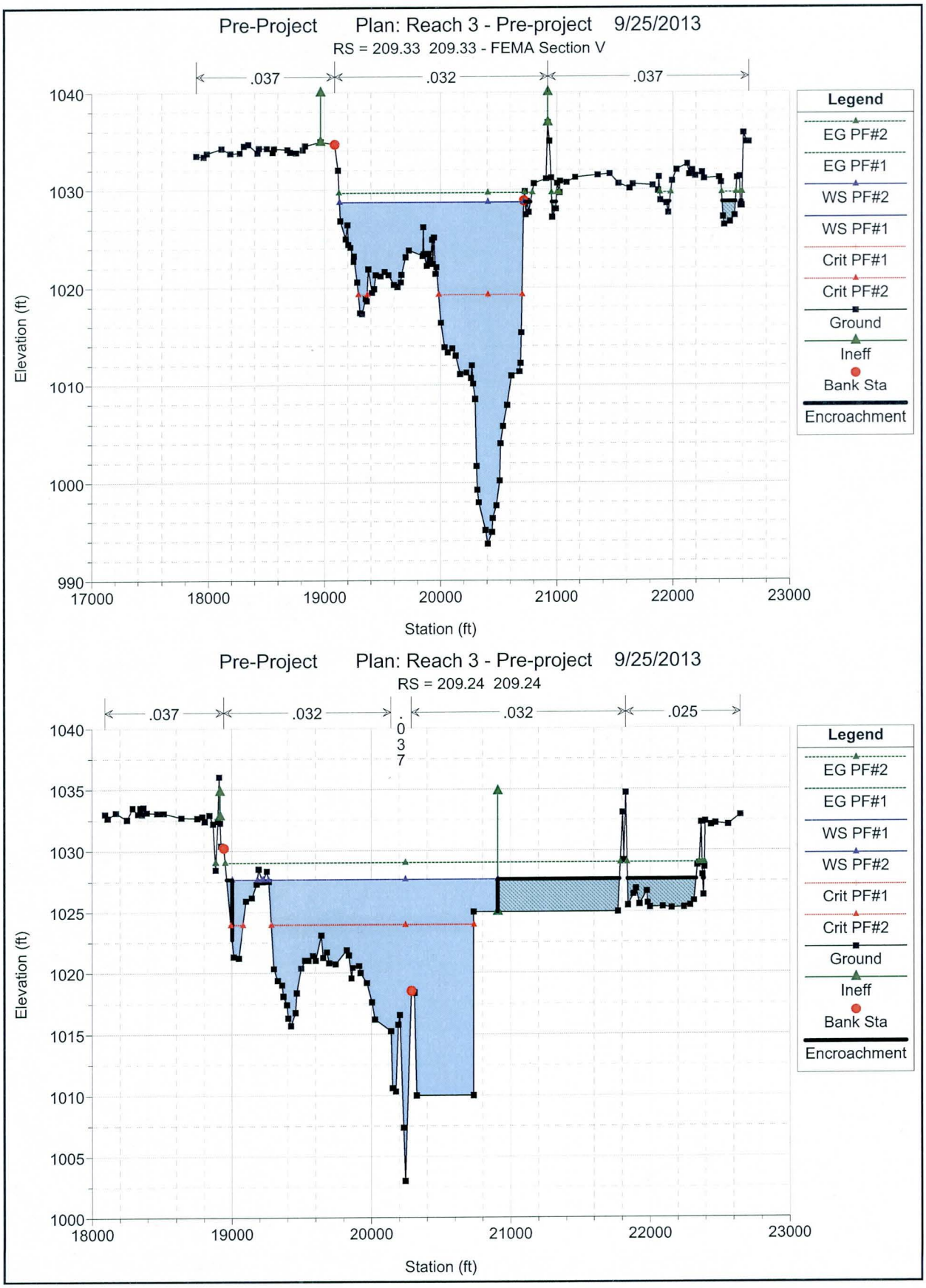
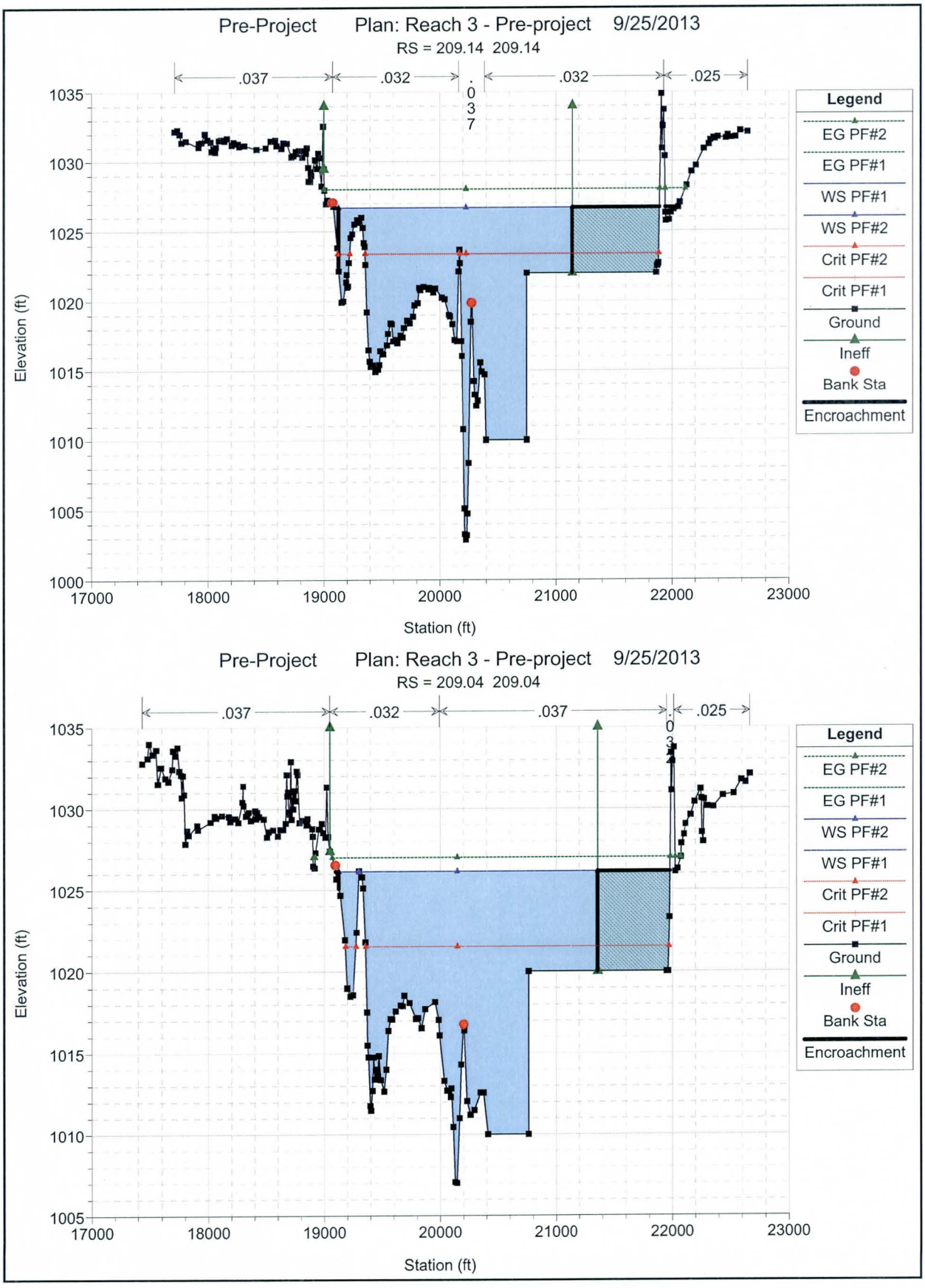
19500
20000
20500
21000
21500
22000
Station (ft)


Pre-Project Plan: Reach 3 - Pre-project 9/25/2013
RS = 209.60 209.60
.037
.032
.032
.035
.025
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#2
Crit PF#1
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
Pre-Project Plan: Reach 3 - Pre-project 9/25/2013
RS = 209.54 209.54
.025
.032
.037
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


Pre-Project Plan: Reach 3 - Pre-project 9/25/2013
RS = 209.535 BR 35th Ave - modified bridge per TranSystems plans;
.025
.032
.037
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
1050
1040
1030
1020
1010
1000
18500
19000
19500
20000
20500
21000
21500
22000
Pre-Project Plan: Reach 3 - Pre-project 9/25/2013
RS = 209.535 BR 35th Ave - modified bridge per TranSystems plans;
.025
.032
.037
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


Pre-Project Plan: Reach 3 - Pre-project 9/25/2013
RS = 209.53 209.53
.025
.032
.037
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Pre-Project Plan: Reach 3 - Pre-project 9/25/2013
RS = 209.42 209.42
.037
.032
.025
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment


Pre-Project Plan: Reach 3 - Pre-project 9/25/2013
RS = 209.33 209.33 - FEMA Section V
.037
.032
.037
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Pre-Project Plan: Reach 3 - Pre-project 9/25/2013
RS = 209.24 209.24
.037
.032
.037
.032
.025
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#1
WS PF#2
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment


Pre-Project Plan: Reach 3 - Pre-project 9/25/2013
RS = 209.14 209.14
.037
.032
.037
.032
.025
Legend
EG PF#2
EG PF#1
WS PF#1
WS PF#2
Crit PF#2
Crit PF#1
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
1035
1030
1025
1020
1015
1010
1005
1000
17000
18000
19000
20000
21000
22000
23000
Pre-Project Plan: Reach 3 - Pre-project 9/25/2013
RS = 209.04 209.04
.037
.032
.037
.025
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#2
Crit PF#1
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
1035
1030
1025
1020
1015
1010
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21000
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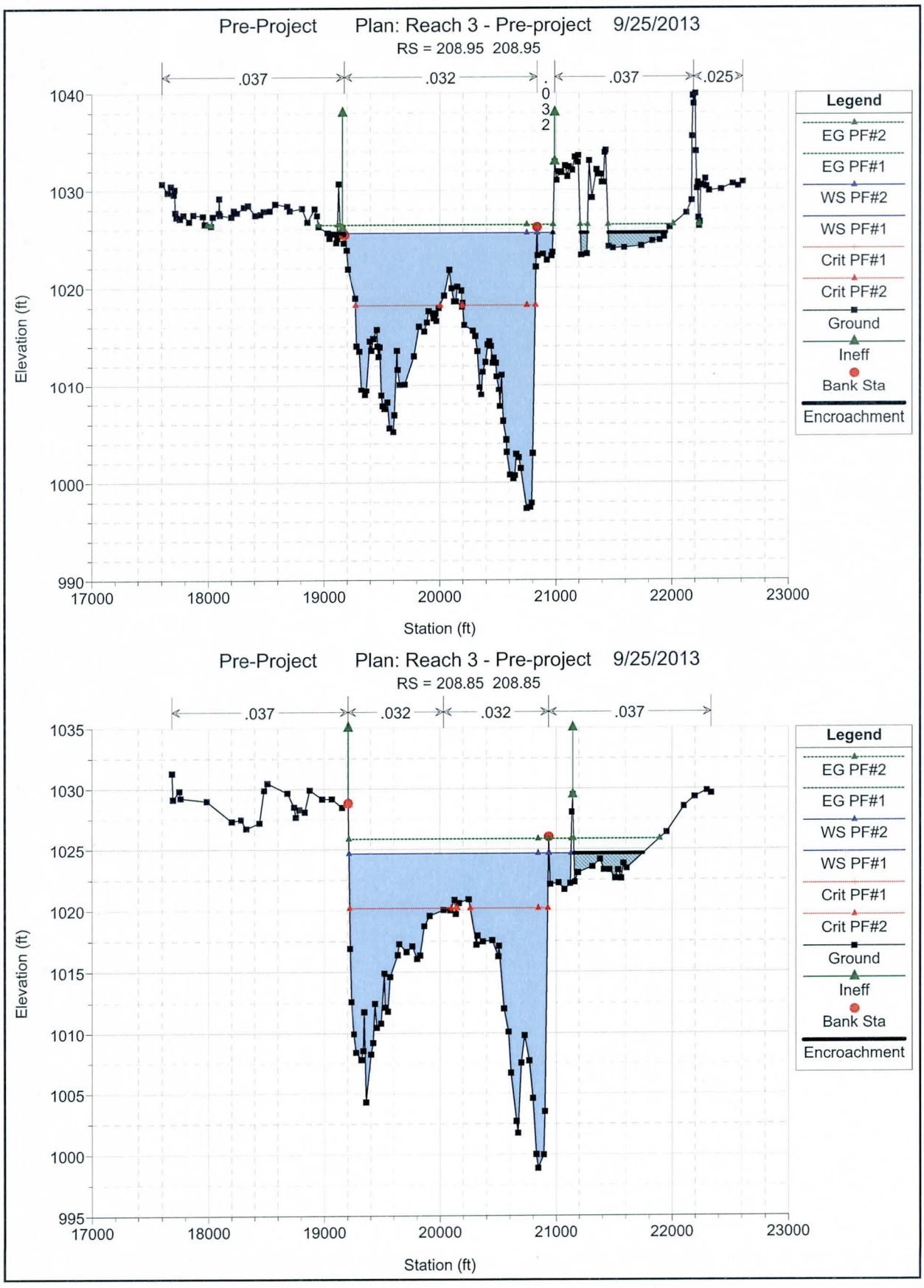
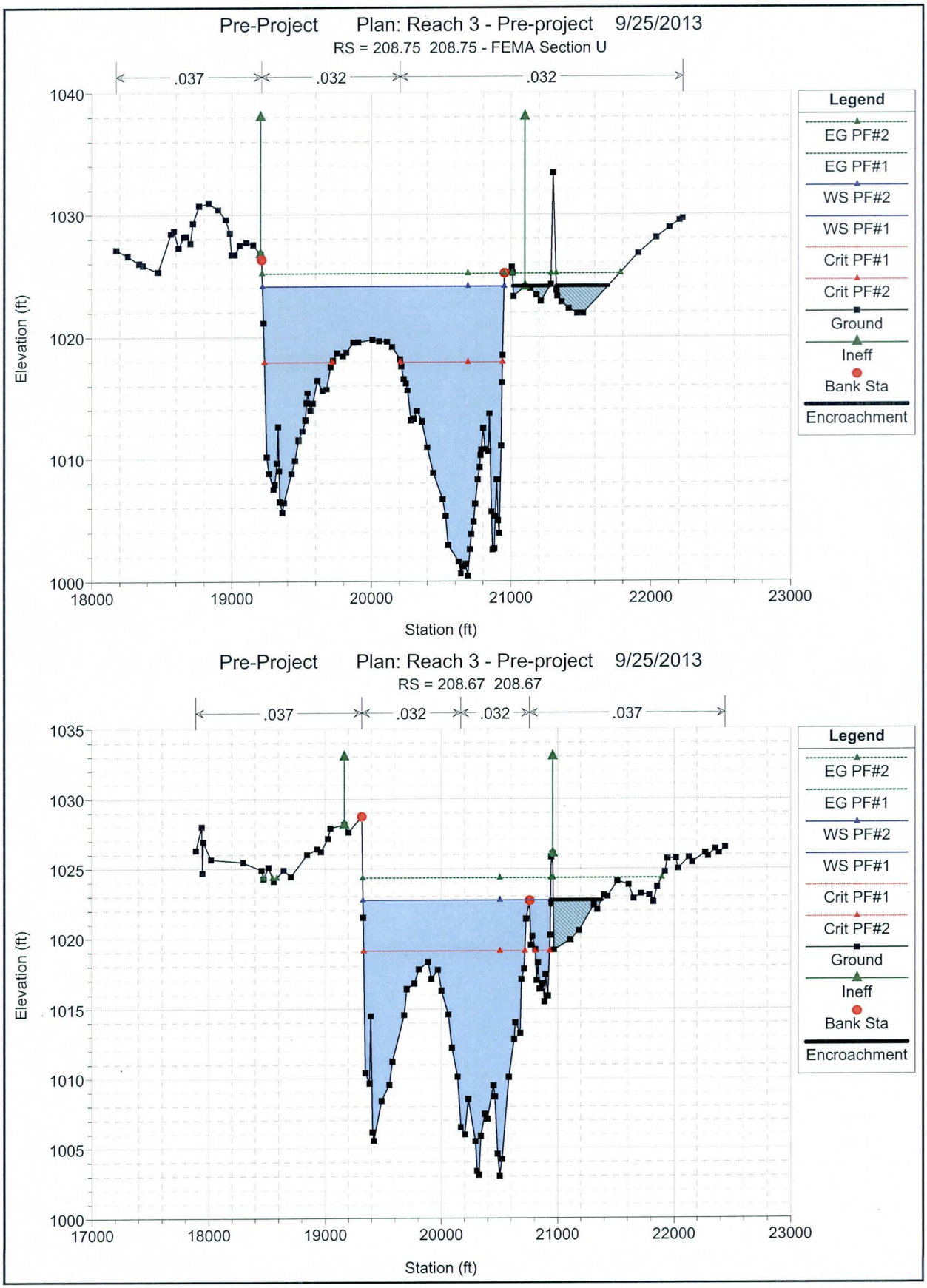
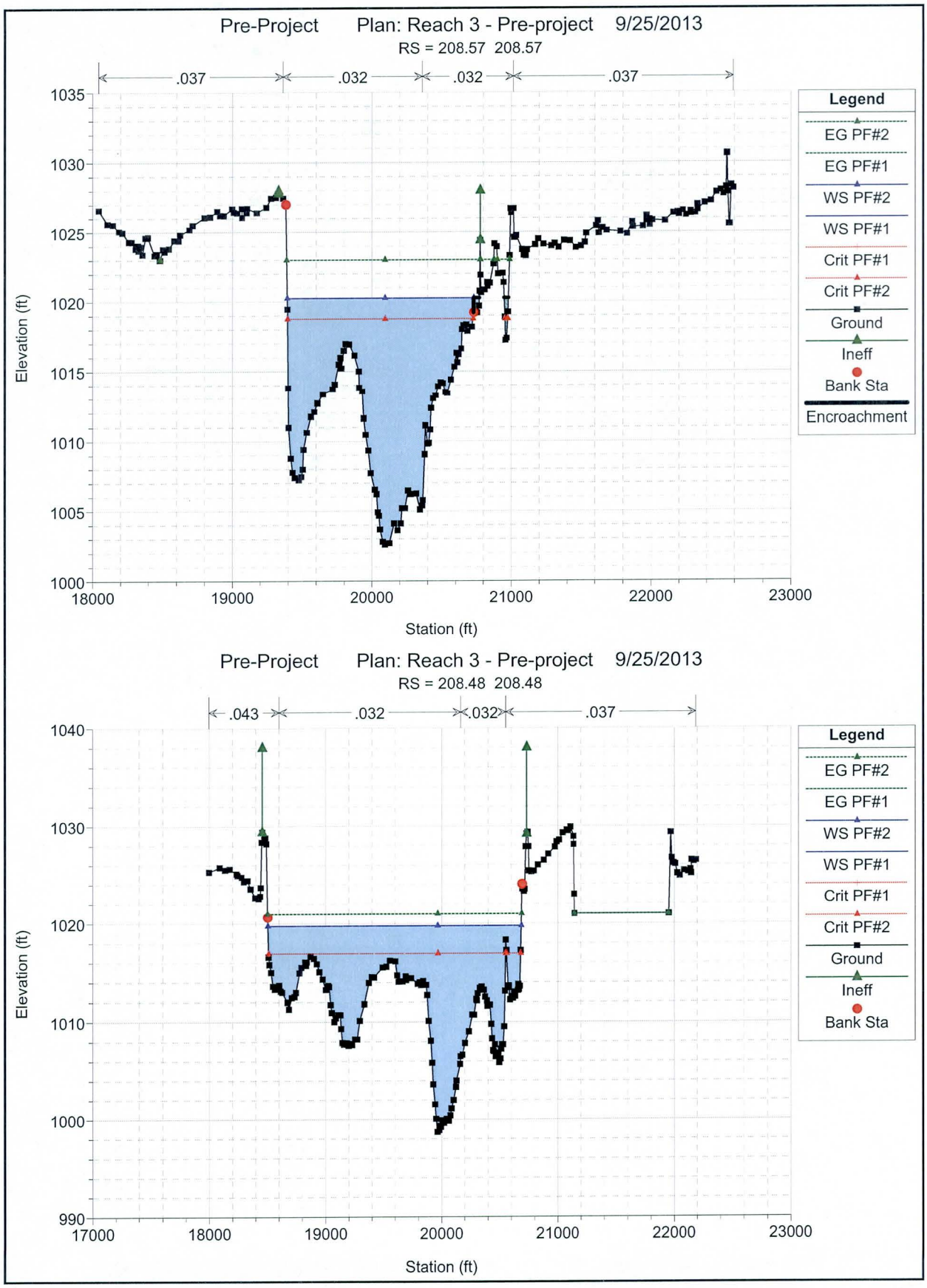
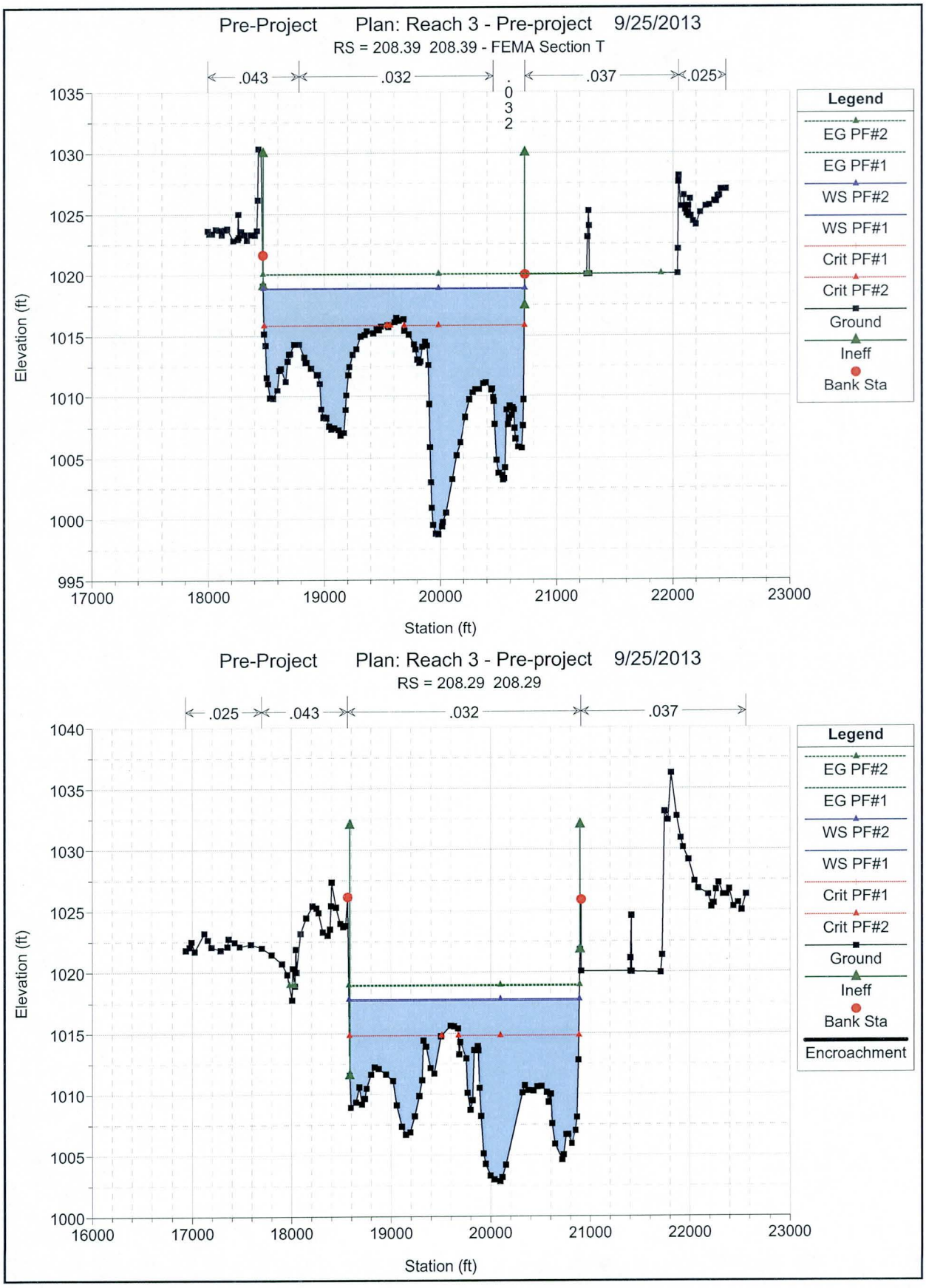
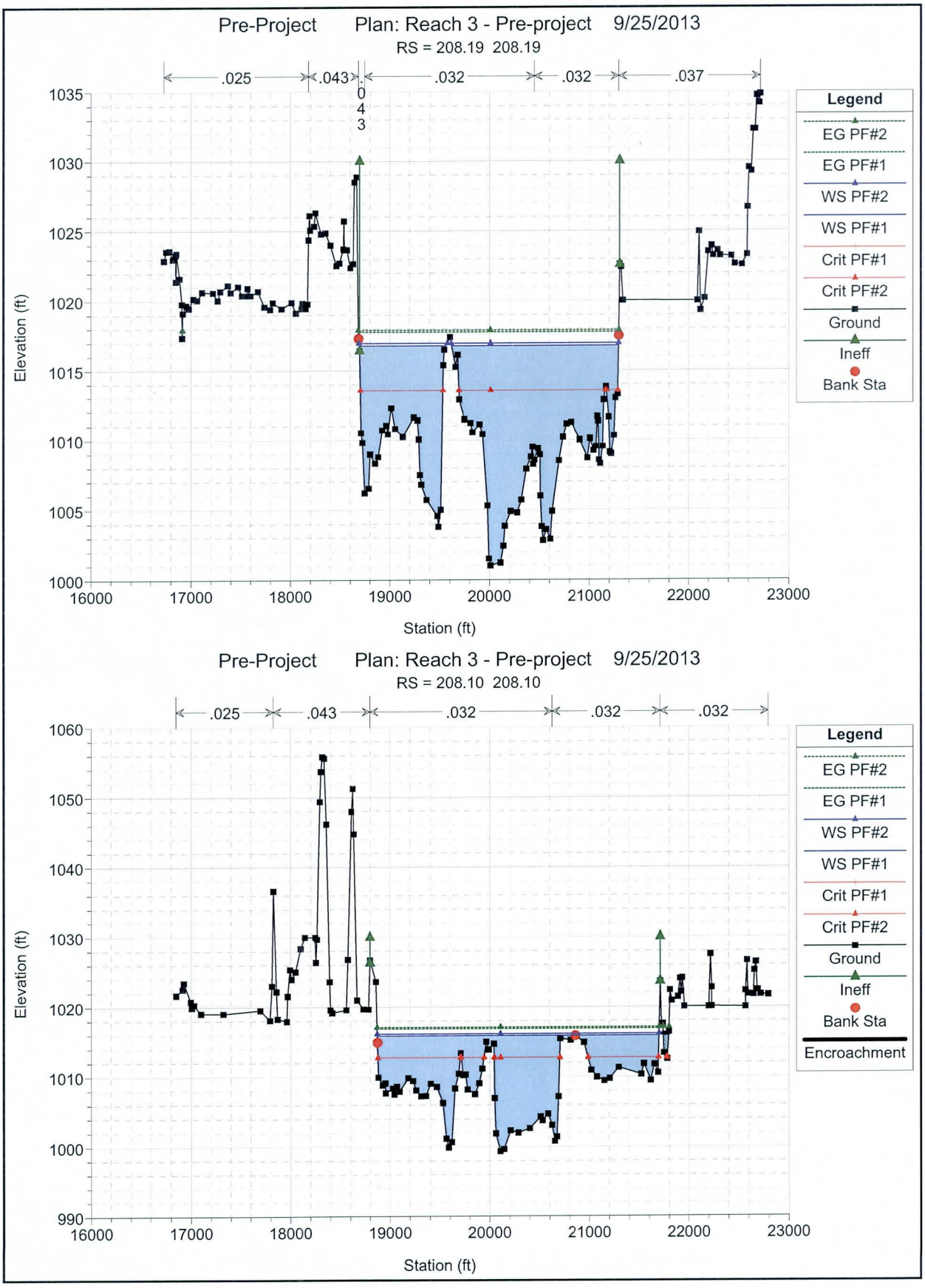
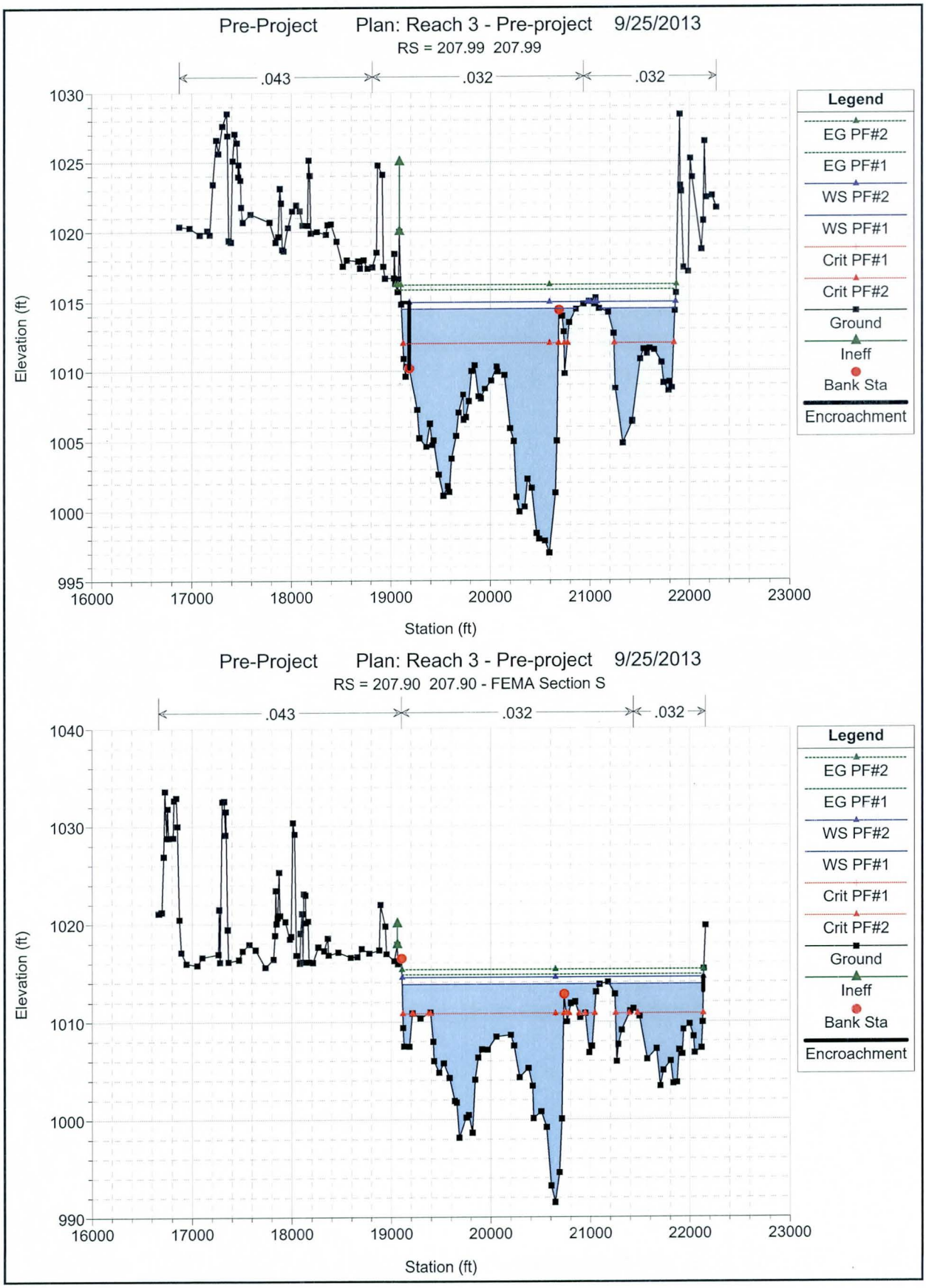

Pre-Project Plan: Reach 3 - Pre-project 9/25/2013
RS = 208.95 208.95
.037
.032
.037
.025
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
Pre-Project Plan: Reach 3 - Pre-project 9/25/2013
RS = 208.85 208.85
.037
.032
.032
.037
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)

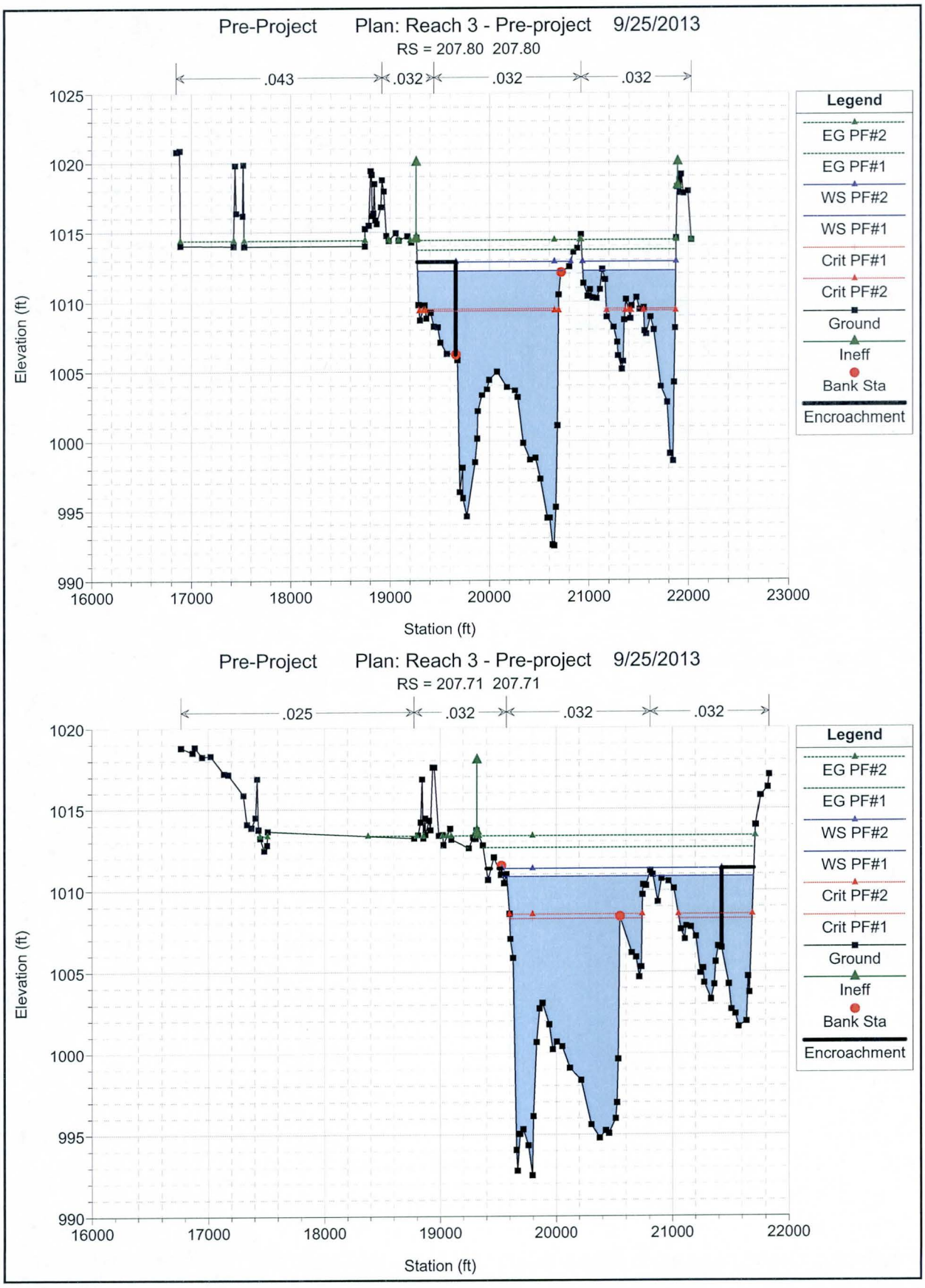

Pre-Project Plan: Reach 3 - Pre-project 9/25/2013
RS = 208.75 208.75 - FEMA Section U
.037
.032
.032
Elevation (ft)
1040
1030
1020
1010
1000
18000
19000
20000
21000
22000
23000
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Pre-Project Plan: Reach 3 - Pre-project 9/25/2013
RS = 208.67 208.67
.037
.032
.032
.037
Elevation (ft)
1035
1030
1025
1020
1015
1010
1005
1000
17000
18000
19000
20000
21000
22000
23000
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment

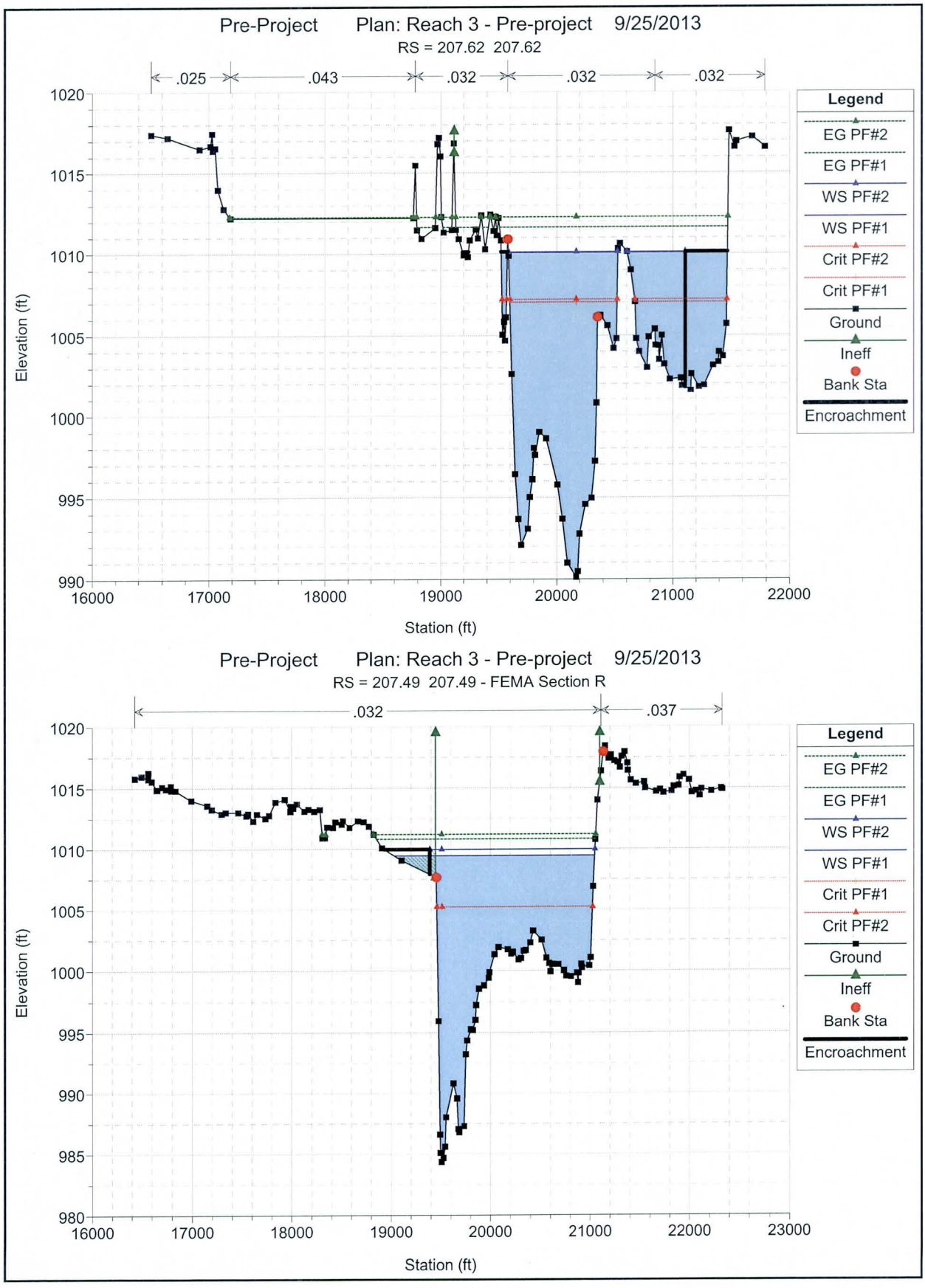

Pre-Project Plan: Reach 3 - Pre-project 9/25/2013
RS = 208.57 208.57
.037
.032
.032
.037
Elevation (ft)
1035
1030
1025
1020
1015
1010
1005
1000
18000
19000
20000
21000
22000
23000
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Pre-Project Plan: Reach 3 - Pre-project 9/25/2013
RS = 208.48 208.48
.043
.032
.032
.037
Elevation (ft)
1040
1030
1020
1010
1000
990
17000
18000
19000
20000
21000
22000
23000
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta

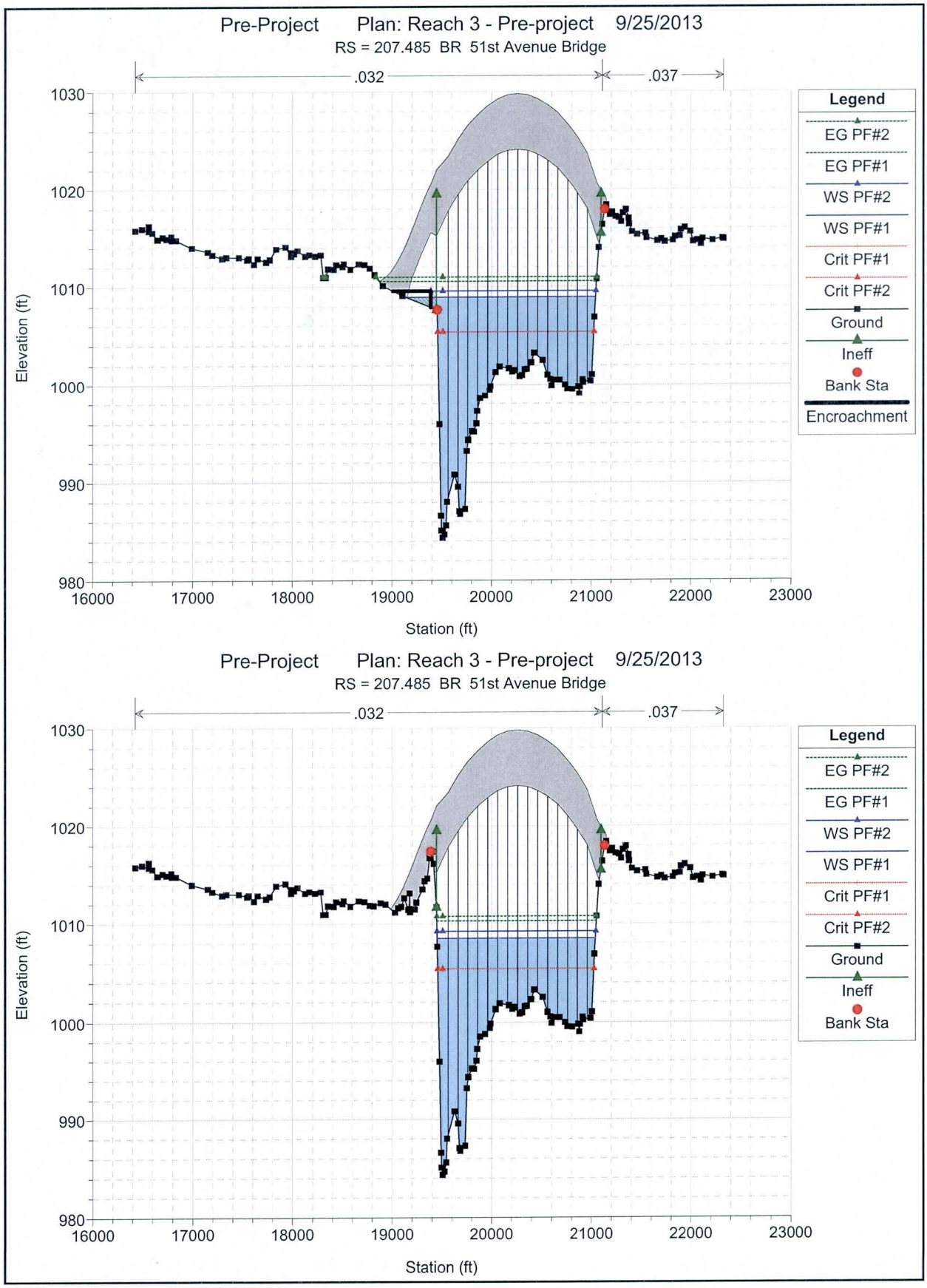

Pre-Project Plan: Reach 3 - Pre-project 9/25/2013
RS = 208.39 208.39 - FEMA Section T
.043
.032
.032
.037
.025
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
Pre-Project Plan: Reach 3 - Pre-project 9/25/2013
RS = 208.29 208.29
.025
.043
.032
.037
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)

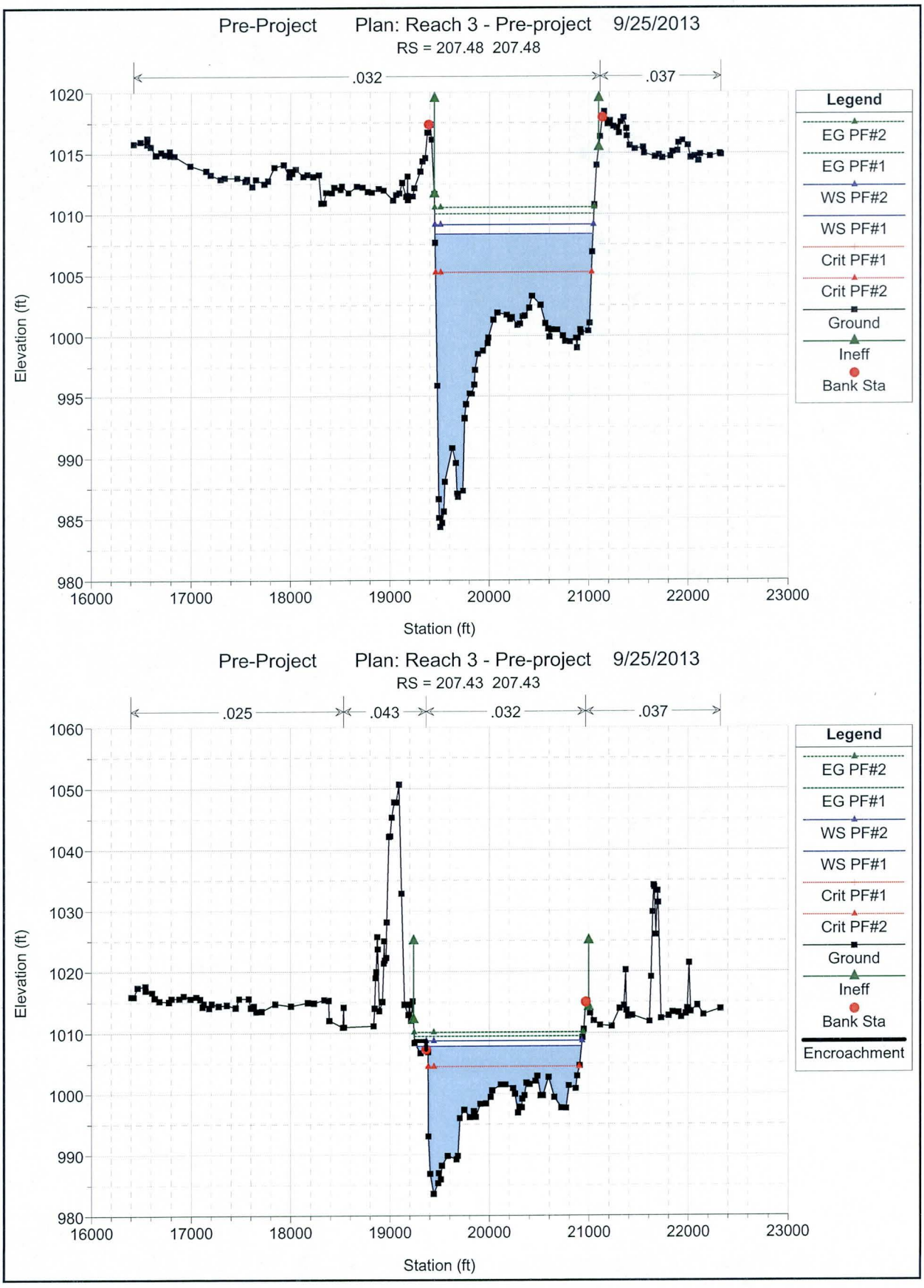

Pre-Project Plan: Reach 3 - Pre-project 9/25/2013
RS = 208.19 208.19
.025
.043
.032
.032
.037
0.043
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Pre-Project Plan: Reach 3 - Pre-project 9/25/2013
RS = 208.10 208.10
.025
.043
.032
.032
.032
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment

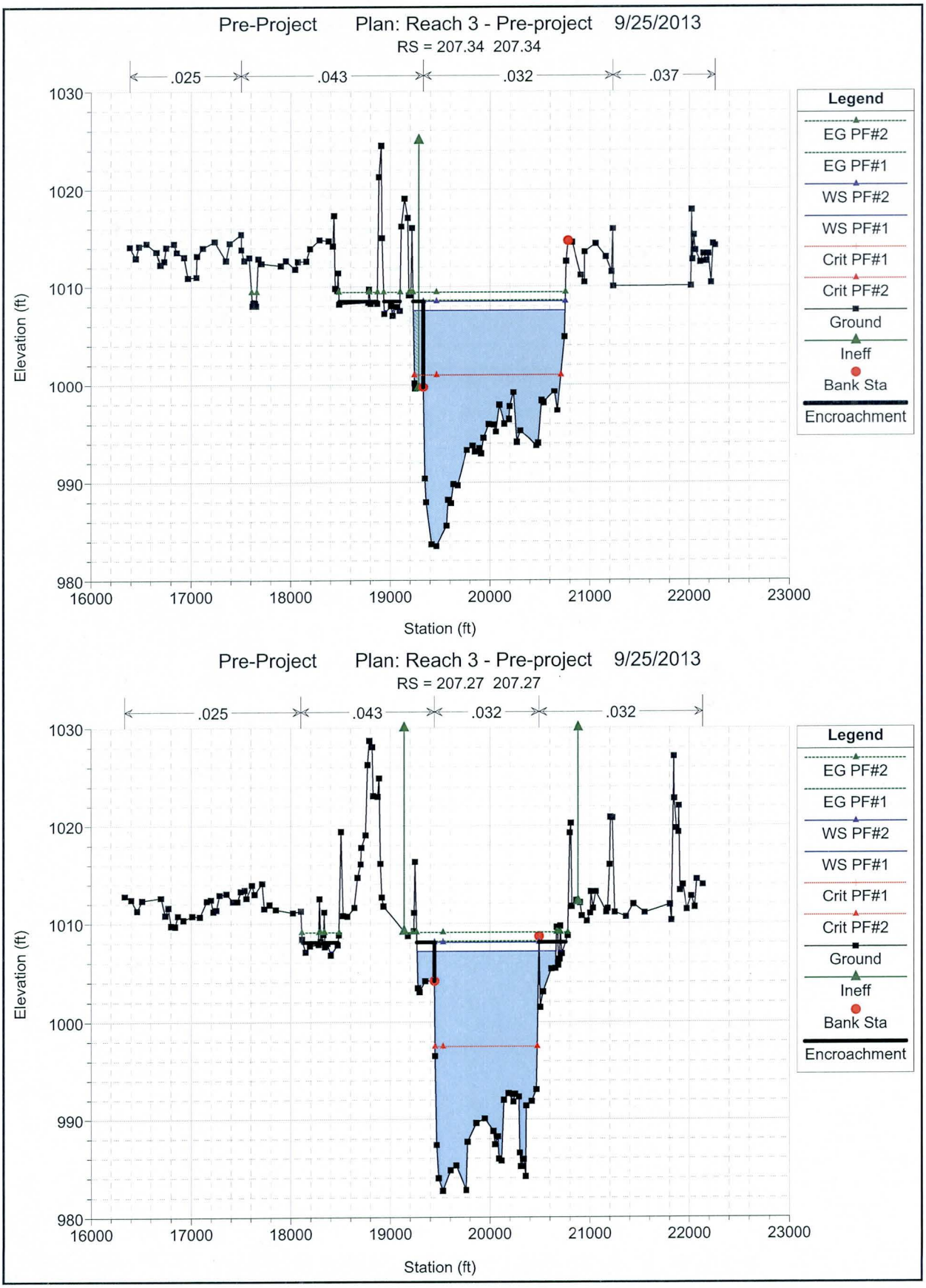

Pre-Project Plan: Reach 3 - Pre-project 9/25/2013
RS = 207.99 207.99
.043
.032
.032
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Pre-Project Plan: Reach 3 - Pre-project 9/25/2013
RS = 207.90 207.90 - FEMA Section S
.043
.032
.032
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment

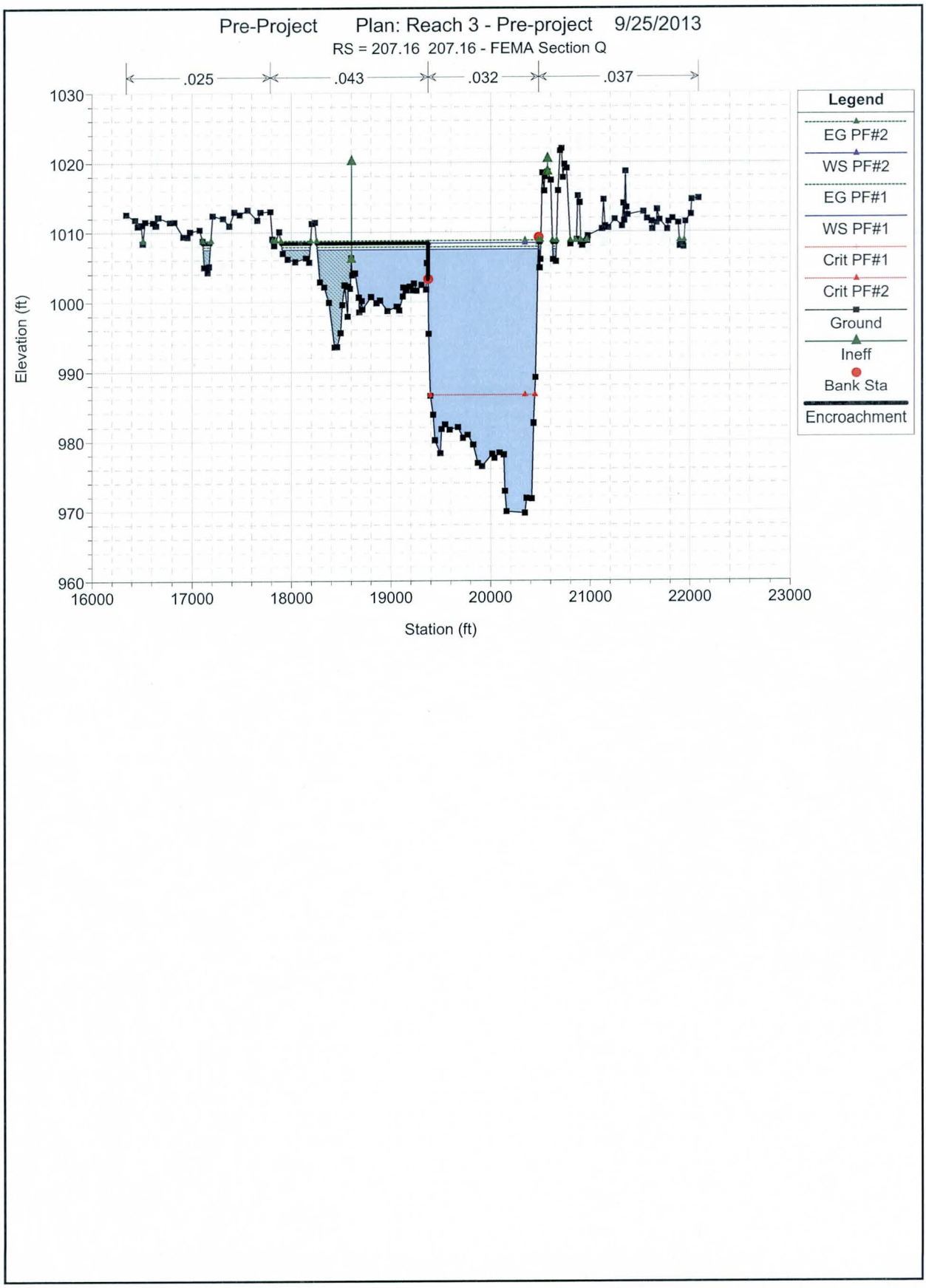

Pre-Project Plan: Reach 3 - Pre-project 9/25/2013
RS = 207.80 207.80
.043
.032
.032
.032
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Pre-Project Plan: Reach 3 - Pre-project 9/25/2013
RS = 207.71 207.71
.025
.032
.032
.032
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#2
Crit PF#1
Ground
Ineff
Bank Sta
Encroachment


Pre-Project Plan: Reach 3 - Pre-project 9/25/2013
RS = 207.62 207.62
.025
.043
.032
.032
.032
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#2
Crit PF#1
Ground
Ineff
Bank Sta
Encroachment
Pre-Project Plan: Reach 3 - Pre-project 9/25/2013
RS = 207.49 207.49 - FEMA Section R
.032
.037
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment


Pre-Project Plan: Reach 3 - Pre-project 9/25/2013
RS = 207.485 BR 51st Avenue Bridge
.032
.037
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Pre-Project Plan: Reach 3 - Pre-project 9/25/2013
RS = 207.485 BR 51st Avenue Bridge
.032
.037
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta


Pre-Project Plan: Reach 3 - Pre-project 9/25/2013
RS = 207.48 207.48
.032
.037
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Pre-Project Plan: Reach 3 - Pre-project 9/25/2013
RS = 207.43 207.43
.025
.043
.032
.037
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment


Pre-Project Plan: Reach 3 - Pre-project 9/25/2013
RS = 207.34 207.34
.025
.043
.032
.037
Elevation (ft)
1030
1020
1010
1000
990
980
16000
17000
18000
19000
20000
21000
22000
23000
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Pre-Project Plan: Reach 3 - Pre-project 9/25/2013
RS = 207.27 207.27
.025
.043
.032
.032
Elevation (ft)
1030
1020
1010
1000
990
980
16000
17000
18000
19000
20000
21000
22000
23000
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment


Pre-Project Plan: Reach 3 - Pre-project 9/25/2013
RS = 207.16 207.16 - FEMA Section Q
.025
.043
.032
.037
Elevation (ft)
1030
1020
1010
1000
990
980
970
960
16000
17000
18000
19000
20000
21000
22000
23000
Station (ft)
Legend
EG PF#2
WS PF#2
EG PF#1
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment

HEC-RAS Version 4.0.0 March 2008
U.S. Army Corps of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

```
X     X  XXXXXX    XXXX        XXXX       XX      XXXX
X     X  X        X    X       X   X     X  X    X
X     X  X             X      X   X    X    X   X
XXXXXXX  XXXX     X       XXX  XXXX     XXXXXX    XXXX
X     X  X        X            X  X     X    X        X
X     X  X        X    X       X   X    X    X        X
X     X  XXXXXX    XXXX        X    X   X    X   XXXXX
```

****

PROJECT DATA
Project Title: Pre-Project
Project File : Pre-Project.prj
Run Date and Time: 9/25/2013 10:15:40 AM

Project in English units

Project Description:
City of Phoenix ARS (AZTEC project No AZE1005)
Salt River Effective model -
Received from FEMA for LOMR case no. 08-09-1412P
Salt River Effective model -
Received from FEMA for LOMR case no.
08-09-1294P

==========
Used the model obtained from LOMR 08-09-1412P which modified
sections 209.33 to 209.98 based on TranSystems mapping and grading plans and
Modified cross section 208.57, 208.67, 208.75 & 208.85 based on LOMR
08-09-1294P to create the Duplicate Effective
Model

==========
Pre-Project Model created from new mapping for the area between FEMA
Section Q and FEMA Section X. New mapping done by Kenney Aerial Mapping on
September 24, 2010, 1"=40' mapping with a 1' contour.
Revised Cross Sections
207.27 to 209.98 with new mapping

S.Smedley 12/09/10

****

PLAN DATA

Plan Title: Reach 3 - Pre-project
Plan File : R:\Phoenix\Projects\AZE1005-ARS_ProgramManagement\Technical\Drainage\HEC-RAS\Pre-Project Model\Pre-Project.p01

Geometry Title: Salt River Reach 3 - Pre-Project
Geometry File : R:\Phoenix\Projects\AZE1005-ARS_ProgramManagement\Technical\Drainage\HEC-RAS\Pre-Project Model\Pre-Project.g02

Flow Title   : Reach 3 - Floodway
Flow File   : R:\Phoenix\Projects\AZE1005-ARS_ProgramManagement\Technical\Drainage\HEC-RAS\Pre-Project Model\Pre-Project.f01

Plan Summary Information:
Number of: Cross Sections = 160   Multiple Openings =   0
            Culverts   =   0   Inline Structures =   0
            Bridges   =   6   Lateral Structures =   0

Computational Information
    Water surface calculation tolerance = 0.01
    Critical depth calculation tolerance = 0.01
    Maximum number of iterations   = 20
    Maximum difference tolerance   = 0.3
    Flow tolerance factor   = 0.001

Computation Options
    Critical depth computed only where necessary
    Conveyance Calculation Method: At breaks in n values only
    Friction Slope Method: Average Conveyance
    Computational Flow Regime: Subcritical Flow

Encroachment Data
   Equal Conveyance = True
   Left Offset   =   0
   Right Offset   =   0

River = 1   Reach = 1
RS   Profile   Method Value1 Value2
214.14 PF#2   119654.9720381.83
214.04 PF#2   119637.8820371.77
213.95 PF#2   119586.5420331.73
213.85 PF#2   119618.3320320.92
213.75 PF#2   1   1964120297.35
213.74 PF#2   119641.87 20296.6
213.66 PF#2   119687.5720253.56
213.57 PF#2   1 19484.520336.66
213.47 PF#2   1 19243.320266.42
213.38 PF#2   1 19346.120447.85
213.33 PF#2   1 19328.920514.52
213.26 PF#2   119497.1820378.39
213.25 PF#2   119497.5520377.79
213.21 PF#2   1 19490.3 20418.5
213.11 PF#2   119616.8820544.67

213.03	PF#2	1 1967220591.83
212.93	PF#2	119690.7620489.75
212.84	PF#2	1 19711.520347.25
212.74	PF#2	119690.61 20367.2
212.68	PF#2	119501.07 20130.1
212.67	PF#2	119502.3320128.84
212.56	PF#2	119731.0520252.14
212.46	PF#2	119743.34 20301
212.37	PF#2	119744.0620320.69
212.27	PF#2	119715.2520330.35
212.18	PF#2	119706.8520334.57
212.08	PF#2	119681.09 20270.9
211.99	PF#2	119699.7720249.64
211.89	PF#2	119685.7520250.74
211.79	PF#2	119649.87 20217.7
211.71	PF#2	119628.4320197.84
211.64	PF#2	1 19657.7 20219.8
211.54	PF#2	119603.6520129.64
211.51	PF#2	119615.1920137.39
211.41	PF#2	1 19638.120206.06
211.31	PF#2	119531.2120356.09
211.21	PF#2	119528.7520521.25
211.12	PF#2	119498.47 20610
211.02	PF#2	119487.12 21150
210.93	PF#2	119479.13 21575
210.83	PF#2	119450.42 21700
210.74	PF#2	119426.13 21800
210.64	PF#2	1 19388.6 21800
210.55	PF#2	119322.17 21110
210.46	PF#2	1 19377 21284
210.36	PF#2	119375.1721291.16
210.26	PF#2	119377.08 21331.8
210.17	PF#2	1 19354.621334.72
210.07	PF#2	1 19210 21225
209.98	PF#2	119316.5321256.06
209.88	PF#2	119516.3921299.85
209.79	PF#2	119444.0721299.89
209.69	PF#2	119492.4321293.09
209.60	PF#2	119457.3121064.47
209.54	PF#2	119471.7520594.25
209.53	PF#2	119471.7520594.25
209.42	PF#2	119318.5620610.47
209.33	PF#2	119086.1920715.31
209.24	PF#2	119001.6620907.53
209.14	PF#2	119124.9221140.18
209.04	PF#2	119124.0321356.72
208.95	PF#2	119173.8520972.83
208.85	PF#2	119206.0221155.77
208.75	PF#2	119212.9820952.96
208.67	PF#2	119317.6920938.72
208.57	PF#2	119382.5620731.12
208.48	PF#2	118501.9220691.24
208.39	PF#2	118468.9520724.42
208.29	PF#2	118561.8220909.13
208.19	PF#2	118679.18 21343.2
208.10	PF#2	118822.3721737.69
207.99	PF#2	119184.3621863.07
207.90	PF#2	119103.9222135.26
207.80	PF#2	119658.1621871.22
207.71	PF#2	119527.6521424.84
207.62	PF#2	119577.9221105.73
207.49	PF#2	119387.2821132.01
207.48	PF#2	119387.2821132.01
207.43	PF#2	119363.8620968.54
207.34	PF#2	119328.8820778.22
207.27	PF#2	119441.5520490.77
207.16	PF#2	119371.4620479.77
207.07	PF#2	118857.5720748.18
206.97	PF#2	1 18850 20800
206.88	PF#2	118838.93 20800
206.79	PF#2	118806.0120895.15
206.7	PF#2	118784.84 21138.8
206.6	PF#2	118675.5821066.25
206.51	PF#2	118561.35 20622.1
206.41	PF#2	118494.7120685.21
206.32	PF#2	118476.9420854.87
206.22	PF#2	1 1843520977.29
206.13	PF#2	1 1837020914.89
206.03	PF#2	1 18320 20772.6
205.94	PF#2	1 18200 20767
205.84	PF#2	1 18100 20535.7
205.75	PF#2	1 18048 20450.3
205.62	PF#2	1 18216 20450.1
205.52	PF#2	1 18591.6 20611.5
205.43	PF#2	1 18917.5 20770.4
205.4	PF#2	1 19020 20767.8
205.34	PF#2	1 1918020742.96
205.25	PF#2	1 19300 20782.3
205.15	PF#2	1 19385 20830
205.06	PF#2	1 19470 20905.3
204.97	PF#2	1 19445 20961.3
204.87	PF#2	1 19410 20952.2
204.78	PF#2	1 1921020830.43
204.68	PF#2	1 1896020546.37
204.61	PF#2	1 18880 20482.9
204.53	PF#2	1 18885 20495.9
204.42	PF#2	1 19025.420679.03
204.34	PF#2	1 1910020814.38
204.25	PF#2	1 1930020817.18
204.15	PF#2	1 1920021031.89
204.05	PF#2	118963.7821080.54
203.96	PF#2	118736.54 20787.3
203.86	PF#2	118542.4920734.27
203.77	PF#2	118232.4120743.68
203.67	PF#2	1 1813020697.43
203.58	PF#2	1 1802520701.39

```
203.48  PF#2                  1 17932.620844.31
203.39  PF#2                  1 17970.821036.47
203.29  PF#2                  1 18065.621074.86
203.19  PF#2                  1 18262.120951.24
203.09  PF#2                  1   1843020905.85
202.99  PF#2                  1 18469.4 20926.9
202.9   PF#2                  1 18455.620967.31
202.8   PF#2                  1 18390.821011.58
202.69  PF#2                  1 18377.821080.23
202.59  PF#2                  1 18416.7 21190.4
202.48  PF#2                  1   18360 21302.7
202.37  PF#2                  1   1827021577.77
202.29  PF#2                  1 18197.4   21803
202.18  PF#2                  1 18139.721936.54
202.09  PF#2                  1 18212.921936.96
201.99  PF#2                  1 18235.121861.56
201.9   PF#2                  117992.63 21823.6
201.81  PF#2                  117952.4821801.08
201.71  PF#2                  118112.81 21528.5
201.62  PF#2                  118235.69 21477.5
201.52  PF#2                  118008.55 21391.4
201.43  PF#2                  118053.86 21342.1
201.33  PF#2                  118074.35 21381.8
201.24  PF#2                  118069.92   21570
201.14  PF#2                  118040.42   21721
201.05  PF#2                  117950.48   21849
200.95  PF#2                  117952.91   21954
200.86  PF#2                  1   18000   22032
200.77  PF#2                  1 17828.8   21951
200.67  PF#2                  1   17640 21649.3
200.58  PF#2                  1   17510   21450
200.49  PF#2                  1   17380   21171
200.39  PF#2                  1   17300   21041
200.3   PF#2                  1   17205   20896
200.2   PF#2                  1   17115   20744
200.1   PF#2                  1   17030   20800
200     PF#2                  1   16950   21050
199.91  PF#2                  1   16800   21330
199.82  PF#2                  1   16870   21650
```

****

FLOW DATA

Flow Title: Reach 3 - Floodway
Flow File : R:\Phoenix\Projects\AZE1005-ARS_ProgramManagement\Technical\Drainage\HEC-RAS\Pre-Project Model\Pre-Project.f01

Flow Data (cfs)

River	Reach	RS	PF#1	PF#2
1	1	214.14	169000	169000
1	1	213.21	166000	166000
1	1	205.4	164000	164000
1	1	200.3	179750	179750

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
1	1	PF#1	Normal S = 0.001	Known WS = 948.9
1	1	PF#2	Normal S = 0.001	Known WS = 949.9

****

GEOMETRY DATA

Geometry Title: Salt River Reach 3 - Pre-Project
Geometry File : R:\Phoenix\Projects\AZE1005-ARS_ProgramManagement\Technical\Drainage\HEC-RAS\Pre-Project Model\Pre-Project.g02

CROSS SECTION

RIVER: 1
REACH: 1 RS: 214.14

INPUT
Description: 214.14
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18555.4	1082.6	18577.7	1082.5	18586.5	1082.5	18650.6	1082	18678.8	1082.1
18707.4	1081.7	18729.5	1082	18771.6	1082.1	18793.7	1081.8	18836	1080.9
18859.7	1080.3	18935.6	1078.9	19050.6	1077.2	19056.7	1077.2	19059.9	1077.1
19062.9	1076.9	19063.3	1077	19067.8	1077.1	19071.9	1077.1	19078.2	1077.1
19188.3	1078.1	19249.7	1079.4	19290.2	1080.1	19298.1	1080.2	19313.1	1080.4
19327.5	1080.7	19358.6	1080.6	19391.6	1080.5	19412.8	1080.3	19520.8	1077.9
19554.8	1077.5	19580.2	1077.3	19610.8	1076.5	19651.9	1076.7	19697.7	1058.7
19715.9	1051.7	19732.8	1050.2	19750.7	1048.7	20032.7	1049	20292.3	1049.2
20350.9	1065.9	20388.3	1077.5	20405.5	1075.6	20406	1075.6	20439.7	1075.6
20637.3	1075.5	20899.6	1075.4	20920.6	1075.5	20941.8	1075.4	20947.4	1075.5
20962	1075.5	20980	1075.4	20989.9	1075.4	21074.1	1075.4	21119.6	1075.7
21168.7	1076.8	21222	1076.6	21326.8	1076.2	21327.4	1076.2	21342.2	1075
21390.6	1075	21428.8	1075	21455.3	1075.3	21502.1	1076.4	21502.4	1076.2
21505.4	1076.4	21551.9	1077.5	21591.8	1077.6	21726.3	1078.4	21759.2	1078.5
21766.3	1078.3	21792.4	1078.4	21884.6	1078.9	22013	1079.1	22034.3	1079.5
22101.6	1079.7	22156.1	1080.1	22201.4	1080	22204.6	1079.9	22217.3	1080.5
22235	1081.3	22238.1	1081.3	22264.5	1081	22267.7	1080.9	22269.4	1080.7
22269.9	1080.6	22272.4	1080.4	22280.3	1079.8	22341.9	1080.2	22431	1080.6
22501.3	1081.2	22591.2	1081.8	22602.9	1082	22619.7	1083	22686.6	1082.9
22710.3	1082.5								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val

```
************************************************
 18555.4     .04 19651.9     .035 20388.3     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       19651.9 20388.3              475  510.51     570            .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 18555.4 19651.9    1082       F
 20388.3 22710.3    1082       F

CROSS SECTION OUTPUT  Profile #PF#1
*****************************************************************************************************
* E.G. Elev (ft)         * 1077.01  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.50  * Wt. n-Val.            *          *    0.035 *          *
* W.S. Elev (ft)         * 1075.50  * Reach Len. (ft)       *  475.00  *  510.51  *  570.00  *
* Crit W.S. (ft)         * 1062.66  * Flow Area (sq ft)     *          *17180.89  *          *
* E.G. Slope (ft/ft)     *0.000804  * Area (sq ft)          *          *17180.89  *   83.10  *
* Q Total (cfs)          *169000.00  * Flow (cfs)           *          *169000.00  *          *
* Top Width (ft)         * 1312.52  * Top Width (ft)        *          *  726.91  *  585.60  *
* Vel Total (ft/s)       *    9.84  * Avg. Vel. (ft/s)      *          *    9.84  *          *
* Max Chl Dpth (ft)      *   26.80  * Hydr. Depth (ft)      *          *   23.64  *          *
* Conv. Total (cfs)      *5961484.0  * Conv. (cfs)          *          *5961484.0  *          *
* Length Wtd. (ft)       *  510.51  * Wetted Per. (ft)      *          *  735.31  *          *
* Min Ch El (ft)         * 1048.70  * Shear (lb/sq ft)      *          *    1.17  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   11.53  *          *
* Frctn Loss (ft)        *    0.42  * Cum Volume (acre-ft)  * 9055.14  *34468.73  * 3408.52  *
* C & E Loss (ft)        *    0.00  * Cum SA (acres)        * 2003.56  * 3136.97  *  994.20  *
*****************************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*****************************************************************************************************
* E.G. Elev (ft)         * 1077.01  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.50  * Wt. n-Val.            *          *    0.035 *          *
* W.S. Elev (ft)         * 1075.51  * Reach Len. (ft)       *  475.00  *  510.51  *  570.00  *
* Crit W.S. (ft)         * 1062.66  * Flow Area (sq ft)     *          *17184.88  *          *
* E.G. Slope (ft/ft)     *0.000803  * Area (sq ft)          *          *17184.88  *          *
* Q Total (cfs)          *169000.00  * Flow (cfs)           *          *169000.00  *          *
* Top Width (ft)         *  726.86  * Top Width (ft)        *          *  726.86  *          *
* Vel Total (ft/s)       *    9.83  * Avg. Vel. (ft/s)      *          *    9.83  *          *
* Max Chl Dpth (ft)      *   26.81  * Hydr. Depth (ft)      *          *   23.64  *          *
* Conv. Total (cfs)      *5963943.0  * Conv. (cfs)          *          *5963943.0  *          *
* Length Wtd. (ft)       *  510.51  * Wetted Per. (ft)      *          *  735.29  *          *
* Min Ch El (ft)         * 1048.70  * Shear (lb/sq ft)      *          *    1.17  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   11.52  *          *
* Frctn Loss (ft)        *    0.42  * Cum Volume (acre-ft)  * 1211.32  *35399.14  * 1413.43  *
* C & E Loss (ft)        *    0.00  * Cum SA (acres)        *  203.89  * 3140.80  *  205.34  *
*****************************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                RS: 214.04

INPUT
Description: 214.04
Station Elevation Data    num=      96
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*************************************************************************************
 19072.9  1079.7 19093.4  1080.3 19132.2  1080.8 19189.9  1082.5 19193.8  1082.6
 19198.4  1082.5 19239.2    1081 19288.1  1081.2 19324.4  1080.7 19371.7  1079.1
 19395.9  1078.4 19428.8    1078 19449.6  1077.2 19490.6  1077.5 19513.1  1077.7
 19544.1  1077.9 19555.9  1077.7 19588.8  1076.5 19610.7  1075.7 19613.2  1075.7
 19632.1  1075.8 19635.6  1075.8 19636.8  1075.4 19702.8    1053 19711.2  1052.5
 19718.8  1052.3 19726.8  1051.2 19735.4  1048.8 20175.7    1049 20286.6    1049
 20298.5  1052.8 20376.6  1076.5 20387.2  1075.5 20390.3  1075.2 20574.2    1076
 20667.2  1076.1 20825.6  1075.6 20839.5  1075.5 20839.8  1075.5 20855.8    1073
 20864.2  1073.4 20909.3  1072.6 20914.5  1072.6 20915.6  1072.9 20928.6    1077
 20951.8    1077 20990.8  1076.9 20996.8  1076.9 21016.8  1077.3 21040.9  1077.5
 21130.4  1077.3 21234.3  1076.9 21246.3  1076.9 21256.8  1076.2 21294.9  1076.5
 21366.4  1076.6 21461.4  1076.5 21539.2  1076.3 21557.9  1076.3 21565.1  1076.3
 21586.9  1076.6 21607.7  1076.8 21639.2  1077.1 21662.1  1077.5 21690.5  1078.1
 21711.2  1078.3 21774.8  1078.5 21799.9  1079.2 21800.4  1079.3 21942.9  1079.4
   21971  1079.3 22001.7  1079.3 22020.7  1079.3 22177.7  1078.3 22203.1  1078.1
 22217.2  1078.1 22226.8    1078 22231.1    1078 22238.5    1078   22248  1077.8
 22357.9  1076.9 22384.7  1077.9 22394.1  1078.2 22399.6  1078.1 22400.9  1078.1
 22428.8  1077.9 22430.1  1077.9 22450.6  1078.2 22542.8  1078.3   22554  1078.5
 22667.1  1079.2 22667.7  1079.3 22717.7  1081.1 22725.6  1081.1 22727.3  1081.2
 22747.1    1084

Manning's n Values        num=       3
     Sta    n Val     Sta    n Val     Sta    n Val
************************************************
 19072.9     .04 19636.8     .035 20376.6     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       19636.8 20376.6              495  493.12     480            .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 19072.9 19636.8    1083       F
 20376.6 22747.1    1083       F

CROSS SECTION OUTPUT  Profile #PF#1
*****************************************************************************************************
* E.G. Elev (ft)         * 1076.58  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.54  * Wt. n-Val.            *          *    0.035 *          *
* W.S. Elev (ft)         * 1075.04  * Reach Len. (ft)       *  495.00  *  493.12  *  480.00  *
* Crit W.S. (ft)         * 1062.64  * Flow Area (sq ft)     *          *16977.45  *          *
* E.G. Slope (ft/ft)     *0.000846  * Area (sq ft)          *          *16977.45  *  143.39  *
```

Pre-Project

* Q Total (cfs)	*169000.00	* Flow (cfs)	*	*169000.00	*				*
* Top Width (ft)	* 813.60	* Top Width (ft)	*	* 733.94	*	79.66	*		
* Vel Total (ft/s)	* 9.95	* Avg. Vel. (ft/s)	*	* 9.95	*				
* Max Chl Dpth (ft)	* 26.24	* Hydr. Depth (ft)	*	* 23.13	*				
* Conv. Total (cfs)	*5809707.0	* Conv. (cfs)	*	*5809707.0	*				*
* Length Wtd. (ft)	* 493.12	* Wetted Per. (ft)	*	* 741.89	*				
* Min Ch El (ft)	* 1048.80	* Shear (lb/sq ft)	*	* 1.21	*				
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 12.03	*				
* Frctn Loss (ft)	* 0.50	* Cum Volume (acre-ft)	* 9055.14	*34268.57	* 3407.04	*			
* C & E Loss (ft)	* 0.04	* Cum SA (acres)	* 2003.56	* 3128.41	* 989.85	*			

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 1076.59	* Element	*	Left OB *	Channel	* Right OB	*		
* Vel Head (ft)	* 1.54	* Wt. n-Val.	*	* 0.035	*				
* W.S. Elev (ft)	* 1075.05	* Reach Len. (ft)	*	495.00 *	493.12	* 480.00	*		
* Crit W.S. (ft)	* 1062.64	* Flow Area (sq ft)	*	*16981.83	*				
* E.G. Slope (ft/ft)	*0.000845	* Area (sq ft)	*	*16981.83	*				
* Q Total (cfs)	*169000.00	* Flow (cfs)	*	*169000.00	*				*
* Top Width (ft)	* 733.89	* Top Width (ft)	*	* 733.89	*				
* Vel Total (ft/s)	* 9.95	* Avg. Vel. (ft/s)	*	* 9.95	*				
* Max Chl Dpth (ft)	* 26.25	* Hydr. Depth (ft)	*	* 23.14	*				
* Conv. Total (cfs)	*5812338.0	* Conv. (cfs)	*	*5812338.0	*				*
* Length Wtd. (ft)	* 493.12	* Wetted Per. (ft)	*	* 741.87	*				
* Min Ch El (ft)	* 1048.80	* Shear (lb/sq ft)	*	* 1.21	*				
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 12.02	*				
* Frctn Loss (ft)	* 0.50	* Cum Volume (acre-ft)	* 1211.32	*35198.93	* 1413.43	*			
* C & E Loss (ft)	* 0.04	* Cum SA (acres)	* 203.89	* 3132.24	* 205.34	*			

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 213.95

INPUT
Description: 213.95 - FEMA Section AG
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
19012.2	1082.3	19071.8	1081.2	19072.8	1081.2	19073.5	1081.2	19172.6	1080
19176.1	1079.9	19177	1079.9	19191.6	1079.8	19233.8	1079.1	19245.6	1079.2
19283.7	1079.1	19366	1078.5	19459.9	1077.8	19508.7	1075.2	19510	1075.1
19510.4	1075.2	19511.8	1075.3	19534.7	1076.7	19583.1	1074.4	19622.2	1071.5
19627.4	1072.4	19631.4	1072.9	19699.3	1056.7	19729	1049.4	19783.8	1049.5
20255.4	1049.3	20277.7	1056.5	20337.1	1075.9	20360.3	1074.9	20361.6	1074.8
20403.2	1074.5	20653.5	1075.3	20691.9	1075.3	20740	1075.5	20772	1075.4
20775.5	1075.1	20784.4	1073.9	20808.5	1074.1	20840.9	1074.4	20844.2	1074.5
20853.7	1075.1	20870	1074.8	20875	1074.6	20914.9	1075.6	20922.3	1075.7
20949.7	1076.5	20960.6	1076.8	20964.2	1076.9	20966.3	1078.4	20973	1080.1
21108.8	1079.4	21171.4	1079.5	21176.1	1079.5	21183	1079.7	21200.9	1076.8
21203.1	1076.6	21232.6	1076.3	21271.1	1076	21272.6	1076	21274.1	1076
21377.7	1076.7	21386.9	1076.7	21400.8	1076.7	21470.9	1077.6	21502.4	1077.7
21528	1077.6	21534	1077.9	21534.2	1077.9	21537	1078	21542.7	1077.4
21542.9	1077.8	21554.1	1077.4	21695.2	1077.7	21731.7	1077.2	21736.1	1076.3
21743.3	1075.1	21752	1076.3	21753.2	1076.5	21753.7	1076.6	21759.1	1078.6
21760.3	1079.1	21763.3	1079.6	21764.1	1079.5	21772.7	1079.3	21784.7	1079.3
21791.6	1079.5	21806.1	1079.6	21832.6	1079.8	21918.1	1079.8	21918.4	1080.2
22000.8	1079.8	22342	1078.4	22351.4	1078.4	22362.3	1078.4	22373.8	1078.7
22391.3	1078.7								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
19012.2	.04	19534.7	.035	20337.1	.04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19534.7 20337.1 500 504.25 500 .1 .3
Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
19012.2	19534.7	1082.3	F
20337.1	22391.3	1082.3	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 1076.05	* Element	*	Left OB *	Channel	* Right OB	*		
* Vel Head (ft)	* 1.89	* Wt. n-Val.	*	* 0.035	*				
* W.S. Elev (ft)	* 1074.16	* Reach Len. (ft)	*	500.00 *	504.25	* 500.00	*		
* Crit W.S. (ft)	* 1063.67	* Flow Area (sq ft)	*	*15307.12	*				
* E.G. Slope (ft/ft)	*0.001218	* Area (sq ft)	*	*15307.12	* 4.17	*			
* Q Total (cfs)	*169000.00	* Flow (cfs)	*	*169000.00	*				*
* Top Width (ft)	* 777.40	* Top Width (ft)	*	* 745.37	* 32.04	*			
* Vel Total (ft/s)	* 11.04	* Avg. Vel. (ft/s)	*	* 11.04	*				
* Max Chl Dpth (ft)	* 24.86	* Hydr. Depth (ft)	*	* 20.54	*				
* Conv. Total (cfs)	*4843418.0	* Conv. (cfs)	*	*4843418.0	*				*
* Length Wtd. (ft)	* 504.21	* Wetted Per. (ft)	*	* 752.31	*				
* Min Ch El (ft)	* 1049.30	* Shear (lb/sq ft)	*	* 1.55	*				
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 17.07	*				
* Frctn Loss (ft)	* 0.81	* Cum Volume (acre-ft)	* 9055.14	*34085.83	* 3406.22	*			
* C & E Loss (ft)	* 0.15	* Cum SA (acres)	* 2003.56	* 3120.04	* 989.23	*			

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1076.06	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.89	Wt. n-Val.		0.035	
W.S. Elev (ft)	1074.16	Reach Len. (ft)	500.00	504.25	500.00
Crit W.S. (ft)	1063.67	Flow Area (sq ft)		15312.49	
E.G. Slope (ft/ft)	0.001216	Area (sq ft)		15312.49	
Q Total (cfs)	169000.00	Flow (cfs)		169000.00	
Top Width (ft)	745.19	Top Width (ft)		745.19	
Vel Total (ft/s)	11.04	Avg. Vel. (ft/s)		11.04	
Max Chl Dpth (ft)	24.86	Hydr. Depth (ft)		20.55	
Conv. Total (cfs)	4846870.0	Conv. (cfs)		4846870.0	
Length Wtd. (ft)	504.21	Wetted Per. (ft)		752.16	
Min Ch El (ft)	1049.30	Shear (lb/sq ft)		1.55	
Alpha	1.00	Stream Power (lb/ft s)		17.05	
Frctn Loss (ft)	0.81	Cum Volume (acre-ft)	1211.32	35016.14	1413.43
C & E Loss (ft)	0.15	Cum SA (acres)	203.89	3123.87	205.34

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 213.85

INPUT
Description: 213.85
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17827.8	1078.7	17849.3	1078.5	17962.5	1078	17983.6	1077.8	18087.6	1077.7
18117.7	1077.6	18209	1077.4	18245.6	1077.6	18313.2	1077.9	18389.3	1078.8
18415.4	1078.8	18437.5	1078.2	18449	1078.3	18463.7	1078.2	18513.6	1077.6
18548.9	1077.6	18753.1	1077.6	18798.9	1077.6	18834.2	1077.6	18917.4	1077
19257.5	1075.3	19264.9	1075.1	19293.5	1075.6	19308	1069.8	19333.3	1060.1
19342.5	1063.1	19360.7	1068.8	19366.6	1068.9	19391	1069.1	19423.4	1069.4
19453.2	1068.8	19469.5	1068.4	19505	1067.4	19506.5	1067.3	19507.3	1067.3
19507.8	1067.3	19547.4	1067.3	19584.5	1067.6	19698.5	1068	19698.6	1068
19700.1	1067.8	19706.3	1067	19707.5	1066.9	19732.9	1066.7	19742.3	1067
19770.4	1067.6	19785.4	1067.6	19789.2	1066.5	19853.9	1048.1	19906.4	1048.1
20083.9	1048.2	20249.9	1048.3	20313.2	1069.1	20328.7	1074.2	20334.9	1074.2
20586	1074.1	20640.3	1074.2	20781.1	1074.5	20824.2	1074.1	20842	1073.7
20852.3	1073.7	20870.3	1073.9	20934.9	1073.8	20979.5	1074.4	21111.7	1075.1
21125.5	1075	21144.4	1074.8	21152.1	1075.1	21185.5	1076.2	21224.6	1075.6
21230.8	1075.4	21246.8	1077.2	21248.3	1077.3	21269	1076.4	21270.4	1076.3
21272.5	1076.3	21337.9	1076.3	21381.5	1076.2	21384.6	1076.3	21498.8	1077.1
21503.7	1077.1	21545.5	1077.1	21557.5	1077.1	21587	1077.2	21625.9	1077.3
21671.9	1077.5	21707.6	1077.4	21723.9	1077.4	21767.4	1077.3	21770.2	1077.3
21773.6	1077.4	21774.6	1077.4	21801.1	1079.6	21831.2	1078.8	21907.4	1079.1
21970.5	1078.8								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
17827.8	.04	19785.4	.035	20328.7	.04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19785.4 20328.7 521 520.04 541 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17827.8	19618.33	1078	F
20328.7	21970.5	1078	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1075.08	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.43	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	1071.66	Reach Len. (ft)	521.00	520.04	541.00
Crit W.S. (ft)	1065.14	Flow Area (sq ft)	694.18	11070.79	
E.G. Slope (ft/ft)	0.002230	Area (sq ft)	1959.01	11070.79	
Q Total (cfs)	169000.00	Flow (cfs)	3146.51	165853.50	
Top Width (ft)	1017.61	Top Width (ft)	482.04	535.57	
Vel Total (ft/s)	14.36	Avg. Vel. (ft/s)	4.53	14.98	
Max Chl Dpth (ft)	23.56	Hydr. Depth (ft)	4.16	20.67	
Conv. Total (cfs)	3578540.0	Conv. (cfs)	66626.8	3511913.0	
Length Wtd. (ft)	520.05	Wetted Per. (ft)	167.15	542.03	
Min Ch El (ft)	1048.10	Shear (lb/sq ft)	0.58	2.84	
Alpha	1.07	Stream Power (lb/ft s)	2.62	42.60	
Frctn Loss (ft)	0.71	Cum Volume (acre-ft)	9043.90	33933.16	3406.20
C & E Loss (ft)	0.44	Cum SA (acres)	2000.80	3112.62	989.05

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1075.09	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.43	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	1071.66	Reach Len. (ft)	521.00	520.04	541.00
Crit W.S. (ft)	1065.14	Flow Area (sq ft)	695.26	11074.25	
E.G. Slope (ft/ft)	0.002229	Area (sq ft)	695.26	11074.25	
Q Total (cfs)	169000.00	Flow (cfs)	3105.07	165894.90	
Top Width (ft)	702.59	Top Width (ft)	167.07	535.52	

```
                                                                    Pre-Project
* Vel Total (ft/s)       *   14.36  * Avg. Vel. (ft/s)       *    4.47  *   14.98  *          *
* Max Chl Dpth (ft)      *   23.56  * Hydr. Depth (ft)       *    4.16  *   20.68  *          *
* Conv. Total (cfs)      *3579632.0  * Conv. (cfs)           * 65769.3  *3513862.0  *          *
* Length Wtd. (ft)       *  520.05  * Wetted Per. (ft)       *  171.10  *  542.00  *          *
* Min Ch El (ft)         * 1048.10  * Shear (lb/sq ft)      *    0.57  *    2.84  *          *
* Alpha                  *    1.07  * Stream Power (lb/ft s) *    2.53  *   42.59  *          *
* Frctn Loss (ft)        *    0.71  * Cum Volume (acre-ft)   * 1207.33  *34863.41  * 1413.43  *
* C & E Loss (ft)        *    0.44  * Cum SA (acres)         *  202.93  * 3116.46  *  205.34  *
*********************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                  RS: 213.75

INPUT
Description: 213.75
Station Elevation Data    num=      28
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
   18435    1076   19470    1076   19600    1080 19633.4 1080.84 19633.5 1074.13
 19633.6  1073.5 19636.5  1073.5   19709 1048.55   19764    1047 19769.5    1047
 19834.5 1047.15   19899  1046.6   19904  1046.6   19959    1047   20034 1044.61
   20039  1044.6   20104    1045   20169  1045.5   20174  1045.5 20240.5 1049.35
   20302  1073.8   20305  1073.8 20305.1  1074.8 20305.2  1081.5   20340    1080
   20490    1076   20925    1075   21465    1076

Manning's n Values        num=      3
     Sta   n Val      Sta   n Val      Sta   n Val
*************************************************
   18435    .037 19633.5    .032 20305.1    .037

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.    Expan.
       19633.5 20305.1              125  116.36     120             .1        .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
   18435 19633.5 1074.13       F
 20305.1   21465  1074.8       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         * 1073.93  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.97  * Wt. n-Val.             *          *    0.032  *          *
* W.S. Elev (ft)         * 1071.97  * Reach Len. (ft)       *    0.10  *     0.10  *     0.10  *
* Crit W.S. (ft)         * 1060.91  * Flow Area (sq ft)     *          *15022.46  *          *
* E.G. Slope (ft/ft)     *0.000919  * Area (sq ft)          *          *15022.46  *          *
* Q Total (cfs)          *169000.00  * Flow (cfs)           *          *169000.00  *          *
* Top Width (ft)         *  656.45  * Top Width (ft)       *          *  656.45  *          *
* Vel Total (ft/s)       *   11.25  * Avg. Vel. (ft/s)     *          *   11.25  *          *
* Max Chl Dpth (ft)      *   27.37  * Hydr. Depth (ft)     *          *   22.88  *          *
* Conv. Total (cfs)      *5575129.0  * Conv. (cfs)         *          *5575129.0  *          *
* Length Wtd. (ft)       *    0.10  * Wetted Per. (ft)     *          *  664.87  *          *
* Min Ch El (ft)         * 1044.60  * Shear (lb/sq ft)     *          *    1.30  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   14.58  *          *
* Frctn Loss (ft)        *          * Cum Volume (acre-ft)  * 9032.18  *33777.40  * 3406.20  *
* C & E Loss (ft)        *          * Cum SA (acres)        * 1997.92  * 3105.51  *  989.05  *
*********************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)         * 1073.94  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.96  * Wt. n-Val.             *          *    0.032  *          *
* W.S. Elev (ft)         * 1071.98  * Reach Len. (ft)       *    0.10  *     0.10  *     0.10  *
* Crit W.S. (ft)         * 1060.91  * Flow Area (sq ft)     *          *15027.91  *          *
* E.G. Slope (ft/ft)     *0.000918  * Area (sq ft)          *          *15027.91  *          *
* Q Total (cfs)          *169000.00  * Flow (cfs)           *          *169000.00  *          *
* Top Width (ft)         *  656.35  * Top Width (ft)       *          *  656.35  *          *
* Vel Total (ft/s)       *   11.25  * Avg. Vel. (ft/s)     *          *   11.25  *          *
* Max Chl Dpth (ft)      *   27.38  * Hydr. Depth (ft)     *          *   22.90  *          *
* Conv. Total (cfs)      *5578780.0  * Conv. (cfs)         *          *5578780.0  *          *
* Length Wtd. (ft)       *    0.10  * Wetted Per. (ft)     *          *  664.82  *          *
* Min Ch El (ft)         * 1044.60  * Shear (lb/sq ft)     *          *    1.30  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   14.56  *          *
* Frctn Loss (ft)        *          * Cum Volume (acre-ft)  * 1203.17  *34707.60  * 1413.43  *
* C & E Loss (ft)        *          * Cum SA (acres)        *  201.93  * 3109.34  *  205.34  *
*********************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

BRIDGE


RIVER: 1
REACH: 1                  RS: 213.745

INPUT
Description: 7th Street Bridge
Distance from Upstream XS =       .1
Deck/Roadway Width        =    115.36
Weir Coefficient          =       2.6
Upstream  Deck/Roadway Coordinates
    num=        8
```

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
19633.4	1080.84	1074.13	19633.5	1080.84	1074.13	19764	1084.56	1077.81
19899	1085.96	1079.23	20039	1085.95	1079.2	20174	1084.45	1077.7
20305	1081.53	1074.82	20305.2	1081.5	1074.82			

Upstream Bridge Cross Section Data
Station Elevation Data num= 28

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18435	1076	19470	1076	19600	1080	19633.4	1080.84	19633.5	1074.13
19633.6	1073.5	19636.5	1073.5	19709	1048.55	19764	1047	19769.5	1047
19834.5	1047.15	19899	1046.6	19904	1046.6	19959	1047	20034	1044.61
20039	1044.6	20104	1045	20169	1045.5	20174	1045.5	20240.5	1049.35
20302	1073.8	20305	1073.8	20305.1	1074.8	20305.2	1081.5	20340	1080
20490	1076	20925	1075	21465	1076				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
18435	.037	19633.5	.032	20305.1	.037

Bank Sta: Left Right Coeff Contr. Expan.
19633.5 20305.1 .1 .3
Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
18435	19633.5	1074.13	F
20305.1	21465	1074.8	F

Downstream Deck/Roadway Coordinates
num= 8

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
19633.4	1080.84	1074.13	19633.5	1080.84	1074.13	19764	1084.56	1077.81
19899	1085.96	1079.23	20039	1085.95	1079.2	20174	1084.45	1077.7
20305	1081.53	1074.82	20305.2	1081.5	1074.82			

Downstream Bridge Cross Section Data
Station Elevation Data num= 28

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18435	1076	19470	1076	19600	1080	19633.4	1080.84	19633.5	1074.13
19633.6	1073.5	19636.5	1073.5	19709	1048.55	19764	1047	19769.5	1047
19834.5	1047.15	19899	1046.6	19904	1046.6	19959	1047	20034	1044.61
20039	1044.6	20104	1045	20169	1045.5	20174	1045.5	20240.5	1049.35
20302	1073.8	20305	1073.8	20305.1	1074.8	20305.2	1081.5	20340	1080
20490	1076	20925	1075	21465	1076				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
18435	.037	19633.5	.032	20305.1	.037

Bank Sta: Left Right Coeff Contr. Expan.
19633.5 20305.1 .1 .3
Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
18435	19633.5	1074.13	F
20305.1	21465	1074.8	F

Upstream Embankment side slope = horiz. to 1.0 vertical
Downstream Embankment side slope = horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .95
Elevation at which weir flow begins =
Energy head used in spillway design =
Spillway height used in design =
Weir crest shape = Broad Crested

Number of Piers = 4

Pier Data
Pier Station Upstream= 19766.5 Downstream= 19766.5
Upstream num= 2

Width	Elev	Width	Elev
5	1047	5	1077.88

Downstream num= 2

Width	Elev	Width	Elev
5	1047	5	1077.88

Pier Data
Pier Station Upstream= 19901.5 Downstream= 19901.5
Upstream num= 2

Width	Elev	Width	Elev
5	1046.6	5	1079.2

Downstream num= 2

Width	Elev	Width	Elev
5	1046.6	5	1079.2

Pier Data
Pier Station Upstream= 20036.5 Downstream= 20036.5
Upstream num= 2

Width	Elev	Width	Elev
5	1044.6	5	1079.2

Downstream num= 2

Width	Elev	Width	Elev
5	1044.6	5	1079.2

Pier Data
Pier Station Upstream= 20171.5 Downstream= 20171.5
Upstream num= 2

Width	Elev	Width	Elev
5	1045.5	5	1077.7

Downstream num= 2

Width	Elev	Width	Elev
5	1045.5	5	1077.7

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data
Energy
Momentum Cd = 1.2
Yarnell KVal = 1.05
Selected Low Flow Methods = Highest Energy Answer

High Flow Method
Energy Only

Additional Bridge Parameters
Add Friction component to Momentum
Add Weight component to Momentum
Class B flow critical depth computations use critical depth inside the bridge at the upstream end
Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #PF#1

E.G. US. (ft)	1073.93	Element	Inside BR US	Inside BR DS	
W.S. US. (ft)	1071.97	E.G. Elev (ft)	1073.86	1073.68	
Q Total (cfs)	169000.00	W.S. Elev (ft)	1071.70	1071.48	
Q Bridge (cfs)	169000.00	Crit W.S. (ft)	1061.26	1061.26	
Q Weir (cfs)		Max Chl Dpth (ft)	27.10	26.88	
Weir Sta Lft (ft)		Vel Total (ft/s)	11.80	11.91	
Weir Sta Rgt (ft)		Flow Area (sq ft)	14327.87	14190.25	
Weir Submerg		Froude # Chl	0.44	0.44	
Weir Max Depth (ft)		Specif Force (cu ft)	236120.50	233627.70	
Min El Weir Flow (ft)	1075.01	Hydr Depth (ft)	22.56	22.39	
Min El Prs (ft)	1079.23	W.P. Total (ft)	849.45	846.46	
Delta EG (ft)	0.26	Conv. Total (cfs)	4375788.0	4316097.0	
Delta WS (ft)	0.31	Top Width (ft)	634.96	633.79	
BR Open Area (sq ft)	18211.62	Frctn Loss (ft)			
BR Open Vel (ft/s)	11.91	C & E Loss (ft)			
Coef of Q		Shear Total (lb/sq ft)	1.57	1.60	
Br Sel Method	Momentum	Power Total (lb/ft s)	18.53	19.11	

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

BRIDGE OUTPUT Profile #PF#2

E.G. US. (ft)	1073.94	Element	Inside BR US	Inside BR DS	
W.S. US. (ft)	1071.98	E.G. Elev (ft)	1073.86	1073.69	
Q Total (cfs)	169000.00	W.S. Elev (ft)	1071.70	1071.49	
Q Bridge (cfs)	169000.00	Crit W.S. (ft)	1061.26	1061.26	
Q Weir (cfs)		Max Chl Dpth (ft)	27.10	26.89	
Weir Sta Lft (ft)		Vel Total (ft/s)	11.79	11.90	
Weir Sta Rgt (ft)		Flow Area (sq ft)	14333.29	14195.82	
Weir Submerg		Froude # Chl	0.44	0.44	
Weir Max Depth (ft)		Specif Force (cu ft)	236219.40	233727.90	
Min El Weir Flow (ft)	1081.09	Hydr Depth (ft)	22.57	22.40	
Min El Prs (ft)	1079.23	W.P. Total (ft)	849.57	846.58	
Delta EG (ft)	0.26	Conv. Total (cfs)	4378146.0	4318510.0	
Delta WS (ft)	0.31	Top Width (ft)	635.01	633.84	
BR Open Area (sq ft)	18185.24	Frctn Loss (ft)			
BR Open Vel (ft/s)	11.90	C & E Loss (ft)			
Coef of Q		Shear Total (lb/sq ft)	1.57	1.60	
Br Sel Method	Momentum	Power Total (lb/ft s)	18.50	19.09	

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 213.74

INPUT
Description: 213.74
Station Elevation Data num= 28

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18435	1076	19470	1076	19600	1080	19633.4	1080.84	19633.5	1074.13
19633.6	1073.5	19636.5	1073.5	19709	1048.55	19764	1047	19769.5	1047
19834.5	1047.15	19899	1046.6	19904	1046.6	19959	1047	20034	1044.61
20039	1044.6	20104	1045	20169	1045.5	20174	1045.5	20240.5	1049.35
20302	1073.8	20305	1073.8	20305.1	1074.8	20305.2	1081.5	20340	1080
20490	1076	20925	1075	21465	1076				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
18435	.037	19633.5	.032	20305.1	.037

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19633.5 20305.1 391 373.47 361 .1 .3
Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
18435	19633.5	1074.13	F

20305.1 21465 1074.8 F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1073.68	Element	Left OB	Channel	Right OB	
Vel Head (ft)	2.02	Wt. n-Val.		0.032		
W.S. Elev (ft)	1071.66	Reach Len. (ft)	391.00	373.47	361.00	
Crit W.S. (ft)	1060.91	Flow Area (sq ft)		14818.63		
E.G. Slope (ft/ft)	0.000958	Area (sq ft)		14818.63		
Q Total (cfs)	169000.00	Flow (cfs)		169000.00		
Top Width (ft)	654.76	Top Width (ft)		654.76		
Vel Total (ft/s)	11.40	Avg. Vel. (ft/s)		11.40		
Max Chl Dpth (ft)	27.06	Hydr. Depth (ft)		22.63		
Conv. Total (cfs)	5459470.0	Conv. (cfs)		5459470.0		
Length Wtd. (ft)	373.47	Wetted Per. (ft)		663.07		
Min Ch El (ft)	1044.60	Shear (lb/sq ft)		1.34		
Alpha	1.00	Stream Power (lb/ft s)		15.25		
Frctn Loss (ft)	0.52	Cum Volume (acre-ft)	9032.18	33739.30	3406.20	
C & E Loss (ft)	0.17	Cum SA (acres)	1997.92	3103.81	989.05	

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1073.69	Element	Left OB	Channel	Right OB	
Vel Head (ft)	2.02	Wt. n-Val.		0.032		
W.S. Elev (ft)	1071.67	Reach Len. (ft)	391.00	373.47	361.00	
Crit W.S. (ft)	1060.91	Flow Area (sq ft)		14824.30		
E.G. Slope (ft/ft)	0.000957	Area (sq ft)		14824.30		
Q Total (cfs)	169000.00	Flow (cfs)		169000.00		
Top Width (ft)	654.73	Top Width (ft)		654.73		
Vel Total (ft/s)	11.40	Avg. Vel. (ft/s)		11.40		
Max Chl Dpth (ft)	27.07	Hydr. Depth (ft)		22.64		
Conv. Total (cfs)	5462967.0	Conv. (cfs)		5462967.0		
Length Wtd. (ft)	373.47	Wetted Per. (ft)		663.07		
Min Ch El (ft)	1044.60	Shear (lb/sq ft)		1.34		
Alpha	1.00	Stream Power (lb/ft s)		15.23		
Frctn Loss (ft)	0.52	Cum Volume (acre-ft)	1203.17	34669.49	1413.43	
C & E Loss (ft)	0.17	Cum SA (acres)	201.93	3107.65	205.34	

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 213.66

INPUT
Description: 213.66
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17026.7	1076.4	17035.9	1076.4	17047	1076.4	17057.3	1076.5	17212.3	1077.3
17306.5	1077.8	17311.3	1077.7	17325.2	1077.3	17326.2	1077.3	17343.4	1077.3
17442.9	1076.7	17474.5	1076.6	17571	1076	17573.6	1076	17595.6	1076.1
17610	1076.1	17705.1	1075	17741.5	1075.1	17947.8	1075.4	17953.1	1075.5
18038.8	1075.4	18185.8	1075.6	18234.4	1076.1	18300.9	1076.4	18318.8	1076.5
18414	1075.5	18414.6	1075.5	18415.1	1075.5	18415.7	1075.5	18448.6	1075.8
18455.1	1075.4	18472.5	1073.3	18527.9	1073.3	18683	1073	18718.7	1073
18832.1	1073.3	18873.8	1073.2	18878.4	1072.9	18881.8	1072.9	18892.6	1074.2
18901.3	1075.2	19033.1	1075.2	19131.6	1074.9	19140.9	1074.8	19157.1	1074.8
19235.1	1073.7	19291.4	1073.4	19291.9	1073.4	19292.2	1073.4	19391.8	1069.9
19418.5	1069.7	19442.4	1069.3	19496.9	1070	19532.6	1070.6	19537.6	1070.2
19543	1070.6	19572.3	1071.8	19605.3	1068.7	19616.1	1068.2	19621.3	1069.8
19633.2	1073.3	19663.1	1073.7	19675.2	1073.6	19689.7	1068.5	19748.8	1047.6
19750.4	1047.6	20010.7	1047.7	20194.9	1047.9	20235	1062.5	20260.3	1071.7
20270.2	1073.7	20288.3	1076.6	20297.7	1078.3	20387.2	1078.5	20416.3	1078.5
20457.1	1078.5	20464.9	1076.1	20469.4	1075.3	20825.5	1074.4	20828.5	1074.4
20828.8	1074.4	20830.9	1074.4	20837.2	1074.9	20839.2	1074.9	20870.3	1074.9
20871.4	1074.9	20872.6	1074.6	20872.8	1074.7	20900.8	1074.1	20901.5	1074
20908.4	1073.9	20912.4	1073.9	20915.4	1074	20927	1075.1	20951.2	1077.5
20999.4	1077.6								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
17026.7	.037	19675.2	.032	20297.7	.037

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
19675.2	20297.7	490 491.08	495	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17026.7	19675.2	1078.5	F
20297.7	20999.4	1078.5	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1072.99	Element	Left OB	Channel	Right OB	
Vel Head (ft)	3.73	Wt. n-Val.		0.032		
W.S. Elev (ft)	1069.25	Reach Len. (ft)	490.00	491.08	495.00	
Crit W.S. (ft)	1063.62	Flow Area (sq ft)		10898.94		
E.G. Slope (ft/ft)	0.002199	Area (sq ft)	12.11	10898.94		
Q Total (cfs)	169000.00	Flow (cfs)		169000.00		

* Top Width (ft)	* 586.13	* Top Width (ft)	* 20.11	* 566.02	*	* Vel Total (ft/s)	* 15.51	* Avg. Vel. (ft/s)	*	* 15.51	*
* Max Chl Dpth (ft)	* 21.65	* Hydr. Depth (ft)	*	* 19.26	*	* Conv. Total (cfs)	*3604114.0	* Conv. (cfs)	*	*3604114.0	*
* Length Wtd. (ft)	* 491.08	* Wetted Per. (ft)	*	* 573.50	*	* Min Ch El (ft)	* 1047.60	* Shear (lb/sq ft)	*	* 2.61	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 40.45	*	* Frctn Loss (ft)	* 0.98	* Cum Volume (acre-ft)	* 9032.13	*33629.05	* 3406.20 *
* C & E Loss (ft)	* 0.39	* Cum SA (acres)	* 1997.82	* 3098.58	* 989.05 *						

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 1073.00	* Element	* Left OB	* Channel	* Right OB *	* Vel Head (ft)	* 3.73	* Wt. n-Val.	*	* 0.032	*
* W.S. Elev (ft)	* 1069.27	* Reach Len. (ft)	* 490.00	* 491.08	* 495.00 *	* Crit W.S. (ft)	* 1063.62	* Flow Area (sq ft)	*	*10906.67	*
* E.G. Slope (ft/ft)	*0.002194	* Area (sq ft)	*	*10906.67	*	* Q Total (cfs)	*169000.00	* Flow (cfs)	*	*169000.00	*
* Top Width (ft)	* 565.99	* Top Width (ft)	*	* 565.99	*	* Vel Total (ft/s)	* 15.50	* Avg. Vel. (ft/s)	*	* 15.50	*
* Max Chl Dpth (ft)	* 21.67	* Hydr. Depth (ft)	*	* 19.27	*	* Conv. Total (cfs)	*3608339.0	* Conv. (cfs)	*	*3608339.0	*
* Length Wtd. (ft)	* 491.08	* Wetted Per. (ft)	*	* 573.51	*	* Min Ch El (ft)	* 1047.60	* Shear (lb/sq ft)	*	* 2.60	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 40.36	*	* Frctn Loss (ft)	* 0.98	* Cum Volume (acre-ft)	* 1203.17	*34559.18	* 1413.43 *
* C & E Loss (ft)	* 0.39	* Cum SA (acres)	* 201.93	* 3102.42	* 205.34 *						

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 213.57

INPUT
Description: 213.57 - FEMA Section AF
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17508.1	1075.8	17669.7	1076	17677.2	1076	17679.4	1076	17681.9	1075.9
17685.3	1075.9	17879.1	1077.7	17883.6	1077.7	17891.2	1077.7	17899.7	1077.7
17907.2	1077.7	18293.4	1077.1	18302.2	1077.1	18305.6	1077.2	18335	1077.2
18409.4	1076.8	18482.1	1076	18487.1	1075.3	18493.2	1074.6	18496.9	1074.6
18674	1073.2	18717	1073	18743.5	1072.8	18755.4	1072.8	18802	1072.6
18832.6	1072.6	18934.4	1072.7	18941.7	1072.7	18977	1069	18979.3	1068.7
18979.7	1068.7	18981.1	1068.6	19032.8	1069.7	19078.3	1069.3	19123.5	1069
19190.3	1068.3	19211.6	1068.4	19212.3	1068.4	19245	1068.5	19287.9	1069
19318.4	1068.9	19384.7	1069.1	19398.3	1068.6	19484.5	1068.5	19514.1	1067.2
19542.6	1063.6	19548	1062.9	19575	1062.8	19586.3	1062.5	19595.5	1063.8
19603.2	1064.4	19612.3	1065.2	19617.4	1064.5	19668.9	1061.9	19672.3	1061.7
19674.3	1061.7	19711.7	1060.1	19720	1057.4	19743.1	1047.9	20035.4	1047
20123.9	1046.7	20135.8	1048.3	20147.5	1050.1	20202.7	1051.3	20261.3	1052.3
20286.6	1053	20301.2	1052.6	20302.5	1052.5	20345.5	1073.5	20347.7	1074.6
20347.8	1074.6	20348.2	1074.6	20373.8	1075.7	20384.8	1075.5	20390.6	1075.6
20426.7	1075.7	20435.9	1075.7	20452.6	1075.3	20481.8	1075.4	20485.6	1075.2
20501.3	1076.7	20634	1076	20804.5	1073.3	20853.6	1072.8	20858.1	1072.8
20865.8	1073.1	20870.9	1073	20902.9	1071.5	20922.6	1075.2	20923.6	1075.4
20925.3	1075.3	20936.8	1075.1	20950.5	1074.7	21085.5	1074.8	21211.9	1075.1
21311.2	1074.8								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
17508.1	.037	19484.5	.032	20373.8	.037

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19484.5 20373.8 650 500.37 390 .1 .3
Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17508.1	19484.5	1077.7	F
20373.8	21311.2	1077.7	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 1071.61	* Element	* Left OB	* Channel	* Right OB *	* Vel Head (ft)	* 2.42	* Wt. n-Val.	*	* 0.032	*
* W.S. Elev (ft)	* 1069.19	* Reach Len. (ft)	* 650.00	* 500.37	* 390.00 *	* Crit W.S. (ft)	* 1063.08	* Flow Area (sq ft)	*	*13535.60	*
* E.G. Slope (ft/ft)	*0.001831	* Area (sq ft)	* 189.41	*13535.60	*	* Q Total (cfs)	*169000.00	* Flow (cfs)	*	*169000.00	*
* Top Width (ft)	* 1275.10	* Top Width (ft)	* 422.92	* 852.17	*	* Vel Total (ft/s)	* 12.49	* Avg. Vel. (ft/s)	*	* 12.49	*
* Max Chl Dpth (ft)	* 22.49	* Hydr. Depth (ft)	*	* 15.88	*	* Conv. Total (cfs)	*3949740.0	* Conv. (cfs)	*	*3949740.0	*
* Length Wtd. (ft)	* 500.37	* Wetted Per. (ft)	*	* 859.23	*	* Min Ch El (ft)	* 1046.70	* Shear (lb/sq ft)	*	* 1.80	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 22.48	*	* Frctn Loss (ft)	* 0.88	* Cum Volume (acre-ft)	* 9031.00	*33491.32	* 3406.20 *
* C & E Loss (ft)	* 0.13	* Cum SA (acres)	* 1995.33	* 3090.59	* 989.05 *						

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1071.62	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.42	Wt. n-Val.		0.032	
W.S. Elev (ft)	1069.20	Reach Len. (ft)	650.00	500.37	390.00
Crit W.S. (ft)	1063.08	Flow Area (sq ft)		13548.71	
E.G. Slope (ft/ft)	0.001827	Area (sq ft)		13548.71	
Q Total (cfs)	169000.00	Flow (cfs)		169000.00	
Top Width (ft)	852.16	Top Width (ft)		852.16	
Vel Total (ft/s)	12.47	Avg. Vel. (ft/s)		12.47	
Max Chl Dpth (ft)	22.50	Hydr. Depth (ft)		15.90	
Conv. Total (cfs)	3953934.0	Conv. (cfs)		3953934.0	
Length Wtd. (ft)	500.37	Wetted Per. (ft)		859.94	
Min Ch El (ft)	1046.70	Shear (lb/sq ft)		1.80	
Alpha	1.00	Stream Power (lb/ft s)		22.41	
Frctn Loss (ft)	0.88	Cum Volume (acre-ft)	1203.17	34421.33	1413.43
C & E Loss (ft)	0.13	Cum SA (acres)	201.93	3094.42	205.34

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 213.47

INPUT
Description: 213.47
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17897	1072.3	17950.9	1072.3	17955.5	1073.1	17972.5	1074.8	18140.3	1074.1
18179.1	1074.1	18193.1	1074	18207.9	1073.9	18257.4	1074	18402.2	1073.7
18450.1	1073.2	18519.9	1072.6	18592.3	1071.7	18600.6	1071.6	18625.8	1071.9
18741.5	1071.7	18784.9	1071.7	18805.1	1070.7	18823.4	1069.4	18880.6	1067
18888.4	1066.7	18938.9	1066.6	18942.7	1066.6	18948.4	1066.6	18970.5	1067.2
19008	1068.2	19008.9	1068.2	19041.7	1068.5	19057.6	1068.6	19057.8	1068.6
19058.1	1068.6	19060.2	1068.6	19154.7	1068.1	19202.4	1067.9	19243.3	1067
19289	1066	19306.6	1065.6	19313.9	1065.3	19357.8	1064.8	19392.5	1064.4
19420.7	1063.8	19432.7	1063.5	19483.4	1062	19493.9	1061.7	19499.6	1061.8
19534.7	1062.6	19536.4	1062.5	19585.4	1061.2	19586.6	1061.2	19587.5	1061.2
19588.9	1061.1	19593.6	1060.6	19689.9	1051.5	19699.6	1050.5	19735.3	1047
19807.1	1046.8	19827.4	1046.8	19970.4	1046.6	19993.9	1046.3	20037.8	1046.2
20146.5	1045.8	20205.3	1048.7	20214.8	1049.3	20219.4	1049	20220.8	1048.9
20255.2	1063.1	20274.2	1072.4	20283.3	1072.6	20341.6	1072.5	20362.6	1072.6
20428.7	1074.9	20446.8	1074.9	20469.6	1074.9	20474.3	1074.9	20476.7	1075
20483.2	1074.9	20484.1	1074.9	20486.3	1074.9	20488.6	1074.7	20489.3	1074.7
20515.7	1073.2	20526.3	1073.3	20537.5	1073.5	20540.5	1073.4	20545	1073.8
20567.4	1075.2	20569.1	1075.4	20578.4	1075	20619.2	1074.5	20621.6	1074.4
20649.8	1074	20700.8	1074	20735.1	1074.2	20751.5	1074.5	20765.2	1074.8
20783.9	1075.1								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
17897	.037	19243.3	.032	20274.2	.037

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19243.3 20274.2 500 493.66 485 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17897	19243.3	1075.4	F
20274.2	20783.9	1075.4	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1070.60	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.00	Wt. n-Val.		0.032	
W.S. Elev (ft)	1068.60	Reach Len. (ft)	500.00	493.66	485.00
Crit W.S. (ft)	1061.42	Flow Area (sq ft)		14886.30	
E.G. Slope (ft/ft)	0.001694	Area (sq ft)	342.03	14886.30	
Q Total (cfs)	169000.00	Flow (cfs)		169000.00	
Top Width (ft)	1424.00	Top Width (ft)	400.86	1023.14	
Vel Total (ft/s)	11.35	Avg. Vel. (ft/s)		11.35	
Max Chl Dpth (ft)	22.80	Hydr. Depth (ft)		14.55	
Conv. Total (cfs)	4106424.0	Conv. (cfs)		4106424.0	
Length Wtd. (ft)	493.66	Wetted Per. (ft)		1028.11	
Min Ch El (ft)	1045.80	Shear (lb/sq ft)		1.53	
Alpha	1.00	Stream Power (lb/ft s)		17.38	
Frctn Loss (ft)	0.56	Cum Volume (acre-ft)	9027.03	33328.08	3406.20
C & E Loss (ft)	0.24	Cum SA (acres)	1989.19	3079.81	989.05

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1070.62	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.00	Wt. n-Val.		0.032	

Pre-Project

W.S. Elev (ft)	1068.62	Reach Len. (ft)	500.00	493.66	485.00
Crit W.S. (ft)	1061.42	Flow Area (sq ft)		14903.79	
E.G. Slope (ft/ft)	0.001691	Area (sq ft)		14903.79	
Q Total (cfs)	169000.00	Flow (cfs)		169000.00	
Top Width (ft)	1023.12	Top Width (ft)		1023.12	
Vel Total (ft/s)	11.34	Avg. Vel. (ft/s)		11.34	
Max Chl Dpth (ft)	22.82	Hydr. Depth (ft)		14.57	
Conv. Total (cfs)	4110138.0	Conv. (cfs)		4110138.0	
Length Wtd. (ft)	493.66	Wetted Per. (ft)		1029.73	
Min Ch El (ft)	1045.80	Shear (lb/sq ft)		1.53	
Alpha	1.00	Stream Power (lb/ft s)		17.32	
Frctn Loss (ft)	0.56	Cum Volume (acre-ft)	1203.17	34257.92	1413.43
C & E Loss (ft)	0.24	Cum SA (acres)	201.93	3083.65	205.34

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 213.38

INPUT
Description: 213.38
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17634.6	1070.7	17652.1	1070.7	17729.5	1071.2	17747.9	1072.2	17763.8	1073.1
17893.9	1073.4	17976.4	1073.1	18006.5	1072.7	18006.7	1072.7	18008	1072.7
18197.8	1072.8	18341.3	1071.5	18390.9	1071.3	18419.4	1070.9	18420.4	1070.9
18423.8	1070.9	18431	1071	18656.8	1070.5	18735	1070.6	18756.6	1070.9
18796.6	1071.1	18974.7	1070.8	19012.6	1070.8	19073.3	1070.8	19129.4	1069.7
19192.7	1068.9	19195.5	1068.8	19196.5	1068.5	19204.6	1068.3	19213.9	1068.2
19225.5	1067.5	19242.1	1066.8	19303.8	1064.4	19303.9	1064.4	19304.2	1064.4
19346.1	1064.6	19365.3	1061.2	19365.5	1061.2	19401.7	1061	19405.7	1060.8
19411.2	1060.6	19452.9	1058.9	19499.7	1059.7	19523.7	1060.4	19526.3	1060.4
19530.8	1060.5	19534.1	1060.4	19575.5	1058.6	19625.5	1054.4	19648.5	1052.9
19678.5	1053.7	19684.4	1053.8	19732.6	1049.4	19735.1	1049.2	19761.4	1050.8
19767.8	1050.7	19771.9	1050.2	19796.5	1046.2	19864.4	1045.8	20277.6	1045.7
20311.6	1045.6	20311.7	1045.4	20329.1	1049.4	20361.7	1051.6	20363.3	1052.8
20364.3	1052.8	20374	1053.5	20405.3	1054.8	20417	1056.5	20434.2	1065
20473	1075.2	20473.5	1075.2	20515.6	1074.3	20532	1073.2	20533.3	1073
20535.9	1073	20539.6	1072.9	20569.9	1072.5	20578	1072.1	20607.5	1072.2
20652.6	1074	20655.9	1074.1	20722.7	1075.3	20793.4	1076	20804.4	1076.4
20831.2	1076.4	20834	1075.7	20842.3	1072.9	20845.3	1072.1	20848.9	1072.1
20860.3	1072.3	20875.9	1072.3	20895.1	1072.4	20963.7	1072.4	20982.3	1071.9
20996.7	1072.4								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
17634.6	.037	19346.1	.032	20473	.037

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19346.1 20473 210 290.06 395 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17634.6	19346.1	1076.4	F
20473	20996.7	1076.4	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1069.81	Element		Left OB	Channel	Right OB
Vel Head (ft)	1.21	Wt. n-Val.			0.032	
W.S. Elev (ft)	1068.60	Reach Len. (ft)	210.00	290.06	395.00
Crit W.S. (ft)	1059.34	Flow Area (sq ft)		19139.19	
E.G. Slope (ft/ft)	0.000809	Area (sq ft)	395.62	19139.19	
Q Total (cfs)	169000.00	Flow (cfs)		169000.00	
Top Width (ft)	1251.70	Top Width (ft)	149.92	1101.78	
Vel Total (ft/s)	8.83	Avg. Vel. (ft/s)		8.83	
Max Chl Dpth (ft)	23.20	Hydr. Depth (ft)		17.37	
Conv. Total (cfs)	5943323.0	Conv. (cfs)		5943323.0	
Length Wtd. (ft)	290.06	Wetted Per. (ft)		1106.71	
Min Ch El (ft)	1045.40	Shear (lb/sq ft)		0.87	
Alpha	1.00	Stream Power (lb/ft s)		7.71	
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	9022.80	33135.28	3406.20
C & E Loss (ft)	0.07	Cum SA (acres)	1986.03	3067.77	989.05

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1069.82	Element		Left OB	Channel	Right OB
Vel Head (ft)	1.21	Wt. n-Val.			0.032	
W.S. Elev (ft)	1068.61	Reach Len. (ft)	210.00	290.06	395.00
Crit W.S. (ft)	1059.34	Flow Area (sq ft)		19155.73	
E.G. Slope (ft/ft)	0.000810	Area (sq ft)		19155.73	
Q Total (cfs)	169000.00	Flow (cfs)		169000.00	
Top Width (ft)	1101.75	Top Width (ft)		1101.75	
Vel Total (ft/s)	8.82	Avg. Vel. (ft/s)		8.82	
Max Chl Dpth (ft)	23.21	Hydr. Depth (ft)		17.39	
Conv. Total (cfs)	5937578.0	Conv. (cfs)		5937578.0	
Length Wtd. (ft)	290.06	Wetted Per. (ft)		1110.71	
Min Ch El (ft)	1045.40	Shear (lb/sq ft)		0.87	
Alpha	1.00	Stream Power (lb/ft s)		7.70	
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	1203.17	34064.92	1413.43
C & E Loss (ft)	0.07	Cum SA (acres)	201.93	3071.61	205.34

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 213.33

INPUT
Description: 213.33
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17662.6	1072.6	17668	1072.6	17677	1072.6	17679.2	1072.7	17685.5	1072.7
17890.3	1072	17891.3	1072	17919.8	1071.9	18055.2	1071.9	18114.9	1071.9
18241.8	1071.2	18279.3	1070.9	18302.9	1070.9	18305.8	1070.8	18316.6	1070.7
18337.3	1070.5	18464.8	1070.6	18565.2	1070.8	18644.2	1071	18654.1	1071
18680.7	1070.7	18888.5	1070	18954.5	1069.6	19002.1	1069.7	19091.3	1069
19104.2	1069	19104.4	1069	19107.7	1069	19109.5	1068.5	19112.3	1067.7
19112.4	1067.7	19123.4	1067.3	19136.1	1067.1	19144.4	1069.1	19147.5	1069.9
19163.9	1070.3	19173.4	1070.7	19184.4	1069.5	19203.3	1068.1	19209.7	1067.1
19222.7	1066	19244.2	1064.1	19272.3	1063	19328.9	1063.5	19336.9	1063.4
19344.3	1063.4	19367.2	1062.3	19389	1062	19396.3	1061.9	19416.7	1061.3
19418.1	1060.9	19453.8	1059.7	19472.5	1059.2	19476.7	1057.5	19530.4	1058.7
19538.8	1058.7	19541	1058.6	19590	1056.9	19629.4	1054.2	19644.5	1053.7
19671.3	1051.4	19710.3	1047.2	19715.9	1046.8	19755.6	1046.4	19757.3	1046.3
19759.3	1046.3	19761.3	1046.3	19780.3	1046.2	20358.7	1045.4	20444.8	1048.7
20449.3	1048.9	20508	1066.2	20514.9	1068.7	20553.2	1069.1	20640.2	1069.7
20662.5	1069.4	20704	1068.4	20729.7	1068.7	20782.7	1069.1	20784.7	1069.2
20789.1	1069.5	20821.1	1071.4	20854.7	1073	20856.9	1073.1	20859.1	1073.1
20896	1072.7	20902.1	1072.7	20919.8	1072.5	20932.4	1072.6	20967.3	1072.5
21012.3	1072.8	21051.5	1073	21059.7	1073	21066	1073.1	21092.4	1073
21244.4	1073.1								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
17662.6	.037	19328.9	.032	20514.9	.037

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19328.9 20514.9 266 316.41 426 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17662.6	19328.9	1073.1	F
20640.2	21244.4	1073.1	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1069.53	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.96	Wt. n-Val.		0.032	
W.S. Elev (ft)	1068.57	Reach Len. (ft)	266.00	316.41	426.00
Crit W.S. (ft)	1057.70	Flow Area (sq ft)		21480.53	
E.G. Slope (ft/ft)	0.000606	Area (sq ft)	586.65	21480.53	1.81
Q Total (cfs)	169000.00	Flow (cfs)		169000.00	
Top Width (ft)	1371.95	Top Width (ft)	164.87	1185.64	21.44
Vel Total (ft/s)	7.87	Avg. Vel. (ft/s)		7.87	
Max Chl Dpth (ft)	23.17	Hydr. Depth (ft)		18.12	
Conv. Total (cfs)	6865352.0	Conv. (cfs)		6865352.0	
Length Wtd. (ft)	316.41	Wetted Per. (ft)		1189.56	
Min Ch El (ft)	1045.40	Shear (lb/sq ft)		0.68	
Alpha	1.00	Stream Power (lb/ft s)		5.37	
Frctn Loss (ft)	0.19	Cum Volume (acre-ft)	9020.43	33000.04	3406.19
C & E Loss (ft)	0.02	Cum SA (acres)	1985.27	3060.16	988.95

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1069.54	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.96	Wt. n-Val.		0.032	
W.S. Elev (ft)	1068.58	Reach Len. (ft)	266.00	316.41	426.00
Crit W.S. (ft)	1057.70	Flow Area (sq ft)		21497.32	
E.G. Slope (ft/ft)	0.000608	Area (sq ft)		21497.32	
Q Total (cfs)	169000.00	Flow (cfs)		169000.00	
Top Width (ft)	1185.62	Top Width (ft)		1185.62	
Vel Total (ft/s)	7.86	Avg. Vel. (ft/s)		7.86	
Max Chl Dpth (ft)	23.18	Hydr. Depth (ft)		18.13	
Conv. Total (cfs)	6854778.0	Conv. (cfs)		6854778.0	
Length Wtd. (ft)	316.41	Wetted Per. (ft)		1194.64	
Min Ch El (ft)	1045.40	Shear (lb/sq ft)		0.68	
Alpha	1.00	Stream Power (lb/ft s)		5.37	
Frctn Loss (ft)	0.19	Cum Volume (acre-ft)	1203.17	33929.57	1413.43
C & E Loss (ft)	0.02	Cum SA (acres)	201.93	3064.00	205.34

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 213.26

INPUT
Description: 213.26
Station Elevation Data num= 45

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17300	1071.7	17670	1072	17850	1073.6	18250	1075.5	19180	1078.2
19488.1	1078.1	19488.2	1072.97	19495.2	1069.2	19517.2	1057.5	19564.2	1055.45

```
 19584.2  1051.3 19586.9    1051 19589.4    1051 19638.2  1048.1 19686.9  1047.3
 19689.4  1047.3 19704.2  1047.2 19743.2  1042.2 19786.9 1042.15 19789.4  1042.2
 19838.2  1042.8 19871.7  1042.9 19886.9 1043.85 19889.4  1043.8 19938.2  1044.1
 19986.9  1042.7 19989.4  1042.7 20038.2  1042.3 20086.9 1042.85 20089.4  1042.8
 20121.7  1043.3 20171.2 1041.05 20188.2  1040.9 20189.4  1040.9 20223.2  1040.4
 20248.7  1042.2 20286.9  1043.4 20289.4  1043.4 20307.7 1044.35 20382.7  1069.6
 20387.9  1070.4 20387.9  1072.9   20388 1078.19   20790  1078.3   21330  1075.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
   17300    .037 19488.2    .032 20387.9    .037

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       19488.2 20387.9             155  152.22     155             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
   17300 19488.2 1072.97       F
 20387.9   21330  1070.4       F

CROSS SECTION OUTPUT  Profile #PF#1
*************************************************************************************************
* E.G. Elev (ft)         * 1069.32  * Element                * Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.17  * Wt. n-Val.             *         *    0.032 *          *
* W.S. Elev (ft)         * 1068.16  * Reach Len. (ft)       *    0.10 *     0.10 *     0.10 *
* Crit W.S. (ft)         * 1055.61  * Flow Area (sq ft)     *         *19493.06  *          *
* E.G. Slope (ft/ft)     *0.000568  * Area (sq ft)          *         *19493.06  *          *
* Q Total (cfs)          *169000.00  * Flow (cfs)           *         *169000.00  *          *
* Top Width (ft)         *  881.25  * Top Width (ft)        *         *  881.25  *          *
* Vel Total (ft/s)       *    8.67  * Avg. Vel. (ft/s)      *         *    8.67  *          *
* Max Chl Dpth (ft)      *   27.76  * Hydr. Depth (ft)      *         *   22.12  *          *
* Conv. Total (cfs)      *7091406.0  * Conv. (cfs)          *         *7091406.0  *          *
* Length Wtd. (ft)       *    0.10  * Wetted Per. (ft)      *         *  888.93  *          *
* Min Ch El (ft)         * 1040.40  * Shear (lb/sq ft)      *         *    0.78  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *         *    6.74  *          *
* Frctn Loss (ft)        *          * Cum Volume (acre-ft)  * 9018.64  *32851.22  * 3406.18  *
* C & E Loss (ft)        *          * Cum SA (acres)        * 1984.76  * 3052.65  *  988.85  *
*************************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

CROSS SECTION OUTPUT  Profile #PF#2
*************************************************************************************************
* E.G. Elev (ft)         * 1069.34  * Element                * Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.17  * Wt. n-Val.             *         *    0.032 *          *
* W.S. Elev (ft)         * 1068.17  * Reach Len. (ft)       *    0.10 *     0.10 *     0.10 *
* Crit W.S. (ft)         * 1055.61  * Flow Area (sq ft)     *         *19505.43  *          *
* E.G. Slope (ft/ft)     *0.000567  * Area (sq ft)          *         *19505.43  *          *
* Q Total (cfs)          *169000.00  * Flow (cfs)           *         *169000.00  *          *
* Top Width (ft)         *  881.21  * Top Width (ft)        *         *  881.21  *          *
* Vel Total (ft/s)       *    8.66  * Avg. Vel. (ft/s)      *         *    8.66  *          *
* Max Chl Dpth (ft)      *   27.77  * Hydr. Depth (ft)      *         *   22.13  *          *
* Conv. Total (cfs)      *7098895.0  * Conv. (cfs)          *         *7098895.0  *          *
* Length Wtd. (ft)       *    0.10  * Wetted Per. (ft)      *         *  888.94  *          *
* Min Ch El (ft)         * 1040.40  * Shear (lb/sq ft)      *         *    0.78  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *         *    6.73  *          *
* Frctn Loss (ft)        *          * Cum Volume (acre-ft)  * 1203.17  *33780.65  * 1413.43  *
* C & E Loss (ft)        *          * Cum SA (acres)        *  201.93  * 3056.49  *  205.34  *
*************************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

BRIDGE


RIVER: 1
REACH: 1                  RS: 213.255

INPUT
Description: Central Avenue Bridge
Distance from Upstream XS =       .1
Deck/Roadway Width        =  151.22
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=      11
     Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord
*************************************************************************
 19488.1  1078.1 1072.97 19488.2 1078.14 1072.97 19586.9  1078.5 1073.28
 19686.9 1078.86 1073.64 19786.9 1079.15 1073.93 19886.9 1079.37  1074.2
 19989.4 1079.38  1074.2 20086.9 1079.13 1073.93 20188.2 1078.89  1073.7
 20286.9 1078.53 1073.32   20388 1078.19 1072.98

Upstream Bridge Cross Section Data
Station Elevation Data    num=      45
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
   17300  1071.7   17670    1072   17850  1073.6   18250  1075.5   19180  1078.2
 19488.1  1078.1 19488.2 1072.97 19495.2  1069.2 19517.2  1057.5 19564.2 1055.45
 19584.2  1051.3 19586.9    1051 19589.4    1051 19638.2  1048.1 19686.9  1047.3
 19689.4  1047.3 19704.2  1047.2 19743.2  1042.2 19786.9 1042.15 19789.4  1042.2
 19838.2  1042.8 19871.7  1042.9 19886.9 1043.85 19889.4  1043.8 19938.2  1044.1
 19986.9  1042.7 19989.4  1042.7 20038.2  1042.3 20086.9 1042.85 20089.4  1042.8
 20121.7  1043.3 20171.2 1041.05 20188.2  1040.9 20189.4  1040.9 20223.2  1040.4
 20248.7  1042.2 20286.9  1043.4 20289.4  1043.4 20307.7 1044.35 20382.7  1069.6
 20387.9  1070.4 20387.9  1072.9   20388 1078.19   20790  1078.3   21330  1075.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
   17300    .037 19488.2    .032 20387.9    .037

Bank Sta: Left   Right    Coeff Contr.   Expan.
       19488.2 20387.9             .1       .3
Ineffective Flow     num=       2
```

```
   Sta L   Sta R    Elev  Permanent
    17300 19488.2 1072.97        F
 20387.9   21330  1070.4        F

Downstream  Deck/Roadway Coordinates
    num=      11
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
*****************************************************************************
 19488.1  1078.1 1072.97 19488.2 1078.14 1072.97 19586.9  1078.5 1073.28
 19686.9 1078.86 1073.64 19786.9 1079.15 1073.93 19886.9 1079.37  1074.2
 19989.4 1079.38  1074.2 20086.9 1079.13 1073.93 20188.2 1078.89  1073.7
 20286.9 1078.53 1073.32   20388 1078.19 1072.98

Downstream Bridge Cross Section Data
Station Elevation Data    num=      45
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************************
   17300  1071.7   17670    1072   17850  1073.6   18250  1075.5   19180  1078.2
 19488.1  1078.1 19488.2 1072.97 19495.2  1069.2 19517.2  1057.5 19564.2 1055.45
 19584.2  1051.3 19586.9    1051 19589.4    1051 19638.2  1048.1 19686.9  1047.3
 19689.4  1047.3 19704.2  1047.2 19743.2  1042.2 19786.9 1042.15 19789.4  1042.2
 19838.2  1042.8 19871.7  1042.9 19886.9 1043.85 19889.4  1043.8 19938.2  1044.1
 19986.9  1042.7 19989.4  1042.7 20038.2  1042.3 20086.9 1042.85 20089.4  1042.8
 20121.7  1043.3 20171.2 1041.05 20188.2  1040.9 20189.4  1040.9 20223.2  1040.4
 20248.7  1042.2 20286.9  1043.4 20289.4  1043.4 20307.7 1044.35 20382.7  1069.6
 20387.9  1070.4 20387.9  1072.9   20388 1078.19   20790  1078.3   21330  1075.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
   17300    .037 19488.2    .032 20387.9    .037

Bank Sta: Left   Right    Coeff Contr.   Expan.
       19488.2 20387.9            .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
   17300 19488.2 1072.97        F
 20387.9   21330  1070.4        F

Upstream Embankment side slope              =         horiz. to 1.0 vertical
Downstream Embankment side slope            =         horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Piers =  8

Pier Data
Pier Station     Upstream=19588.15    Downstream=19588.15
Upstream     num=       2
    Width   Elev    Width   Elev
*********************************
      2.5    1051     2.5 1073.28
Downstream     num=       2
    Width   Elev    Width   Elev
*********************************
      2.5    1051     2.5 1073.28

Pier Data
Pier Station     Upstream=19688.15    Downstream=19688.15
Upstream     num=       2
    Width   Elev    Width   Elev
*********************************
      2.5  1047.3     2.5  1073.7
Downstream     num=       2
    Width   Elev    Width   Elev
*********************************
      2.5  1047.3     2.5  1073.7

Pier Data
Pier Station     Upstream=19788.15    Downstream=19788.15
Upstream     num=       2
    Width   Elev    Width   Elev
*********************************
      2.5 1042.15     2.5  1073.9
Downstream     num=       2
    Width   Elev    Width   Elev
*********************************
      2.5 1042.15     2.5  1073.9

Pier Data
Pier Station     Upstream=19888.15    Downstream=19888.15
Upstream     num=       2
    Width   Elev    Width   Elev
*********************************
      2.5  1043.8     2.5  1074.2
Downstream     num=       2
    Width   Elev    Width   Elev
*********************************
      2.5  1043.8     2.5  1074.2

Pier Data
Pier Station     Upstream=19988.15    Downstream=19988.15
Upstream     num=       2
    Width   Elev    Width   Elev
*********************************
      2.5  1042.7     2.5  1074.2
Downstream     num=       2
    Width   Elev    Width   Elev
*********************************
      2.5  1042.7     2.5  1074.2

Pier Data
Pier Station     Upstream=20088.15    Downstream=20088.15
```

```
Upstream     num=       2
    Width   Elev    Width   Elev
*********************************
     2.5  1042.8     2.5  1073.9
Downstream     num=       2
    Width   Elev    Width   Elev
*********************************
     2.5  1042.8     2.5  1073.9

Pier Data
Pier Station     Upstream=20189.45    Downstream=20189.45
Upstream     num=       2
    Width   Elev    Width   Elev
*********************************
     2.5  1040.9     2.5  1073.7
Downstream     num=       2
    Width   Elev    Width   Elev
*********************************
     2.5  1040.9     2.5  1073.7

Pier Data
Pier Station     Upstream=20288.15    Downstream=20288.15
Upstream     num=       2
    Width   Elev    Width   Elev
*********************************
     2.5  1043.4     2.5  1073.3
Downstream     num=       2
    Width   Elev    Width   Elev
*********************************
     2.5  1043.4     2.5  1073.3

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
       Momentum              Cd   =     1.2
       Yarnell               KVal =    1.05
Selected Low Flow Methods = Highest Energy Answer

High Flow Method
       Energy Only

Additional Bridge Parameters
       Add Friction component to Momentum
       Add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT  Profile #PF#1
*************************************************************************************************
* E.G. US. (ft)          *    1069.32  * Element               *Inside BR US *Inside BR DS *
* W.S. US. (ft)          *    1068.16  * E.G. Elev (ft)        *    1069.29  *    1069.14  *
* Q Total (cfs)          *  169000.00  * W.S. Elev (ft)        *    1068.05  *    1067.88  *
* Q Bridge (cfs)         *  169000.00  * Crit W.S. (ft)        *    1055.83  *    1055.83  *
* Q Weir (cfs)           *             * Max Chl Dpth (ft)     *      27.65  *      27.48  *
* Weir Sta Lft (ft)      *             * Vel Total (ft/s)      *       8.93  *       9.00  *
* Weir Sta Rgt (ft)      *             * Flow Area (sq ft)     *   18925.37  *   18778.97  *
* Weir Submerg           *             * Froude # Chl          *       0.34  *       0.34  *
* Weir Max Depth (ft)    *             * Specif Force (cu ft)  *  270196.80  *  267354.20  *
* Min El Weir Flow (ft)  *    1072.98  * Hydr Depth (ft)       *      21.99  *      21.84  *
* Min El Prs (ft)        *    1074.20  * W.P. Total (ft)       *    1248.98  *    1245.37  *
* Delta EG (ft)          *       0.19  * Conv. Total (cfs)     *  5381226.0  *  5322311.0  *
* Delta WS (ft)          *       0.21  * Top Width (ft)        *     860.74  *     859.92  *
* BR Open Area (sq ft)   *   23844.87  * Frctn Loss (ft)       *             *             *
* BR Open Vel (ft/s)     *       9.00  * C & E Loss (ft)       *             *             *
* Coef of Q              *             * Shear Total (lb/sq ft) *       0.93  *       0.95  *
* Br Sel Method          *   Momentum  * Power Total (lb/ft s)  *       8.33  *       8.54  *
*************************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

BRIDGE OUTPUT  Profile #PF#2
*************************************************************************************************
* E.G. US. (ft)          *    1069.34  * Element               *Inside BR US *Inside BR DS *
* W.S. US. (ft)          *    1068.17  * E.G. Elev (ft)        *    1069.30  *    1069.15  *
* Q Total (cfs)          *  169000.00  * W.S. Elev (ft)        *    1068.07  *    1067.90  *
* Q Bridge (cfs)         *  169000.00  * Crit W.S. (ft)        *    1055.83  *    1055.83  *
* Q Weir (cfs)           *             * Max Chl Dpth (ft)     *      27.67  *      27.50  *
* Weir Sta Lft (ft)      *             * Vel Total (ft/s)      *       8.92  *       8.99  *
* Weir Sta Rgt (ft)      *             * Flow Area (sq ft)     *   18937.56  *   18791.46  *
* Weir Submerg           *             * Froude # Chl          *       0.34  *       0.34  *
* Weir Max Depth (ft)    *             * Specif Force (cu ft)  *  270434.70  *  267595.70  *
* Min El Weir Flow (ft)  *    1078.18  * Hydr Depth (ft)       *      22.00  *      21.85  *
* Min El Prs (ft)        *    1074.20  * W.P. Total (ft)       *    1249.28  *    1245.67  *
* Delta EG (ft)          *       0.19  * Conv. Total (cfs)     *  5386143.0  *  5327335.0  *
* Delta WS (ft)          *       0.21  * Top Width (ft)        *     860.81  *     859.99  *
* BR Open Area (sq ft)   *   23784.88  * Frctn Loss (ft)       *             *             *
* BR Open Vel (ft/s)     *       8.99  * C & E Loss (ft)       *             *             *
* Coef of Q              *             * Shear Total (lb/sq ft) *       0.93  *       0.95  *
* Br Sel Method          *   Momentum  * Power Total (lb/ft s)  *       8.31  *       8.52  *
*************************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

CROSS SECTION


RIVER: 1
REACH: 1                RS: 213.25
```

```
INPUT
Description: 213.25 - FEMA Section AE
Station Elevation Data    num=      45
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
   17300  1071.7   17670    1072   17850  1073.6   18250  1075.5   19180  1078.2
 19488.1  1078.1 19488.2 1072.97 19495.2  1069.2 19517.2  1057.5 19564.2 1055.45
 19584.2  1051.3 19586.9    1051 19589.4    1051 19638.2  1048.1 19686.9  1047.3
 19689.4  1047.3 19704.2  1047.2 19743.2  1042.2 19786.9 1042.15 19789.4  1042.2
 19838.2  1042.8 19871.7  1042.9 19886.9 1043.85 19889.4  1043.8 19938.2  1044.1
 19986.9  1042.7 19989.4  1042.7 20038.2  1042.3 20086.9 1042.85 20089.4  1042.8
 20121.7  1043.3 20171.2 1041.05 20188.2  1040.9 20189.4  1040.9 20223.2  1040.4
 20248.7  1042.2 20286.9  1043.4 20289.4  1043.4 20307.7 1044.35 20382.7  1069.6
 20387.9  1070.4 20387.9  1072.9   20388 1078.19   20790  1078.3   21330  1075.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
   17300    .037 19488.2    .032 20387.9    .037

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       19488.2 20387.9              121  123.36     121             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
   17300 19488.2 1072.97        F
 20387.9   21330  1070.4        F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         * 1069.14  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.19  * Wt. n-Val.            *          *    0.032  *          *
* W.S. Elev (ft)         * 1067.95  * Reach Len. (ft)       *  121.00  *  123.36  *  121.00  *
* Crit W.S. (ft)         * 1055.61  * Flow Area (sq ft)     *          *19310.07  *          *
* E.G. Slope (ft/ft)     *0.000585  * Area (sq ft)          *          *19310.07  *          *
* Q Total (cfs)          *169000.00  * Flow (cfs)           *          *169000.00  *          *
* Top Width (ft)         *  880.24  * Top Width (ft)       *          *  880.24  *          *
* Vel Total (ft/s)       *    8.75  * Avg. Vel. (ft/s)     *          *    8.75  *          *
* Max Chl Dpth (ft)      *   27.55  * Hydr. Depth (ft)     *          *   21.94  *          *
* Conv. Total (cfs)      *6986536.0  * Conv. (cfs)          *          *6986536.0  *          *
* Length Wtd. (ft)       *  123.36  * Wetted Per. (ft)     *          *  887.84  *          *
* Min Ch El (ft)         * 1040.40  * Shear (lb/sq ft)     *          *    0.79  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    6.95  *          *
* Frctn Loss (ft)        *    0.07  * Cum Volume (acre-ft)  * 9018.64  *32785.34  * 3406.18  *
* C & E Loss (ft)        *    0.05  * Cum SA (acres)        * 1984.76  * 3049.65  *  988.85  *
*********************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)         * 1069.15  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.19  * Wt. n-Val.            *          *    0.032  *          *
* W.S. Elev (ft)         * 1067.96  * Reach Len. (ft)       *  121.00  *  123.36  *  121.00  *
* Crit W.S. (ft)         * 1055.61  * Flow Area (sq ft)     *          *19322.76  *          *
* E.G. Slope (ft/ft)     *0.000584  * Area (sq ft)          *          *19322.76  *          *
* Q Total (cfs)          *169000.00  * Flow (cfs)           *          *169000.00  *          *
* Top Width (ft)         *  880.24  * Top Width (ft)       *          *  880.24  *          *
* Vel Total (ft/s)       *    8.75  * Avg. Vel. (ft/s)     *          *    8.75  *          *
* Max Chl Dpth (ft)      *   27.56  * Hydr. Depth (ft)     *          *   21.95  *          *
* Conv. Total (cfs)      *6994050.0  * Conv. (cfs)          *          *6994050.0  *          *
* Length Wtd. (ft)       *  123.36  * Wetted Per. (ft)     *          *  887.87  *          *
* Min Ch El (ft)         * 1040.40  * Shear (lb/sq ft)     *          *    0.79  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    6.94  *          *
* Frctn Loss (ft)        *    0.07  * Cum Volume (acre-ft)  * 1203.17  *33714.73  * 1413.43  *
* C & E Loss (ft)        *    0.05  * Cum SA (acres)        *  201.93  * 3053.48  *  205.34  *
*********************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 213.21

INPUT
Description: 213.21

Right Channel Bank Station Interpolated
Station Elevation Data    num=      96
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 18330.9  1072.8   18364  1072.8 18412.8  1073.1 18447.9    1073 18475.1  1072.3
 18506.2    1072 18530.5  1071.1 18588.6    1070 18604.7  1069.8 18607.3    1070
 18638.6  1069.9 18645.2    1070 18646.8    1070   18647    1070 18648.3    1070
 18679.6  1070.4   18691  1070.2 18696.8  1070.3 18826.1  1070.2 18853.1  1069.7
 18879.8  1069.1   18990  1068.8 19004.3  1068.6 19030.8    1069 19071.8  1069.5
 19171.4  1069.4 19189.5  1069.4 19238.8  1069.2 19251.2    1070 19253.8    1070
 19283.8    1069 19284.7    1069   19384  1068.2 19385.3  1068.1 19387.8  1068.1
 19391.2  1068.1 19421.7  1067.9 19486.6  1066.6 19490.3  1065.6 19518.8  1054.9
 19533.4    1049 19535.9  1049.5 19545.6    1052 19551.4  1054.2 19576.8  1051.8
 19595.9  1047.4 19611.2  1046.8 19618.6  1046.7 19619.1  1046.6 19626.3  1045.5
   19627  1045.3   19697  1045.2 19802.7  1045.1 20377.2  1044.9 20380.6    1045
 20387.2  1045.1 20389.8  1045.1 20418.5  1045.3 20484.9  1046.3 20500.9  1046.4
 20506.4  1046.3 20545.8  1046.4   20547  1046.4 20573.1    1046   20581    1046
   20584  1054.4 20584.6  1058.9 20634.9  1062.9 20654.9  1064.2   20663  1064.8
   20687  1065.1 20732.3  1064.9 20749.5  1065.1 20761.2    1066 20787.8  1066.2
 20803.3  1066.3   20840  1066.3 20853.8  1066.3 20900.8  1066.8 20929.7  1067.2
 20948.4  1067.8 20957.7  1070.3 20963.6  1072.1 20965.8  1071.9 20972.5  1072.2
 20980.1  1072.5 21025.3  1072.2 21041.7  1072.4   21049  1072.4   21083  1072.6
 21094.6  1072.7 21137.7  1072.7 21224.3  1073.6 21258.5  1074.2 21274.1  1074.3
 21278.4  1074.5
```

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
18330.9	.037	19490.3	.032	20418.5	.037

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

19490.3	20418.5	450	531.57	745	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
18330.9	19253.8	1074	F
20418.5	21278.4	1074	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1069.03	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.04	Wt. n-Val.	0.037	0.032	
W.S. Elev (ft)	1067.99	Reach Len. (ft)	450.00	531.57	745.00
Crit W.S. (ft)	1055.88	Flow Area (sq ft)	55.46	*20303.46	
E.G. Slope (ft/ft)	*0.000510	Area (sq ft)	55.46	*20303.46	* 4648.82
Q Total (cfs)	*166000.00	Flow (cfs)	38.71	*165961.30	
Top Width (ft)	1540.79	Top Width (ft)	81.99	928.20	530.60
Vel Total (ft/s)	8.15	Avg. Vel. (ft/s)	0.70	8.17	
Max Chl Dpth (ft)	23.09	Hydr. Depth (ft)	0.68	21.87	
Conv. Total (cfs)	*7351368.0	Conv. (cfs)	1714.1	*7349654.0	
Length Wtd. (ft)	531.56	Wetted Per. (ft)	82.14	932.81	
Min Ch El (ft)	1044.90	Shear (lb/sq ft)	0.02	0.69	
Alpha	1.00	Stream Power (lb/ft s)	0.02	5.66	
Frctn Loss (ft)	0.36	Cum Volume (acre-ft)	9018.56	*32729.25	3399.73
C & E Loss (ft)	0.04	Cum SA (acres)	1984.65	3047.08	988.11

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1069.04	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.04	Wt. n-Val.		0.032	
W.S. Elev (ft)	1068.00	Reach Len. (ft)	450.00	531.57	745.00
Crit W.S. (ft)	1055.88	Flow Area (sq ft)		*20315.02	
E.G. Slope (ft/ft)	*0.000528	Area (sq ft)		*20315.02	
Q Total (cfs)	*166000.00	Flow (cfs)		*166000.00	
Top Width (ft)	928.20	Top Width (ft)		928.20	
Vel Total (ft/s)	8.17	Avg. Vel. (ft/s)		8.17	
Max Chl Dpth (ft)	23.10	Hydr. Depth (ft)		21.89	
Conv. Total (cfs)	*7227547.0	Conv. (cfs)		*7227547.0	
Length Wtd. (ft)	531.57	Wetted Per. (ft)		957.91	
Min Ch El (ft)	1044.90	Shear (lb/sq ft)		0.70	
Alpha	1.00	Stream Power (lb/ft s)		5.71	
Frctn Loss (ft)	0.36	Cum Volume (acre-ft)	1203.17	*33658.60	1413.43
C & E Loss (ft)	0.04	Cum SA (acres)	201.93	3050.92	205.34

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 213.11

INPUT
Description: 213.11
Station Elevation Data num= 85

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17566.5	1070.1	17705.4	1071.3	17742.2	1071.6	17814.3	1070.1	17888.9	1069.6
17929.2	1069.8	17996.1	1072.7	18084.9	1073.4	18245.7	1073.1	18304.6	1073.3
18312.5	1071.8	18319.5	1069.3	18320.2	1069.1	18324.7	1069.1	18353.4	1069.6
18382.1	1068.8	18390	1068.3	18395.2	1069.2	18399.3	1071.7	18472.2	1071.2
18480.8	1071.2	18492.7	1070.4	18507.8	1070	18517.1	1069.2	18520.7	1069.6
18584	1071.9	18596.8	1072.2	18606	1072.4	18609.2	1072.4	18753.6	1072
18759.6	1071.8	18769.2	1073.7	18780.8	1075.5	18785.7	1075	18793.4	1074.4
18863.8	1073.8	18931.9	1074.1	18960.3	1074.3	18976.4	1074.4	19015.9	1075
19047.7	1075	19171.5	1072.4	19275.4	1071	19456	1071.1	19523.2	1069.3
19575	1067.9	19589.1	1068.3	19601.9	1071.4	19606.1	1072.1	19616.1	1067.5
19661.3	1047.6	20012.6	1047.6	20486.9	1047.9	20586.5	1081.1	20599.1	1086
20638.9	1086.2	20743.9	1086.8	20798.9	1087.3	20849	1087.5	20878.6	1087.6
20889.5	1087.8	20899.2	1087.8	20922	1087.5	21000.4	1087.3	21062.3	1085.9
21080.5	1084.4	21100.6	1083.3	21131.5	1083	21372.7	1078.3	21390.1	1077.6
21449.7	1073.9	21464.1	1073.6	21478.8	1073.9	21484.8	1073.8	21573.7	1073.9
21602.4	1073.9	21694.6	1073.6	21800.6	1072.4	21943.2	1070.8	22180.4	1070.9
22217.7	1071	22268.3	1071.4	22474.2	1073.6	22486.2	1076.3	22488.2	1077

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
17566.5	.037	19606.1	.032	20599.1	.037

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

19606.1	20599.1	425	459.38	565	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17566.5	18780.8	1087.8	F
20599.1	22488.2	1087.8	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1068.63	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.47	Wt. n-Val.		0.032	
W.S. Elev (ft)	1067.16	Reach Len. (ft)	425.00	459.38	565.00
Crit W.S. (ft)	1058.35	Flow Area (sq ft)		*17066.41	
E.G. Slope (ft/ft)	*0.000913	Area (sq ft)		*17066.41	
Q Total (cfs)	*166000.00	Flow (cfs)		*166000.00	
Top Width (ft)	927.80	Top Width (ft)		927.80	

Pre-Project

* Vel Total (ft/s)	* 9.73	* Avg. Vel. (ft/s)	*	* 9.73	*	*		
* Max Chl Dpth (ft)	* 19.56	* Hydr. Depth (ft)	*	* 18.39	*	*		
* Conv. Total (cfs)	*5493675.0	* Conv. (cfs)	*	*5493675.0	*	*		
* Length Wtd. (ft)	* 459.38	* Wetted Per. (ft)	*	* 935.04	*	*		
* Min Ch El (ft)	* 1047.60	* Shear (lb/sq ft)	*	* 1.04	*	*		
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 10.12	*	*		
* Frctn Loss (ft)	* 0.45	* Cum Volume (acre-ft)	* 9018.27	*32501.23	* 3359.97	*		
* C & E Loss (ft)	* 0.01	* Cum SA (acres)	* 1984.23	* 3035.76	* 983.57	*		

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 1068.63	* Element	* Left OB	* Channel	* Right OB	*		
* Vel Head (ft)	* 1.47	* Wt. n-Val.	*	* 0.032	*	*		
* W.S. Elev (ft)	* 1067.16	* Reach Len. (ft)	* 425.00	* 459.38	* 565.00	*		
* Crit W.S. (ft)	* 1058.35	* Flow Area (sq ft)	*	*17072.18	*	*		
* E.G. Slope (ft/ft)	*0.000912	* Area (sq ft)	*	*17072.18	*	*		
* Q Total (cfs)	*166000.00	* Flow (cfs)	*	*166000.00	*	*		
* Top Width (ft)	* 927.79	* Top Width (ft)	*	* 927.79	*	*		
* Vel Total (ft/s)	* 9.72	* Avg. Vel. (ft/s)	*	* 9.72	*	*		
* Max Chl Dpth (ft)	* 19.56	* Hydr. Depth (ft)	*	* 18.40	*	*		
* Conv. Total (cfs)	*5496745.0	* Conv. (cfs)	*	*5496745.0	*	*		
* Length Wtd. (ft)	* 459.38	* Wetted Per. (ft)	*	* 935.04	*	*		
* Min Ch El (ft)	* 1047.60	* Shear (lb/sq ft)	*	* 1.04	*	*		
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 10.11	*	*		
* Frctn Loss (ft)	* 0.44	* Cum Volume (acre-ft)	* 1203.17	*33430.48	* 1413.43	*		
* C & E Loss (ft)	* 0.01	* Cum SA (acres)	* 201.93	* 3039.60	* 205.34	*		

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 213.03

INPUT
Description: 213.03
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16056.5	1068.9	16069.1	1068.8	16071.5	1068.8	16197.1	1069.2	16383.9	1070
16409	1070	16413.8	1070	16414.4	1070	16428.8	1070	16501.9	1070.2
16550	1070.3	16603.1	1070.5	16734.3	1069.9	16759	1069.9	16800.6	1069.5
16821.1	1069.8	16943.1	1070.1	16956.6	1070.5	16985.9	1070.6	17193.9	1070.8
17238.8	1069.8	17263.2	1069.3	17296.6	1068.7	17461.4	1069.1	17486.5	1069.2
17576.5	1069.4	17728.6	1070.6	17908.4	1072	17938.3	1071.6	17974.7	1070.1
17987.3	1069.9	18028.7	1068.5	18086.7	1069.1	18107.5	1068.9	18113.8	1068.9
18246.2	1068.5	18370.2	1068.2	18382.5	1068.2	18389	1068.3	18394.9	1068.3
18496	1070.4	18502.4	1070.5	18521.4	1070.6	18643.8	1071	18700.9	1071.3
18708.1	1071.2	18723.6	1071.3	18831.5	1070.9	18846.4	1070.8	18847.1	1070.8
18848.3	1070.8	18969.8	1071.4	19007.8	1071.8	19178.9	1073.7	19181.7	1073.7
19324.1	1073.1	19588.8	1066.9	19627.1	1066	19640.5	1066.2	19662.1	1067.2
19666.3	1067.8	19672.1	1066.574	19703.2	1060	19755.3	1050.7	19776.1	1048.9
19807.6	1047.8	19807.9	1047.8	19808.6	1047.8	19883.7	1046.8	19936.5	1046.7
19974.6	1046.7	20168.5	1046.8	20481.5	1047.5	20531.6	1047.5	20536.3	1047.6
20551.1	1052.6	20591.83	1066.575	20595.4	1067.8	20639.6	1083	20645.8	1085
20668.5	1085.5	20744.1	1085.4	20806.7	1086.1	20879.4	1082	20936.8	1078.5
20990.3	1075.5	21125.9	1073.2	21137.8	1072.9	21183.6	1072.1	21221	1072
21240.8	1071.7	21303.4	1071.3	21328.8	1071.1	21394.9	1071.7	21406.3	1071.8
21439	1071.7	21481.2	1071.9						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
16056.5	.037	19672.1	.03	20591.83	.037

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19672.1 20591.83 475 495 525 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
16056.5	19178.9	1086.1	F
20645.8	21481.2	1086.1	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 1068.17	* Element	* Left OB	* Channel	* Right OB	*		
* Vel Head (ft)	* 1.60	* Wt. n-Val.	* 0.037	* 0.032	*	*		
* W.S. Elev (ft)	* 1066.57	* Reach Len. (ft)	* 475.00	* 495.00	* 525.00	*		
* Crit W.S. (ft)	* 1058.30	* Flow Area (sq ft)	* 14.85	*16376.62	*	*		
* E.G. Slope (ft/ft)	*0.001032	* Area (sq ft)	* 14.85	*16376.62	*	*		
* Q Total (cfs)	*166000.00	* Flow (cfs)	* 9.03	*165991.00	*	*		
* Top Width (ft)	* 965.60	* Top Width (ft)	* 45.87	* 919.72	*	*		
* Vel Total (ft/s)	* 10.13	* Avg. Vel. (ft/s)	* 0.61	* 10.14	*	*		
* Max Chl Dpth (ft)	* 19.87	* Hydr. Depth (ft)	* 0.32	* 17.81	*	*		
* Conv. Total (cfs)	*5167811.0	* Conv. (cfs)	* 281.1	*5167530.0	*	*		
* Length Wtd. (ft)	* 495.00	* Wetted Per. (ft)	* 45.89	* 924.49	*	*		
* Min Ch El (ft)	* 1046.70	* Shear (lb/sq ft)	* 0.02	* 1.14	*	*		
* Alpha	* 1.00	* Stream Power (lb/ft s)	* 0.01	* 11.57	*	*		
* Frctn Loss (ft)	* 0.57	* Cum Volume (acre-ft)	* 9018.20	*32324.89	* 3359.97	*		
* C & E Loss (ft)	* 0.05	* Cum SA (acres)	* 1984.00	* 3026.02	* 983.57	*		

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 1068.17	* Element	* Left OB	* Channel	* Right OB	*		
* Vel Head (ft)	* 1.59	* Wt. n-Val.	*	* 0.032	*	*		

Pre-Project

W.S. Elev (ft)	1066.58	Reach Len. (ft)	475.00	495.00	525.00
Crit W.S. (ft)	1058.30	Flow Area (sq ft)		16382.68	
E.G. Slope (ft/ft)	0.001031	Area (sq ft)	0.00	16382.68	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	919.76	Top Width (ft)	0.03	919.73	
Vel Total (ft/s)	10.13	Avg. Vel. (ft/s)		10.13	
Max Chl Dpth (ft)	19.88	Hydr. Depth (ft)		17.81	
Conv. Total (cfs)	5170676.0	Conv. (cfs)		5170676.0	
Length Wtd. (ft)	495.00	Wetted Per. (ft)		924.50	
Min Ch El (ft)	1046.70	Shear (lb/sq ft)		1.14	
Alpha	1.00	Stream Power (lb/ft s)		11.55	
Frctn Loss (ft)	0.57	Cum Volume (acre-ft)	1203.17	33254.07	1413.43
C & E Loss (ft)	0.05	Cum SA (acres)	201.93	3029.86	205.34

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 212.93

INPUT
Description: 212.93

Left and Right Channel Bank Stations Interpolated
Station Elevation Data num= 93

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18913.7	1067.5	18940.6	1066.4	18961.6	1067.4	18996.4	1069.5	19034.7	1069.3
19121.7	1070.2	19158.8	1070.2	19269.6	1071.2	19362.4	1070.3	19381.3	1070.6
19412.2	1072.5	19420.1	1072.9	19430.8	1073.3	19436.5	1073.5	19633.3	1068.7
19645	1068.3	19645.7	1068.4	19645.9	1068.4	19653.4	1069	19673.1	1070.5
19690.761	1065.485	19697.4	1063.6	19757.3	1046.7	19779.3	1046.4	19826.6	1046.3
19850.5	1046.5	19924.2	1047.4	19928.9	1047.5	19929.5	1047.4	19958.7	1045.5
20129.7	1045.4	20271.7	1045.6	20345.4	1045.6	20426.9	1045.52	20489.75	1065.484
20489.8	1065.5	20498.7	1068.1	20501.4	1068	20587.1	1066.5	20637	1066.5
20655.9	1066.4	20685.9	1065.7	20749.1	1064.9	20804.3	1071.3	20847	1074.9
20872.4	1075.1	20941	1074.1	20990.9	1073	21005.7	1072.8	21075.3	1071.3
21079.7	1071.2	21083	1071.2	21113	1071.3	21246.3	1072.7	21249.5	1072.8
21261.8	1072.9	21268.5	1072.9	21332.8	1073.1	21571.4	1072.7	21590.1	1072.7
21815.9	1071.3	21853.1	1071.3	21982.5	1070.6	22017.6	1070.5	22314.9	1070
22499	1068.8	22548.8	1068.9	22568.2	1068.4	22648.5	1068.9	22948.3	1069.7
23054.9	1071.1	23121.6	1072	23140.9	1076.4	23143.5	1077.2	23151.2	1077.1
23159.2	1077	23162.2	1077.3	23171	1077.8	23179.9	1081.1	23202.7	1089.6
23248.6	1089.5	23303.8	1089.6	23327.8	1082.2	23331.1	1081	23333.2	1080.6
23345.9	1077.9	23350.9	1077.9	23361.3	1078.1	23377.6	1073.6	23386.3	1070.8
23389.2	1071	23392	1071.2	23394	1070.7				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
18913.7	.037	19690.76	.032	20489.75	.037

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
19690.76	20489.75	495	501.9	535	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
18913.7	19673.1	1078	F
20498.7	23394	1078	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1067.55	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.06	Wt. n-Val.		0.032	
W.S. Elev (ft)	1065.48	Reach Len. (ft)	495.00	501.90	535.00
Crit W.S. (ft)	1058.04	Flow Area (sq ft)		14402.09	
E.G. Slope (ft/ft)	0.001316	Area (sq ft)		14402.09	14.96
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	850.19	Top Width (ft)		798.99	51.20
Vel Total (ft/s)	11.53	Avg. Vel. (ft/s)		11.53	
Max Chl Dpth (ft)	20.08	Hydr. Depth (ft)		18.03	
Conv. Total (cfs)	4575514.0	Conv. (cfs)		4575514.0	
Length Wtd. (ft)	501.90	Wetted Per. (ft)		804.77	
Min Ch El (ft)	1045.40	Shear (lb/sq ft)		1.47	
Alpha	1.00	Stream Power (lb/ft s)		16.95	
Frctn Loss (ft)	0.79	Cum Volume (acre-ft)	9018.12	32150.01	3359.88
C & E Loss (ft)	0.10	Cum SA (acres)	1983.75	3016.25	983.26

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1067.55	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.06	Wt. n-Val.		0.032	
W.S. Elev (ft)	1065.49	Reach Len. (ft)	495.00	501.90	535.00
Crit W.S. (ft)	1058.04	Flow Area (sq ft)		14408.82	
E.G. Slope (ft/ft)	0.001314	Area (sq ft)		14408.82	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	798.99	Top Width (ft)		798.99	
Vel Total (ft/s)	11.52	Avg. Vel. (ft/s)		11.52	
Max Chl Dpth (ft)	20.09	Hydr. Depth (ft)		18.03	
Conv. Total (cfs)	4579008.0	Conv. (cfs)		4579008.0	
Length Wtd. (ft)	501.90	Wetted Per. (ft)		804.79	
Min Ch El (ft)	1045.40	Shear (lb/sq ft)		1.47	
Alpha	1.00	Stream Power (lb/ft s)		16.92	
Frctn Loss (ft)	0.79	Cum Volume (acre-ft)	1203.17	33079.12	1413.43
C & E Loss (ft)	0.10	Cum SA (acres)	201.93	3020.09	205.34

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 212.84

INPUT
Description: 212.84 - FEMA Section AD

Left and Right Channel Bank Stations

Interpolated
Station Elevation Data num= 66

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16284.9	1068.4	16487.1	1068.9	16606	1069.3	16985	1071.2	17015.9	1071.4
17038.7	1071.8	17089.2	1071.1	17339.8	1070.2	17519.4	1069.1	17554.9	1069.1
17652.7	1069	17900.6	1068.7	18109.2	1068.8	18133.9	1069	19053.9	1067.7
19203.8	1066	19229.6	1065.8	19232.1	1065.8	19238.5	1065.7	19242.2	1065.7
19244.8	1065.8	19286.8	1067.4	19292.2	1069.2	19450.5	1067.9	19498.7	1067.5
19560.8	1067	19586	1066.9	19671.4	1066.8	19692.2	1068.3	19695.5	1068.9
19711.5	1063.544	19765.4	1045.5	19772.2	1043.1	19790.5	1043.1	19811.3	1043.2
20298.7	1043.5	20314.2	1050.2	20347.25	1063.544	20367.7	1071.8	20367.9	1071.8
20405.2	1072.8	20416.8	1072.7	20424.4	1072.7	20490.9	1070.9	20522.9	1069.8
20629.8	1070.1	20679.7	1070.1	20767.5	1070.4	20793.1	1070.2	20818.2	1069.1
20874.5	1068.7	20940.7	1070.4	20979.1	1070.3	21186.4	1069.3	21242.6	1069.1
21449.2	1070.2	21488.8	1070.8	21502.4	1071	21582.5	1070.9	21684.9	1071.4
21805.3	1070.7	21883.6	1070.5	21943.6	1070.2	22187.5	1070.4	22226.7	1070.2
22398.2	1069.8								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
16284.9	.037	19711.5	.03	22034	7.25 .037

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19711.5 20347.25 565 538.19 480 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
16284.9	19695.5	1072.8	F
20367.7	22398.2	1072.8	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1066.65	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.11	Wt. n-Val.		0.032	
W.S. Elev (ft)	1063.54	Reach Len. (ft)	565.00	538.19	480.00
Crit W.S. (ft)	1057.57	Flow Area (sq ft)		11737.26	
E.G. Slope (ft/ft)	0.001930	Area (sq ft)		11737.26	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	635.75	Top Width (ft)		635.75	
Vel Total (ft/s)	14.14	Avg. Vel. (ft/s)		14.14	
Max Chl Dpth (ft)	20.44	Hydr. Depth (ft)		18.46	
Conv. Total (cfs)	3778154.0	Conv. (cfs)		3778154.0	
Length Wtd. (ft)	538.19	Wetted Per. (ft)		643.08	
Min Ch El (ft)	1043.10	Shear (lb/sq ft)		2.20	
Alpha	1.00	Stream Power (lb/ft s)		31.11	
Frctn Loss (ft)	0.90	Cum Volume (acre-ft)	9018.12	31999.42	3359.79
C & E Loss (ft)	0.18	Cum SA (acres)	1983.75	3007.99	982.95

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1066.66	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.10	Wt. n-Val.		0.032	
W.S. Elev (ft)	1063.56	Reach Len. (ft)	565.00	538.19	480.00
Crit W.S. (ft)	1057.57	Flow Area (sq ft)		11745.09	
E.G. Slope (ft/ft)	0.001926	Area (sq ft)		11745.09	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	635.75	Top Width (ft)		635.75	
Vel Total (ft/s)	14.13	Avg. Vel. (ft/s)		14.13	
Max Chl Dpth (ft)	20.46	Hydr. Depth (ft)		18.47	
Conv. Total (cfs)	3782263.0	Conv. (cfs)		3782263.0	
Length Wtd. (ft)	538.19	Wetted Per. (ft)		643.10	
Min Ch El (ft)	1043.10	Shear (lb/sq ft)		2.20	
Alpha	1.00	Stream Power (lb/ft s)		31.04	
Frctn Loss (ft)	0.90	Cum Volume (acre-ft)	1203.17	32928.45	1413.43
C & E Loss (ft)	0.18	Cum SA (acres)	201.93	3011.82	205.34

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 212.74

INPUT

Description: 212.74

Left and Right Channel Bank Stations Interpolated
Station Elevation Data num= 70

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
15451.4	1067.1	15456.2	1067.3	15464.1	1067.8	15467.8	1068.3	15480.9	1067.9
15619.6	1066.5	15997.3	1067	16142.7	1066.6	16235	1067.1	16317.5	1067.4
16486.7	1067.9	16644.3	1068.2	16906.1	1067.7	17106.4	1067.8	17312.1	1069.3
17351.4	1069.8	17392.8	1069.3	17578.5	1067.9	17799	1066.9	17906.3	1067
18021.4	1067.4	18082.2	1066.6	18121.5	1067.1	18128.7	1067	19421.5	1067
19430.3	1070.5	19440.7	1074.4	19464.5	1074.9	19479.6	1075	19498.8	1064.8
19504.9	1062.5	19514.1	1062.5	19546.7	1062.8	19569.3	1066	19571.5	1066.5
19577.2	1066.5	19641.5	1067.1	19653.8	1066.8	19678.6	1067.3	19690.61	1063.061
19709.2	1056.5	19745.4	1042.1	19776.5	1041.9	20081.3	1041.6	20297.5	1041.8
20311.1	1046.1	20335	1053.3	20367.2	1063.063	20372.6	1064.7	20387.5	1069
20400.7	1069	20436.3	1069	20477.6	1068.5	20512.4	1068.7	20545.9	1068.9
20612.1	1068.9	20630.4	1069.2	20677.9	1069.9	20719.8	1069.6	20764.1	1069.6
20802.7	1069.4	20847.1	1068.9	20916.2	1069.1	20977.1	1068.7	21027.9	1068.8
21126.4	1069.4	21156	1069.5	21203.9	1069.2	21326.9	1068.9	21421.2	1069.1

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
15451.4	.03	19690.61	.032	20367.2	.037

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19690.61 20367.2 296 242.17 66 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
15451.4	19678.6	1074	F
20387.5	21421.2	1074	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1065.57	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.51	Wt. n-Val.		0.032	
W.S. Elev (ft)	1063.06	Reach Len. (ft)	296.00	242.17	66.00
Crit W.S. (ft)	1055.53	Flow Area (sq ft)		13064.60	
E.G. Slope (ft/ft)	0.001465	Area (sq ft)	19.23	13064.60	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	721.72	Top Width (ft)	45.13	676.58	
Vel Total (ft/s)	12.71	Avg. Vel. (ft/s)		12.71	
Max Chl Dpth (ft)	21.46	Hydr. Depth (ft)		19.31	
Conv. Total (cfs)	4336312.0	Conv. (cfs)		4336312.0	
Length Wtd. (ft)	242.17	Wetted Per. (ft)		683.64	
Min Ch El (ft)	1041.60	Shear (lb/sq ft)		1.75	
Alpha	1.00	Stream Power (lb/ft s)		22.22	
Frctn Loss (ft)	0.30	Cum Volume (acre-ft)	9018.00	31846.20	3359.79
C & E Loss (ft)	0.11	Cum SA (acres)	1983.46	2999.88	982.95

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1065.58	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.50	Wt. n-Val.		0.032	
W.S. Elev (ft)	1063.08	Reach Len. (ft)	296.00	242.17	66.00
Crit W.S. (ft)	1055.53	Flow Area (sq ft)		13074.10	
E.G. Slope (ft/ft)	0.001462	Area (sq ft)		13074.10	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	676.59	Top Width (ft)		676.59	
Vel Total (ft/s)	12.70	Avg. Vel. (ft/s)		12.70	
Max Chl Dpth (ft)	21.48	Hydr. Depth (ft)		19.32	
Conv. Total (cfs)	4341428.0	Conv. (cfs)		4341428.0	
Length Wtd. (ft)	242.17	Wetted Per. (ft)		683.67	
Min Ch El (ft)	1041.60	Shear (lb/sq ft)		1.75	
Alpha	1.00	Stream Power (lb/ft s)		22.16	
Frctn Loss (ft)	0.29	Cum Volume (acre-ft)	1203.17	32775.13	1413.43
C & E Loss (ft)	0.11	Cum SA (acres)	201.93	3003.72	205.34

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 212.68

INPUT
Description: 212.68

Upstream face of 7th Avenue bridge
Station Elevation Data num= 34

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18325	1064.2	19130.38	106819307.91	1072	19492.8	1073.03	19492.89	1066.21	
19501.07	1063.02	319567.36	1037.2	19595.08	1037.5	19600.27	1037.5	19645.74	1037.8
19703.33	1037.8	19708.52	1037.8	19721.94	1039.1	19780.83	1037.6	19790.36	1040
19811.58	1039.4	19816.77	1039.4	19829.76	1037.2	19839.72	103819878.26	1039.3	
19919.83	1037.5	19925.02	1037.5	19977.41	1036.9	20028.08	1038.1	20033.27	1038.1
20064.88	1037.5	20130.11	1063.02	520137.19	1065.8	20137.28	1072.6	620407.73	1072
20615.57	106820641.55	1067.6	20780.11	106821568.17	1069.3				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val

```
   18325    .03719501.07    .032 20130.1    .037

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
     19501.07 20130.1             155  154.01     155            .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
   1832519492.89 1066.21       F
20137.1921568.17  1065.8       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         * 1065.16  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    2.14  * Wt. n-Val.             *          *   0.032  *          *
* W.S. Elev (ft)         * 1063.02  * Reach Len. (ft)        *    0.10  *    0.10  *    0.10  *
* Crit W.S. (ft)         * 1052.69  * Flow Area (sq ft)      *          *14139.91  *          *
* E.G. Slope (ft/ft)     *0.001030  * Area (sq ft)           *          *14139.91  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)            *          *166000.00  *          *
* Top Width (ft)         *  629.02  * Top Width (ft)        *          *  629.02  *          *
* Vel Total (ft/s)       *   11.74  * Avg. Vel. (ft/s)      *          *   11.74  *          *
* Max Chl Dpth (ft)      *   26.12  * Hydr. Depth (ft)      *          *   22.48  *          *
* Conv. Total (cfs)      *5173110.0  * Conv. (cfs)          *          *5173110.0  *          *
* Length Wtd. (ft)       *    0.10  * Wetted Per. (ft)      *          *  639.38  *          *
* Min Ch El (ft)         * 1036.90  * Shear (lb/sq ft)      *          *    1.42  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   16.69  *          *
* Frctn Loss (ft)        *    0.00  * Cum Volume (acre-ft)  * 9017.93  *31770.58  * 3359.79  *
* C & E Loss (ft)        *    0.03  * Cum SA (acres)        * 1983.31  * 2996.25  *  982.95  *
*********************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)         * 1065.17  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    2.14  * Wt. n-Val.             *          *   0.032  *          *
* W.S. Elev (ft)         * 1063.04  * Reach Len. (ft)        *    0.10  *    0.10  *    0.10  *
* Crit W.S. (ft)         * 1052.69  * Flow Area (sq ft)      *          *14148.66  *          *
* E.G. Slope (ft/ft)     *0.001028  * Area (sq ft)           *          *14148.66  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)            *          *166000.00  *          *
* Top Width (ft)         *  629.03  * Top Width (ft)        *          *  629.03  *          *
* Vel Total (ft/s)       *   11.73  * Avg. Vel. (ft/s)      *          *   11.73  *          *
* Max Chl Dpth (ft)      *   26.14  * Hydr. Depth (ft)      *          *   22.49  *          *
* Conv. Total (cfs)      *5178274.0  * Conv. (cfs)          *          *5178274.0  *          *
* Length Wtd. (ft)       *    0.10  * Wetted Per. (ft)      *          *  639.41  *          *
* Min Ch El (ft)         * 1036.90  * Shear (lb/sq ft)      *          *    1.42  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   16.66  *          *
* Frctn Loss (ft)        *          * Cum Volume (acre-ft)  * 1203.17  *32699.45  * 1413.43  *
* C & E Loss (ft)        *          * Cum SA (acres)        *  201.93  * 3000.09  *  205.34  *
*********************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

BRIDGE


RIVER: 1
REACH: 1                 RS: 212.675

INPUT
Description: 7th Avenue Bridge
Distance from Upstream XS =       .1
Deck/Roadway Width        =  153.01
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=      11
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
*********************************************************************************
   18325  1064.2  1064.219130.38    1068    106819307.91    1072    1072
 19492.8 1073.03 1073.0319492.89 1073.03 1066.2119595.08  1073.9 1067.07
19703.34 1074.35 1067.5219811.58 1074.48 1067.6419925.02 1074.24 1067.41
20033.27  1073.6 1066.7620137.19 1072.66 1065.84

Upstream Bridge Cross Section Data
Station Elevation Data    num=      34
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
   18325  1064.219130.38    106819307.91    1072 19492.8 1073.0319492.89 1066.21
19501.071063.02319567.36  1037.219595.08  1037.519600.27  1037.519645.74  1037.8
19703.33 1037.8819708.52 1037.8819721.94  1039.119780.83  1037.619790.36    1040
19811.58  1039.419816.77  1039.419829.76  1037.219839.72    103819878.26  1039.3
19919.83  1037.519925.02  1037.519977.41  1036.920028.08  1038.120033.27  1038.1
20064.88  1037.5 20130.11063.02520137.19  1065.820137.28 1072.6620407.73    1072
20615.57    106820641.55  1067.620780.11    106821568.17  1069.3

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
   18325    .03719501.07    .032 20130.1    .037

Bank Sta: Left   Right    Coeff Contr.   Expan.
     19501.07 20130.1          .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
   1832519492.89 1066.21       F
20137.1921568.17  1065.8       F

Downstream  Deck/Roadway Coordinates
    num=      11
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
*********************************************************************************
   18325  1064.2  1064.219130.38    1068    106819307.91    1072    1072
 19492.8 1073.03 1073.0319492.89 1073.03 1066.2119595.08  1073.9 1067.07
19703.34 1074.35 1067.5219811.58 1074.48 1067.6419925.02 1074.24 1067.41
20033.27  1073.6 1066.7620137.19 1072.66 1065.84
```

```
Downstream Bridge Cross Section Data
Station Elevation Data    num=      34
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
   18325  1064.219130.38    106819307.91    1072 19492.8 1073.0319492.89 1066.21
19502.331062.53319567.36  1037.219595.08  1037.519600.27  1037.519645.74  1037.8
19703.33 1037.8819708.52 1037.8819721.94  1039.119780.83  1037.619790.36    1040
19811.58  1039.419816.77  1039.419829.76  1037.219839.72    103819878.26  1039.3
19919.83  1037.519925.02  1037.519977.41  1036.920028.08  1038.120033.27  1038.1
20064.88  1037.520128.841062.53220137.19  1065.820137.28 1072.6620407.73    1072
20615.57    106820641.55  1067.620780.11    106821568.17  1069.3

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
   18325    .03719502.33    .03220128.84    .037

Bank Sta: Left   Right    Coeff Contr.   Expan.
     19502.3320128.84            .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
   1832519492.89 1066.21       F
20137.1921568.17  1065.8       F

Upstream Embankment side slope              =         horiz. to 1.0 vertical
Downstream Embankment side slope            =         horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Piers =  5

Pier Data
Pier Station     Upstream=19597.67    Downstream=19597.67
Upstream     num=       2
    Width   Elev    Width   Elev
*********************************
     4.8    1036     4.8    1068
Downstream     num=       2
    Width   Elev    Width   Elev
*********************************
     4.8    1036     4.8    1068

Pier Data
Pier Station     Upstream=19705.06    Downstream=19705.06
Upstream     num=       2
    Width   Elev    Width   Elev
*********************************
     4.8    1036     4.8    1068
Downstream     num=       2
    Width   Elev    Width   Elev
*********************************
     4.8    1036     4.8    1068

Pier Data
Pier Station     Upstream=19814.17    Downstream=19814.17
Upstream     num=       2
    Width   Elev    Width   Elev
*********************************
     4.8    1036     4.8    1068
Downstream     num=       2
    Width   Elev    Width   Elev
*********************************
     4.8    1036     4.8    1068

Pier Data
Pier Station     Upstream=19922.42    Downstream=19922.42
Upstream     num=       2
    Width   Elev    Width   Elev
*********************************
     4.8    1036     4.8    1068
Downstream     num=       2
    Width   Elev    Width   Elev
*********************************
     4.8    1036     4.8    1068

Pier Data
Pier Station     Upstream=20030.67    Downstream=20030.67
Upstream     num=       2
    Width   Elev    Width   Elev
*********************************
     4.8    1036     4.8    1068
Downstream     num=       2
    Width   Elev    Width   Elev
*********************************
     4.8    1036     4.8    1068

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
       Momentum               Cd   =     1.2
       Yarnell                KVal =    1.05
Selected Low Flow Methods = Highest Energy Answer

High Flow Method
       Energy Only

Additional Bridge Parameters
       Add Friction component to Momentum
       Add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line
```

BRIDGE OUTPUT Profile #PF#1

E.G. US. (ft)	1065.16	Element	Inside BR US	Inside BR DS
W.S. US. (ft)	1063.02	E.G. Elev (ft)	1065.14	1064.84
Q Total (cfs)	166000.00	W.S. Elev (ft)	1062.75	1062.36
Q Bridge (cfs)	166000.00	Crit W.S. (ft)	1053.13	1053.12
Q Weir (cfs)		Max Chl Dpth (ft)	25.85	25.46
Weir Sta Lft (ft)		Vel Total (ft/s)	12.41	12.63
Weir Sta Rgt (ft)		Flow Area (sq ft)	13373.12	13142.99
Weir Submerg		Froude # Chl	0.46	0.48
Weir Max Depth (ft)		Specif Force (cu ft)	223159.50	219217.40
Min El Weir Flow (ft)	1065.81	Hydr Depth (ft)	22.16	21.85
Min El Prs (ft)	1067.64	W.P. Total (ft)	860.54	854.62
Delta EG (ft)	0.40	Conv. Total (cfs)	3867106.0	3774164.0
Delta WS (ft)	0.49	Top Width (ft)	603.60	601.64
BR Open Area (sq ft)	16032.12	Frctn Loss (ft)	0.29	0.00
BR Open Vel (ft/s)	12.63	C & E Loss (ft)	0.01	0.07
Coef of Q		Shear Total (lb/sq ft)	1.79	1.86
Br Sel Method	Energy only	Power Total (lb/ft s)	22.19	23.46

Note: Momentum answer is not valid if the water surface is above the low chord or if there is weir flow. The momentum answer has been disregarded.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

BRIDGE OUTPUT Profile #PF#2

E.G. US. (ft)	1065.17	Element	Inside BR US	Inside BR DS
W.S. US. (ft)	1063.04	E.G. Elev (ft)	1065.07	1064.78
Q Total (cfs)	166000.00	W.S. Elev (ft)	1062.66	1062.28
Q Bridge (cfs)	166000.00	Crit W.S. (ft)	1053.13	1053.12
Q Weir (cfs)		Max Chl Dpth (ft)	25.76	25.38
Weir Sta Lft (ft)		Vel Total (ft/s)	12.46	12.68
Weir Sta Rgt (ft)		Flow Area (sq ft)	13321.77	13094.60
Weir Submerg		Froude # Chl	0.47	0.48
Weir Max Depth (ft)		Specif Force (cu ft)	222270.50	218402.60
Min El Weir Flow (ft)	1072.75	Hydr Depth (ft)	22.09	21.78
Min El Prs (ft)	1067.64	W.P. Total (ft)	859.22	853.37
Delta EG (ft)	0.40	Conv. Total (cfs)	3846322.0	3754689.0
Delta WS (ft)	0.50	Top Width (ft)	603.16	601.23
BR Open Area (sq ft)	16000.11	Frctn Loss (ft)		
BR Open Vel (ft/s)	12.68	C & E Loss (ft)		
Coef of Q		Shear Total (lb/sq ft)	1.80	1.87
Br Sel Method	Momentum	Power Total (lb/ft s)	22.47	23.74

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 212.67

INPUT
Description: 212.67

Left and Right Channel Bank Stations Interpolated
Station Elevation Data num= 34

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18325	1064.21	19130.38	106819307.91	1072	19492.8	1073.03	19492.89	1066.21	
19502.33	1062.53	19567.36	1037.21	9595.08	1037.51	9600.27	1037.51	9645.74	1037.8
19703.33	1037.88	19708.52	1037.88	19721.94	1039.11	9780.83	1037.61	9790.36	1040
19811.58	1039.41	9816.77	1039.41	9829.76	1037.21	9839.72	103819878.26		1039.3
19919.83	1037.51	9925.02	1037.51	9977.41	1036.92	0028.08	1038.12	0033.27	1038.1
20064.88	1037.52	0128.84	1062.53	220137.19	1065.82	0137.28	1072.66	20407.73	1072
20615.57	106820641.55		1067.62	0780.11	106821568.17		1069.3		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
18325	.03719	502.33	.03220	128.84	.037

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
19502.33	20128.84	481	557.08	901	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
18325	19492.89	1066.21	F
20137.19	21568.17	1065.8	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1064.77	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.24	Wt. n-Val.		0.032	
W.S. Elev (ft)	1062.53	Reach Len. (ft)	481.00	557.08	901.00
Crit W.S. (ft)	1052.69	Flow Area (sq ft)		13830.37	
E.G. Slope (ft/ft)	0.001102	Area (sq ft)		13830.37	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	626.50	Top Width (ft)		626.50	
Vel Total (ft/s)	12.00	Avg. Vel. (ft/s)		12.00	
Max Chl Dpth (ft)	25.63	Hydr. Depth (ft)		22.08	
Conv. Total (cfs)	4999902.0	Conv. (cfs)		4999902.0	
Length Wtd. (ft)	557.08	Wetted Per. (ft)		636.66	
Min Ch El (ft)	1036.90	Shear (lb/sq ft)		1.49	
Alpha	1.00	Stream Power (lb/ft s)		17.94	
Frctn Loss (ft)	1.13	Cum Volume (acre-ft)	9017.93	31723.70	3359.79
C & E Loss (ft)	0.41	Cum SA (acres)	1983.31	2994.12	982.95

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1064.77	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.24	Wt. n-Val.		0.032	
W.S. Elev (ft)	1062.54	Reach Len. (ft)	481.00	557.08	901.00
Crit W.S. (ft)	1052.69	Flow Area (sq ft)		13834.12	
E.G. Slope (ft/ft)	0.001101	Area (sq ft)		13834.12	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	626.51	Top Width (ft)		626.51	
Vel Total (ft/s)	12.00	Avg. Vel. (ft/s)		12.00	
Max Chl Dpth (ft)	25.64	Hydr. Depth (ft)		22.08	
Conv. Total (cfs)	5002046.0	Conv. (cfs)		5002046.0	
Length Wtd. (ft)	557.08	Wetted Per. (ft)		636.69	
Min Ch El (ft)	1036.90	Shear (lb/sq ft)		1.49	
Alpha	1.00	Stream Power (lb/ft s)		17.93	
Frctn Loss (ft)	1.12	Cum Volume (acre-ft)	1203.17	32652.75	1413.43
C & E Loss (ft)	0.40	Cum SA (acres)	201.93	2997.96	205.34

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 212.56

INPUT
Description: 212.56

Left and Right Channel Bank Stations Interpolated
Station Elevation Data num= 84

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18526.6	1067.7	18605.6	1068.5	18672.9	1069.1	18686.4	1060	19108.7	1062.5
19147.3	1066.2	19151.5	1066.4	19161.7	1067.6	19184.3	1068.9	19238.8	1068.8
19249.1	1068.8	19264.6	1065	19289.8	1059.5	19333	1060.5	19374.1	1060.3
19381.8	1063.3	19405.9	1071.5	19420.1	1070.7	19427.9	1069.3	19436.8	1069
19464.9	1070.8	19474	1071.7	19488.9	1073.8	19506.5	1072.1	19530.4	1065.8
19539	1066.2	19604	1065.9	19607.1	1065.3	19613.7	1065.3	19619.1	1065.7
19619.8	1066.4	19637.7	1068	19655.3	1067.8	19692.8	1068.8	19731.05	1056.917
19757.5	1048.7	19785.4	1039.9	19929	1039.8	20217.8	1039.3	20252.14	1056.916
20264	1063	20269.6	1061.5	20279.7	1059.4	20318.1	1058.6	20372.9	1059.3
20398.1	1060.1	20425.6	1066.2	20438.5	1062.1	20445.5	1059.5	20451.6	1056.8
20575.6	1077.4	20581.9	1078.8	20601.9	1079.3	20671.6	1080.6	20698.7	1080.1
20732.1	1079.9	20755.7	1079.5	20791.2	1077.6	20834.9	1075.6	20892.5	1079.5
20896	1079.6	20938.4	1078.1	20958.4	1077.9	21004.8	1078.7	21029.1	1078.1
21101.8	1077.3	21144.7	1078.4	21165.1	1078.9	21203.3	1079.8	21236.8	1080.1
21329	1071.7	21351.9	1069.5	21384.8	1066.8	21396.7	1060	21632.6	1060
21640.1	1063.9	21686.7	1065.4	21688.1	1065.4	21734.9	1066.2	21757.8	1066.7
21833.3	1068.7	21846.1	1068.8	21931.4	1069.9	21952.1	1069		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
18526.6	.037	19731.05	.037	20252.14	.037

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19731.05 20252.14 495 502.71 525 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
18526.6	19692.8	1078	F
20301	21952.1	1078	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1063.23	Element	Left OB	Channel	Right OB
Vel Head (ft)	6.35	Wt. n-Val.		0.032	
W.S. Elev (ft)	1056.87	Reach Len. (ft)	495.00	502.71	525.00
Crit W.S. (ft)	1055.74	Flow Area (sq ft)		8207.39	
E.G. Slope (ft/ft)	0.004887	Area (sq ft)		8207.39	0.02
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	521.49	Top Width (ft)		520.87	0.62
Vel Total (ft/s)	20.23	Avg. Vel. (ft/s)		20.23	
Max Chl Dpth (ft)	17.57	Hydr. Depth (ft)		15.76	
Conv. Total (cfs)	2374592.0	Conv. (cfs)		2374592.0	
Length Wtd. (ft)	502.71	Wetted Per. (ft)		527.71	
Min Ch El (ft)	1039.30	Shear (lb/sq ft)		4.75	
Alpha	1.00	Stream Power (lb/ft s)		95.97	
Frctn Loss (ft)	1.91	Cum Volume (acre-ft)	9017.93	31582.78	3359.79
C & E Loss (ft)	0.54	Cum SA (acres)	1983.31	2986.78	982.94

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid,

water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1063.25	Element	Left OB	Channel	Right OB
Vel Head (ft)	6.27	Wt. n-Val.		0.032	
W.S. Elev (ft)	1056.98	Reach Len. (ft)	495.00	502.71	525.00
Crit W.S. (ft)	1055.74	Flow Area (sq ft)		8264.06	
E.G. Slope (ft/ft)	0.004781	Area (sq ft)		8264.06	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	521.09	Top Width (ft)		521.09	
Vel Total (ft/s)	20.09	Avg. Vel. (ft/s)		20.09	
Max Chl Dpth (ft)	17.68	Hydr. Depth (ft)		15.86	
Conv. Total (cfs)	2400862.0	Conv. (cfs)		2400862.0	
Length Wtd. (ft)	502.71	Wetted Per. (ft)		528.08	
Min Ch El (ft)	1039.30	Shear (lb/sq ft)		4.67	
Alpha	1.00	Stream Power (lb/ft s)		93.82	
Frctn Loss (ft)	1.92	Cum Volume (acre-ft)	1203.17	32511.45	1413.43
C & E Loss (ft)	0.53	Cum SA (acres)	201.93	2990.62	205.34

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 212.46

INPUT
Description: 212.46 - FEMA Section AC

Left and Right Channel Bank Stations
Interpolated
Station Elevation Data num= 66

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18753.5	1067.1	18827.8	1067.7	18877.5	1068.2	18898.4	1055	19357.3	1055.1
19382.1	1053.4	19409	1053.9	19429.7	1053.3	19445.8	1054.1	19481.5	1054.3
19531	1052.9	19550.5	1054.6	19656.6	1055	19684.4	1069.8	19700	1067.4
19714.7	1067.8	19743.34	1056.289	19787.6	1038.5	19877.7	1038.3	20214.4	1037.2
20270.9	1039.9	20290.3	1040.2	20301	1040.331	20380.4	1041.3	20415.6	1048.6
20422.7	1048.9	20436.9	1047.2	20446.3	1048.4	20484.2	1055.6	20494.5	1057
20510.9	1057.5	20553.9	1062.4	20563.5	1064	20616.9	1070.3	20661.5	1072.5
20691.8	1074.7	20705.2	1075.2	20771.8	1073.9	20836.5	1073.6	20841.8	1073.2
20893.4	1072.8	20932.3	1068.7	20999.5	1072.8	21028.4	1074	21091.5	1069.7
21143.4	1069.4	21187.1	1070.2	21222.4	1071.9	21234.8	1070.7	21242.4	1070.9
21265.3	1070.2	21277.9	1069.2	21302	1065.4	21326.5	1063.3	21392.1	1057.4
21427.4	1052.9	21482.8	1061.6	21523.6	1061.6	21591.7	1061.2	21609.9	1060.7
21657.5	1061.6	22674	1062	22695.3	1072.2	22728.6	1064.6	22746.1	1064.3
22917.1	1063.8								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
18753.5	.037	19743.34	.032	20301	.037

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19743.34 20301 495 497.81 510 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
18753.5	19684.4	1075.2	F
20301	22917.1	1075.2	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1060.78	Element	Left OB	Channel	Right OB
Vel Head (ft)	4.54	Wt. n-Val.		0.032	
W.S. Elev (ft)	1056.23	Reach Len. (ft)	495.00	497.81	510.00
Crit W.S. (ft)	1052.77	Flow Area (sq ft)		9703.67	
E.G. Slope (ft/ft)	0.003034	Area (sq ft)	1160.90	9703.67	2110.16
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	1555.15	Top Width (ft)	762.46	557.52	235.17
Vel Total (ft/s)	17.11	Avg. Vel. (ft/s)		17.11	
Max Chl Dpth (ft)	19.03	Hydr. Depth (ft)		17.41	
Conv. Total (cfs)	3013623.0	Conv. (cfs)		3013623.0	
Length Wtd. (ft)	497.81	Wetted Per. (ft)		561.02	
Min Ch El (ft)	1037.20	Shear (lb/sq ft)		3.28	
Alpha	1.00	Stream Power (lb/ft s)		56.05	
Frctn Loss (ft)	1.85	Cum Volume (acre-ft)	9011.34	31479.43	3347.07
C & E Loss (ft)	0.12	Cum SA (acres)	1978.97	2980.56	981.52

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1060.80	Element	Left OB	Channel	Right OB
Vel Head (ft)	4.51	Wt. n-Val.		0.032	
W.S. Elev (ft)	1056.29	Reach Len. (ft)	495.00	497.81	510.00
Crit W.S. (ft)	1052.77	Flow Area (sq ft)		9738.24	
E.G. Slope (ft/ft)	0.003114	Area (sq ft)		9738.24	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	557.66	Top Width (ft)		557.66	
Vel Total (ft/s)	17.05	Avg. Vel. (ft/s)		17.05	

Pre-Project

* Max Chl Dpth (ft)	* 19.09	* Hydr. Depth (ft)	*	* 17.46	*	*
* Conv. Total (cfs)	*2974820.0	* Conv. (cfs)	*	*2974820.0	*	*
* Length Wtd. (ft)	* 497.81	* Wetted Per. (ft)	*	* 577.14	*	*
* Min Ch El (ft)	* 1037.20	* Shear (lb/sq ft)	*	* 3.28	*	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 55.91	*	*
* Frctn Loss (ft)	* 1.88	* Cum Volume (acre-ft)	* 1203.17	*32407.57	* 1413.43	*
* C & E Loss (ft)	* 0.12	* Cum SA (acres)	* 201.93	* 2984.40	* 205.34	*

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 212.37

INPUT
Description: 212.37

Left and Right Channel Bank Stations Interpolated
Station Elevation Data num= 53

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18816.9	1066.3	18818.6	1066.2	18822.9	1066.3	18834	1066.3	18957.9	1066
18989.9	1065.8	19000	1065.6	19036.9	1065.2	19054.2	1064.9	19092.2	1064.1
19112.5	1063.4	19137.4	1064.7	19138.3	1064.8	19139.3	1064.8	19195.1	1066.9
19209.3	1061	19668.8	1061	19681.7	1066.2	19684.6	1067.4	19684.8	1067.3
19685.1	1067.2	19692.2	1064.6	19715.3	1065	19717.4	1065.1	19722.1	1063.2
19744.061	1053.778	19782.7	1037.2	19926.2	1036.9	20272.4	1037.1	20284.2	1036.6
20285.4	1036.6	20288.8	1038.62	0320.691	053.776	20338.6	1062.3	20338.7	1062.3
20369.5	1065.2	20396.5	1069.4	20454.4	1070.1	20471.3	1070.1	20508.4	1061
22070.8	1061	22075.2	1062.9	22088.8	1064.3	22125.1	1067.6	22147.7	1068.9
22155.8	1069.3	22177.3	1071.8	22222.4	1065.3	22242.6	1063.6	22252.8	1063.9
22275.2	1064.6	22382.7	1065.6	22407.8	1066.1				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
18816.9	.037	19744.06	.032	20320.69	.037

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
19744.06	20320.69	500 495.84	485	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
18816.9	19684.6	1070	F
20396.5	22407.8	1070	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 1058.81	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 5.72	* Wt. n-Val.	*	* 0.032	* *
* W.S. Elev (ft)	* 1053.09	* Reach Len. (ft)	* 500.00	* 495.84	* 485.00 *
* Crit W.S. (ft)	* 1051.73	* Flow Area (sq ft)	*	* 8648.65	* *
* E.G. Slope (ft/ft)	*0.004662	* Area (sq ft)	*	* 8648.65	* *
* Q Total (cfs)	*166000.00	* Flow (cfs)	*	*166000.00	* *
* Top Width (ft)	* 573.56	* Top Width (ft)	*	* 573.56	* *
* Vel Total (ft/s)	* 19.19	* Avg. Vel. (ft/s)	*	* 19.19	* *
* Max Chl Dpth (ft)	* 16.49	* Hydr. Depth (ft)	*	* 15.08	* *
* Conv. Total (cfs)	*2431159.0	* Conv. (cfs)	*	*2431159.0	* *
* Length Wtd. (ft)	* 495.84	* Wetted Per. (ft)	*	* 580.66	* *
* Min Ch El (ft)	* 1036.60	* Shear (lb/sq ft)	*	* 4.34	* *
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 83.21	* *
* Frctn Loss (ft)	* 2.45	* Cum Volume (acre-ft)	* 9004.74	*31374.56	* 3334.72 *
* C & E Loss (ft)	* 0.01	* Cum SA (acres)	* 1974.64	* 2974.10	* 980.15 *

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 1058.81	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 5.72	* Wt. n-Val.	*	* 0.032	* *
* W.S. Elev (ft)	* 1053.09	* Reach Len. (ft)	* 500.00	* 495.84	* 485.00 *
* Crit W.S. (ft)	* 1051.73	* Flow Area (sq ft)	*	* 8651.94	* *
* E.G. Slope (ft/ft)	*0.004657	* Area (sq ft)	*	* 8651.94	* *
* Q Total (cfs)	*166000.00	* Flow (cfs)	*	*166000.00	* *
* Top Width (ft)	* 573.59	* Top Width (ft)	*	* 573.59	* *
* Vel Total (ft/s)	* 19.19	* Avg. Vel. (ft/s)	*	* 19.19	* *
* Max Chl Dpth (ft)	* 16.49	* Hydr. Depth (ft)	*	* 15.08	* *
* Conv. Total (cfs)	*2432618.0	* Conv. (cfs)	*	*2432618.0	* *
* Length Wtd. (ft)	* 495.84	* Wetted Per. (ft)	*	* 580.69	* *
* Min Ch El (ft)	* 1036.60	* Shear (lb/sq ft)	*	* 4.33	* *
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 83.11	* *
* Frctn Loss (ft)	* 2.45	* Cum Volume (acre-ft)	* 1203.17	*32302.48	* 1413.43 *
* C & E Loss (ft)	* 0.01	* Cum SA (acres)	* 201.93	* 2977.93	* 205.34 *

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 212.27

INPUT
Description: 212.27

Left and Right Channel Bank Stations Interpolated

Station Elevation Data num= 95

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17693.1	1064.6	17697.9	1064.6	17734.8	1064	17740.4	1063.9	17785.6	1063.1
17796.2	1063.1	17827.6	1062.5	17846.2	1062.4	17893.5	1062.2	18008.4	1061.5
18061.8	1061.5	18108.5	1062.4	18180.8	1062.8	18221.3	1063	18239.7	1059
18264.8	1054.5	18285.2	1054	18326.7	1048.1	18342.3	1046.2	18362.6	1053.4
18380.3	1046.2	18395.3	1042.4	18405.4	1039	18415.2	1036.5	18431.2	1031.5
18465.3	1023.5	18544.4	1025.1	18579.3	1015.6	18586.4	1013.2	18615.7	1013
18649.7	1013	18693.4	1012.9	18782.3	1012.3	18931.2	1012.8	18976.1	1012.6
18981.9	1012.7	19083	1012.1	19110	1012.1	19284.8	1012.2	19302.3	1012.4
19314.3	1019	19342.1	1028.5	19385.1	1048.2	19442.6	1044.9	19457.4	1044.6
19509.8	1062.9	19515.4	1063	19561	1063.7	19676.4	1065.4	19715.25	1052.334
19754.6	1039.1	19765.4	1035.4	19935.2	1035.2	20003.5	1035.2	20097.2	1035.1
20281.9	1035.1	20330.35	1052.334	20337	1054.7	20351	1059.5	20416.4	1037.6
20457	1023.9	20721.5	1023.4	20766.6	1022.9	20810.1	1022.2	20848.4	1021.5
20878.3	1023.7	20909.5	1025.8	20935.1	1026.2	20970.3	1026.8	20984	1027.2
21016.1	1028	21073.4	1026.9	21105.5	1026.6	21138.2	1026.2	21189.1	1025.7
21190.6	1025.7	21248.8	1040.7	21294.4	1051.5	21328.2	1059.6	21333.8	1060.2
21373.3	1067.4	21415.5	1061.7	21426.9	1059.4	21439.1	1056.3	21473.7	1050
21501.4	1044.9	21538.1	1038.9	21543.5	1037.9	21579.4	1046.2	21617.1	1054.3
21626.5	1056.1	21660.7	1060	21745.2	1060.6	21930.8	1061.7	21968.2	1061.7

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
17693.1	.045	19715.25	.033	20330.35	.04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19715.25 20330.35 510 495 475 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17693.1	19676.4	1065.4	F
20351	21968.2	1059.5	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1056.35	Element	Left OB	Channel	Right OB
Vel Head (ft)	5.68	Wt. n-Val.		0.033	
W.S. Elev (ft)	1050.67	Reach Len. (ft)	510.00	495.00	475.00
Crit W.S. (ft)	1049.57	Flow Area (sq ft)		8681.56	
E.G. Slope (ft/ft)	0.005236	Area (sq ft)	34318.96	8681.56	22223.41
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	2800.96	Top Width (ft)	1151.76	605.48	1043.72
Vel Total (ft/s)	19.12	Avg. Vel. (ft/s)		19.12	
Max Chl Dpth (ft)	38.57	Hydr. Depth (ft)		14.34	
Conv. Total (cfs)	2294057.0	Conv. (cfs)		2294057.0	
Length Wtd. (ft)	495.00	Wetted Per. (ft)		610.68	
Min Ch El (ft)	1035.10	Shear (lb/sq ft)		4.65	
Alpha	1.00	Stream Power (lb/ft s)		88.86	
Frctn Loss (ft)	1.81	Cum Volume (acre-ft)	8807.78	31275.93	3211.00
C & E Loss (ft)	0.59	Cum SA (acres)	1968.03	2967.39	974.34

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1056.35	Element	Left OB	Channel	Right OB
Vel Head (ft)	5.68	Wt. n-Val.		0.033	
W.S. Elev (ft)	1050.67	Reach Len. (ft)	510.00	495.00	475.00
Crit W.S. (ft)	1049.57	Flow Area (sq ft)		8681.05	
E.G. Slope (ft/ft)	0.005237	Area (sq ft)		8681.05	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	605.47	Top Width (ft)		605.47	
Vel Total (ft/s)	19.12	Avg. Vel. (ft/s)		19.12	
Max Chl Dpth (ft)	15.57	Hydr. Depth (ft)		14.34	
Conv. Total (cfs)	2293842.0	Conv. (cfs)		2293842.0	
Length Wtd. (ft)	495.00	Wetted Per. (ft)		610.67	
Min Ch El (ft)	1035.10	Shear (lb/sq ft)		4.65	
Alpha	1.00	Stream Power (lb/ft s)		88.88	
Frctn Loss (ft)	1.81	Cum Volume (acre-ft)	1203.17	32203.83	1413.43
C & E Loss (ft)	0.59	Cum SA (acres)	201.93	2971.22	205.34

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 212.18

INPUT
Description: 212.18

Left and Right Channel Bank Stations Interpolated
Station Elevation Data num= 87

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16867.12	1065.21	6906.93	1063.91	17072.69	1063.62	17369.21	1062.48	17505.56	1062.52
17612.28	1062.91	7794.36	1062.33	17881.75	1062.58	17916.47	1062.32	17948.21	1065.69
18039.48	1010.81	8149.75	1011.69	18168.39	1016.64	18177.08	1014.6	18188	1020.06
18220.51	1027.21	8252.71	1039.34	18269.64	1041.16	18292.43	1036.71	8335.96	1016.75
18454.36	1016.21	8568.19	1014.72	18633.81	1016.11	18764.91	1017.46	18823.95	1017.09
19046.22	1017.71	9156.65	1019.37	19198.34	1018.44	19223.89	1018.49	19248.34	1016.23
19311.18	1015.1	19393.8	1012.98	19433	1012.52	19464.03	1021.81	19488.46	1011.1
19574.96	1010.61	9614.98	1037.42	19649.87	1059.81	19685.1	1058.81	19706.85	1050.309
19749.09	1033.81	9960.28	1030.82	20229.47	1031.72	20272.48	1032.67	20319.31	1039.88
20334.57	1050.3	0720340.72	1054.51	20354.62	1060.32	20472.17	1061.55	20523.7	1061.62
20551.86	1053.04	20622.11	1048.82	20687.56	1052.22	20928.11	1055.29	21136.97	1058.41
21257.08	1058.69	21362.76	1060.71	21646.22	1067.22	21858.08	1068.11	22054.43	1067.43
22158.98	1065.96	22243.23	1064.32	22279.9	1062.82	22295.67	1065.59	22307.88	1060.91
22324.63	1061.39	22394.01	1058.43	22480.34	1058.92	22555.28	1058.92	22720.83	1059.92
22855.27	1061.54	22949.17	1061.49	22974.76	1060	23021.3	1058.52	3070.19	1058.44
23114.11	1060.29	23152.9	1060.08	23260.95	1061.42	3486.25	1061.05	23586.41	1061.15
23621.07	1061.47	23789.79	1060.37	23929.16	1060.4	24034.7	1061.82	4176.57	1062.42
24281.11	1062.33	24460.33	1061.22						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
16867.12	.045	19706.85	.033	20334.57	.04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19706.85 20334.57 500 502.53 485 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
16867.12	19649.87	1068	F
20523.72	24460.33	1068	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1053.95	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.69	Wt. n-Val.		0.033	
W.S. Elev (ft)	1050.25	Reach Len. (ft)	500.00	502.53	485.00
Crit W.S. (ft)	1045.89	Flow Area (sq ft)		10761.93	
E.G. Slope (ft/ft)	0.002692	Area (sq ft)	53172.74	10761.93	37.67
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	2340.52	Top Width (ft)	1661.09	627.49	51.95
Vel Total (ft/s)	15.42	Avg. Vel. (ft/s)		15.42	
Max Chl Dpth (ft)	39.65	Hydr. Depth (ft)		17.15	
Conv. Total (cfs)	3199385.0	Conv. (cfs)		3199385.0	
Length Wtd. (ft)	502.53	Wetted Per. (ft)		634.38	
Min Ch El (ft)	1030.80	Shear (lb/sq ft)		2.85	
Alpha	1.00	Stream Power (lb/ft s)		43.98	
Frctn Loss (ft)	0.96	Cum Volume (acre-ft)	8295.60	31165.46	3089.63
C & E Loss (ft)	0.32	Cum SA (acres)	1951.57	2960.38	968.36

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1053.94	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.69	Wt. n-Val.		0.033	
W.S. Elev (ft)	1050.25	Reach Len. (ft)	500.00	502.53	485.00
Crit W.S. (ft)	1045.89	Flow Area (sq ft)		10761.62	
E.G. Slope (ft/ft)	0.002692	Area (sq ft)		10761.62	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	627.48	Top Width (ft)		627.48	
Vel Total (ft/s)	15.43	Avg. Vel. (ft/s)		15.43	
Max Chl Dpth (ft)	19.45	Hydr. Depth (ft)		17.15	
Conv. Total (cfs)	3199239.0	Conv. (cfs)		3199239.0	
Length Wtd. (ft)	502.53	Wetted Per. (ft)		634.37	
Min Ch El (ft)	1030.80	Shear (lb/sq ft)		2.85	
Alpha	1.00	Stream Power (lb/ft s)		43.98	
Frctn Loss (ft)	0.96	Cum Volume (acre-ft)	1203.17	32093.37	1413.43
C & E Loss (ft)	0.32	Cum SA (acres)	201.93	2964.22	205.34

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 212.08

INPUT
Description: 212.08

Left and Right Channel Bank Stations Interpolated
Station Elevation Data num= 101

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17052.4	1065.11	7093.98	1063.21	7330.91	1062.59	17423.14	1062.21	17562.97	1062.23
17854.31	1061	17952.67	1061.39	17989.42	1061.1	18003.9	1064.72	18053.78	1032.77
18092.97	1010.31	8121.67	1010.42	18204.85	1011.49	18218.51	1014.53	18400.47	1013.68
18430.19	1013.71	8591.23	1012.73	18717.39	1012.55	18827.36	1012.71	18982.9	1014.44

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19125.21  1014.119158.95 1014.27 19197.5 1013.7219237.59 1014.0519246.24 1012.73
19261.95  1013.819287.74 1011.5219294.56 1009.4419377.18 1009.8819458.03 1009.79
19560.86  1055.919603.52 1052.7719676.09 1052.9419681.091050.10619689.85 1045.14
19720.06 1031.7419729.83  1028.619835.59 1026.9819956.58 1026.4520018.74 1026.48
20046.86 1026.7120134.08  1025.920179.54 1025.9920234.17 1026.6520245.73 1033.13
20270.89  1050.120275.07 1052.9220290.81  1060.920335.45 1060.3720383.25 1044.65
20424.79 1044.3820442.88 1052.7920545.79  1055.720813.04 1061.3820956.27 1063.95
21082.72 1065.9821252.33 1068.1621359.98  1067.921436.79 1067.7621473.77 1066.77
21529.98 1066.4821607.29  1070.321676.41  1072.821730.28 1073.8421923.53 1073.03
22030.61 1073.7622091.57 1073.1322182.24  1073.622303.01 1072.0522453.89 1069.64
22595.45 1068.2222755.09 1066.8622966.16  1063.923129.47 1061.46 23222.4 1059.05
23255.36 1058.6423268.74 1055.5123278.67  1058.323295.59 1055.5423328.26  1058.3
23417.52  1058.423428.87  1058.123519.64  1059.323868.62 1059.1724082.28 1059.08
24280.77 1060.1224441.84 1061.9124594.59  1060.924688.74 1061.7424871.91 1061.24
 24970.8 1060.3325012.15 1058.2625172.94  1060.8 25399.4 1060.1425629.95 1059.85
25800.17 1059.4125815.84 1060.0725861.96  1079.725884.17 1080.2625963.83 1080.96
26004.82 1061.65

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
 17052.4    .04519681.09    .03320270.89     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      19681.0920270.89             510  519.85     475             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 17052.419560.86    1078       F
 20290.826004.82    1078       F

CROSS SECTION OUTPUT  Profile #PF#1
*****************************************************************************************
* E.G. Elev (ft)         * 1052.67  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    2.62  * Wt. n-Val.             *          *   0.033  *          *
* W.S. Elev (ft)         * 1050.04  * Reach Len. (ft)        *  510.00  *  519.85  *  475.00  *
* Crit W.S. (ft)         * 1041.45  * Flow Area (sq ft)      *          *12773.65  *          *
* E.G. Slope (ft/ft)     *0.001415  * Area (sq ft)           *53964.42  *12773.65  *  308.33  *
* Q Total (cfs)          *166000.00  * Flow (cfs)            *          *166000.00  *          *
* Top Width (ft)         * 2180.71  * Top Width (ft)        * 1520.98  *  589.61  *   70.12  *
* Vel Total (ft/s)       *   13.00  * Avg. Vel. (ft/s)      *          *   13.00  *          *
* Max Chl Dpth (ft)      *   40.60  * Hydr. Depth (ft)      *          *   21.66  *          *
* Conv. Total (cfs)      *4412668.0  * Conv. (cfs)          *          *4412668.0  *          *
* Length Wtd. (ft)       *  519.85  * Wetted Per. (ft)      *          *  601.11  *          *
* Min Ch El (ft)         * 1025.90  * Shear (lb/sq ft)      *          *    1.88  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   24.40  *          *
* Frctn Loss (ft)        *    0.83  * Cum Volume (acre-ft)  * 7680.72  *31029.70  * 3087.70  *
* C & E Loss (ft)        *    0.06  * Cum SA (acres)        * 1933.30  * 2953.36  *  967.68  *
*****************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*****************************************************************************************
* E.G. Elev (ft)         * 1052.67  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    2.62  * Wt. n-Val.             *          *   0.033  *          *
* W.S. Elev (ft)         * 1050.04  * Reach Len. (ft)        *  510.00  *  519.85  *  475.00  *
* Crit W.S. (ft)         * 1041.45  * Flow Area (sq ft)      *          *12774.58  *          *
* E.G. Slope (ft/ft)     *0.001415  * Area (sq ft)           *          *12774.58  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)            *          *166000.00  *          *
* Top Width (ft)         *  589.61  * Top Width (ft)        *          *  589.61  *          *
* Vel Total (ft/s)       *   12.99  * Avg. Vel. (ft/s)      *          *   12.99  *          *
* Max Chl Dpth (ft)      *   24.14  * Hydr. Depth (ft)      *          *   21.67  *          *
* Conv. Total (cfs)      *4413183.0  * Conv. (cfs)          *          *4413183.0  *          *
* Length Wtd. (ft)       *  519.85  * Wetted Per. (ft)      *          *  601.12  *          *
* Min Ch El (ft)         * 1025.90  * Shear (lb/sq ft)      *          *    1.88  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   24.39  *          *
* Frctn Loss (ft)        *    0.83  * Cum Volume (acre-ft)  * 1203.17  *31957.60  * 1413.43  *
* C & E Loss (ft)        *    0.06  * Cum SA (acres)        *  201.93  * 2957.20  *  205.34  *
*****************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                  RS: 211.99

INPUT
Description: 211.99 - FEMA Section AB

Left and Right Channel Bank Stations
            Interpolated
Station Elevation Data     num=      97
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
*********************************************************************************
17386.75    106217493.12 1060.3617883.55  1058.918026.04 1059.0818043.61 1064.43
18128.52  1011.918212.07 1010.04 18284.3 1009.4118375.77 1031.9918386.79 1034.99
18398.32  1031.618455.15 1010.4218634.29 1010.1518715.79 1026.1718726.98 1025.43
18746.82  1028.918793.14 1039.1118826.55 1047.2218835.49 1050.27 18880.3 1056.14
18928.65  1059.619023.07 1060.4719122.51 1058.69 19147.6 1056.9819172.92  1053.9
19222.57  1059.719306.36 1064.7519387.36 1066.2619419.32 1065.7319467.92  1063.3
19535.53  1055.9 19579.8  1052.519594.04 1050.0119626.09 1059.7519669.23 1060.17
19682.93  1052.119695.13  1051.719699.771048.63219734.91 1025.3919968.68 1025.66
 20018.4    102620129.78  1025.520175.87 1025.6620205.91  1027.820236.81 1047.09
20249.651048.632 20249.8 1048.6520268.39  1059.720319.37 1059.4520355.66 1049.61
20366.72 1051.1620380.34 1056.3120536.66  1059.720697.58 1062.9120861.07 1067.46
20969.05  1071.421086.46 1074.5421220.77  1077.821348.89 1078.3521519.24 1075.76
21606.23 1073.4221740.53 1069.1421834.91    106821936.77 1071.0222068.74 1077.26
```

```
22189.17 1082.4922398.45 1089.6222486.87  1090.322515.75 1089.9422616.83 1085.49
22698.81 1083.4322757.86 1080.0622899.81  1069.523059.97  1066.123300.96 1061.35
23457.95 1059.0923578.87 1055.29 23592.8  1052.823611.42  1057.123707.16 1057.71
23758.72 1057.8423837.72 1057.31   23902  1056.223950.13 1056.5724182.97 1056.91
24332.01 1056.0724582.04 1056.0124636.44    105924704.95 1057.5324865.28 1057.45
24966.74 1058.31 24996.3 1059.9325064.88  1059.825072.86 1059.0925171.62 1057.94
25224.27 1057.7525467.18 1058.61

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
17386.75    .04519699.77    .03320249.65     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      19699.7720249.65              740  489.19     710            .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
17386.7519669.23    1078       F
 20268.325467.18    1078       F

CROSS SECTION OUTPUT  Profile #PF#1
*****************************************************************************************************
* E.G. Elev (ft)         * 1051.77  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    3.22  * Wt. n-Val.            *          *    0.033  *          *
* W.S. Elev (ft)         * 1048.55  * Reach Len. (ft)       *  740.00  *  489.19  *  710.00  *
* Crit W.S. (ft)         * 1041.17  * Flow Area (sq ft)     *          *11524.10  *          *
* E.G. Slope (ft/ft)     *0.001822  * Area (sq ft)          *22351.86  *11524.10  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *          *166000.00  *          *
* Top Width (ft)         * 1310.27  * Top Width (ft)       *  761.18  *  549.09  *          *
* Vel Total (ft/s)       *   14.40  * Avg. Vel. (ft/s)     *          *   14.40  *          *
* Max Chl Dpth (ft)      *   39.14  * Hydr. Depth (ft)     *          *   20.99  *          *
* Conv. Total (cfs)      *3888639.0  * Conv. (cfs)         *          *3888639.0  *          *
* Length Wtd. (ft)       *  489.19  * Wetted Per. (ft)     *          *  561.75  *          *
* Min Ch El (ft)         * 1025.39  * Shear (lb/sq ft)     *          *    2.33  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *        *   33.62  *          *
* Frctn Loss (ft)        *    0.83  * Cum Volume (acre-ft)  * 7233.96  *30884.71  * 3086.02  *
* C & E Loss (ft)        *    0.09  * Cum SA (acres)        * 1919.94  * 2946.57  *  967.30  *
*****************************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*****************************************************************************************************
* E.G. Elev (ft)         * 1051.78  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    3.22  * Wt. n-Val.            *          *    0.033  *          *
* W.S. Elev (ft)         * 1048.55  * Reach Len. (ft)       *  740.00  *  489.19  *  710.00  *
* Crit W.S. (ft)         * 1041.17  * Flow Area (sq ft)     *          *11525.16  *          *
* E.G. Slope (ft/ft)     *0.001822  * Area (sq ft)          *          *11525.16  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *          *166000.00  *          *
* Top Width (ft)         *  549.11  * Top Width (ft)       *          *  549.11  *          *
* Vel Total (ft/s)       *   14.40  * Avg. Vel. (ft/s)     *          *   14.40  *          *
* Max Chl Dpth (ft)      *   23.16  * Hydr. Depth (ft)     *          *   20.99  *          *
* Conv. Total (cfs)      *3889154.0  * Conv. (cfs)         *          *3889154.0  *          *
* Length Wtd. (ft)       *  489.19  * Wetted Per. (ft)     *          *  561.77  *          *
* Min Ch El (ft)         * 1025.39  * Shear (lb/sq ft)     *          *    2.33  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *        *   33.61  *          *
* Frctn Loss (ft)        *    0.83  * Cum Volume (acre-ft)  * 1203.17  *31812.60  * 1413.43  *
* C & E Loss (ft)        *    0.09  * Cum SA (acres)        *  201.93  * 2950.40  *  205.34  *
*****************************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 211.89

INPUT
Description: 211.89

Left and Right Channel Bank Stations Interpolated
Station Elevation Data    num=      95
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
*************************************************************************************
17673.64  1059.917830.52  1057.818075.45 1057.5918106.59 1061.3918156.21 1060.92
18181.64    105718268.15  1057.418570.49 1056.27 18656.7 1057.3718734.79  1059.4
18854.83  1058.1 18903.9 1058.6218933.75 1056.2618954.51  1054.319026.15 1059.53
19074.67  1064.519130.02 1067.6619166.92 1067.8219220.33 1064.2519291.97 1056.93
19339.05  1053.2 19355.5 1049.4119383.94 1051.7719506.58 1049.7319568.03 1052.09
19611.95  1052.419640.96 1059.4519668.79 1059.3319685.751048.02319719.16 1025.75
19877.45 1024.19   19996  1024.820046.95 1024.9420149.18 1025.3420215.53 1026.87
20231.37 1035.8620250.74 1048.0220268.71  1059.320317.76 1059.25 20347.9 1053.02
20357.11 1053.8720365.64 1057.4620503.92  1061.220587.79 1062.3220715.42 1064.82
20808.25 1066.4820898.25 1068.17 21050.2    107021240.42  1069.721365.85 1067.31
21444.39 1066.6721597.69 1066.8121747.36  1066.621837.61 1066.0122018.21 1062.79
22078.36 1061.7622206.84  1065.222377.75  1068.122579.85 1068.7522814.63 1068.78
22947.07 1067.96 23029.4 1068.0923191.51  1066.423528.26  1059.523662.78 1056.72
23775.83 1055.5423829.73 1054.1523844.87  1051.223876.82 1056.0923920.99    1057
23995.44 1056.4724052.85  1056.124082.77  1056.624140.98 1058.2724165.07 1058.25
24271.91 1056.4524411.05 1053.1724579.36  1053.324759.09 1054.04 24774.1 1055.28
24840.04 1057.6924883.78 1058.2624920.88  1055.825041.94 1055.2925284.44  1056.1
25336.01 1057.1325359.39 1058.3225402.51  1057.3 25726.4 1058.2326172.96 1058.11
 26295.6  1059.626333.92 1078.1726470.33  1078.826504.14  1058.926569.17 1059.94

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
17673.64    .04519685.75    .03320250.74     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      19685.7520250.74              507  527.46     640            .1       .3
Ineffective Flow     num=       2
```

```
   Sta L    Sta R     Elev  Permanent
17673.6419640.96     1068        F
 20268.726569.17     1068        F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         * 1050.85  * Element                * Left OB *  Channel * Right OB *
* Vel Head (ft)          *    2.92  * Wt. n-Val.            *         *   0.033  *          *
* W.S. Elev (ft)         * 1047.93  * Reach Len. (ft)       *  507.00 *  527.46  *  640.00  *
* Crit W.S. (ft)         * 1039.97  * Flow Area (sq ft)     *         *12113.21  *          *
* E.G. Slope (ft/ft)     *0.001601  * Area (sq ft)          *         *12113.21  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *         *166000.00  *          *
* Top Width (ft)         *  564.71  * Top Width (ft)        *         *  564.71  *          *
* Vel Total (ft/s)       *   13.70  * Avg. Vel. (ft/s)      *         *   13.70  *          *
* Max Chl Dpth (ft)      *   23.74  * Hydr. Depth (ft)      *         *   21.45  *          *
* Conv. Total (cfs)      *4149337.0  * Conv. (cfs)          *         *4149337.0  *          *
* Length Wtd. (ft)       *  527.46  * Wetted Per. (ft)      *         *  577.30  *          *
* Min Ch El (ft)         * 1024.19  * Shear (lb/sq ft)      *         *    2.10  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *        *   28.73  *          *
* Frctn Loss (ft)        *    0.85  * Cum Volume (acre-ft)  * 7044.11  *30751.98  * 3086.02  *
* C & E Loss (ft)        *    0.00  * Cum SA (acres)        * 1913.48  * 2940.31  *  967.30  *
*********************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)         * 1050.85  * Element                * Left OB *  Channel * Right OB *
* Vel Head (ft)          *    2.92  * Wt. n-Val.            *         *   0.033  *          *
* W.S. Elev (ft)         * 1047.93  * Reach Len. (ft)       *  507.00 *  527.46  *  640.00  *
* Crit W.S. (ft)         * 1039.97  * Flow Area (sq ft)     *         *12114.25  *          *
* E.G. Slope (ft/ft)     *0.001600  * Area (sq ft)          *         *12114.25  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *         *166000.00  *          *
* Top Width (ft)         *  564.72  * Top Width (ft)        *         *  564.72  *          *
* Vel Total (ft/s)       *   13.70  * Avg. Vel. (ft/s)      *         *   13.70  *          *
* Max Chl Dpth (ft)      *   23.74  * Hydr. Depth (ft)      *         *   21.45  *          *
* Conv. Total (cfs)      *4149889.0  * Conv. (cfs)          *         *4149889.0  *          *
* Length Wtd. (ft)       *  527.46  * Wetted Per. (ft)      *         *  577.31  *          *
* Min Ch El (ft)         * 1024.19  * Shear (lb/sq ft)      *         *    2.10  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *        *   28.72  *          *
* Frctn Loss (ft)        *    0.85  * Cum Volume (acre-ft)  * 1203.17  *31679.87  * 1413.43  *
* C & E Loss (ft)        *    0.00  * Cum SA (acres)        *  201.93  * 2944.15  *  205.34  *
*********************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 211.79

INPUT
Description: 211.79

Left and Right Channel Bank Stations Interpolated
Station Elevation Data    num=      85
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
*********************************************************************************
18158.31  1058.118521.37 1057.9218711.98 1053.2918821.22 1049.9719332.48  1038.9
 19421.9  1034.719443.13 1034.6819494.83 1031.4519529.82 1033.8919593.73 1053.47
19613.84  1059.219631.93 1059.1219649.871047.18219683.64 1024.7119868.29 1023.84
19990.11 1024.4520071.01  1024.2   20181 1025.03 20210.4 1042.5420217.711047.186
20234.96 1058.1520266.77 1058.9620288.34  1058.220317.07 1049.6420327.91 1051.41
20334.62 1054.8620544.02 1058.1120748.52  1061.320960.89 1062.1921136.74 1063.31
21355.67 1062.99 21514.2 1062.9221680.46  1061.621736.21 1061.7621809.47 1060.69
21912.92 1059.5422164.31 1055.8622183.26  1055.422365.65 1059.3522456.33 1059.66
22607.29 1061.0722697.85 1061.2422757.13    106222877.22 1061.9822997.38 1061.21
23058.71 1061.6923238.58 1060.2923378.99  1059.623483.49 1059.3723694.55 1056.44
23766.47 1056.3523904.99 1053.8723939.63  1052.523954.41 1049.7323974.63 1054.92
24066.57 1057.0124104.95 1055.7224159.03  1054.924203.29 1053.77 24226.8 1054.13
24410.42 1054.11 24588.5 1054.8124806.33  1056.924857.28 1056.9224892.35 1056.25
 24937.4 1056.2724992.53 1057.9125025.07  1054.525154.69 1054.6325336.45 1057.87
25508.23 1059.0125689.64 1058.1825912.41  1058.826025.53 1058.4626235.18 1058.51
26315.33    105826360.96 1059.1426386.48  1071.426401.46 1071.61 26423.9  1078.8
26526.56 1078.9226547.02 1071.3226569.39  1067.826599.18 1058.2826670.85 1059.87

Manning's n Values        num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
************************************************
18158.31    .04519649.87    .03320217.71     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      19649.8720217.71             680  450.74    290            .1       .3
Ineffective Flow     num=       2
   Sta L    Sta R     Elev  Permanent
18158.3119613.84     1068        F
 20266.726670.85     1068        F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         * 1050.00  * Element                * Left OB *  Channel * Right OB *
* Vel Head (ft)          *    2.92  * Wt. n-Val.            *         *   0.033  *          *
* W.S. Elev (ft)         * 1047.07  * Reach Len. (ft)       *  680.00 *  450.74  *  290.00  *
* Crit W.S. (ft)         * 1039.26  * Flow Area (sq ft)     *         *12095.82  *          *
* E.G. Slope (ft/ft)     *0.001620  * Area (sq ft)          * 4235.81  *12095.82  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *         *166000.00  *          *
* Top Width (ft)         * 1185.33  * Top Width (ft)        *  617.83 *  567.50  *          *
* Vel Total (ft/s)       *   13.72  * Avg. Vel. (ft/s)      *         *   13.72  *          *
* Max Chl Dpth (ft)      *   23.23  * Hydr. Depth (ft)      *         *   21.31  *          *
* Conv. Total (cfs)      *4124639.0  * Conv. (cfs)          *         *4124639.0  *          *
* Length Wtd. (ft)       *  450.74  * Wetted Per. (ft)      *         *  580.41  *          *
* Min Ch El (ft)         * 1023.84  * Shear (lb/sq ft)      *         *    2.11  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *        *   28.92  *          *
```

* Frctn Loss (ft)	* 0.73	* Cum Volume (acre-ft)	* 7019.46	*30605.41 * 3086.02 *
* C & E Loss (ft)	* 0.00	* Cum SA (acres)	* 1909.88	* 2933.46 * 967.30 *

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 1050.00	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 2.92	* Wt. n-Val.	*	* 0.033	* *
* W.S. Elev (ft)	* 1047.08	* Reach Len. (ft)	* 680.00	* 450.74	* 290.00 *
* Crit W.S. (ft)	* 1039.26	* Flow Area (sq ft)	*	*12097.01	* *
* E.G. Slope (ft/ft)	*0.001619	* Area (sq ft)	*	*12097.01	* *
* Q Total (cfs)	*166000.00	* Flow (cfs)	*	*166000.00	* *
* Top Width (ft)	* 567.51	* Top Width (ft)	*	* 567.51	* *
* Vel Total (ft/s)	* 13.72	* Avg. Vel. (ft/s)	*	* 13.72	* *
* Max Chl Dpth (ft)	* 23.24	* Hydr. Depth (ft)	*	* 21.32	* *
* Conv. Total (cfs)	*4125269.0	* Conv. (cfs)	*	*4125269.0	* *
* Length Wtd. (ft)	* 450.74	* Wetted Per. (ft)	*	* 580.41	* *
* Min Ch El (ft)	* 1023.84	* Shear (lb/sq ft)	*	* 2.11	* *
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 28.91	* *
* Frctn Loss (ft)	* 0.73	* Cum Volume (acre-ft)	* 1203.17	*31533.28	* 1413.43 *
* C & E Loss (ft)	* 0.00	* Cum SA (acres)	* 201.93	* 2937.29	* 205.34 *

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 211.71

INPUT
Description: 211.71

Left and Right Channel Bank Stations Interpolated
Station Elevation Data num= 82

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18356.24	1056.618403.32	1056.5118836.53	1046.2619011.11	1054.3319170.81	1053.8				
19462.94	1052.519478.82	1053.0919497.62	1060.06	19533	1043.2819551.37	1045.32			
19595.29	105919611.46	1057.8119628.43	1046.4719661.32	1024.4919846.96	1023.81				
19928.43	1023.1919998.17	1023.220045.76	1023.2120158.51	1023.3920197.84	1046.47				
20216.14	1057.2120266.22	1057.7620314.99	1042.620325.03	1043.14 20337.2	1046.87				
20568.24	1050.2520851.05	1051.3120962.88	1051.521206.35	1051.6421388.45	1051.42				
21419.92	1051.2321727.44	1052.6221848.61	1053.521981.25	1052.7822130.55	1052.51				
22220.26	1051.5322459.24	1054.3422578.82	1055.122876.18	1055.9323025.66	1056.21				
23117.46	1056.8923238.24	1055.61 23357.2	1054.623446.32	1054.2323535.13	1054.99				
23685.75	1053.2823748.15	1053.5423836.62	1056.423904.67	1055.7524029.98	1052.16				
24046.15	1048.724064.65	1054.8424297.11	1054.624417.85	1054.0824709.66	1055.58				
24914.5	1057.2724949.53	1057.2425042.76	1055.725080.42	1056.7725117.12	1053.8				
25243.64	1054.8825321.41	1057.3325361.74	105825507.43	1059.54 25610.8	1058.49				
25724.65	1059.9825796.42	1060.0825841.82	1059.625987.23	1060.326062.01	1060.39				
26081.09	1058.8926241.81	1058.1126377.22	1057.126422.65	1058.2926467.41	1067.88				
26493.74	1078.7726570.07	1078.7926595.33	1080 26627.3	1065.29 26661.5	1058.87				
26693.27	1058.2226725.34	1059.01							

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
18356.24	.04519628.43	.03320197.84	.04		

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19628.4320197.84 780 392.06 500 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
18356.24	19595.3	1068	F
20266.226725.34		1068	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 1049.27	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 2.92	* Wt. n-Val.	*	* 0.033	* *
* W.S. Elev (ft)	* 1046.34	* Reach Len. (ft)	* 780.00	* 392.06	* 500.00 *
* Crit W.S. (ft)	* 1038.56	* Flow Area (sq ft)	*	*12101.39	* *
* E.G. Slope (ft/ft)	*0.001623	* Area (sq ft)	* 49.36	*12101.39	* 74.18 *
* Q Total (cfs)	*166000.00	* Flow (cfs)	*	*166000.00	* *
* Top Width (ft)	* 635.05	* Top Width (ft)	* 33.50	* 569.01	* 32.54 *
* Vel Total (ft/s)	* 13.72	* Avg. Vel. (ft/s)	*	* 13.72	* *
* Max Chl Dpth (ft)	* 23.15	* Hydr. Depth (ft)	*	* 21.27	* *
* Conv. Total (cfs)	*4120833.0	* Conv. (cfs)	*	*4120833.0	* *
* Length Wtd. (ft)	* 392.06	* Wetted Per. (ft)	*	* 581.88	* *
* Min Ch El (ft)	* 1023.19	* Shear (lb/sq ft)	*	* 2.11	* *
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 28.90	* *
* Frctn Loss (ft)	* 0.67	* Cum Volume (acre-ft)	* 6986.01	*30480.22	* 3085.77 *
* C & E Loss (ft)	* 0.02	* Cum SA (acres)	* 1904.80	* 2927.58	* 967.19 *

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 1049.27	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 2.92	* Wt. n-Val.	*	* 0.033	* *
* W.S. Elev (ft)	* 1046.35	* Reach Len. (ft)	* 780.00	* 392.06	* 500.00 *
* Crit W.S. (ft)	* 1038.56	* Flow Area (sq ft)	*	*12102.79	* *
* E.G. Slope (ft/ft)	*0.001622	* Area (sq ft)	*	*12102.79	* *
* Q Total (cfs)	*166000.00	* Flow (cfs)	*	*166000.00	* *
* Top Width (ft)	* 569.02	* Top Width (ft)	*	* 569.02	* *
* Vel Total (ft/s)	* 13.72	* Avg. Vel. (ft/s)	*	* 13.72	* *

Pre-Project

* Max Chl Dpth (ft)	* 23.16	* Hydr. Depth (ft)	*	* 21.27	*	*					
* Conv. Total (cfs)	*4121579.0	* Conv. (cfs)	*	*4121579.0	*	*					
* Length Wtd. (ft)	* 392.06	* Wetted Per. (ft)	*	* 581.89	*	*					
* Min Ch El (ft)	* 1023.19	* Shear (lb/sq ft)	*	* 2.11	*	*					
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 28.89	*	*					
* Frctn Loss (ft)	* 0.67	* Cum Volume (acre-ft)	* 1203.17	*31408.08	* 1413.43	*					
* C & E Loss (ft)	* 0.02	* Cum SA (acres)	* 201.93	* 2931.41	* 205.34	*					

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 211.64

INPUT
Description: 211.63

Left and Right Channel Bank Stations Interpolated
Station Elevation Data num= 74

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18455.22	1055.618870.41	1054.6119083.17	1054.4919308.22	1054.2519426.55	1053.86				
19582.2	1054.119594.16	1050.2119604.79	1050.3319629.34	1057.4119639.51	1057.5				
19657.71045.60119689.19		102519804.58	1023.319911.42	1022.65 19986.5	1022.75				
20036.19	1022.9320060.82	1023.620181.08	1022.5820196.63	1031.17 20219.81045.602					
20238.13	1057.0220265.94	1057.5920288.34	1056.820321.05	1046.9420343.65	1039.08				
20371.71	1043.95 20510.4	1045.0120712.01	1046.120789.36	1046.9121038.61	1047.48				
21208.66	1048.1421454.04	1047.8221685.69	1048.521805.81	1048.0822092.18	1048.45				
22242.98	1048.2222332.89	1048.1922513.12	1050.222770.05	1051.0723054.32	1051.7				
23295.42	1051.6523472.95	1051.1123700.42	1052.523820.77	1054.7623926.54	1054.04				
23949.21	1052.3623981.01	1052.4624008.88	1047.424037.13	1053.1124090.43	1054.01				
24133.79	1054.5824302.75	1054.0624347.21	1053.624484.04	105424904.87	1055.84				
25102.6	1055.6325165.57	1054.9925293.65	1054.325400.67	1057.0625522.25	1059.22				
25597.17	1058.4125713.85	1057.9825824.69	1060.625850.02	1060.9225980.05	1061.02				
26040.31	1060.2826085.96	1060.1626115.36	1058.626378.37	1057.1726385.52	1058.22				
26496.95	1078.6826605.38	1079.6726703.24	1058.126712.22	1058.41					

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
18455.22	.045	19657.7	.033	20219.8	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
19657.7	20219.8	481	521.13	221	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
18455.2	219639.51	1068	F
20265.9	26712.22	1068	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 1048.58	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 3.13	* Wt. n-Val.	*	* 0.033	* *
* W.S. Elev (ft)	* 1045.45	* Reach Len. (ft)	* 481.00	* 521.13	* 221.00 *
* Crit W.S. (ft)	* 1038.24	* Flow Area (sq ft)	*	*11700.11	* *
* E.G. Slope (ft/ft)	*0.001783	* Area (sq ft)	*	*11700.11	* 322.09 *
* Q Total (cfs)	*166000.00	* Flow (cfs)	*	*166000.00	* *
* Top Width (ft)	* 828.72	* Top Width (ft)	*	* 561.64	* 267.08 *
* Vel Total (ft/s)	* 14.19	* Avg. Vel. (ft/s)	*	* 14.19	* *
* Max Chl Dpth (ft)	* 22.87	* Hydr. Depth (ft)	*	* 20.83	* *
* Conv. Total (cfs)	*3930905.0	* Conv. (cfs)	*	*3930905.0	* *
* Length Wtd. (ft)	* 521.13	* Wetted Per. (ft)	*	* 574.06	* *
* Min Ch El (ft)	* 1022.58	* Shear (lb/sq ft)	*	* 2.27	* *
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 32.19	* *
* Frctn Loss (ft)	* 1.05	* Cum Volume (acre-ft)	* 6985.57	*30373.11	* 3083.50 *
* C & E Loss (ft)	* 0.08	* Cum SA (acres)	* 1904.50	* 2922.49	* 965.47 *

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 1048.58	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 3.12	* Wt. n-Val.	*	* 0.033	* *
* W.S. Elev (ft)	* 1045.46	* Reach Len. (ft)	* 481.00	* 521.13	* 221.00 *
* Crit W.S. (ft)	* 1038.24	* Flow Area (sq ft)	*	*11701.82	* *
* E.G. Slope (ft/ft)	*0.001783	* Area (sq ft)	*	*11701.82	* *
* Q Total (cfs)	*166000.00	* Flow (cfs)	*	*166000.00	* *
* Top Width (ft)	* 561.65	* Top Width (ft)	*	* 561.65	* *
* Vel Total (ft/s)	* 14.19	* Avg. Vel. (ft/s)	*	* 14.19	* *
* Max Chl Dpth (ft)	* 22.88	* Hydr. Depth (ft)	*	* 20.83	* *
* Conv. Total (cfs)	*3931813.0	* Conv. (cfs)	*	*3931813.0	* *
* Length Wtd. (ft)	* 521.13	* Wetted Per. (ft)	*	* 574.07	* *
* Min Ch El (ft)	* 1022.58	* Shear (lb/sq ft)	*	* 2.27	* *
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 32.18	* *
* Frctn Loss (ft)	* 1.05	* Cum Volume (acre-ft)	* 1203.17	*31300.95	* 1413.43 *
* C & E Loss (ft)	* 0.08	* Cum SA (acres)	* 201.93	* 2926.32	* 205.34 *

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 211.54

INPUT
Description: 211.54 - FEMA Section AA
Station Elevation Data num= 24

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18557	105619498.08	1062.8819570.11		1056.919585.13		1056.719633.01		1023.1	
19866.76	1021.920100.43	1023.220148.29		1056.820163.32		105720195.23		1056.3	
20223.6	1049.320265.59	1046.120326.25		1049.420339.59		1050.820360.21		1052.5	
20374.03	1055.420382.33	1055.9 20385.6		1055.9 20412.1		1057.320434.96		1056.7	
20443.92	1057.120456.54	1061.420479.34		1060.721248.52		1053.6			

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
18557	.03719498.08		.03220163.32		.037

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19498.0820163.32 125 125.49 120 .1 .3
Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
1855719498.08		1070	F
20163.3221248.52		1070	F

CROSS SECTION OUTPUT Profile #PF#1

		Left OB	Channel	Right OB
E.G. Elev (ft)	1047.44	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.97	Wt. n-Val.		0.032	
W.S. Elev (ft)	1043.47	Reach Len. (ft)	0.10	0.10	0.10
Crit W.S. (ft)	1038.07	Flow Area (sq ft)		10380.02	
E.G. Slope (ft/ft)	0.002293	Area (sq ft)		10380.02	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	525.33	Top Width (ft)		525.33	
Vel Total (ft/s)	15.99	Avg. Vel. (ft/s)		15.99	
Max Chl Dpth (ft)	21.57	Hydr. Depth (ft)		19.76	
Conv. Total (cfs)	3466509.0	Conv. (cfs)		3466509.0	
Length Wtd. (ft)	0.10	Wetted Per. (ft)		538.18	
Min Ch El (ft)	1021.90	Shear (lb/sq ft)		2.76	
Alpha	1.00	Stream Power (lb/ft s)		44.16	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	6985.57	30241.03	3082.68
C & E Loss (ft)	0.09	Cum SA (acres)	1904.50	2915.99	964.79

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #PF#2

		Left OB	Channel	Right OB
E.G. Elev (ft)	1047.45	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.97	Wt. n-Val.		0.032	
W.S. Elev (ft)	1043.48	Reach Len. (ft)	0.10	0.10	0.10
Crit W.S. (ft)	1038.07	Flow Area (sq ft)		10382.65	
E.G. Slope (ft/ft)	0.002291	Area (sq ft)		10382.65	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	525.34	Top Width (ft)		525.34	
Vel Total (ft/s)	15.99	Avg. Vel. (ft/s)		15.99	
Max Chl Dpth (ft)	21.58	Hydr. Depth (ft)		19.76	
Conv. Total (cfs)	3467896.0	Conv. (cfs)		3467896.0	
Length Wtd. (ft)	0.10	Wetted Per. (ft)		538.19	
Min Ch El (ft)	1021.90	Shear (lb/sq ft)		2.76	
Alpha	1.00	Stream Power (lb/ft s)		44.12	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	1203.17	31168.85	1413.43
C & E Loss (ft)	0.09	Cum SA (acres)	201.93	2919.82	205.34

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

BRIDGE

RIVER: 1
REACH: 1 RS: 211.525

INPUT
Description: 19th Avenue Bridge
Distance from Upstream XS = .1
Deck/Roadway Width = 124.49
Weir Coefficient = 2.6
Upstream Deck/Roadway Coordinates
num= 11

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
18557	1056	105619498.08	1062.88	1062.8819498.08	1062.88	1056.33		
19617.96	1065.1	1058.4319732.91	1067.4	1060.6819853.66	1068.72	1062.03		
19974.41	1069.18	1062.5120095.16	1068.67	1061.9720215.91	1067.18	1060.46		
20336.66	1064.77	1058.0320456.45	1061.4	1054.73				

Upstream Bridge Cross Section Data
Station Elevation Data num= 24

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18557	105619498.08	1062.8819570.11		1056.919585.13		1056.719633.01		1023.1	
19866.76	1021.920100.43	1023.220148.29		1056.820163.32		105720195.23		1056.3	
20223.6	1049.320265.59	1046.120326.25		1049.420339.59		1050.820360.21		1052.5	
20374.03	1055.420382.33	1055.9 20385.6		1055.9 20412.1		1057.320434.96		1056.7	
20443.92	1057.120456.54	1061.420479.34		1060.721248.52		1053.6			

```
Manning's n Values         num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
   18557    .03719498.08    .03220163.32    .037

Bank Sta: Left   Right    Coeff Contr.   Expan.
      19498.0820163.32            .1       .3
Ineffective Flow      num=        2
   Sta L   Sta R    Elev  Permanent
   1855719498.08    1070        F
20163.3221248.52    1070        F

Downstream  Deck/Roadway Coordinates
    num=       11
     Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord
*************************************************************************
   18557    1056    105619498.08 1062.88 1062.8819498.08 1062.88 1056.33
19617.96  1065.1 1058.4319732.91  1067.4 1060.6819853.66 1068.72 1062.03
19974.41 1069.18 1062.5120095.16 1068.67 1061.9720215.91 1067.18 1060.46
20336.66 1064.77 1058.0320456.45  1061.4 1054.73

Downstream Bridge Cross Section Data
Station Elevation Data    num=      22
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
*********************************************************************************
   18577    105619498.08 1062.8819510.11    105119579.82  1056.719594.75  1056.5
19642.62    102319876.38  1021.820110.04    102320157.91  1056.620172.93  1056.8
20204.85  1056.120210.17  1055.920249.54  1049.420344.26  1054.820347.44  1054.8
20366.65  1054.320380.75  1054.620418.55    105520428.15    105520456.54  1061.4
20479.34  1060.721248.52  1053.6

Manning's n Values         num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
   18577    .03719579.82    .03220172.93    .037

Bank Sta: Left   Right    Coeff Contr.   Expan.
      19579.8220172.93            .1       .3
Ineffective Flow      num=        2
   Sta L   Sta R    Elev  Permanent
   1857719579.82  1056.7        F
20172.9321248.52  1056.8        F

Upstream Embankment side slope              =         horiz. to 1.0 vertical
Downstream Embankment side slope            =         horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Piers =  7

Pier Data
Pier Station     Upstream=19615.06    Downstream=19615.06
Upstream      num=        2
    Width   Elev    Width   Elev
*********************************
     5.8  1046.9     5.8 1058.51
Downstream    num=        2
    Width   Elev    Width   Elev
*********************************
     5.8  1046.9     5.8 1058.51

Pier Data
Pier Station     Upstream=19735.81    Downstream=19735.81
Upstream      num=        2
    Width   Elev    Width   Elev
*********************************
     5.8    1022     5.8 1060.77
Downstream    num=        2
    Width   Elev    Width   Elev
*********************************
     5.8    1022     5.8 1060.77

Pier Data
Pier Station     Upstream=19856.56    Downstream=19856.56
Upstream      num=        2
    Width   Elev    Width   Elev
*********************************
     5.8 1020.85     5.8 1062.07
Downstream    num=        2
    Width   Elev    Width   Elev
*********************************
     5.8 1020.85     5.8 1062.07

Pier Data
Pier Station     Upstream=19977.31    Downstream=19977.31
Upstream      num=        2
    Width   Elev    Width   Elev
*********************************
     5.8 1028.55     5.8 1062.51
Downstream    num=        2
    Width   Elev    Width   Elev
*********************************
     5.8 1028.55     5.8 1062.51

Pier Data
Pier Station     Upstream=20098.06    Downstream=20098.06
Upstream      num=        2
    Width   Elev    Width   Elev
*********************************
     5.8 1033.84     5.8 1062.02
Downstream    num=        2
    Width   Elev    Width   Elev
```

```
*********************************
     5.8 1033.84     5.8 1062.02

Pier Data
Pier Station     Upstream=20218.81    Downstream=20218.81
Upstream     num=        2
    Width   Elev    Width   Elev
*********************************
     5.8 1039.95     5.8 1060.55
Downstream     num=        2
    Width   Elev    Width   Elev
*********************************
     5.8 1039.95     5.8 1060.55

Pier Data
Pier Station     Upstream=20339.56    Downstream=20339.56
Upstream     num=        2
    Width   Elev    Width   Elev
*********************************
     5.8 1045.78     5.8 1058.17
Downstream     num=        2
    Width   Elev    Width   Elev
*********************************
     5.8 1045.78     5.8 1058.17

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
       Momentum               Cd   =     1.2
       Yarnell                KVal =    1.05
Selected Low Flow Methods = Highest Energy Answer

High Flow Method
       Energy Only

Additional Bridge Parameters
       Add Friction component to Momentum
       Add Weight component to Momentum
       Class B flow critical depth computations use critical depth
          inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT  Profile #PF#1
*************************************************************************************************
* E.G. US. (ft)          *    1047.44  * Element                *Inside BR US *Inside BR DS *
* W.S. US. (ft)          *    1043.47  * E.G. Elev (ft)         *    1047.35  *    1046.70  *
* Q Total (cfs)          *  166000.00  * W.S. Elev (ft)         *    1042.45  *    1041.22  *
* Q Bridge (cfs)         *  166000.00  * Crit W.S. (ft)         *    1038.59  *    1038.44  *
* Q Weir (cfs)           *             * Max Chl Dpth (ft)      *      20.55  *      19.42  *
* Weir Sta Lft (ft)      *             * Vel Total (ft/s)       *      17.77  *      18.80  *
* Weir Sta Rgt (ft)      *             * Flow Area (sq ft)      *    9343.60  *    8831.62  *
* Weir Submerg           *             * Froude # Chl           *       0.72  *       0.78  *
* Weir Max Depth (ft)    *             * Specif Force (cu ft)   *  183095.20  *  178444.00  *
* Min El Weir Flow (ft)  *    1065.11  * Hydr Depth (ft)        *      18.94  *      17.85  *
* Min El Prs (ft)        *    1062.51  * W.P. Total (ft)        *     676.50  *     657.35  *
* Delta EG (ft)          *       0.99  * Conv. Total (cfs)      *  2497613.0  *  2317641.0  *
* Delta WS (ft)          *       1.70  * Top Width (ft)         *     493.41  *     494.83  *
* BR Open Area (sq ft)   *   19158.31  * Frctn Loss (ft)        *       0.59  *       0.00  *
* BR Open Vel (ft/s)     *      18.80  * C & E Loss (ft)        *       0.06  *       0.24  *
* Coef of Q              *             * Shear Total (lb/sq ft) *       3.81  *       4.30  *
* Br Sel Method          *Energy only  * Power Total (lb/ft s)  *      67.67  *      80.88  *
*************************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

BRIDGE OUTPUT  Profile #PF#2
*************************************************************************************************
* E.G. US. (ft)          *    1047.45  * Element                *Inside BR US *Inside BR DS *
* W.S. US. (ft)          *    1043.48  * E.G. Elev (ft)         *    1047.36  *    1046.71  *
* Q Total (cfs)          *  166000.00  * W.S. Elev (ft)         *    1042.46  *    1041.23  *
* Q Bridge (cfs)         *  166000.00  * Crit W.S. (ft)         *    1038.59  *    1038.44  *
* Q Weir (cfs)           *             * Max Chl Dpth (ft)      *      20.56  *      19.43  *
* Weir Sta Lft (ft)      *             * Vel Total (ft/s)       *      17.76  *      18.78  *
* Weir Sta Rgt (ft)      *             * Flow Area (sq ft)      *    9346.85  *    8837.24  *
* Weir Submerg           *             * Froude # Chl           *       0.72  *       0.78  *
* Weir Max Depth (ft)    *             * Specif Force (cu ft)   *  183125.00  *  178482.80  *
* Min El Weir Flow (ft)  *    1065.06  * Hydr Depth (ft)        *      18.94  *      17.86  *
* Min El Prs (ft)        *    1062.51  * W.P. Total (ft)        *     676.58  *     657.48  *
* Delta EG (ft)          *       0.99  * Conv. Total (cfs)      *  2498846.0  *  2319813.0  *
* Delta WS (ft)          *       1.70  * Top Width (ft)         *     493.43  *     494.84  *
* BR Open Area (sq ft)   *   18724.25  * Frctn Loss (ft)        *       0.59  *       0.00  *
* BR Open Vel (ft/s)     *      18.78  * C & E Loss (ft)        *       0.06  *       0.24  *
* Coef of Q              *             * Shear Total (lb/sq ft) *       3.81  *       4.30  *
* Br Sel Method          *Energy only  * Power Total (lb/ft s)  *      67.60  *      80.71  *
*************************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

CROSS SECTION
```

RIVER: 1
REACH: 1 RS: 211.51

INPUT
Description: 211.51

Begin 19th Ave Landfill channelization

Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18577	105619498.08	1062.8819510.11		105119579.82	1056.719594.75	1056.5			
19642.62	102319876.38	1021.820110.04		102320157.91	1056.620172.93	1056.8			
20204.85	1056.120210.17	1055.920249.54		1049.420344.26	1054.820347.44	1054.8			
20366.65	1054.320380.75	1054.620418.55		105520428.15	105520456.54	1061.4			
20479.34	1060.721248.52	1053.6							

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
18577	.03719579.82	.03220172.93	.037		

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19579.8220172.93 541 562.88 606 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
1857719579.82	1056.7	F	
20172.9321248.52	1056.8	F	

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1046.46	Element	Left OB	Channel	Right OB
Vel Head (ft)	4.68	Wt. n-Val.		0.032	
W.S. Elev (ft)	1041.77	Reach Len. (ft)	541.00	562.88	606.00
Crit W.S. (ft)	1037.98	Flow Area (sq ft)		9557.08	
E.G. Slope (ft/ft)	0.002980	Area (sq ft)		9557.08	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	520.99	Top Width (ft)		520.99	
Vel Total (ft/s)	17.37	Avg. Vel. (ft/s)		17.37	
Max Chl Dpth (ft)	19.97	Hydr. Depth (ft)		18.34	
Conv. Total (cfs)	3040814.0	Conv. (cfs)		3040814.0	
Length Wtd. (ft)	562.88	Wetted Per. (ft)		532.84	
Min Ch El (ft)	1021.80	Shear (lb/sq ft)		3.34	
Alpha	1.00	Stream Power (lb/ft s)		57.96	
Frctn Loss (ft)	1.36	Cum Volume (acre-ft)	6985.57	30214.85	3082.68
C & E Loss (ft)	0.37	Cum SA (acres)	1904.50	2914.56	964.79

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1046.46	Element	Left OB	Channel	Right OB
Vel Head (ft)	4.68	Wt. n-Val.		0.032	
W.S. Elev (ft)	1041.78	Reach Len. (ft)	541.00	562.88	606.00
Crit W.S. (ft)	1037.98	Flow Area (sq ft)		9562.35	
E.G. Slope (ft/ft)	0.002975	Area (sq ft)		9562.35	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	521.01	Top Width (ft)		521.01	
Vel Total (ft/s)	17.36	Avg. Vel. (ft/s)		17.36	
Max Chl Dpth (ft)	19.98	Hydr. Depth (ft)		18.35	
Conv. Total (cfs)	3043486.0	Conv. (cfs)		3043486.0	
Length Wtd. (ft)	562.88	Wetted Per. (ft)		532.87	
Min Ch El (ft)	1021.80	Shear (lb/sq ft)		3.33	
Alpha	1.00	Stream Power (lb/ft s)		57.86	
Frctn Loss (ft)	1.35	Cum Volume (acre-ft)	1203.17	31142.65	1413.43
C & E Loss (ft)	0.37	Cum SA (acres)	201.93	2918.40	205.34

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 211.41

INPUT
Description: 211.41

Left and Right Channel Bank Stations Interpolated
Station Elevation Data num= 98

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18573.85	1055.518621.78	1056.6118655.14		1053.7918722.99	1053.2518902.93	1052.9			
19132.77	1051.619320.33	1050.8719480.47		1049.5819533.31	1047.7219566.92	1049.4			
19611.4	1046.919634.53	1044.0819638.09		1041.7819668.43	1022.1819702.69	1018.56			
19754.63	1019.6519786.92	1018.319889.98		1020.7419930.16	1020.8119994.45	1020.82			
20076.61	1020.9120167.45	1021.220192.38		1033.0120195.55	1039.3220206.06	1041.777			
20220.36	1045.1220236.46	1054.7820293.62		105620331.24	1065.2220351.37	1065.23			

```
20357.03 1066.6220414.04 1056.96 20436.1  1062.220445.88 1058.7420504.13 1060.74
20521.21 1060.7920557.16 1066.5820578.69  1061.620603.37 1060.3620654.05 1060.04
20689.25 1058.2320722.97 1060.5820735.67  1057.720828.84 1057.0620846.13 1057.59
20898.33 1070.2520938.86 1063.6420980.02    106321017.32 1057.9221060.66 1055.82
21097.07 1055.5321119.44 1056.16 21132.9  1055.121181.47  1054.221283.06  1053.8
21298.44 1058.2121320.94 1060.3521339.43  1062.821380.38 1060.3221406.09 1052.45
21459.74 1053.4821477.97 1059.9821533.47    106121555.62 1081.8121619.68 1081.91
21644.09  1080.121655.42 1076.4821707.29  1075.321720.18 1072.1521749.96 1071.27
21770.47 1076.9921793.84 1054.8221802.85  1056.121842.36    105621864.05 1053.48
21891.41 1052.6921905.23 1051.4321991.71  1051.822210.76 1052.0622373.03 1052.78
22531.21 1052.1722650.75 1052.0922819.43  1052.522919.43 1053.1423211.23 1053.67
23252.71 1054.2423349.12 1054.0823463.55  1053.123574.33 1051.7923680.61 1051.32
23891.22 1051.5624133.09 1051.4824212.43  1051.924237.65 1050.3224284.73 1050.32
24320.22    105124361.59 1050.58 24444.1    1052

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
18573.85    .03719638.09    .03220206.06    .037

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      19638.0920206.06              500  501.53     505            .1       .3

CROSS SECTION OUTPUT  Profile #PF#1
*************************************************************************************************
* E.G. Elev (ft)         * 1044.73  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    3.44  * Wt. n-Val.            *          *    0.032  *          *
* W.S. Elev (ft)         * 1041.28  * Reach Len. (ft)       *  500.00  *  501.53  *  505.00  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)     *          *11147.00  *          *
* E.G. Slope (ft/ft)     *0.001988  * Area (sq ft)          *          *11147.00  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *          *166000.00  *          *
* Top Width (ft)         *  565.09  * Top Width (ft)       *          *  565.09  *          *
* Vel Total (ft/s)       *   14.89  * Avg. Vel. (ft/s)     *          *   14.89  *          *
* Max Chl Dpth (ft)      *   22.98  * Hydr. Depth (ft)     *          *   19.73  *          *
* Conv. Total (cfs)      *3723457.0  * Conv. (cfs)         *          *3723457.0  *          *
* Length Wtd. (ft)       *  501.53  * Wetted Per. (ft)     *          *  577.76  *          *
* Min Ch El (ft)         * 1018.30  * Shear (lb/sq ft)     *          *    2.39  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   35.65  *          *
* Frctn Loss (ft)        *    1.28  * Cum Volume (acre-ft)  * 6985.57  *30081.08  * 3082.68  *
* C & E Loss (ft)        *    0.01  * Cum SA (acres)        * 1904.50  * 2907.55  *  964.79  *
*************************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT  Profile #PF#2
*************************************************************************************************
* E.G. Elev (ft)         * 1044.73  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    3.44  * Wt. n-Val.            *          *    0.032  *          *
* W.S. Elev (ft)         * 1041.30  * Reach Len. (ft)       *  500.00  *  501.53  *  505.00  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)     *          *11153.71  *          *
* E.G. Slope (ft/ft)     *0.001984  * Area (sq ft)          *          *11153.71  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *          *166000.00  *          *
* Top Width (ft)         *  565.16  * Top Width (ft)       *          *  565.16  *          *
* Vel Total (ft/s)       *   14.88  * Avg. Vel. (ft/s)     *          *   14.88  *          *
* Max Chl Dpth (ft)      *   22.99  * Hydr. Depth (ft)     *          *   19.74  *          *
* Conv. Total (cfs)      *3726865.0  * Conv. (cfs)         *          *3726865.0  *          *
* Length Wtd. (ft)       *  501.53  * Wetted Per. (ft)     *          *  577.83  *          *
* Min Ch El (ft)         * 1018.30  * Shear (lb/sq ft)     *          *    2.39  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   35.58  *          *
* Frctn Loss (ft)        *    1.27  * Cum Volume (acre-ft)  * 1203.17  *31008.80  * 1413.43  *
* C & E Loss (ft)        *    0.01  * Cum SA (acres)        *  201.93  * 2911.38  *  205.34  *
*************************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 211.31

INPUT
Description: 211.31

Left and Right Channel Bank Stations Interpolated
Station Elevation Data    num=      98
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*************************************************************************************
 19209.8    1054 19309.4  1053.9   19371  1052.4 19415.6    1052 19462.5  1051.5
 19496.2  1050.5 19510.1  1050.5 19528.9  1041.9 19531.21040.766 19571.7  1020.8
   19614  1021.1 19677.8  1021.1 19724.1  1021.3 19888.2    1022 19928.3  1022.1
 19954.9  1021.8 19973.9    1032 19980.4  1029.8 19994.7  1027.2   20059  1026.6
   20112  1026.2 20123.3    1028 20158.9  1030.9 20198.7  1033.6 20212.5  1034.3
 20267.3  1034.5 20269.1  1035.1 20281.8  1034.8 20323.2  1035.6 20338.5  1037.1
   20343    1038 20356.11040.765 20425.9  1055.5 20434.4  1057.4 20457.3    1049
   20499  1049.5 20549.5  1051.1 20551.5    1051 20571.1  1052.5 20575.3  1055.6
 20584.2  1059.5   20614  1060.7 20625.4    1057   20636  1051.6 20682.5  1051.6
 20692.1  1051.6 20699.2    1055 20718.1  1055.1 20723.4  1052.3 20725.3  1052.3
 20778.6  1052.4   20806  1052.5 20808.3  1053.2 20835.4  1052.5 20836.7  1052.2
 20884.1  1051.7   20893  1051.9 20922.6  1067.4 20930.4  1067.8   20944  1066.2
 20964.4  1055.2 20970.5  1050.2 21010.5  1050.3 21036.1    1052 21040.8  1052.7
   21082  1053.8 21083.4  1053.5 21093.1  1049.5 21124.5  1050.5 21134.6  1050.2
 21141.3  1051.6 21160.1  1051.2 21201.6  1048.9 21204.4  1049.1 21219.3  1052.5
 21236.3  1049.8 21240.9  1049.4 21293.9    1049 21338.4  1048.2 21394.2  1047.1
   21457  1046.7 21459.4  1046.7 21510.1  1046.2 21538.8  1046.8   21571  1046.8
 21576.7  1047.8 21607.4  1058.3 21626.3  1059.1 21651.1  1060.7 21661.7  1060.9
 21672.8    1062 21684.6  1057.7 21696.7  1051.4 21740.6  1053.4 21745.1  1054.1
 21754.3  1054.6 21757.7    1053   21786  1052.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
 19209.8    .037 19531.2    .032 20356.1    .037
```

```
Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.    Expan.
      19531.2 20356.1              540  523.28     460             .1        .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
 20434.4   21786    1060       F

CROSS SECTION OUTPUT  Profile #PF#1
*************************************************************************************************
* E.G. Elev (ft)         * 1043.44  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    3.54  * Wt. n-Val.            *          *    0.032  *          *
* W.S. Elev (ft)         * 1039.90  * Reach Len. (ft)       *  540.00  *  523.28  *  460.00  *
* Crit W.S. (ft)         * 1037.24  * Flow Area (sq ft)     *          *10986.59  *          *
* E.G. Slope (ft/ft)     *0.003368  * Area (sq ft)          *          *10986.59  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *          *166000.00  *          *
* Top Width (ft)         *  819.02  * Top Width (ft)       *          *  819.02  *          *
* Vel Total (ft/s)       *   15.11  * Avg. Vel. (ft/s)     *          *   15.11  *          *
* Max Chl Dpth (ft)      *   19.10  * Hydr. Depth (ft)     *          *   13.41  *          *
* Conv. Total (cfs)      *2860516.0  * Conv. (cfs)         *          *2860516.0  *          *
* Length Wtd. (ft)       *  523.28  * Wetted Per. (ft)     *          *  827.48  *          *
* Min Ch El (ft)         * 1020.80  * Shear (lb/sq ft)     *          *    2.79  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *        *   42.18  *          *
* Frctn Loss (ft)        *    1.55  * Cum Volume (acre-ft)  * 6985.57  *29953.66  * 3082.68  *
* C & E Loss (ft)        *    0.28  * Cum SA (acres)        * 1904.50  * 2899.58  *  964.79  *
*************************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*************************************************************************************************
* E.G. Elev (ft)         * 1043.46  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    3.53  * Wt. n-Val.            *          *    0.032  *          *
* W.S. Elev (ft)         * 1039.93  * Reach Len. (ft)       *  540.00  *  523.28  *  460.00  *
* Crit W.S. (ft)         * 1037.24  * Flow Area (sq ft)     *          *11010.89  *          *
* E.G. Slope (ft/ft)     *0.003344  * Area (sq ft)          *          *11010.89  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *          *166000.00  *          *
* Top Width (ft)         *  819.22  * Top Width (ft)       *          *  819.22  *          *
* Vel Total (ft/s)       *   15.08  * Avg. Vel. (ft/s)     *          *   15.08  *          *
* Max Chl Dpth (ft)      *   19.13  * Hydr. Depth (ft)     *          *   13.44  *          *
* Conv. Total (cfs)      *2870580.0  * Conv. (cfs)         *          *2870580.0  *          *
* Length Wtd. (ft)       *  523.28  * Wetted Per. (ft)     *          *  827.69  *          *
* Min Ch El (ft)         * 1020.80  * Shear (lb/sq ft)     *          *    2.78  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *        *   41.87  *          *
* Frctn Loss (ft)        *    1.53  * Cum Volume (acre-ft)  * 1203.17  *30881.21  * 1413.43  *
* C & E Loss (ft)        *    0.28  * Cum SA (acres)        *  201.93  * 2903.41  *  205.34  *
*************************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 211.21

INPUT
Description: 211.21

Left and Right Channel Bank Stations Interpolated
Station Elevation Data    num=      88
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
*************************************************************************************
 19418.7     1050 19432.3  1049.9 19486.6     1051 19504.4  1050.9 19507.4  1051.4
   19520  1044.719528.741040.216    19566  1021.1 19781.8  1021.6 19997.4  1022.1
 20060.3  1022.2 20076.2  1032.8    20080     1035 20082.4  1032.7 20093.4  1024.4
 20174.8  1026.6 20183.9  1027.6 20204.6  1029.5 20217.4  1030.4 20229.3  1030.7
 20232.4  1030.9 20272.7  1031.9 20335.2  1032.6 20395.1    1032 20413.6  1031.7
 20425.2  1031.3 20429.3  1031.7 20447.4  1035.2 20472.4  1032.1 20501.4  1030.2
20521.261040.21620521.281040.226 20524.4  1041.8    20544 1051.9 20563.3  1064.6
 20571.8  1065.7 20580.9     1066 20589.3  1061.5 20605.5  1058.5 20622.4  1060.1
 20646.3  1062.6 20659.3  1063.4 20674.4  1064.8 20683.8  1065.5 20692.9  1064.2
 20760.3     1066   20772     1068 20791.6  1063.6 20814.8    1059 20846.6     1053
 20876.7  1045.5 20891.6  1044.9 20916.6  1044.2 20944.9  1044.5 20964.5  1044.9
 21002.8  1046.7 21028.1  1048.6 21034.5  1044.8 21035.5    1044 21113.8  1044.6
 21130.1  1044.6 21249.3     1044   21250  1044.1 21260.5  1047.3   21288  1046.8
 21324.8  1046.7 21359.3  1046.9 21432.1     1048 21449.9  1048.7 21452.1  1049.4
 21462.5  1051.8 21469.8  1052.8 21533.8     1052 21595.7  1051.9 21614.5  1051.8
 21642.6  1057.9 21645.8  1056.1 21673.8  1046.4   21698  1040.9 21967.4     1041
   21972  1044.7 21983.2  1052.6 21984.7  1051.9 21991.1  1050.7   21999  1051.3
 22028.7     1051 22088.3  1051.4   22171  1051.7

Manning's n Values        num=       3
     Sta    n Val      Sta    n Val      Sta    n Val
*************************************************
 19418.7     .03719528.74     .03220521.26     .037

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.    Expan.
      19528.7420521.26              495  493.11     475             .1        .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
 20571.8   22171    1068       F

CROSS SECTION OUTPUT  Profile #PF#1
*************************************************************************************************
* E.G. Elev (ft)         * 1041.61  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    2.62  * Wt. n-Val.            *          *    0.032  *          *
* W.S. Elev (ft)         * 1039.00  * Reach Len. (ft)       *  495.00  *  493.11  *  475.00  *
```

Pre-Project

* Crit W.S. (ft)	* 1035.55	* Flow Area (sq ft)	*	*12789.38	*	*
* E.G. Slope (ft/ft)	*0.002621	* Area (sq ft)	*	*12789.38	*	*
* Q Total (cfs)	*166000.00	* Flow (cfs)	*	*166000.00	*	*
* Top Width (ft)	* 987.73	* Top Width (ft)	*	* 987.73	*	*
* Vel Total (ft/s)	* 12.98	* Avg. Vel. (ft/s)	*	* 12.98	*	*
* Max Chl Dpth (ft)	* 17.90	* Hydr. Depth (ft)	*	* 12.95	*	*
* Conv. Total (cfs)	*3242435.0	* Conv. (cfs)	*	*3242435.0	*	*
* Length Wtd. (ft)	* 493.11	* Wetted Per. (ft)	*	* 1002.50	*	*
* Min Ch El (ft)	* 1021.10	* Shear (lb/sq ft)	*	* 2.09	*	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 27.10	*	*
* Frctn Loss (ft)	* 0.60	* Cum Volume (acre-ft)	* 6985.57	*29810.85	* 3082.68	*
* C & E Loss (ft)	* 0.45	* Cum SA (acres)	* 1904.50	* 2888.73	* 964.79	*

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 1041.64	* Element	* Left OB	* Channel	* Right OB	*
* Vel Head (ft)	* 2.60	* Wt. n-Val.	*	* 0.032	*	*
* W.S. Elev (ft)	* 1039.04	* Reach Len. (ft)	* 495.00	* 493.11	* 475.00	*
* Crit W.S. (ft)	* 1035.55	* Flow Area (sq ft)	*	*12835.33	*	*
* E.G. Slope (ft/ft)	*0.002591	* Area (sq ft)	*	*12835.33	*	*
* Q Total (cfs)	*166000.00	* Flow (cfs)	*	*166000.00	*	*
* Top Width (ft)	* 987.91	* Top Width (ft)	*	* 987.91	*	*
* Vel Total (ft/s)	* 12.93	* Avg. Vel. (ft/s)	*	* 12.93	*	*
* Max Chl Dpth (ft)	* 17.94	* Hydr. Depth (ft)	*	* 12.99	*	*
* Conv. Total (cfs)	*3261421.0	* Conv. (cfs)	*	*3261421.0	*	*
* Length Wtd. (ft)	* 493.11	* Wetted Per. (ft)	*	* 1002.71	*	*
* Min Ch El (ft)	* 1021.10	* Shear (lb/sq ft)	*	* 2.07	*	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 26.77	*	*
* Frctn Loss (ft)	* 0.59	* Cum Volume (acre-ft)	* 1203.17	*30737.98	* 1413.43	*
* C & E Loss (ft)	* 0.45	* Cum SA (acres)	* 201.93	* 2892.56	* 205.34	*

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 211.12

INPUT
Description: 211.12 - FEMA Section Z

Left Channel Bank Station Interpolated
Station Elevation Data num= 63

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
19314	1050.6	19321.1	1050.6	19403.5	1050.4	19415.2	1050.5	19470.9	1050.5
19482.5	1051.2	19483.7	1050.5	19498.46	1040.58	19527.6	1021	19600.2	1021.1
20090.7	1021	20239.6	1020.4	20259	1020.1	20267	1022.5	20276.5	1019.8
20287.8	1020	20321.5	1020.6	20364.3	1020.4	20406.5	1019.8	20438.1	1015.7
20453.3	1015.7	20484.3	1015.7	20510.9	1015.7	20526.1	1023.8	20540.7	1029.4
20572.2	1046.4	20577.1	1044.9	20591.9	1040.2	21035.6	1040.2	21045.7	1040.3
21082.9	1041.6	21123	1041.5	21166	1041.6	21189.7	1041.5	21228.3	1041
21264.3	1041.1	21277.3	1040.7	21299.3	1040.6	21311.7	1043.9	21321.5	1044.1
21335.9	1046.9	21349.5	1046.7	21377.3	1046.7	21389.3	1045.7	21395.8	1044.6
21409	1041.7	21414.3	1040.2	21431.9	1040.1	21441.7	1040.6	21511.5	1043.7
21564.5	1044.7	21580.3	1044.8	21593	1044.6	21597	1042	22094.6	1042
22111.5	1053.1	22112.9	1051.5	22113.7	1050.9	22123	1051.4	22146.6	1051.4
22200.7	1051.7	22225.6	1051.6	22293.4	1051.7				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
19314	.037	19498.46	.032	20572.2	.037

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19498.46 20572.2 500 505.73 500 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
21335.9	22293.4	1050	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 1040.57	* Element	* Left OB	* Channel	* Right OB	*
* Vel Head (ft)	* 1.11	* Wt. n-Val.	*	* 0.032	*	*
* W.S. Elev (ft)	* 1039.45	* Reach Len. (ft)	* 500.00	* 505.73	* 500.00	*
* Crit W.S. (ft)	* 1029.88	* Flow Area (sq ft)	*	*19590.56	*	*
* E.G. Slope (ft/ft)	*0.000691	* Area (sq ft)	*	*19590.56	*	*
* Q Total (cfs)	*166000.00	* Flow (cfs)	*	*166000.00	*	*
* Top Width (ft)	* 1059.19	* Top Width (ft)	*	* 1059.19	*	*
* Vel Total (ft/s)	* 8.47	* Avg. Vel. (ft/s)	*	* 8.47	*	*
* Max Chl Dpth (ft)	* 23.75	* Hydr. Depth (ft)	*	* 18.50	*	*
* Conv. Total (cfs)	*6313674.0	* Conv. (cfs)	*	*6313674.0	*	*
* Length Wtd. (ft)	* 505.71	* Wetted Per. (ft)	*	* 1071.43	*	*
* Min Ch El (ft)	* 1015.70	* Shear (lb/sq ft)	*	* 0.79	*	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 6.69	*	*
* Frctn Loss (ft)	* 0.51	* Cum Volume (acre-ft)	* 6985.57	*29627.58	* 3082.68	*
* C & E Loss (ft)	* 0.10	* Cum SA (acres)	* 1904.50	* 2877.14	* 964.79	*

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1040.61	Element	Left OB	Channel / Right OB
Vel Head (ft)	1.11	Wt. n-Val.		0.032 /
W.S. Elev (ft)	1039.50	Reach Len. (ft)	500.00	505.73 / 500.00
Crit W.S. (ft)	1029.88	Flow Area (sq ft)		19635.17 /
E.G. Slope (ft/ft)	0.000686	Area (sq ft)		19635.17 /
Q Total (cfs)	166000.00	Flow (cfs)		166000.00 /
Top Width (ft)	1059.33	Top Width (ft)		1059.33 /
Vel Total (ft/s)	8.45	Avg. Vel. (ft/s)		8.45 /
Max Chl Dpth (ft)	23.80	Hydr. Depth (ft)		18.54 /
Conv. Total (cfs)	6337007.0	Conv. (cfs)		6337007.0 /
Length Wtd. (ft)	505.72	Wetted Per. (ft)		1071.59 /
Min Ch El (ft)	1015.70	Shear (lb/sq ft)		0.78 /
Alpha	1.00	Stream Power (lb/ft s)		6.64 /
Frctn Loss (ft)	0.51	Cum Volume (acre-ft)	1203.17	30554.19 / 1413.43
C & E Loss (ft)	0.10	Cum SA (acres)	201.93	2880.97 / 205.34

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 211.02

INPUT
Description: 211.02

Left Channel Bank Station Interpolated
Station Elevation Data num= 58

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
19239	1049.4	19253.3	1049.2	19318.8	1049.3	19330	1049.2	19381.9	1049.5
19409.6	1049.3	19472.3	104919487.12	1039.375	19515.1	1021.2	19977.7	1020.4	
20111.7	1020.1	20119.2	1025.6	20133.2	1024.1	20136.2	1022.2	20140	1019.4
20202.9	1020.4	20228.3	1020.7	20238.9	1022.4	20243.6	1025.6	20270.1	1025.5
20279.9	1025.7	20343.8	1026.1	20394.3	1041.3	20424.2	1040	20434	1040.5
20448.3	1038.4	20459.5	1037.9	20468.8	1038.2	20484.1	1038	20494.6	1038.7
20501.7	1038.2	21087.6	1039.1	21102.9	1037.2	21124.7	1036.8	21132.2	1033
21144.9	1032.5	21184.2	1034.3	21243.7	1036.3	21300.5	1038.4	21315.9	1038.7
21353.2	1040	21399.5	1041.4	21439	1042.3	21480	1043.6	21514.7	1043.6
21524.4	1043.8	21535.1	1043.6	21559.7	1042.3	21570.6	1042.2	22151.3	1042
22163.4	1052.1	22174.7	1052.9	22226.3	1051.5	22239.2	1051.3	22318	1051.9
22324.3	1052	22393.8	1052.8	22399.8	1052.7				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
19239	.03719487.12		.032	20394.3	.037

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19487.12 20394.3 485 493.19 495 .1 .3
Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
21500	22399.8	1050	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1039.96	Element	Left OB	Channel / Right OB
Vel Head (ft)	2.09	Wt. n-Val.		0.032 / 0.037
W.S. Elev (ft)	1037.87	Reach Len. (ft)	485.00	493.19 / 495.00
Crit W.S. (ft)	1032.11	Flow Area (sq ft)		14122.09 / 469.23
E.G. Slope (ft/ft)	0.001615	Area (sq ft)		14122.09 / 469.23
Q Total (cfs)	166000.00	Flow (cfs)		164614.30 / 1385.68
Top Width (ft)	1081.97	Top Width (ft)		893.45 / 188.52
Vel Total (ft/s)	11.38	Avg. Vel. (ft/s)		11.66 / 2.95
Max Chl Dpth (ft)	18.47	Hydr. Depth (ft)		15.81 / 2.49
Conv. Total (cfs)	4130580.0	Conv. (cfs)		4096100.0 / 34479.8
Length Wtd. (ft)	493.31	Wetted Per. (ft)		904.61 / 189.58
Min Ch El (ft)	1019.40	Shear (lb/sq ft)		1.57 / 0.25
Alpha	1.04	Stream Power (lb/ft s)		18.35 / 0.74
Frctn Loss (ft)	0.82	Cum Volume (acre-ft)	6985.57	29431.88 / 3079.99
C & E Loss (ft)	0.12	Cum SA (acres)	1904.50	2865.81 / 963.71

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1039.99	Element	Left OB	Channel / Right OB
Vel Head (ft)	2.13	Wt. n-Val.		0.032 / 0.037
W.S. Elev (ft)	1037.86	Reach Len. (ft)	485.00	493.19 / 495.00
Crit W.S. (ft)	1032.11	Flow Area (sq ft)		14115.11 / 134.25
E.G. Slope (ft/ft)	0.001637	Area (sq ft)		14115.11 / 134.25
Q Total (cfs)	166000.00	Flow (cfs)		165620.40 / 379.59
Top Width (ft)	945.81	Top Width (ft)		893.41 / 52.40
Vel Total (ft/s)	11.65	Avg. Vel. (ft/s)		11.73 / 2.83
Max Chl Dpth (ft)	18.46	Hydr. Depth (ft)		15.80 / 2.56

```
                                                                    Pre-Project
* Conv. Total (cfs)       *4102233.0  * Conv. (cfs)              *          *4092852.0  *  9380.5  *
* Length Wtd. (ft)        *  493.31   * Wetted Per. (ft)        *          *  904.56   *   58.49  *
* Min Ch El (ft)          * 1019.40   * Shear (lb/sq ft)        *          *    1.60   *    0.23  *
* Alpha                   *    1.01   * Stream Power (lb/ft s) *          *   18.72   *    0.66  *
* Frctn Loss (ft)         *    0.82   * Cum Volume (acre-ft)    * 1203.17  *30358.27   * 1412.66  *
* C & E Loss (ft)         *    0.13   * Cum SA (acres)          *  201.93  * 2869.63   *  205.04  *
*****************************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 210.93

INPUT
Description: 210.93

Left Channel Bank Station Interpolated
Station Elevation Data    num=      50
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 19200.1  1048.6 19256.6  1048.1 19323.4  1048.3 19376.7  1048.6 19414.5    1048
 19464.2  1048.319479.121039.255 19508.9  1021.2 19821.8  1022.3 20131.9  1023.4
 20138.8    1028 20162.4  1029.4 20166.3  1026.3 20172.8  1019.1   20212  1018.7
 20278.3  1019.9   20290  1025.6 20331.4    1025 20349.2  1032.1 20351.6  1031.2
 20355.1  1030.5 20397.8  1031.3 20406.9  1035.2 20414.8  1039.6 20431.2  1039.4
 20455.9  1039.7 20458.7  1037.8 20465.5  1037.9 20470.4  1034.9 20474.7  1032.7
 21343.1  1032.7 21350.5  1032.5 21376.3  1035.6 21390.1  1033.4 21395.9  1033.7
 21424.3  1033.9 21484.4  1034.5 21494.9  1034.3   21537  1034.4 22171.3  1034.4
 22195.5  1049.6 22217.9  1047.5 22260.9    1035 22263.6  1034.9 22291.1    1051
 22312.1  1051.8 22326.6  1051.4 22375.7  1051.7 22388.8  1051.5 22397.4  1050.6

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
 19200.1    .03719479.12    .032 20414.8    .037

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      19479.12 20414.8              505  505.14     505            .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
   21576 22397.4    1048       F

CROSS SECTION OUTPUT  Profile #PF#1
*****************************************************************************************************
* E.G. Elev (ft)          * 1039.02  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    1.71  * Wt. n-Val.              *          *   0.032  *   0.037  *
* W.S. Elev (ft)          * 1037.31  * Reach Len. (ft)        *  505.00  *  505.14  *  505.00  *
* Crit W.S. (ft)          * 1034.18  * Flow Area (sq ft)      *          * 13075.95  * 4762.68  *
* E.G. Slope (ft/ft)      *0.001714  * Area (sq ft)           *          * 13075.95  * 6524.82  *
* Q Total (cfs)           *166000.00  * Flow (cfs)            *          *145104.40  *20895.58  *
* Top Width (ft)          * 2652.64  * Top Width (ft)        *          *  928.38  * 1724.27  *
* Vel Total (ft/s)        *    9.31  * Avg. Vel. (ft/s)      *          *   11.10  *    4.39  *
* Max Chl Dpth (ft)       *   18.61  * Hydr. Depth (ft)      *          *   14.08  *    4.29  *
* Conv. Total (cfs)       *4009489.0  * Conv. (cfs)          *          *3504787.0  *504702.4  *
* Length Wtd. (ft)        *  505.13  * Wetted Per. (ft)      *          *  942.89  * 1111.13  *
* Min Ch El (ft)          * 1018.70  * Shear (lb/sq ft)      *          *    1.48  *    0.46  *
* Alpha                   *    1.27  * Stream Power (lb/ft s) *          *   16.47  *    2.01  *
* Frctn Loss (ft)         *    0.92  * Cum Volume (acre-ft)   * 6985.57  *29277.91  * 3040.25  *
* C & E Loss (ft)         *    0.03  * Cum SA (acres)         * 1904.50  * 2855.49  *  952.84  *
*****************************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*****************************************************************************************************
* E.G. Elev (ft)          * 1039.04  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    1.70  * Wt. n-Val.              *          *   0.032  *   0.037  *
* W.S. Elev (ft)          * 1037.34  * Reach Len. (ft)        *  505.00  *  505.14  *  505.00  *
* Crit W.S. (ft)          * 1034.18  * Flow Area (sq ft)      *          * 13096.70  * 4784.53  *
* E.G. Slope (ft/ft)      *0.001704  * Area (sq ft)           *          * 13096.70  * 4784.53  *
* Q Total (cfs)           *166000.00  * Flow (cfs)            *          *145033.80  *20966.23  *
* Top Width (ft)          * 2037.03  * Top Width (ft)        *          *  928.45  * 1108.58  *
* Vel Total (ft/s)        *    9.28  * Avg. Vel. (ft/s)      *          *   11.07  *    4.38  *
* Max Chl Dpth (ft)       *   18.64  * Hydr. Depth (ft)      *          *   14.11  *    4.32  *
* Conv. Total (cfs)       *4021802.0  * Conv. (cfs)          *          *3513838.0  *507964.0  *
* Length Wtd. (ft)        *  505.13  * Wetted Per. (ft)      *          *  942.97  * 1113.11  *
* Min Ch El (ft)          * 1018.70  * Shear (lb/sq ft)      *          *    1.48  *    0.46  *
* Alpha                   *    1.27  * Stream Power (lb/ft s) *          *   16.36  *    2.00  *
* Frctn Loss (ft)         *    0.92  * Cum Volume (acre-ft)   * 1203.17  *30204.22  * 1384.71  *
* C & E Loss (ft)         *    0.03  * Cum SA (acres)         *  201.93  * 2859.32  *  198.44  *
*****************************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 210.83

INPUT
Description: 210.83

Left Channel Bank Station Interpolated
Station Elevation Data    num=      61
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
```

19202.3	1047.9	19230.6	1048.2	19316.1	1047.1	19412.4	1046.5	19438.4	1046.4
19450.41	1038.813	19469.9	1026.5	19479.2	1021.2	19797.6	1021	19923.9	1020.9
19961.4	1020.6	19972.9	1027.1	19981.7	1030.2	20023.7	1029.7	20030.1	1028.5
20042.7	1023.3	20047.1	1022.6	20060.1	1021.5	20068	1019.1	20084.8	1019.4
20164.7	1020.3	20209.2	1020.4	20210.1	1020.8	20276.6	1019.8	20285.1	1022.2
20306.6	1025.2	20309	1026.8	20312.4	1026.3	20316.8	1024.7	20372.8	1023.5
20408.7	1043.6	20410.4	1042.5	20412	1040	20434.3	1040.8	20448.6	1034
21423.7	1034.1	21433.7	1033	21527.5	1031.1	21554.4	1029.7	21577.9	1029.4
21646.5	1030.2	21704.4	1029.9	21742.9	1046.2	21761.3	1040	21807.2	1041.3
21814	1044.7	21818.3	1046.4	21862.5	1045.9	21879.4	1037.5	21883.7	1035
21887.9	1033.8	21911.6	1035.9	21937.9	1050.1	21957.5	1042.6	22341.8	1042.6
22364.7	1049.8	22372.9	1048.2	22423	1049.3	22443.3	1049.3	22494.1	1045.8
22499.7	1044.9								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
19202.3	.03719450.41	.032	20410.4	.037	

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

Left	Right	Left	Channel	Right	Coeff	Contr.	Expan.
19450.41	20410.4		505	505.61	500	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
21742.9	22499.7	1048	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1038.07	Element	Left OB	Channel / Right OB
Vel Head (ft)	2.00	Wt. n-Val.		0.032 / 0.037
W.S. Elev (ft)	1036.06	Reach Len. (ft)	505.00	505.61 / 500.00
Crit W.S. (ft)	1032.21	Flow Area (sq ft)		13080.38 / 3498.04
E.G. Slope (ft/ft)	0.001953	Area (sq ft)		13080.38 / 3534.79
Q Total (cfs)	166000.00	Flow (cfs)		153843.50 / 12156.54
Top Width (ft)	2245.21	Top Width (ft)		940.48 / 1304.73
Vel Total (ft/s)	10.01	Avg. Vel. (ft/s)		11.76 / 3.48
Max Chl Dpth (ft)	16.96	Hydr. Depth (ft)		13.91 / 2.74
Conv. Total (cfs)	3756437.0	Conv. (cfs)		3481345.0 / 275092.0
Length Wtd. (ft)	505.24	Wetted Per. (ft)		953.23 / 1276.54
Min Ch El (ft)	1019.10	Shear (lb/sq ft)		1.67 / 0.33
Alpha	1.29	Stream Power (lb/ft s)		19.68 / 1.16
Frctn Loss (ft)	0.78	Cum Volume (acre-ft)	6985.57	29126.25 / 2981.94
C & E Loss (ft)	0.15	Cum SA (acres)	1904.50	2844.66 / 935.29

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1038.08	Element	Left OB	Channel / Right OB
Vel Head (ft)	2.01	Wt. n-Val.		0.032 / 0.037
W.S. Elev (ft)	1036.07	Reach Len. (ft)	505.00	505.61 / 500.00
Crit W.S. (ft)	1032.19	Flow Area (sq ft)		13087.38 / 3435.44
E.G. Slope (ft/ft)	0.001956	Area (sq ft)		13087.38 / 3435.44
Q Total (cfs)	166000.00	Flow (cfs)		154106.60 / 11893.44
Top Width (ft)	2196.26	Top Width (ft)		940.50 / 1255.76
Vel Total (ft/s)	10.05	Avg. Vel. (ft/s)		11.78 / 3.46
Max Chl Dpth (ft)	16.97	Hydr. Depth (ft)		13.92 / 2.74
Conv. Total (cfs)	3753292.0	Conv. (cfs)		3484379.0 / 268913.0
Length Wtd. (ft)	505.24	Wetted Per. (ft)		953.26 / 1262.50
Min Ch El (ft)	1019.10	Shear (lb/sq ft)		1.68 / 0.33
Alpha	1.28	Stream Power (lb/ft s)		19.74 / 1.15
Frctn Loss (ft)	0.78	Cum Volume (acre-ft)	1203.17	30052.40 / 1337.07
C & E Loss (ft)	0.15	Cum SA (acres)	201.93	2848.48 / 184.73

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 210.74

INPUT
Description: 210.74

Left Channel Bank Station Interpolated
Station Elevation Data num= 63

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
19243.9	1048.6	19252.9	1048.6	19306.8	1048.4	19320.5	1047.9	19400.4	1046.9
19417.4	1044.5	19426.12	1038.473	19455.3	1018.3	19887.7	1018.2	19910.2	1018.2
19912.1	1019.4	19926.7	1020.6	19947.1	1020.5	19971.2	1029.9	19999.5	1024.8
20005.9	1025.6	20026.7	1018.2	20095.6	1018.8	20149	1019.3	20154.3	1019.5
20159.1	1018.6	20206.5	1019.2	20250.3	1018.3	20256.9	1020.6	20263.3	1021.3
20281.7	1020.8	20318.1	1022	20333.5	1021.2	20349.8	1021.8	20361.7	1025.8
20373.2	1024.1	20404.6	1025.2	20432.5	1037.6	20433.7	1039.4	20462.4	1039.5
20468.2	1036.5	21389.5	1036.5	21394.6	1032.8	21404	1032.7	21513.7	1032
21520.3	1033.6	21537.2	1027.8	21587.9	1027.7	21638.9	1028.2	21695.6	1029
21747.1	1028.9	21771	1029.8	21801.8	1041	21813.2	1040.9	22057.2	1040.9
22066.5	1043.5	22085.1	1044.1	22096.2	1047.4	22123.7	1048.7	22156.7	1040.5
22272.5	1040.5	22293.7	1049.5	22308.5	1048.9	22356.6	1048.4	22365.3	1048.1
22369	1048.8	22377.5	1053.2	22399.8	1048.3				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
19243.9	.03719426.12	.032	20433.7	.037	

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

Pre-Project

19426.12 20433.7 495 503.39 500 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
21801.8	22399.8	1048	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1037.14	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.51	Wt. n-Val.		0.032	0.037
W.S. Elev (ft)	1035.63	Reach Len. (ft)	495.00	503.39	500.00
Crit W.S. (ft)	1029.79	Flow Area (sq ft)		15461.92	2226.60
E.G. Slope (ft/ft)	0.001245	Area (sq ft)		15461.92	2226.60
Q Total (cfs)	166000.00	Flow (cfs)		156082.90	9917.06
Top Width (ft)	1394.20	Top Width (ft)		997.85	396.35
Vel Total (ft/s)	9.38	Avg. Vel. (ft/s)		10.09	4.45
Max Chl Dpth (ft)	17.43	Hydr. Depth (ft)		15.50	5.62
Conv. Total (cfs)	4705337.0	Conv. (cfs)		4424234.0	281103.0
Length Wtd. (ft)	503.21	Wetted Per. (ft)		1010.81	399.48
Min Ch El (ft)	1018.20	Shear (lb/sq ft)		1.19	0.43
Alpha	1.10	Stream Power (lb/ft s)		12.00	1.93
Frctn Loss (ft)	0.63	Cum Volume (acre-ft)	6985.57	28960.60	2948.87
C & E Loss (ft)	0.01	Cum SA (acres)	1904.50	2833.41	925.52

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1037.15	Element	Left OB	Channel	Right OB
vel Head (ft)	1.50	Wt. n-Val.		0.032	0.037
W.S. Elev (ft)	1035.65	Reach Len. (ft)	495.00	503.39	500.00
Crit W.S. (ft)	1029.79	Flow Area (sq ft)		15478.50	2233.19
E.G. Slope (ft/ft)	0.001240	Area (sq ft)		15478.50	2233.19
Q Total (cfs)	166000.00	Flow (cfs)		156054.50	9945.53
Top Width (ft)	1394.33	Top Width (ft)		997.91	396.42
Vel Total (ft/s)	9.37	Avg. Vel. (ft/s)		10.08	4.45
Max Chl Dpth (ft)	17.45	Hydr. Depth (ft)		15.51	5.63
Conv. Total (cfs)	4714385.0	Conv. (cfs)		4431933.0	282452.1
Length Wtd. (ft)	503.21	Wetted Per. (ft)		1010.88	399.56
Min Ch El (ft)	1018.20	Shear (lb/sq ft)		1.19	0.43
Alpha	1.10	Stream Power (lb/ft s)		11.95	1.93
Frctn Loss (ft)	0.63	Cum Volume (acre-ft)	1203.17	29886.62	1304.53
C & E Loss (ft)	0.01	Cum SA (acres)	201.93	2837.23	175.25

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 210.64

INPUT
Description: 210.64 - FEMA Section Y
Station Elevation Data num= 56

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
19062.1	1046.2	19142.3	1046.5	19216.9	1046.5	19239.3	1046.6	19313.3	1046.3
19339.3	1045.9	19359.9	1044.7	19388.6	1036.7	19405.4	1034.5	19435.6	1017.8
19522.4	1017.9	19688	1018.2	19812.5	1018.5	19845.7	1021.7	19854.2	1021.6
19868.7	1023.2	19885.6	1022.9	19894.1	1026.4	19926.9	1018.1	19954	1018.1
20029.3	1018.2	20100.6	1018.3	20159.1	1018.4	20163.7	1019.2	20174.9	1019.6
20183.1	1020.8	20192.3	1019.6	20214.4	1021.7	20234.8	1024.3	20242.8	1022.1
20298.5	1024	20323.5	1025.5	20335	1029.1	20359.6	1019.1	20427.6	1017.8
20430.1	1017.7	20460.6	1039.9	20483.4	1039.5	20493.5	1033.2	21394.6	1033.2
21442.1	1031.4	21449.1	1028.1	21453.5	1025.3	21460.9	1025.2	21472.1	1026
21483.6	1028.3	21519.7	1032.5	22411.4	1032.5	22434.2	1045.9	22446.8	1049.8
22496.5	1049.4	22507.7	1051.3	22521	1044.2	22524.9	1044.1	22586.3	1043
22591.1	1043.3								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
19062.1	.037	19388.6	.032	20460.6	.037

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19388.6 20460.6 520 515.29 495 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
21800	22591.1	1048	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1036.50	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.49	Wt. n-Val.		0.032	0.037
W.S. Elev (ft)	1035.01	Reach Len. (ft)	520.00	515.29	495.00
Crit W.S. (ft)	1029.00	Flow Area (sq ft)		15860.79	2978.40
E.G. Slope (ft/ft)	0.001271	Area (sq ft)		15860.79	4520.56
Q Total (cfs)	166000.00	Flow (cfs)		158635.60	7364.35
Top Width (ft)	2977.49	Top Width (ft)		1052.41	1925.09
Vel Total (ft/s)	8.81	Avg. Vel. (ft/s)		10.00	2.47
Max Chl Dpth (ft)	17.31	Hydr. Depth (ft)		15.07	2.27
Conv. Total (cfs)	4657061.0	Conv. (cfs)		4450457.0	206603.9
Length Wtd. (ft)	514.84	Wetted Per. (ft)		1067.76	1312.02
Min Ch El (ft)	1017.70	Shear (lb/sq ft)		1.18	0.18
Alpha	1.23	Stream Power (lb/ft s)		11.78	0.45
Frctn Loss (ft)	0.73	Cum Volume (acre-ft)	6985.57	28779.61	2910.15
C & E Loss (ft)	0.03	Cum SA (acres)	1904.50	2821.56	912.20

Warning: Divided flow computed for this cross-section.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1036.52	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.48	Wt. n-Val.		0.032	0.037
W.S. Elev (ft)	1035.04	Reach Len. (ft)	520.00	515.29	495.00
Crit W.S. (ft)	1029.00	Flow Area (sq ft)		15883.14	3006.21
E.G. Slope (ft/ft)	0.001264	Area (sq ft)		15883.14	3006.21
Q Total (cfs)	166000.00	Flow (cfs)		158551.00	7448.99
Top Width (ft)	2362.04	Top Width (ft)		1052.60	1309.44
Vel Total (ft/s)	8.79	Avg. Vel. (ft/s)		9.98	2.48
Max Chl Dpth (ft)	17.33	Hydr. Depth (ft)		15.09	2.30
Conv. Total (cfs)	4669916.0	Conv. (cfs)		4460361.0	209555.2
Length Wtd. (ft)	514.83	Wetted Per. (ft)		1067.96	1314.59
Min Ch El (ft)	1017.70	Shear (lb/sq ft)		1.17	0.18
Alpha	1.24	Stream Power (lb/ft s)		11.71	0.45
Frctn Loss (ft)	0.73	Cum Volume (acre-ft)	1203.17	29705.41	1274.46
C & E Loss (ft)	0.03	Cum SA (acres)	201.93	2825.38	165.46

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 210.55

INPUT
Description: 210.55

Left Channel Bank Station Interpolated
Station Elevation Data num= 55

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
19008	1045.1	19023.1	1045.1	19106.6	1045.2	19117.1	1045.2	19188.7	1045.4
19198.2	1045.3	19263.2	1046	19303.5	1044.2	19322.16	1037.828	19365	1023.2
19375.9	1018.6	19396.7	1018.7	19519.3	1018.6	19791	1018.3	19813.4	1028.8
19857.3	1026.7	19886.1	1038.1	19909.3	1027.2	19915.5	1030.7	19959.6	1020
20002.1	1018	20058.3	1018.1	20175.7	1018.1	20440.7	1018.3	20476.7	1037.4
20483.2	1040.3	20500.3	1039.7	20507.6	1034.3	21313.5	1033.6	21372.5	1032.4
21406.9	1033	21409.3	1032.1	21417.2	1027.2	21429	1026.3	21456.2	1025.4
21459.3	1026.4	21468.1	1028.2	21496.9	1030.2	21548.3	1034.3	21557.5	1034.9
21626.2	1036.3	21634.2	1035.7	21643.8	1035.7	21713	1035.7	21771.2	1036
22449.6	1036	22451.9	1037.8	22455.6	1040	22484.4	1044.7	22494.2	1046.8
22499.9	1046	22506.9	1046.2	22537.1	1043.6	22580.7	1043.5	22585	1043

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
19008	.037	19322.16	.032	20483.2	.037

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19322.16 20483.2 475 473.19 495 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
21300	22585	1046.8	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1035.74	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.76	Wt. n-Val.		0.032	0.037
W.S. Elev (ft)	1033.98	Reach Len. (ft)	475.00	473.19	495.00
Crit W.S. (ft)	1028.55	Flow Area (sq ft)		15574.26	77.81
E.G. Slope (ft/ft)	0.001597	Area (sq ft)		15574.26	839.71
Q Total (cfs)	166000.00	Flow (cfs)		165959.60	40.37
Top Width (ft)	1785.17	Top Width (ft)		1117.64	667.53
Vel Total (ft/s)	10.61	Avg. Vel. (ft/s)		10.66	0.52
Max Chl Dpth (ft)	15.98	Hydr. Depth (ft)		13.93	0.18
Conv. Total (cfs)	4153846.0	Conv. (cfs)		4152836.0	1010.3
Length Wtd. (ft)	473.19	Wetted Per. (ft)		1131.80	423.25
Min Ch El (ft)	1018.00	Shear (lb/sq ft)		1.37	0.02
Alpha	1.01	Stream Power (lb/ft s)		14.62	0.01
Frctn Loss (ft)	0.36	Cum Volume (acre-ft)	6985.57	28593.68	2879.69
C & E Loss (ft)	0.38	Cum SA (acres)	1904.50	2808.73	897.47

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1035.76	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.76	Wt. n-Val.		0.032	0.037
W.S. Elev (ft)	1034.00	Reach Len. (ft)	475.00	473.19	495.00
Crit W.S. (ft)	1028.55	Flow Area (sq ft)		15600.59	29.45
E.G. Slope (ft/ft)	0.001589	Area (sq ft)		15600.59	29.45
Q Total (cfs)	166000.00	Flow (cfs)		165989.00	11.02
Top Width (ft)	1378.23	Top Width (ft)		1117.86	260.37
Vel Total (ft/s)	10.62	Avg. Vel. (ft/s)		10.64	0.37
Max Chl Dpth (ft)	16.00	Hydr. Depth (ft)		13.96	0.11
Conv. Total (cfs)	4164224.0	Conv. (cfs)		4163947.0	276.4
Length Wtd. (ft)	473.19	Wetted Per. (ft)		1132.04	260.59
Min Ch El (ft)	1018.00	Shear (lb/sq ft)		1.37	0.01
Alpha	1.00	Stream Power (lb/ft s)		14.55	0.00
Frctn Loss (ft)	0.36	Cum Volume (acre-ft)	1203.17	29519.19	1257.21
C & E Loss (ft)	0.38	Cum SA (acres)	201.93	2812.55	156.54

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**********************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 210.46

INPUT
Description: 210.46

Left and Right Channel Bank Stations Interpolated
Station Elevation Data    num=      74
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
**********************************************************************************
 18491.3  1044.8 18509.6  1044.4 18559.8  1045.8 18571.1  1045.5 18584.8  1043.3
 18607.7    1045   18678  1044.8 18723.7  1044.2   18801  1044.1 18803.4  1044.1
 18891.1  1043.9 18897.1  1043.9 18962.7  1043.6 19022.5  1043.3 19024.4  1043.3
 19078.3  1042.4 19136.1  1042.2 19176.5  1042.5 19201.9  1040.9 19233.8  1028.3
 19266.3  1021.8 19276.2  1021.1 19328.5  1018.7 19351.6  1018.1   19377 1018.33
 19395.8  1018.5 19810.2  1018.3 19863.8  1018.1   19922  1018.2 20015.9  1018.2
 20094.1  1018.1 20114.1  1018.1 20127.6  1022.4 20129.6  1023.9 20150.4  1023.9
 20174.1  1021.6 20197.2  1018.1 20239.9  1018.1 20295.4  1018.2   20303  1018.6
 20351.5    1018 20390.4  1018.4 20443.9  1018.4 20502.8  1018.5 20565.4  1018.8
 20656.3  1018.8 20722.5    1019   20743  1019.6 20798.1  1019.8 20867.2  1019.1
 20920.3  1019.3 20973.2  1019.2 21047.3  1019.3 21120.7  1021.1   21123  1021.2
 21136.1  1016.3 21211.7  1018.4 21228.5  1018.3 21261.8  1036.3 21280.4  1034.9
   21284 1038.08 21290.7    1044 21292.3    1046 21334.2    1043 21405.2  1043.3
 21443.5  1044.5   21454  1047.4 21465.5  1044.1 22456.6  1042.9 22498.8  1045.3
   22515  1046.9 22564.7  1048.3 22637.2  1048.5   22652  1048.3

Manning's n Values        num=       5
     Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val
**********************************************************************************
 18491.3    .037 19176.5    .032 20150.4    .037 21292.3    .037   21454    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.    Expan.
          19377   21284             520  522.28     505             .1       .3
Ineffective Flow     num=       2
   Sta L    Sta R    Elev  Permanent
 18491.3   19377    1048       F
 21292.3   22652    1048       F

CROSS SECTION OUTPUT  Profile #PF#1
**********************************************************************************************
* E.G. Elev (ft)       * 1035.00  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)        *    0.49  * Wt. n-Val.           *          *    0.035  *          *
* W.S. Elev (ft)       * 1034.51  * Reach Len. (ft)      *  520.00  *  522.28  *  505.00  *
* Crit W.S. (ft)       * 1025.05  * Flow Area (sq ft)    *          * 29423.11  *          *
* E.G. Slope (ft/ft)   *0.000445  * Area (sq ft)         * 2035.11  * 29423.11  *          *
* Q Total (cfs)        *166000.00  * Flow (cfs)          *          * 166000.00  *          *
* Top Width (ft)       * 2040.40  * Top Width (ft)      *  158.91  * 1881.48  *          *
* Vel Total (ft/s)     *    5.64  * Avg. Vel. (ft/s)    *          *    5.64  *          *
* Max Chl Dpth (ft)    *   18.21  * Hydr. Depth (ft)    *          *   15.64  *          *
* Conv. Total (cfs)    *7866662.0  * Conv. (cfs)        *          * 7866662.0  *          *
* Length Wtd. (ft)     *  522.28  * Wetted Per. (ft)    *          * 1888.10  *          *
* Min Ch El (ft)       * 1016.30  * Shear (lb/sq ft)    *          *    0.43  *          *
* Alpha                *    1.00  * Stream Power (lb/ft s) *       *    2.44  *          *
* Frctn Loss (ft)      *    0.32  * Cum Volume (acre-ft)  * 6974.47  * 28349.28  * 2874.92  *
* C & E Loss (ft)      *    0.03  * Cum SA (acres)        * 1903.63  * 2792.44  *  893.68  *
**********************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
**********************************************************************************************
* E.G. Elev (ft)       * 1035.02  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)        *    0.49  * Wt. n-Val.           *          *    0.035  *          *
* W.S. Elev (ft)       * 1034.53  * Reach Len. (ft)      *  520.00  *  522.28  *  505.00  *
* Crit W.S. (ft)       * 1025.05  * Flow Area (sq ft)    *          * 29459.85  *          *
* E.G. Slope (ft/ft)   *0.000449  * Area (sq ft)         *          * 29459.85  *          *
* Q Total (cfs)        *166000.00  * Flow (cfs)          *          * 166000.00  *          *
* Top Width (ft)       * 1881.52  * Top Width (ft)      *          * 1881.52  *          *
* Vel Total (ft/s)     *    5.63  * Avg. Vel. (ft/s)    *          *    5.63  *          *
* Max Chl Dpth (ft)    *   18.23  * Hydr. Depth (ft)    *          *   15.66  *          *
* Conv. Total (cfs)    *7832858.0  * Conv. (cfs)        *          * 7832858.0  *          *
* Length Wtd. (ft)     *  522.28  * Wetted Per. (ft)    *          * 1904.33  *          *
* Min Ch El (ft)       * 1016.30  * Shear (lb/sq ft)    *          *    0.43  *          *
* Alpha                *    1.00  * Stream Power (lb/ft s) *       *    2.44  *          *
* Frctn Loss (ft)      *    0.32  * Cum Volume (acre-ft)  * 1203.17  * 29274.45  * 1257.05  *
* C & E Loss (ft)      *    0.03  * Cum SA (acres)        *  201.93  * 2796.25  *  155.06  *
**********************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 210.36

INPUT
```

Description: 210.36

Left and Right Channel Bank Stations Interpolated
Station Elevation Data num= 99

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
19224.5	1050.4	19284.3	1050.7	19305	1051	19357.1	1049.6	19375.16	1037.787
19404.8	1018.4	19463.3	1018.3	19612.3	1018.1	19621.3	1018.1	19634.8	1021.9
19667.3	1022.1	19733.3	1021.4	19790.5	1022.1	19802.9	1021.9	19818.6	1026.5
19827	1026.5	19834.6	1028.4	19890.9	1029	19964.7	1027.7	19973.5	1027.6
19985.2	1023	19997.6	1019.2	20010.7	1019.2	20032.2	1022.5	20039.2	1024.8
20087.1	1023	20111.8	1024.6	20144.4	1023.1	20153.9	1025.4	20168.7	1024.3
20191.7	1024.2	20273.6	1021.2	20346.9	1017.4	20363.5	1017.6	20425.8	1018.5
20437.5	1019.6	20442.7	1017.4	20510.8	1017.5	20526.1	1018	20581.3	1024.2
20636.5	1025.3	20692.9	1026.1	20742.9	1025.6	20769.6	1031.4	20776.7	1032.1
20797.4	1031.2	20811.3	1023.1	20868.1	1020.3	20886.8	1019.8	21012.2	1019.3
21017.9	1019.4	21027	1020.7	21039.6	1017.6	21095.8	1017.7	21149.8	1018
21208.9	1018.7	21245	1019.62	1291.171	1037.786	21291.23	1037.81	21303.9	1042.8
21368	1043.7	21407.5	1045.3	21418.5	1048.3	21429.5	1045.3	21450.9	1041.3
21516.4	1042.2	21531.8	1042.1	21606.4	1042.3	21664.8	1042.2	21728.4	1042.1
21735.8	1042.3	21795.8	1042.1	21853	1041.4	21904.7	1040.9	21945.9	1041.5
22007.4	1043.5	22067.8	1044.3	22085.5	1044.9	22124.1	1042.5	22213.9	1042.6
22278	1043.1	22282.5	1043	22318.4	1050.8	22330.1	1051.8	22376	1061.9
22399.2	1062.6	22410.6	1059.4	22438.3	1043.7	22476	1043.3	22498.2	1043.9
22517.5	1047.5	22554.5	1047.8	22615.4	1044.3	22685.5	1043.5	22715.7	1043.9
22733.2	1052.6	22752.7	1056.6	22761.2	1057.6	22797.5	1059		

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
19224.5	.032	19357.1	.037	20776.7	.025	21303.9	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
19375.16	21291.17	480	487.62	480	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
21303.9	22797.5	1058	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1034.65	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.82	Wt. n-Val.		0.032	
W.S. Elev (ft)	1033.83	Reach Len. (ft)	480.00	487.62	480.00
Crit W.S. (ft)	1027.55	Flow Area (sq ft)		22870.90	
E.G. Slope (ft/ft)	0.000899	Area (sq ft)		22870.90	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	1899.91	Top Width (ft)		1899.91	
Vel Total (ft/s)	7.26	Avg. Vel. (ft/s)		7.26	
Max Chl Dpth (ft)	16.43	Hydr. Depth (ft)		12.04	
Conv. Total (cfs)	5535841.0	Conv. (cfs)		5535841.0	
Length Wtd. (ft)	487.62	Wetted Per. (ft)		1915.61	
Min Ch El (ft)	1017.40	Shear (lb/sq ft)		0.67	
Alpha	1.00	Stream Power (lb/ft s)		4.86	
Frctn Loss (ft)	0.41	Cum Volume (acre-ft)	6962.32	28035.78	2874.92
C & E Loss (ft)	0.04	Cum SA (acres)	1902.68	2769.77	893.68

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1034.67	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.82	Wt. n-Val.		0.032	
W.S. Elev (ft)	1033.85	Reach Len. (ft)	480.00	487.62	480.00
Crit W.S. (ft)	1027.55	Flow Area (sq ft)		22909.63	
E.G. Slope (ft/ft)	0.000894	Area (sq ft)		22909.63	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	1900.00	Top Width (ft)		1900.00	
Vel Total (ft/s)	7.25	Avg. Vel. (ft/s)		7.25	
Max Chl Dpth (ft)	16.45	Hydr. Depth (ft)		12.06	
Conv. Total (cfs)	5551006.0	Conv. (cfs)		5551006.0	
Length Wtd. (ft)	487.62	Wetted Per. (ft)		1915.71	
Min Ch El (ft)	1017.40	Shear (lb/sq ft)		0.67	
Alpha	1.00	Stream Power (lb/ft s)		4.84	
Frctn Loss (ft)	0.40	Cum Volume (acre-ft)	1203.17	28960.49	1257.05
C & E Loss (ft)	0.04	Cum SA (acres)	201.93	2773.58	155.06

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 210.26

INPUT
Description: 210.26

Left and Right Channel Bank Stations Interpolated
Station Elevation Data num= 75

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18518	1039.8	18554.5	1039.8	18657.8	1042	18741.9	1041.6	18818	1041.2
18898.6	1041.1	18982.3	1040.1	19077.8	1039.4	19162	1039.9	19268.1	1040.3
19363.8	1039.3	19372.2	1040.41	9377.071	1037.672	19408.8	1019.9	19682.2	1018.6
19755.3	1018.2	19759.5	1026	19769	1023.5	19813.4	1021.7	19816	1022.7
19816.8	1022	19849.2	1020.9	19871.6	1022.5	19881.3	1022.3	19909.8	1024.5
19932.2	1024.7	19991.1	1027.6	20032.1	1025.3	20063.9	1021.9	20070.8	1022
20075.8	1024	20075.9	1020.9	20082.4	1025	20120.1	1032.8	20142.9	1027.4
20152.1	1027.4	20162	1021.5	20166.1	1020	20257.3	1025.2	20290.7	1026.3
20327.7	1020.7	20449	1018.6	20490.7	1017.8	20521.6	1018.3	20541.8	1020.7
20564.4	1016.9	20641.9	1017.2	20694.8	1022.3	20718.8	1018.4	20789.5	1018.3
20862.3	1019.1	20960	1018.2	20989.1	1018.9	21058.3	1018.1	21141	1018

21241.8	1017.5	21265.8	1018.4	21280.3	1023.52	1331.82	1037.67	2 1342.1	1040.5
21367.6	1040.4	21378.7	1044	21393.2	1047	21408.2	1043.8	21433.3	1036.1
21453.3	1036.5	21462.7	1039.8	21481.6	1041	22697.5	1041	22726.9	1046.8
22740.7	1043.8	22748.5	1041	22815.8	1041	22841.3	1048	22891	1057.7

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
18518	.037	19372.2	.032	20694.8	.037	21342.1	.037	21393.2	.025

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

19377.07	21331.82	505	512.65	520	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
18518	19162	1050	F
21393.2	22891	1050	F

CROSS SECTION OUTPUT Profile #PF#1

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	1034.20	Element			
Vel Head (ft)	0.70	Wt. n-Val.		0.034	
W.S. Elev (ft)	1033.51	Reach Len. (ft)	505.00	512.65	520.00
Crit W.S. (ft)	1026.47	Flow Area (sq ft)		24798.02	
E.G. Slope (ft/ft)	0.000775	Area (sq ft)		24798.02	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	1932.18	Top Width (ft)		1932.18	
Vel Total (ft/s)	6.69	Avg. Vel. (ft/s)		6.69	
Max Chl Dpth (ft)	16.61	Hydr. Depth (ft)		12.83	
Conv. Total (cfs)	5961462.0	Conv. (cfs)		5961462.0	
Length Wtd. (ft)	512.65	Wetted Per. (ft)		1953.48	
Min Ch El (ft)	1016.90	Shear (lb/sq ft)		0.61	
Alpha	1.00	Stream Power (lb/ft s)		4.11	
Frctn Loss (ft)	0.49	Cum Volume (acre-ft)	6962.32	27768.97	2874.92
C & E Loss (ft)	0.02	Cum SA (acres)	1902.68	2748.32	893.68

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	1034.22	Element			
Vel Head (ft)	0.69	Wt. n-Val.		0.034	
W.S. Elev (ft)	1033.53	Reach Len. (ft)	505.00	512.65	520.00
Crit W.S. (ft)	1026.47	Flow Area (sq ft)		24841.19	
E.G. Slope (ft/ft)	0.000771	Area (sq ft)		24841.19	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	1932.30	Top Width (ft)		1932.30	
Vel Total (ft/s)	6.68	Avg. Vel. (ft/s)		6.68	
Max Chl Dpth (ft)	16.63	Hydr. Depth (ft)		12.86	
Conv. Total (cfs)	5978500.0	Conv. (cfs)		5978500.0	
Length Wtd. (ft)	512.65	Wetted Per. (ft)		1953.61	
Min Ch El (ft)	1016.90	Shear (lb/sq ft)		0.61	
Alpha	1.00	Stream Power (lb/ft s)		4.09	
Frctn Loss (ft)	0.49	Cum Volume (acre-ft)	1203.17	28693.23	1257.05
C & E Loss (ft)	0.02	Cum SA (acres)	201.93	2752.14	155.06

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 210.17

INPUT
Description: 210.17 - FEMA Section X

Right Channel Bank Station
Interpolated
Station Elevation Data num= 81

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18525.7	1038	18530.7	1038	18532.2	1038.8	18540.9	1039	18542.7	1038.3
18559.1	1038.3	18583.6	1039.8	18667.3	1040	18672.2	1040	18771.1	1039.9
18843.2	1039.2	18918.6	1039.2	18975.6	1038.6	19067.9	1036.2	19141.4	1035.5
19159.7	1029.9	19162.1	1028.2	19206.3	1023.5	19232.4	1025.6	19237.8	1026.9
19267.8	1029.3	19288.9	1028.6	19327.1	1031	19354.6	1031.5	19359.6	1019.6
19498.4	1019.3	19752.3	1018.6	19761.8	1021.9	19768.4	1019.7	19807.9	1021.1
19826.4	1023.3	19861.6	1026.2	19939.7	1026.1	20019.7	1026.2	20040.5	1026
20047	1026.8	20077	1025.5	20173.1	1021.8	20204.7	1022.1	20221.8	1027.9
20260.5	1027.9	20289.3	1020.1	20308.5	1019.1	20310	1020	20324.5	1021.7
20336.8	1017.9	20348.1	1016.4	20392.6	1014.7	20407.8	1014.9	20421.1	1019.4
20505.4	1021.6	20584.7	1020	20677.5	1020.6	20713	1019.7	20811.2	1021.5
20931.9	1023.3	20991.7	1025	21079.4	1022.7	21093.5	1022.3	21106.3	1024.9
21181.2	1023.5	21223	1023	21231	1018.7	21249.3	1020.1	21260.4	1023.1
21302.8	1025.12	1334.72	1037.43	21339.3	1039.2	21359.2	1038.4	21371.3	1044
21385.9	1046.9	21435.8	1035.7	21473.1	1040	22703.8	1040.5	22737.6	1046.8
22750.2	1044.1	22757.2	1040.5	22826.4	1040.5	22854	1049.8	22873.2	1052.2
22897.3	1057								

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
18525.7	.037	19354.6	.032	20991.7	.037	21339.3	.025

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

19354.62	21334.72	505	497.78	495	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
18525.7	19354.6	1050	F
21385.9	22897.3	1050	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1033.69	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.94	Wt. n-Val.		0.033	
W.S. Elev (ft)	1032.74	Reach Len. (ft)	505.00	497.78	495.00
Crit W.S. (ft)	1027.95	Flow Area (sq ft)		21294.67	
E.G. Slope (ft/ft)	0.001224	Area (sq ft)	948.46	21294.67	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	2172.18	Top Width (ft)	204.19	1967.99	
Vel Total (ft/s)	7.80	Avg. Vel. (ft/s)		7.80	
Max Chl Dpth (ft)	18.04	Hydr. Depth (ft)		10.82	
Conv. Total (cfs)	4745589.0	Conv. (cfs)		4745589.0	
Length Wtd. (ft)	497.85	Wetted Per. (ft)		1984.48	
Min Ch El (ft)	1014.70	Shear (lb/sq ft)		0.82	
Alpha	1.00	Stream Power (lb/ft s)		6.39	
Frctn Loss (ft)	0.40	Cum Volume (acre-ft)	6956.83	27497.74	2874.92
C & E Loss (ft)	0.12	Cum SA (acres)	1901.50	2725.37	893.68

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1033.71	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.94	Wt. n-Val.		0.033	
W.S. Elev (ft)	1032.77	Reach Len. (ft)	505.00	497.78	495.00
Crit W.S. (ft)	1027.95	Flow Area (sq ft)		21350.17	
E.G. Slope (ft/ft)	0.001214	Area (sq ft)		21350.17	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	1968.06	Top Width (ft)		1968.06	
Vel Total (ft/s)	7.78	Avg. Vel. (ft/s)		7.78	
Max Chl Dpth (ft)	18.07	Hydr. Depth (ft)		10.85	
Conv. Total (cfs)	4763808.0	Conv. (cfs)		4763808.0	
Length Wtd. (ft)	497.82	Wetted Per. (ft)		1985.83	
Min Ch El (ft)	1014.70	Shear (lb/sq ft)		0.82	
Alpha	1.00	Stream Power (lb/ft s)		6.34	
Frctn Loss (ft)	0.41	Cum Volume (acre-ft)	1203.17	28421.42	1257.05
C & E Loss (ft)	0.12	Cum SA (acres)	201.93	2729.18	155.06

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 210.07

INPUT
Description: 210.07

Left Channel Bank Station Interpolated
Station Elevation Data num= 63

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18501.7	1038.7	18526.7	1039	18555.4	1039.2	18568.3	1039	18666.5	1038
18699.1	1037	18823.3	1036	18871.6	1015	18929.9	1011	19033.6	1009
19235.4	1009	19348.4	1009	19707.92	1015.47	20002.2	1019.3	20010.8	1019.3
20015.9	1021.6	20017.6	1021.9	20043.4	1020.3	20109.3	1021.6	20149.1	1018.8
20241.7	1019.6	20301.9	1019.6	20319.7	1020.4	20385.2	1020.2	20395	1020.3
20523.6	1020	20576	1020.4	20689.9	1019.9	20746.4	1020.1	20785.8	1020
20842.9	1018.9	20851.6	1018.9	20907.6	1018.8	20909.5	1018.7	20945.5	1031.5
20951.8	1031.4	21011.2	1029.6	21065.6	1030.2	21073.1	1030.3	21098.1	1026.3
21164.8	1026.1	21186.9	1026.4	21207.2	1024.8	21212.4	1026.6	21220.7	1028.3
21237.2	1024.7	21246.8	1023.1	21286.7	1032.7	21315.8	1034.4	21346.3	1039.3
21383.5	1047.6	21397.9	1044.6	21428.3	1035.2	21444.5	1036.3	21455.5	1040.2
21470	1040.9	22716.5	1040.5	22744.1	1046.7	22757.9	1043.7	22766.1	1040.5
22836.3	1040.5	22861.9	1049.1	22885.1	1052.1				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
18501.7	.032	19235.4	.037	20945.5	.025

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19235.4 20945.5 511 494.01 499 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
18501.7	19210	1048	F
21383.5	22885.1	1048	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1033.17	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.55	Wt. n-Val.	0.032	0.037	0.025
W.S. Elev (ft)	1032.62	Reach Len. (ft)	511.00	494.01	499.00
Crit W.S. (ft)	1024.08	Flow Area (sq ft)	599.93	26236.77	1570.05
E.G. Slope (ft/ft)	0.000565	Area (sq ft)	8612.60	26236.77	1570.05
Q Total (cfs)	166000.00	Flow (cfs)	5450.30	154440.00	6109.67
Top Width (ft)	2455.28	Top Width (ft)	404.32	1710.10	340.86
Vel Total (ft/s)	5.84	Avg. Vel. (ft/s)	9.08	5.89	3.89
Max Chl Dpth (ft)	23.62	Hydr. Depth (ft)	23.62	15.34	4.61
Conv. Total (cfs)	6984499.0	Conv. (cfs)	229323.1	6498109.0	257066.2
Length Wtd. (ft)	494.92	Wetted Per. (ft)	25.40	1713.11	343.40
Min Ch El (ft)	1009.00	Shear (lb/sq ft)	0.83	0.54	0.16
Alpha	1.04	Stream Power (lb/ft s)	7.57	3.18	0.63
Frctn Loss (ft)	0.18	Cum Volume (acre-ft)	6901.40	27226.16	2866.00
C & E Loss (ft)	0.04	Cum SA (acres)	1897.97	2704.35	891.74

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1033.19	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.55	Wt. n-Val.	0.032	0.037	0.025
W.S. Elev (ft)	1032.64	Reach Len. (ft)	511.00	494.01	499.00
Crit W.S. (ft)	1023.80	Flow Area (sq ft)	600.36	26266.21	1222.50
E.G. Slope (ft/ft)	0.000587	Area (sq ft)	600.36	26266.21	1222.50
Q Total (cfs)	166000.00	Flow (cfs)	3588.82	157770.80	4640.40
Top Width (ft)	2015.00	Top Width (ft)	25.40	1710.10	279.50
Vel Total (ft/s)	5.91	Avg. Vel. (ft/s)	5.98	6.01	3.80
Max Chl Dpth (ft)	23.64	Hydr. Depth (ft)	23.64	15.36	4.37
Conv. Total (cfs)	6849836.0	Conv. (cfs)	148089.1	6510265.0	191481.7
Length Wtd. (ft)	494.76	Wetted Per. (ft)	49.04	1713.11	285.77
Min Ch El (ft)	1009.00	Shear (lb/sq ft)	0.45	0.56	0.16
Alpha	1.02	Stream Power (lb/ft s)	2.68	3.38	0.60
Frctn Loss (ft)	0.19	Cum Volume (acre-ft)	1199.69	28149.35	1250.10
C & E Loss (ft)	0.04	Cum SA (acres)	201.79	2708.17	153.47

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 209.98

INPUT
Description: 209.98
Station Elevation Data num= 98

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18668.5	1036.61	8697.08	1036.41	8734.38	1036.77	18827.89	1037.17	18891.14	1036.77
18984.54	1033.98	19015.54	1035	19019.11	1036.07	19039.74	1037.88	19063.96	1036.69
19080.08	1034.71	19102.37	1034.8	19117.4	1036.29	19128.81	1038.37	19161.01	1038.7
19178.98	1037.14	19223.54	1037.15	19252.87	1037.24	19262.16	1038.16	19316.53	1037.12
19320.05	1035.95	19346.13	1017.9	19404.18	999.33	19419.58	1000.04	19454.66	1000.8
19509.56	1001.69	19648.56	1006.29	19693.86	1007.98	19730.85	1009.07	19783.08	1010.1
19870.73	1011.2	19935.51	1009.78	19954	1007.54	19988.72	1014.28	20002.24	1019.63
20016.49	1022.82	20034.93	1023.47	20061.33	1023.52	20103.67	1021.51	20115.62	1017.75
20160.94	1015.42	20177.85	1012.41	20193.89	1011.15	20245.68	1011.42	20291.47	1013.6
20306.68	101720	338.83	101820	381.79	1019.53	20395.72	1020.87	20434.04	1022.84
20504.16	1024.16	20538.37	1026.02	20546.29	1027.59	20556.23	1033.09	20611.04	1034
20650.54	1033.82	20666.54	1023.78	20679.7	1019.86	20720.9	1017.84	20734.97	1017.5
20785.73	1017.71	20811.04	1018.91	20884.31	1020.03	20910.52	1019.38	20949.25	1017.17
21078.22	1017.52	1129.65	1017.82	1152.66	1017.82	21174.06	1019.24	21200.18	1019.51
21229.85	1019.91	21245.64	1019.49	21252.12	1018.42	21270.29	1017.99	21289.12	1018.16
21307.13	1020.21	21315.98	1023.33	21341.38	1040.81	21348.39	1043.38	21377.38	1043.15
21386.5	1042.46	21406.32	103621	416.82	1035.28	21428.25	1036.33	21450.49	1039.82
21469.3	1035.78	21483.2	1034.65	21522.63	1034.22	21567.64	1035.52	21599.88	1035.51
21661.06	1034.76	21726.66	1034.42	21811.43	1034.72	21853.4	1035.69	21940.91	1035.84
21952.68	1035.42	21966.07	1033.85	21992.8	1034.48				

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
18668.5	.03719	316.53	.03220	611.04	.03521	348.39	.037

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19316.5 320556.23 519 492.54 497 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
21348.39	21992.8	1050	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1032.95	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.40	Wt. n-Val.		0.032	0.035
W.S. Elev (ft)	1032.54	Reach Len. (ft)	519.00	492.54	497.00
Crit W.S. (ft)	1020.16	Flow Area (sq ft)		24272.60	9253.94
E.G. Slope (ft/ft)	0.000255	Area (sq ft)		24272.60	9253.94
Q Total (cfs)	166000.00	Flow (cfs)		130398.10	35601.88
Top Width (ft)	1907.06	Top Width (ft)		1230.27	676.79
Vel Total (ft/s)	4.95	Avg. Vel. (ft/s)		5.37	3.85
Max Chl Dpth (ft)	33.21	Hydr. Depth (ft)		19.73	13.67
Conv. Total (cfs)	10403710.0	Conv. (cfs)		8172433.0	2231274.0
Length Wtd. (ft)	493.45	Wetted Per. (ft)		1243.17	683.72
Min Ch El (ft)	999.33	Shear (lb/sq ft)		0.31	0.22
Alpha	1.05	Stream Power (lb/ft s)		1.67	0.83
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)	6850.89	26939.75	2804.01
C & E Loss (ft)	0.01	Cum SA (acres)	1895.60	2687.68	885.91

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1032.96	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.42	Wt. n-Val.		0.032	0.035
W.S. Elev (ft)	1032.54	Reach Len. (ft)	519.00	492.54	497.00
Crit W.S. (ft)	1019.84	Flow Area (sq ft)		24265.83	8375.77
E.G. Slope (ft/ft)	0.000266	Area (sq ft)		24265.83	8375.77
Q Total (cfs)	166000.00	Flow (cfs)		133159.60	32840.39
Top Width (ft)	1833.73	Top Width (ft)		1230.25	603.48
Vel Total (ft/s)	5.09	Avg. Vel. (ft/s)		5.49	3.92
Max Chl Dpth (ft)	33.21	Hydr. Depth (ft)		19.72	13.88

* Conv. Total (cfs)	*10183330.0	* Conv. (cfs)	*	*8168728.0	*2014606.0	*
* Length Wtd. (ft)	* 493.41	* Wetted Per. (ft)	*	* 1243.15	* 621.11	*
* Min Ch El (ft)	* 999.33	* Shear (lb/sq ft)	*	* 0.32	* 0.22	*
* Alpha	* 1.05	* Stream Power (lb/ft s)	*	* 1.78	* 0.88	*
* Frctn Loss (ft)	* 0.14	* Cum Volume (acre-ft)	* 1196.17	*27862.81	* 1195.13	*
* C & E Loss (ft)	* 0.01	* Cum SA (acres)	* 201.64	* 2691.49	* 148.42	*

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 209.88

INPUT
Description: 209.88
Station Elevation Data num= 86

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18681.6	1038.618731.14	1039.218763.46	1039.3418856.45	1038.79 18905.9	1038.3				
18972.22	1038.2419086.42	1038.3619133.19	1038.6419247.38	1040.419312.42	1039.2				
19370.23	1038.8619431.06	1038.94 19464.1	1038.519478.74	1036.9519516.39	1036.33				
19524.73	1029.9319566.56	1008.1219598.63	999.5119640.57	997.7919691.39	997.69				
19769.93	999.1719800.24	1000.6319830.26	1001.6519848.56	1003.4919859.91	1005.96				
19910.09	1007.3819960.95	1006.4419998.92	1008.33 20019.7	1012.7920028.16	1015.5				
20036.86	1016.6420060.08	1015.9420081.03	1011.7120128.18	1008.5820166.29	1012.01				
20170.17	1013.9920191.29	1014.7620234.45	1014.920257.49	1014.2520347.95	1015.5				
20367.77	1016.1920385.95	1016.3620409.64	1018.120423.54	1022.3220456.01	1034.43				
20483.89	1034.6720565.05	103320635.49	1032.8420681.89	1031.6520696.22	1030.98				
20726.21	1029.2420755.18	1027.1320770.71	1023.620820.79	1021.320895.81	1016.98				
20909.35	1016.3220995.87	1013.3921052.42	1013.4521060.47	1014.0221069.18	1016.28				
21082.94	1016.8821108.18	1017.3421171.62	101821195.56	1018.0421256.03	1018				
21284.76	1017.3721304.47	102021317.07	1026.0321331.64	1035.821333.55	1039.79				
21343.21	1043.6321377.98	1042.6221388.21	1041.8121404.25	1035.521425.05	1035.73				
21434.81	1040.0221446.16	1041.121487.63	1038.1921660.18	1036.9721711.89	1036.75				
21854.56	1036.721882.84	1033.221940.17	1033.1622030.34	1033.8822065.08	1034.17				
22079.6	1033.84								

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
18681.6	.03719516.39	.03220409.64	.03521343.21	.025			

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19516.3920456.01 504 500.82 498 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
21343.21	22079.6	1050	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 1032.80	* Element	* Left OB *	Channel *	Right OB *
* Vel Head (ft)	* 0.53	* Wt. n-Val.	*	* 0.032 *	0.035 *
* W.S. Elev (ft)	* 1032.27	* Reach Len. (ft)	* 504.00 *	500.82 *	498.00 *
* Crit W.S. (ft)	* 1018.95	* Flow Area (sq ft)	*	*21426.06 *	8430.18 *
* E.G. Slope (ft/ft)	*0.000282	* Area (sq ft)	*	*21426.06 *	8430.18 *
* Q Total (cfs)	*166000.00	* Flow (cfs)	*	*133597.80	*32402.26 *
* Top Width (ft)	* 1597.15	* Top Width (ft)	*	* 928.53 *	668.62 *
* Vel Total (ft/s)	* 5.56	* Avg. Vel. (ft/s)	*	* 6.24 *	3.84 *
* Max Chl Dpth (ft)	* 34.58	* Hydr. Depth (ft)	*	* 23.08 *	12.61 *
* Conv. Total (cfs)	*9887774.0	* Conv. (cfs)	*	*7957737.0	*1930038.0 *
* Length Wtd. (ft)	* 500.06	* Wetted Per. (ft)	*	* 941.01 *	673.18 *
* Min Ch El (ft)	* 997.69	* Shear (lb/sq ft)	*	* 0.40 *	0.22 *
* Alpha	* 1.11	* Stream Power (lb/ft s)	*	* 2.50 *	0.85 *
* Frctn Loss (ft)	* 0.14	* Cum Volume (acre-ft)	* 6850.89	*26681.39	* 2703.12 *
* C & E Loss (ft)	* 0.03	* Cum SA (acres)	* 1895.60	* 2675.47	* 878.24 *

Warning: Divided flow computed for this cross-section.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 1032.81	* Element	* Left OB *	Channel *	Right OB *
* Vel Head (ft)	* 0.54	* Wt. n-Val.	*	* 0.032 *	0.035 *
* W.S. Elev (ft)	* 1032.28	* Reach Len. (ft)	* 504.00 *	500.82 *	498.00 *
* Crit W.S. (ft)	* 1018.95	* Flow Area (sq ft)	*	*21433.09 *	8231.30 *
* E.G. Slope (ft/ft)	*0.000284	* Area (sq ft)	*	*21433.09 *	8231.30 *
* Q Total (cfs)	*166000.00	* Flow (cfs)	*	*134209.20	*31790.80 *
* Top Width (ft)	* 1570.95	* Top Width (ft)	*	* 928.56 *	642.39 *
* Vel Total (ft/s)	* 5.60	* Avg. Vel. (ft/s)	*	* 6.26 *	3.86 *
* Max Chl Dpth (ft)	* 34.59	* Hydr. Depth (ft)	*	* 23.08 *	12.81 *
* Conv. Total (cfs)	*9847829.0	* Conv. (cfs)	*	*7961863.0	*1885966.0 *
* Length Wtd. (ft)	* 500.07	* Wetted Per. (ft)	*	* 941.05 *	656.54 *
* Min Ch El (ft)	* 997.69	* Shear (lb/sq ft)	*	* 0.40 *	0.22 *
* Alpha	* 1.10	* Stream Power (lb/ft s)	*	* 2.53 *	0.86 *
* Frctn Loss (ft)	* 0.14	* Cum Volume (acre-ft)	* 1196.17	*27604.45	* 1100.39 *
* C & E Loss (ft)	* 0.03	* Cum SA (acres)	* 201.64	* 2679.29	* 141.31 *

Warning: Divided flow computed for this cross-section.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 209.79

```
INPUT
Description: 209.79
Station Elevation Data    num=      88
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
*********************************************************************************
   18478  1039.118547.32    103918680.54  1038.718735.84 1038.4718778.47  1038.2
18867.63 1037.5818904.62 1036.9318958.14 1036.2518987.49 1036.1919073.08 1036.32
19236.66 1036.9419329.91  1037.219382.24 1037.7819444.07 1038.1919498.52 1036.22
19513.54 1031.4319553.99  1022.1 19571.5 1020.3419590.34 1017.2619645.32 1016.75
19753.15 1014.3619823.32 1013.32 19865.9 1012.5120020.52  1008.820043.28 1006.98
20061.01 1005.1920070.25  1004.720120.93 1003.6520155.77 1002.9320174.93 1004.69
20213.95 1006.75 20261.7 1007.5120277.78 1007.8520407.18 1011.4220429.11  1012.6
20436.72  1013.720443.56 1015.9720461.81  1023.520483.82 1034.23 20498.1 1034.58
20504.71 1032.1120512.34  1031.320519.12  1028.420524.31 1027.4920534.91  1023.1
20549.48 1022.87   20586 1022.8420614.75 1024.6720638.75  1025.120684.87 1023.81
 20707.6  1023.6 20720.8 1024.0920733.07 1027.3820758.04 1028.2320764.93 1024.95
20778.48 1019.7220808.83 1015.9720831.65 1014.9820846.84 1012.8520881.12  1010.1
 20897.1  1009.120912.85 1008.7820959.43 1008.1620989.08 1008.2621049.83 1008.81
 21103.7 1009.3121134.95 1010.2721154.91 1011.4421200.09 1013.86 21269.9 1014.57
21288.19 1015.0921300.85 1016.8321308.56  1020.921327.41 1033.5421334.24 1037.02
 21338.6 1038.0621361.76 1037.2221390.51 1032.6821458.96 1029.4621474.45 1028.08
21483.78 1027.99 21534.4 1030.1521640.51  1029.921698.99 1031.1721796.88 1033.95
21828.55  1033.721867.29 1033.0421943.58 1033.24

Manning's n Values        num=       4
     Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val
*************************************************************
   18478    .03719444.07    .032 20498.1    .035 21338.6    .025

Bank Sta: Left   Right     Lengths: Left Channel   Right     Coeff Contr.   Expan.
     19444.0720483.82               497  500.22     505            .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
 21338.621943.58    1045       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************************
* E.G. Elev (ft)         * 1032.63  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.42  * Wt. n-Val.             *          *    0.032  *    0.035  *
* W.S. Elev (ft)         * 1032.21  * Reach Len. (ft)        *  497.00  *  500.22  *  505.00  *
* Crit W.S. (ft)         * 1018.56  * Flow Area (sq ft)      *          *19541.85  *13059.31  *
* E.G. Slope (ft/ft)     *0.000266  * Area (sq ft)           *          *19541.85  *13739.67  *
* Q Total (cfs)          *166000.00  * Flow (cfs)            *          *109228.50  *56771.53  *
* Top Width (ft)         * 2124.66  * Top Width (ft)        *          *  968.58  * 1156.08  *
* Vel Total (ft/s)       *    5.09  * Avg. Vel. (ft/s)      *          *    5.59  *    4.35  *
* Max Chl Dpth (ft)      *   29.28  * Hydr. Depth (ft)      *          *   20.18  *   15.91  *
* Conv. Total (cfs)      *10178590.0  * Conv. (cfs)          *          *6697541.0  *3481049.0  *
* Length Wtd. (ft)       *  502.29  * Wetted Per. (ft)      *          *  974.56  *  830.09  *
* Min Ch El (ft)         * 1002.93  * Shear (lb/sq ft)      *          *    0.33  *    0.26  *
* Alpha                  *    1.04  * Stream Power (lb/ft s) *          *    1.86  *    1.14  *
* Frctn Loss (ft)        *    0.21  * Cum Volume (acre-ft)  * 6850.89  *26445.88  * 2576.39  *
* C & E Loss (ft)        *    0.04  * Cum SA (acres)        * 1895.60  * 2664.57  *  867.81  *
*********************************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************************
* E.G. Elev (ft)         * 1032.64  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.42  * Wt. n-Val.             *          *    0.032  *    0.035  *
* W.S. Elev (ft)         * 1032.22  * Reach Len. (ft)        *  497.00  *  500.22  *  505.00  *
* Crit W.S. (ft)         * 1018.56  * Flow Area (sq ft)      *          *19548.59  *12851.76  *
* E.G. Slope (ft/ft)     *0.000269  * Area (sq ft)           *          *19548.59  *12851.76  *
* Q Total (cfs)          *166000.00  * Flow (cfs)            *          *109807.40  *56192.58  *
* Top Width (ft)         * 1764.08  * Top Width (ft)        *          *  968.62  *  795.46  *
* Vel Total (ft/s)       *    5.12  * Avg. Vel. (ft/s)      *          *    5.62  *    4.37  *
* Max Chl Dpth (ft)      *   29.29  * Hydr. Depth (ft)      *          *   20.18  *   16.16  *
* Conv. Total (cfs)      *10130470.0  * Conv. (cfs)          *          *6701207.0  *3429259.0  *
* Length Wtd. (ft)       *  502.28  * Wetted Per. (ft)      *          *  974.60  *  815.64  *
* Min Ch El (ft)         * 1002.93  * Shear (lb/sq ft)      *          *    0.34  *    0.26  *
* Alpha                  *    1.04  * Stream Power (lb/ft s) *          *    1.89  *    1.15  *
* Frctn Loss (ft)        *    0.21  * Cum Volume (acre-ft)  * 1196.17  *27368.86  *  979.87  *
* C & E Loss (ft)        *    0.05  * Cum SA (acres)        *  201.64  * 2668.38  *  133.09  *
*********************************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                  RS: 209.69

INPUT
Description: 209.69 - FEMA Section W
Cross Section updated per TranSystems
            Corporation Mapping (2004)
Station Elevation Data    num=      79
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
*********************************************************************************
 18475.3  1036.618501.27 1037.0118555.73  1037.118604.16 1037.9418693.61 1037.91
18713.08 1036.4218856.56 1035.7218924.19  1035.419013.81 1034.4219062.29 1034.42
19100.44 1035.66 19147.2 1036.5619175.29  1037.619244.67 1036.2819338.84 1035.73
19385.14  1036.219430.61 1036.2719492.43  1036.219500.27 1032.79 19507.8 1027.51
 19516.1 1022.71 19518.8    102019525.43 1018.8219559.45 1018.4119579.01  1020.7
19621.14 1023.7319647.77 1025.9119673.24 1024.8619715.23 1027.0919785.34 1030.41
19832.97  1032.119857.65 1032.3420024.37 1032.0320044.93  1031.820057.41 1025.71
```

```
20124.81 1017.2620165.14 1016.7620174.99 1015.7520227.11  1009.820264.95 1007.86
20292.56 1005.59 20344.4 1004.3120389.19 1005.67 20433.3  1007.520470.15 1013.38
20529.15 1027.9420538.92 1033.7520544.22  1035.720556.02 1035.8420597.43 1035.25
20618.65 1034.6320650.09 1033.9320675.14 1032.8920717.21 1028.8520759.34 1012.69
20783.68 1011.2320826.54 1010.7920883.72    101020927.19    1010 20970.1  1010.8
21003.47 1012.1821026.39  1012.221067.57 1011.8321088.59 1011.0421156.18 1011.13
21184.27 1012.4221260.74  1013.421277.81 1014.2321288.47 1017.7721318.41  1032.5
21333.74 1037.4721358.95 1037.3821378.51 1036.7921388.27 1032.1321400.68 1029.23
21526.41 1028.1621751.75 1029.4921809.86 1031.0421871.59    1032

Manning's n Values         num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*****************************************************************
 18475.3    .03719492.43    .03220544.22    .03521333.74    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      19492.4320544.22              540   544.5     549            .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
21357.9221871.59    1050       F

CROSS SECTION OUTPUT  Profile #PF#1
*************************************************************************************************
* E.G. Elev (ft)         * 1032.38  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.86  * Wt. n-Val.            *          *   0.032  *   0.035  *
* W.S. Elev (ft)         * 1031.51  * Reach Len. (ft)       *  540.00  *  544.50  *  549.00  *
* Crit W.S. (ft)         * 1021.24  * Flow Area (sq ft)     *          *11072.41  *11246.77  *
* E.G. Slope (ft/ft)     *0.000722  * Area (sq ft)          *          *11072.41  *12298.17  *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *          *78727.09  *87272.90  *
* Top Width (ft)         * 1880.40  * Top Width (ft)        *          *  804.01  * 1076.38  *
* Vel Total (ft/s)       *    7.44  * Avg. Vel. (ft/s)      *          *    7.11  *    7.76  *
* Max Chl Dpth (ft)      *   27.20  * Hydr. Depth (ft)      *          *   13.77  *   17.94  *
* Conv. Total (cfs)      *6177526.0  * Conv. (cfs)          *          *2929751.0  *3247775.0  *
* Length Wtd. (ft)       *  545.76  * Wetted Per. (ft)      *          *  814.01  *  633.99  *
* Min Ch El (ft)         * 1004.31  * Shear (lb/sq ft)     *          *    0.61  *    0.80  *
* Alpha                  *    1.01  * Stream Power (lb/ft s) *         *    4.36  *    6.21  *
* Frctn Loss (ft)        *    0.55  * Cum Volume (acre-ft)  * 6850.89  *26270.10  * 2425.46  *
* C & E Loss (ft)        *    0.05  * Cum SA (acres)        * 1895.60  * 2654.39  *  854.86  *
*************************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*************************************************************************************************
* E.G. Elev (ft)         * 1032.39  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.88  * Wt. n-Val.            *          *   0.032  *   0.035  *
* W.S. Elev (ft)         * 1031.51  * Reach Len. (ft)       *  540.00  *  544.50  *  549.00  *
* Crit W.S. (ft)         * 1021.24  * Flow Area (sq ft)     *          *11070.94  *11111.93  *
* E.G. Slope (ft/ft)     *0.000726  * Area (sq ft)          *          *11070.94  *11111.93  *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *          *78912.16  *87087.84  *
* Top Width (ft)         * 1407.56  * Top Width (ft)        *          *  803.96  *  603.60  *
* Vel Total (ft/s)       *    7.48  * Avg. Vel. (ft/s)      *          *    7.13  *    7.84  *
* Max Chl Dpth (ft)      *   27.20  * Hydr. Depth (ft)      *          *   13.77  *   18.41  *
* Conv. Total (cfs)      *6161978.0  * Conv. (cfs)          *          *2929247.0  *3232731.0  *
* Length Wtd. (ft)       *  545.75  * Wetted Per. (ft)      *          *  813.95  *  619.46  *
* Min Ch El (ft)         * 1004.31  * Shear (lb/sq ft)     *          *    0.62  *    0.81  *
* Alpha                  *    1.01  * Stream Power (lb/ft s) *         *    4.39  *    6.37  *
* Frctn Loss (ft)        *    0.55  * Cum Volume (acre-ft)  * 1196.17  *27193.05  *  840.96  *
* C & E Loss (ft)        *    0.05  * Cum SA (acres)        *  201.64  * 2658.21  *  124.98  *
*************************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 209.60

INPUT
Description: 209.60
Station Elevation Data     num=     103
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
*********************************************************************************
 18469.5  1035.118499.81 1035.4518559.67 1037.3418591.52 1038.2418643.68  1038.5
18795.86 1037.0418875.18 1036.7119045.39 1035.2919104.09  1034.619184.46 1034.61
19241.49    103619320.94 1036.4219351.39  1036.419388.64 1035.9819416.69 1035.11
19429.98 1033.1319471.58 1028.0619506.16 1024.95 19531.1 1030.1819540.55 1031.27
 19554.2 1031.0219576.25  1027.219593.08  1024.619610.96 1023.5919664.92 1025.06
19722.19 1026.7419812.88  1027.319864.15 1024.68 19888.8 1025.72 19905.8 1024.69
19924.74 1023.4519973.61 1018.8519986.32 1017.8420020.82  1019.4 20032.5 1019.33
20060.41 1017.1920081.88 1017.2420092.63  1018.120119.51 1018.37 20136.7 1017.34
20181.06    101320241.08  1008.820254.81 1008.0320302.31 1005.6920331.32 1004.82
20426.49 1004.1520474.77 1004.7320497.48  1007.2 20528.8  1010.620578.52 1015.51
20631.21    102220647.07 1025.2720688.78 1026.3620707.93 1024.4220716.24 1020.28
20760.34 1021.4420782.28  1022.720841.16 1022.3420849.67 1020.3920863.94 1020.61
20877.59  1022.220887.46 1024.32 20902.3 1026.58 20925.4 1027.9120969.67 1029.89
20982.58 1026.8121001.53 1023.5821047.39  1015.521064.47 1014.4421160.64 1016.23
21172.28  1016.821181.95 1020.3821191.77 1025.0321226.86 1023.8621235.74 1027.53
21241.41 1032.1121251.88 1033.1421283.45 1031.0521310.96 1033.7321325.88  1035.7
21333.44 1037.35 21354.6  1037.421364.61 1038.03 21378.8 1033.6621390.24  1030.9
21401.57 1030.0221435.67  1030.121498.83 1030.5421556.27 1030.4421581.41 1030.24
21625.21 1029.2621637.41  1029.521660.06 1030.9121675.31 1031.3121692.85    1031
21703.66 1030.2421734.86 1028.1821744.79  1028.221781.34 1029.8421995.82 1030.48
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22010.96 1031.1822022.88 1035.26 22038 1035.6

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
18469.5	.03719388.64	.03220254.81	.03220969.67	.03521364.61	.025				

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19540.5520969.67 243 288.7 318 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
18469.519104.09		1040	F
21064.47	22038	1040	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 1031.78	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 1.38	* Wt. n-Val.	* 0.032	* 0.032	* 0.035 *
* W.S. Elev (ft)	* 1030.41	* Reach Len. (ft)	* 243.00	* 288.70	* 318.00 *
* Crit W.S. (ft)	* 1024.57	* Flow Area (sq ft)	* 228.46	*16693.83	* 887.16 *
* E.G. Slope (ft/ft)	*0.001473	* Area (sq ft)	* 228.46	*16693.83	* 3176.46 *
* Q Total (cfs)	*166000.00	* Flow (cfs)	* 809.23	*158832.20	* 6358.61 *
* Top Width (ft)	* 2205.70	* Top Width (ft)	* 80.71	* 1411.92	* 713.07 *
* Vel Total (ft/s)	* 9.32	* Avg. Vel. (ft/s)	* 3.54	* 9.51	* 7.17 *
* Max Chl Dpth (ft)	* 26.25	* Hydr. Depth (ft)	* 2.83	* 11.82	* 9.36 *
* Conv. Total (cfs)	*4324798.0	* Conv. (cfs)	* 21082.9	*4138054.0	*165661.0 *
* Length Wtd. (ft)	* 289.15	* Wetted Per. (ft)	* 81.55	* 1416.75	* 96.18 *
* Min Ch El (ft)	* 1004.15	* Shear (lb/sq ft)	* 0.26	* 1.08	* 0.85 *
* Alpha	* 1.02	* Stream Power (lb/ft s)	* 0.91	* 10.31	* 6.08 *
* Frctn Loss (ft)	* 0.32	* Cum Volume (acre-ft)	* 6849.47	*26096.56	* 2327.95 *
* C & E Loss (ft)	* 0.04	* Cum SA (acres)	* 1895.10	* 2640.54	* 843.59 *

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 1031.79	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 1.38	* Wt. n-Val.	* 0.032	* 0.032	* 0.035 *
* W.S. Elev (ft)	* 1030.41	* Reach Len. (ft)	* 243.00	* 288.70	* 318.00 *
* Crit W.S. (ft)	* 1024.59	* Flow Area (sq ft)	* 226.96	*16693.83	* 887.16 *
* E.G. Slope (ft/ft)	*0.001484	* Area (sq ft)	* 226.96	*16693.83	* 887.16 *
* Q Total (cfs)	*166000.00	* Flow (cfs)	* 833.52	*159405.90	* 5760.54 *
* Top Width (ft)	* 1582.46	* Top Width (ft)	* 75.74	* 1411.92	* 94.80 *
* Vel Total (ft/s)	* 9.32	* Avg. Vel. (ft/s)	* 3.67	* 9.55	* 6.49 *
* Max Chl Dpth (ft)	* 26.25	* Hydr. Depth (ft)	* 3.00	* 11.82	* 9.36 *
* Conv. Total (cfs)	*4309231.0	* Conv. (cfs)	* 21637.6	*4138054.0	*149539.2 *
* Length Wtd. (ft)	* 289.09	* Wetted Per. (ft)	* 77.14	* 1416.75	* 112.14 *
* Min Ch El (ft)	* 1004.15	* Shear (lb/sq ft)	* 0.27	* 1.09	* 0.73 *
* Alpha	* 1.03	* Stream Power (lb/ft s)	* 1.00	* 10.42	* 4.76 *
* Frctn Loss (ft)	* 0.32	* Cum Volume (acre-ft)	* 1194.76	*27019.52	* 765.35 *
* C & E Loss (ft)	* 0.04	* Cum SA (acres)	* 201.17	* 2644.36	* 120.58 *

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 209.54

INPUT
Description: 209.54
Station Elevation Data num= 64

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18830.2	1036.718846.47	1036.66	18879.5	1036.8318897.96	1036.85	18920.8	1036.7		
18981.04	1035.9519020.45	1035.78	19054.3	1035.919066.48	1036.519079.96	1037.02			
19096.25	1037.719128.81	1038.6219162.01	1039.2619189.37	1039.6919223.34	1040.15				
19254.25	1040.5919299.11	1040.9219330.55	1041.319351.87	1041.619380.04	1041.8				
19400.92	1041.8919471.75	1042.04	19476	1029.5819484.73	1025.6319493.22	1022.25			
19499.21	1020.619527.23	1020.1619563.46	1020.0419837.52	1019.7619907.24	1019.3				
19944.91	1019.1119959.55	1018.2319976.64	1017.119988.84	1016.1320005.93	1014.76				
20023.01	1013.7120054.74	1007.6620127.96	1004.5220206.07	1004.4420252.44	1004.27				
20334.23	1004.47 20435.5	1004.5220486.75	1004.9220506.28	1009.3520520.92	1013.31				
20520.92	1014.7620528.24	1016.6120549.63	1023.72 20554.8	1024.9520567.95	1029.34				
20571.66	1029.920587.11	1038.7120594.25	1042.1820699.28	1041.58 20806.1	1041.01				
20881.51	1040.31 20963.2	1039.4821070.02	1038.8421167.41	1037.6921220.83	1037.5				
21343.36	1036.8621409.34	1036.3521475.31	1036.121522.44	1035.78					

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
18830.2	.02519471.75	.03220594.25	.037		

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19471.7520594.25 114 116.26 106 .3 .5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
18830.2	19471.8	1045	F
2059421522.44		1045	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 1031.42	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 1.25	* Wt. n-Val.	*	* 0.032	* *
* W.S. Elev (ft)	* 1030.18	* Reach Len. (ft)	* 24.00	* 24.00	* 24.00 *
* Crit W.S. (ft)	* 1021.90	* Flow Area (sq ft)	*	*18530.88	* *
* E.G. Slope (ft/ft)	*0.000866	* Area (sq ft)	*	*18530.88	* *
* Q Total (cfs)	*166000.00	* Flow (cfs)	*	*166000.00	* *
* Top Width (ft)	* 1096.35	* Top Width (ft)	*	* 1096.35	* *

Vel Total (ft/s)	8.96	Avg. Vel. (ft/s)		8.96		
Max Chl Dpth (ft)	25.91	Hydr. Depth (ft)		16.90		
Conv. Total (cfs)	5640504.0	Conv. (cfs)		5640504.0		
Length Wtd. (ft)	24.00	Wetted Per. (ft)		1104.16		
Min Ch El (ft)	1004.27	Shear (lb/sq ft)		0.91		
Alpha	1.00	Stream Power (lb/ft s)		8.13		
Frctn Loss (ft)		Cum Volume (acre-ft)	6848.83	25979.83	2316.35	
C & E Loss (ft)		Cum SA (acres)	1894.88	2632.23	840.99	

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #PF#2

			Left OB	Channel	Right OB
E.G. Elev (ft)	1031.43	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.25	Wt. n-Val.		0.032	
W.S. Elev (ft)	1030.18	Reach Len. (ft)	24.00	24.00	24.00
Crit W.S. (ft)	1021.90	Flow Area (sq ft)		18535.69	
E.G. Slope (ft/ft)	0.000865	Area (sq ft)		18535.69	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	1096.36	Top Width (ft)		1096.36	
Vel Total (ft/s)	8.96	Avg. Vel. (ft/s)		8.96	
Max Chl Dpth (ft)	25.91	Hydr. Depth (ft)		16.91	
Conv. Total (cfs)	5642901.0	Conv. (cfs)		5642901.0	
Length Wtd. (ft)	24.00	Wetted Per. (ft)		1104.17	
Min Ch El (ft)	1004.27	Shear (lb/sq ft)		0.91	
Alpha	1.00	Stream Power (lb/ft s)		8.12	
Frctn Loss (ft)		Cum Volume (acre-ft)	1194.13	26902.78	762.11
C & E Loss (ft)		Cum SA (acres)	200.96	2636.04	120.23

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

BRIDGE

RIVER: 1
REACH: 1 RS: 209.535

INPUT
Description: 35th Ave - modified bridge per TranSystems plans;
Used Interim
Finished grade per plans; the pier widths were doubled (plans=5ft; model=10ft) in order to model the debris accumulation.
Distance from Upstream XS = 24
Deck/Roadway Width = 91
Weir Coefficient = 2.6
Upstream Deck/Roadway Coordinates
num= 12

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
19471.75	1042.04	103519496.41	1043.19	103519615.66	1044.42	1035		
19737.91	1045.34	103519860.16	1045.94	103519982.41	1046.22	1035		
20104.66	1046.19	103520226.91	1045.85	103520349.16	1045.19	1035		
20471.41	1044.21	103520590.29	1042.87	103520703.53	1040.09	1035		

Upstream Bridge Cross Section Data
Station Elevation Data num= 64

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18830.2	1036.718846.47	1036.66	18879.5	1036.8318897.96	1036.85	18920.8	1036.7		
18981.04	1035.9519020.45	1035.78	19054.3	1035.919066.48	1036.519079.96	1037.02			
19096.25	1037.719128.81	1038.6219162.01	1039.2619189.37	1039.6919223.34	1040.15				
19254.25	1040.5919299.11	1040.9219330.55	1041.319351.87	1041.619380.04	1041.8				
19400.92	1041.8919471.75	1042.04	19476	1029.5819484.73	1025.6319493.22	1022.25			
19499.21	1020.619527.23	1020.1619563.46	1020.0419837.52	1019.7619907.24	1019.3				
19944.91	1019.1119959.55	1018.2319976.64	1017.119988.84	1016.1320005.93	1014.76				
20023.01	1013.7120054.74	1007.6620127.96	1004.5220206.07	1004.4420252.44	1004.27				
20334.23	1004.47 20435.5	1004.5220486.75	1004.9220506.28	1009.3520520.92	1013.31				
20520.92	1014.7620528.24	1016.6120549.63	1023.72 20554.8	1024.9520567.95	1029.34				
20571.66	1029.920587.11	1038.7120594.25	1042.1820699.28	1041.58 20806.1	1041.01				
20881.51	1040.31 20963.2	1039.4821070.02	1038.8421167.41	1037.6921220.83	1037.5				
21343.36	1036.8621409.34	1036.3521475.31	1036.121522.44	1035.78					

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
18830.2	.02519471.75	.03220594.25	.037		

Bank Sta: Left Right Coeff Contr. Expan.
19471.7520594.25 .3 .5
Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
18830.2	19471.8	1045	F
2059421522.44		1045	F

Downstream Deck/Roadway Coordinates
num= 12

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
19471.75	1042.04	103519496.41	1043.19	103519615.66	1044.42	1035		
19737.91	1045.34	103519860.16	1045.94	103519982.41	1046.22	1035		
20104.66	1046.19	103520226.91	1045.85	103520349.16	1045.19	1035		
20471.41	1044.21	103520590.29	1042.87	103520703.53	1040.09	1035		

Downstream Bridge Cross Section Data
Station Elevation Data num= 64

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18830.2	1036.718846.47	1036.66	18879.5	1036.8318897.96	1036.85	18920.8	1036.7		
18981.04	1035.9519020.45	1035.78	19054.3	1035.919066.48	1036.519079.96	1037.02			
19096.25	1037.719128.81	1038.6219162.01	1039.2619189.37	1039.6919223.34	1040.15				
19254.25	1040.5919299.11	1040.9219330.55	1041.319351.87	1041.619380.04	1041.8				
19400.92	1041.8919471.75	1042.04	19476	1029.5819484.73	1025.6319493.22	1022.25			

19499.21 1020.619527.23 1020.1619563.46 1020.0419837.52 1019.7619907.24 1019.3
19944.91 1019.1119959.55 1018.2319976.64 1017.119988.84 1016.1320005.93 1014.76
20023.01 1013.7120054.74 1007.6620127.96 1004.5220206.07 1004.4420252.44 1004.27
20334.23 1004.47 20435.5 1004.5220486.75 1004.9220506.28 1009.3520520.92 1013.31
20520.92 1014.7620528.24 1016.6120549.63 1023.72 20554.8 1024.9520567.95 1029.34
20571.66 1029.920587.11 1038.7120594.25 1042.1820699.28 1041.58 20806.1 1041.01
20881.51 1040.31 20963.2 1039.4821070.02 1038.8421167.41 1037.6921220.83 1037.5
21343.36 1036.8621409.34 1036.3521475.31 1036.121522.44 1035.78

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
****
18830.2 .02519471.75 .03220594.25 .037

Bank Sta: Left Right Coeff Contr. Expan.
19471.7520594.25 .3 .5
Ineffective Flow num= 2
Sta L Sta R Elev Permanent
18830.2 19471.8 1045 F
2059421522.44 1045 F

Upstream Embankment side slope = 0 horiz. to 1.0 vertical
Downstream Embankment side slope = 0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .95
Elevation at which weir flow begins =
Energy head used in spillway design =
Spillway height used in design =
Weir crest shape = Broad Crested

Number of Piers = 8

Pier Data
Pier Station Upstream=19615.66 Downstream=19615.66
Upstream num= 2
Width Elev Width Elev
****
10 990 10 1040
Downstream num= 2
Width Elev Width Elev
****
10 990 10 1040

Pier Data
Pier Station Upstream=19737.91 Downstream=19737.91
Upstream num= 2
Width Elev Width Elev
****
10 990 10 1040
Downstream num= 2
Width Elev Width Elev
****
10 990 10 1040

Pier Data
Pier Station Upstream=19860.16 Downstream=19860.16
Upstream num= 2
Width Elev Width Elev
****
10 990 10 1040
Downstream num= 2
Width Elev Width Elev
****
10 990 10 1040

Pier Data
Pier Station Upstream=19982.41 Downstream=19982.41
Upstream num= 2
Width Elev Width Elev
****
10 990 10 1040
Downstream num= 2
Width Elev Width Elev
****
10 990 10 1040

Pier Data
Pier Station Upstream=20104.66 Downstream=20104.66
Upstream num= 2
Width Elev Width Elev
****
10 990 10 1040
Downstream num= 2
Width Elev Width Elev
****
10 990 10 1040

Pier Data
Pier Station Upstream=20226.91 Downstream=20226.91
Upstream num= 2
Width Elev Width Elev
****
10 990 10 1040
Downstream num= 2
Width Elev Width Elev
****
10 990 10 1040

Pier Data
Pier Station Upstream=20349.16 Downstream=20349.16
Upstream num= 2
Width Elev Width Elev
****
10 990 10 1040
Downstream num= 2
Width Elev Width Elev
****

```
      10     990      10    1040

Pier Data
Pier Station     Upstream=20471.41    Downstream=20471.41
Upstream     num=        2
    Width   Elev    Width   Elev
*********************************
      10     990      10    1040
Downstream     num=        2
    Width   Elev    Width   Elev
*********************************
      10     990      10    1040

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
       Momentum                Cd   =     1.2
Selected Low Flow Methods = Momentum

High Flow Method
       Pressure and Weir flow
           Submerged Inlet Cd          =
           Submerged Inlet + Outlet Cd =       .8
           Max Low Cord                =    1035

Additional Bridge Parameters
       Add Friction component to Momentum
       Do not add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT  Profile #PF#1
*************************************************************************************************
* E.G. US. (ft)           *    1031.42  * Element                *Inside BR US *Inside BR DS *
* W.S. US. (ft)           *    1030.18  * E.G. Elev (ft)         *    1031.29  *    1031.14  *
* Q Total (cfs)           *  166000.00  * W.S. Elev (ft)         *    1029.74  *    1029.56  *
* Q Bridge (cfs)          *  166000.00  * Crit W.S. (ft)         *    1022.50  *    1022.50  *
* Q Weir (cfs)            *             * Max Chl Dpth (ft)      *      25.47  *      25.29  *
* Weir Sta Lft (ft)       *             * Vel Total (ft/s)       *       9.98  *      10.09  *
* Weir Sta Rgt (ft)       *             * Flow Area (sq ft)      *   16627.97  *   16446.63  *
* Weir Submerg            *             * Froude # Chl           *       0.43  *       0.44  *
* Weir Max Depth (ft)     *             * Specif Force (cu ft)   *  216156.60  *  213766.60  *
* Min El Weir Flow (ft)   *    1042.05  * Hydr Depth (ft)        *      16.39  *      16.23  *
* Min El Prs (ft)         *    1035.00  * W.P. Total (ft)        *    1307.36  *    1303.09  *
* Delta EG (ft)           *       0.29  * Conv. Total (cfs)      *  4207075.0  *  4139909.0  *
* Delta WS (ft)           *       0.34  * Top Width (ft)         *    1014.66  *    1013.38  *
* BR Open Area (sq ft)    *   21997.33  * Frctn Loss (ft)        *             *             *
* BR Open Vel (ft/s)      *      10.09  * C & E Loss (ft)        *             *             *
* Coef of Q               *             * Shear Total (lb/sq ft) *       1.24  *       1.27  *
* Br Sel Method           *   Momentum  * Power Total (lb/ft s)  *      12.34  *      12.79  *
*************************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

BRIDGE OUTPUT  Profile #PF#2
*************************************************************************************************
* E.G. US. (ft)           *    1031.43  * Element                *Inside BR US *Inside BR DS *
* W.S. US. (ft)           *    1030.18  * E.G. Elev (ft)         *    1031.29  *    1031.15  *
* Q Total (cfs)           *  166000.00  * W.S. Elev (ft)         *    1029.75  *    1029.57  *
* Q Bridge (cfs)          *  166000.00  * Crit W.S. (ft)         *    1022.50  *    1022.50  *
* Q Weir (cfs)            *             * Max Chl Dpth (ft)      *      25.48  *      25.30  *
* Weir Sta Lft (ft)       *             * Vel Total (ft/s)       *       9.98  *      10.09  *
* Weir Sta Rgt (ft)       *             * Flow Area (sq ft)      *   16632.80  *   16451.70  *
* Weir Submerg            *             * Froude # Chl           *       0.43  *       0.44  *
* Weir Max Depth (ft)     *             * Specif Force (cu ft)   *  216220.80  *  213832.90  *
* Min El Weir Flow (ft)   *    1042.05  * Hydr Depth (ft)        *      16.39  *      16.23  *
* Min El Prs (ft)         *    1035.00  * W.P. Total (ft)        *    1307.48  *    1303.21  *
* Delta EG (ft)           *       0.29  * Conv. Total (cfs)      *  4208869.0  *  4141772.0  *
* Delta WS (ft)           *       0.34  * Top Width (ft)         *    1014.69  *    1013.42  *
* BR Open Area (sq ft)    *   21997.33  * Frctn Loss (ft)        *             *             *
* BR Open Vel (ft/s)      *      10.09  * C & E Loss (ft)        *             *             *
* Coef of Q               *             * Shear Total (lb/sq ft) *       1.24  *       1.27  *
* Br Sel Method           *   Momentum  * Power Total (lb/ft s)  *      12.33  *      12.77  *
*************************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 209.53

INPUT
Description: 209.53
Station Elevation Data    num=      64
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
*************************************************************************************
 18830.2  1036.718846.47 1036.66 18879.5 1036.8318897.96 1036.85 18920.8  1036.7
18981.04 1035.9519020.45 1035.78 19054.3  1035.919066.48  1036.519079.96 1037.02
19096.25  1037.719128.81 1038.6219162.01 1039.2619189.37 1039.6919223.34 1040.15
19254.25 1040.5919299.11 1040.9219330.55  1041.319351.87  1041.619380.04  1041.8
19400.92 1041.8919471.75 1042.04   19476 1029.5819484.73 1025.6319493.22 1022.25
19499.21  1020.619527.23 1020.1619563.46 1020.0419837.52 1019.7619907.24  1019.3
19944.91 1019.1119959.55 1018.2319976.64  1017.119988.84 1016.1320005.93 1014.76
20023.01 1013.7120054.74 1007.6620127.96 1004.5220206.07 1004.4420252.44 1004.27
20334.23 1004.47 20435.5 1004.5220486.75 1004.9220506.28 1009.3520520.92 1013.31
20520.92 1014.7620528.24 1016.6120549.63 1023.72 20554.8 1024.9520567.95 1029.34
```

20571.66 1029.920587.11 1038.7120594.25 1042.1820699.28 1041.58 20806.1 1041.01
20881.51 1040.31 20963.2 1039.4821070.02 1038.8421167.41 1037.6921220.83 1037.5
21343.36 1036.8621409.34 1036.3521475.31 1036.121522.44 1035.78

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
18830.2	.02519471.75	.03220594.25	.037		

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19471.7520594.25 615 589.4 627 .3 .5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
18830.2	19471.8	1045	F
2059421522.44		1045	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1031.13	Element	Left OB	Channel / Right OB
Vel Head (ft)	1.30	Wt. n-Val.		0.032 /
W.S. Elev (ft)	1029.83	Reach Len. (ft)	615.00	589.40 / 627.00
Crit W.S. (ft)	1021.90	Flow Area (sq ft)		18154.68 /
E.G. Slope (ft/ft)	0.000926	Area (sq ft)		18154.68 /
Q Total (cfs)	166000.00	Flow (cfs)		166000.00 /
Top Width (ft)	1095.30	Top Width (ft)		1095.30 /
Vel Total (ft/s)	9.14	Avg. Vel. (ft/s)		9.14 /
Max Chl Dpth (ft)	25.56	Hydr. Depth (ft)		16.58 /
Conv. Total (cfs)	5455480.0	Conv. (cfs)		5455480.0 /
Length Wtd. (ft)	589.40	Wetted Per. (ft)		1102.78 /
Min Ch El (ft)	1004.27	Shear (lb/sq ft)		0.95 /
Alpha	1.00	Stream Power (lb/ft s)		8.70 /
Frctn Loss (ft)	0.67	Cum Volume (acre-ft)	6848.83	25935.10 / 2316.35
C & E Loss (ft)	0.06	Cum SA (acres)	1894.88	2629.50 / 840.99

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1031.13	Element	Left OB	Channel / Right OB
Vel Head (ft)	1.30	Wt. n-Val.		0.032 /
W.S. Elev (ft)	1029.84	Reach Len. (ft)	615.00	589.40 / 627.00
Crit W.S. (ft)	1021.90	Flow Area (sq ft)		18160.03 /
E.G. Slope (ft/ft)	0.000925	Area (sq ft)		18160.03 /
Q Total (cfs)	166000.00	Flow (cfs)		166000.00 /
Top Width (ft)	1095.33	Top Width (ft)		1095.33 /
Vel Total (ft/s)	9.14	Avg. Vel. (ft/s)		9.14 /
Max Chl Dpth (ft)	25.57	Hydr. Depth (ft)		16.58 /
Conv. Total (cfs)	5458030.0	Conv. (cfs)		5458030.0 /
Length Wtd. (ft)	589.40	Wetted Per. (ft)		1102.82 /
Min Ch El (ft)	1004.27	Shear (lb/sq ft)		0.95 /
Alpha	1.00	Stream Power (lb/ft s)		8.69 /
Frctn Loss (ft)	0.67	Cum Volume (acre-ft)	1194.13	26858.03 / 762.11
C & E Loss (ft)	0.06	Cum SA (acres)	200.96	2633.31 / 120.23

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 209.42

INPUT
Description: 209.42
Station Elevation Data num= 117

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18066.3	1035.2	18092.5	1034.718174.13		1034.618232.22		1034.7518374.28		1034.76
18519.36	103518614.36		1034.6418643.67		1034.5418708.46		1034.118735.86		1034.9
18757.05	1035.3618816.34		1035.6218857.04		1035.6919001.96		1035.2819017.56		1034.59
19031.34	1033.4219044.82		103019075.88		1027.319098.95		1024.1519123.26		1035.21
19142.22	1034.819153.41		1033.6619175.69		1033.0419229.76		1032.9219270.26		1032.96
19318.56	1033.2219344.15		1031.8819356.56		1026.1619373.86		1022.6419393.04		1022
19428.02	1022.119463.74		1022.2719519.23		1021.07 19565.1		1021.719573.94		1022.35
19613.08	1022.7919626.02		1021.919630.14		1022.4119670.75		1023.0719686.66		1022.67
19771.52	1022.619783.71		1024.7219795.37		1024.6119808.15		1021.7219887.54		1023
19978.34	1021.89	20024	1019.6620043.24		1015.9520079.12		1012.220127.13		1009.85
20197.83	1007.6	20239.6	1006.7820318.19		998.9120334.72		998.4420358.65		999.18
20442.82	1004.220493.17		1007.2720559.67		1012.3920578.47		1015.2620600.01		1023.23
20610.47	1029.5820635.94		1031.1720643.41		1036.7820653.39		104320663.79		1044.4
20706.16	1043.36	20730.5	1041.37 20742.8		1040.7820782.21		1041.6920812.94		1042.18
20850.74	1041.2	20869.7	1042.6620877.68		1041.04 20890.4		1033.520897.41		1030.52
20907.67	1029.5420917.26		1029.520920.08		1031.4520940.19		1031.920959.31		1031.64
21075.63	1032.0921217.55		1032.321336.33		1032.721395.05		1032.3721464.28		1030.89
21504.38	1030.421565.16		1030.2321615.46		1029.79 21661.1		1028.9521714.94		1029.2
21753.32	1028.621780.93		1030.96 21834.5		1029.8321868.92		1030.5821937.71		1032.32
21987.07	1032.1822098.03		1030.822124.72		1030.722241.07		1032.7922289.03		1032.75
22341.52	1030.9522372.56		1030.47 22400.6		1030.4722442.55		1031.0522532.24		1030.58
22582.04	1030.522661.25		1030.7122731.42		1032.1822738.15		1031.5922744.66		1028.33
22751.2	1028.3322764.51		1032.1822773.18		1033.922782.89		1034.722830.05		1035.87
22909.02	1035.7122931.75		1036.02						

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val
18066.3	.03719318.56	.03220663.79	.032 20869.7	.025	

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19318.5620610.47 501 486.04 526 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
18066.3	19123.26	1050	F

20663.7922931.75 1050 F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1030.40	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.51	Wt. n-Val.		0.032	
W.S. Elev (ft)	1028.88	Reach Len. (ft)	501.00	486.04	526.00
Crit W.S. (ft)	1023.49	Flow Area (sq ft)		16825.82	
E.G. Slope (ft/ft)	0.001432	Area (sq ft)	111.93	16825.82	7.51
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	1341.42	Top Width (ft)	51.70	1258.67	31.05
Vel Total (ft/s)	9.87	Avg. Vel. (ft/s)		9.87	
Max Chl Dpth (ft)	30.44	Hydr. Depth (ft)		13.37	
Conv. Total (cfs)	4385964.0	Conv. (cfs)		4385964.0	
Length Wtd. (ft)	486.04	Wetted Per. (ft)		1265.06	
Min Ch El (ft)	998.44	Shear (lb/sq ft)		1.19	
Alpha	1.00	Stream Power (lb/ft s)		11.73	
Frctn Loss (ft)	0.54	Cum Volume (acre-ft)	6848.04	25698.44	2316.30
C & E Loss (ft)	0.17	Cum SA (acres)	1894.51	2613.57	840.76

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1030.40	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.51	Wt. n-Val.		0.032	
W.S. Elev (ft)	1028.89	Reach Len. (ft)	501.00	486.04	526.00
Crit W.S. (ft)	1023.49	Flow Area (sq ft)		16834.28	
E.G. Slope (ft/ft)	0.001430	Area (sq ft)		16834.28	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	1258.70	Top Width (ft)		1258.70	
Vel Total (ft/s)	9.86	Avg. Vel. (ft/s)		9.86	
Max Chl Dpth (ft)	30.45	Hydr. Depth (ft)		13.37	
Conv. Total (cfs)	4389570.0	Conv. (cfs)		4389570.0	
Length Wtd. (ft)	486.04	Wetted Per. (ft)		1265.09	
Min Ch El (ft)	998.44	Shear (lb/sq ft)		1.19	
Alpha	1.00	Stream Power (lb/ft s)		11.72	
Frctn Loss (ft)	0.54	Cum Volume (acre-ft)	1194.13	26621.28	762.11
C & E Loss (ft)	0.17	Cum SA (acres)	200.96	2617.39	120.23

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 209.33

INPUT
Description: 209.33 - FEMA Section V
Cross Section updated per TranSystems
Corporation Mapping (2004)
Station Elevation Data num= 133

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17896.2	1033.51	7958.97	1033.41	7986.14	1033.75	18112.66	1034.24	18857.57	1033.75
18270.44	1033.79	18305.44	1034.51	18345.72	1034.67	18423.99	1033.79	18435.53	1034.26
18503.15	1034.25	18553.69	1033.84	18565.35	1034.23	18681.1	1034.13	18703.77	1033.85
18754.95	1033.79	18813.08	1034.11	8832.57	1034.51	8965.64	1034.92	19086.19	1034.65
19114.67	103219	134.93	1026.84	19181.5	1024.97	19197.05	1026.43	19203.85	1024.41
19223.43	1024.11	9250.18	1022.71	9253.79	1023.21	9282.68	1020.55	19307.62	1017.4
19325.01	1017.3	19355.8	1018.86	19365.9	1018.62	19378.8	1021.91	9409.32	1019.5
19428.42	1019.88	19441.87	1021.31	9481.76	1021.17	19517.59	1021.62	19549.59	1021.3
19597.25	1020.3	19627.7	1020.09	19656.16	1020.54	19662.21	1021.32	19697.4	1023.1
19726.12	1023.81	9844.27	1023.24	19849.98	1026.21	9855.05	1023.41	19879.93	1022.23
19888.16	1023.45	19913.86	1022.82	19926.21	1024.91	9931.49	1022.42	19941.55	1025.12
19955.92	1021.41	19963.16	1022.12	0001.12	1016.37	20032.8	1013.86	20059.79	1013.33
20098.45	1013.73	20128.52	1013.01	20166.76	1011.12	0221.81	1011.26	20263.13	1010.7
20270.95	1012.01	20280.71	1010.12	20297.89	1008.48	20309.88	1001.69	20317.32	999.24
20329.38	997.95	20387.71	995.12	0406.58	993.71	20444.15	994.91	20450.21	996.31
20481.01	997.63	20509.49	1000.22	0517.12	100420	538.38	1005.79	20573.28	1007.87
20610.33	1010.95	20679.1	1011.35	20688.91	1012.23	20695.14	1015.35	20715.31	1028.88
20723.94	1029.82	20732.61	1027.46	20742.95	1028.8	20757.3	1027.71	20801.95	1030.6
20907.29	1031.09	20920.3	1036.87	20934.7	1034.96	20949.59	1031.22	20960.05	1027.2
20990.79	1028.05	21001.98	1030.64	21022.93	1029.68	21027.18	1030.84	21082.45	1030.72
21158.66	1031.24	21353.12	1031.48	21455.4	1031.62	1531.07	1030.62	1626.53	1030.11
21653.83	1030.53	21823.49	1030.42	1871.63	1029.88	21878.34	1031.27	21890.58	1028.9
21942.99	1028.61	21959.1	1027.64	21991.93	1030.86	22030.2	103222	122.88	1032.6
22142.26	1031.53	22167.18	1031.95	22193.03	1031.37	22250.67	1031.73	22268.19	1031.1
22397.32	1031.21	22414.21	1030.72	2431.33	1027.22	2441.79	1026.42	2491.98	1026.69
22530.86	1027.33	22550.52	1031.19	22572.62	1031.32	2581.69	1028.33	2592.78	1028.33
22605.98	1035.82	2633.72	1034.85	22651.94	1034.85				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
17896.2	.03719086.19		.032	20920.3	.037

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19086.1920715.31 563 490.4 583 .1 .3
Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17896.218965.64		1040	F
20920.322651.94		1040	F

CROSS SECTION OUTPUT Profile #PF#1

Pre-Project

E.G. Elev (ft)	1029.68	Element	Left OB	Channel	Right OB	
Vel Head (ft)	0.95	Wt. n-Val.		0.032	0.032	
W.S. Elev (ft)	1028.74	Reach Len. (ft)	563.00	490.40	583.00	
Crit W.S. (ft)	1019.27	Flow Area (sq ft)		21260.87	24.32	
E.G. Slope (ft/ft)	0.000900	Area (sq ft)		21260.87	292.81	
Q Total (cfs)	166000.00	Flow (cfs)		165977.10	22.86	
Top Width (ft)	1846.34	Top Width (ft)		1587.61	258.73	
Vel Total (ft/s)	7.80	Avg. Vel. (ft/s)		7.81	0.94	
Max Chl Dpth (ft)	35.03	Hydr. Depth (ft)		13.39	0.55	
Conv. Total (cfs)	5534275.0	Conv. (cfs)		5533513.0	762.2	
Length Wtd. (ft)	514.29	Wetted Per. (ft)		1602.21	44.22	
Min Ch El (ft)	993.71	Shear (lb/sq ft)		0.75	0.03	
Alpha	1.00	Stream Power (lb/ft s)		5.82	0.03	
Frctn Loss (ft)	0.62	Cum Volume (acre-ft)	6847.40	25485.96	2314.49	
C & E Loss (ft)	0.04	Cum SA (acres)	1894.21	2597.69	839.01	

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1029.69	Element	Left OB	Channel	Right OB	
Vel Head (ft)	0.95	Wt. n-Val.		0.032		
W.S. Elev (ft)	1028.74	Reach Len. (ft)	563.00	490.40	583.00	
Crit W.S. (ft)	1019.27	Flow Area (sq ft)		21271.72		
E.G. Slope (ft/ft)	0.000898	Area (sq ft)		21271.72		
Q Total (cfs)	166000.00	Flow (cfs)		166000.00		
Top Width (ft)	1587.64	Top Width (ft)		1587.64		
Vel Total (ft/s)	7.80	Avg. Vel. (ft/s)		7.80		
Max Chl Dpth (ft)	35.03	Hydr. Depth (ft)		13.40		
Conv. Total (cfs)	5538129.0	Conv. (cfs)		5538129.0		
Length Wtd. (ft)	514.25	Wetted Per. (ft)		1602.25		
Min Ch El (ft)	993.71	Shear (lb/sq ft)		0.74		
Alpha	1.00	Stream Power (lb/ft s)		5.81		
Frctn Loss (ft)	0.62	Cum Volume (acre-ft)	1194.13	26408.69	762.11	
C & E Loss (ft)	0.04	Cum SA (acres)	200.96	2601.51	120.23	

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 209.24

INPUT
Description: 209.24
Station Elevation Data num= 100

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18093.1	103318111.19	1032.6618170.55	1033.11	18249.7	1032.5618290.75		1033.5		
18331.25	1033.0118346.32	1033.518358.33	1032.9818369.13		1033.5418393.42		1033.13		
18469.39	1033.0718512.08	1033.0718637.39	1032.7	18752.3	1032.6518788.04		1032.79		
18804.94	1032.418838.39	1032.918864.91	1032.218883.35		1028.4418899.45		1032.41		
18908.64	1036.0218915.46	1032.28	18922.1	1030.418942.52	1030.2119012.72		1021.32		
19049.33	1021.2119102.51	1025.919144.88	1026.16	19179.4	1027.2819192.91		1028.51		
19221.01	1027.4819251.07	1028.3419265.36	1027.519301.53		1020.3219329.15		1019.35		
19360.39	1018.9919370.19	1018.119394.97	1017.4219404.33		1016.3219424.98		1015.69		
19456.86	1016.7719466.18	1018.3619497.21	1020.3619524.86		1021.0119549.47		1021.01		
19582.15	1021.419600.78	102119641.86	1023.0919653.99		1021.23	19681.4	1021.69		
19697.48	1020.819743.39	1020.719822.79	1021.8619837.12		1021.4319857.39		1019.53		
19867.11	1020.419912.92	1020.5519923.39	1019.9719969.32		1019.1520004.86		1017.61		
20026.23	1016.2120141.25	1015.2420152.29	1010.620175.79		1010.3220193.09		1015.77		
20204.3	1016.5620231.05	1007.3720243.67	100320287.34		1018.5	20308.5	1018.37		
20324.96	101020735.49	101020735.59	1025	21770.2	102521803.67		1033.09		
21811.84	1029.2	21825.3	1034.721842.65		1025.5	21881.3	1026.4421899.12		1026.89
21924.24	1025.621976.69	1026.6721982.73	1025.6921999.87		1025.35	22090.2	1025.39		
22155.13	1025.322244.29	1025.3522289.44	1025.522316.75		1025.8822341.35		1028.8		
22353.64	1028.9322368.41	1032.3	22376.5	1028	22384.1	1026.3522390.56		1028.61	
22396.37	1032.3722437.65	1032.0922468.97	1032.2122560.84		1032.122647.85		1032.88		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
18093.1	.03718942.52	.03220141.25	.03720287.34	.032	21825.3	.025			

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
18942.5220287.34 514 515.61 523 .1 .3
Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
18093.118914.46	1034.8		F
20907.5322647.85	1034.8		F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1029.02	Element	Left OB	Channel	Right OB	
Vel Head (ft)	1.35	Wt. n-Val.		0.034	0.032	
W.S. Elev (ft)	1027.66	Reach Len. (ft)	514.00	515.61	523.00	
Crit W.S. (ft)	1023.98	Flow Area (sq ft)		10216.17	8126.34	
E.G. Slope (ft/ft)	0.001727	Area (sq ft)		10216.17	11426.32	
Q Total (cfs)	166000.00	Flow (cfs)		80383.11	85616.89	
Top Width (ft)	3253.83	Top Width (ft)		1256.98	1996.85	
Vel Total (ft/s)	9.05	Avg. Vel. (ft/s)		7.87	10.54	
Max Chl Dpth (ft)	24.66	Hydr. Depth (ft)		8.13	13.10	
Conv. Total (cfs)	3994065.0	Conv. (cfs)		1934069.0	2059997.0	
Length Wtd. (ft)	519.56	Wetted Per. (ft)		1265.93	637.10	
Min Ch El (ft)	1003.00	Shear (lb/sq ft)		0.87	1.38	
Alpha	1.07	Stream Power (lb/ft s)		6.85	14.49	
Frctn Loss (ft)	0.99	Cum Volume (acre-ft)	6847.40	25308.77	2236.06	
C & E Loss (ft)	0.01	Cum SA (acres)	1894.21	2581.68	823.92	

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1029.02	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.36	Wt. n-Val.		0.034	0.032
W.S. Elev (ft)	1027.66	Reach Len. (ft)	514.00	515.61	523.00
Crit W.S. (ft)	1023.92	Flow Area (sq ft)		10116.06	8124.44
E.G. Slope (ft/ft)	0.001733	Area (sq ft)		10116.06	8124.44
Q Total (cfs)	166000.00	Flow (cfs)		80502.64	85497.37
Top Width (ft)	1837.88	Top Width (ft)		1217.69	620.19
Vel Total (ft/s)	9.10	Avg. Vel. (ft/s)		7.96	10.52
Max Chl Dpth (ft)	24.66	Hydr. Depth (ft)		8.31	13.10
Conv. Total (cfs)	3987012.0	Conv. (cfs)		1933524.0	2053488.0
Length Wtd. (ft)	519.55	Wetted Per. (ft)		1231.26	639.75
Min Ch El (ft)	1003.00	Shear (lb/sq ft)		0.89	1.37
Alpha	1.06	Stream Power (lb/ft s)		7.08	14.46
Frctn Loss (ft)	0.99	Cum Volume (acre-ft)	1194.13	26232.01	707.74
C & E Loss (ft)	0.01	Cum SA (acres)	200.96	2585.72	116.08

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 209.14

INPUT
Description: 209.14
Station Elevation Data num= 175

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17712.7	1032.21	7733.81	1032.31	7755.05	103217	769.95	1031.38	17807.73	1031.5
17918.31	1031.06	17920.82	1031.35	17943.8	1031.41	7971.64	1032.03	17993.6	1031.59
18020.99	1031.44	18029.62	1030.75	18045.75	1030.96	18061.27	1030.71	18068.04	1031.06
18093.7	1031.53	18113.91	1031.61	8141.03	1031.51	8161.73	1031.69	18203.99	1031.2
18219.59	1031.41	18257.52	1031.31	8268.17	1031.11	8314.57	1031.17	18419.42	1030.9
18497.7	103118	540.47	1031.49	18580.28	1031.56	18590.93	1031.15	18633.39	1030.95
18650.39	1031.36	18680.6	1031.33	18720.2	1030.34	18737.94	1030.43	18755.98	1030.74
18761.99	1030.57	18784.42	1030.81	8801.05	1030.81	18813.66	1030.32	18833.88	1030.8
18845.19	1030.61	8852.07	103118	8864.66	1029.58	18869.21	1028.61	8880.65	1028.56
18885.94	1029.26	18891.7	1029	18922.1	1030.12	18940.12	1029.49	18950.3	1030.6
18957.14	1030.27	18979.23	1028.24	18984.98	1029.47	18992.18	1032.55	18998.45	1029.47
19003.26	1027.96	19018.59	1026.98	19028.63	1027.25	19044.02	1027.11	9074.49	1027.06
19081.18	1026.81	9115.16	1023.82	19127.21	1022.15	19152.59	1019.91	19166.14	1019.99
19191.51	1021.36	19196.09	1021.91	9199.73	1020.98	19206.42	1021.07	19214.89	1022.76
19231.49	1024.53	19245.82	1024.81	9263.22	1025.51	9289.61	1025.82	19298.62	1025.62
19324.23	102619	336.29	1025.26	19345.92	1024.18	19353.34	1023.91	9359.53	1022.62
19371.81	1019.21	19387.21	1016.47	19396.66	1015.65	19407.14	1015.27	19424.22	1015.38
19446	1014.91	9468.59	1015.07	19478.96	1015.41	9488.13	1016.41	9514.03	1016.16
19544.56	1016.81	19553.79	1017.65	19576.59	1018.41	9585.23	1018.34	19597.29	1017.1
19625.64	1017.23	19633.67	1016.96	19662.81	1017.53	19679.21	1017.39	19691.15	1018.07
19718.55	1018.61	9739.96	1018.41	9768.73	1018.89	19781	1019.71	9808.31	1019.85
19822.58	1020.95	19830.13	1020.77	19859.66	1021.01	19900.07	1020.82	19905.4	1020.95
19942.86	1020.61	19958.76	1020.92	0016.03	1020.24	20040.17	1020.12	20076.36	1019
20087.02	1018.89	20107.15	1018.33	20126.03	1017.18	20145.24	1017.12	0160.85	1022.12
20168.39	1023.67	20173.07	1022.72	20184.98	1017.12	0190.01	1016.03	20200.85	1010.77
20209.55	1005.1	20215.2	1003.26	20224.09	1002.87	20233.55	1003.19	20239.27	1004.74
20248.4	1008.35	20267.4	1018.52	0271.19	1019.87	20278.27	1019.86	20294.18	1014.23
20299.82	1013.19	20314.27	1012.42	0327.64	1012.77	20348.37	1015.56	20359.78	1014.91
20385.64	1014.72	0398.56	101020	748.72	101020	748.82	102221	863.55	1022
21871.58	1022.52	1877.08	1022.62	1882.23	1022.72	1906.95	1034.85	21913.42	1030.91
21918.47	1032.54	21926.44	1033.71	21935.64	1030.34	21940.87	1026.3	21945.9	1025.72
21972.1	1025.78	21989.84	1026.31	22013.87	1026.55	22052.95	1026.72	22065.97	1027.04
22126.27	1028.24	22168.73	1029.24	22206.6	1029.66	22274.49	1030.88	22316.41	1031.2
22330.02	1031.52	22355.73	1031.68	22369.85	1031.62	22394.81	1031.74	22463.25	1031.65
22479.79	1031.88	22509.72	1031.72	22546.93	1031.74	22588.34	1032.22	22649.92	1032.1

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
17712.7	.03	719074.49	.03	220160.85	.03	720385.64	.03	221926.44	.025

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19074.49 20271.19 515 499.52 517 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17712.72	18998.45	1034	F
21140.18	22649.92	1034	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1028.02	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.32	Wt. n-Val.		0.033	0.033
W.S. Elev (ft)	1026.70	Reach Len. (ft)	515.00	499.52	517.00
Crit W.S. (ft)	1023.36	Flow Area (sq ft)		9046.56	9239.76
E.G. Slope (ft/ft)	0.002091	Area (sq ft)		9046.56	12787.81
Q Total (cfs)	166000.00	Flow (cfs)		74044.85	91955.15
Top Width (ft)	2920.83	Top Width (ft)		1188.91	1731.92
Vel Total (ft/s)	9.08	Avg. Vel. (ft/s)		8.18	9.95
Max Chl Dpth (ft)	23.83	Hydr. Depth (ft)		7.61	10.63
Conv. Total (cfs)	3630274.0	Conv. (cfs)		1619296.0	2010978.0
Length Wtd. (ft)	509.13	Wetted Per. (ft)		1200.34	883.01
Min Ch El (ft)	1002.87	Shear (lb/sq ft)		0.98	1.37
Alpha	1.03	Stream Power (lb/ft s)		8.05	13.59
Frctn Loss (ft)	0.89	Cum Volume (acre-ft)	6847.40	25194.77	2090.70
C & E Loss (ft)	0.13	Cum SA (acres)	1894.21	2567.21	801.53

Warning: Divided flow computed for this cross-section.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1028.02	Element	Left OB	Channel	Right OB	
Vel Head (ft)	1.32	Wt. n-Val.		0.033	0.033	
W.S. Elev (ft)	1026.70	Reach Len. (ft)	515.00	499.52	517.00	
Crit W.S. (ft)	1023.39	Flow Area (sq ft)		8958.25	9235.09	
E.G. Slope (ft/ft)	0.002095	Area (sq ft)		8958.25	9235.09	
Q Total (cfs)	166000.00	Flow (cfs)		74355.09	91644.91	
Top Width (ft)	2015.26	Top Width (ft)		1146.27	868.99	
Vel Total (ft/s)	9.12	Avg. Vel. (ft/s)		8.30	9.92	
Max Chl Dpth (ft)	23.83	Hydr. Depth (ft)		7.82	10.63	
Conv. Total (cfs)	3626796.0	Conv. (cfs)		1624523.0	2002274.0	
Length Wtd. (ft)	509.09	Wetted Per. (ft)		1161.72	887.71	
Min Ch El (ft)	1002.87	Shear (lb/sq ft)		1.01	1.36	
Alpha	1.02	Stream Power (lb/ft s)		8.37	13.50	
Frctn Loss (ft)	0.89	Cum Volume (acre-ft)	1194.13	26119.12	603.53	
C & E Loss (ft)	0.13	Cum SA (acres)	200.96	2571.73	107.14	

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 209.04

INPUT
Description: 209.04
Station Elevation Data num= 165

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17436.1	1032.81	7481.92	1033.12	17492.97		103417523.41	1033.35	17553.8	1033.63
17567.41	1031.55	17593.91	1032.55	17629.24	1031.9	17655.8	1031.7	17689.7	1032.45
17695.46	1033.58	17714.36	1033.28	17733.5	1033.78	17748.64	1032.34	17764.76	1032.1
17771.89	1030.72	17780.47	1032.06	17790.76	1030.9	17801.38	1027.87	17816.77	1028.68
17830.26	1028.41	7903.58	1029	17910.5	1028.73	18018.61	1029.21	18054.11	1029.58
18068.41	1029.46	18116.27	1029.61	18176.67	1029.55	18188.3	1029.24	18231.03	1029.42
18257.65	1029.18	18293.37	1030.44	18300.67	1031.42	18303.42	1030.21	18325.88	1029.58
18349.35	1029.8	18368.26	1029.31	18405.02	1029.91	18413.03	1029.41	18422.64	1029.8
18438.88	1029.53	18477.77	1029.39	18506.45	1028.28	18520.92	1028.61	18558.78	1028.72
18600.38	1028.34	18620.89	1028.74	18645.84	1028.74	18668.28	1029.12	18676.4	1032.1
18682.1	1030.81	8687.17	1031.04	18693.62	1029.83	18704	1029.69	18712.79	1032.9
18719.4	1029.36	18729.67	1031.06	18732.96		103018744.07	1031.13	18756.77	1030.5
18763.23	1032.31	18770.67	1032.1	18787.85	1029.16	18817.09	1029.3	18848.11	1029.01
18855.89	1029.4	18896.56	1028.78	18900.74	1028.32	18904.52	1026.47	18916.87	1026.35
18924.49	1027.3	18953.93	1028.76	18978.91	1029.1	18990.65	1028.54	19010.12	1028.26
19022.96	1031.34	19032.32	1028.3	19047.62	1027.39	19092.73	1026.53	19103.69	1025.67
19138.37	1024.66	19177.83	1021.93	19196.79		101919225.46	1018.51	19249.34	1018.6
19280.44	1022.4	19302	1026.17	19327.89	1025.79	19336.16	1025.11	19356.9	1021.79
19371.16	1017.53	19374.44	1015.5	19384.22	1014.77	19399.04	1011.78	19405.42	1011.48
19417.16	1012.71	9427.75	1014.76	19437.29	1013.39	19456.39		101419462.67	1013.64
19470.92	1014.84	19487.88	1013.36	19517.22	1012.66	19535.61		101419553.79	1016.39
19571.83	1017.12	19585.34	1017.08	19616.81	1017.58	19660.08	1017.95	19677.15	1017.9
19689.47	1018.56	19734.18	1018.1	19789.91	1017.11	19808.47	1017.18	19838.18	1016.55
19869.54	1017.72	19955.17	1018.16	19985.34	1017.05	19993.46	1016.1	20033.72	1013.3
20059.3	1012.72	0088.98	1012.31	20095.15	1012.84	20110.54	1010.46	20127.24	1007.07
20143.74	1007.02	20165.7		101120181.04	1014.32	19198.46	1016.77	20207.15	1016.4
20231.68	1012.06	20261.67	1011.21	20295.29	1011.5	20349.03	1012.58	20373.43	1012.57
20411.55		101020761.17		101020761.27		102021949.73		102021962.03	1020
21974.3	1023.29	21988.69	1033.42	1992.14	1031.11	21999.39	1032.88	22011.93	1033.73
22024.53	1026.12	2043.74	1026.28	22072.39		102722075.88	1027.84	22101.16	1028.39
22112.98	1029.03	22158.53	1029.59	22192.5	1030.42	22243.49	1031.22	22251.38	1030.62
22255.34	1028.53	22266	1027.96	22271.88	1030.57	22302.67	1030.13	22353.28	1030.1
22435.9	1030.82	2527.91	1030.91	22594.31	1031.75	22629.46	1031.62	2666.72	1032.11

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
17436.1	.03719	047.62	.03219	993.46	.03721	949.73	.03222	011.93	.025

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19092.7 320198.46 495 493.13 531 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17436.1	19047.62	1035	F
21356.7	222666.72	1035	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1027.00	Element	Left OB	Channel	Right OB	
Vel Head (ft)	0.87	Wt. n-Val.		0.034	0.037	
W.S. Elev (ft)	1026.13	Reach Len. (ft)	495.00	493.13	531.00	
Crit W.S. (ft)	1021.52	Flow Area (sq ft)		9913.34	12245.20	
E.G. Slope (ft/ft)	0.001480	Area (sq ft)		9913.34	16013.59	
Q Total (cfs)	166000.00	Flow (cfs)		75405.80	90594.20	
Top Width (ft)	2879.88	Top Width (ft)		1097.26	1782.61	
Vel Total (ft/s)	7.49	Avg. Vel. (ft/s)		7.61	7.40	
Max Chl Dpth (ft)	19.11	Hydr. Depth (ft)		9.03	10.57	
Conv. Total (cfs)	4314713.0	Conv. (cfs)		1959966.0	2354747.0	
Length Wtd. (ft)	503.55	Wetted Per. (ft)		1102.44	1168.66	
Min Ch El (ft)	1007.02	Shear (lb/sq ft)		0.83	0.97	
Alpha	1.00	Stream Power (lb/ft s)		6.32	7.16	
Frctn Loss (ft)	0.55	Cum Volume (acre-ft)	6847.40	25086.06	1919.78	
C & E Loss (ft)	0.00	Cum SA (acres)	1894.21	2554.10	780.68	

Warning: Divided flow computed for this cross-section.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1027.00	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.87	Wt. n-Val.		0.034	0.037
W.S. Elev (ft)	1026.13	Reach Len. (ft)	495.00	493.13	531.00
Crit W.S. (ft)	1021.52	Flow Area (sq ft)		9898.05	12246.61
E.G. Slope (ft/ft)	0.001472	Area (sq ft)		9898.05	12246.61
Q Total (cfs)	166000.00	Flow (cfs)		75956.70	90043.30
Top Width (ft)	2229.47	Top Width (ft)		1071.21	1158.26
Vel Total (ft/s)	7.50	Avg. Vel. (ft/s)		7.67	7.35
Max Chl Dpth (ft)	19.11	Hydr. Depth (ft)		9.24	10.57
Conv. Total (cfs)	4326838.0	Conv. (cfs)		1979833.0	2347005.0
Length Wtd. (ft)	503.49	Wetted Per. (ft)		1077.41	1174.79
Min Ch El (ft)	1007.02	Shear (lb/sq ft)		0.84	0.96
Alpha	1.00	Stream Power (lb/ft s)		6.48	7.04
Frctn Loss (ft)	0.55	Cum Volume (acre-ft)	1194.13	26011.00	476.05
C & E Loss (ft)	0.00	Cum SA (acres)	200.96	2559.01	95.11

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 208.95

INPUT
Description: 208.95
Station Elevation Data num= 179

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17602.6	1030.71	7651.71	1029.78	17678.28	1030.44	17702.53	1029.58	17709.4	1030.1
17716.28	1027.74	17726.85	1027.24	17754.92	1027.11	17785.11	1027.47	17835.06	1026.8
17871.62	1027.49	17953.86	1027.36	17970.21	1026.53	18023.39	1026.35	18038.68	1027.3
18091.11	1027.71	8094.77	1029.18	18100.61	1027.46	18198.47	1027.31	8220.25	1027.92
18246.36	1027.71	8309.26	1028.29	18344.29	1028.45	18407.59	1027.44	18451.06	1027.54
18478.84	1027.87	18531.8	1027.91	8579.44	1028.61	8682.24	1028.41	8703.67	1027.9
18808.65	1028.14	18857.03	1026.73	18917.85	1028.09	18938.27	1027.38	18952.79	1026.25
19030.7	1025.62	19046.62	1025.06	19082.99	1025.49	19104.79	1024.61	9112.99	1025.03
19124.51	1030.65	19140.48	1025.31	9157.35	1026.09	19168.11	1024.55	19173.85	1025.4
19195.16	1023.82	19207.08	1021.87	19270.39	1018.94	19282.25	1014.04	19305.81	1013.5
19323.91	1009.5	19355.8	1008.93	19366.92	1009.41	9397.25	1014.53	19409.8	1013.58
19425.91	1014.79	19456.9	1015.72	19460.95	1014.02	19470.72	1012.94	19481.47	1013.92
19495.24	1008.88	19506.5	1007.81	9522.51	1007.49	19548.22	1008.17	19566.69	1005.6
19598.49	1005.21	9607.34	1006.86	19629.96	1013.57	19636.47	1011.62	19653.72	1010.05
19696.34	1010.09	19777.25	1013.01	19819.13	1016.02	19864.73	1015.52	19888.04	1016.45
19903.55	1017.62	19939.71	1017.39	19944.9	1016.86	19961.63	1017.35	19968.78	1016.6
19989.37	1017.93	20035.86	1019.22	20080.09	1021.82	20099.08	1019.93	20121.36	1018.6
20137.49	1018.6	20148.8	1020.12	20184.87	1019.71	20189.78	1018.07	20196.27	1018.47
20209.65	1016.17	20285.35	1015.62	20305.76	1015.05	20324.48	1013.52	20343.75	1009.77
20358.33	1008.95	20370.4	1011.38	20394.52	1012.4	20413.5	1014.19	20426.89	1014.5
20439.5	1014.03	20455.51	1012.33	20465.37	1012.83	20483.75	1012.31	20489.18	1010.9
20510.98	1009.52	20519.28	1007.76	20531.47	1011.06	20546.03	1006.27	20573.29	1004.38
20576.36	1003.12	20604.86	1000.78	20634.63	1000.42	20646.76	1000.72	20658.11	1002.9
20679.97	1002.56	20696.64	1001.45	20747.49	997.33	20778.46	997.45	20790.93	997.9
20799.87	1002.98	20826.7	1022.09	20836.45	1026.18	20841.68	1023.25	20885.15	1023.4
20920.7	1022.78	20959.96	1023.22	20968.83	1023.62	20987.66	1032.92	21003.77	1031
21026.87	1031.89	21043.74	1031.8	21076.8	1032.52	21096.37	1031.42	1112.48	1032.38
21141.57	1032.05	21164.67	1033.39	21189.39	1032.85	21193.31	1033.55	21219.82	1023.28
21269.17	1023.42	21286.95	1033.02	21310.01	1029.22	21351.05	1032.12	21360.77	1031.64
21387.79	1031.63	21396.55	1030.79	21410.37	1030.79	21421.06	1033.86	21429.05	1034.1
21456.59	1024.18	21491.57	1024.01	21589.23	1024.06	21735.97	1024.24	21832.1	1024.74
21894.74	1024.83	21931.61	1025.17	21980.52	1026.16	22127.26	1027.62	22173.37	1028.9
22176.23	1035.52	22183.06	1039.71	22188.16	1038.9	22201.8	1039.92	22208.53	1033.98
22216.16	1030.13	22224.26	1030.74	22231.11	1027.12	22236.95	1026.28	22242.59	1026.7
22251.03	1030.52	22265.51	1030.42	22289.51	1031.14	22297.99	1030.34	22321.91	1029.9
22425.63	1030.03	22527.54	1030.61	22572.36	1030.37	22612.01	1030.81		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
17602.6	.03	719173.85	.03	220836.45	.03	220987.66	.03	722188.16	.025

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19173.85 20836.45 458 514.75 603 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17602.6	19157.35	1038	F
20987.66	22612.01	1038	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1026.45	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.86	Wt. n-Val.	0.037	0.032	0.032
W.S. Elev (ft)	1025.58	Reach Len. (ft)	458.00	514.75	603.00
Crit W.S. (ft)	1018.20	Flow Area (sq ft)	7.21	22104.58	316.24
E.G. Slope (ft/ft)	0.000834	Area (sq ft)	41.57	22104.58	1034.34
Q Total (cfs)	166000.00	Flow (cfs)	5.62	165251.60	742.77
Top Width (ft)	2457.28	Top Width (ft)	102.19	1661.18	693.92
Vel Total (ft/s)	7.40	Avg. Vel. (ft/s)	0.78	7.48	2.35
Max Chl Dpth (ft)	28.25	Hydr. Depth (ft)	0.56	13.31	2.34
Conv. Total (cfs)	5748423.0	Conv. (cfs)	194.6	5722507.0	25721.4
Length Wtd. (ft)	515.30	Wetted Per. (ft)	13.09	1679.17	136.42
Min Ch El (ft)	997.33	Shear (lb/sq ft)	0.03	0.69	0.12
Alpha	1.02	Stream Power (lb/ft s)	0.02	5.12	0.28
Frctn Loss (ft)	0.57	Cum Volume (acre-ft)	6847.16	24904.83	1815.87
C & E Loss (ft)	0.03	Cum SA (acres)	1893.63	2538.48	765.58

Warning: Divided flow computed for this cross-section.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1026.45	Element	Left OB	Channel	Right OB	
Vel Head (ft)	0.86	Wt. n-Val.		0.032	0.032	
W.S. Elev (ft)	1025.59	Reach Len. (ft)	458.00	514.75	603.00	
Crit W.S. (ft)	1018.20	Flow Area (sq ft)		22111.07	316.77	
E.G. Slope (ft/ft)	0.000833	Area (sq ft)		22111.07	316.77	
Q Total (cfs)	166000.00	Flow (cfs)		165255.50	744.54	
Top Width (ft)	1796.50	Top Width (ft)		1661.18	135.32	
Vel Total (ft/s)	7.40	Avg. Vel. (ft/s)		7.47	2.35	
Max Chl Dpth (ft)	28.26	Hydr. Depth (ft)		13.31	2.34	
Conv. Total (cfs)	5750654.0	Conv. (cfs)		5724861.0	25792.7	
Length Wtd. (ft)	515.30	Wetted Per. (ft)		1679.36	136.42	
Min Ch El (ft)	997.33	Shear (lb/sq ft)		0.68	0.12	
Alpha	1.02	Stream Power (lb/ft s)		5.12	0.28	
Frctn Loss (ft)	0.57	Cum Volume (acre-ft)	1194.13	25829.82	399.47	
C & E Loss (ft)	0.03	Cum SA (acres)	200.96	2543.55	87.23	

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 208.85

INPUT
Description: 208.85
Station Elevation Data num= 94

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17686.5	1031.317694.85	1029.1417749.61	1029.8317758.78	1029.2417984.78	1029				
18200.56	1027.33	18280.2	1027.4818328.38	1026.7418441.61	1027.218481.04	1029.88			
18510.33	1030.4718682.91	1029.6618740.64	1028.5118754.98	1027.6618784.26	1028.29				
18831.49	1028.118874.45	1029.918981.82	1029.1619065.57	1029.1719153.39	1028.46				
19206.02	1028.819223.16	1016.919235.47	1012.619256.34	1009.9419276.84	1008.4				
19321.83	1007.7919338.38	1008.5419346.72	1011.7719362.51	1004.319405.36	1008.25				
19423.93	1009.2	19438.9	1012.4519455.14	1010.47	19490.9	1010.8219519.66	1014.86		
19526.32	1012.1319549.87	1011.819568.97	1014.59	19634.7	1016.3719646.89	1017.27			
19710.87	1016.62	19760.5	1017.0919801.77	1016.0619827.94	1016.3419863.39	1018.72			
19910.52	1019.5620029.52	1020.0320086.67	1019.9920123.45	1020.8520133.93	1019.7				
20161.37	1020.5920247.21	1020.8920314.65	1017.220322.23	1017.9420368.81	1017.46				
20450.41	1017.56	20502.8	1016.2520508.13	1017.1120550.98	1012.0220589.54	1010.1			
20610.51	1006.6920658.34	1002.720671.28	1001.7520700.39	1007.5220728.31	1009.8				
20767.63	1007.720799.68	1004.620828.74	100020843.88	998.88	20892.5	999.97			
20902.76	1003.520934.99	1026.0120948.22	1022.1321019.79	1022.2521070.81	1021.7				
21121.72	1022.221135.41	1028.06	21144.4	1029.4921161.18	1022.3121191.38	1023.06			
21314.23	1023.5621380.26	1024.1621412.34	1023.3121460.67	1023.321510.92	1022.62				
21535.21	1023.2821562.07	1022.621581.65	1023.8321609.58	1023.4221953.16	1026.38				
22103.46	1028.5222197.52	1029.322301.84	1029.8222339.32	1029.6					

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
17686.5	.03719206.02	.03220029.52	.03220934.99	.037			

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19206.0220934.99 511 479.03 452 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17686.519206.02	1035	F	
21144.422339.32	1035	F	

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1025.84	Element	Left OB	Channel	Right OB	
Vel Head (ft)	1.21	Wt. n-Val.		0.032	0.037	
W.S. Elev (ft)	1024.64	Reach Len. (ft)	511.00	479.03	452.00	
Crit W.S. (ft)	1020.18	Flow Area (sq ft)		18612.24	465.32	
E.G. Slope (ft/ft)	0.001533	Area (sq ft)		18612.24	1150.89	
Q Total (cfs)	166000.00	Flow (cfs)		164664.20	1335.78	
Top Width (ft)	2503.80	Top Width (ft)		1721.01	782.79	
Vel Total (ft/s)	8.70	Avg. Vel. (ft/s)		8.85	2.87	
Max Chl Dpth (ft)	25.76	Hydr. Depth (ft)		10.81	2.48	
Conv. Total (cfs)	4240165.0	Conv. (cfs)		4206045.0	34120.1	
Length Wtd. (ft)	478.92	Wetted Per. (ft)		1738.22	188.60	
Min Ch El (ft)	998.88	Shear (lb/sq ft)		1.02	0.24	
Alpha	1.03	Stream Power (lb/ft s)		9.06	0.68	
Frctn Loss (ft)	0.62	Cum Volume (acre-ft)	6846.94	24664.25	1800.75	
C & E Loss (ft)	0.05	Cum SA (acres)	1893.10	2518.50	755.36	

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1025.85	Element	Left OB	Channel	Right OB	
Vel Head (ft)	1.21	Wt. n-Val.		0.032	0.037	
W.S. Elev (ft)	1024.64	Reach Len. (ft)	511.00	479.03	452.00	
Crit W.S. (ft)	1020.18	Flow Area (sq ft)		18621.90	466.37	
E.G. Slope (ft/ft)	0.001530	Area (sq ft)		18621.90	466.37	
Q Total (cfs)	166000.00	Flow (cfs)		164660.50	1339.49	
Top Width (ft)	1908.84	Top Width (ft)		1721.02	187.81	
Vel Total (ft/s)	8.70	Avg. Vel. (ft/s)		8.84	2.87	
Max Chl Dpth (ft)	25.76	Hydr. Depth (ft)		10.82	2.48	
Conv. Total (cfs)	4243892.0	Conv. (cfs)		4209647.0	34244.8	
Length Wtd. (ft)	478.92	Wetted Per. (ft)		1738.23	188.64	
Min Ch El (ft)	998.88	Shear (lb/sq ft)		1.02	0.24	

				Pre-Project	
* Alpha	* 1.03	* Stream Power (lb/ft s)	*	* 9.05	* 0.68 *
* Frctn Loss (ft)	* 0.62	* Cum Volume (acre-ft)	* 1194.13	*25589.15	* 394.05 *
* C & E Loss (ft)	* 0.05	* Cum SA (acres)	* 200.96	* 2523.56	* 84.99 *

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 208.75

INPUT
Description: 208.75 - FEMA Section U
Station Elevation Data num= 120

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18173.6	1027.11	8257.35	1026.61	8340.04	102618367.17	1025.85	18472.3	1025.33	
18563.9	1028.41	8584.53	1028.65	18617.81	1027.26	18655.45	1028.16	18671.42	1028.21
18702.85	1027.64	18720.75	1029.28	18764.48	1030.73	18832.51	1030.95	18900.38	1030.43
18954.98	1029.61	8984.44	1028.47	18996.07	1026.71	9017.06	1026.71	9056.46	1027.48
19103.99	1027.71	19153.26	1027.52	19204.89	1026.74	19212.98	1026.28	19226.43	1021.15
19249.91	1010.16	19266.81	1008.81	9299.44	1007.51	9308.35	1007.88	19324.64	1009.65
19332.09	1012.65	19339.05	100919344.99		1006.47	19362.61	1005.61	9374.08	1006.4
19427.89	1008.77	19452.89	1009.85	19478.06	1011.52	19505.81	1012.26	19526.98	1013.15
19535.38	1014.53	19541.92	1015.39	19562.58	1013.91	19580.22	1014.51	9611.04	1016.44
19649.5	1015.55	19676.7	1015.71	9706.53	1017.58	19723.84	1018.09	19752.75	1018.69
19793.14	1018.45	19817.64	1018.74	19868.41	1019.56	19904.45	1019.58	20006.67	1019.78
20053.74	1019.67	20110.37	1019.63	20147.15	1019.22	20205.32	1018.18	20213.52	1017.6
20230.83	1016.56	20246.24	1016.21	20258.43	1015.62	20282.65	1013.13	20304.16	1013.25
20325.33	1013.88	20360.87	1013.02	20399.39	1010.93	20443.45	1008.83	20509.67	1006.65
20530.45	1005.32	20549.36	1002.94	20624.04	1001.58	20641.4	1000.63	20653.89	1001.2
20674.36	1001.42	20691.66	1000.44	20708.01	1002.62	20717.29	1003.82	20733.99	1004.85
20745.04	1006.32	20762.48	1008.27	20775.95	1009.32	20782.78	1010.28	20788.76	1010.74
20801.71	1012.52	20813.85	1010.78	20838.24	1010.59	20846.26	1013.65	20860.81	1005.65
20869.16	1002.57	20881.6	1002.65	20888.55	1005.28	20898.48	1008.27	20908.17	1004.93
20915.98	1003.92	20930.47	1011.04	20936.86	1016.29	20940.05	1018.52	20952.96	1025.18
21004.85	1025.68	21010.02	1025.22	21017.42	1023.32	21098.69	1024.08	21136.04	1023.95
21181.34	1023.41	21212.16	1022.92	21283.95	1024.27	21300.57	1033.42	21323.99	1023.8
21329.9	1023.31	21360.2	1022.84	21410.93	1022.32	21471.63	1021.92	21516.43	1021.9
21910.17	1026.78	22038.72	1028.06	22133.23	1028.92	22205.11	1029.52	22228.96	1029.66

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
18173.6	.03	719212.98	.03	220205.32	.032

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19212.9 820952.96 565 559.49 569 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
18173.6	19204.89	1038	F
21098.6	922228.96	1038	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 1025.18	* Element	* Left OB * Channel	* Right OB *
* Vel Head (ft)	* 1.06	* Wt. n-Val.	* 0.032	* 0.032 *
* W.S. Elev (ft)	* 1024.13	* Reach Len. (ft)	* 565.00 * 559.49	* 569.00 *
* Crit W.S. (ft)	* 1017.95	* Flow Area (sq ft)	*20128.00	* 36.69 *
* E.G. Slope (ft/ft)	*0.001099	* Area (sq ft)	*20128.00	* 666.75 *
* Q Total (cfs)	*166000.00	* Flow (cfs)	*165967.70	* 32.36 *
* Top Width (ft)	* 2367.21	* Top Width (ft)	* 1732.29	* 634.92 *
* Vel Total (ft/s)	* 8.23	* Avg. Vel. (ft/s)	* 8.25	* 0.88 *
* Max Chl Dpth (ft)	* 23.69	* Hydr. Depth (ft)	* 11.62	* 0.43 *
* Conv. Total (cfs)	*5008106.0	* Conv. (cfs)	*5007130.0	* 976.2 *
* Length Wtd. (ft)	* 559.61	* Wetted Per. (ft)	* 1749.85	* 84.59 *
* Min Ch El (ft)	* 1000.44	* Shear (lb/sq ft)	* 0.79	* 0.03 *
* Alpha	* 1.00	* Stream Power (lb/ft s)	* 6.51	* 0.03 *
* Frctn Loss (ft)	* 0.80	* Cum Volume (acre-ft)	* 6846.94	*24451.24 * 1791.32 *
* C & E Loss (ft)	* 0.05	* Cum SA (acres)	* 1893.10	* 2499.51 * 748.01 *

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 1025.19	* Element	* Left OB * Channel	* Right OB *
* Vel Head (ft)	* 1.06	* Wt. n-Val.	* 0.032	*
* W.S. Elev (ft)	* 1024.13	* Reach Len. (ft)	* 565.00 * 559.49	* 569.00 *
* Crit W.S. (ft)	* 1017.95	* Flow Area (sq ft)	*20138.36	*
* E.G. Slope (ft/ft)	*0.001097	* Area (sq ft)	*20138.36	*
* Q Total (cfs)	*166000.00	* Flow (cfs)	*166000.00	*
* Top Width (ft)	* 1732.32	* Top Width (ft)	* 1732.32	*
* Vel Total (ft/s)	* 8.24	* Avg. Vel. (ft/s)	* 8.24	*
* Max Chl Dpth (ft)	* 23.69	* Hydr. Depth (ft)	* 11.63	*
* Conv. Total (cfs)	*5011115.0	* Conv. (cfs)	*5011115.0	*
* Length Wtd. (ft)	* 559.61	* Wetted Per. (ft)	* 1749.88	*
* Min Ch El (ft)	* 1000.44	* Shear (lb/sq ft)	* 0.79	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	* 6.50	*
* Frctn Loss (ft)	* 0.80	* Cum Volume (acre-ft)	* 1194.13	*25376.03 * 391.63 *
* C & E Loss (ft)	* 0.05	* Cum SA (acres)	* 200.96	* 2504.57 * 84.02 *

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 208.67

INPUT
Description: 208.67

Left and Right Channel Bank Stations Interpolated
Station Elevation Data num= 100

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17889.8	1026.31	7940.06	1028.01	17946.89	1024.71	7953.87	1026.93	18019.22	1025.66
18296.94	1025.47	18455.93	1024.91	8473.38	1024.28	18514.46	1025.11	8559.79	1024.1
18645.36	1024.91	8707.02	1024.43	18845.34	102	618932.39	1026.41	8963.79	1026.2
19024.26	1027.15	19046.1	1027.9	19164.5	1028.15	19199.93	1027.61	9317.69	1028.73
19328.09	1021.51	9347.56	1010.41	9383.55	1009.66	19393.77	1014.49	19409.65	1006.16
19420.84	1005.55	19487.27	1008.41	9553.76	1009.56	19580.27	1011.22	19681.59	1014.56
19704.28	1016.41	19768.18	1016.79	19807.68	1017.78	19886.33	1018.31	19914.74	1017.1
19970.68	1017.75	20001.36	1016.32	0060.25	1014.59	20091.06	1012.21	20139.57	1010.12
20167.85	1006.52	0204.43	1005.99	20234.48	1008.52	20294.94	1005.52	0308.87	1003.36
20326.14	1003.1	20341.6	1005.88	20376.14	1007.45	20397.29	1007.12	0450.21	1009.5
20461.96	1008.69	20485.33	1004.59	20503.57	1003.03	20523.73	1004.22	0581.55	1010.1
20626.86	1012.83	20637.02	1014.01	20678.94	1013.25	20690.1	1017.07	20712.53	1017.81
20729.15	1021.42	0758.54	1022.72	0769.24	1019.52	20782.73	1020.15	20807.03	1019.2
20820.96	1017	20831	1018.27	20844.49	1016.4	20871.7	1016.76	20886.74	1015.51
20895.7	1017.43	20915.38	1015.92	20935.23	1020.22	20944.4	1025.84	20956.53	1026.07
20966.88	1019.17	21108.47	1019.92	1183.53	1020.56	21311.57	1022.38	21340.58	1022.08
21398.61	1023.12	1427.63	102	321512.69	1024.12	1608.59	1023.84	21651.56	1022.85
21715	1023.22	1786.17	1023.12	1820.67	1022.62	1854.56	1023.72	1920.87	1024.77
21941.67	1025.7	22014.6	1025.74	22033.05	1025	22130.7	1025.82	2157.61	1025.44
22270.31	1026.11	22293.23	1025.89	22355.71	1026.42	2387.92	1026.12	2440.81	1026.52

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
17889.8	.037	19317.69	.037	20758.54	.037		

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19317.69 20758.54 456 449.63 359 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17889.8	19164.5	1033	F
20956.53	22440.81	1033	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1024.33	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.60	Wt. n-Val.		0.032	0.037
W.S. Elev (ft)	1022.72	Reach Len. (ft)	456.00	449.63	359.00
Crit W.S. (ft)	1019.08	Flow Area (sq ft)		15767.44	857.41
E.G. Slope (ft/ft)	0.001934	Area (sq ft)		15767.44	1693.09
Q Total (cfs)	166000.00	Flow (cfs)		161762.60	4237.42
Top Width (ft)	2041.05	Top Width (ft)		1432.21	608.84
Vel Total (ft/s)	9.99	Avg. Vel. (ft/s)		10.26	4.94
Max Chl Dpth (ft)	19.69	Hydr. Depth (ft)		11.01	4.74
Conv. Total (cfs)	3775089.0	Conv. (cfs)		3678723.0	96365.2
Length Wtd. (ft)	448.45	Wetted Per. (ft)		1442.12	183.14
Min Ch El (ft)	1003.03	Shear (lb/sq ft)		1.32	0.57
Alpha	1.03	Stream Power (lb/ft s)		13.54	2.79
Frctn Loss (ft)	1.21	Cum Volume (acre-ft)	6846.94	24220.71	1775.91
C & E Loss (ft)	0.12	Cum SA (acres)	1893.10	2479.19	739.88

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1024.33	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.60	Wt. n-Val.		0.032	0.037
W.S. Elev (ft)	1022.74	Reach Len. (ft)	456.00	449.63	359.00
Crit W.S. (ft)	1019.08	Flow Area (sq ft)		15783.52	859.32
E.G. Slope (ft/ft)	0.001927	Area (sq ft)		15783.52	859.32
Q Total (cfs)	166000.00	Flow (cfs)		161749.20	4250.81
Top Width (ft)	1612.41	Top Width (ft)		1432.23	180.18
Vel Total (ft/s)	9.97	Avg. Vel. (ft/s)		10.25	4.95
Max Chl Dpth (ft)	19.71	Hydr. Depth (ft)		11.02	4.77
Conv. Total (cfs)	3781648.0	Conv. (cfs)		3684810.0	96837.8
Length Wtd. (ft)	448.47	Wetted Per. (ft)		1442.14	182.81
Min Ch El (ft)	1003.03	Shear (lb/sq ft)		1.32	0.57
Alpha	1.03	Stream Power (lb/ft s)		13.49	2.80
Frctn Loss (ft)	1.20	Cum Volume (acre-ft)	1194.13	25145.33	386.02
C & E Loss (ft)	0.12	Cum SA (acres)	200.96	2484.25	82.84

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 208.57

INPUT
Description: 208.57

Left and Right Channel Bank Stations Interpolated
Station Elevation Data num= 200

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18043.1	1026.618105.91	1025.6118144.21	1025.5418188.08	1025.0718211.89	1024.98				
18258.69	1024.3218280.09	1024.3 18310.7	1023.8218325.77	1024.0618329.48	1023.7				
18344.87	1023.9718358.43	1023.418379.45	1024.618397.41	1024.6418445.05	1023.33				
18458.29	1023.4418481.95	102318501.82	1023.7818512.77	1023.6118543.96	1023.83				
18582.81	1024.4118612.91	1024.418624.01	1024.8218690.73	1025.19 18713.9	1025.5				
18798.55	1026.0618839.05	1026.11 18890.3	1026.5118911.31	1026.2118937.47	1026.19				
18997.38	1026.7 19007.7	1026.4519032.19	1026.3919066.17	1026.72 19069.2	1026.07				
19101.45	1026.419105.39	1026.7419174.29	1026.4 19242.2	1026.819276.95	1027.45				
19311.47	1027.5119330.99	1027.819362.95	1027.4519382.56	102719394.18	1019.45				
19399.31	1013.8219402.99	1010.9919419.31	1008.7819431.17	1007.7619447.66	1007.37				
19476.1	1007.2219494.43	1007.4419505.11	1007.9819510.11	1009.419533.51	1010.62				
19563.13	1011.7319586.72	1012.0619609.82	1012.6819648.13	1013.3219717.79	1013.72				
19732.39	1014.0619760.19	1015.5 19773.2	1015.9719779.57	1015.2219796.53	1016.47				
19809.96	1016.9519834.29	1016.9119874.35	1016.1319906.36	101519908.98	1013.83				
19930.84	1013.5519941.27	1011.619955.11	1010.4519974.65	1009.3319991.51	1007.7				
20021.3	1006.5220034.23	1006.220042.76	1004.9120051.06	1004.6620058.22	1003.68				
20078.97	1002.820093.45	1002.6120125.82	1002.720159.52	1004.1120184.03	1003.61				
20208.06	1004.1120215.97	1005.220237.26	1005.220259.55	1006.4520277.02	1006.2				
20316.96	1006.2320344.15	1005.120360.59	1005.3820364.27	1005.7720377.87	1009.05				
20383.24	1011.1320397.61	1009.820408.18	1009.8720417.33	1010.83 20424.9	1012.33				
20438.51	1013.0120456.81	1013.2320474.11	1013.9220492.85	1014.2120507.45	1014.14				
20526.79	1013.4920539.37	1013.420565.14	1014.420590.58	1015.3220605.65	1016.3				
20611.83	1015.6220620.49	1016.220641.35	1016.620645.26	101820655.94	1018.29				
20677.36	1018.3420685.83	1017.8720717.99	1018.1720731.12	1019.220755.71	1019.2				
20769.35	1019.6820773.24	1020.7420777.09	1024.4 20779.8	1021.920783.92	1020.63				
20809.6	1020.8420827.39	1021.3720830.05	1021.0920847.21	1021.3220873.66	1022.7				
20879.2	1024.1620895.09	1023.9520904.95	1021.9920937.19	1022.0320945.09	1021.36				
20954.6	1018.920958.81	1017.2120967.22	1017.3620976.54	1019.2520988.26	1023.32				
20994.42	1026.720999.24	1026.3921015.31	1026.721019.76	1024.6121033.44	1024.74				
21076.95	1023.7521088.41	1023.3321103.62	1023.2921111.64	1023.7321169.95	1024.08				
21191.87	1024.521229.35	1024.1321285.49	102421310.35	1024.17 21337.9	1023.9				
21376.71	1024.3921419.04	1024.3521462.54	1023.8721499.93	1023.9821527.74	1024.24				
21537.93	1024.89 21609.1	1025.4321620.99	1025.821627.53	1024.921654.54	1025.3				
21683.04	1025.121782.17	1025.0121829.35	1024.8521865.87	1025.721871.34	1025.36				
21941.71	1025.421967.65	1025.8321968.32	1026.1621988.33	1025.9 21991.2	1025.49				
22008.95	1025.8322099.68	1025.822160.09	1026.36 22189.9	1026.4322199.11	1026.26				
22228.89	1026.54 22250.8	1026.222285.77	1026.522286.17	1026.32 22317.8	1026.35				
22334.22	1026.9822335.38	1026.622386.13	1027.09 22430.6	1027.2322470.47	1027.86				
22500.57	1028.0222520.45	1027.7422540.45	1028.2422544.52	1030.622547.07	1030.63				
22553.13	1027.8822560.23	1025.56 22566.7	1025.5622575.37	1028.3822590.86	1028.15				

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
18043.1	.03719362.95	.03220360.59	.03221015.31	.037			

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
19382.5620731.12		685 539.75	467	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
18043.119330.99	1028	F	
20777.0922590.86	1028	F	

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1023.00	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.76	Wt. n-Val.		0.032	0.032
W.S. Elev (ft)	1020.24	Reach Len. (ft)	685.00	539.75	467.00
Crit W.S. (ft)	1018.75	Flow Area (sq ft)		12429.11	36.96
E.G. Slope (ft/ft)	0.004009	Area (sq ft)		12429.11	93.85
Q Total (cfs)	166000.00	Flow (cfs)		165897.50	102.48
Top Width (ft)	1408.38	Top Width (ft)		1338.15	70.23
Vel Total (ft/s)	13.32	Avg. Vel. (ft/s)		13.35	2.77
Max Chl Dpth (ft)	17.63	Hydr. Depth (ft)		9.29	0.92
Conv. Total (cfs)	2621607.0	Conv. (cfs)		2619988.0	1618.5
Length Wtd. (ft)	539.73	Wetted Per. (ft)		1345.01	40.36
Min Ch El (ft)	1002.61	Shear (lb/sq ft)		2.31	0.23
Alpha	1.00	Stream Power (lb/ft s)		30.87	0.64
Frctn Loss (ft)	1.57	Cum Volume (acre-ft)	6846.94	24075.19	1768.54
C & E Loss (ft)	0.45	Cum SA (acres)	1893.10	2464.89	737.08

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1023.02	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.76	Wt. n-Val.		0.032	
W.S. Elev (ft)	1020.26	Reach Len. (ft)	685.00	539.75	467.00
Crit W.S. (ft)	1018.75	Flow Area (sq ft)		12454.02	
E.G. Slope (ft/ft)	0.003991	Area (sq ft)		12454.02	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	1338.18	Top Width (ft)		1338.18	
Vel Total (ft/s)	13.33	Avg. Vel. (ft/s)		13.33	
Max Chl Dpth (ft)	17.65	Hydr. Depth (ft)		9.31	
Conv. Total (cfs)	2627760.0	Conv. (cfs)		2627760.0	
Length Wtd. (ft)	539.75	Wetted Per. (ft)		1346.10	
Min Ch El (ft)	1002.61	Shear (lb/sq ft)		2.31	
Alpha	1.00	Stream Power (lb/ft s)		30.72	
Frctn Loss (ft)	1.55	Cum Volume (acre-ft)	1194.13	24999.60	382.48

* C & E Loss (ft)	* 0.45	* Cum SA (acres)	* 200.96	* 2469.95	* 82.10	*

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 208.48

INPUT
Description: 208.48

Left and Right Channel Bank Stations Interpolated
Station Elevation Data num= 185

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17996.8	1025.318087.88	1025.75 18135.7		1025.518174.14		1025.618234.42		1025.1	
18242.22	1024.9418278.75	1024.7718296.78		1024.3 18330.3		1024.4218356.37		1023.56	
18396.78	1022.6518425.65	1022.5418438.55		1022.818443.72		1023.7 18452.1		1028.37	
18456.36	1029.418473.79	1028.6418483.21		1028.818490.75		1028.2118501.92		1020.63	
18510.88	1016.57 18517.2	1015.818532.92		101518548.71		1013.618563.89		1013.29	
18601.46	1013.718615.03	1013.118626.88		1012.9718673.46		1011.9918685.14		1011.3	
18709.42	1012.4418732.62	1012.5518746.16		1012.9618776.92		1014.9518793.29		1015.5	
18825.78	1016.0518831.87	1015.7 18838.1		1016.0518871.38		1016.6518899.17		1016.4	
18924.17	1015.8618946.43	1015.0518974.62		1014.32 19000.9		1013.23 19021.6		1013.67	
19029.98	1013.5319042.98	1011.7419052.81		1010.9319074.74		1010.0219087.23		1010.4	
19108.55	1010.7119125.56	1010.719132.98		1009.319144.31		1007.919158.27		1007.71	
19179.57	1007.87 19196.9	1007.619203.86		1007.819229.67		1007.68 19252.4		1008.24	
19273.39	1008.2519295.63	1010.1319335.75		1011.819373.54		1013.9419397.84		1014.52	
19417.49	1014.519491.91	1015.5 19523.5		1015.5919555.18		1016.219600.72		1016.13	
19617.17	1014.71 19629.3	1014.0619663.03		1014.0919690.04		1014.619692.52		1014.24	
19735.34	1014.4219792.79	1013.8519809.79		1014.0119821.12		1013.719839.66		1014.12	
19864.65	1013.7319874.48	1012.6919887.08		1010.119906.28		1008.0919917.38		1005.84	
19926.24	1003.619942.51	1001.5519951.73		1000.05 19964.2		998.719978.79		998.89	
19981.77	999.3319993.04	999.2120006.45		999.8920018.92		999.6320043.06		1000.05	
20060.21	999.8420074.55	1000.420083.95		1001.12 20102.1		1001.99 20121.5		1003.34	
20125.67	100420158.75	1005.720162.52		1006.4920179.29		1006.6420200.95		1007.85	
20236.77	1009.0320265.78	1010.7320279.71		1010.720298.68		1012.2620305.31		1012.15	
20311.54	1012.8520329.99	1013.420344.23		1013.5320362.96		1013.220374.51		1012.51	
20389.85	1012.1320395.57	1011.620416.51		1011.7220428.19		1009.7820434.35		1008.3	
20442.45	1007.1 20448.8	1006.9920458.78		1007.720466.63		1006.4720478.96		1006.83	
20496.57	1005.8720507.33	1006.2420513.16		1007.2420520.27		1007.720530.35		1007.7	
20539.28	1009.5220546.34	1013.120551.79		1018.3120557.74		1017.2320572.86		1013.46	
20578.59	1013.6420588.38	1012.2320601.35		1012.5220613.84		1012.420624.34		1013.01	
20633.27	1012.620656.88	1013.1820660.09		1013.7820664.57		1013.2620672.63		1013.6	
20680.59	1017.2220691.24	1024.0220693.58		1023.5420707.17		1023.320714.21		1023.5	
20723.64	1027.920730.75	1029.220739.88		1029.3820746.13		1027.9 20750.4		1025.4	
20770.94	1025.2820793.11	1025.3820828.04		102620878.66		1026.4820916.71		1027.13	
20973.15	1027.8520988.41	1028.3821010.17		1028.5621041.21		1029.321075.03		1029.6	
21086.4	1029.521107.07	1029.921134.05		1028.9221135.79		1028.121140.85		1022.96	
21143.56	1020.9921952.21	1020.9921968.53		1029.3421977.18		1026.721993.27		1026.16	
22006.53	1026.0722025.31	1025.122046.26		1024.8522082.66		1025.4122119.24		1025.3	
22140.38	1025.5122146.37	1025.1122150.45		1026.4822168.72		1026.3522187.16		1026.47	

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
17996.8	.04318601.46	.03220162.52		.03220551.79		.037	

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
18501.9220691.24		521 435.12	469	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17996.818456.36	1038	F	
20730.7522187.16	1038	F	

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 1020.98	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 1.26	* Wt. n-Val.	*	* 0.032	* *
* W.S. Elev (ft)	* 1019.72	* Reach Len. (ft)	* 521.00	* 435.12	* 469.00 *
* Crit W.S. (ft)	* 1016.90	* Flow Area (sq ft)	*	*18421.86	* *
* E.G. Slope (ft/ft)	*0.002203	* Area (sq ft)	*	*18421.86	* *
* Q Total (cfs)	*166000.00	* Flow (cfs)	*	*166000.00	* *
* Top Width (ft)	* 2180.58	* Top Width (ft)	*	* 2180.58	* *
* Vel Total (ft/s)	* 9.01	* Avg. Vel. (ft/s)	*	* 9.01	* *
* Max Chl Dpth (ft)	* 21.02	* Hydr. Depth (ft)	*	* 8.45	* *
* Conv. Total (cfs)	*3536993.0	* Conv. (cfs)	*	*3536993.0	* *
* Length Wtd. (ft)	* 435.12	* Wetted Per. (ft)	*	* 2190.36	* *
* Min Ch El (ft)	* 998.70	* Shear (lb/sq ft)	*	* 1.16	* *
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 10.42	* *
* Frctn Loss (ft)	* 0.94	* Cum Volume (acre-ft)	* 6846.94	*23884.05	* 1768.04 *
* C & E Loss (ft)	* 0.02	* Cum SA (acres)	* 1893.10	* 2443.09	* 736.71 *

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 1021.01	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 1.25	* Wt. n-Val.	*	* 0.032	* *
* W.S. Elev (ft)	* 1019.76	* Reach Len. (ft)	* 521.00	* 435.12	* 469.00 *
* Crit W.S. (ft)	* 1016.90	* Flow Area (sq ft)	*	*18507.17	* *
* E.G. Slope (ft/ft)	*0.002170	* Area (sq ft)	*	*18507.17	* *
* Q Total (cfs)	*166000.00	* Flow (cfs)	*	*166000.00	* *
* Top Width (ft)	* 2180.73	* Top Width (ft)	*	* 2180.73	* *
* Vel Total (ft/s)	* 8.97	* Avg. Vel. (ft/s)	*	* 8.97	* *
* Max Chl Dpth (ft)	* 21.06	* Hydr. Depth (ft)	*	* 8.49	* *

* Conv. Total (cfs)	*3563806.0	* Conv. (cfs)	*	*3563806.0	*	*	
* Length Wtd. (ft)	* 435.12	* Wetted Per. (ft)	*	* 2190.52	*	*	
* Min Ch El (ft)	* 998.70	* Shear (lb/sq ft)	*	* 1.14	*	*	
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 10.26	*	*	
* Frctn Loss (ft)	* 0.93	* Cum Volume (acre-ft)	* 1194.13	*24807.78	* 382.48	*	
* C & E Loss (ft)	* 0.02	* Cum SA (acres)	* 200.96	* 2448.15	* 82.10	*	

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 208.39

INPUT
Description: 208.39 - FEMA Section T

Left and Right Channel Bank Stations
Interpolated
Station Elevation Data num= 159

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17994.5	1023.618007.86	1023.3718031.73	1023.3618062.84	1023.7418090.42	1023.67				
18114.62	1023.318143.17	1023.7 18160.8	1023.818214.18	1022.818251.67	1022.9				
18257.49	102518261.64	1023.0718284.65	1023.5818312.07	1023.318333.31	1022.84				
18368.53	1023.318401.14	1023.2618419.63	1023.6318426.12	1026.1818432.11	1030.36				
18454.65	1030.1118468.95	1021.618472.03	1019.0718480.28	1015.1718493.86	1014.23				
18502.94	1011.618514.98	1011.08 18532.3	1009.8718559.86	1009.8318596.86	1010.52				
18612.43	1012.1818626.02	1012.3218667.62	1011.2718684.66	1012.92 18695.4	1013.5				
18704.94	1013.5318739.77	1014.318782.19	1014.318825.93	1013.2618838.43	1012.8				
18847.91	1012.8418885.02	1012.3418935.29	1011.818943.22	1011.8318961.27	1011.08				
18972.93	1008.9618990.89	1008.29 19016.5	1008.26 19040.7	1007.6 19060.3	1007.35				
19084.42	1007.4719120.66	1007.319138.38	1006.8519166.34	1007.0619181.66	1008.9				
19188.11	1010.08 19204.6	1011.7919214.81	1012.4619242.99	1013.4619276.36	1013.92				
19313.19	1014.9519348.93	1015.0719366.19	1015.3619421.96	1015.219452.11	1015.53				
19470.77	1015.4519487.54	1015.7419545.02	1015.8319551.46	1015.719604.21	1016.09				
19619.85	1016.4619639.62	1016.2219680.93	1016.3419688.83	1015.419726.01	1015.1				
19770.98	1014.319784.11	1013.8819799.23	1013.0619816.81	1012.79 19826.9	1012.9				
19842.07	1014.119865.81	1014.519881.86	1014.219894.64	1012.619902.68	1009.36				
19909.6	1005.8819917.47	100319924.78	1000.919935.61	999.4919959.92	998.77				
19979.97	998.7120012.27	999.3720018.31	999.73 20046.6	1000.520100.86	1003.25				
20137.31	1005.220171.78	1006.2820210.78	1008.29 20248.1	1009.7120277.51	1010.3				
20300.59	1010.5920331.57	1010.5920368.25	1011.1 20389.4	1011.1720436.67	1010.51				
20445.36	1010.65 20453.1	1009.8820458.48	1009.5820465.68	1007.7420482.62	1004.82				
20500.75	1003.7520533.42	1003.5820538.13	1003.1920548.27	1003.320555.54	1004.2				
20568.26	1008.8920580.93	1007.7120590.06	1008.2120595.17	1009.21 20613	1008.44				
20620.51	1009.0820630.22	1008.920636.21	1007.4320644.82	1006.5520668.74	1005.89				
20698.78	1005.8120709.21	1007.6420714.18	1009.720724.42	102021260.32	1020.01				
21266.13	1023.0621274.82	1025.2421279.02	1023.9921283.14	1020.0322038.34	1020.07				
22041.46	1022.0522045.28	1027.5922047.66	1028.122065.98	1025.622089.56	1025.6				
22092.59	1026.522103.19	1025.322115.74	1024.9622132.19	1025.6422134.15	1024.81				
22141.7	1024.75 22147.3	1026.222154.11	1024.7822173.98	1024.3522198.56	1024.07				
22234.19	1025.0822282.49	1025.6222311.63	1025.722357.18	1026.0422371.46	1026				
22384.45	1026.422397.87	1026.4722411.27	1026.9922454.87	1027					

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
17994.5	.04318782.19	.032 20453.1	.03220724.42	.03722047.66	.025				

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
18468.9520724.42		509 512.43	494	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17994.518472.03	1030	F	
20721.8722454.87	1030	F	

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 1020.02	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 1.20	* Wt. n-Val.	*	* 0.033	* *
* W.S. Elev (ft)	* 1018.82	* Reach Len. (ft)	* 509.00	* 512.43	* 494.00 *
* Crit W.S. (ft)	* 1015.82	* Flow Area (sq ft)	*	*18883.13	* *
* E.G. Slope (ft/ft)	*0.002140	* Area (sq ft)	*	*18884.09	* *
* Q Total (cfs)	*166000.00	* Flow (cfs)	*	*166000.00	* *
* Top Width (ft)	* 2250.69	* Top Width (ft)	*	* 2250.69	* *
* Vel Total (ft/s)	* 8.79	* Avg. Vel. (ft/s)	*	* 8.79	* *
* Max Chl Dpth (ft)	* 20.11	* Hydr. Depth (ft)	*	* 8.40	* *
* Conv. Total (cfs)	*3588056.0	* Conv. (cfs)	*	*3588056.0	* *
* Length Wtd. (ft)	* 512.43	* Wetted Per. (ft)	*	* 2260.01	* *
* Min Ch El (ft)	* 998.71	* Shear (lb/sq ft)	*	* 1.12	* *
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 9.81	* *
* Frctn Loss (ft)	* 1.12	* Cum Volume (acre-ft)	* 6846.94	*23697.73	* 1768.04 *
* C & E Loss (ft)	* 0.00	* Cum SA (acres)	* 1893.10	* 2420.96	* 736.71 *

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 1020.06	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 1.18	* Wt. n-Val.	*	* 0.033	* *
* W.S. Elev (ft)	* 1018.88	* Reach Len. (ft)	* 509.00	* 512.43	* 494.00 *
* Crit W.S. (ft)	* 1015.82	* Flow Area (sq ft)	*	*19020.83	* *
* E.G. Slope (ft/ft)	*0.002091	* Area (sq ft)	*	*19021.87	* *
* Q Total (cfs)	*166000.00	* Flow (cfs)	*	*166000.00	* *
* Top Width (ft)	* 2250.88	* Top Width (ft)	*	* 2250.88	* *
* Vel Total (ft/s)	* 8.73	* Avg. Vel. (ft/s)	*	* 8.73	* *
* Max Chl Dpth (ft)	* 20.17	* Hydr. Depth (ft)	*	* 8.46	* *
* Conv. Total (cfs)	*3630500.0	* Conv. (cfs)	*	*3630500.0	* *

Pre-Project

* Length Wtd. (ft)	* 512.43	* Wetted Per. (ft)	*	* 2260.16	*	*		
* Min Ch El (ft)	* 998.71	* Shear (lb/sq ft)	*	* 1.10	*	*		
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 9.59	*	*		
* Frctn Loss (ft)	* 1.08	* Cum Volume (acre-ft)	* 1194.13	*24620.34	*	382.48	*	
* C & E Loss (ft)	* 0.00	* Cum SA (acres)	* 200.96	* 2426.02	*	82.10	*	

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 208.29

INPUT
Description: 208.29

Left and Right Channel Bank Stations Interpolated
Station Elevation Data num= 131

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16935.4	1021.81	16972.48	1022.05	16991.55	1022.51	17024.32	1021.71	17120.62	1023.2
17155.59	1022.66	17192.85	1022.06	17285.39	1021.81	17353.34	1022.09	17365.71	1022.74
17425.62	1022.45	17477.86	1022.11	17592.61	1022.28	17700.8	1021.98	17799.59	1021.43
17903.68	1020.7	17956.41	1019.81	18005.57	1017.76	18011.18	1020.3	18035.1	1018.9
18042.76	1021.86	18050.62	1019.99	18090.91	1023.16	18147.03	1024.44	18210.46	1025.4
18249.72	1025.23	18271.71	1024.85	18313.27	1023.28	18362.38		102318385.21	1023.51
18396.18	1025.41	18402.2	1027.35	18445.01	1025.29	18488.76	1023.98	18518.15	1023.71
18541.67	1023.81	18561.82	1026.12	18582.96	1011.56	18594.71	1008.93	18648.73	1009.35
18681.71	1010.61	18708.42	1009.21	18737.24	1009.65	18755.56	1010.47	18800.06	1011.63
18835.5	1012.23	18875.15	1012.11	18949.06	1011.64	19019.42	1011.11	19055.94	1009.11
19108.87	1007.37	19148.55	1006.71	19191.76	1006.91	19238.46	1008.21	19283.47	1009.86
19311.57	1011.15	19324.96	1014.41	19351.55	1013.91	19395.76	1012.17	19433.43	1011.7
19500.33	1014.76	19596.42	1015.62	19629.34	1015.57	19669.13	1015.41	19682.11	1013.28
19693.86	1014.29	19756.49	1012.94	19768.98	1010.11	19798.49	1008.72	19819.74	1009.5
19836.3	1013.61	19870.91	1013.94	19876.64	1013.61	19889.61	1010.51	19904.18	1008.2
19928.74	1005.14	19950.84	1004.27	19997.62	1003.32	20036.38		100320095.78	1002.85
20117.53	1003.18	20153.59	1004.19	20318.8	1010.12	20343.18	1010.71	20377.38	1010.3
20428.47	1010.27	20469.42	1010.62	20509.53	1010.63	20564.09	1010.13	20581.39	1009.34
20605.08	101020617.03	1007.58	20645.5	1005.9	20716.8	1004.61	20731.17	1005.02	
20758.6	1006.69	20777.07	1006.72	20814.86	1005.94	20852.55	1007.02	20869.68	1008.1
20883.72	1012.82	20899.05	1021.82	20909.13	1025.88	20910.68	1020.05	21403.95	1020.03
21404.24	1021.12	21413.92	1024.59	21416.52	102021705.57		1019.95	21721.4	1021.36
21744.23	1033.12	21778.65	1032.39	21810.99	1036.23	21866.31	1032.72	21906.79	1030.91
21931.28	1030.14	21987.27	1029.15	22047.93	1027.42	22086.31	1026.79	22185.43	1026.3
22216.41	1025.29	22240.41	1025.58	22262.45	1026.72	22288.71	1027.25	22334.14	1026.3
22365.77	1026.3	22395	1026.73	22437.63	1025.32	22484.18	1025.63	22519.5	1025.02
22563.78	1026.31								

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16935.4	.025	17700.8	.04	18561.82	.03	220909.13	.037

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
18561.82 20909.13 577 525.37 560 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
16935.41	8582.96	1032	F
20899.05	22563.78	1032	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 1018.90	* Element	*	Left OB *	Channel *	Right OB *		
* Vel Head (ft)	* 1.21	* Wt. n-Val.	*	* 0.032	*	*		
* W.S. Elev (ft)	* 1017.69	* Reach Len. (ft)	*	577.00 *	525.37 *	560.00 *		
* Crit W.S. (ft)	* 1014.81	* Flow Area (sq ft)	*	*18779.47	*	*		
* E.G. Slope (ft/ft)	*0.002223	* Area (sq ft)	*	*18806.73	*	*		
* Q Total (cfs)	*166000.00	* Flow (cfs)	*	*166000.00	*	*		
* Top Width (ft)	* 2317.98	* Top Width (ft)	*	* 2317.98	*	*		
* Vel Total (ft/s)	* 8.84	* Avg. Vel. (ft/s)	*	* 8.84	*	*		
* Max Chl Dpth (ft)	* 14.84	* Hydr. Depth (ft)	*	* 8.13	*	*		
* Conv. Total (cfs)	*3520900.0	* Conv. (cfs)	*	*3520900.0	*	*		
* Length Wtd. (ft)	* 525.37	* Wetted Per. (ft)	*	* 2314.71	*	*		
* Min Ch El (ft)	* 1002.85	* Shear (lb/sq ft)	*	* 1.13	*	*		
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 9.95	*	*		
* Frctn Loss (ft)	* 1.05	* Cum Volume (acre-ft)	* 6846.94	*23476.04	*	1768.04	*	
* C & E Loss (ft)	* 0.07	* Cum SA (acres)	* 1893.10	* 2394.09	*	736.71	*	

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 1018.98	* Element	*	Left OB *	Channel *	Right OB *		
* Vel Head (ft)	* 1.18	* Wt. n-Val.	*	* 0.032	*	*		
* W.S. Elev (ft)	* 1017.80	* Reach Len. (ft)	*	577.00 *	525.37 *	560.00 *		
* Crit W.S. (ft)	* 1014.81	* Flow Area (sq ft)	*	*19049.38	*	*		
* E.G. Slope (ft/ft)	*0.002120	* Area (sq ft)	*	*19077.68	*	*		
* Q Total (cfs)	*166000.00	* Flow (cfs)	*	*166000.00	*	*		
* Top Width (ft)	* 2318.35	* Top Width (ft)	*	* 2318.35	*	*		
* Vel Total (ft/s)	* 8.71	* Avg. Vel. (ft/s)	*	* 8.71	*	*		
* Max Chl Dpth (ft)	* 14.95	* Hydr. Depth (ft)	*	* 8.25	*	*		
* Conv. Total (cfs)	*3605403.0	* Conv. (cfs)	*	*3605403.0	*	*		
* Length Wtd. (ft)	* 525.37	* Wetted Per. (ft)	*	* 2314.94	*	*		
* Min Ch El (ft)	* 1002.85	* Shear (lb/sq ft)	*	* 1.09	*	*		
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 9.49	*	*		
* Frctn Loss (ft)	* 1.00	* Cum Volume (acre-ft)	* 1194.13	*24396.24	*	382.48	*	
* C & E Loss (ft)	* 0.07	* Cum SA (acres)	* 200.96	* 2399.14	*	82.10	*	

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 208.19

INPUT
Description: 208.19

Left and Right Channel Bank Stations Interpolated
Station Elevation Data num= 159

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16730.1	1022.916753.12	1023.5516785.44	1023.6 16819.4	102316845.13	1023.28				
16850.24	1021.416853.31	1023.4216886.56	1021.6316909.64	1019.7916911.45	1017.37				
16918.57	1019.1316953.51	1019.6816978.39	1019.47 17023.7	1020.1717062.04	1020.06				
17111.18	1020.6417219.52	1020.617267.34	1020.0517293.42	1020.717369.92	1021.12				
17397.42	1020.6217471.85	1021.0417511.52	1020.417566.36	1020.417569.38	1020.93				
17598.82	1020.417672.95	1020.717738.43	1019.5917795.84	1019.417821.76	1019.88				
17911.17	1019.4518010.94	1019.9 18054.7	1019.1418110.66	1019.4518120.16	1019.83				
18153.28	1019.4518171.52	1019.7918181.75	1024.3718190.83	1026.118197.36	1025.06				
18237.15	1025.3418249.53	1026.318307.15	1024.7918350.15	1024.8618400.95	1024				
18460.32	1022.5318489.32	1022.7218530.98	1023.7218535.79	1025.718539.61	1023.66				
18565	1023.6618602.13	1022.3718631.53	1022.6718642.73	1028.518666.35	1028.87				
18683.99	1017.318695.75	1016.4218710.31	1010.518725.05	1009.8218747.26	1006.2				
18787.22	1006.5318801.02	1008.9818851.13	1008.3218883.28	1008.7918924.65	1010.7				
18964.64	1011.0318979.98	1010.4119014.36	1012.2519052.42	1010.819129.94	1010.23				
19240.15	1011.5919275.61	1011.4 19288.7	1010.0419301.43	1007.4819314.13	1006.8				
19366.6	1005.719475.49	1004.5619485.33	1003.819509.19	1005.0119534.81	1015.38				
19544.85	1016.4919600.74	1017.419656.77	1015.2519677.18	1016.1219692.65	1012.86				
19745.9	1011.4519808.87	1011.219828.37	1010.5419899.37	1011.119929.77	1010.4				
19978.61	1005.319993.64	1001.520008.63	1001.01 20109.3	1001.2120138.23	1002.42				
20152.68	1003.8520211.69	1004.920276.37	1004.820317.78	1005.720367.67	1007.91				
20413.06	1008.7920429.71	1009.4920435.42	1008.2520447.29	1008.5520484.38	1009.39				
20503.03	1008.9420508.06	1005.9920520.43	1003.8120535.39	1002.8120566.18	1003.6				
20607.12	1002.920626.59	1004.920695.02	1008.5120734.91	1010.220770.97	1011.13				
20817.48	1011.2320904.94	101020982.62	1008.721008.43	1010.121043.19	1009.23				
21068.97	1009.53 21081.6	1011.6421090.53	1011.32 21098.2	1008.5521110.25	1008.29				
21134.97	1009.5321146.26	1012.8121169.22	1013.8321195.79	1011.5921207.45	1009.12				
21220.24	1009 21248	1010.2921263.85	1012.9521285.83	1013.2221297.24	1017.48				
21306.02	1022.6221318.96	1022.4221337.97	1020.0222088.87	102022106.28	1024.94				
22120	1019.3122160.73	1020.1822197.34	1023.5222231.32	1023.9322246.27	1023.25				
22291.76	1023.622316.75	1023.2322428.91	1023.222463.35	1022.6322535.02	1022.57				
22586.05	1023.322592.95	1026.6722605.13	1029.5222628.84	1029.2622647.68	1032.3				
22666.8	1032.322683.99	1034.73 22703.8	1034.1922714.61	1034.83					

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16730.1	.02518181.75	.04318683.99	.04318747.26	.03220447.29	.032				
21297.24	.037								

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
18683.9921297.24 537 505.13 617 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
16730.118695.75	1030	F	
21306.0222714.61	1030	F	

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1017.78	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.99	Wt. n-Val.		0.032	
W.S. Elev (ft)	1016.79	Reach Len. (ft)	537.00	505.13	617.00
Crit W.S. (ft)	1013.53	Flow Area (sq ft)		20772.68	
E.G. Slope (ft/ft)	0.001820	Area (sq ft)		20773.58	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	2550.99	Top Width (ft)		2550.99	
Vel Total (ft/s)	7.99	Avg. Vel. (ft/s)		7.99	
Max Chl Dpth (ft)	15.78	Hydr. Depth (ft)		8.16	
Conv. Total (cfs)	3891190.0	Conv. (cfs)		3891190.0	
Length Wtd. (ft)	512.12	Wetted Per. (ft)		2555.73	
Min Ch El (ft)	1001.01	Shear (lb/sq ft)		0.92	
Alpha	1.00	Stream Power (lb/ft s)		7.38	
Frctn Loss (ft)	0.92	Cum Volume (acre-ft)	6846.94	23237.35	1768.04
C & E Loss (ft)	0.00	Cum SA (acres)	1893.10	2364.72	736.71

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1017.92	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.95	Wt. n-Val.		0.032	
W.S. Elev (ft)	1016.97	Reach Len. (ft)	537.00	505.13	617.00
Crit W.S. (ft)	1013.53	Flow Area (sq ft)		21233.04	
E.G. Slope (ft/ft)	0.001707	Area (sq ft)		21235.04	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	2569.65	Top Width (ft)		2569.65	
Vel Total (ft/s)	7.82	Avg. Vel. (ft/s)		7.82	
Max Chl Dpth (ft)	15.96	Hydr. Depth (ft)		8.29	
Conv. Total (cfs)	4017658.0	Conv. (cfs)		4017658.0	
Length Wtd. (ft)	512.43	Wetted Per. (ft)		2572.02	
Min Ch El (ft)	1001.01	Shear (lb/sq ft)		0.88	
Alpha	1.00	Stream Power (lb/ft s)		6.88	
Frctn Loss (ft)	0.84	Cum Volume (acre-ft)	1194.13	24153.14	382.48
C & E Loss (ft)	0.00	Cum SA (acres)	200.96	2369.67	82.10

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 208.10

INPUT
Description: 208.10

Left and Right Channel Bank Stations Interpolated
Station Elevation Data num= 129

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16849	1021.71	6914.49	1022.52	16925.9	1023.43	16996.09	1020.83	17006.05	1019.92
17027.87	1020.31	17098.78	1019.07	17322.52	1019.06	17694.41	1019.55	17793.4	1018.1
17811.32	102317	826.28	1036.62	17856.27	1022.21	7868.24	1018.31	7961.78	1017.95
17970.02	1021.56	17992.67	1025.36	18008.84	1023.96	18047.58	1025.05	18099.5	1028.37
18140.76	103018	245.37	103018	252.56	1026.41	8262.34	1029.71	8292.78	1049.38
18302.82	1053.7	18317.1	1055.81	18333.4	1055.61	8356.26	1046.16	8389.95	1023.6
18399.27	1019.61	8416.54	1019.17	18557.41	1019.61	8572.13	1026.79	18608.43	1047.96
18623.04	1051.27	18634.23	1044.73	18668.11	1020.99	18732.88	1019.71	8784.22	1019.66
18797.7	1026.71	18856.99	1023.6	18870.8	1014.91	18882.98	1009.91	8926.29	1008.77
18952.21	1009.08	18956.06	1007.66	19027.93	1008.33	19043.05	1007.51	9068.13	1008.59
19095.06	1007.89	19182.71	1009.81	9229.38	1009.41	9260.25	1008.05	19310.05	1007.21
19358.35	1007.25	19407.38	100919	467.85	1008.54	19529	1006.24	19563.13	1001.18
19586.76	999.91	19617.21	1000.68	19649.86	1008.31	9685.47	1010.41	19707.28	1013.39
19729.45	1010.22	19757.65	1010.3	19778.4	1008.16	19852.01	1007.49	19894.95	1009.04
19925.84	1011.14	19965.18	101519	989.66	1013.88	20041.83	1014.71	20048.67	1006.92
20061.49	1001.92	20106.89	999.34	20143.17	999.65	20207.73	1002.32	20285.89	1002
20401.54	1002.62	20509.22	1004.29	20528.1	1003.74	20583.67	1004.72	20623.44	1003.08
20651.87	1000.82	20671.68	1001.44	20688.98	1007.14	20705.6	1015.45	20809.23	1015.2
20856.97	1015.83	20946.74	1014.89	21019.47	1010.92	21075.66	1009.93	21150.61	1009.4
21204.6	1009.73	21295.02	1011.29	21520.61	1010.32	21545.89	1011.81	21615.11	1009.44
21650.89	1011.77	21687.56	1010.54	21709.32	1023.62	21722.41	1017.32	21736.88	1017.55
21745.37	1013.38	21780.34	1012.51	21796.93	1016.42	21806.75	1022.36	21824.91	1020.88
21887.06	1021.42	21909.05	1024.02	21919.75	1022.12	21932.01	1024.09	21952.2	1020.02
22200.4	1020.02	22216.67	1027.51	22230.47	1022.72	22230.5	1020.04	22568	1019.98
22568.37	1022.26	22583.7	1026.62	2591.93	1021.78	22647.09	1021.74	22656.37	1025.17
22670.28	1026.39	22686.39	1022.37	22716.17	1021.75	22791.32	1021.66		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16849	.02	517826.28	.043	18797.7	.03	220623.44	.03	221709.32	.032

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
18870.82 0856.97 582 483.64 477 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
1684	918796.92	1030	F
21709.32	22791.32	1030	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1016.86	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.01	Wt. n-Val.	0.032	0.032	0.032
W.S. Elev (ft)	1015.84	Reach Len. (ft)	582.00	483.64	477.00
Crit W.S. (ft)	1012.70	Flow Area (sq ft)	0.69	17295.01	3850.23
E.G. Slope (ft/ft)	0.001771	Area (sq ft)	0.69	17295.01	3981.41
Q Total (cfs)	166000.00	Flow (cfs)	0.73	145260.80	20738.53
Top Width (ft)	2881.27	Top Width (ft)	1.48	1986.17	893.62
Vel Total (ft/s)	7.85	Avg. Vel. (ft/s)	1.05	8.40	5.39
Max Chl Dpth (ft)	16.50	Hydr. Depth (ft)	0.47	8.71	4.59
Conv. Total (cfs)	3945011.0	Conv. (cfs)	17.3	3452140.0	492853.8
Length Wtd. (ft)	483.24	Wetted Per. (ft)	1.75	1997.49	841.22
Min Ch El (ft)	999.34	Shear (lb/sq ft)	0.04	0.96	0.51
Alpha	1.06	Stream Power (lb/ft s)	0.05	8.04	2.73
Frctn Loss (ft)	0.96	Cum Volume (acre-ft)	6846.94	23016.63	1739.84
C & E Loss (ft)	0.04	Cum SA (acres)	1893.09	2338.42	730.38

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1017.08	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.94	Wt. n-Val.	0.032	0.032	0.032
W.S. Elev (ft)	1016.14	Reach Len. (ft)	582.00	483.64	477.00
Crit W.S. (ft)	1012.70	Flow Area (sq ft)	1.20	17884.53	4099.46
E.G. Slope (ft/ft)	0.001567	Area (sq ft)	1.20	17884.53	4099.46
Q Total (cfs)	166000.00	Flow (cfs)	1.43	144345.50	21653.06
Top Width (ft)	2828.04	Top Width (ft)	1.95	1986.17	839.92
Vel Total (ft/s)	7.55	Avg. Vel. (ft/s)	1.19	8.07	5.28
Max Chl Dpth (ft)	16.80	Hydr. Depth (ft)	0.61	9.00	4.88
Conv. Total (cfs)	4192829.0	Conv. (cfs)	36.1	3645879.0	546913.1
Length Wtd. (ft)	482.77	Wetted Per. (ft)	2.31	1997.49	841.79
Min Ch El (ft)	999.34	Shear (lb/sq ft)	0.05	0.88	0.48
Alpha	1.06	Stream Power (lb/ft s)	0.06	7.07	2.52
Frctn Loss (ft)	0.83	Cum Volume (acre-ft)	1194.12	23926.32	353.45
C & E Loss (ft)	0.03	Cum SA (acres)	200.94	2343.25	76.15

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 207.99

INPUT
Description: 207.99

Left and Right Channel Bank Stations Interpolated
Station Elevation Data num= 146

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16875.4	1020.416977.53	1020.317079.65	1019.7917154.55	1020.117179.37	1019.8				
17210.01	1023.417244.75	1026.617267.55	1025.6317306.41	1027.617349.36	1028.51				
17355.92	1026.917369.61	1019.3917391.72	1019.2917409.24	1025.1117426.47	1027.04				
17451.06	1026.417464.15	1023.9517469.46	1024.8217487.85	1023.717495.78	1021.77				
17512.14	1020.717590.41	1021.2717781.42	1020.717841.75	1019.2617866.96	1019.66				
17883.94	1023.117895.04	1022.0517908.22	1018.7417922.06	1018.6417964.38	1020.31				
18006.33	1021.4918046.72	1021.918082.14	1021.518110.76	1020.4818160.74	1020.46				
18172.03	1025.1418182.63	1024.0318194.68	1019.8918254.92	102018344.22	1019.8				
18361.2	1020.518393.48	1020.5618451.15	1019.3118513.04	1017.5418553.55	1017.97				
18671.62	1017.918689.62	1017.418726.09	1017.9818764.94	1017.3918813.55	1017.48				
18856.12	1018.52 18866.8	1024.75 18913.8	1024.0818924.68	1017.5218940.28	1016.67				
19029.29	1016.719035.76	1018.4319044.22	1016.3219067.34	1015.719077.06	1016.63				
19084.9	1020 19104.1	1014.819128.89	1010.8919148.44	1009.619155.94	1010.31				
19184.36	1010.1919264.79	1007.1819286.08	1005.219355.36	1004.5819391.83	1006.23				
19415.23	1004.719426.94	1005.0419478.75	1002.6119527.05	1001.119569.99	1001.79				
19584.17	1001.3719607.99	1003.7419654.67	1005.3519679.49	1006.97	19726	1008.24			
19729.58	1006.519756.21	1006.6619785.55	1007.7719812.51	1009.9919843.15	1010.42				
19882.31	1008.1119905.55	1007.9719946.07	1008.720009.37	1009.2920064.03	1010.32				
20073.82	1009.9320140.66	1009.6920197.34	1005.920233.66	1004.97 20259.6	1001				
20291.07	999.9520342.68	1000.320370.63	1002.29 20412.8	1001.6420462.43	998.4				
20486.63	997.99 20545.4	997.8520589.68	996.9820650.71	1001.2920665.28	1004.99				
20685.76	1014.37 20716.6	1013.9420733.22	1012.8220743.49	1009.820787.79	1013.48				
20857.42	1014.4320933.98	1014.820990.89	101521043.51	1014.821055.56	1015.26				
21090.28	1014.4821181.08	1014.221237.07	1012.69 21253.4	1008.7221328.64	1004.82				
21423.21	1006.3621502.67	1010.8421536.23	1011.5721568.91	1011.23 21597.2	1011.62				
21641.23	1011.5121715.89	1010.621737.64	1009.1121786.71	1008.521795.52	1009.19				
21820.53	1008.7521849.91	1014.321861.63	1015.621897.57	1028.3621904.18	1023.24				
21912.53	1022.8321936.68	1017.4121986.37	1017.12 22007.9	1025.2 22025.2	1023.85				
22120.03	1018.722137.71	1020.7422149.54	1026.4322164.63	1022.3922225.39	1022.53				
22268.37	1021.66								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
16875.4	.04318813.55	.03220933.98	.032		

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19184.3620685.76 483 482.81 544 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
16875.4	19084.9	1025	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1015.86	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.40	Wt. n-Val.	0.032	0.032	0.032
W.S. Elev (ft)	1014.47	Reach Len. (ft)	483.00	482.81	544.00
Crit W.S. (ft)	1012.00	Flow Area (sq ft)	276.72	14534.63	3565.34
E.G. Slope (ft/ft)	0.002225	Area (sq ft)	276.72	14534.63	3565.34
Q Total (cfs)	166000.00	Flow (cfs)	1404.00	144333.30	20262.72
Top Width (ft)	2515.31	Top Width (ft)	78.14	1501.40	935.77
Vel Total (ft/s)	9.03	Avg. Vel. (ft/s)	5.07	9.93	5.68
Max Chl Dpth (ft)	17.49	Hydr. Depth (ft)	3.54	9.68	3.81
Conv. Total (cfs)	3518848.0	Conv. (cfs)	29761.9	3059559.0	429526.8
Length Wtd. (ft)	493.74	Wetted Per. (ft)	78.50	1505.88	937.77
Min Ch El (ft)	996.98	Shear (lb/sq ft)	0.49	1.34	0.53
Alpha	1.10	Stream Power (lb/ft s)	2.48	13.32	3.00
Frctn Loss (ft)	0.96	Cum Volume (acre-ft)	6845.09	22839.93	1698.52
C & E Loss (ft)	0.13	Cum SA (acres)	1892.55	2319.06	720.36

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1016.21	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.26	Wt. n-Val.		0.032	0.032
W.S. Elev (ft)	1014.96	Reach Len. (ft)	483.00	482.81	544.00
Crit W.S. (ft)	1011.99	Flow Area (sq ft)		15268.19	4059.89
E.G. Slope (ft/ft)	0.001889	Area (sq ft)		15268.19	4059.89
Q Total (cfs)	166000.00	Flow (cfs)		144043.00	21957.02
Top Width (ft)	2625.07	Top Width (ft)		1501.40	1123.67
Vel Total (ft/s)	8.59	Avg. Vel. (ft/s)		9.43	5.41
Max Chl Dpth (ft)	17.97	Hydr. Depth (ft)		10.17	3.61
Conv. Total (cfs)	3819440.0	Conv. (cfs)		3314238.0	505201.8
Length Wtd. (ft)	494.45	Wetted Per. (ft)		1510.64	1125.71
Min Ch El (ft)	996.98	Shear (lb/sq ft)		1.19	0.43
Alpha	1.10	Stream Power (lb/ft s)		11.24	2.30
Frctn Loss (ft)	0.77	Cum Volume (acre-ft)	1194.12	23742.28	308.77
C & E Loss (ft)	0.13	Cum SA (acres)	200.93	2323.89	65.40

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 207.90

INPUT
Description: 207.90 - FEMA Section S

Right Channel Bank Station Interpolated
Station Elevation Data num= 139

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16668.2	1021.116697.07	1021.2216715.13	1026.9116727.84	1033.6216745.17	1028.8				
16753.49	1031.8416764.39	1028.79 16810.7	1028.83 16818.7	1032.69 16841.3	1032.95				
16853.11	1030.01 16873.1	1020.4716891.99	1017.12 16943.6	1015.9717050.54	1015.79				
17101.54	1016.6117263.36	1016.9317270.78	1021.4917278.85	1016.117302.32	1032.54				
17320.25	1032.617332.89	1029.117338.19	1031.5317355.36	1019.4417363.77	1016.13				
17467.61	1016.35 17507.5	1017.2617575.75	1017.9317637.97	1017.3717736.67	1015.57				
17817.34	1016.417833.13	1018.8517839.54	1023.4217846.61	1020.0217858.61	1020.63				
17873.28	1025.2817882.53	1020.8617935.87	1020.2417980.62	1018.4617993.47	1018.74				
18011.06	1030.3618027.82	1029.1718046.04	1016.818080.62	101618086.75	1019.05				
18101.91	1021.0518111.27	1016.118119.63	1023.0718136.92	1022.93 18141.3	1020.1				
18162.57	1020.2718173.65	1016.118212.38	1016.0418265.52	1017.6318323.62	1017.25				
18359.43	1018.5518367.46	1016.818464.77	1017.118591.55	1016.5618660.05	1016.62				
18702.95	1017.4518780.18	101718879.49	1017.3118891.96	1021.9318940.48	1019.73				
18952.38	1016.9219031.56	1016.219060.06	1017.8719067.42	1015.8819103.92	1016.45				
19119.3	1009.419128.18	1007.519182.35	1007.4819212.17	1010.9119293.27	1010.38				
19393.17	1010.9919421.17	1007.9719428.14	1005.9919480.51	1004.819526.08	1005.76				
19582.83	1004.2619635.98	1001.9 19655.3	1001.73 19680.9	998.1619752.44	1000.19				
19780	1000.4619816.99	998.6619843.97	1004.0719874.71	1006.3419914.15	1007.17				
19969.33	1007.1420056.68	1008.4820200.39	1008.6620232.26	1007.5520288.85	1004.31				
20377.34	1005.2620417.85	1003.4220427.57	1000.1120504.31	1000.820558.52	999.21				
20604.85	993.1920644.76	991.5120687.55	994.5520711.17	1000.0620732.09	1012.78				
20763.47	1010.0120800.67	1011.8720847.15	1012.0220898.47	1010.4520949.89	1010.88				
20990.46	1006.8321018.72	1007.4921057.36	101321092.93	1013.7821176.86	1014				
21245.63	1012.7921264.52	1005.9321280.37	1007.6521314.43	1009.1421399.59	1011.1				
21431.25	1011.3621491.56	1010.5621568.39	1006.1621663.65	1007.2221700.62	1003.4				
21731.26	100521804.84	1005.97 21831.2	1003.6621868.05	1003.7621890.34	1007.1				
21922.07	1006.6821935.02	1009.1921998.72	1009.7522038.53	1008.4722049.04	1006.8				
22117.71	1007.2922129.13	1009.9522139.94	1015.3522157.75	1019.77					

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
16668.2	.04319103.92	.03221431.25	.032		

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19103.9220732.09 539 522.44 631 .1 .3
Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
16668.219060.06	1020	F	

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1014.78	Element	Left OB	Channel	Right OB	
Vel Head (ft)	0.98	Wt. n-Val.		0.032	0.032	
W.S. Elev (ft)	1013.80	Reach Len. (ft)	539.00	522.44	631.00	
Crit W.S. (ft)	1010.85	Flow Area (sq ft)		15028.59	6544.07	
E.G. Slope (ft/ft)	0.001713	Area (sq ft)		15028.59	6544.07	
Q Total (cfs)	166000.00	Flow (cfs)		126963.50	39036.46	
Top Width (ft)	2938.81	Top Width (ft)		1622.39	1316.42	
Vel Total (ft/s)	7.69	Avg. Vel. (ft/s)		8.45	5.97	
Max Chl Dpth (ft)	22.29	Hydr. Depth (ft)		9.26	4.97	
Conv. Total (cfs)	4010707.0	Conv. (cfs)		3067551.0	943155.3	
Length Wtd. (ft)	543.37	Wetted Per. (ft)		1630.71	1320.94	
Min Ch El (ft)	991.51	Shear (lb/sq ft)		0.99	0.53	
Alpha	1.06	Stream Power (lb/ft s)		8.33	3.16	
Frctn Loss (ft)	1.00	Cum Volume (acre-ft)	6843.55	22676.09	1635.40	
C & E Loss (ft)	0.05	Cum SA (acres)	1892.12	2301.74	706.30	

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1015.31	Element	Left OB	Channel	Right OB	
Vel Head (ft)	0.81	Wt. n-Val.		0.032	0.032	
W.S. Elev (ft)	1014.50	Reach Len. (ft)	539.00	522.44	631.00	
Crit W.S. (ft)	1010.85	Flow Area (sq ft)		16167.59	7519.19	
E.G. Slope (ft/ft)	0.001299	Area (sq ft)		16167.59	7519.19	
Q Total (cfs)	166000.00	Flow (cfs)		124775.10	41224.88	
Top Width (ft)	3027.09	Top Width (ft)		1623.92	1403.17	
Vel Total (ft/s)	7.01	Avg. Vel. (ft/s)		7.72	5.48	
Max Chl Dpth (ft)	22.99	Hydr. Depth (ft)		9.96	5.36	
Conv. Total (cfs)	4606292.0	Conv. (cfs)		3462353.0	1143939.0	
Length Wtd. (ft)	544.66	Wetted Per. (ft)		1632.39	1408.99	
Min Ch El (ft)	991.51	Shear (lb/sq ft)		0.80	0.43	
Alpha	1.06	Stream Power (lb/ft s)		6.20	2.37	
Frctn Loss (ft)	0.83	Cum Volume (acre-ft)	1194.12	23568.06	236.47	
C & E Loss (ft)	0.07	Cum SA (acres)	200.93	2306.57	49.62	

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 207.80

INPUT
Description: 207.80

```
Right Channel Bank Station Interpolated
Station Elevation Data    num=     109
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
   16847  1020.816881.43 1020.8816889.14 1014.0617423.25 1014.0217437.36 1019.81
17449.69 1016.3517514.99 1016.1817522.38 1019.8617533.21    101418745.96    1014
18747.14 1015.2318785.25 1015.4718803.65 1019.41 18812.8 1019.1318818.08 1016.15
18830.38 1016.3318839.64 1018.4718851.42 1015.8518863.81 1015.5818906.25 1016.79
18916.17 1018.7518934.32 1017.9318961.11 1014.7318985.02 1014.3819054.94 1014.93
19084.72  1014.419171.92 1014.7119211.05 1014.2719263.17  1014.619283.23  1009.8
19298.12  1008.719345.79 1009.7719361.86 1008.8419406.08 1009.2419437.98 1008.25
19477.47  1008.219503.55 1007.0819568.66 1006.2719658.16 1006.2119675.69 1005.82
19698.72  996.3319730.48  998.0819733.28   995.919773.43  994.59 19855.8  998.48
19877.01 1000.1719883.54  1002.119925.83 1003.2419975.91  1003.719997.48  1004.4
20076.29 1004.9720174.45 1003.8720255.28 1003.6120282.72 1003.0820338.27  999.85
20406.22  998.6420460.89  998.7720510.16  997.2620581.42  994.4620603.25  994.47
20632.96  992.5420648.95  992.4720666.06  995.24 20681.5  1001.120693.48  1010.5
20716.41 1012.0820800.22  1012.520841.99 1013.54 20884.1 1013.8220920.76  1014.8
20945.15 1011.3120989.05 1010.3921010.79 1010.8721036.94 1010.2721077.32 1010.23
21109.98 1010.87   21133 1012.3121160.79 1011.5621177.26 1008.9121246.33 1008.17
21282.66 1007.0821290.52 1006.1121329.18 1005.1421342.09 1005.7121352.76  1008.7
21369.79 1010.1621414.07  1008.821425.78  1009.721474.56 1010.29 21505.1 1009.45
21545.57 1009.5621554.18  1007.921571.78 1007.6821615.22 1008.9121647.74 1007.98
21719.77  1003.921783.84 1002.6921812.84  999.0521842.79  998.5321853.07  1004.2
21864.13  1008.121873.45 1014.5221884.47  1018.221905.86 1018.6921919.82 1017.75
21925.45  1019.121949.45 1017.7321993.49 1017.89 22027.6  1014.4

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************************************
   16847    .04318916.17    .03219437.98    .03220920.76    .032

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
     19658.1620716.41                562  495.85     534             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
   1684719258.08 1020.02       F
21887.79 22027.6    1020       F
```

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1013.72	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.52	Wt. n-Val.	0.032	0.032	0.032
W.S. Elev (ft)	1012.20	Reach Len. (ft)	562.00	495.85	534.00
Crit W.S. (ft)	1009.50	Flow Area (sq ft)	1661.32	12457.74	4012.60
E.G. Slope (ft/ft)	0.001994	Area (sq ft)	1661.32	12457.74	4012.60
Q Total (cfs)	166000.00	Flow (cfs)	9487.78	132996.90	23515.29
Top Width (ft)	2391.44	Top Width (ft)	384.94	1058.25	948.24
Vel Total (ft/s)	9.16	Avg. Vel. (ft/s)	5.71	10.68	5.86
Max Chl Dpth (ft)	19.73	Hydr. Depth (ft)	4.32	11.77	4.23
Conv. Total (cfs)	3717606.0	Conv. (cfs)	212480.8	2978495.0	526630.1
Length Wtd. (ft)	503.56	Wetted Per. (ft)	385.35	1066.28	953.20
Min Ch El (ft)	992.47	Shear (lb/sq ft)	0.54	1.45	0.52
Alpha	1.17	Stream Power (lb/ft s)	3.06	15.53	3.07
Frctn Loss (ft)	1.05	Cum Volume (acre-ft)	6833.27	22511.26	1558.94
C & E Loss (ft)	0.03	Cum SA (acres)	1889.74	2285.67	689.90

```
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.
```

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1014.40	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.54	Wt. n-Val.		0.032	0.032
W.S. Elev (ft)	1012.87	Reach Len. (ft)	562.00	495.85	534.00
Crit W.S. (ft)	1009.36	Flow Area (sq ft)		13165.52	4686.42
E.G. Slope (ft/ft)	0.001834	Area (sq ft)		13165.52	4686.42
Q Total (cfs)	166000.00	Flow (cfs)		139267.70	26732.33
Top Width (ft)	2093.48	Top Width (ft)		1058.25	1035.23
Vel Total (ft/s)	9.30	Avg. Vel. (ft/s)		10.58	5.70
Max Chl Dpth (ft)	20.39	Hydr. Depth (ft)		12.44	4.53
Conv. Total (cfs)	3876604.0	Conv. (cfs)		3252323.0	624281.0
Length Wtd. (ft)	500.83	Wetted Per. (ft)		1072.93	1040.45
Min Ch El (ft)	992.47	Shear (lb/sq ft)		1.40	0.52
Alpha	1.15	Stream Power (lb/ft s)		14.86	2.94
Frctn Loss (ft)	1.00	Cum Volume (acre-ft)	1194.12	23392.16	148.07
C & E Loss (ft)	0.05	Cum SA (acres)	200.93	2290.48	31.96

```
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                RS: 207.71

INPUT
Description: 207.71

Right Channel Bank Station Interpolated
Station Elevation Data    num=     108
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 16765.5  1018.816864.05  1018.516883.96 1018.83 16946.6 1018.2517019.42  1018.3
17136.18  1017.2 17170.8 1017.1517303.76 1015.8717335.63 1014.0917372.94 1013.88
17409.16 1014.4917422.74 1016.8817433.43 1013.7717448.63 1013.2317483.11 1012.47
```

```
17506.89 1012.81 17513.1 1013.66 18774.7 1013.2118809.24 1013.4118831.09 1014.19
18843.56 1016.8418853.86 1013.2118868.79 1014.4318872.21 1013.4318903.56  1014.3
18915.43 1013.7218934.72 1017.5718947.92 1017.5618987.39 1013.3819020.33 1013.43
19027.69  1012.819085.22  1013.819094.95 1013.1319248.09  1012.619285.22 1013.25
19305.86 1013.1519314.35  1013.719368.82 1012.7819413.68 1010.6419464.11 1012.03
19523.67 1010.9519527.65 1011.5219551.29 1010.4419572.96    101119597.58 1008.56
19605.18 1007.0219627.97 1005.8519657.47  994.0619666.38  992.7919688.57  995.04
19715.06  995.3319759.55  994.3419793.67  992.5119803.39  996.1319830.72 1000.69
19855.42 1002.7619881.16  1003.119938.64 1001.7819969.09 1000.2420003.96 1000.71
20050.72 1000.4320115.93  999.0820215.92  998.3420303.55  995.6120375.22  994.79
20428.32  995.2420454.42  995.0720512.14  995.9920522.85  996.96 20533.3  999.64
20547.49 1008.39 20648.7 1006.1720687.38  1005.920713.47 1004.6720731.93  1005.3
20741.19 1009.7320746.73 1010.35 20772.5 1010.2820808.32  1011.220830.19 1010.96
20873.06 1009.2920906.05 1010.71 20965.5 1010.5521012.29 1010.1121072.81  1007.6
21108.59 1006.9921119.39  1007.821160.93 1007.7421204.29 1007.1621242.82 1004.91
21266.21 1005.2121275.47  1004.321333.41 1003.3121362.56  1004.221374.32  1005.6
21395.86 1006.5621424.84 1006.4621486.44 1004.2221508.72  1002.7 21543.4 1002.42
 21570.4 1001.6321638.89 1001.9621653.18  1004.721664.01 1003.7221715.77     1014
21757.66  1015.821817.54 1016.31 21829.8 1017.09

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************************
 16765.5    .025 18774.7    .03219572.96    .03220808.32    .032

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      19527.6520547.49             493  488.78     530            .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
 16765.519317.77 1018.01       F

CROSS SECTION OUTPUT  Profile #PF#1
*****************************************************************************************************
* E.G. Elev (ft)         * 1012.64  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.81  * Wt. n-Val.             *   0.032  *   0.032  *   0.032  *
* W.S. Elev (ft)         * 1010.84  * Reach Len. (ft)        *  493.00  *  488.78  *  530.00  *
* Crit W.S. (ft)         * 1008.26  * Flow Area (sq ft)      *    1.11  *12064.14  * 4747.70  *
* E.G. Slope (ft/ft)     *0.002165  * Area (sq ft)           *    1.11  *12064.14  * 4747.70  *
* Q Total (cfs)          *166000.00  * Flow (cfs)            *    0.51  *138904.90  *27094.59  *
* Top Width (ft)         * 2121.42  * Top Width (ft)         *   11.28  *  996.94  * 1113.20  *
* Vel Total (ft/s)       *    9.87  * Avg. Vel. (ft/s)      *    0.46  *   11.51  *    5.71  *
* Max Chl Dpth (ft)      *   18.33  * Hydr. Depth (ft)      *    0.10  *   12.10  *    4.26  *
* Conv. Total (cfs)      *3567418.0  * Conv. (cfs)          *    11.0  *2985131.0  *582275.4  *
* Length Wtd. (ft)       *  497.23  * Wetted Per. (ft)      *   11.29  * 1003.90  * 1115.81  *
* Min Ch El (ft)         *  992.51  * Shear (lb/sq ft)      *    0.01  *    1.62  *    0.58  *
* Alpha                  *    1.19  * Stream Power (lb/ft s) *    0.01  *   18.70  *    3.28  *
* Frctn Loss (ft)        *    0.92  * Cum Volume (acre-ft)  * 6822.55  *22371.69  * 1505.24  *
* C & E Loss (ft)        *    0.06  * Cum SA (acres)        * 1887.18  * 2273.97  *  677.26  *
*****************************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*****************************************************************************************************
* E.G. Elev (ft)         * 1013.35  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    2.01  * Wt. n-Val.             *          *   0.032  *   0.032  *
* W.S. Elev (ft)         * 1011.34  * Reach Len. (ft)        *  493.00  *  488.78  *  530.00  *
* Crit W.S. (ft)         * 1008.53  * Flow Area (sq ft)      *          *12568.62  * 3224.43  *
* E.G. Slope (ft/ft)     *0.002198  * Area (sq ft)           *          *12568.62  * 3224.43  *
* Q Total (cfs)          *166000.00  * Flow (cfs)            *          *149360.50  *16639.51  *
* Top Width (ft)         * 1893.18  * Top Width (ft)         *          * 1015.83  *  877.35  *
* Vel Total (ft/s)       *   10.51  * Avg. Vel. (ft/s)      *          *   11.88  *    5.16  *
* Max Chl Dpth (ft)      *   18.83  * Hydr. Depth (ft)      *          *   12.37  *    3.68  *
* Conv. Total (cfs)      *3540702.0  * Conv. (cfs)          *          *3185789.0  *354913.0  *
* Length Wtd. (ft)       *  493.98  * Wetted Per. (ft)      *          * 1022.82  *  883.74  *
* Min Ch El (ft)         *  992.51  * Shear (lb/sq ft)      *          *    1.69  *    0.50  *
* Alpha                  *    1.17  * Stream Power (lb/ft s) *          *   20.04  *    2.58  *
* Frctn Loss (ft)        *    1.05  * Cum Volume (acre-ft)  * 1194.12  *23245.69  *   99.58  *
* C & E Loss (ft)        *    0.02  * Cum SA (acres)        *  200.93  * 2278.68  *   20.24  *
*****************************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                RS: 207.62

INPUT
Description: 207.62

Right Channel Bank Station Interpolated
Station Elevation Data    num=     101
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*************************************************************************************
   16509  1017.416645.43  1017.216919.74  1016.517013.42 1016.69 17027.9 1017.45
17034.42  1016.417053.64 1016.5617076.88 1013.9817126.62  1012.817186.46 1012.21
18763.02 1012.2318778.97 1015.4718793.91 1011.4718833.77 1010.9318952.24 1011.61
18969.94  1016.818982.78 1017.1918995.37 1016.0419003.08 1012.2919023.38 1011.33
19094.14 1011.4819111.14 1016.8419129.43  1011.5 19154.7 1010.9119196.96  1009.9
19235.08  1009.819251.28 1010.8319302.98 1011.5119321.01 1010.9519350.49  1012.4
19384.05 1010.2819428.49 1012.4419454.54 1011.4219474.75  1012.3 19484.7 1011.14
 19499.5 1012.2219519.63 1010.8319532.75 1005.0519547.04 1005.8419555.44 1004.68
19564.36  1006.119577.92  1010.919585.31 1009.8819611.56 1002.61   19642  996.43
19669.61  993.68 19693.6   992.119750.51  993.0819768.07  995.0219790.48  996.11
19803.19  998.0319812.49   997.619849.07  999.02 19907.7  998.6220004.83  995.78
20047.36  993.6920089.64  990.98 20168.2  990.1220182.51  990.4820197.59  992.77
20247.65  994.5720301.38  994.9620330.75  997.22 20342.9 1000.7820350.67  1006.1
20375.47 1006.2220436.16  1005.620488.63  1004.220513.76  1004.820525.92 1010.31
20543.71 1010.6320602.97 1010.1320636.54    100920672.41 1007.0520682.77  1004.8
```

```
20708.62    100420776.14    100320790.62  1004.920843.22 1005.3820847.96 1004.39
20874.88 1004.3620880.15  1003.520902.51    1005 20923.7 1003.2120972.78 1002.28
21067.88 1002.3421078.21 1001.8721154.43 1001.5721159.77  1002.621224.84 1001.79
21269.33  1001.921347.54 1003.13   21393 1003.3321397.93 1003.9721430.66  1003.7
21461.46 1005.6821482.81 1017.6221529.57  1016.621545.67 1016.9521681.55 1017.23
21786.85 1016.58

Manning's n Values         num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************************************************
   16509    .02517186.46    .04318778.97    .03219577.92    .03220843.22    .032

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      19577.9220350.67              493  471.11     510             .1       .3
Ineffective Flow     num=        1
   Sta L   Sta R    Elev  Permanent
   1650919113.11 1017.59       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         * 1011.65  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.59  * Wt. n-Val.            *   0.032  *   0.032  *   0.032  *
* W.S. Elev (ft)         * 1010.06  * Reach Len. (ft)       *  493.00  *  471.11  *  510.00  *
* Crit W.S. (ft)         * 1007.03  * Flow Area (sq ft)     *  208.08  *11200.79  * 6381.37  *
* E.G. Slope (ft/ft)     *0.001612  * Area (sq ft)          *  208.08  *11200.79  * 6381.37  *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *  866.68  *124268.40  *40864.95  *
* Top Width (ft)         * 1909.13  * Top Width (ft)       *  103.35  *  766.70  * 1039.09  *
* Vel Total (ft/s)       *    9.33  * Avg. Vel. (ft/s)     *    4.17  *   11.09  *    6.40  *
* Max Chl Dpth (ft)      *   19.94  * Hydr. Depth (ft)     *    2.01  *   14.61  *    6.14  *
* Conv. Total (cfs)      *4134863.0  * Conv. (cfs)         * 21587.9  *3095377.0  *1017897.0  *
* Length Wtd. (ft)       *  475.96  * Wetted Per. (ft)     *  105.31  *  771.47  * 1042.39  *
* Min Ch El (ft)         *  990.12  * Shear (lb/sq ft)     *    0.20  *    1.46  *    0.62  *
* Alpha                  *    1.18  * Stream Power (lb/ft s) *    0.83  *   16.21  *    3.94  *
* Frctn Loss (ft)        *    0.77  * Cum Volume (acre-ft)  * 6821.37  *22241.17  * 1437.54  *
* C & E Loss (ft)        *    0.07  * Cum SA (acres)        * 1886.53  * 2264.08  *  664.17  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)         * 1012.29  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    2.17  * Wt. n-Val.            *          *   0.032  *   0.032  *
* W.S. Elev (ft)         * 1010.12  * Reach Len. (ft)       *  493.00  *  471.11  *  510.00  *
* Crit W.S. (ft)         * 1007.20  * Flow Area (sq ft)     *          *11242.12  * 3769.11  *
* E.G. Slope (ft/ft)     *0.002044  * Area (sq ft)          *          *11242.12  * 3769.11  *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *          *140760.50  *25239.49  *
* Top Width (ft)         * 1444.32  * Top Width (ft)       *          *  767.09  *  677.24  *
* Vel Total (ft/s)       *   11.06  * Avg. Vel. (ft/s)     *          *   12.52  *    6.70  *
* Max Chl Dpth (ft)      *   20.00  * Hydr. Depth (ft)     *          *   14.66  *    5.57  *
* Conv. Total (cfs)      *3671629.0  * Conv. (cfs)         *          *3113376.0  *558253.3  *
* Length Wtd. (ft)       *  474.07  * Wetted Per. (ft)     *          *  771.86  *  687.55  *
* Min Ch El (ft)         *  990.12  * Shear (lb/sq ft)     *          *    1.86  *    0.70  *
* Alpha                  *    1.14  * Stream Power (lb/ft s) *          *   23.27  *    4.68  *
* Frctn Loss (ft)        *    0.80  * Cum Volume (acre-ft)  * 1194.12  *23112.11  *   57.03  *
* C & E Loss (ft)        *    0.28  * Cum SA (acres)        *  200.93  * 2268.68  *   10.78  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                  RS: 207.49

INPUT
Description: 207.49 - FEMA Section R
Station Elevation Data    num=     132
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
*********************************************************************************
 16428.7   1015.8 16495.7 1015.9716562.86 1015.7616564.59 1016.2616598.27 1015.57
16649.77 1014.8716697.75  1015.1 16736.1 1014.9216785.22 1015.1916790.29 1014.82
16831.41  1014.816991.24    101417150.66 1013.5817195.01 1013.2617294.72 1012.89
17334.41 1013.0117462.54 1013.0117546.67 1012.7517562.88  1012.917614.19  1012.3
17650.74 1012.8817736.69 1012.5217773.31 1012.7717836.83 1013.8617929.25 1014.08
17986.02  1013.117990.65 1013.5218016.47 1013.3718049.96  1013.718127.06 1013.11
18166.95 1013.26 18225.6  1013.118282.06 1013.2418307.52 1010.9218331.41 1010.93
18355.11  1011.818412.86 1011.7618437.92 1012.22 18500.6 1012.0318512.42 1012.32
18580.58 1011.7618667.35  1012.318723.55 1012.2218776.25 1011.8618824.39  1011.2
 18908.1 1010.0819104.21 1009.0719452.06 1007.6419475.46  995.95 19490.7   986.6
19495.57  985.0919506.62  984.3519525.63  984.6819542.24   985.619551.29  988.02
19625.61  990.8219661.41  989.5719674.45  987.0619684.82  986.7919735.07  987.29
19753.75  993.2119767.32  994.3519804.67  995.2619824.05  995.1919850.05  996.03
19857.63  997.2419885.03  998.5319936.77  998.7919984.18   999.419991.14  999.86
20041.57 1001.3220082.06 1001.8920173.24 1001.7120208.46 1001.3720224.73 1001.51
20281.74 1000.8820306.63    100120333.88  1001.620354.98 1001.64   20399 1002.28
20426.44 1003.2520511.22 1002.5120559.96 1001.0320588.83 1000.5820601.27  999.91
20628.36 1000.5120679.26  1000.520736.27    100020758.91  999.5520809.15  999.51
20871.65   999.8 20880.9  999.0220888.29   999.820914.65 1000.5220919.87 1000.24
20993.76  1000.421007.95 1001.0621032.55 1006.89 21053.5 1010.7621074.81    1014
21109.99 1016.3721132.01 1017.9321150.62  1018.421187.24  1017.421208.87 1017.67
21243.49 1017.1921276.95 1017.0821299.03 1016.6621316.72 1017.5621345.51 1017.93
21373.46 1017.0121379.02  1016.421407.52 1015.6221458.26 1015.3421541.47 1015.47
21552.48 1014.9821661.71  1014.721700.36 1014.8621734.65  1014.621816.76 1014.73
21837.28  1015.121887.67 1015.1821897.57 1015.8421938.37 1016.0421994.52 1015.63
22023.41 1014.6222062.71 1014.7522101.76 1014.3622119.41  1014.922218.68 1014.73
22317.91 1014.9522327.82 1014.86
```

```
Manning's n Values          num=       2
     Sta   n Val      Sta   n Val
*********************************
 16428.7    .03221109.99    .037

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      19452.0621132.01             244  246.48     308            .3       .5
Ineffective Flow      num=       2
   Sta L   Sta R    Elev  Permanent
 16428.7 19445.4  1019.5       F
21096.5122327.82  1019.5       F

CROSS SECTION OUTPUT  Profile #PF#1
*****************************************************************************************************
* E.G. Elev (ft)         * 1010.81  * Element                * Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.36  * Wt. n-Val.            *   0.032  *   0.032  *          *
* W.S. Elev (ft)         * 1009.45  * Reach Len. (ft)       *   88.00  *   88.00  *   88.00  *
* Crit W.S. (ft)         * 1005.21  * Flow Area (sq ft)     *   11.98  *17748.43  *          *
* E.G. Slope (ft/ft)     *0.001643  * Area (sq ft)          *  395.91  *17748.43  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *   33.35  *165966.60  *          *
* Top Width (ft)         * 2016.46  * Top Width (ft)       *  422.10  * 1594.36  *          *
* Vel Total (ft/s)       *    9.35  * Avg. Vel. (ft/s)     *    2.78  *    9.35  *          *
* Max Chl Dpth (ft)      *   25.10  * Hydr. Depth (ft)     *    1.80  *   11.13  *          *
* Conv. Total (cfs)      *4094975.0  * Conv. (cfs)         *   822.7  *4094152.0  *          *
* Length Wtd. (ft)       *   88.00  * Wetted Per. (ft)     *    6.66  * 1602.96  *          *
* Min Ch El (ft)         *  984.35  * Shear (lb/sq ft)     *    0.18  *    1.14  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *  0.51  *   10.62  *          *
* Frctn Loss (ft)        *    0.18  * Cum Volume (acre-ft)  * 6817.95  *22084.62  * 1400.18  *
* C & E Loss (ft)        *    0.07  * Cum SA (acres)        * 1883.56  * 2251.31  *  658.09  *
*****************************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

CROSS SECTION OUTPUT  Profile #PF#2
*****************************************************************************************************
* E.G. Elev (ft)         * 1011.21  * Element                * Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.24  * Wt. n-Val.            *   0.032  *   0.032  *          *
* W.S. Elev (ft)         * 1009.97  * Reach Len. (ft)       *   88.00  *   88.00  *   88.00  *
* Crit W.S. (ft)         * 1005.21  * Flow Area (sq ft)     *   15.42  *18573.59  *          *
* E.G. Slope (ft/ft)     *0.001415  * Area (sq ft)          *  142.28  *18573.59  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *   47.16  *165952.80  *          *
* Top Width (ft)         * 1661.94  * Top Width (ft)       *   64.78  * 1597.16  *          *
* Vel Total (ft/s)       *    8.93  * Avg. Vel. (ft/s)     *    3.06  *    8.93  *          *
* Max Chl Dpth (ft)      *   25.62  * Hydr. Depth (ft)     *    2.32  *   11.63  *          *
* Conv. Total (cfs)      *4412316.0  * Conv. (cfs)         *  1253.6  *4411063.0  *          *
* Length Wtd. (ft)       *   88.00  * Wetted Per. (ft)     *    6.66  * 1605.80  *          *
* Min Ch El (ft)         *  984.35  * Shear (lb/sq ft)     *    0.20  *    1.02  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *  0.63  *    9.13  *          *
* Frctn Loss (ft)        *    0.15  * Cum Volume (acre-ft)  * 1193.31  *22950.88  *   34.97  *
* C & E Loss (ft)        *    0.06  * Cum SA (acres)        *  200.56  * 2255.89  *    6.81  *
*****************************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

BRIDGE


RIVER: 1
REACH: 1                  RS: 207.485

INPUT
Description: 51st Avenue Bridge
Distance from Upstream XS =       88
Deck/Roadway Width        =       95
Weir Coefficient          =      2.6
Upstream  Deck/Roadway Coordinates
    num=       30
     Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord
*************************************************************************
 17338.3 1010.47 1005.47 18388.3 1010.34 1005.34 18888.3 1010.64 1005.64
 18938.3    1011    1006 18988.3  1011.5  1006.5 19038.3  1012.3  1007.3
 19088.3  1013.2  1007.2 19138.3  1014.3  1008.3 19188.3  1015.6  1010.6
 19288.3  1018.2  1013.2 19388.3 1020.56 1015.56   19445 1022.05  1015.2
 19560.3  1023.4 1017.77 19660.3 1025.18 1019.47 19760.3 1026.58 1020.87
 19860.3 1027.68    1022 19960.3 1028.58 1022.87 20060.3 1029.28 1023.59
 20160.3 1029.68 1023.99 20260.3 1029.78 1024.09 20360.3 1029.68    1024
 20460.3 1029.28 1023.59 20560.3 1028.68 1023.01 20660.3 1027.88 1022.21
 20760.3 1026.68    1021 20860.3 1025.41 1019.67 20960.3 1023.68 1018.03
 21059.4  1020.6 1014.92 21074.8  1020.3  1014.5 21150.6    1019    1012

Upstream Bridge Cross Section Data
Station Elevation Data    num=     132
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
*********************************************************************************
 16428.7  1015.8 16495.7 1015.9716562.86 1015.7616564.59 1016.2616598.27 1015.57
16649.77 1014.8716697.75  1015.1 16736.1 1014.9216785.22 1015.1916790.29 1014.82
16831.41  1014.816991.24    101417150.66 1013.5817195.01 1013.2617294.72 1012.89
17334.41 1013.0117462.54 1013.0117546.67 1012.7517562.88  1012.917614.19  1012.3
17650.74 1012.8817736.69 1012.5217773.31 1012.7717836.83 1013.8617929.25 1014.08
17986.02  1013.117990.65 1013.5218016.47 1013.3718049.96  1013.718127.06 1013.11
18166.95 1013.26 18225.6  1013.118282.06 1013.2418307.52 1010.9218331.41 1010.93
18355.11  1011.818412.86 1011.7618437.92 1012.22 18500.6 1012.0318512.42 1012.32
18580.58 1011.7618667.35  1012.318723.55 1012.2218776.25 1011.8618824.39  1011.2
 18908.1 1010.0819104.21 1009.0719452.06 1007.6419475.46  995.95 19490.7   986.6
19495.57  985.0919506.62  984.3519525.63  984.6819542.24   985.619551.29  988.02
19625.61  990.8219661.41  989.5719674.45  987.0619684.82  986.7919735.07  987.29
19753.75  993.2119767.32  994.3519804.67  995.2619824.05  995.1919850.05  996.03
19857.63  997.2419885.03  998.5319936.77  998.7919984.18   999.419991.14  999.86
20041.57 1001.3220082.06 1001.8920173.24 1001.7120208.46 1001.3720224.73 1001.51
20281.74 1000.8820306.63    100120333.88  1001.620354.98 1001.64   20399 1002.28
20426.44 1003.2520511.22 1002.5120559.96 1001.0320588.83 1000.5820601.27  999.91
20628.36 1000.5120679.26  1000.520736.27    100020758.91  999.5520809.15  999.51
20871.65   999.8 20880.9  999.0220888.29   999.820914.65 1000.5220919.87 1000.24
```

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20993.76  1000.421007.95 1001.0621032.55 1006.89 21053.5 1010.7621074.81    1014
21109.99 1016.3721132.01 1017.9321150.62  1018.421187.24  1017.421208.87 1017.67
21243.49 1017.1921276.95 1017.0821299.03 1016.6621316.72 1017.5621345.51 1017.93
21373.46 1017.0121379.02  1016.421407.52 1015.6221458.26 1015.3421541.47 1015.47
21552.48 1014.9821661.71  1014.721700.36 1014.8621734.65  1014.621816.76 1014.73
21837.28  1015.121887.67 1015.1821897.57 1015.8421938.37 1016.0421994.52 1015.63
22023.41 1014.6222062.71 1014.7522101.76 1014.3622119.41  1014.922218.68 1014.73
22317.91 1014.9522327.82 1014.86

Manning's n Values         num=       2
     Sta   n Val     Sta   n Val
*********************************
 16428.7    .03221109.99    .037

Bank Sta: Left   Right    Coeff Contr.   Expan.
      19452.0621132.01           .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 16428.7 19445.4  1019.5        F
21096.5122327.82  1019.5        F

Downstream  Deck/Roadway Coordinates
    num=       30
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
*********************************************************************
 17338.3 1010.47 1005.47 18388.3 1010.34 1005.34 18888.3 1010.64 1005.64
 18938.3    1011    1006 18988.3  1011.5  1006.5 19038.3  1012.3  1007.3
 19088.3  1013.2  1007.2 19138.3  1014.3  1008.3 19188.3  1015.6  1010.6
 19288.3  1018.2  1013.2 19388.3 1020.56 1015.56   19445 1022.05  1015.2
 19560.3  1023.4 1017.77 19660.3 1025.18 1019.47 19760.3 1026.58 1020.87
 19860.3 1027.68    1022 19960.3 1028.58 1022.87 20060.3 1029.28 1023.59
 20160.3 1029.68 1023.99 20260.3 1029.78 1024.09 20360.3 1029.68    1024
 20460.3 1029.28 1023.59 20560.3 1028.68 1023.01 20660.3 1027.88 1022.21
 20760.3 1026.68    1021 20860.3 1025.41 1019.67 20960.3 1023.68 1018.03
 21059.4  1020.6 1014.92 21074.8  1020.3  1014.5 21150.6    1019    1012

Downstream Bridge Cross Section Data
Station Elevation Data    num=     150
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 16428.7  1015.8 16495.7 1015.9716562.86 1015.7616564.59 1016.2616598.27 1015.57
16649.77 1014.8716697.75  1015.1 16736.1 1014.9216785.22 1015.1916790.29 1014.82
16831.41  1014.816991.24    101417150.66 1013.5817195.01 1013.2617294.72 1012.89
17334.41 1013.0117462.54 1013.0117546.67 1012.7517562.88  1012.917614.19  1012.3
17650.74 1012.8817736.69 1012.5217773.31 1012.7717836.83 1013.8617929.25 1014.08
17986.02  1013.117990.65 1013.5218016.47 1013.3718049.96  1013.718127.06 1013.11
18166.95 1013.26 18225.6  1013.118282.06 1013.2418307.52 1010.9218331.41 1010.93
18355.11  1011.818412.86 1011.7618437.92 1012.22 18500.6 1012.0318512.42 1012.32
18580.58 1011.7618667.35  1012.318723.55 1012.2218776.25 1011.8618816.04  1011.8
18887.02  1012.118935.21 1011.9719030.23 1011.14 19061.7  1011.619092.68 1011.73
19121.65  1012.619162.06 1011.4319172.56 1011.5319175.75 1013.1119179.28 1011.17
19228.02 1011.4719243.11 1012.16 19304.2  1013.5 19325.9 1014.3319353.08  1014.6
19375.05  1016.719387.28 1017.3619405.46 1017.36 19416.8 1016.12 19445.4 1011.67
19452.06 1007.6419475.46  995.95 19490.7   986.619495.57  985.0919506.62  984.35
19525.63  984.6819542.24   985.619551.29  988.0219625.61  990.8219661.41  989.57
19674.45  987.0619684.82  986.7919735.07  987.2919753.75  993.2119767.32  994.35
19804.67  995.2619824.05  995.1919850.05  996.0319857.63  997.2419885.03  998.53
19936.77  998.7919984.18   999.419991.14  999.8620041.57 1001.3220082.06 1001.89
20173.24 1001.7120208.46 1001.3720224.73 1001.5120281.74 1000.8820306.63    1001
20333.88  1001.620354.98 1001.64   20399 1002.2820426.44 1003.2520511.22 1002.51
20559.96 1001.0320588.83 1000.5820601.27  999.9120628.36 1000.5120679.26  1000.5
20736.27    100020758.91  999.5520809.15  999.5120871.65   999.8 20880.9  999.02
20888.29   999.820914.65 1000.5220919.87 1000.2420993.76  1000.421007.95 1001.06
21032.55 1006.89 21053.5 1010.7621074.81    101421109.99 1016.3721132.01 1017.93
21150.62  1018.421187.24  1017.421208.87 1017.6721243.49 1017.1921276.95 1017.08
21299.03 1016.6621316.72 1017.5621345.51 1017.9321373.46 1017.0121379.02  1016.4
21407.52 1015.6221458.26 1015.3421541.47 1015.4721552.48 1014.9821661.71  1014.7
21700.36 1014.8621734.65  1014.621816.76 1014.7321837.28  1015.121887.67 1015.18
21897.57 1015.8421938.37 1016.0421994.52 1015.6322023.41 1014.6222062.71 1014.75
22101.76 1014.3622119.41  1014.922218.68 1014.7322317.91 1014.9522327.82 1014.86

Manning's n Values         num=       2
     Sta   n Val     Sta   n Val
*********************************
 16428.7    .03221109.99    .037

Bank Sta: Left   Right    Coeff Contr.   Expan.
      19387.2821132.01           .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 16428.7 19445.4  1019.5        F
21096.5122327.82  1019.5        F

Upstream Embankment side slope             =         horiz. to 1.0 vertical
Downstream Embankment side slope           =         horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins        =
Energy head used in spillway design        =
Spillway height used in design             =
Weir crest shape                           = Broad Crested

Number of Piers =  15

Pier Data
Pier Station     Upstream= 19562.3    Downstream= 19562.3
Upstream     num=       2
    Width   Elev    Width   Elev
*********************************
       4   997.3       4  1017.8
Downstream     num=       2
    Width   Elev    Width   Elev
*********************************
       4   997.3       4  1017.8

Pier Data
Pier Station     Upstream= 19662.3    Downstream= 19662.3
```

Upstream num= 2

Width	Elev	Width	Elev
4	997	4	1019.54

Downstream num= 2

Width	Elev	Width	Elev
4	997	4	1019.54

Pier Data
Pier Station Upstream= 19762.3 Downstream= 19762.3
Upstream num= 2

Width	Elev	Width	Elev
4	996.4	4	1020.94

Downstream num= 2

Width	Elev	Width	Elev
4	996.4	4	1020.94

Pier Data
Pier Station Upstream= 19862.3 Downstream= 19862.3
Upstream num= 2

Width	Elev	Width	Elev
4	999.5	4	1022

Downstream num= 2

Width	Elev	Width	Elev
4	999.5	4	1022

Pier Data
Pier Station Upstream= 19962.3 Downstream= 19962.3
Upstream num= 2

Width	Elev	Width	Elev
4	997.4	4	1022.9

Downstream num= 2

Width	Elev	Width	Elev
4	997.4	4	1022.9

Pier Data
Pier Station Upstream= 20062.3 Downstream= 20062.3
Upstream num= 2

Width	Elev	Width	Elev
4	994.6	4	1023.6

Downstream num= 2

Width	Elev	Width	Elev
4	994.6	4	1023.6

Pier Data
Pier Station Upstream= 20162.3 Downstream= 20162.3
Upstream num= 2

Width	Elev	Width	Elev
4	995.5	4	1024

Downstream num= 2

Width	Elev	Width	Elev
4	995.5	4	1024

Pier Data
Pier Station Upstream= 20262.3 Downstream= 20262.3
Upstream num= 2

Width	Elev	Width	Elev
4	999.6	4	1024.1

Downstream num= 2

Width	Elev	Width	Elev
4	999.6	4	1024.1

Pier Data
Pier Station Upstream= 20362.3 Downstream= 20362.3
Upstream num= 2

Width	Elev	Width	Elev
4	998.5	4	1024

Downstream num= 2

Width	Elev	Width	Elev
4	998.5	4	1024

Pier Data
Pier Station Upstream= 20462.3 Downstream= 20462.3
Upstream num= 2

Width	Elev	Width	Elev
4	998.9	4	1023.6

Downstream num= 2

Width	Elev	Width	Elev
4	998.9	4	1023.6

Pier Data
Pier Station Upstream= 20562.3 Downstream= 20562.3
Upstream num= 2

Width	Elev	Width	Elev
4	996.7	4	1023

Downstream num= 2

Width	Elev	Width	Elev

```
       4   996.7       4    1023

Pier Data
Pier Station     Upstream= 20662.3    Downstream= 20662.3
Upstream     num=        2
    Width   Elev    Width   Elev
*********************************
       4   997.9       4  1022.2
Downstream     num=        2
    Width   Elev    Width   Elev
*********************************
       4   997.9       4  1022.2

Pier Data
Pier Station     Upstream= 20762.3    Downstream= 20762.3
Upstream     num=        2
    Width   Elev    Width   Elev
*********************************
       4     998       4    1021
Downstream     num=        2
    Width   Elev    Width   Elev
*********************************
       4     998       4    1021

Pier Data
Pier Station     Upstream= 20862.3    Downstream= 20862.3
Upstream     num=        2
    Width   Elev    Width   Elev
*********************************
       4   999.9       4  1019.7
Downstream     num=        2
    Width   Elev    Width   Elev
*********************************
       4   999.9       4  1019.7

Pier Data
Pier Station     Upstream= 20962.3    Downstream= 20962.3
Upstream     num=        2
    Width   Elev    Width   Elev
*********************************
       4     998       4    1018
Downstream     num=        2
    Width   Elev    Width   Elev
*********************************
       4     998       4    1018

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
       Momentum               Cd   =     1.2
       Yarnell                KVal =    1.05
Selected Low Flow Methods = Highest Energy Answer

High Flow Method
       Pressure and Weir flow
           Submerged Inlet Cd          =
           Submerged Inlet + Outlet Cd =      .8
           Max Low Cord                =

Additional Bridge Parameters
       Add Friction component to Momentum
       Add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT  Profile #PF#1
*************************************************************************************************
* E.G. US. (ft)           *    1010.81  * Element               *Inside BR US *Inside BR DS *
* W.S. US. (ft)           *    1009.45  * E.G. Elev (ft)        *    1010.56  *    1010.24  *
* Q Total (cfs)           *  166000.00  * W.S. Elev (ft)        *    1008.95  *    1008.49  *
* Q Bridge (cfs)          *  166000.00  * Crit W.S. (ft)        *    1005.38  *    1005.39  *
* Q Weir (cfs)            *             * Max Chl Dpth (ft)     *      24.60  *      24.14  *
* Weir Sta Lft (ft)       *             * Vel Total (ft/s)      *      10.16  *      10.63  *
* Weir Sta Rgt (ft)       *             * Flow Area (sq ft)     *   16334.29  *   15619.62  *
* Weir Submerg            *             * Froude # Chl          *       0.55  *       0.59  *
* Weir Max Depth (ft)     *             * Specif Force (cu ft)  *  159912.20  *  154914.60  *
* Min El Weir Flow (ft)   *    1019.51  * Hydr Depth (ft)       *      10.62  *      10.21  *
* Min El Prs (ft)         *    1024.09  * W.P. Total (ft)       *    1858.26  *    1836.85  *
* Delta EG (ft)           *       0.78  * Conv. Total (cfs)     *  3235899.0  *  3021671.0  *
* Delta WS (ft)           *       1.09  * Top Width (ft)        *    1832.83  *    1530.55  *
* BR Open Area (sq ft)    *   35514.66  * Frctn Loss (ft)       *       0.27  *       0.17  *
* BR Open Vel (ft/s)      *      10.63  * C & E Loss (ft)       *       0.04  *       0.04  *
* Coef of Q               *             * Shear Total (lb/sq ft) *       1.44  *       1.60  *
* Br Sel Method           *Energy only  * Power Total (lb/ft s)  *      14.68  *      17.03  *
*************************************************************************************************

Note:    Momentum answer is not valid if the water surface is above the low chord or if there is weir
         flow.  The momentum answer has been disregarded.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

BRIDGE OUTPUT  Profile #PF#2
*************************************************************************************************
* E.G. US. (ft)           *    1011.21  * Element               *Inside BR US *Inside BR DS *
* W.S. US. (ft)           *    1009.97  * E.G. Elev (ft)        *    1011.00  *    1010.75  *
* Q Total (cfs)           *  166000.00  * W.S. Elev (ft)        *    1009.56  *    1009.22  *
* Q Bridge (cfs)          *  166000.00  * Crit W.S. (ft)        *    1005.38  *    1005.39  *
* Q Weir (cfs)            *             * Max Chl Dpth (ft)     *      25.21  *      24.87  *
* Weir Sta Lft (ft)       *             * Vel Total (ft/s)      *       9.61  *       9.91  *
* Weir Sta Rgt (ft)       *             * Flow Area (sq ft)     *   17275.05  *   16742.43  *
* Weir Submerg            *             * Froude # Chl          *       0.51  *       0.53  *
* Weir Max Depth (ft)     *             * Specif Force (cu ft)  *  167325.90  *  163090.40  *
```

			Pre-Project	
* Min El Weir Flow (ft)	* 1019.51	* Hydr Depth (ft)	* 11.21	* 10.90 *
* Min El Prs (ft)	* 1024.09	* W.P. Total (ft)	* 1879.95	* 1864.27 *
* Delta EG (ft)	* 0.64	* Conv. Total (cfs)	* 3524138.0	* 3358953.0 *
* Delta WS (ft)	* 0.84	* Top Width (ft)	* 1599.73	* 1535.72 *
* BR Open Area (sq ft)	* 35511.13	* Frctn Loss (ft)	* 0.22	* 0.13 *
* BR Open Vel (ft/s)	* 9.91	* C & E Loss (ft)	* 0.03	* 0.04 *
* Coef of Q	*	* Shear Total (lb/sq ft)	* 1.27	* 1.37 *
* Br Sel Method	*Energy only	* Power Total (lb/ft s)	* 12.23	* 13.58 *

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 207.48

INPUT
Description: 207.48
Station Elevation Data num= 150

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16428.7	1015.8	16495.7	1015.97	16562.86	1015.76	16564.59	1016.26	16598.27	1015.57
16649.77	1014.87	16697.75	1015.1	16736.1	1014.92	16785.22	1015.19	16790.29	1014.82
16831.41	1014.81	16991.24	101417	150.66	1013.58	17195.01	1013.26	17294.72	1012.89
17334.41	1013.01	17462.54	1013.01	17546.67	1012.75	17562.88	1012.91	17614.19	1012.3
17650.74	1012.88	17736.69	1012.52	17773.31	1012.77	17836.83	1013.86	17929.25	1014.08
17986.02	1013.11	17990.65	1013.52	18016.47	1013.37	18049.96	1013.71	18127.06	1013.11
18166.95	1013.26	18225.6	1013.11	8282.06	1013.24	18307.52	1010.92	18331.41	1010.93
18355.11	1011.81	8412.86	1011.76	18437.92	1012.22	18500.6	1012.03	18512.42	1012.32
18580.58	1011.76	18667.35	1012.31	8723.55	1012.22	18776.25	1011.86	18816.04	1011.8
18887.02	1012.11	8935.21	1011.97	19030.23	1011.14	19061.7	1011.61	9092.68	1011.73
19121.65	1012.61	9162.06	1011.43	19172.56	1011.53	19175.75	1013.11	19179.28	1011.17
19228.02	1011.47	19243.11	1012.16	19304.2	1013.5	19325.9	1014.33	19353.08	1014.6
19375.05	1016.71	9387.28	1017.36	19405.46	1017.36	19416.8	1016.12	19445.4	1011.67
19452.06	1007.64	19475.46	995.95	19490.7	986.61	9495.57	985.09	19506.62	984.35
19525.63	984.68	19542.24	985.61	9551.29	988.02	19625.61	990.82	19661.41	989.57
19674.45	987.06	19684.82	986.79	19735.07	987.29	19753.75	993.21	19767.32	994.35
19804.67	995.26	19824.05	995.19	19850.05	996.03	19857.63	997.24	19885.03	998.53
19936.77	998.79	19984.18	999.41	9991.14	999.86	20041.57	1001.32	20082.06	1001.89
20173.24	1001.71	20208.46	1001.37	20224.73	1001.51	20281.74	1000.88	20306.63	1001
20333.88	1001.62	20354.98	1001.64	20399	1002.28	20426.44	1003.25	20511.22	1002.51
20559.96	1001.03	20588.83	1000.58	20601.27	999.91	20628.36	1000.51	20679.26	1000.5
20736.27	100020	758.91	999.55	20809.15	999.51	20871.65	999.8	20880.9	999.02
20888.29	999.82	0914.65	1000.52	20919.87	1000.24	20993.76	1000.42	21007.95	1001.06
21032.55	1006.89	21053.5	1010.76	21074.81	101421	109.99	1016.37	21132.01	1017.93
21150.62	1018.42	1187.24	1017.42	21208.87	1017.67	21243.49	1017.19	21276.95	1017.08
21299.03	1016.66	21316.72	1017.56	21345.51	1017.93	21373.46	1017.01	21379.02	1016.4
21407.52	1015.62	21458.26	1015.34	21541.47	1015.47	21552.48	1014.98	21661.71	1014.7
21700.36	1014.86	21734.65	1014.62	1816.76	1014.73	21837.28	1015.12	1887.67	1015.18
21897.57	1015.84	21938.37	1016.04	21994.52	1015.63	22023.41	1014.62	22062.71	1014.75
22101.76	1014.36	22119.41	1014.92	2218.68	1014.73	22317.91	1014.95	22327.82	1014.86

Manning's n Values num= 2

Sta	n Val	Sta	n Val
16428.7	.03221	109.99	.037

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19387.2821132.01 236 236.83 302 .3 .5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
16428.7	19445.4	1019.5	F
21096.5122327.82		1019.5	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 1010.03	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 1.67	* Wt. n-Val.	*	* 0.032	* *
* W.S. Elev (ft)	* 1008.36	* Reach Len. (ft)	* 236.00	* 236.83	* 302.00 *
* Crit W.S. (ft)	* 1005.21	* Flow Area (sq ft)	*	*16016.13	* *
* E.G. Slope (ft/ft)	*0.002306	* Area (sq ft)	*	*16016.13	* *
* Q Total (cfs)	*166000.00	* Flow (cfs)	*	*166000.00	* *
* Top Width (ft)	* 1589.66	* Top Width (ft)	*	* 1589.66	* *
* Vel Total (ft/s)	* 10.36	* Avg. Vel. (ft/s)	*	* 10.36	* *
* Max Chl Dpth (ft)	* 24.01	* Hydr. Depth (ft)	*	* 10.08	* *
* Conv. Total (cfs)	*3456670.0	* Conv. (cfs)	*	*3456670.0	* *
* Length Wtd. (ft)	* 236.83	* Wetted Per. (ft)	*	* 1598.36	* *
* Min Ch El (ft)	* 984.35	* Shear (lb/sq ft)	*	* 1.44	* *
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 14.95	* *
* Frctn Loss (ft)	* 0.54	* Cum Volume (acre-ft)	* 6817.11	*21992.32	* 1400.18 *
* C & E Loss (ft)	* 0.01	* Cum SA (acres)	* 1882.50	* 2242.54	* 658.09 *

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 1010.57	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 1.44	* Wt. n-Val.	*	* 0.032	* *
* W.S. Elev (ft)	* 1009.13	* Reach Len. (ft)	* 236.00	* 236.83	* 302.00 *
* Crit W.S. (ft)	* 1005.21	* Flow Area (sq ft)	*	*17236.84	* *
* E.G. Slope (ft/ft)	*0.001814	* Area (sq ft)	*	*17236.84	* *
* Q Total (cfs)	*166000.00	* Flow (cfs)	*	*166000.00	* *
* Top Width (ft)	* 1595.08	* Top Width (ft)	*	* 1595.08	* *
* Vel Total (ft/s)	* 9.63	* Avg. Vel. (ft/s)	*	* 9.63	* *
* Max Chl Dpth (ft)	* 24.78	* Hydr. Depth (ft)	*	* 10.81	* *
* Conv. Total (cfs)	*3897568.0	* Conv. (cfs)	*	*3897568.0	* *
* Length Wtd. (ft)	* 236.83	* Wetted Per. (ft)	*	* 1604.06	* *
* Min Ch El (ft)	* 984.35	* Shear (lb/sq ft)	*	* 1.22	* *
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 11.72	* *

			Pre-Project	
* Frctn Loss (ft)	* 0.42	* Cum Volume (acre-ft)	* 1192.92	*22852.84 * 34.97 *
* C & E Loss (ft)	* 0.02	* Cum SA (acres)	* 200.36	* 2247.10 * 6.81 *

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 207.43

INPUT
Description: 207.43

Left and Right Channel Bank Stations Interpolated
Station Elevation Data num= 143

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16400.1	1015.916427.13	1015.8616467.13	1017.416546.13	1017.6416548.16	1016.9				
16612.58	1016.616636.85	1015.716681.02	1015.216776.74	1015.0816803.54	1015.6				
16881.54	1015.616924.76	1016.0416991.64	1015.5517051.39	1015.8717090.21	1015.5				
17114.15	1014.317125.61	1014.7617179.55	1014.117205.34	1014.7617275.25	1014.41				
17356.43	1014.5817445.28	1014.1517482.13	1015.5617579.53	1015.5817599.94	1014.11				
17631.22	1014.3917655.16	1013.5217708.41	1013.5717845.76	1014.72 18003.6	1014.39				
18171.98	1014.9218233.95	1014.8418336.95	1015.3718380.76	1015.2618388.01	1012.07				
18524.22	1010.9318531.31	1014.1718535.46	1010.9618836.05	1011.1518846.66	1014				
18854.03	1018.9218861.73	1019.9218871.85	1025.6618877.54	1023.6118892.35	1013.59				
18924.33	1015.0318937.21	1021.3118940.84	1024.9718946.13	1021.818961.89	1022.23				
18966.25	1028.0618989.42	1042.1519002.36	1042.2519017.12	1045.2919042.34	1047.78				
19062.2	1047.7419090.47	1050.6619115.96	1032.8419146.43	1014.6119184.73	1012.98				
19195.72	1014.6219211.64	1012.0519228.35	1015.1319246.11	1008.4119307.43	1006.73				
19363.86	1007.32 19382.3	1006.92 19385.9	993.0419404.18	986.87 19439.6	983.56				
19483.69	985.3219489.64	986.9819511.17	985.9519521.59	988.1919580.14	989.79				
19667.17	989.2319682.41	989.819702.21	996.0119748.59	997.3719805.76	996.17				
19845.03	997.1619865.87	996.219910.31	998.36 19967.1	998.42 20014.9	999.47				
20029.21	1000.5420117.14	1001.5220160.39	1001.5220237.95	1000.920255.99	999.99				
20286.6	996.9120299.66	997.8620325.13	997.7620329.59	999.1920351.58	999.75				
20372.56	1001.820404.32	1001.5820462.17	1002.120481.31	1002.9420514.37	999.73				
20536.37	999.7320593.55	1002.7620649.48	999.4320722.23	997.720767.76	997.66				
20797.59	1001.3720868.09	1000.8620883.15	1002.9520908.05	1004.6920936.25	1009.27				
20950.15	1010.620968.54	1014.9620983.24	1015.0921012.76	1013.2421049.68	1012.01				
21112.56	1011.2721229.86	1011.121309.34	1013.9821354.05	1014.4421369.82	1020.2				
21378.58	1013.6721394.32	1012.721435.95	1012.8721609.23	1011.921625.61	1019.1				
21640.8	1029.7821650.64	1034.1921655.56	1033.921672.55	1026.0321689.59	1033.27				
21696.49	1031.3221725.79	1012.3921801.22	1012.8 21841.9	1013.421900.68	1013.3				
21928.32	1012.5821976.61	1013.15 21992.6	1013.9822009.96	1021.3622026.88	1013.5				
22092.72	1014.4622153.94	1012.9822325.55	1013.89						

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16400.1	.02518531.31	.04319363.86	.03220968.54	.037			

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
19363.8620968.54		493 507.55	548	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
16400.119236.09	1025	F	
20997.7222325.55	1025	F	

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 1009.49	* Element	* Left OB * Channel *	Right OB *
* Vel Head (ft)	* 1.65	* Wt. n-Val.	* 0.043 * 0.032 *	*
* W.S. Elev (ft)	* 1007.83	* Reach Len. (ft)	* 493.00 * 507.55 *	548.00 *
* Crit W.S. (ft)	* 1004.49	* Flow Area (sq ft)	* 67.86 *16081.04 *	*
* E.G. Slope (ft/ft)	*0.002236	* Area (sq ft)	* 67.86 *16081.04 *	*
* Q Total (cfs)	*166000.00	* Flow (cfs)	* 87.54 *165912.50 *	*
* Top Width (ft)	* 1660.26	* Top Width (ft)	* 96.71 * 1563.55 *	*
* Vel Total (ft/s)	* 10.28	* Avg. Vel. (ft/s)	* 1.29 * 10.32 *	*
* Max Chl Dpth (ft)	* 24.27	* Hydr. Depth (ft)	* 0.70 * 10.28 *	*
* Conv. Total (cfs)	*3510649.0	* Conv. (cfs)	* 1851.4 *3508798.0 *	*
* Length Wtd. (ft)	* 507.48	* Wetted Per. (ft)	* 96.73 * 1578.76 *	*
* Min Ch El (ft)	* 983.56	* Shear (lb/sq ft)	* 0.10 * 1.42 *	*
* Alpha	* 1.01	* Stream Power (lb/ft s)	* 0.13 * 14.67 *	*
* Frctn Loss (ft)	* 0.71	* Cum Volume (acre-ft)	* 6816.93 *21905.06 *	1400.18 *
* C & E Loss (ft)	* 0.18	* Cum SA (acres)	* 1882.24 * 2233.97 *	658.09 *

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 1010.13	* Element	* Left OB * Channel *	Right OB *
* Vel Head (ft)	* 1.40	* Wt. n-Val.	* * 0.032 *	*
* W.S. Elev (ft)	* 1008.74	* Reach Len. (ft)	* 493.00 * 507.55 *	548.00 *
* Crit W.S. (ft)	* 1004.49	* Flow Area (sq ft)	* *17493.35 *	*
* E.G. Slope (ft/ft)	*0.001701	* Area (sq ft)	* *17493.35 *	*
* Q Total (cfs)	*166000.00	* Flow (cfs)	* *166000.00 *	*
* Top Width (ft)	* 1569.10	* Top Width (ft)	* * 1569.10 *	*
* Vel Total (ft/s)	* 9.49	* Avg. Vel. (ft/s)	* * 9.49 *	*
* Max Chl Dpth (ft)	* 25.18	* Hydr. Depth (ft)	* * 11.15 *	*
* Conv. Total (cfs)	*4025333.0	* Conv. (cfs)	* *4025333.0 *	*
* Length Wtd. (ft)	* 507.55	* Wetted Per. (ft)	* * 1585.80 *	*
* Min Ch El (ft)	* 983.56	* Shear (lb/sq ft)	* * 1.17 *	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	* * 11.11 *	*
* Frctn Loss (ft)	* 0.57	* Cum Volume (acre-ft)	* 1192.92 *22758.43 *	34.97 *
* C & E Loss (ft)	* 0.13	* Cum SA (acres)	* 200.36 * 2238.50 *	6.81 *

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 207.34

INPUT
Description: 207.34

Left and Right Channel Bank Stations Interpolated
Station Elevation Data num= 116

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16390	1014.11	6451.04	1012.96	16482.56	1014.16	16558.25	1014.46	16655.51	1013.6
16695.35	1012.28	16731.16	1012.65	16750.26	1014.05	16827.83	1014.43	16856.22	1013.55
16929.16	1013.06	16968.52	1010.91	17052.73	101117	057.91	1013.17	17117.28	1013.98
17234.8	1014.66	17348.67	1012.71	7385.85	1014.47	17500.69	1015.41	7503.76	1013.82
17533.18	1012.71	7584.34	101317	616.71	1008.02	17651.81	1008.02	17674.24	1012.87
17705.69	1012.39	17898.66	1012.17	17949.85	1012.67	18043.68	1011.81	8070.29	1012.58
18154.63	1012.62	18193.52	1013.91	8287.14	1014.81	18378.12	1014.69	18421.32	1014.16
18432.79	1017.32	18444.91	1009.81	8465.12	1009.58	18473.11	1011.41	8485.37	1008.18
18780.52	1008.34	18786.65	1009.72	18802.51	1008.23	18868.49	1008.23	18885.79	1021.27
18907.71	1024.48	18915.88	101518	939.87	1007.19	19006.62	1007.98	19023.93	1007
19059.35	1007.91	9094.18	1007.51	9110.18	1016.21	9141.52	1019.07	19173.29	1017.11
19186.74	1009.09	19205.41	1009.11	19216.48	1016.04	19241.39	1000.15	19247.38	999.56
19328.88	999.69	19345.58	990.41	19358.21	987.98	19413	983.69	19462.18	983.49
19562.66	985.59	19578.81	988.22	19606.64	987.88	19631.71	989.83	19673.73	989.7
19767.19	993.31	19825.99	993.76	19849.88	993.15	19895.22	993.51	19911.96	992.95
19935.76	994.54	19987.22	995.95	20035.82	995.91	20059.81	995.18	20093.54	997.88
20142.45	995.99	20188.72	996.41	20195.76	997.74	20234.48	999.13	20268.8	994.11
20301.96	995.32	20463.57	993.76	20481.07	994.01	20515.37	998.29	20535.47	998.11
20643.38	999.23	20673.27	997.31	20743.93	1004.86	20759.51	1012.62	20778.22	1014.7
20821.48	1014.55	20907.13	1011.17	20944.55	1010.44	20947.79	1013.55	21057.05	1014.4
21158.18	1013.06	21217.14	1011.51	21229.7	1015.94	21234.29	1010.01	22016.61	1010.04
22023.58	1017.92	2031.01	1012.77	22044.31	1015.27	22060.16	1013.71	22109.89	1012.5
22140.1	1013.36	22172.49	1012.62	2190.62	1013.35	22218.57	1010.38	22236.62	1014.38
22258.02	1014.2								

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16390	.025	17500.69	.043	19328.88	.032	21229.7	.037

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19328.88 20778.22 478 511.15 584 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
16390	19283.77	1025	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1008.60	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.06	Wt. n-Val.	0.043	0.032	
W.S. Elev (ft)	1007.54	Reach Len. (ft)	478.00	511.15	584.00
Crit W.S. (ft)	1000.99	Flow Area (sq ft)	355.61	19819.36	
E.G. Slope (ft/ft)	0.000956	Area (sq ft)	747.16	19819.36	
Q Total (cfs)	166000.00	Flow (cfs)	1504.82	164495.20	
Top Width (ft)	1583.79	Top Width (ft)	163.35	1420.44	
Vel Total (ft/s)	8.23	Avg. Vel. (ft/s)	4.23	8.30	
Max Chl Dpth (ft)	24.05	Hydr. Depth (ft)	7.88	13.95	
Conv. Total (cfs)	5369246.0	Conv. (cfs)	48673.1	5320573.0	
Length Wtd. (ft)	511.15	Wetted Per. (ft)	45.11	1425.79	
Min Ch El (ft)	983.49	Shear (lb/sq ft)	0.47	0.83	
Alpha	1.01	Stream Power (lb/ft s)	1.99	6.88	
Frctn Loss (ft)	0.41	Cum Volume (acre-ft)	6812.32	21695.91	1400.18
C & E Loss (ft)	0.00	Cum SA (acres)	1880.77	2216.58	658.09

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1009.43	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.96	Wt. n-Val.		0.032	
W.S. Elev (ft)	1008.48	Reach Len. (ft)	478.00	511.15	584.00
Crit W.S. (ft)	1000.97	Flow Area (sq ft)		21155.80	
E.G. Slope (ft/ft)	0.000791	Area (sq ft)		21155.80	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	1422.33	Top Width (ft)		1422.33	
Vel Total (ft/s)	7.85	Avg. Vel. (ft/s)		7.85	
Max Chl Dpth (ft)	24.99	Hydr. Depth (ft)		14.87	
Conv. Total (cfs)	5901829.0	Conv. (cfs)		5901829.0	
Length Wtd. (ft)	511.15	Wetted Per. (ft)		1436.69	
Min Ch El (ft)	983.49	Shear (lb/sq ft)		0.73	
Alpha	1.00	Stream Power (lb/ft s)		5.71	
Frctn Loss (ft)	0.35	Cum Volume (acre-ft)	1192.92	22533.26	34.97
C & E Loss (ft)	0.01	Cum SA (acres)	200.36	2221.07	6.81

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 207.27

```
INPUT
Description: 207.27
Station Elevation Data    num=     143
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
*********************************************************************************
 16338.2  1012.816403.51 1012.4316463.73  1011.316514.39 1012.33   16700 1012.61
16741.69 1010.8216772.67 1011.6116799.26 1009.7516839.67  1009.716867.76 1010.76
16922.76 1010.3317010.45 1010.7417086.24 1010.67 17157.3 1012.2717197.79 1012.42
17222.11  1011.217252.76 1011.37 17284.7  1012.917353.36 1013.0317419.07 1012.22
17463.35 1012.2217497.28 1013.2917537.66 1013.4217557.02 1012.5617611.11 1013.93
17637.43 1012.9817712.33  1014.117733.37  1011.517786.06  1011.9 17849.2  1011.4
18020.19 1011.0718101.36 1011.2518112.58 1008.3918148.83 1007.0718192.15  1007.7
18278.76 1007.8418288.02  1012.518299.18 1008.1518328.14 1008.8518334.94 1011.14
18342.37 1007.6118368.55 1007.9618401.13 1006.7518469.26  1007.818481.64 1008.82
18502.64  1019.418523.54 1010.7718566.42  1010.718638.14  1011.618671.96  1014.7
 18703.3 1016.0818708.83 1017.7718752.24 1019.0518771.42 1026.2418789.76  1028.7
18818.49 1028.0618826.99 1023.0818872.32    102318886.44 1024.88 18901.1 1016.13
18914.73 1012.65 18931.1 1011.7319175.81  1008.719235.12  1009.219238.65 1011.07
19247.16 1016.3219276.61  1003.419292.88 1003.0119349.31  1004.119441.55 1004.12
19447.75  996.5419463.65  987.3819483.81  983.9719526.52  982.6819603.75  984.77
19659.72  985.2519761.91  982.7519777.21  987.6919864.21   989.619948.08  990.08
20034.07  988.7820050.88  987.4220079.13  988.2420090.21  985.9420115.59  985.74
20138.99  991.9920185.99  992.6720234.27  991.8120249.79  992.59 20288.9  992.32
 20297.7  986.5520307.85  985.1620337.94   985.920356.26  984.1620362.31   991.4
20416.85  991.8620464.21  993.0620490.43 1008.6420502.64  1001.520530.06 1003.03
 20614.7 1005.3620654.56  1005.420666.72  1009.620677.91 1009.4820682.81 1005.72
20695.73 1006.3420701.57  1009.7 20718.3  1006.920776.63 1008.7320795.72 1019.26
20806.32 1020.2620817.13 1011.71 20859.6 1012.3320902.24 1012.0920920.17 1010.74
20971.04  1010.221003.47 1011.0221012.12 1013.2321032.96 1011.53 21059.4 1013.24
21164.91 1011.1321179.37  1011.521197.44 1016.0221206.33 1020.8621224.74  1020.8
21249.48  1011.121362.87 1010.6521437.58 1011.9521550.02 1011.0721803.99  1011.9
21818.54 1010.2921842.19  1027.121846.14 1022.8121868.81 1019.7521887.76 1019.33
21891.68 1022.04 21904.6 1013.3721935.71 1013.9521973.98 1011.4122021.45 1012.75
22054.81 1011.6422075.41 1014.5122135.35 1013.96

Manning's n Values        num=       4
     Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val
*************************************************************************
 16338.2    .02518101.36    .04319441.55    .03220490.43    .032

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
     19441.5520490.43             413  467.91     513            .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 16338.219136.61    1030       F
20883.0322135.35    1030       F

CROSS SECTION OUTPUT  Profile #PF#1
*************************************************************************************************
* E.G. Elev (ft)         * 1008.19  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.07  * Wt. n-Val.             *   0.043  *   0.032  *   0.032  *
* W.S. Elev (ft)         * 1007.12  * Reach Len. (ft)        *  413.00  *  467.91  *  513.00  *
* Crit W.S. (ft)         *  997.48  * Flow Area (sq ft)      *  558.31  *19572.41  *  498.17  *
* E.G. Slope (ft/ft)     *0.000668  * Area (sq ft)           *  564.72  *19572.41  *  498.17  *
* Q Total (cfs)          *166000.00  * Flow (cfs)            * 1084.11  *163733.50  * 1182.44  *
* Top Width (ft)         * 1449.48  * Top Width (ft)         *  212.22  * 1046.32  *  190.94  *
* Vel Total (ft/s)       *    8.05  * Avg. Vel. (ft/s)      *    1.94  *    8.37  *    2.37  *
* Max Chl Dpth (ft)      *   24.44  * Hydr. Depth (ft)      *    3.22  *   18.71  *    2.61  *
* Conv. Total (cfs)      *6421410.0  * Conv. (cfs)          * 41936.8  *6333732.0  * 45740.7  *
* Length Wtd. (ft)       *  466.71  * Wetted Per. (ft)      *  174.22  * 1063.87  *  193.55  *
* Min Ch El (ft)         *  982.68  * Shear (lb/sq ft)      *    0.13  *    0.77  *    0.11  *
* Alpha                  *    1.07  * Stream Power (lb/ft s) *    0.26  *    6.42  *    0.25  *
* Frctn Loss (ft)        *    0.11  * Cum Volume (acre-ft)  * 6805.12  *21464.79  * 1396.84  *
* C & E Loss (ft)        *    0.21  * Cum SA (acres)        * 1878.71  * 2202.11  *  656.81  *
*************************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*************************************************************************************************
* E.G. Elev (ft)         * 1009.08  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.01  * Wt. n-Val.             *          *   0.032  *          *
* W.S. Elev (ft)         * 1008.07  * Reach Len. (ft)        *  413.00  *  467.91  *  513.00  *
* Crit W.S. (ft)         *  997.48  * Flow Area (sq ft)      *          *20566.80  *          *
* E.G. Slope (ft/ft)     *0.000587  * Area (sq ft)           *          *20566.80  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)            *          *166000.00  *          *
* Top Width (ft)         * 1047.92  * Top Width (ft)         *          * 1047.92  *          *
* Vel Total (ft/s)       *    8.07  * Avg. Vel. (ft/s)      *          *    8.07  *          *
* Max Chl Dpth (ft)      *   25.39  * Hydr. Depth (ft)      *          *   19.63  *          *
* Conv. Total (cfs)      *6854151.0  * Conv. (cfs)          *          *6854151.0  *          *
* Length Wtd. (ft)       *  467.91  * Wetted Per. (ft)      *          * 1069.68  *          *
* Min Ch El (ft)         *  982.68  * Shear (lb/sq ft)      *          *    0.70  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    5.68  *          *
* Frctn Loss (ft)        *    0.11  * Cum Volume (acre-ft)  * 1192.92  *22288.47  *   34.97  *
* C & E Loss (ft)        *    0.19  * Cum SA (acres)        *  200.36  * 2206.58  *    6.81  *
*************************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 207.16
```

```
INPUT
Description: 207.16 - FEMA Section Q
Downstream limits of updated
             sections
New topography by Kenney Aerial - Sept. 2010
Station Elevation Data    num=      150
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
*********************************************************************************************
 16343.5  1012.616436.28 1011.8316462.44  1010.916497.16 1011.0716513.02 1008.42
16536.33 1011.5316613.93 1011.43 16639.9 1010.9916663.54 1012.1916778.32 1011.46
16822.69 1011.4916914.67  1009.416954.33 1009.3416980.24  1010.117076.42 1010.38
17106.55 1008.7917121.67 1004.9417155.96 1004.2317170.59  1005.117207.53 1012.41
17311.23    101217373.52 1010.9417423.47 1012.9217478.62 1012.5417560.28 1013.23
17657.23 1011.7517689.19 1012.9117788.46 1012.9817809.89 1009.0617825.58 1008.08
17876.67  1010.1   17912 1006.9617961.12 1006.1118037.75 1005.7418144.43 1006.26
18178.23 1005.6618203.48 1011.2418234.84  1011.418285.17 1002.8318327.92 1002.11
18375.51  999.9418431.91   993.518457.64  993.5618492.03  995.5418509.49   999.6
18531.96  1002.418562.35  997.9218570.17  1002.218589.88 1001.8718600.77 1006.26
 18608.8 1003.8218642.04 1004.0918678.06 1000.6518683.19  998.5318706.79 1000.15
18714.26  998.9118801.36 1000.7118855.38  999.8418890.96  1000.218965.92   998.7
19058.76  999.3419082.21  998.7819118.59 1000.7619124.46 1002.0519154.47  1001.6
19187.25 1002.1819218.05  1001.619229.95 1002.6119256.06 1001.5719305.75  1002.4
19351.62 1001.7219361.74 1005.5119371.46 1003.2119377.86   995.419395.47  986.39
19423.79  983.7119441.27  980.1519495.82  978.25 19507.5  981.7719542.54  982.41
19587.75  981.6719670.68  982.0419722.07  980.4719771.21   980.919826.09   979.5
19873.01  976.8419913.92  976.37 20016.3  978.1320038.45  977.5420088.37  978.33
20131.27  978.0420142.84  972.8320158.41  969.8920342.73  969.6620360.02   971.8
 20410.6  971.7320430.37  982.5620448.85  989.1620479.77 1009.220489.77 1004.79
20499.12 1006.0120517.88 1018.4820534.96 1015.8720541.47  1017.920568.83 1018.62
20601.82 1017.4220623.36 1005.9920653.12  1005.720674.35 1015.8920694.61 1021.65
20708.69 1021.9820723.02  1017.8   20737 1019.7320759.03 1019.1620798.34 1008.24
20863.13  1008.9   20876 1015.1320893.82 1014.1820906.14 1008.51 20920.1 1008.03
20970.13  1008.720975.19  1009.421118.29  1010.421133.42  1014.621149.49 1010.82
 21179.7 1010.5421244.66  1011.8 21318.5  1010.821332.07 1014.0521340.69 1011.58
21351.88 1018.6821361.88 1013.4921375.26 1012.4121531.56 1012.8621568.57 1011.87
21614.86 1011.4821621.15 1010.3421662.98 1011.2521669.39  1013.221692.52  1011.7
21771.67 1010.3221783.96 1011.4221823.49  1011.921881.29 1011.2521897.89 1007.92
21937.26  1007.821954.95 1011.4322012.49 1012.4822019.41 1014.5922087.37 1014.74

Manning's n Values        num=       4
     Sta    n Val      Sta    n Val      Sta    n Val      Sta    n Val
*************************************************************
 16343.5     .02517788.46     .04319371.46     .03220479.77     .037

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.    Expan.
      19371.4620479.77             586  585.23     607            .1        .3
Ineffective Flow     num=       2
   Sta L    Sta R     Elev  Permanent
 16343.518601.44 1020.18       F
20568.2222087.37 1020.45       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         * 1007.86  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.36  * Wt. n-Val.            *   0.043  *   0.032  *   0.037  *
* W.S. Elev (ft)         * 1007.50  * Reach Len. (ft)       *  586.00  *  585.23  *  607.00  *
* Crit W.S. (ft)         *  986.51  * Flow Area (sq ft)     * 5174.97  *32347.25  *   29.70  *
* E.G. Slope (ft/ft)     *0.000127  * Area (sq ft)          * 8482.80  *32347.25  *   84.63  *
* Q Total (cfs)          *166000.00  * Flow (cfs)          *  7154.56  *158827.30  *   18.18  *
* Top Width (ft)         * 2625.39  * Top Width (ft)       * 1465.57  * 1105.69  *   54.12  *
* Vel Total (ft/s)       *    4.42  * Avg. Vel. (ft/s)     *    1.38  *    4.91  *    0.61  *
* Max Chl Dpth (ft)      *   37.84  * Hydr. Depth (ft)     *    6.72  *   29.26  *    1.67  *
* Conv. Total (cfs)      *14746040.0  * Conv. (cfs)        *  *635550.8  *14108870.0  *  1615.0  *
* Length Wtd. (ft)       *  585.32  * Wetted Per. (ft)     *  772.39  * 1123.63  *   18.85  *
* Min Ch El (ft)         *  969.66  * Shear (lb/sq ft)     *    0.05  *    0.23  *    0.01  *
* Alpha                  *    1.18  * Stream Power (lb/ft s) *    0.07  *    1.12  *    0.01  *
* Frctn Loss (ft)        *    0.22  * Cum Volume (acre-ft)  * 6762.23  *21185.94  * 1393.41  *
* C & E Loss (ft)        *    0.27  * Cum SA (acres)        * 1870.75  * 2190.55  *  655.36  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)         * 1008.78  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.39  * Wt. n-Val.            *          *   0.032  *          *
* W.S. Elev (ft)         * 1008.40  * Reach Len. (ft)       *  586.00  *  585.23  *  607.00  *
* Crit W.S. (ft)         *  986.51  * Flow Area (sq ft)     *          *33336.06  *          *
* E.G. Slope (ft/ft)     *0.000126  * Area (sq ft)          *          *33336.06  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)          *          *166000.00  *          *
* Top Width (ft)         * 1107.07  * Top Width (ft)       *          * 1107.07  *          *
* Vel Total (ft/s)       *    4.98  * Avg. Vel. (ft/s)     *          *    4.98  *          *
* Max Chl Dpth (ft)      *   38.74  * Hydr. Depth (ft)     *          *   30.11  *          *
* Conv. Total (cfs)      *14775160.0  * Conv. (cfs)        *          *14775160.0  *          *
* Length Wtd. (ft)       *  585.27  * Wetted Per. (ft)     *          * 1130.46  *          *
* Min Ch El (ft)         *  969.66  * Shear (lb/sq ft)     *          *    0.23  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    1.16  *          *
* Frctn Loss (ft)        *    0.22  * Cum Volume (acre-ft)  * 1192.92  *21998.96  *   34.97  *
* C & E Loss (ft)        *    0.31  * Cum SA (acres)        *  200.36  * 2195.00  *    6.81  *
*********************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION
```

RIVER: 1
REACH: 1 RS: 207.07

INPUT
Description: 207.07

Right Channel Bank Station Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16445.4	1010.8	16477.5	1010.8	16492.9	1010.8	16495.3	1012.4	16612.3	1012.1
16706.3	1012.4	16731.4	1011.4	16754.5	1011.7	16775.6	1010.8	16823.5	1006
16897.1	1007.2	16996.9	1007.2	17084.4	1008.1	17118	1007.2	17130.1	1007.9
17215.3	1007.5	17296.8	1005.9	17391.8	1005.8	17473.1	1006.2	17581.5	1006.7
17688.2	1006.9	17793.8	1007.5	17860.3	1007.8	17918.6	1006.5	17937.7	1009.2
17950.5	1008.4	18054.6	1008.5	18145.7	1009.4	18249.2	1008.8	18339.2	1006.2
18409	1004.8	18416.3	1003.9	18490.8	1003.4	18511.6	998.8	18578.1	997.6
18602.7	998.8	18624	998.9	18705.2	1001.4	18768.4	1001.7	18825	999.3
18843.9	997.7	18938	998.1	19029.9	1000.3	19121	1004.5	19134.1	1007.4
19200.4	1009.2	19224.9	1008.7	19244.6	1006.5	19312.8	1004.4	19414.2	1003.2
19443.8	1001.8	19521.9	1001.9	19538.7	1003.4	19547.9	1003.2	19557.9	1004.4
19673.5	1001.7	19761.8	1001.1	19774.6	1001.9	19789.4	1004.7	19852.9	995.2
19935.8	993.4	19939.1	993.8	19945.4	992.8	19998	992.8	20099	992.9
20181.6	993	20237.1	993	20335	993.1	20381.8	993.2	20403	998.8
20417.1	996.1	20529.1	995.5	20635.3	995.9	20719.4	996.3	20720.5	998.7
20734.9	1003.5	20748.22	1004.3	20786.5	1006.6	20840.1	1007	20851.3	1007.9
20926.4	1009.4	21006.6	1009.9	21089.4	1010	21172.8	1009.7	21301.4	1008.9
21383.6	1008.7	21497.8	1007.9	21578.8	1007.1	21613.2	1007.3	21673.3	1011.2
21705.2	1010.3	21732.7	1013.7	21818.2	1013	21896.1	1014.4	21908.3	1013.5
21967.3	1014.4	21999.5	1014.1						

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16445.4	.043	18490.8	.032	19789.4	.032	20926.4	.032

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19789.4 20748.22 510 514.11 520 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
16445.4	18145.7	1013	F
20926.4	21999.5	1013	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1007.37	Element	Left OB	Channel / Right OB
Vel Head (ft)	3.07	Wt. n-Val.	0.032	0.032 /
W.S. Elev (ft)	1004.30	Reach Len. (ft)	510.00	514.11 / 520.00
Crit W.S. (ft)	1004.30	Flow Area (sq ft)	3660.52	9048.91 /
E.G. Slope (ft/ft)	0.005272	Area (sq ft)	3660.52	9048.91 / 0.00
Q Total (cfs)	166000.00	Flow (cfs)	29886.06	136113.90 /
Top Width (ft)	2121.27	Top Width (ft)	1165.05	956.17 / 0.05
Vel Total (ft/s)	13.06	Avg. Vel. (ft/s)	8.16	15.04 /
Max Chl Dpth (ft)	11.50	Hydr. Depth (ft)	3.14	9.46 /
Conv. Total (cfs)	2286164.0	Conv. (cfs)	411592.9	1874571.0 /
Length Wtd. (ft)	513.60	Wetted Per. (ft)	1166.36	960.30 /
Min Ch El (ft)	992.80	Shear (lb/sq ft)	1.03	3.10 /
Alpha	1.16	Stream Power (lb/ft s)	8.43	46.65 /
Frctn Loss (ft)	0.83	Cum Volume (acre-ft)	6680.55	20907.86 / 1392.82
C & E Loss (ft)	0.60	Cum SA (acres)	1853.06	2176.70 / 654.98

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1008.25	Element	Left OB	Channel / Right OB
Vel Head (ft)	3.51	Wt. n-Val.	0.032	0.032 /
W.S. Elev (ft)	1004.74	Reach Len. (ft)	510.00	514.11 / 520.00
Crit W.S. (ft)	1004.74	Flow Area (sq ft)	2266.36	9462.29 /
E.G. Slope (ft/ft)	0.005422	Area (sq ft)	2266.36	9462.29 /
Q Total (cfs)	166000.00	Flow (cfs)	17617.19	148382.80 /
Top Width (ft)	1710.74	Top Width (ft)	751.96	958.78 /
Vel Total (ft/s)	14.15	Avg. Vel. (ft/s)	7.77	15.68 /
Max Chl Dpth (ft)	11.93	Hydr. Depth (ft)	3.01	9.87 /
Conv. Total (cfs)	2254410.0	Conv. (cfs)	239255.3	2015155.0 /
Length Wtd. (ft)	513.87	Wetted Per. (ft)	759.60	963.38 /
Min Ch El (ft)	992.80	Shear (lb/sq ft)	1.01	3.32 /
Alpha	1.13	Stream Power (lb/ft s)	7.85	52.14 /
Frctn Loss (ft)	0.83	Cum Volume (acre-ft)	1177.68	21711.46 / 34.97
C & E Loss (ft)	0.71	Cum SA (acres)	195.31	2181.12 / 6.81

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 206.97

INPUT
Description: 206.97

Right Channel Bank Station Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16303.3	1009.9	16422	1010.3	16524.8	1010.6	16626.6	1010.6	16719.6	1011.3
16794.5	1009.6	16836.4	1004.7	16959	1004.6	17073.2	1004.7	17198.7	1004.8
17241.8	1005.5	17390.7	1004.8	17512.3	1005.1	17603.3	1005.3	17704.7	1005.3
17836.9	1005.5	17965	1005.2	18085.7	1005.8	18094.8	1005.9	18105	1008
18196	1007.4	18235.2	1007.2	18260.5	1005.9	18283.2	1007.6	18372.2	1006.3
18390.1	1005.1	18407.6	999.1	18518.7	997.7	18623.3	996.9	18669.1	995.6
18742.3	996.3	18834	1000.5	18925.1	1002.3	19025.7	1004.4	19072.3	1003.7
19086.7	1001.2	19181.7	1005.8	19197	1005.7	19217.7	1002.3	19234.5	1008.4
19316.9	1001.8	19405.1	1002.1	19456.4	1006.1	19566.5	1005.4	19666.3	1005.2
19736.5	1004.4	19776.5	998.7	19783.2	1000.5	19808.3	994.1	19822.1	992.8
19919.1	992.9	20108.8	993.1	20124.9	999	20128.8	998.6	20159.3	982.1
20170.6	981.8	20265.5	981.8	20360.8	981.8	20399.3	981.8	20400.1	981.8
20443.8	981.8	20457.3	981.8	20522.8	981.8	20543.7	981.8	20552.2	981.8
20558.1	981.8	20559.2	981.8	20645	981.8	20661.9	981.7	20684.6	981.8
20778.2	981.8	20792.8	981.8	20800984.2432		20814.9	989.3	20826.8	991.9
20829.6	993.6	20832.1	993.2	20841.1	988	20882.9	981.8	20888	981.8
20995.1	981.8	21051.7	981.8	21053.6	981.8	21086.6	1009	21114.5	1010.4
21124.9	1008.4	21145.7	1009.1	21151.2	1011.2	21171.8	1014.5	21174	1009.3
21270.2	1009.8	21364.9	1009.2	21463.9	1009.1	21469.9	1008.9	21475.8	1010.8
21486.9	1008.5	21498	1009.8						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16303.3	.025	16719.6	.043	18407.6	.032	19736.5	.032	21086.6	.032

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19736.5 20800 480 491.78 480 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
20800	21498	1010	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1004.80	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.07	Wt. n-Val.	0.032	0.032	
W.S. Elev (ft)	1003.73	Reach Len. (ft)	480.00	491.78	480.00
Crit W.S. (ft)	995.22	Flow Area (sq ft)	3249.01	18103.59	
E.G. Slope (ft/ft)	0.000773	Area (sq ft)	3249.01	18103.59	5405.96
Q Total (cfs)	166000.00	Flow (cfs)	11555.59	154444.40	
Top Width (ft)	2153.01	Top Width (ft)	814.01	1058.80	280.21
Vel Total (ft/s)	7.77	Avg. Vel. (ft/s)	3.56	8.53	
Max Chl Dpth (ft)	22.03	Hydr. Depth (ft)	3.99	17.10	
Conv. Total (cfs)	5970014.0	Conv. (cfs)	415584.7	5554430.0	
Length Wtd. (ft)	490.90	Wetted Per. (ft)	815.73	1065.91	
Min Ch El (ft)	981.70	Shear (lb/sq ft)	0.19	0.82	
Alpha	1.13	Stream Power (lb/ft s)	0.68	6.99	
Frctn Loss (ft)	0.31	Cum Volume (acre-ft)	6640.10	20747.63	1360.55
C & E Loss (ft)	0.07	Cum SA (acres)	1841.47	2164.81	653.31

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1005.77	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.14	Wt. n-Val.	0.032	0.032	
W.S. Elev (ft)	1004.63	Reach Len. (ft)	480.00	491.78	480.00
Crit W.S. (ft)	995.22	Flow Area (sq ft)	892.56	19057.96	
E.G. Slope (ft/ft)	0.000760	Area (sq ft)	892.56	19057.96	
Q Total (cfs)	166000.00	Flow (cfs)	1714.70	164285.30	
Top Width (ft)	1567.64	Top Width (ft)	504.14	1063.50	
Vel Total (ft/s)	8.32	Avg. Vel. (ft/s)	1.92	8.62	
Max Chl Dpth (ft)	22.93	Hydr. Depth (ft)	1.77	17.92	
Conv. Total (cfs)	6019868.0	Conv. (cfs)	62182.5	5957686.0	
Length Wtd. (ft)	491.63	Wetted Per. (ft)	509.11	1091.04	
Min Ch El (ft)	981.70	Shear (lb/sq ft)	0.08	0.83	
Alpha	1.06	Stream Power (lb/ft s)	0.16	7.15	
Frctn Loss (ft)	0.31	Cum Volume (acre-ft)	1159.19	21543.16	34.97
C & E Loss (ft)	0.07	Cum SA (acres)	187.95	2169.19	6.81

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 206.88

INPUT
Description: 206.88

Right Channel Bank Station Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16205.8	1008.1	16348.5	1008.4	16441.8	1008.4	16531.3	1008.2	16598.3	1009.2
16605	1008.5	16606.3	1010.2	16696.6	1005.4	16819.2	1004.3	16908.4	1004.4
17006	1004.7	17092.4	1003.2	17182	1004	17323.7	1003.7	17415.5	1003.8
17503.8	1003.9	17603.8	1003.9	17703.9	1004.6	17815.8	1005.9	17930.5	1006.3
18057.4	1006.3	18152.5	1006	18216	1005.3	18267.1	1005.9	18292.7	1007.3
18373.6	999.7	18386.3	996.3	18470	995.7	18533.8	995.1	18593.4	996.7
18657.8	996.4	18748.4	998	18835.7	998.9	18932.3	1000.4	18993.2	1000.9
19018.7	1003.6	19101.5	1004	19119.7	1002.9	19166.7	1006	19168.3	1006.9
19251.9	1004.5	19258.4	1005	19341.6	1001.3	19360.8	1001.1	19415.8	1004.9
19507.2	1001.3	19566.3	1004.7	19645.5	1003.4	19728.8	1003.5	19781.8	993.3
19833	992.7	19942.2	993	19947.1	996.6	19996.5	982.3	20008.3	981.8
20016.1	981.8	20105.7	981.8	20143	981.8	20146.6	981.8	20221.6	981.8
20334.4	981.8	20459.7	981.8	20546.8	981.8	20641.2	981.8	20760.8	981.8
20800	981.8	20820.9	981.8	20832	984	20842.1	983.1	20850.4	981.8
20851.4	981.8	20928.6	981.8	20948.4	981.8	21002.4	999.3	21012.9	997
21041.1	997	21047.1	998.2	21081.4	998.4	21113.7	986.4	21142	981.7
21162.6	990	21181.8	991.8	21199.6	1001.3	21208.2	1003.8	21233.9	1006.9
21251.5	1012.2	21270.1	1006.2	21313.5	1006.5	21327.6	1009.1	21361.8	1011.6
21394.4	1008.9	21440.9	1009.7	21454	1011.6	21546.5	1009	21569.8	1012.6
21605	1009.6	21674.6	1010.5						

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16205.8	.025	16696.6	.043	18386.3	.032	19728.8	.032	21251.5	.032
21605	.025								

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
19728.8	20800	480 487.71	505	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
16205.8	18292.7	1007.3	F
20800	21674.6	1012	F

CROSS SECTION OUTPUT Profile #PF#1

		Left OB	Channel	Right OB
E.G. Elev (ft)	1004.41	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.83	Wt. n-Val.	0.032	0.032	
W.S. Elev (ft)	1003.59	Reach Len. (ft)	480.00	487.71	505.00
Crit W.S. (ft)	993.27	Flow Area (sq ft)	4121.21	20233.29	
E.G. Slope (ft/ft)	0.000528	Area (sq ft)	4133.88	20233.29	6019.31
Q Total (cfs)	166000.00	Flow (cfs)	13323.00	152677.00	
Top Width (ft)	2551.40	Top Width (ft)	1072.74	1071.20	407.46
Vel Total (ft/s)	6.82	Avg. Vel. (ft/s)	3.23	7.55	
Max Chl Dpth (ft)	21.89	Hydr. Depth (ft)	4.09	18.89	
Conv. Total (cfs)	7226234.0	Conv. (cfs)	579970.7	6646263.0	
Length Wtd. (ft)	487.04	Wetted Per. (ft)	1008.30	1075.40	
Min Ch El (ft)	981.80	Shear (lb/sq ft)	0.13	0.62	
Alpha	1.15	Stream Power (lb/ft s)	0.44	4.68	
Frctn Loss (ft)	0.25	Cum Volume (acre-ft)	6599.42	20531.22	1297.60
C & E Loss (ft)	0.04	Cum SA (acres)	1831.08	2152.79	649.52

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

		Left OB	Channel	Right OB
E.G. Elev (ft)	1005.39	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.91	Wt. n-Val.	0.032	0.032	
W.S. Elev (ft)	1004.48	Reach Len. (ft)	480.00	487.71	505.00
Crit W.S. (ft)	993.27	Flow Area (sq ft)	1430.58	21191.71	
E.G. Slope (ft/ft)	0.000533	Area (sq ft)	1430.58	21191.71	
Q Total (cfs)	166000.00	Flow (cfs)	2573.67	163426.30	
Top Width (ft)	1800.86	Top Width (ft)	729.66	1071.20	
Vel Total (ft/s)	7.34	Avg. Vel. (ft/s)	1.80	7.71	
Max Chl Dpth (ft)	22.68	Hydr. Depth (ft)	1.96	19.78	
Conv. Total (cfs)	7191503.0	Conv. (cfs)	111497.2	7080006.0	
Length Wtd. (ft)	487.55	Wetted Per. (ft)	735.78	1098.08	
Min Ch El (ft)	981.80	Shear (lb/sq ft)	0.06	0.64	
Alpha	1.09	Stream Power (lb/ft s)	0.12	4.95	
Frctn Loss (ft)	0.25	Cum Volume (acre-ft)	1146.39	21315.96	34.97
C & E Loss (ft)	0.05	Cum SA (acres)	181.15	2157.14	6.81

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 206.79

INPUT
Description: 206.79

Right Channel Bank Station Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16211.1	1006.9	16286.9	1006.9	16364.1	1007.5	16379.7	1007.6	16449.9	1007.6
16525.2	1007.8	16538.6	1008.9	16619.3	1008.5	16666.4	1006.2	16699.6	1001.9
16769.7	1002.3	16840	1002.4	16905.7	1002.4	16989.2	1002.5	17055.4	1002.7
17133	1002.7	17230.9	1002.5	17245.4	1002.4	17322.6	1003	17404	1003.7
17419.6	1003.8	17484.7	1004.3	17553	1004.8	17588.7	1004.8	17631.2	1003
17670.6	1002.9	17748.9	1006.3	17834.7	1006.5	17871.1	1006.6	17919.1	1005.8
17921.7	1005.2	17948.4	1004.4	18036.8	1004.9	18106	1004.9	18182.5	1004.5
18301.7	1004.4	18337	1004.5	18378.4	997.7	18439.7	995.6	18517.1	995.3
18604.7	996.5	18674.2	996.8	18740.3	995.7	18770.1	994.8	18841.6	996.3

18882	997.5	18920.6	1006.8	19010.4	1005.9	19096.2	1003.2	19138.3	1000.6
19186.5	1000.9	19206.9	1002.3	19281.9	1002	19360.7	1002.6	19391.1	1000
19450.2	1002.2	19485	1002.5	19519.3	1004	19570	1004.1	19626.2	1001.8
19645.2	1001.4	19653.2	1002.5	19663.1	1005.3	19671.5	1001	19690.4	994.6
19711.8	993	19766	993.3	19929.9	994	19943.3	996.8	19952.4	996.3
19962.3	992.6	19991	990.7	20007.7	991.1	20032.9	987.2	20042.3	985
20082.5	982.2	20100.2	981.8	20136.1	981.8	20140	981.8	20180.6	981.8
20309.2	981.8	20331	981.8	20390.5	981.8	20420.7	981.8	20422.7	981.8
20425	981.8	20501.8	981.8	20576.6	981.8	20625.3	981.8	20832.1	981.8
20847	981.8	20851.9	981.8	20865.4	988.82	0895.15	1003.436	20902.8	1007.2
20935.6	1019.6	20986	1019.6						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16211.1	.025	16525.2	.043	18378.4	.032	19663.1	.032	20935.6	.032

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

19663.12	0895.15		495	489.96	520	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
16211.1	17871.1	1015	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1004.13	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.69	Wt. n-Val.	0.032	0.032	
W.S. Elev (ft)	1003.43	Reach Len. (ft)	495.00	489.96	520.00
Crit W.S. (ft)	992.85	Flow Area (sq ft)	4633.73	21710.05	
E.G. Slope (ft/ft)	0.000488	Area (sq ft)	5262.60	21710.05	
Q Total (cfs)	166000.00	Flow (cfs)	15594.29	150405.70	
Top Width (ft)	3026.51	Top Width (ft)	1798.11	1228.40	
Vel Total (ft/s)	6.30	Avg. Vel. (ft/s)	3.37	6.93	
Max Chl Dpth (ft)	21.63	Hydr. Depth (ft)	4.41	17.67	
Conv. Total (cfs)	7514464.0	Conv. (cfs)	705920.1	6808544.0	
Length Wtd. (ft)	490.43	Wetted Per. (ft)	1052.75	1236.91	
Min Ch El (ft)	981.80	Shear (lb/sq ft)	0.13	0.53	
Alpha	1.12	Stream Power (lb/ft s)	0.45	3.70	
Frctn Loss (ft)	0.23	Cum Volume (acre-ft)	6547.65	20296.42	1262.71
C & E Loss (ft)	0.05	Cum SA (acres)	1815.26	2139.91	647.16

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1005.10	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.76	Wt. n-Val.	0.032	0.032	
W.S. Elev (ft)	1004.34	Reach Len. (ft)	495.00	489.96	520.00
Crit W.S. (ft)	992.85	Flow Area (sq ft)	1935.26	22824.84	
E.G. Slope (ft/ft)	0.000478	Area (sq ft)	1935.26	22824.84	
Q Total (cfs)	166000.00	Flow (cfs)	4403.95	161596.00	
Top Width (ft)	1934.31	Top Width (ft)	704.13	1230.18	
Vel Total (ft/s)	6.70	Avg. Vel. (ft/s)	2.28	7.08	
Max Chl Dpth (ft)	22.54	Hydr. Depth (ft)	2.75	18.55	
Conv. Total (cfs)	7590998.0	Conv. (cfs)	201387.9	7389610.0	
Length Wtd. (ft)	490.08	Wetted Per. (ft)	714.47	1239.81	
Min Ch El (ft)	981.80	Shear (lb/sq ft)	0.08	0.55	
Alpha	1.09	Stream Power (lb/ft s)	0.18	3.89	
Frctn Loss (ft)	0.22	Cum Volume (acre-ft)	1127.84	21069.55	34.97
C & E Loss (ft)	0.06	Cum SA (acres)	173.25	2144.26	6.81

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 206.7

INPUT
Description: 206.7 - FEMA Section P
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16235.4	1006.6	16247.5	1006.6	16320.8	1007.1	16332.7	1007	16402.3	1007.2
16479.2	1008	16505.8	1007.5	16527.3	1008	16552.4	1002	16640.8	1001.4
16727.5	1001.8	16815.4	1001.7	16889.1	1001.5	16902.1	1001.5	16968.1	1001.2
17043.4	1001.3	17155	1000.9	17251.1	1001.1	17317.4	1002.1	17335.4	1002.3
17401.1	1002.9	17430.7	1003.1	17519.9	1003.5	17616.5	1003.3	17699.9	1004
17823.5	1005.8	17891.6	1004.8	17962.7	1005.6	18043.4	1006.2	18125.2	1006.2
18207.9	1005.3	18257.6	1003	18280.3	995.2	18285.8	995.2	18301.4	997.1
18329.6	998.9	18423.4	998.8	18488.5	996	18559.6	995.2	18629.1	994.8
18690.8	994.6	18728.6	993.3	18746.4	994.2	18779.5	994.4	18815.2	996.6
18848.2	1004.6	18945.8	1005	19021.2	1004.8	19092.1	1004.4	19150.1	1003.8
19192.4	1001.5	19285.5	1002.1	19293.9	1002.1	19370.4	999.7	19431.5	999.7
19468.9	1000.2	19510.1	1003.7	19543.9	1002.8	19624.5	994.6	19647.2	992.9
19711.3	993.2	19814.1	993.4	19871.2	993.4	19882.5	995.3	19901.9	992.6
19941.1	991.3	20015.4	991.6	20098.2	993.9	20143.5	994	20167.9	992.9
20185.2	1000.4	20197.8	994.4	20212.7	993.7	20259.6	993.7	20275.9	991.3
20314.8	981.8	20318.5	981.8	20393.8	981.8	20691.8	981.8	20713.3	981.8
20963.1	981.8	21002.8	981.8	21076.8	981.8	21102.7	981.8	21120	988.8
21131	999.6	21138.8	1004.7	21146.9	1002.8	21207	1004.5	21234.3	1006.1
21262.4	1006.4	21329	1008.1	21422.5	1007.5	21452.5	1018.4	21484.3	1017.2
21488	1018.6								

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16235.4	.025	16640.8	.043	18329.6	.032	19510.1	.032	21138.8	.032

```
Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.    Expan.
      19510.1 21138.8                 500  500.23     500             .1       .3
Ineffective Flow      num=        1
   Sta L   Sta R    Elev  Permanent
 16235.4   18110    1015        F

CROSS SECTION OUTPUT  Profile #PF#1
*************************************************************************************************
* E.G. Elev (ft)         * 1003.85  * Element                * Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.53  * Wt. n-Val.            *   0.033  *   0.032  *   0.032  *
* W.S. Elev (ft)         * 1003.32  * Reach Len. (ft)       *  500.00  *  500.23  *  500.00  *
* Crit W.S. (ft)         *  994.04  * Flow Area (sq ft)     * 4836.21  *24990.17  *    5.40  *
* E.G. Slope (ft/ft)     *0.000441  * Area (sq ft)          * 6375.55  *24990.17  *    5.40  *
* Q Total (cfs)          *166000.00  * Flow (cfs)          *15339.89  *150658.00  *    2.14  *
* Top Width (ft)         * 3518.68  * Top Width (ft)       * 1885.60  * 1612.40  *   20.68  *
* Vel Total (ft/s)       *    5.56  * Avg. Vel. (ft/s)     *    3.17  *    6.03  *    0.40  *
* Max Chl Dpth (ft)      *   21.52  * Hydr. Depth (ft)     *    5.15  *   15.50  *    0.26  *
* Conv. Total (cfs)      *7908733.0  * Conv. (cfs)         *730837.9  *7177793.0  *   102.1  *
* Length Wtd. (ft)       *  500.20  * Wetted Per. (ft)     *  941.74  * 1624.44  *   20.75  *
* Min Ch El (ft)         *  981.80  * Shear (lb/sq ft)     *    0.14  *    0.42  *    0.01  *
* Alpha                  *    1.10  * Stream Power (lb/ft s) *  0.45  *    2.55  *    0.00  *
* Frctn Loss (ft)        *    0.28  * Cum Volume (acre-ft)  * 6481.52  *20033.78  * 1262.68  *
* C & E Loss (ft)        *    0.01  * Cum SA (acres)        * 1794.33  * 2123.94  *  647.04  *
*************************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*************************************************************************************************
* E.G. Elev (ft)         * 1004.82  * Element                * Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.58  * Wt. n-Val.            *   0.032  *   0.032  *          *
* W.S. Elev (ft)         * 1004.25  * Reach Len. (ft)       *  500.00  *  500.23  *  500.00  *
* Crit W.S. (ft)         *  994.04  * Flow Area (sq ft)     * 1493.50  *26493.02  *          *
* E.G. Slope (ft/ft)     *0.000429  * Area (sq ft)          * 1493.50  *26493.02  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)          * 3212.54  *162787.50  *          *
* Top Width (ft)         * 2093.13  * Top Width (ft)       *  465.13  * 1628.01  *          *
* Vel Total (ft/s)       *    5.93  * Avg. Vel. (ft/s)     *    2.15  *    6.14  *          *
* Max Chl Dpth (ft)      *   22.45  * Hydr. Depth (ft)     *    3.21  *   16.27  *          *
* Conv. Total (cfs)      *8015485.0  * Conv. (cfs)         *155121.0  *7860364.0  *          *
* Length Wtd. (ft)       *  500.22  * Wetted Per. (ft)     *  475.87  * 1640.33  *          *
* Min Ch El (ft)         *  981.80  * Shear (lb/sq ft)     *    0.08  *    0.43  *          *
* Alpha                  *    1.05  * Stream Power (lb/ft s) *  0.18  *    2.66  *          *
* Frctn Loss (ft)        *    0.27  * Cum Volume (acre-ft)  * 1108.36  *20792.19  *   34.97  *
* C & E Loss (ft)        *    0.02  * Cum SA (acres)        *  166.61  * 2128.18  *    6.81  *
*************************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                RS: 206.6

INPUT
Description: 206.6

Right Channel Bank Station Interpolated
Station Elevation Data    num=      97
    Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
*************************************************************************************
 15752.8  1005.9    15777  1004.9 15795.8     1006    15801  1003.8 15809.3  1007.3
 15819.9  1006.1 15842.8  1009.5 15850.1     1008 15855.5  1009.8 15868.1  1009.5
 15879.9  1006.9 15895.6  1008.4 15904.2  1005.4 15941.1  1007.3 16035.3  1006.2
 16155.5  1005.7 16243.9  1005.6 16347.4  1004.9 16444.6  1004.9 16555.6  1004.8
   16645  1004.4 16756.4  1003.6 16845.8  1003.1 16944.2  1003.4 17049.2  1002.3
 17143.6  1001.7 17249.3  1001.2 17366.6     1001 17501.5  1003.7 17624.2  1003.7
 17723.3  1004.1 17790.8     1004    17818   998.9 17847.9  1003.1 17937.7  1002.9
 17956.2  1002.7 17971.4   998.8 17988.6  1001.2 18083.6  1001.7 18173.1  1001.7
 18217.2  1001.9 18242.2   997.1 18334.4   996.5 18436.5     995 18542.1   993.8
 18633.3   993.9 18742.2   997.5 18817.7   997.8 18852.6  1003.9 18965.8  1004.2
 19055.2  1003.8 19184.3  1003.1 19243.2     1000 19325.9   998.4    19358  993.4
 19395.9   993.2 19452.5   996.6 19546.1   997.7 19580.1   996.6 19611.2   993.1
   19679   993.4    19778  993.3 19846.4   993.3 19854.8   995.6 19874.7   992.9
 19953.8   992.1 20043.5   994.5 20146.1   995.4 20262.3   995.5 20371.5   995.1
 20435.5   995.1 20475.7   981.8 20489.7   981.8 20608.9   981.8    20609  981.8
 20738.4   981.8 20854.4   981.8 20866.2   981.8 20903.7   981.8 20931.2   981.8
   20996   981.8 21003.4   981.8   21042   988.8 21050.2    99521066.251002.898
 21069.1  1004.3 21182.2  1006.4 21270.7  1006.8 21401.9  1007.6 21495.5    1008
 21503.1     1008 21594.4  1008.1    21688  1008.4 21840.4  1008.8 21940.4  1009.3
 21957.8  1009.5    21998  1007.2

Manning's n Values        num=       5
     Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val
*************************************************************************************
 15752.8    .025 16944.2    .043 18334.4    .032 19546.1    .032 21069.1    .032

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.    Expan.
      19546.121066.25                 515  504.63     520             .1       .3
Ineffective Flow      num=        1
   Sta L   Sta R    Elev  Permanent
 15752.8 17847.9    1009        F

CROSS SECTION OUTPUT  Profile #PF#1
*************************************************************************************************
* E.G. Elev (ft)         * 1003.56  * Element                * Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.66  * Wt. n-Val.            *   0.033  *   0.032  *          *
* W.S. Elev (ft)         * 1002.90  * Reach Len. (ft)       *  515.00  *  504.63  *  520.00  *
* Crit W.S. (ft)         *  996.86  * Flow Area (sq ft)     * 6694.45  *20182.76  *          *
* E.G. Slope (ft/ft)     *0.000710  * Area (sq ft)          * 7349.03  *20182.76  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)          *26458.02  *139542.00  *          *
* Top Width (ft)         * 3305.80  * Top Width (ft)       * 1785.65  * 1520.15  *          *
```

Pre-Project

* Vel Total (ft/s)	* 6.18	* Avg. Vel. (ft/s)	* 3.95	* 6.91	*	*		
* Max Chl Dpth (ft)	* 21.10	* Hydr. Depth (ft)	* 5.28	* 13.28	*	*		
* Conv. Total (cfs)	*6230824.0	* Conv. (cfs)	*993104.0	*5237720.0	*	*		
* Length Wtd. (ft)	* 507.00	* Wetted Per. (ft)	* 1269.01	* 1527.59	*	*		
* Min Ch El (ft)	* 981.80	* Shear (lb/sq ft)	* 0.23	* 0.59	*	*		
* Alpha	* 1.12	* Stream Power (lb/ft s)	* 0.92	* 4.05	*	*		
* Frctn Loss (ft)	* 0.48	* Cum Volume (acre-ft)	* 6402.76	*19774.40	* 1262.65	*		
* C & E Loss (ft)	* 0.04	* Cum SA (acres)	* 1773.26	* 2105.95	* 646.92	*		

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 1004.54	* Element	* Left OB	* Channel	* Right OB	*		
* Vel Head (ft)	* 0.75	* Wt. n-Val.	* 0.032	* 0.032	*	*		
* W.S. Elev (ft)	* 1003.79	* Reach Len. (ft)	* 515.00	* 504.63	* 520.00	*		
* Crit W.S. (ft)	* 996.68	* Flow Area (sq ft)	* 3388.69	*21538.87	*	*		
* E.G. Slope (ft/ft)	*0.000695	* Area (sq ft)	* 3388.69	*21538.87	*	*		
* Q Total (cfs)	*166000.00	* Flow (cfs)	*12208.77	*153791.20	*	*		
* Top Width (ft)	* 2185.35	* Top Width (ft)	* 665.20	* 1520.15	*	*		
* Vel Total (ft/s)	* 6.66	* Avg. Vel. (ft/s)	* 3.60	* 7.14	*	*		
* Max Chl Dpth (ft)	* 21.99	* Hydr. Depth (ft)	* 5.09	* 14.17	*	*		
* Conv. Total (cfs)	*6298256.0	* Conv. (cfs)	*463216.7	*5835039.0	*	*		
* Length Wtd. (ft)	* 506.14	* Wetted Per. (ft)	* 674.84	* 1528.48	*	*		
* Min Ch El (ft)	* 981.80	* Shear (lb/sq ft)	* 0.22	* 0.61	*	*		
* Alpha	* 1.09	* Stream Power (lb/ft s)	* 0.78	* 4.36	*	*		
* Frctn Loss (ft)	* 0.48	* Cum Volume (acre-ft)	* 1080.34	*20516.39	* 34.97	*		
* C & E Loss (ft)	* 0.04	* Cum SA (acres)	* 160.12	* 2110.11	* 6.81	*		

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 206.51

INPUT
Description: 206.51
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
15913.8	1005.6	15956.7	1007.2	15960.5	1006.2	15969.2	1008	16053.6	1008.2
16067.4	1005.5	16150.9	1004.8	16244	1004.8	16317.6	1004.8	16358.5	1004.6
16454.2	1004.5	16463	1004.5	16544	1004.3	16655.6	1003.2	16728.4	1002.6
16756.4	1002.5	16830	1001.9	16942.4	1001.6	16965.9	1001.5	17053.8	1001.7
17131.5	1001.6	17218.7	1001.1	17306.1	1000.9	17382.1	1001.5	17467	1001.9
17537	1002.2	17549.6	1001.2	17642.5	1001.4	17732.1	999	17805.5	999.3
17867.7	1000	17906.8	1001.8	17982.4	1001.1	18024.8	1000	18113.4	1001
18197.5	1001.3	18210.2	1000.8	18235.8	995.8	18284.9	994.8	18353.6	996.2
18430.7	989.4	18472.3	992.6	18563.8	993.1	18633.6	994.5	18690.9	995.9
18720.1	998	18725.5	999	18780.9	997.9	18793	996.9	18839.1	995.7
18912.5	997.1	18936.6	997.3	18950.4	998.8	18982	1000.3	19017.4	998.8
19041	995.2	19046.4	993.8	19117.4	994.6	19184.9	992.6	19190.6	992.6
19209.6	996.5	19283.6	998.8	19380.8	997	19450	996.8	19458	996.8
19546.2	997.4	19586.4	996.5	19645.9	993.2	19653.5	993.3	19813.4	992.5
19869.8	992.3	19881.5	997.9	19911.8	995.3	19937.5	994.2	19964.8	991.9
19978.6	992.1	20019.7	990.5	20038.1	988.7	20070.3	987.9	20113.5	982.4
20192.5	982	20272.4	981.8	20353.1	981.8	20395.6	982.6	20485.4	993.1
20530.4	997	20546.7	997.4	20554.3	995.6	20599.9	998.6	20622.1	999.3
20634.8	998.6	20716.6	1000	20819.1	1001.3	20897.8	1001.5	20989.4	1002.8
21021	1008								

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
15913.8	.025	17218.7	.043	18235.8	.032	19546.2	.032	20622.1	.032

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
19546.2	20622.1	495	496.45	500	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
15913.8	17700	1008	F
20615	21021	1008	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 1003.04	* Element	* Left OB	* Channel	* Right OB	*		
* Vel Head (ft)	* 1.02	* Wt. n-Val.	* 0.032	* 0.032	*	*		
* W.S. Elev (ft)	* 1002.02	* Reach Len. (ft)	* 495.00	* 496.45	* 500.00	*		
* Crit W.S. (ft)	* 998.52	* Flow Area (sq ft)	* 9128.32	*12982.93	*	*		
* E.G. Slope (ft/ft)	*0.001348	* Area (sq ft)	* 9628.89	*13003.06	* 461.29	*		
* Q Total (cfs)	*166000.00	* Flow (cfs)	*49265.64	*116734.40	*	*		
* Top Width (ft)	* 4076.37	* Top Width (ft)	* 2687.89	* 1075.90	* 312.58	*		
* Vel Total (ft/s)	* 7.51	* Avg. Vel. (ft/s)	* 5.40	* 8.99	*	*		
* Max Chl Dpth (ft)	* 20.22	* Hydr. Depth (ft)	* 4.94	* 12.15	*	*		
* Conv. Total (cfs)	*4521128.0	* Conv. (cfs)	*1341785.0	*3179343.0	*	*		
* Length Wtd. (ft)	* 495.96	* Wetted Per. (ft)	* 1848.59	* 1072.00	*	*		
* Min Ch El (ft)	* 981.80	* Shear (lb/sq ft)	* 0.42	* 1.02	*	*		
* Alpha	* 1.16	* Stream Power (lb/ft s)	* 2.24	* 9.16	*	*		
* Frctn Loss (ft)	* 0.69	* Cum Volume (acre-ft)	* 6302.39	*19582.18	* 1259.89	*		
* C & E Loss (ft)	* 0.03	* Cum SA (acres)	* 1746.82	* 2090.91	* 645.05	*		

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

Pre-Project

* E.G. Elev (ft)	* 1004.02	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 1.18	* Wt. n-Val.	* 0.032	* 0.032	* *
* W.S. Elev (ft)	* 1002.84	* Reach Len. (ft)	* 495.00	* 496.45	* 500.00 *
* Crit W.S. (ft)	* 999.19	* Flow Area (sq ft)	* 6259.99	*13856.29	* *
* E.G. Slope (ft/ft)	*0.001341	* Area (sq ft)	* 6259.99	*13882.22	* *
* Q Total (cfs)	*166000.00	* Flow (cfs)	*36248.43	*129751.60	* *
* Top Width (ft)	* 2060.75	* Top Width (ft)	* 984.85	* 1075.90	* *
* Vel Total (ft/s)	* 8.25	* Avg. Vel. (ft/s)	* 5.79	* 9.36	* *
* Max Chl Dpth (ft)	* 21.04	* Hydr. Depth (ft)	* 6.36	* 12.96	* *
* Conv. Total (cfs)	*4533739.0	* Conv. (cfs)	*990005.6	*3543734.0	* *
* Length Wtd. (ft)	* 496.07	* Wetted Per. (ft)	* 995.97	* 1072.00	* *
* Min Ch El (ft)	* 981.80	* Shear (lb/sq ft)	* 0.53	* 1.08	* *
* Alpha	* 1.11	* Stream Power (lb/ft s)	* 3.05	* 10.13	* *
* Frctn Loss (ft)	* 0.69	* Cum Volume (acre-ft)	* 1023.30	*20311.22	* 34.97 *
* C & E Loss (ft)	* 0.03	* Cum SA (acres)	* 150.37	* 2095.07	* 6.81 *

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 206.41

INPUT
Description: 206.41

Right Channel Bank Station Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16072.3	1004.6	16106.4	1006.4	16110	1005.1	16145.4	1008.7	16171	1008.7
16201.9	1005.9	16207.2	1004	16245.8	1004.3	16311.3	1003.5	16339	1003.3
16410.7	1003.1	16479.2	1003.2	16504.4	1003.2	16587.4	1003	16660.5	1002.5
16723.1	1001.7	16801.8	1001.5	16828.5	1001.3	16901.2	1001.1	16957.6	1001.1
17046.4	1001	17111	1001.2	17185.4	1001	17248.3	1000.1	17325.6	999.8
17339.6	999.7	17404.5	999.4	17486.4	999.7	17508.2	999.5	17572.4	999.3
17623.9	997.5	17651.1	1000.3	17677.5	1000.2	17744.8	1000	17841.4	1000
17924.2	1000	17975.5	1001.6	18054.4	997.3	18144.7	995.9	18247.4	997.4
18279.8	997.6	18300.2	993.9	18302.9	992.5	18313.4	993.5	18405.6	991.3
18469.8	989.6	18495.7	988.3	18533.5	989.6	18556.8	987.7	18575.5	988.9
18582.4	987.8	18584.3	989.6	18620.5	992.5	18634.5	992.5	18697.7	996.9
18786	998.9	18861.4	999.4	18929.1	999.3	18999.1	996.6	19037	995.4
19069.4	992.6	19082.5	992.4	19169.3	990.8	19285.4	995	19369.2	996.5
19395.7	996.5	19466.6	996.5	19539.8	996.4	19622.9	997.3	19694.4	996.7
19720.5	996.5	19730.2	994.5	19748.7	992.6	19835.1	990.8	19895.8	991.8
19904.5	990.4	19996.1	990.2	20002.5	990.4	20015.5	997.7	20035	990
20091.8	991.6	20171.9	991.2	20269.1	991.6	20343.1	990.4	20356.9	990
20360	988.9	20373.3	988	20379.2	986.7	20421	985.4	20490.4	985.8
20544.3	985.8	20576.7	983.8	20636.9	982.5	20685.22	1001.4	16 20690.8	1003.6
20719.8	1001.5	20729	1007.4						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16072.3	.025	17185.4	.043	18300.2	.032	19622.9	.032	20690.8	.032

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19622.920685.22 495 494.64 490 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
16072.3	17111	1008	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 1002.32	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 0.91	* Wt. n-Val.	* 0.033	* 0.032	* *
* W.S. Elev (ft)	* 1001.41	* Reach Len. (ft)	* 495.00	* 494.64	* 490.00 *
* Crit W.S. (ft)	* 997.88	* Flow Area (sq ft)	*11582.17	*11788.77	* *
* E.G. Slope (ft/ft)	*0.001436	* Area (sq ft)	*11668.10	*11788.77	* *
* Q Total (cfs)	*166000.00	* Flow (cfs)	*63303.79	*102696.20	* *
* Top Width (ft)	* 3862.05	* Top Width (ft)	* 2799.74	* 1062.31	* *
* Vel Total (ft/s)	* 7.10	* Avg. Vel. (ft/s)	* 5.47	* 8.71	* *
* Max Chl Dpth (ft)	* 18.91	* Hydr. Depth (ft)	* 4.63	* 11.10	* *
* Conv. Total (cfs)	*4380634.0	* Conv. (cfs)	*1670546.0	*2710087.0	* *
* Length Wtd. (ft)	* 494.78	* Wetted Per. (ft)	* 2505.07	* 1070.20	* *
* Min Ch El (ft)	* 982.50	* Shear (lb/sq ft)	* 0.41	* 0.99	* *
* Alpha	* 1.16	* Stream Power (lb/ft s)	* 2.27	* 8.60	* *
* Frctn Loss (ft)	* 0.72	* Cum Volume (acre-ft)	* 6181.39	*19440.90	* 1257.25 *
* C & E Loss (ft)	* 0.03	* Cum SA (acres)	* 1715.64	* 2078.73	* 643.26 *

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 1003.30	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 1.09	* Wt. n-Val.	* 0.032	* 0.032	* *
* W.S. Elev (ft)	* 1002.21	* Reach Len. (ft)	* 495.00	* 494.64	* 490.00 *
* Crit W.S. (ft)	* 998.36	* Flow Area (sq ft)	* 7928.85	*12640.94	* *
* E.G. Slope (ft/ft)	*0.001435	* Area (sq ft)	* 7928.85	*12640.94	* *
* Q Total (cfs)	*166000.00	* Flow (cfs)	*50717.68	*115282.30	* *
* Top Width (ft)	* 2190.50	* Top Width (ft)	* 1128.19	* 1062.31	* *
* Vel Total (ft/s)	* 8.07	* Avg. Vel. (ft/s)	* 6.40	* 9.12	* *
* Max Chl Dpth (ft)	* 19.71	* Hydr. Depth (ft)	* 7.03	* 11.90	* *
* Conv. Total (cfs)	*4381569.0	* Conv. (cfs)	*1338693.0	*3042876.0	* *
* Length Wtd. (ft)	* 494.75	* Wetted Per. (ft)	* 1143.59	* 1071.00	* *
* Min Ch El (ft)	* 982.50	* Shear (lb/sq ft)	* 0.62	* 1.06	* *
* Alpha	* 1.08	* Stream Power (lb/ft s)	* 3.97	* 9.65	* *
* Frctn Loss (ft)	* 0.73	* Cum Volume (acre-ft)	* 942.69	*20160.08	* 34.97 *
* C & E Loss (ft)	* 0.03	* Cum SA (acres)	* 138.36	* 2082.88	* 6.81 *

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 206.32

INPUT
Description: 206.32 - FEMA Section O

Right Channel Bank Station Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16817.7	1002.2	16831.7	1004.4	16847.7	1000.1	16903	997.6	16998.5	999.5
17015.9	999.8	17073.2	995.7	17113.2	998.3	17193.6	998.2	17277.8	999.4
17336.8	998.4	17343.9	998.8	17416.7	997.2	17461	999.1	17530.2	1000
17612	1000.6	17634.8	999.5	17703.3	1001.3	17735.8	1000.4	17761.4	998.4
17843.7	998.5	17853.7	998	17875.9	994.2	17903.4	993.9	17962.9	996.3
18028.7	995.2	18096.2	993.6	18102.6	993.3	18134.8	1001.1	18154.4	1000.2
18192.6	1000.1	18243.3	992.5	18301.4	992.6	18329.8	993.4	18404.3	989.6
18429.4	987.7	18495.6	987.8	18512.7	986.5	18544.6	986.5	18577	989.5
18647	992.5	18707.1	997.1	18782.1	996.8	18869.6	997.5	18885	997.8
18895.7	996.8	18922.1	996.8	18939.9	995.3	18961.5	991.6	18990.7	990
19055.1	991.9	19120.2	992.7	19199.6	995.3	19288	998.1	19351.7	998.3
19433.6	998.5	19488.7	998.2	19527.8	996.5	19535	995.3	19546.5	994.9
19619.6	996.5	19696.3	996.5	19801.3	996.5	19818	996	19830.1	994.5
19917.7	993.3	19992.8	991.2	20076.4	989.2	20107.3	989	20181.4	989.5
20194.5	994.9	20217.3	987.2	20265.3	989.9	20314.9	990.8	20362.4	989.9
20372.9	988.8	20409.1	988.6	20435	986.4	20447.1	986.7	20565.6	989.2
20589.2	986.1	20647.7	982.8	20703.3	983.2	20732.7	988.7	20805.2	991
20816.2	997.6	20847.3	998.3	20854.9	1000.773	20855.6	1001	20889.3	1002
20959.7	1001.8	20988.9	1002.7	21076.4	1002.8	21150.5	1002.8	21226.3	1002.8
21295.2	1002.7	21368	1003.3						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16817.7	.043	18404.3	.032	19488.7	.032	20889.3	.032	20988.9	.025

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19488.7 20854.9 515 513.83 520 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
16817.7	17150	1004	F
20899.3	21368	1004	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1001.56	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.80	Wt. n-Val.	0.035	0.032	
W.S. Elev (ft)	1000.76	Reach Len. (ft)	515.00	513.83	520.00
Crit W.S. (ft)	997.04	Flow Area (sq ft)	11528.58	13024.99	
E.G. Slope (ft/ft)	0.001495	Area (sq ft)	12280.60	13024.99	
Q Total (cfs)	166000.00	Flow (cfs)	61169.30	104830.70	
Top Width (ft)	3961.10	Top Width (ft)	2594.93	1366.17	
Vel Total (ft/s)	6.76	Avg. Vel. (ft/s)	5.31	8.05	
Max Chl Dpth (ft)	17.96	Hydr. Depth (ft)	5.03	9.53	
Conv. Total (cfs)	4293590.0	Conv. (cfs)	1582144.0	2711446.0	
Length Wtd. (ft)	514.23	Wetted Per. (ft)	2293.48	1372.18	
Min Ch El (ft)	982.80	Shear (lb/sq ft)	0.47	0.89	
Alpha	1.12	Stream Power (lb/ft s)	2.49	7.13	
Frctn Loss (ft)	0.85	Cum Volume (acre-ft)	6045.31	19300.02	1257.25
C & E Loss (ft)	0.01	Cum SA (acres)	1684.99	2064.94	643.26

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1002.55	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.99	Wt. n-Val.	0.032	0.032	
W.S. Elev (ft)	1001.56	Reach Len. (ft)	515.00	513.83	520.00
Crit W.S. (ft)	997.90	Flow Area (sq ft)	7081.88	14109.49	
E.G. Slope (ft/ft)	0.001498	Area (sq ft)	7081.88	14109.49	
Q Total (cfs)	166000.00	Flow (cfs)	46127.79	119872.20	
Top Width (ft)	2377.93	Top Width (ft)	1011.76	1366.17	
Vel Total (ft/s)	7.83	Avg. Vel. (ft/s)	6.51	8.50	
Max Chl Dpth (ft)	18.76	Hydr. Depth (ft)	7.00	10.33	
Conv. Total (cfs)	4288577.0	Conv. (cfs)	1191702.0	3096875.0	
Length Wtd. (ft)	514.13	Wetted Per. (ft)	1026.57	1372.97	
Min Ch El (ft)	982.80	Shear (lb/sq ft)	0.65	0.96	
Alpha	1.04	Stream Power (lb/ft s)	4.20	8.17	
Frctn Loss (ft)	0.83	Cum Volume (acre-ft)	857.40	20008.20	34.97
C & E Loss (ft)	0.00	Cum SA (acres)	126.21	2069.10	6.81

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 206.22

INPUT
Description: 206.22

Right Channel Bank Station Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16557.5	1004.3	16639.4	1004	16713.7	1003.6	16806.6	1001.8	16878.4	999
16892.3	998.9	16946.1	1002.9	16955.9	1004.8	16975.7	997.5	16981.9	999.4
16987.4	998.1	17046.8	996.8	17159.7	997	17260.1	998.5	17320.1	997.5
17343.9	994.5	17380.4	994.5	17400.6	996.8	17408	996.8	17477.4	998.9
17541.1	999.5	17596.5	998.4	17631.6	996.8	17724.8	998.9	17740.4	998.5
17771.5	991.4	17846.4	992.8	17904.5	993.5	17940	995.6	18004.2	995.6
18016.1	997.5	18035.4	995.9	18079.4	996.3	18103.6	997.7	18147.1	997.6
18161.3	993.8	18238.9	993.7	18321.5	992.4	18333.6	991.4	18443.6	991.4
18455.9	991.4	18507.4	994.4	18550.2	989.5	18634.4	989.6	18723.2	987.6
18759.4	986.3	18833.1	991.5	18933.1	991.9	18987.8	992.5	19058	994.5
19110.4	996.4	19138.8	999.5	19223.6	1000.6	19278.4	1001.5	19361.2	1000.2
19370.9	998.6	19381.6	1000.1	19456.3	999.5	19512.1	996.4	19583	994.5
19660.7	994.4	19691.9	994.4	19781.3	994.4	19826.6	994.4	19870	992.6
19877.4	990.6	19912.2	990	20004.6	991.9	20079	991.3	20117.2	990.7
20188.2	986.9	20282	986.7	20306.6	994.7	20332.7	985.9	20338.2	985.9
20423.1	985.1	20525.8	983	20611.1	984.7	20700.7	989.7	20755.5	992.3
20766.6	995.9	20807.8	996.5	20844.2	994.9	20887.6	996.6	20898.1	998.3
20968.3	999	20974.6	999.1	20977.35	999.8	423 20990.9	1003.5	21017.9	1001.7
21148.3	1002.6	21222.8	1003.1	21294.4	1003.3	21307.8	1003.3	21385.2	1003.5
21467.9	1003.9	21480	1004						

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16557.5	.043	19278.4	.043	19583	.032	20990.9	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
19278.4	20977.35	500 502.44	460	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
16557.5	16955.9	1004	F
21480	21480	1004	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1000.70	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.87	Wt. n-Val.	0.043	0.032	
W.S. Elev (ft)	999.83	Reach Len. (ft)	500.00	502.44	460.00
Crit W.S. (ft)	996.54	Flow Area (sq ft)	11715.22	13207.08	
E.G. Slope (ft/ft)	0.001855	Area (sq ft)	11741.90	13207.08	
Q Total (cfs)	166000.00	Flow (cfs)	53201.89	112798.10	
Top Width (ft)	3819.75	Top Width (ft)	2242.04	1577.71	
Vel Total (ft/s)	6.66	Avg. Vel. (ft/s)	4.54	8.54	
Max Chl Dpth (ft)	16.83	Hydr. Depth (ft)	5.34	8.37	
Conv. Total (cfs)	3853835.0	Conv. (cfs)	1235128.0	2618707.0	
Length Wtd. (ft)	501.63	Wetted Per. (ft)	2198.36	1582.28	
Min Ch El (ft)	983.00	Shear (lb/sq ft)	0.62	0.97	
Alpha	1.27	Stream Power (lb/ft s)	2.80	8.26	
Frctn Loss (ft)	0.99	Cum Volume (acre-ft)	5903.31	19145.30	1257.25
C & E Loss (ft)	0.00	Cum SA (acres)	1656.39	2047.58	643.26

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1001.72	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.03	Wt. n-Val.	0.043	0.032	
W.S. Elev (ft)	1000.69	Reach Len. (ft)	500.00	502.44	460.00
Crit W.S. (ft)	996.71	Flow Area (sq ft)	6624.84	14611.29	
E.G. Slope (ft/ft)	0.001734	Area (sq ft)	6624.84	14611.29	
Q Total (cfs)	166000.00	Flow (cfs)	38880.52	127119.50	
Top Width (ft)	2441.77	Top Width (ft)	794.27	1647.50	
Vel Total (ft/s)	7.82	Avg. Vel. (ft/s)	5.87	8.70	
Max Chl Dpth (ft)	17.69	Hydr. Depth (ft)	8.34	8.87	
Conv. Total (cfs)	3986076.0	Conv. (cfs)	933618.8	3052457.0	
Length Wtd. (ft)	501.89	Wetted Per. (ft)	804.40	1652.99	
Min Ch El (ft)	983.00	Shear (lb/sq ft)	0.89	0.96	
Alpha	1.08	Stream Power (lb/ft s)	5.23	8.33	
Frctn Loss (ft)	1.04	Cum Volume (acre-ft)	776.37	19838.81	34.97
C & E Loss (ft)	0.02	Cum SA (acres)	115.53	2051.32	6.81

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 206.13

INPUT
Description: 206.13

Right Channel Bank Station Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16722.1	1002.8	16785.1	1002.2	16877.3	1002.1	16908.3	1000.9	16979.6	1000.9
17014.5	1000.3	17057.5	998.5	17070.3	997.5	17183.2	997.5	17222.6	994.5
17342.3	992.1	17417.8	994.4	17490.8	994.6	17494	994.7	17613.2	996.3
17668.4	995.8	17699.1	991.3	17790.1	992.3	17861.7	993.7	17934.2	993.6
17996.1	993.2	18017.5	997.2	18080.8	996.1	18121.2	996.9	18147.1	992.3
18166.8	991.3	18235.4	991.3	18302.6	991.3	18386	991.3	18421.8	989.5
18432	988.4	18469.5	988.4	18475.1	989.5	18500.2	989.3	18504.2	988.4
18568.5	987.1	18688.1	988.4	18765.4	989.5	18782.8	992.5	18860.9	996.5
18915	999.2	18980.4	995.4	19020.4	994.5	19089.1	997.3	19153.9	1000.5
19162	1001.6	19203	1003.8	19205.7	1003.2	19223.2	1003	19263.9	1000.5

19294	999.3	19352.5	999.3	19369.3	998.5	19381.9	996.4	19450.5	995.7
19547.3	995.6	19615.3	994.4	19675.1	990.6	19753.3	990.5	19774.8	990.4
19852.5	988.3	19926.3	986.6	19938.1	987.1	19943.1	987.8	19956	986.6
19959	986.7	20036.9	986.5	20105.4	986.3	20129.5	986.8	20164.8	990.8
20183.5	987.1	20270.6	987.9	20276.8	988.6	20297.8	988.6	20342.4	987.5
20366.8	987.4	20431.3	985.5	20458.7	984.6	20505.9	984.6	20523.1	985.6
20557.7	986.6	20563.2	987.2	20637	987.5	20656	988.4	20660.4	988
20685	996.6	20699.6	998	20710.6	997.6	20766.4	997.9	20788.2	997
20848.3	996.7	20868.5	996	20903.4	995.7	20914.9	999	8.8712	20934.1	1004.1
20964.8	1000.3	20989.1	1000.6						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
16722.1	.043	19203	.033	20934.1	.032

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
19203	20914.99	490 483.44	540	.1	.3

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	999.71	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.86	Wt. n-Val.	0.043	0.033	
W.S. Elev (ft)	998.84	Reach Len. (ft)	490.00	483.44	540.00
Crit W.S. (ft)		Flow Area (sq ft)	11343.04	12898.46	
E.G. Slope (ft/ft)	0.002097	Area (sq ft)	11343.04	12898.46	
Q Total (cfs)	166000.00	Flow (cfs)	57077.14	108922.90	
Top Width (ft)	3610.69	Top Width (ft)	2057.86	1552.83	
Vel Total (ft/s)	6.85	Avg. Vel. (ft/s)	5.03	8.44	
Max Chl Dpth (ft)	14.24	Hydr. Depth (ft)	5.51	8.31	
Conv. Total (cfs)	3625268.0	Conv. (cfs)	1246506.0	2378763.0	
Length Wtd. (ft)	485.81	Wetted Per. (ft)	2060.23	1556.11	
Min Ch El (ft)	984.60	Shear (lb/sq ft)	0.72	1.08	
Alpha	1.18	Stream Power (lb/ft s)	3.63	9.16	
Frctn Loss (ft)	1.19	Cum Volume (acre-ft)	5770.82	18994.74	1257.25
C & E Loss (ft)	0.04	Cum SA (acres)	1631.71	2029.52	643.26

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1000.66	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.23	Wt. n-Val.	0.043	0.033	
W.S. Elev (ft)	999.43	Reach Len. (ft)	490.00	483.44	540.00
Crit W.S. (ft)		Flow Area (sq ft)	5507.57	13816.21	
E.G. Slope (ft/ft)	0.002539	Area (sq ft)	5507.57	13816.21	
Q Total (cfs)	166000.00	Flow (cfs)	35563.61	130436.40	
Top Width (ft)	2386.31	Top Width (ft)	762.20	1624.11	
Vel Total (ft/s)	8.59	Avg. Vel. (ft/s)	6.46	9.44	
Max Chl Dpth (ft)	14.83	Hydr. Depth (ft)	7.23	8.51	
Conv. Total (cfs)	3294110.0	Conv. (cfs)	705725.5	2588384.0	
Length Wtd. (ft)	484.60	Wetted Per. (ft)	771.32	1627.99	
Min Ch El (ft)	984.60	Shear (lb/sq ft)	1.13	1.35	
Alpha	1.07	Stream Power (lb/ft s)	7.31	12.70	
Frctn Loss (ft)	1.44	Cum Volume (acre-ft)	706.74	19674.86	34.97
C & E Loss (ft)	0.06	Cum SA (acres)	106.60	2032.45	6.81

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 206.03

INPUT
Description: 206.03
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16802.9	1002.4	16810.4	1002	16813.6	1000.9	16824	1002.4	16844.6	1000.6
16890.3	1000.8	16957.6	998.6	16974.2	996.3	17051	996.3	17118.7	996
17158.8	996.3	17238.1	994.4	17268.4	993.9	17337.7	992.2	17429.7	992.2
17531.5	992.2	17538.3	993.5	17547.2	994.4	17602.5	996.5	17662	996.6
17711.8	998.8	17753.6	997.9	17811.8	999.7	17868.4	998.8	17876	996.8
17888.6	992.2	17921.7	991.3	17955.9	991.3	18046.3	991.3	18129	992.2
18208.5	993.4	18309.7	993.6	18420.9	993.3	18447.9	989.4	18457.8	986.4
18517.5	985.1	18549.4	986.9	18588	984	18644.4	992.4	18712.4	995.4
18774.2	998.9	18830	995.4	18904.6	994.2	18908.3	994.2	18995.9	996.3
19086.5	1000.5	19177	1002.9	19201.9	1004.4	19226.8	1002.9	19249.6	1003.2
19274.5	1000.5	19281.8	998.5	19300.1	995.7	19315.7	994.3	19390.1	994.3
19400.5	994.3	19413.5	991.2	19424.9	989.1	19482.5	986.8	19510.1	986.8
19554.4	985.8	19658.8	985.8	19753.3	985.9	19822.1	985.9	19854.2	986.9
19870.5	986.6	19902.2	987.2	19919.6	986.6	19994.1	987.8	20078.9	988.1
20133.4	987.5	20176.6	991.9	20201.4	992.1	20216.4	992.9	20292.1	994.2
20354	993	20378.4	992	20392	989.3	20410.4	989.1	20427.7	986.6
20479.5	986.9	20548	985.1	20601.3	984.5	20610.2	984.8	20660.5	989.4
20711.9	992.7	20772.6	995.4	20851.6	995.1	20876.8	995	20972.6	994.7
21099.7	995.7	21122.5	995.9	21132.1	998.6	21160.4	1005.3	21175.8	999.9
21184.2	999.9								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
16802.9	.043	19201.9	.033	20772.6	.032

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
19201.9	20772.6	590 513.6	510	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
16802.9	16900	1003	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	998.47	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.28	Wt. n-Val.	0.043	0.033	0.032
W.S. Elev (ft)	997.19	Reach Len. (ft)	590.00	513.60	510.00
Crit W.S. (ft)	995.40	Flow Area (sq ft)	7301.57	12448.57	718.57
E.G. Slope (ft/ft)	0.002920	Area (sq ft)	7301.57	12448.57	718.57
Q Total (cfs)	166000.00	Flow (cfs)	38067.28	125045.60	2887.13
Top Width (ft)	3627.33	Top Width (ft)	1790.61	1482.23	354.48
Vel Total (ft/s)	8.11	Avg. Vel. (ft/s)	5.21	10.04	4.02
Max Chl Dpth (ft)	13.19	Hydr. Depth (ft)	4.08	8.40	2.03
Conv. Total (cfs)	3071777.0	Conv. (cfs)	704422.8	2313929.0	53425.3
Length Wtd. (ft)	528.46	Wetted Per. (ft)	1793.59	1484.21	354.67
Min Ch El (ft)	984.50	Shear (lb/sq ft)	0.74	1.53	0.37
Alpha	1.25	Stream Power (lb/ft s)	3.87	15.36	1.48
Frctn Loss (ft)	1.19	Cum Volume (acre-ft)	5665.95	18854.09	1252.79
C & E Loss (ft)	0.12	Cum SA (acres)	1610.07	2012.68	641.06

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	999.15	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.78	Wt. n-Val.	0.043	0.033	
W.S. Elev (ft)	997.37	Reach Len. (ft)	590.00	513.60	510.00
Crit W.S. (ft)	995.41	Flow Area (sq ft)	3391.07	12720.36	
E.G. Slope (ft/ft)	0.003548	Area (sq ft)	3391.07	12720.36	
Q Total (cfs)	166000.00	Flow (cfs)	23329.40	142670.60	
Top Width (ft)	2131.13	Top Width (ft)	647.70	1483.43	
Vel Total (ft/s)	10.30	Avg. Vel. (ft/s)	6.88	11.22	
Max Chl Dpth (ft)	13.37	Hydr. Depth (ft)	5.24	8.57	
Conv. Total (cfs)	2786996.0	Conv. (cfs)	391680.3	2395315.0	
Length Wtd. (ft)	524.67	Wetted Per. (ft)	653.26	1487.40	
Min Ch El (ft)	984.50	Shear (lb/sq ft)	1.15	1.89	
Alpha	1.08	Stream Power (lb/ft s)	7.91	21.24	
Frctn Loss (ft)	1.16	Cum Volume (acre-ft)	656.69	19527.61	34.97
C & E Loss (ft)	0.28	Cum SA (acres)	98.67	2015.21	6.81

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 205.94

INPUT
Description: 205.94
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16903.8	1000.5	16909.4	1000	16920.9	1001.6	16972.5	1001.2	16975.5	1000.3
16985.1	1001.6	17007.6	998.7	17082.9	996.3	17151.6	996.3	17234	996.3
17267.9	996.3	17336.5	996.2	17426	996.4	17508.2	996.2	17592.3	996.3
17688.9	994.4	17733.4	994	17754.7	991.9	17830.3	991.2	17928	993.4
17928.3	993.4	18000.5	993.2	18041.8	993.1	18116.7	993.3	18216.4	993.4
18279.7	991.1	18294.7	987.3	18302.5	986.7	18362.5	986.9	18376.8	985.1
18407.6	986.2	18496.1	984.1	18565.5	985.4	18614.9	987.2	18629.5	988.4
18642.1	988.5	18669.8	994.1	18756.5	994.7	18817.1	995.6	18869.8	993.4
18916.1	992.8	18941.2	994.2	19004.1	991	19053.5	981.9	19123.4	981.8
19199.3	982	19250	981.9	19337.5	981.5	19354.9	982.2	19448.6	985
19535.3	985	19613.6	984.8	19703.6	985.4	19775.9	989.5	19831.1	990.2
19926.3	989.4	19994.7	989.1	20082.6	988.9	20106.6	989.1	20111.2	988.5
20149.5	990.4	20183.7	994.3	20237	990.7	20262.2	991.4	20291.7	989.3
20345	989.3	20445.6	986.5	20507.2	982.5	20519.9	982.9	20520.2	982.1
20569.1	981	20589.6	984	20612	989.6	20643	991.1	20662.1	992.9
20686.6	992.8	20704.4	994.4	20767	996.6	20871.9	997.4	20903.2	996.9
20938.8	991.7	20969.6	993.5	21038.9	995.4	21103	995.9	21150.3	993.9
21195.3	994.9	21265.8	994.7	21288.8	994	21309.9	995.5	21385.6	995.9
21402.4	995.6	21473.1	995.1	21527.7	994.8	21551	998.8	21641.3	999.1
21683	1001.6								

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16903.8	.043	18817.1	.033	20767	.032	20938.8	.037

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
18817.1	20767	505 506.69	510	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
21215	21683	999	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	997.17	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.89	Wt. n-Val.	0.043	0.033	0.036
W.S. Elev (ft)	996.28	Reach Len. (ft)	505.00	506.69	510.00
Crit W.S. (ft)	992.36	Flow Area (sq ft)	6215.99	17060.13	528.54
E.G. Slope (ft/ft)	0.001782	Area (sq ft)	6215.99	17060.13	877.89

Pre-Project

* Q Total (cfs)	*166000.00	* Flow (cfs)	*26725.95	*137949.00	* 1325.10	*	
* Top Width (ft)	* 3972.87	* Top Width (ft)	* 1403.39	* 1940.66	* 628.82	*	
* Vel Total (ft/s)	* 6.97	* Avg. Vel. (ft/s)	* 4.30	* 8.09	* 2.51	*	
* Max Chl Dpth (ft)	* 15.28	* Hydr. Depth (ft)	* 4.43	* 8.79	* 1.72	*	
* Conv. Total (cfs)	*3932557.0	* Conv. (cfs)	*633140.5	*3268024.0	* 31391.7	*	
* Length Wtd. (ft)	* 506.47	* Wetted Per. (ft)	* 1404.90	* 1944.24	* 307.99	*	
* Min Ch El (ft)	* 981.00	* Shear (lb/sq ft)	* 0.49	* 0.98	* 0.19	*	
* Alpha	* 1.18	* Stream Power (lb/ft s)	* 2.12	* 7.89	* 0.48	*	
* Frctn Loss (ft)	* 0.66	* Cum Volume (acre-ft)	* 5574.41	*18680.13	* 1243.45	*	
* C & E Loss (ft)	* 0.07	* Cum SA (acres)	* 1588.44	* 1992.50	* 635.31	*	

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 997.71	* Element	* Left OB	* Channel	* Right OB	*	
* Vel Head (ft)	* 0.86	* Wt. n-Val.	* 0.043	* 0.033	*		
* W.S. Elev (ft)	* 996.85	* Reach Len. (ft)	* 505.00	* 506.69	* 510.00	*	
* Crit W.S. (ft)	* 992.30	* Flow Area (sq ft)	* 4747.93	*18184.85	*		
* E.G. Slope (ft/ft)	*0.001519	* Area (sq ft)	* 4747.93	*18184.85	*		
* Q Total (cfs)	*166000.00	* Flow (cfs)	*24792.00	*141208.00	*		
* Top Width (ft)	* 2567.00	* Top Width (ft)	* 617.10	* 1949.90	*		
* Vel Total (ft/s)	* 7.24	* Avg. Vel. (ft/s)	* 5.22	* 7.77	*		
* Max Chl Dpth (ft)	* 15.85	* Hydr. Depth (ft)	* 7.69	* 9.33	*		
* Conv. Total (cfs)	*4259277.0	* Conv. (cfs)	*636120.4	*3623156.0	*		
* Length Wtd. (ft)	* 506.48	* Wetted Per. (ft)	* 621.93	* 1953.74	*		
* Min Ch El (ft)	* 981.00	* Shear (lb/sq ft)	* 0.72	* 0.88	*		
* Alpha	* 1.06	* Stream Power (lb/ft s)	* 3.78	* 6.85	*		
* Frctn Loss (ft)	* 0.59	* Cum Volume (acre-ft)	* 601.57	*19345.41	* 34.97	*	
* C & E Loss (ft)	* 0.06	* Cum SA (acres)	* 90.10	* 1994.97	* 6.81	*	

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 205.84

INPUT
Description: 205.84
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17154.7	999.5	17167.6	998.3	17173.7	999	17242.7	999.3	17319.2	999.3
17395.4	998.8	17445.8	998.6	17482.3	997.2	17534.1	997.5	17544.3	997.1
17572.5	997.3	17612.4	996.5	17644.3	993.7	17719.4	994.2	17735.7	993.6
17775	993.6	17842.8	992.3	17862.2	987.5	17958.9	987.6	17969.5	989.4
18029.4	989.1	18042.3	990.1	18085.3	986.5	18121.7	984.6	18194.4	985
18242.1	986.4	18267.7	987.9	18304.8	988.6	18343.6	988.3	18423.5	987.9
18487.6	987.3	18519.2	980.3	18575.4	985.3	18594.1	984.3	18599.2	983
18611.3	981.7	18624.5	979.5	18698.1	979.6	18782.8	980.6	18852.2	980.4
18868.5	982.8	18970.3	982.9	19086.6	984.3	19137.9	986	19161.5	987.5
19244.2	986.1	19262.6	985.8	19339.3	985.7	19420.2	986.1	19521.7	987.3
19606.4	989.5	19664.7	990.4	19734.4	992	19762.4	991.1	19876.6	990.8
19965.5	989.4	20028.7	988.2	20132.7	984.3	20147.5	983.5	20176	983
20199.7	984.8	20287.6	984.2	20364.3	982.3	20417.7	981.2	20446.2	981.5
20481.4	989.8	20508	994.7	20535.7	996	20575.3	996.4	20613.9	995.2
20691.5	994.7	20737.2	994.6	20809.8	995.7	20816.4	996	20875	995.1
20909.1	992.8	20953.5	994.7	21021.3	995.7	21074.7	995.5	21087.2	993.8
21126.7	992.2	21139.8	993.2	21222.1	993.7	21281.4	994.3	21334.2	993
21367.3	994.1	21398.1	992.4	21450.5	994.8	21460	991.6	21508.8	993.1
21563.2	993.7	21607.4	993.3	21622.3	993.7	21634.1	995.7	21671.2	996.7
21696	999.5								

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
17154.7	.043	18487.6	.043	18575.4	.032	20535.7	.032	20875	.037

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
18487.6 20535.7 495 496 480 .1 .3
Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
21450	21696	999	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 996.43	* Element	* Left OB	* Channel	* Right OB	*	
* Vel Head (ft)	* 0.64	* Wt. n-Val.	* 0.043	* 0.033	* 0.036	*	
* W.S. Elev (ft)	* 995.78	* Reach Len. (ft)	* 495.00	* 496.00	* 480.00	*	
* Crit W.S. (ft)	* 991.10	* Flow Area (sq ft)	* 5827.68	*20747.91	* 1226.92	*	
* E.G. Slope (ft/ft)	*0.001006	* Area (sq ft)	* 5827.68	*20747.91	* 1697.20	*	
* Q Total (cfs)	*166000.00	* Flow (cfs)	*22730.35	*141072.70	* 2196.97	*	
* Top Width (ft)	* 3933.88	* Top Width (ft)	* 867.04	* 2043.50	* 1023.33	*	
* Vel Total (ft/s)	* 5.97	* Avg. Vel. (ft/s)	* 3.90	* 6.80	* 1.79	*	
* Max Chl Dpth (ft)	* 16.28	* Hydr. Depth (ft)	* 6.72	* 10.15	* 1.47	*	
* Conv. Total (cfs)	*5233237.0	* Conv. (cfs)	*716586.3	*4447390.0	* 69260.5	*	
* Length Wtd. (ft)	* 495.56	* Wetted Per. (ft)	* 868.21	* 2046.96	* 836.58	*	
* Min Ch El (ft)	* 979.50	* Shear (lb/sq ft)	* 0.42	* 0.64	* 0.09	*	
* Alpha	* 1.16	* Stream Power (lb/ft s)	* 1.64	* 4.33	* 0.16	*	
* Frctn Loss (ft)	* 0.65	* Cum Volume (acre-ft)	* 5504.60	*18460.23	* 1228.37	*	
* C & E Loss (ft)	* 0.00	* Cum SA (acres)	* 1575.28	* 1969.33	* 625.63	*	

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

Pre-Project

* E.G. Elev (ft)	* 997.06	* Element	* Left OB	* Channel	* Right OB	*
* Vel Head (ft)	* 0.67	* Wt. n-Val.	* 0.043	* 0.033	*	*
* W.S. Elev (ft)	* 996.39	* Reach Len. (ft)	* 495.00	* 496.00	* 480.00	*
* Crit W.S. (ft)	* 991.10	* Flow Area (sq ft)	* 3668.58	*21988.48	*	*
* E.G. Slope (ft/ft)	*0.000928	* Area (sq ft)	* 3668.58	*21988.48	*	*
* Q Total (cfs)	*166000.00	* Flow (cfs)	*16967.54	*149032.50	*	*
* Top Width (ft)	* 2435.70	* Top Width (ft)	* 387.60	* 2048.10	*	*
* Vel Total (ft/s)	* 6.47	* Avg. Vel. (ft/s)	* 4.63	* 6.78	*	*
* Max Chl Dpth (ft)	* 16.89	* Hydr. Depth (ft)	* 9.46	* 10.74	*	*
* Conv. Total (cfs)	*5449105.0	* Conv. (cfs)	*556975.2	*4892130.0	*	*
* Length Wtd. (ft)	* 495.95	* Wetted Per. (ft)	* 398.36	* 2051.95	*	*
* Min Ch El (ft)	* 979.50	* Shear (lb/sq ft)	* 0.53	* 0.62	*	*
* Alpha	* 1.04	* Stream Power (lb/ft s)	* 2.47	* 4.21	*	*
* Frctn Loss (ft)	* 0.58	* Cum Volume (acre-ft)	* 552.78	*19111.76	* 34.97	*
* C & E Loss (ft)	* 0.01	* Cum SA (acres)	* 84.28	* 1971.72	* 6.81	*

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 205.75

INPUT
Description: 205.75
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17305.3	998.9	17323.7	996.7	17395.5	996.8	17486.9	996.4	17509.8	996.4
17581.1	996.2	17666.5	995.9	17680.3	996	17753.1	996.5	17853.4	996.5
17864.9	996.5	17966.3	996	18048	994.8	18136.2	989.8	18199.9	985.9
18204.5	985.7	18238.3	975.2	18303	975.1	18340.9	977.7	18362.6	983.3
18414.2	984.2	18425.5	978.9	18465.2	978.9	18482	983.4	18487.5	980.6
18502.7	981.5	18551.9	977.5	18634.1	978.7	18705.8	979.9	18783.7	983.6
18852.2	983.7	18938.1	983.3	19031.5	983.4	19132.6	984.5	19156	984.8
19231.1	986.4	19292.3	989.2	19362.3	991.3	19410.6	989.7	19510.1	990.4
19547	990.4	19564.3	991.1	19608.3	991.1	19685.9	990.7	19759.4	989.7
19806.7	989.9	19819.8	990.5	19830.2	990.2	19906.7	988.4	19984.6	988.8
20051.4	988.1	20065.4	987.5	20101.2	975.7	20131.5	973.9	20148.4	974.7
20183.3	981	20265.9	982.2	20296.1	983.6	20320.1	985.5	20338.8	985.9
20373.3	988.6	20450.3	990	20500.5	990.7	20583.6	992.4	20674.8	995.6
20691.1	996.1	20754.7	995.2	20833.9	994.8	20900.7	994.8	20927.8	993.3
20929.3	994.1	20943.9	991.9	20951.5	991.7	20989	994	21037.1	991.6
21060.1	993.2	21120.9	992.7	21131.3	991.3	21198.6	991.5	21306.4	993.9
21377	994.4	21386.2	994.7	21449.8	995	21502.3	995.3	21567.5	995.7
21648.1	996.3	21682	996.5	21789	996.8	21807.7	996.8	21902.8	997.4
21921	997.6	22001	997.7	22076.6	997.7	22142.9	997.7	22143.7	999
22145	998.9								

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
17305.3	.043	18048	.043	20583.6	.043	21131.3	.025

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
18048 20450.3 825 642 490 .1 .3
Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
21400	22145	999	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 995.78	* Element	* Left OB	* Channel	* Right OB	*
* Vel Head (ft)	* 0.68	* Wt. n-Val.	* 0.043	* 0.043	* 0.035	*
* W.S. Elev (ft)	* 995.10	* Reach Len. (ft)	* 825.00	* 642.00	* 490.00	*
* Crit W.S. (ft)	* 989.59	* Flow Area (sq ft)	* 2.98	*23920.56	* 1754.13	*
* E.G. Slope (ft/ft)	*0.001766	* Area (sq ft)	* 2.98	*23920.56	* 1765.56	*
* Q Total (cfs)	*166000.00	* Flow (cfs)	* 1.21	*160405.70	* 5593.08	*
* Top Width (ft)	* 3323.85	* Top Width (ft)	* 20.14	* 2402.30	* 901.40	*
* Vel Total (ft/s)	* 6.46	* Avg. Vel. (ft/s)	* 0.41	* 6.71	* 3.19	*
* Max Chl Dpth (ft)	* 21.20	* Hydr. Depth (ft)	* 0.15	* 9.96	* 2.10	*
* Conv. Total (cfs)	*3950065.0	* Conv. (cfs)	* 28.8	*3816946.0	*133090.7	*
* Length Wtd. (ft)	* 634.92	* Wetted Per. (ft)	* 20.15	* 2410.71	* 835.61	*
* Min Ch El (ft)	* 973.90	* Shear (lb/sq ft)	* 0.02	* 1.09	* 0.23	*
* Alpha	* 1.05	* Stream Power (lb/ft s)	* 0.01	* 7.34	* 0.74	*
* Frctn Loss (ft)	* 0.66	* Cum Volume (acre-ft)	* 5471.47	*18205.92	* 1209.29	*
* C & E Loss (ft)	* 0.05	* Cum SA (acres)	* 1570.24	* 1944.02	* 615.03	*

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 996.48	* Element	* Left OB	* Channel	* Right OB	*
* Vel Head (ft)	* 0.65	* Wt. n-Val.	*	* 0.043	*	*
* W.S. Elev (ft)	* 995.83	* Reach Len. (ft)	* 825.00	* 642.00	* 490.00	*
* Crit W.S. (ft)	* 989.59	* Flow Area (sq ft)	*	*25689.44	*	*
* E.G. Slope (ft/ft)	*0.001497	* Area (sq ft)	*	*25689.44	*	*
* Q Total (cfs)	*166000.00	* Flow (cfs)	*	*166000.00	*	*
* Top Width (ft)	* 2402.30	* Top Width (ft)	*	* 2402.30	*	*
* Vel Total (ft/s)	* 6.46	* Avg. Vel. (ft/s)	*	* 6.46	*	*
* Max Chl Dpth (ft)	* 21.93	* Hydr. Depth (ft)	*	* 10.69	*	*
* Conv. Total (cfs)	*4290733.0	* Conv. (cfs)	*	*4290733.0	*	*
* Length Wtd. (ft)	* 642.00	* Wetted Per. (ft)	*	* 2417.57	*	*
* Min Ch El (ft)	* 973.90	* Shear (lb/sq ft)	*	* 0.99	*	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 6.42	*	*
* Frctn Loss (ft)	* 0.62	* Cum Volume (acre-ft)	* 531.94	*18840.32	* 34.97	*
* C & E Loss (ft)	* 0.02	* Cum SA (acres)	* 82.07	* 1946.38	* 6.81	*

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 205.62

INPUT
Description: 205.62
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16987.1	998.1	17010.8	998	17131	997.7	17220.3	997.9	17312.3	997.2
17337.5	997.1	17349.7	993.8	17415.9	993.4	17452.1	994.5	17456	993.6
17462.6	995.4	17470.7	993.9	17481.8	995.3	17536.8	995.9	17541.4	995
17548.6	996.6	17570.5	992.9	17606.9	994.3	17705.6	994.3	17778.6	994
17854.3	993.6	17935.8	992.6	18000.5	991.8	18066.9	989.1	18154.7	990.1
18182.6	989.5	18216	991.5	18272.9	988.7	18345.5	987	18362.3	985.3
18364.3	986.4	18412.4	980.4	18471.7	977.8	18582.6	976.6	18682.4	977.6
18758.9	978.6	18831.8	982	18915	981.6	18928.4	981.8	18994.8	981.7
19088.8	983.1	19188.8	983.9	19260.2	983.8	19272.1	983.6	19307.3	987.6
19315.9	987.5	19391.2	986.5	19461.1	986.8	19526.5	987.3	19591.7	987.7
19623.7	987.9	19690.2	986.9	19701.7	986.9	19732.4	983.9	19808.3	985.5
19928.6	988.8	19968.4	987.6	20009.8	976	20075.5	976.6	20117.2	979
20204.9	979.7	20242.3	978.4	20253.8	980.5	20285.7	981	20339.5	984.7
20409.9	988.4	20450.1	989.3	20468.3	987	20504.3	986.9	20542.3	986
20605.7	986.7	20698.9	989.9	20708.2	990.1	20715.6	995	20780.9	994.9
20847	991.9	20932.4	991	21003.2	991.1	21102.3	991.6	21194.4	992
21286.6	992.7	21318.6	992.9	21388	993.6	21473.6	994.3	21596.5	994.7
21668.5	995	21758.9	995.6	21817	996.1	21920.7	996.9	21963.3	997.1
22043.7	997.1	22107.3	997.1	22215.9	997.1	22261	998.1	22277.9	997.6
22288.5	999.4								

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16987.1	.025	17481.8	.043	18216	.043	18471.7	.032	20715.6	.032
20847	.025								

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
18216	20450.1	560	523	510	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
16987.1	17548.6	999.4	F
21480	22288.5	999.4	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	995.07	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.52	Wt. n-Val.	0.043	0.033	0.030
W.S. Elev (ft)	994.55	Reach Len. (ft)	560.00	523.00	510.00
Crit W.S. (ft)	988.70	Flow Area (sq ft)	1396.51	25301.81	3417.37
E.G. Slope (ft/ft)	0.000680	Area (sq ft)	1488.28	25301.81	3425.27
Q Total (cfs)	166000.00	Flow (cfs)	2083.18	151545.10	12371.75
Top Width (ft)	4036.31	Top Width (ft)	776.42	2234.10	1025.79
Vel Total (ft/s)	5.51	Avg. Vel. (ft/s)	1.49	5.99	3.62
Max Chl Dpth (ft)	18.55	Hydr. Depth (ft)	2.13	11.33	3.57
Conv. Total (cfs)	6366636.0	Conv. (cfs)	79896.5	5812243.0	474496.4
Length Wtd. (ft)	523.01	Wetted Per. (ft)	655.56	2237.69	957.78
Min Ch El (ft)	976.00	Shear (lb/sq ft)	0.09	0.48	0.15
Alpha	1.11	Stream Power (lb/ft s)	0.13	2.87	0.55
Frctn Loss (ft)	0.30	Cum Volume (acre-ft)	5457.35	17843.20	1180.10
C & E Loss (ft)	0.02	Cum SA (acres)	1562.69	1909.85	604.19

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	995.85	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.59	Wt. n-Val.		0.033	
W.S. Elev (ft)	995.25	Reach Len. (ft)	560.00	523.00	510.00
Crit W.S. (ft)	988.65	Flow Area (sq ft)		26878.39	
E.G. Slope (ft/ft)	0.000671	Area (sq ft)		26878.39	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	2234.10	Top Width (ft)		2234.10	
Vel Total (ft/s)	6.18	Avg. Vel. (ft/s)		6.18	
Max Chl Dpth (ft)	19.25	Hydr. Depth (ft)		12.03	
Conv. Total (cfs)	6407340.0	Conv. (cfs)		6407340.0	
Length Wtd. (ft)	523.00	Wetted Per. (ft)		2247.40	
Min Ch El (ft)	976.00	Shear (lb/sq ft)		0.50	
Alpha	1.00	Stream Power (lb/ft s)		3.10	
Frctn Loss (ft)	0.31	Cum Volume (acre-ft)	531.94	18452.94	34.97
C & E Loss (ft)	0.00	Cum SA (acres)	82.07	1912.21	6.81

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 205.52

INPUT
Description: 205.52
Station Elevation Data num= 96
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev

17458.9	998.2	17496.2	998.1	17528.6	993.9	17537	994	17538.2	993.3
17605.2	993.8	17611.5	994.9	17615.9	993.3	17622.8	995	17635.1	992.9
17665.3	993	17698.1	994.2	17701.5	993.5	17707.3	995.3	17718.9	995
17731.8	991.3	17820.7	991.9	17894	991.4	17966.9	990.6	18049.9	988.1
18115.3	988.8	18176.3	990.1	18241.5	990	18289.2	989.7	18376.9	989.8
18458.3	990.2	18560.9	990.7	18591.6	991.1	18628.8	988.9	18702.3	978.1
18778	976.8	18843.9	975.9	18919.8	976.6	19003.3	977.9	19078	982
19149.6	982.2	19216.6	981.8	19294.8	981.6	19381.8	980.6	19438.9	979.8
19513.6	979.7	19597.1	981.3	19627.4	982.2	19649.8	981.4	19768.3	982.9
19791.5	982.7	19851.9	983.6	19974.7	981.4	20083.4	978.3	20118	977.6
20126.6	978.1	20161.7	976.5	20215.1	976.5	20237.4	983.2	20307.8	986.1
20375.9	986.4	20411.3	986.8	20436.2	983.2	20454.8	985.7	20472.6	986.8
20567.5	986.1	20573.3	986	20590.7	989.7	20611.5	992.8	20623.9	992.6
20656.5	990.1	20672.2	990.7	20688.3	988.5	20695.2	989.1	20701.5	986.9
20769.2	978.7	20789.2	977.6	20827.6	986.2	20844.7	988.1	20936.4	989.8
21007.2	990.9	21024.7	991.2	21032.1	992.9	21046.7	990.6	21139.1	991.6
21236.4	992	21330.9	992.2	21420.6	992.8	21530.8	993.2	21637.9	993.3
21722.2	993.8	21801	994.3	21909.2	994.5	22026.9	995.2	22127.5	995.8
22175.4	995.9	22246.4	996.2	22303.2	996.7	22383	996.1	22389.5	996.1
22400	997.5								

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
17458.9	.043	18591.6	.043	18628.8	.032	20611.5	.032	21032.1	.025

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

Left	Right	Left	Channel	Right	Coeff Contr.	Expan.
18591.6	20611.5	430	470	400	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17458.9	17650	998.2	F
21400	22400	998.2	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	994.75	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.46	Wt. n-Val.	0.043	0.032	0.031
W.S. Elev (ft)	994.29	Reach Len. (ft)	430.00	470.00	400.00
Crit W.S. (ft)	987.07	Flow Area (sq ft)	3557.10	25803.02	3782.11
E.G. Slope (ft/ft)	0.000496	Area (sq ft)	3641.27	25803.02	4150.32
Q Total (cfs)	166000.00	Flow (cfs)	6878.15	146272.50	12849.30
Top Width (ft)	4244.89	Top Width (ft)	1036.57	2019.90	1188.42
Vel Total (ft/s)	5.01	Avg. Vel. (ft/s)	1.93	5.67	3.40
Max Chl Dpth (ft)	18.39	Hydr. Depth (ft)	3.85	12.77	4.80
Conv. Total (cfs)	7454148.0	Conv. (cfs)	308860.0	6568297.0	576991.5
Length Wtd. (ft)	462.67	Wetted Per. (ft)	924.99	2023.22	791.15
Min Ch El (ft)	975.90	Shear (lb/sq ft)	0.12	0.39	0.15
Alpha	1.17	Stream Power (lb/ft s)	0.23	2.24	0.50
Frctn Loss (ft)	0.24	Cum Volume (acre-ft)	5424.37	17536.40	1135.75
C & E Loss (ft)	0.01	Cum SA (acres)	1551.04	1884.32	591.23

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	995.53	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.58	Wt. n-Val.		0.032	
W.S. Elev (ft)	994.95	Reach Len. (ft)	430.00	470.00	400.00
Crit W.S. (ft)	987.28	Flow Area (sq ft)		27121.18	
E.G. Slope (ft/ft)	0.000543	Area (sq ft)		27121.18	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	2019.90	Top Width (ft)		2019.90	
Vel Total (ft/s)	6.12	Avg. Vel. (ft/s)		6.12	
Max Chl Dpth (ft)	19.05	Hydr. Depth (ft)		13.43	
Conv. Total (cfs)	7126233.0	Conv. (cfs)		7126233.0	
Length Wtd. (ft)	470.00	Wetted Per. (ft)		2029.21	
Min Ch El (ft)	975.90	Shear (lb/sq ft)		0.45	
Alpha	1.00	Stream Power (lb/ft s)		2.77	
Frctn Loss (ft)	0.28	Cum Volume (acre-ft)	531.94	18128.76	34.97
C & E Loss (ft)	0.01	Cum SA (acres)	82.07	1886.68	6.81

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 205.43

INPUT
Description: 205.43
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17577.6	999	17651.4	999	17676.6	993.3	17745.1	993.5	17753.8	994.9
17756.2	993	17761.9	994.1	17779.1	992.9	17827.8	993.4	17837	994.7
17842	993.6	17850.1	995.1	17856.3	994.6	17874.1	989.8	17945.8	990.5
18015.5	989.2	18089	988.6	18171.5	988.1	18272	989	18345.2	989.6
18417.8	988.9	18513.1	989.6	18555.5	988.8	18590.9	983.9	18653.7	980.2
18675.6	981.9	18718.1	992.1	18755	996.2	18831.5	994	18917.5	994.6
18981	993.6	18995.7	991.7	19013.2	983.5	19029.3	979.6	19078	977.3
19159.1	977.1	19235.8	977	19329.8	976.7	19401.3	976.1	19408.1	977.1
19408.2	976.1	19472.5	977.8	19481.8	976.1	19482.8	979.9	19504.5	976.3
19572.1	976.7	19685.1	976.7	19752	976.5	19776.2	976.6	19871.8	985.4
19922.1	984.5	19948.6	982.8	19969.8	979	19994.4	976.5	20009.7	976.5
20115.4	976.5	20173.1	982	20198.5	982.2	20281.7	985.3	20371.1	985.5
20444.6	985.5	20542.7	985.9	20552.8	986	20628.8	985.9	20672.4	986.4
20739.7	988.8	20745.5	988.9	20770.4	996.3	20821.2	987.3	20830.8	986.4
20857.3	988.8	20888.7	988.5	20910.3	984	20959.4	986.1	21024	983.6
21078.8	987.2	21088.9	990.3	21171.4	991.7	21190.4	992.1	21193.4	991.5

21282.9	992	21368	992.7	21454.5	993.1	21528.9	993.3	21613.1	993.6
21695.1	993.6	21768.9	993.9	21849.3	994.3	21923.6	994.4	21927.2	994.4
21997.3	994.6	22016.9	994.6	22089.4	994.6	22155	995.4	22231.3	997.7
22285	998.6								

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
17577.6	.043	18917.5	.043	18981	.032	20770.4	.032	21088.9	.025

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
18917.5 20770.4 175 171.89 125 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17577.6	17800	999	F
21400	22285	999	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	994.50	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.51	Wt. n-Val.	0.043	0.032	0.031
W.S. Elev (ft)	994.00	Reach Len. (ft)	175.00	171.89	125.00
Crit W.S. (ft)	986.93	Flow Area (sq ft)	4969.00	23600.69	2927.41
E.G. Slope (ft/ft)	0.000544	Area (sq ft)	5044.07	23600.69	3139.66
Q Total (cfs)	166000.00	Flow (cfs)	12628.18	142595.00	10776.84
Top Width (ft)	3841.68	Top Width (ft)	1030.23	1806.76	1004.68
Vel Total (ft/s)	5.27	Avg. Vel. (ft/s)	2.54	6.04	3.68
Max Chl Dpth (ft)	17.90	Hydr. Depth (ft)	5.45	13.06	4.75
Conv. Total (cfs)	7116273.0	Conv. (cfs)	541359.1	6112920.0	461993.6
Length Wtd. (ft)	169.60	Wetted Per. (ft)	915.10	1815.66	618.55
Min Ch El (ft)	976.10	Shear (lb/sq ft)	0.18	0.44	0.16
Alpha	1.18	Stream Power (lb/ft s)	0.47	2.67	0.59
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)	5381.51	17269.88	1102.28
C & E Loss (ft)	0.03	Cum SA (acres)	1540.84	1863.67	581.16

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	995.24	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.71	Wt. n-Val.		0.032	
W.S. Elev (ft)	994.53	Reach Len. (ft)	175.00	171.89	125.00
Crit W.S. (ft)	986.96	Flow Area (sq ft)		24572.45	
E.G. Slope (ft/ft)	0.000647	Area (sq ft)		24572.45	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	1842.37	Top Width (ft)		1842.37	
Vel Total (ft/s)	6.76	Avg. Vel. (ft/s)		6.76	
Max Chl Dpth (ft)	18.43	Hydr. Depth (ft)		13.34	
Conv. Total (cfs)	6524281.0	Conv. (cfs)		6524281.0	
Length Wtd. (ft)	171.89	Wetted Per. (ft)		1851.35	
Min Ch El (ft)	976.10	Shear (lb/sq ft)		0.54	
Alpha	1.00	Stream Power (lb/ft s)		3.62	
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)	531.94	17849.88	34.97
C & E Loss (ft)	0.05	Cum SA (acres)	82.07	1865.84	6.81

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 205.4

INPUT
Description: 205.4
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17511.1	996.9	17519.9	996.9	17605.2	997.3	17609	997.3	17712.9	997.8
17756.7	992.2	17854.3	993.8	17914.6	991.3	17916.5	991.2	17968.9	990.2
18031	989.2	18084.1	988.8	18154.5	988.3	18213.4	988.3	18281.7	988.2
18304.7	988.2	18362.5	988.2	18388.7	988.6	18461.3	988.1	18529.4	988.4
18564.6	988.5	18633.4	988.7	18712.8	988.5	18774.2	988.2	18787.4	988.1
18843.8	987.9	18915.9	985.1	18943.3	984.3	19013.3	982.5	19020	982.2985
19079.8	980.5	19133	979.1	19154.8	978.5	19196.1	978.7	19231.1	977.1
19260.1	977.2	19291.7	976.5	19304.1	976.8	19364.1	975.5	19377.1	975.5
19436	975.7	19498.9	975.9	19564	975.7	19635.3	976.2	19694.9	976.3
19718.4	976.2	19774.1	976.1	19840.5	976	19902.9	976	19988.4	976
20047.6	976.1	20060.4	976.2	20120.1	976.4	20173.6	976.9	20230.4	977.5
20290.1	977.8	20348.4	979	20391.6	980.6	20448.9	982.1	20522.8	983.7
20592.3	985.3	20647.3	986.7	20692.4	987.2	20767.8	987.4	20829.1	987.4
20894.3	987.9	20922.5	988.1	20978.2	988.9	21055.7	989.4	21057.2	989.4
21142	989.4	21212	990.9	21270.2	991	21321.8	991.1	21338.9	991.2
21394.1	991.7	21407.6	991.9	21469.8	992.7	21547.3	993.5	21598.6	992.6
21619.5	993.7	21690.3	993.7	21721.2	993.7	21811.7	993.8	21872.4	994.2
21923.6	995.3	21941	995.5	22005.1	996.1	22017	996.2	22078.7	996.7
22181.1	997.7	22194.2	997.8	22249.3	998.6	22318.8	999	22386.3	999.2
22404.4	998.5	22455.6	999.3						

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
17511.1	.043	18843.8	.043	19079.8	.032	20767.8	.032

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19020 20767.8 305 315 370 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17511.1	17800	999.3	F
21450	22455.6	999.3	F

Blocked Obstructions num= 1

Sta L	Sta R	Elev
17511.1	19020	988

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	994.40	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.41	Wt. n-Val.	0.043	0.032	0.032
W.S. Elev (ft)	993.99	Reach Len. (ft)	305.00	315.00	370.00
Crit W.S. (ft)	984.67	Flow Area (sq ft)	6163.18	26799.69	2955.52
E.G. Slope (ft/ft)	0.000362	Area (sq ft)	6237.80	26799.69	3171.98
Q Total (cfs)	164000.00	Flow (cfs)	11964.37	145098.40	6937.21
Top Width (ft)	4097.71	Top Width (ft)	1277.30	1747.80	1072.61
Vel Total (ft/s)	4.57	Avg. Vel. (ft/s)	1.94	5.41	2.35
Max Chl Dpth (ft)	18.49	Hydr. Depth (ft)	5.05	15.33	4.33
Conv. Total (cfs)	8621961.0	Conv. (cfs)	629002.0	7628250.0	364709.5
Length Wtd. (ft)	317.46	Wetted Per. (ft)	1220.09	1753.75	682.23
Min Ch El (ft)	975.50	Shear (lb/sq ft)	0.11	0.35	0.10
Alpha	1.27	Stream Power (lb/ft s)	0.22	1.87	0.23
Frctn Loss (ft)	0.18	Cum Volume (acre-ft)	5358.84	17170.44	1093.22
C & E Loss (ft)	0.02	Cum SA (acres)	1536.20	1856.66	578.18

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	995.10	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.54	Wt. n-Val.		0.032	
W.S. Elev (ft)	994.56	Reach Len. (ft)	305.00	315.00	370.00
Crit W.S. (ft)	984.67	Flow Area (sq ft)		27793.38	
E.G. Slope (ft/ft)	0.000413	Area (sq ft)		27793.38	
Q Total (cfs)	164000.00	Flow (cfs)		164000.00	
Top Width (ft)	1747.80	Top Width (ft)		1747.80	
Vel Total (ft/s)	5.90	Avg. Vel. (ft/s)		5.90	
Max Chl Dpth (ft)	19.06	Hydr. Depth (ft)		15.90	
Conv. Total (cfs)	8073093.0	Conv. (cfs)		8073093.0	
Length Wtd. (ft)	314.90	Wetted Per. (ft)		1767.46	
Min Ch El (ft)	975.50	Shear (lb/sq ft)		0.41	
Alpha	1.00	Stream Power (lb/ft s)		2.39	
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	531.94	17746.57	34.97
C & E Loss (ft)	0.03	Cum SA (acres)	82.07	1858.76	6.81

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 205.34

INPUT
Description: 205.34 - FEMA Cross Section M
Station Elevation Data num= 268

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
13687.27	990.713918.08	990.6813941.26	990.714074.31	990.7414097.95	990.77
14379.8	991.214502.02	991.2714504.17	991.3214654.78	991.4514667.42	991.12
14692.66	99314709.75	992.96 14715.8	991.19 14721	993.2814723.16	993.14
14738.13	990.914750.87	991.8914755.59	992.514795.12	991.614806.23	991.16
14847.09	991.615017.82	991.6715028.83	991.05 15074.2	990.915389.93	990.38
15426.63	990.415457.08	991.7615497.69	991.9115548.79	991.7415599.83	990.06
15624.82	992.515632.81	992.1815645.65	991.2715655.09	992.7415660.02	991.59
15665.1	993.615682.98	994.8415701.37	993.3215707.96	993.3215720.14	993.51
15863.53	993.415962.36	993.7816143.17	993.716302.48	993.5316434.69	994
16540.11	994.5 16630.9	994.0316710.83	993.4216732.11	994.2916741.14	994.53
16755.65	994.816763.06	993.9916780.42	993.7616789.57	993.416811.41	992.38
16945.01	992.917037.42	993.3817118.17	992.917138.04	992.7817279.36	992.27
17420.37	992.117527.98	992.75 17560.1	992.78 17728.5	991.3317729.54	991.26
17753.81	988.517789.02	988.817833.72	989.117845.57	991.9517853.64	990.8
17860.73	99217869.58	99217881.45	991.8417895.69	992.1317897.64	994.57
17904.21	994.517909.94	991.8217920.11	988.7917940.57	989.6117986.35	989.54
18002.56	989.718065.95	989.1618080.07	988.8318116.41	988.3818122.12	987.76
18187.93	987.418195.48	987.3618246.02	987.5818264.37	987.6418314.54	986.65
18327.91	986.818350.36	988.1118365.79	988.5818392.98	988.6518415.65	990.57
18418	99118432.37	990.8218481.36	991.38 18548.7	990.7218596.12	990.95
18645.9	99518660.36	994.9818676.98	995.0618724.18	991.4718772.07	990.61
18787.28	990.318822.48	988.85 18833.8	988.7918853.31	988.4818883.89	988.52
18895.6	987.7 18912.2	992.1218970.58	990.1619022.37	991.3519035.55	989.07
19043.96	988.619066.14	988.56 19076.9	991.3319096.79	993.0719099.41	993.11
19116.55	988.419170.12	987.719232.28	987.219252.59	986.66 19258.9	986.61
19276.73	986.119284.34	985.9919293.57	985.3919297.05	984.9419318.57	978.71
19328.6	976.919337.34	97619422.11	976.1819470.05	976.22 19524.9	976.33
19562.89	976.719632.66	976.0919705.72	976.4319754.05	976.6319843.53	976.95
19853.47	97719865.48	976.519880.46	976.3619890.89	975.8119912.96	977.83
19933.5	976.919947.42	976.619979.26	976.26 20010.7	976.0820051.63	975.84
20062.33	975.720073.85	975.5720119.54	976.87 20199.2	978.2920212.26	978.81
20258.32	980.920264.39	980.66 20329.9	980.6420332.62	980.4120369.18	979.74
20375	980.1 20380.1	980.6320381.06	981.0320388.75	983.0320395.38	983.51
20436.76	985.120502.38	985.6120525.59	985.520561.61	985.7420587.94	985.95
20626.14	985.820644.89	985.7420678.28	985.5520707.29	986.1820742.96	987
20746.96	986.620752.64	985.5420762.54	985.0520787.99	983.0120822.69	985.52
20836.01	987.120844.69	986.9620890.92	987.1920931.14	987.6220978.97	988.36
21006.5	988.721057.23	989.3821083.41	989.721100.77	990.25 21161.6	990.89
21172.71	99121247.07	990.97 21252.7	990.9921266.22	990.7621277.98	990.73
21290.76	992.8 21299	991.1421333.63	991.1321435.22	991.221524.43	991.65
21554.31	991.6 21567.7	991.7221625.82	992.321657.32	992.4221684.03	992.58
21782.19	993.421851.31	993.7221863.14	993.921872.38	994.1621891.44	994.52
21949.81	994.621975.44	994.9221995.48	994.9122007.76	995.2522037.54	996.24

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22051.44   996.622075.07  997.6322125.13  998.6122139.54  998.9522159.57  998.78
22179.58   998.822264.13   998.322280.55  998.0322353.16  997.9122369.37  997.91
22404.01     99822463.45  998.2722491.06   998.822531.57  998.5222560.64  998.76
22593.64   998.8 22617.2  999.0722646.25  999.1222676.56  998.9422686.88  999.19
22731.76  1000.522770.23 1000.7922779.44 1001.3422789.67 1000.9722824.65 1001.12
22886.17  1001.722901.04 1001.6722978.01 1002.0623003.78 1002.23 23080.5 1002.51
23154.45  1002.823270.34 1003.4323291.75 1003.5623364.66 1004.1223410.89 1004.31
23481.28  1004.623504.95 1004.7623548.34 1004.8523582.71 1004.8423645.08 1005.05
 23678.1  1005.223738.97 1005.2323762.47 1005.11 23813.7 1005.1223872.53 1005.28
23908.97  1005.423920.45 1005.5423934.72 1004.9423951.14 1004.4623976.71 1005.57
23998.12  1003.624004.04 1002.9424049.64 1002.74

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
13687.27    .04318481.36    .04320931.14    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      19284.3420742.96              485     492     450             .1      .3
Ineffective Flow      num=       2
   Sta L   Sta R    Elev  Permanent
13687.27   17900    1000        F
   2140024049.64    1000        F

CROSS SECTION OUTPUT  Profile #PF#1
*****************************************************************************************************
* E.G. Elev (ft)          *  994.20  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.57  * Wt. n-Val.             *   0.043  *   0.043  *   0.033  *
* W.S. Elev (ft)          *  993.64  * Reach Len. (ft)        *  485.00  *  492.00  *  450.00  *
* Crit W.S. (ft)          *  986.68  * Flow Area (sq ft)      * 5631.66  *20854.99  * 3037.04  *
* E.G. Slope (ft/ft)      *0.001005  * Area (sq ft)           *12323.51  *20854.99  * 3643.00  *
* Q Total (cfs)           *164000.00  * Flow (cfs)           *16574.24  *134496.80  *12928.94  *
* Top Width (ft)          * 7348.85  * Top Width (ft)        * 4799.29  * 1458.62  * 1090.94  *
* Vel Total (ft/s)        *    5.55  * Avg. Vel. (ft/s)      *    2.94  *    6.45  *    4.26  *
* Max Chl Dpth (ft)       *   18.07  * Hydr. Depth (ft)      *    4.29  *   14.30  *    4.62  *
* Conv. Total (cfs)       *5172262.0  * Conv. (cfs)          *522721.4  *4241786.0  *407755.4  *
* Length Wtd. (ft)        *  488.72  * Wetted Per. (ft)      * 1315.08  * 1460.47  *  657.80  *
* Min Ch El (ft)          *  975.57  * Shear (lb/sq ft)      *    0.27  *    0.90  *    0.29  *
* Alpha                   *    1.18  * Stream Power (lb/ft s) *    0.79  *    5.78  *    1.23  *
* Frctn Loss (ft)         *    0.38  * Cum Volume (acre-ft)  * 5293.86  *16998.13  * 1064.28  *
* C & E Loss (ft)         *    0.00  * Cum SA (acres)        * 1514.93  * 1845.07  *  568.99  *
*****************************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*****************************************************************************************************
* E.G. Elev (ft)          *  994.85  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.87  * Wt. n-Val.             *   0.043  *   0.043  *          *
* W.S. Elev (ft)          *  993.98  * Reach Len. (ft)        *  485.00  *  492.00  *  450.00  *
* Crit W.S. (ft)          *  986.65  * Flow Area (sq ft)      *  729.56  *21354.97  *          *
* E.G. Slope (ft/ft)      *0.001336  * Area (sq ft)           *  729.56  *21354.97  *          *
* Q Total (cfs)           *164000.00  * Flow (cfs)           * 3238.55  *160761.50  *          *
* Top Width (ft)          * 1562.96  * Top Width (ft)        *  104.34  * 1458.62  *          *
* Vel Total (ft/s)        *    7.43  * Avg. Vel. (ft/s)      *    4.44  *    7.53  *          *
* Max Chl Dpth (ft)       *   18.41  * Hydr. Depth (ft)      *    6.99  *   14.64  *          *
* Conv. Total (cfs)       *4487226.0  * Conv. (cfs)          * 88610.4  *4398616.0  *          *
* Length Wtd. (ft)        *  491.57  * Wetted Per. (ft)      *  110.72  * 1467.45  *          *
* Min Ch El (ft)          *  975.57  * Shear (lb/sq ft)      *    0.55  *    1.21  *          *
* Alpha                   *    1.01  * Stream Power (lb/ft s) *    2.44  *    9.14  *          *
* Frctn Loss (ft)         *    0.51  * Cum Volume (acre-ft)  *  529.39  *17568.86  *   34.97  *
* C & E Loss (ft)         *    0.00  * Cum SA (acres)        *   81.71  * 1847.16  *    6.81  *
*****************************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                RS: 205.25

INPUT
Description: 205.25
Station Elevation Data    num=      96
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 16580.4     994 16657.1     994 16708.3   993.9 16776.5   993.6 16819.1   994.5
 16845.8   992.8 16892.9   992.2 16971.6   992.3 17154.1   993.1 17172.8   993.1
 17289.2   992.5 17431.5   991.8 17455.8   991.6 17644.6   992.5 17718.9   992.3
 17808.9   991.8 17842.7   989.1 17907.9   989.9 17920.6   992.1 17926.4   990.6
 17933.2   992.4 17964.3   990.4 17989.2   990.3 17999.1   987.6   18061   989.2
 18108.7   990.1   18179   988.3 18216.3     987 18244.2   987.5 18311.6   987.2
 18329.2   987.8 18392.2   987.8 18457.1   988.6 18493.2   989.2 18509.7   988.5
 18583.8     989 18614.2   989.1 18647.4     988 18708.8   987.6 18775.5   989.5
 18807.1     990 18886.3   989.2 18946.4     989 18990.4   988.1 19012.5   989.2
   19101   990.2 19156.3   989.9 19179.1   987.1 19186.7   985.4 19228.7   983.3
 19242.4     982 19306.5   983.4 19368.3   983.9 19442.9   983.5 19503.3   984.6
   19563   981.8 19581.1   985.9 19632.5   986.1 19671.9   987.3 19726.2   975.8
 19815.7   975.6 19878.1   976.2   19957   975.9   20042   975.5 20112.8   975.3
 20121.8   975.7 20160.5   973.8   20242   973.4 20260.5   974.6 20329.5     975
 20404.8   975.5 20471.4   978.3 20486.8   979.5 20522.9   977.9   20526   975.8
 20552.9   975.9 20584.6   974.1 20632.4   973.9   20697   975.7   20712   975.7
 20738.9   981.7 20741.5   980.7 20782.3   986.4 20848.1   987.4 20923.8   989.9
 21014.3   990.6 21121.3   991.6 21201.7   992.1 21283.6   992.1 21338.5   993.1
 21347.9   993.8 21358.2   992.2 21370.3   995.6 21409.5   995.7   21424   994.5
 21499.5   993.3

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************************
 16580.4    .025 18108.7    .037 19671.9    .037 20782.3    .025
```

```
Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      19671.9 20782.3               505     506     485            .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 16580.4   17950   995.7       F
 21347.9 21499.5   995.7       F

CROSS SECTION OUTPUT  Profile #PF#1
*************************************************************************************************
* E.G. Elev (ft)         *  993.82  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.57  * Wt. n-Val.             *   0.036  *   0.037  *   0.025  *
* W.S. Elev (ft)         *  993.26  * Reach Len. (ft)        *  505.00  *  506.00  *  485.00  *
* Crit W.S. (ft)         *  985.26  * Flow Area (sq ft)      *10028.25  *18998.26  * 1514.65  *
* E.G. Slope (ft/ft)     *0.000623  * Area (sq ft)           *11314.22  *18998.26  * 1520.24  *
* Q Total (cfs)          *164000.00  * Flow (cfs)           *33461.27  *126169.00  * 4369.76  *
* Top Width (ft)         * 4512.59  * Top Width (ft)        * 2833.29  * 1110.40  *  568.90  *
* Vel Total (ft/s)       *    5.37  * Avg. Vel. (ft/s)      *    3.34  *    6.64  *    2.89  *
* Max Chl Dpth (ft)      *   19.86  * Hydr. Depth (ft)      *    5.82  *   17.11  *    2.71  *
* Conv. Total (cfs)      *6571525.0  * Conv. (cfs)          *1340802.0  *5055625.0  *175097.6  *
* Length Wtd. (ft)       *  505.35  * Wetted Per. (ft)      * 1723.55  * 1113.81  *  558.39  *
* Min Ch El (ft)         *  973.40  * Shear (lb/sq ft)      *    0.23  *    0.66  *    0.11  *
* Alpha                  *    1.26  * Stream Power (lb/ft s) *    0.75  *    4.40  *    0.30  *
* Frctn Loss (ft)        *    0.52  * Cum Volume (acre-ft)  * 5162.27  *16773.07  * 1037.61  *
* C & E Loss (ft)        *    0.09  * Cum SA (acres)        * 1472.44  * 1830.56  *  560.42  *
*************************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*************************************************************************************************
* E.G. Elev (ft)         *  994.34  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.85  * Wt. n-Val.             *   0.037  *   0.037  *          *
* W.S. Elev (ft)         *  993.49  * Reach Len. (ft)        *  505.00  *  506.00  *  485.00  *
* Crit W.S. (ft)         *  985.16  * Flow Area (sq ft)      * 3415.04  *19253.09  *          *
* E.G. Slope (ft/ft)     *0.000817  * Area (sq ft)           * 3415.04  *19253.09  *          *
* Q Total (cfs)          *164000.00  * Flow (cfs)           *16866.33  *147133.70  *          *
* Top Width (ft)         * 1482.30  * Top Width (ft)        *  371.90  * 1110.40  *          *
* Vel Total (ft/s)       *    7.23  * Avg. Vel. (ft/s)      *    4.94  *    7.64  *          *
* Max Chl Dpth (ft)      *   20.09  * Hydr. Depth (ft)      *    9.18  *   17.34  *          *
* Conv. Total (cfs)      *5737392.0  * Conv. (cfs)          *590053.3  *5147338.0  *          *
* Length Wtd. (ft)       *  505.72  * Wetted Per. (ft)      *  382.69  * 1120.90  *          *
* Min Ch El (ft)         *  973.40  * Shear (lb/sq ft)      *    0.46  *    0.88  *          *
* Alpha                  *    1.05  * Stream Power (lb/ft s) *    2.25  *    6.70  *          *
* Frctn Loss (ft)        *    0.59  * Cum Volume (acre-ft)  *  506.31  *17339.53  *   34.97  *
* C & E Loss (ft)        *    0.06  * Cum SA (acres)        *   79.06  * 1832.65  *    6.81  *
*************************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 205.15

INPUT
Description: 205.15
Station Elevation Data    num=      96
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
*************************************************************************************
 18001.2      994 18008.5   992.8 18015.6   994.9 18038.3   990.9 18047.4   991.8
 18061.5   992.1 18077.6   991.6 18146.4   988.8 18170.1   988.9 18200.6   988.3
   18243   988.8 18269.7   988.5 18292.3   988.8 18341.7   989.8 18374.9   990.2
 18415.6   990.6 18438.3   991.1 18547.3     991 18558.8   991.1 18618.4   991.8
 18625.4   991.9 18687.7   991.3 18696.2   991.3 18745.4   991.4 18794.1   991.1
   18810   991.2 18866.4     991 18894.1   991.2 18920.9   990.7 18973.2   990.3
 19018.9   989.8 19055.8   989.7 19109.2   989.4 19141.8   988.8 19181.8   988.8
 19228.5   988.7 19285.2   989.2 19335.5   988.1 19346.3   987.8 19386.8   986.1
 19394.2   985.9 19440.1   984.4 19443.6   984.3   19490   983.7 19506.7   983.8
 19532.2   982.8 19587.2   983.3 19612.4   983.6 19619.1   984.1 19660.7   983.9
 19705.1   983.1 19747.1   983.7 19787.1   984.9 19805.2   976.8 19822.3   973.4
 19827.6   974.7 19829.5   974.2   19853   974.2 19880.4   973.6 19881.2   973.1
 19908.4     980 19918.9   982.2   19934   984.3 19978.1   984.9 20006.4   984.1
 20054.3   983.8 20064.2   983.5 20106.6     982 20110.7   981.8 20166.7     979
 20196.8   978.1 20246.3   976.6 20250.4   976.4 20298.9   975.4 20340.8   975.5
 20371.6   975.7 20436.2     974   20495   974.1 20608.2   975.2   20651   975.7
 20691.5   977.2 20705.2   979.5 20746.3   987.3 20793.1   987.9   20838   988.7
 20896.6   989.6 20910.7   990.1 20968.3   990.3   20999   990.6 21039.8   990.8
   21107   991.7 21127.2   991.3 21170.3   994.1 21206.9   995.7 21258.6   996.3
   21293   996.4

Manning's n Values        num=       4
     Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val
*************************************************************************
 18001.2    .025 18146.4    .037 19787.1    .037 20746.3    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      19787.1 20746.3               495  495.39     495            .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 18001.2 18061.5     995       F
   21293   21293   996.4       F

CROSS SECTION OUTPUT  Profile #PF#1
```

E.G. Elev (ft)	993.21	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.46	Wt. n-Val.	0.037	0.037	0.025
W.S. Elev (ft)	991.76	Reach Len. (ft)	495.00	495.39	495.00
Crit W.S. (ft)	987.66	Flow Area (sq ft)	5457.16	*13249.56	742.57
E.G. Slope (ft/ft)	*0.002039	Area (sq ft)	5462.93	*13249.56	742.57
Q Total (cfs)	*164000.00	Flow (cfs)	*23077.22	*137850.70	* 3072.08 *
Top Width (ft)	* 3049.28	Top Width (ft)	* 1702.17	959.20	387.91
Vel Total (ft/s)	8.43	Avg. Vel. (ft/s)	4.23	10.40	4.14
Max Chl Dpth (ft)	18.66	Hydr. Depth (ft)	3.23	13.81	1.91
Conv. Total (cfs)	*3632205.0	Conv. (cfs)	*511104.8	*3053061.0	* 68039.3 *
Length Wtd. (ft)	495.35	Wetted Per. (ft)	* 1688.95	964.03	387.96
Min Ch El (ft)	973.10	Shear (lb/sq ft)	0.41	1.75	0.24
Alpha	1.32	Stream Power (lb/ft s)	1.74	18.20	1.01
Frctn Loss (ft)	0.97	Cum Volume (acre-ft)	* 5065.02	*16585.77	* 1025.01
C & E Loss (ft)	0.02	Cum SA (acres)	* 1446.15	* 1818.54	555.09

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	993.69	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.44	Wt. n-Val.	0.037	0.037	0.025
W.S. Elev (ft)	992.25	Reach Len. (ft)	495.00	495.39	495.00
Crit W.S. (ft)	987.65	Flow Area (sq ft)	* 3367.91	*13720.96	365.73
E.G. Slope (ft/ft)	*0.001819	Area (sq ft)	* 3367.91	*13720.96	365.73
Q Total (cfs)	*164000.00	Flow (cfs)	*23553.24	*138039.00	* 2407.76 *
Top Width (ft)	* 1445.00	Top Width (ft)	402.10	959.20	83.70
Vel Total (ft/s)	9.40	Avg. Vel. (ft/s)	6.99	10.06	6.58
Max Chl Dpth (ft)	19.15	Hydr. Depth (ft)	8.38	14.30	4.37
Conv. Total (cfs)	*3844879.0	Conv. (cfs)	*552191.1	*3236240.0	* 56448.5 *
Length Wtd. (ft)	495.36	Wetted Per. (ft)	408.28	964.03	87.40
Min Ch El (ft)	973.10	Shear (lb/sq ft)	0.94	1.62	0.48
Alpha	1.05	Stream Power (lb/ft s)	6.55	16.26	3.13
Frctn Loss (ft)	0.90	Cum Volume (acre-ft)	466.99	*17148.02	32.93
C & E Loss (ft)	0.00	Cum SA (acres)	74.57	* 1820.63	6.35

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 205.06

INPUT
Description: 205.06
Station Elevation Data num= 129

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17971	990.9	18065.3	988.6	18104.6	990.4	18115.6	988.2	18128.9	991.2
18143.2	991.5	18167.1	990.4	18222.4	988.9	18239	988.9	18268	988.1
18295.2	989	18314.3	988.5	18358.9	987.5	18410.5	986.7	18435.8	988.1
18478.4	994.2	18515	994	18541.2	993.6	18567.7	993	18668.2	993.4
18694.6	996.3	18716.8	994.1	18733	990.9	18773.1	991.2	18799	993.8
18844	996.4	18879.8	994	18912.8	991.3	18929.6	990.6	18948.8	990.9
18974.6	992.4	18989	991.8	18996.9	990.8	19026.5	996.8	19033.3	997.5
19038.3	998.5	19071.8	995.8	19078.5	994.1	19097.2	986.1	19133.8	987
19136.4	990.2	19142.8	992.6	19151.6	994.3	19202.7	994.1	19217.4	994.9
19226.3	988.3	19230.3	986.5	19252.3	985.8	19287.1	985.9	19329.2	986.2
19380.3	987.3	19388.1	987.3	19434.5	987.8	19445.1	987.8	19500.6	988.4
19538.9	988.7	19598.7	988.7	19648.7	990	19669.4	989.9	19722.7	988.3
19771.5	986.5	19803.6	986.4	19827.5	985.6	19841.3	984.7	19887	983.6
19904.2	973.1	19931.3	971.2	19981.6	971.1	19982.8	971.1	20027.4	970.5
20053.2	971.3	20073.5	976.1	20120.4	976.2	20137.3	976.4	20147.5	981
20155.4	983.6	20196	987.3	20208.9	986.1	20221.7	985.3	20253.8	981
20275.4	981	20301.5	975.4	20306.9	975.1	20315.2	975.1	20365	974.5
20425.5	974.6	20470.1	974.5	20497.9	974.4	20563.5	973.5	20601.9	973.2
20671.9	974	20850.2	976	20856.8	977.9	20880.3	977.7	20892.4	984.3
20905.3	990.8	20927.2	991.2	20971.3	992	21020.6	993	21062.7	993.2
21101.6	993.3	21146	993.7	21204.6	993.9	21256.1	994.5	21300.3	994.8
21336.3	994.9	21378.2	995	21414.7	995.2	21457.8	995.2	21484.8	995.4
21512.4	994.7	21514.5	995.9	21516.2	996.3	21518.9	995.5	21525.9	994.3
21532.1	994.6	21537.4	995.2	21546	995	21560.5	995.3	21575	995
21602.5	996.4	21628.8	996.3	21672.8	996.3	21709.9	996.5	21754.4	996.4
21826.9	996.1	21895.5	996.5	21951.4	996.6	21997.9	996.4		

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
17971	.037	19026.5	.037	19669.4	.037	20905.3	.025

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19669.4 20905.3 505 505 530 .1 .3
Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17971	18080	998.5	F
21997.9	21997.9	998.5	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	992.22	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.37	Wt. n-Val.	0.037	0.037	0.025
W.S. Elev (ft)	990.85	Reach Len. (ft)	505.00	505.00	530.00
Crit W.S. (ft)	984.95	Flow Area (sq ft)	* 2335.51	*16204.32	0.06
E.G. Slope (ft/ft)	*0.001875	Area (sq ft)	* 2466.89	*16204.32	0.06
Q Total (cfs)	*164000.00	Flow (cfs)	* 8135.07	*155864.90	0.01
Top Width (ft)	* 2210.68	Top Width (ft)	972.31	* 1235.90	2.47
Vel Total (ft/s)	8.85	Avg. Vel. (ft/s)	3.48	9.62	0.21
Max Chl Dpth (ft)	20.35	Hydr. Depth (ft)	2.70	13.11	0.02
Conv. Total (cfs)	*3787357.0	Conv. (cfs)	*187868.3	*3599489.0	0.3

Pre-Project

* Length Wtd. (ft)	* 505.01	* Wetted Per. (ft)	* 870.33	* 1245.68	* 2.47	*		
* Min Ch El (ft)	* 970.50	* Shear (lb/sq ft)	* 0.31	* 1.52	* 0.00	*		
* Alpha	* 1.13	* Stream Power (lb/ft s)	* 1.09	* 14.65	* 0.00	*		
* Frctn Loss (ft)	* 0.72	* Cum Volume (acre-ft)	* 5019.96	*16418.28	* 1020.79	*		
* C & E Loss (ft)	* 0.19	* Cum SA (acres)	* 1430.95	* 1806.05	* 552.87	*		

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 992.79	* Element	* Left OB	* Channel	* Right OB	*		
* Vel Head (ft)	* 1.43	* Wt. n-Val.	* 0.037	* 0.037	*	*		
* W.S. Elev (ft)	* 991.36	* Reach Len. (ft)	* 505.00	* 505.00	* 530.00	*		
* Crit W.S. (ft)	* 984.95	* Flow Area (sq ft)	* 491.43	*16837.05	*	*		
* E.G. Slope (ft/ft)	*0.001795	* Area (sq ft)	* 491.43	*16837.05	*	*		
* Q Total (cfs)	*164000.00	* Flow (cfs)	* 1508.81	*162491.20	*	*		
* Top Width (ft)	* 1435.30	* Top Width (ft)	* 199.40	* 1235.90	*	*		
* Vel Total (ft/s)	* 9.46	* Avg. Vel. (ft/s)	* 3.07	* 9.65	*	*		
* Max Chl Dpth (ft)	* 20.86	* Hydr. Depth (ft)	* 2.46	* 13.62	*	*		
* Conv. Total (cfs)	*3871248.0	* Conv. (cfs)	* 35615.7	*3835632.0	*	*		
* Length Wtd. (ft)	* 505.00	* Wetted Per. (ft)	* 202.71	* 1246.24	*	*		
* Min Ch El (ft)	* 970.50	* Shear (lb/sq ft)	* 0.27	* 1.51	*	*		
* Alpha	* 1.03	* Stream Power (lb/ft s)	* 0.83	* 14.61	*	*		
* Frctn Loss (ft)	* 0.82	* Cum Volume (acre-ft)	* 445.07	*16974.25	* 30.85	*		
* C & E Loss (ft)	* 0.10	* Cum SA (acres)	* 71.15	* 1808.15	* 5.87	*		

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 204.97

INPUT
Description: 204.97

Left Channel Bank Station Interpolated
Station Elevation Data num= 86

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16000	993.3	16025.7	992.1	16060.7	991.7	16273.1	992.3	16303.1	992.4
16597.7	992.1	16613.7	992	16818.7	992	16912.8	992.3	17061.4	992.3
17169.3	991.7	17232.9	991.8	17259.7	989	17316.4	990.2	17470.6	990.2
17483.4	990.2	17700.5	989.9	17786.2	989.2	17832.4	989	17894.5	988.9
17924.8	989.2	17933.3	990.5	17979.7	992.1	17985.3	991.5	17994.8	988.7
18008.6	988.7	18105.1	987.6	18137.2	986.9	18189.2	987.8	18201.2	986.8
18216.4	989.2	18243.6	989.2	18301.9	989	18377.5	989.6	18462.9	990.2
18523.7	988.6	18573.9	986	18643	986.6	18672	985.8	18672.9	984.9
18697.7	984.3	18729.6	988.3	18807.2	987.9	18833	984	18865.3	987.3
18888.3	985.4	18917	987.8	18955.4	987.9	18987.3	984.9	19046.8	987.1
19093.5	986.8	19152.6	983.5	19285.8	983.8	19317.6	981.5	19332.9	979.1
19418.6	978	19438.3	978.8	19545	978.843	19934.7	979	19938.2	981.1
19945.9	981.9	20008.7	980.8	20068.2	980.2	20091.8	979.6	20151.8	979.3
20225.8	978.1	20300.7	979	20367.2	979.3	20442.3	978.7	20509.6	977.2
20568	974.8	20659.1	973.3	20662.9	973.3	20925.5	975.4	20961.3	988.6
20999.4	990.2	21056.8	990.8	21126.2	991.7	21187	992.8	21200.2	992.9
21265.2	993	21340.5	993	21356.1	993	21427.5	993.4	21492.8	993.1
21496	993.1								

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16000	.025	18301.9	.037	19046.8	.037	20961.3	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
19545	20961.3	510	503	550	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
16000	18200	993.4	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 991.30	* Element	* Left OB	* Channel	* Right OB	*		
* Vel Head (ft)	* 0.74	* Wt. n-Val.	* 0.037	* 0.037	* 0.025	*		
* W.S. Elev (ft)	* 990.56	* Reach Len. (ft)	* 510.00	* 503.00	* 550.00	*		
* Crit W.S. (ft)	* 984.97	* Flow Area (sq ft)	* 6790.54	*17977.87	* 50.64	*		
* E.G. Slope (ft/ft)	*0.001134	* Area (sq ft)	* 7908.25	*17977.87	* 50.64	*		
* Q Total (cfs)	*164000.00	* Flow (cfs)	* 31810.39	*132110.10	* 79.50	*		
* Top Width (ft)	* 3736.09	* Top Width (ft)	* 2246.92	* 1416.30	* 72.86	*		
* Vel Total (ft/s)	* 6.61	* Avg. Vel. (ft/s)	* 4.68	* 7.35	* 1.57	*		
* Max Chl Dpth (ft)	* 17.26	* Hydr. Depth (ft)	* 5.05	* 12.69	* 0.70	*		
* Conv. Total (cfs)	*4869981.0	* Conv. (cfs)	* 944609.8	*3923010.0	* 2360.8	*		
* Length Wtd. (ft)	* 504.14	* Wetted Per. (ft)	* 1347.14	* 1419.41	* 72.90	*		
* Min Ch El (ft)	* 973.30	* Shear (lb/sq ft)	* 0.36	* 0.90	* 0.05	*		
* Alpha	* 1.09	* Stream Power (lb/ft s)	* 1.67	* 6.59	* 0.08	*		
* Frctn Loss (ft)	* 0.47	* Cum Volume (acre-ft)	* 4959.82	*16220.14	* 1020.49	*		
* C & E Loss (ft)	* 0.04	* Cum SA (acres)	* 1412.29	* 1790.68	* 552.41	*		

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 991.87	* Element	* Left OB	* Channel	* Right OB	*		
* Vel Head (ft)	* 1.11	* Wt. n-Val.	* 0.037	* 0.037	*	*		
* W.S. Elev (ft)	* 990.76	* Reach Len. (ft)	* 510.00	* 503.00	* 550.00	*		

Pre-Project

* Crit W.S. (ft)	* 985.05	* Flow Area (sq ft)	* 1194.17	*18262.88	*				
* E.G. Slope (ft/ft)	*0.001485	* Area (sq ft)	* 1194.17	*18262.88	*				
* Q Total (cfs)	*164000.00	* Flow (cfs)	* 8955.43	*155044.60	*				
* Top Width (ft)	* 1516.30	* Top Width (ft)	* 100.00	* 1416.30	*				
* Vel Total (ft/s)	* 8.43	* Avg. Vel. (ft/s)	* 7.50	* 8.49	*				
* Max Chl Dpth (ft)	* 17.46	* Hydr. Depth (ft)	* 11.94	* 12.89	*				
* Conv. Total (cfs)	*4255498.0	* Conv. (cfs)	*232376.8	*4023121.0	*				
* Length Wtd. (ft)	* 503.24	* Wetted Per. (ft)	* 111.96	* 1421.57	*				
* Min Ch El (ft)	* 973.30	* Shear (lb/sq ft)	* 0.99	* 1.19	*				
* Alpha	* 1.00	* Stream Power (lb/ft s)	* 7.42	* 10.11	*				
* Frctn Loss (ft)	* 0.59	* Cum Volume (acre-ft)	* 435.30	*16770.79	*	30.85	*		
* C & E Loss (ft)	* 0.08	* Cum SA (acres)	* 69.42	* 1792.78	*	5.87	*		

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 204.87

INPUT
Description: 204.87

Right Channel Bank Station Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17067.4	991.5	17111.3	991.5	17255	990.6	17291.2	991.6	17298.2	992.1
17315.9	991	17328.2	990.9	17345.3	988.6	17426.3	988	17520.6	988.2
17594.7	988.5	17781.4	988.6	17822.3	988.5	17925.1	988.2	18001	987.2
18108.5	987.1	18221.3	987.3	18261.7	986.3	18269.2	986.9	18279.6	985.4
18296.9	986.8	18325.5	986.8	18352.2	985.5	18429.1	985.3	18501.3	985.6
18553	984.4	18559.8	986.3	18565.9	988.9	18578.6	987.7	18604.1	983.9
18645.9	981.4	18657.3	984	18678.8	986.2	18730	987.6	18832.5	987.5
18855.2	985.7	18859.7	984.6	18874.5	986.6	18920.1	984.6	18942.9	980.4
18960	980.8	18970.7	982.4	19015.9	985.9	19104.6	986.7	19209.9	985.7
19234.9	985	19264.2	982.7	19275.4	983.5	19297.4	981	19382.3	981.4
19462.8	981	19532.8	979	19555.4	979.1	19566	978.5	19579.4	978.5
19588.4	976.2	19598.7	976.3	19623.4	978.5	19628	979.5	19642.3	981
19714.7	981	19730.8	981	19759.9	975.9	19765	976.4	19772.7	975.9
19854.5	975.9	19859.5	975.9	19861.3	977.3	19877.6	980.8	19890	975.9
19903.3	969.9	19909.9	970	19919.2	968.1	20001	968.1	20022.9	968.1
20059.2	975.3	20126.4	976.2	20213.9	975.3	20298.1	974.9	20351	974.8
20377.2	977.3	20393.3	977.5	20505.4	975.8	20559.1	974.3	20612	976.5
20624.2	974.6	20654.3	973.2	20826.7	974.3	20919.3	974.9	20939.9	984.7
20954.34	991.1405	20961.2	994.2	20981.5	994.3	21037.9	989.4	21047	990.3
21137.3	991.2	21197.6	991.4						

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
17067.4	.025	18221.3	.037	19462.8	.037	20961.2	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
19462.82	20954.34	495	499	505	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17067.4	18300	994.3	F
20961.2	21197.6	994.3	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 990.80	* Element	* Left OB	* Channel	* Right OB				
* Vel Head (ft)	* 0.61	* Wt. n-Val.	* 0.037	* 0.037	*				
* W.S. Elev (ft)	* 990.19	* Reach Len. (ft)	* 495.00	* 499.00	* 505.00	*			
* Crit W.S. (ft)	* 982.94	* Flow Area (sq ft)	* 6202.87	*21657.82	*	6.71	*		
* E.G. Slope (ft/ft)	*0.000767	* Area (sq ft)	* 8399.19	*21657.82	*				
* Q Total (cfs)	*164000.00	* Flow (cfs)	*21030.64	*142969.40	*				
* Top Width (ft)	* 3635.74	* Top Width (ft)	* 2129.31	* 1489.40	*	17.03	*		
* Vel Total (ft/s)	* 5.89	* Avg. Vel. (ft/s)	* 3.39	* 6.60	*				
* Max Chl Dpth (ft)	* 22.09	* Hydr. Depth (ft)	* 5.33	* 14.54	*				
* Conv. Total (cfs)	*5920537.0	* Conv. (cfs)	*759223.6	*5161313.0	*				
* Length Wtd. (ft)	* 498.39	* Wetted Per. (ft)	* 1165.78	* 1498.26	*				
* Min Ch El (ft)	* 968.10	* Shear (lb/sq ft)	* 0.25	* 0.69	*				
* Alpha	* 1.14	* Stream Power (lb/ft s)	* 0.86	* 4.57	*				
* Frctn Loss (ft)	* 0.30	* Cum Volume (acre-ft)	* 4864.36	*15991.30	*	1020.12	*		
* C & E Loss (ft)	* 0.05	* Cum SA (acres)	* 1386.67	* 1773.90	*	551.85	*		

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 991.20	* Element	* Left OB	* Channel	* Right OB				
* Vel Head (ft)	* 0.84	* Wt. n-Val.	* 0.037	* 0.037	*				
* W.S. Elev (ft)	* 990.37	* Reach Len. (ft)	* 495.00	* 499.00	* 505.00	*			
* Crit W.S. (ft)	* 982.85	* Flow Area (sq ft)	* 487.55	*21921.99	*				
* E.G. Slope (ft/ft)	*0.000942	* Area (sq ft)	* 487.55	*21921.99	*				
* Q Total (cfs)	*164000.00	* Flow (cfs)	* 2378.75	*161621.30	*				
* Top Width (ft)	* 1542.20	* Top Width (ft)	* 52.80	* 1489.40	*				
* Vel Total (ft/s)	* 7.32	* Avg. Vel. (ft/s)	* 4.88	* 7.37	*				
* Max Chl Dpth (ft)	* 22.27	* Hydr. Depth (ft)	* 9.23	* 14.72	*				
* Conv. Total (cfs)	*5343764.0	* Conv. (cfs)	* 77509.1	*5266255.0	*				
* Length Wtd. (ft)	* 498.86	* Wetted Per. (ft)	* 61.90	* 1498.43	*				
* Min Ch El (ft)	* 968.10	* Shear (lb/sq ft)	* 0.46	* 0.86	*				
* Alpha	* 1.01	* Stream Power (lb/ft s)	* 2.26	* 6.34	*				
* Frctn Loss (ft)	* 0.37	* Cum Volume (acre-ft)	* 425.45	*16538.78	*	30.85	*		
* C & E Loss (ft)	* 0.06	* Cum SA (acres)	* 68.52	* 1776.00	*	5.87	*		

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid,

water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 204.78

INPUT
Description: 204.78

Right Channel Bank Station Interpolated
Station Elevation Data num= 87

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16026.1	987.6	16094.8	987.3	16113.5	986.9	16143.6	989.2	16147.7	990.2
16176.4	990.8	16200.6	988.8	16231.8	988.4	16338.9	988.8	16416.1	988.9
16579.2	988.9	16686	989.1	16786.7	989.1	16866.8	989.3	17093.1	989.3
17192.6	989.3	17283.5	988	17369.3	988	17407.5	989.7	17420.2	988
17479.3	987	17521.2	986.9	17670.9	988	17754.2	987.8	17912.8	987.4
17952.6	987.1	18028.5	987	18174.7	986.5	18221.6	986.3	18279.6	986.1
18350.4	984.9	18361.8	983	18373.6	985.9	18402.3	985.9	18413.2	983.6
18427.5	987.2	18487.5	986.4	18504	984.4	18585.3	983.7	18598.2	984.9
18667.6	983.9	18753.3	984.6	18756.1	984.9	18767.8	981.3	18836.7	981
19173.1	979.8	19219.1	979.8	19295.8	977.2	19323.7	977.5	19337.5	981
19356.4	981	19398.6	983	19409.2	982.4	19419.8	979.2	19429.6	977.4
19432.3	975.9	19489.4	975.9	19561.1	974.8	19621.6	973	19660.7	972.1
19667.7	970.8	19677.1	967.6	19767.4	968.8	19768	968.8	19935.5	968
19986.5	968	20033.8	975.7	20056.9	977.8	20073.7	975.3	20160.4	975
20170.8	975.3	20229.5	975	20246.7	975	20324.8	974.9	20340	975
20452	975.9	20510.9	973	20530.9	973.1	20662.3	973.7	20706.1	973.8
20782.6	974.9	20801.8	975.120832.33990.9976			20840.4	995.2	20866.6	994.5
20921.2	988.9	20982.7	988.3						

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16026.1	.025	18427.5	.037	19398.6	.037	20840.4	.025

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19398.620832.33 505 515 550 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
16026.1	18400	995.2	F
20840.4	20982.7	995.2	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	990.45	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.45	Wt. n-Val.	0.037	0.037	
W.S. Elev (ft)	990.01	Reach Len. (ft)	505.00	515.00	550.00
Crit W.S. (ft)	980.93	Flow Area (sq ft)	8139.91	23734.97	
E.G. Slope (ft/ft)	0.000477	Area (sq ft)	12728.28	23734.97	92.43
Q Total (cfs)	164000.00	Flow (cfs)	29111.40	134888.60	
Top Width (ft)	4837.51	Top Width (ft)	3333.40	1431.83	72.28
Vel Total (ft/s)	5.15	Avg. Vel. (ft/s)	3.58	5.68	
Max Chl Dpth (ft)	22.41	Hydr. Depth (ft)	8.15	16.58	
Conv. Total (cfs)	7512086.0	Conv. (cfs)	1333460.0	6178626.0	
Length Wtd. (ft)	513.16	Wetted Per. (ft)	1000.57	1438.22	
Min Ch El (ft)	967.60	Shear (lb/sq ft)	0.24	0.49	
Alpha	1.09	Stream Power (lb/ft s)	0.87	2.79	
Frctn Loss (ft)	0.33	Cum Volume (acre-ft)	4744.32	15731.30	1019.55
C & E Loss (ft)	0.03	Cum SA (acres)	1355.64	1757.17	551.33

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	990.77	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.63	Wt. n-Val.	0.037	0.037	
W.S. Elev (ft)	990.13	Reach Len. (ft)	505.00	515.00	550.00
Crit W.S. (ft)	980.78	Flow Area (sq ft)	2009.30	23919.55	
E.G. Slope (ft/ft)	0.000611	Area (sq ft)	2009.30	23919.55	
Q Total (cfs)	164000.00	Flow (cfs)	9303.23	154696.80	
Top Width (ft)	1620.43	Top Width (ft)	188.60	1431.83	
Vel Total (ft/s)	6.33	Avg. Vel. (ft/s)	4.63	6.47	
Max Chl Dpth (ft)	22.53	Hydr. Depth (ft)	10.65	16.71	
Conv. Total (cfs)	6634912.0	Conv. (cfs)	376378.6	6258533.0	
Length Wtd. (ft)	514.26	Wetted Per. (ft)	199.46	1438.35	
Min Ch El (ft)	967.60	Shear (lb/sq ft)	0.38	0.63	
Alpha	1.02	Stream Power (lb/ft s)	1.78	4.10	
Frctn Loss (ft)	0.42	Cum Volume (acre-ft)	411.26	16276.21	30.85
C & E Loss (ft)	0.04	Cum SA (acres)	67.15	1759.27	5.87

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 204.68

INPUT
Description: 204.68

Right Channel Bank Station Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17501.1	986.1	17554.2	985.7	17607.9	985.5	17645.5	987.6	17657	986.8

17668.8	987.1	17674.9	990.2	17682.2	987.8	17691	985.7	17742.4	986.2
17748.2	986.3	17778	988.7	17792.2	990.8	17806.1	988.7	17807.3	988.9
17839.5	987.8	17848.5	986.9	17867.4	986.8	17881.2	986.2	17970.4	985.8
18016.4	985.9	18087.9	985.4	18189.8	985	18231.2	984.8	18295.5	984.9
18354.5	984.6	18412.6	984.3	18437.1	982.9	18472.2	984	18491.1	983.4
18518.9	981.6	18530.8	984.6	18531.9	985.1	18550.1	982.9	18601.2	983.1
18621.4	983.6	18662.6	982.9	18685.1	983	18736.6	981.7	18767.6	980.4
18849.4	980.3	18886.2	980.2	18950.6	980	19029.6	979.9	19057.5	983
19071.2	980.7	19099.7	980.9	19114	981.6	19143.3	981.3	19197.1	981.7
19249.9	983.3	19284.9	981.9	19308.1	982.1	19314.7	984.6	19321.8	985
19357.4	981	19361.7	979.6	19368.2	980.1	19394.4	978.2	19398.6	975.9
19415.9	975.9	19458.6	973.3	19479.3	973.1	19513.5	971.9	19564.9	971.9
19621.8	972.2	19668.2	973.2	19691.4	975.5	19719	976.9	19734.6	976.2
19779.1	971.8	19814.3	971.4	19869.4	971.6	19901	972.5	19927.9	972.8
19942.8	973.9	20011.2	975.3	20053.7	976.3	20121.8	976.1	20137.2	975.6
20206.4	975.5	20256.1	973.7	20273.3	974.7	20295	973	20348.3	973.2
20369.6	973.3	20516.3	974.1	20548.6	1990.5	20548.8	990.6	20582.8	991.5
20647	987.5	20715.7	987.8	20786.9	988	20814	988	20872.4	988.2
20904.2	988.1	20971	988.4						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
17501.1	.025	18472.2	.037	19321.8	.037	20548.8	.037	20582.8	.025

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

Left	Right	Left	Channel	Right	Coeff Contr.	Expan.
19321.82	20548.61	325	407	570	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17501.1	18455	991.5	F
20582.8	20971	991.5	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	990.10	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.73	Wt. n-Val.	0.037	0.037	
W.S. Elev (ft)	989.36	Reach Len. (ft)	325.00	407.00	570.00
Crit W.S. (ft)	982.91	Flow Area (sq ft)	6628.41	18234.16	
E.G. Slope (ft/ft)	0.000903	Area (sq ft)	10032.96	18234.16	473.96
Q Total (cfs)	164000.00	Flow (cfs)	31211.30	132788.70	
Top Width (ft)	3375.81	Top Width (ft)	1797.31	1224.57	353.93
Vel Total (ft/s)	6.60	Avg. Vel. (ft/s)	4.71	7.28	
Max Chl Dpth (ft)	17.96	Hydr. Depth (ft)	7.65	14.89	
Conv. Total (cfs)	5457597.0	Conv. (cfs)	1038650.0	4418946.0	
Length Wtd. (ft)	390.47	Wetted Per. (ft)	868.45	1230.06	
Min Ch El (ft)	971.40	Shear (lb/sq ft)	0.43	0.84	
Alpha	1.08	Stream Power (lb/ft s)	2.03	6.09	
Frctn Loss (ft)	0.43	Cum Volume (acre-ft)	4612.38	15483.21	1015.97
C & E Loss (ft)	0.03	Cum SA (acres)	1325.89	1741.47	548.64

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	990.31	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.99	Wt. n-Val.	0.037	0.037	
W.S. Elev (ft)	989.32	Reach Len. (ft)	325.00	407.00	570.00
Crit W.S. (ft)	982.81	Flow Area (sq ft)	2820.76	18179.75	
E.G. Slope (ft/ft)	0.001151	Area (sq ft)	2820.76	18179.75	
Q Total (cfs)	164000.00	Flow (cfs)	14831.20	149168.80	
Top Width (ft)	1586.28	Top Width (ft)	361.80	1224.48	
Vel Total (ft/s)	7.81	Avg. Vel. (ft/s)	5.26	8.21	
Max Chl Dpth (ft)	17.92	Hydr. Depth (ft)	7.80	14.85	
Conv. Total (cfs)	4834418.0	Conv. (cfs)	437196.3	4397221.0	
Length Wtd. (ft)	395.87	Wetted Per. (ft)	372.04	1229.96	
Min Ch El (ft)	971.40	Shear (lb/sq ft)	0.54	1.06	
Alpha	1.05	Stream Power (lb/ft s)	2.86	8.71	
Frctn Loss (ft)	0.51	Cum Volume (acre-ft)	383.27	16027.35	30.85
C & E Loss (ft)	0.02	Cum SA (acres)	63.96	1743.57	5.87

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 204.61

INPUT
Description: 204.61
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
14501.4	987.8	14573.3	990	14582.2	987.6	14618.2	988.2	14777.3	988.3
14862.5	988	15060	988.1	15169	988.1	15293.6	988.1	15349.5	988
15354.3	989.1	15407.2	987.7	15581	987.7	15683.1	987.7	15895.1	987.7
15973.3	987.8	16138.5	987.8	16253	987.3	16305.2	988.9	16356.5	986.6
16502.7	987	16642.3	986.6	16753.7	986.8	16913.6	986.7	17015.2	986.4
17201.6	986.5	17292.3	986.1	17385	986.2	17492.5	986.6	17525.7	986
17544.8	987	17555.9	984.9	17607.1	987.6	17733.4	988	17760.1	988.2
17907	986.4	17945.4	985.9	18071.1	985.8	18171.7	984.9	18250.5	986.1
18300.1	984.4	18402.9	984.9	18466.2	984.6	18493.6	983.5	18498.9	981.8
18563.6	983.3	18578.3	983	18591.3	980.7	18665.2	981.8	18677.5	983.2
18687.3	985.4	18775.1	988.2	18821.3	988.9	18834.2	979.9	18973.9	980.4
19090.8	980.1	19180.1	979.7	19288	980.1	19386.4	980.8	19428.1	982.7
19471.3	983.1	19479.7	979.4	19500.4	973.3	19642.8	973.3	19760.9	972.7
19781	972.7	19928.9	973.4	20022	973.4	20085.3	975.2	20097.7	972.6
20188.3	973	20275.9	973.4	20374.8	973.9	20426.1	974.2	20456.1	987.8
20482.9	988.5	20507	986.5	20620.9	986.8	20726.9	987	20849.8	987.1
20944.2	987.1	21033.3	987.2	21060.5	987.3	21176.6	986.9	21261.7	986.8

21362.3	986.7	21489.6	987	21584.7	987.7	21599.3	987.7	21697.6	987.5		
21835.5	987.5	21887.1	988.6	21890.1	987.2	21897.8	989.2	21930.6	990.8		
21963.1	990.8										

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
14501.4	.025	18498.9	.037	19471.3	.037	20482.9	.025

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

19471.3	20482.9	395	449	545	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
14501.4	18570	990.8	F
20482.9	21963.1	990.8	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	989.64	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.05	Wt. n-Val.	0.037	0.037	
W.S. Elev (ft)	988.59	Reach Len. (ft)	395.00	449.00	545.00
Crit W.S. (ft)	983.53	Flow Area (sq ft)	6207.90	14692.94	
E.G. Slope (ft/ft)	0.001360	Area (sq ft)	12682.15	14692.94	2059.67
Q Total (cfs)	164000.00	Flow (cfs)	34891.40	129108.60	
Top Width (ft)	7282.60	Top Width (ft)	4858.98	1011.60	1412.02
Vel Total (ft/s)	7.85	Avg. Vel. (ft/s)	5.62	8.79	
Max Chl Dpth (ft)	15.99	Hydr. Depth (ft)	7.05	14.52	
Conv. Total (cfs)	4447568.0	Conv. (cfs)	946230.9	3501337.0	
Length Wtd. (ft)	441.21	Wetted Per. (ft)	883.70	1016.51	
Min Ch El (ft)	972.60	Shear (lb/sq ft)	0.60	1.23	
Alpha	1.10	Stream Power (lb/ft s)	3.35	10.78	
Frctn Loss (ft)	0.69	Cum Volume (acre-ft)	4527.64	15329.38	999.40
C & E Loss (ft)	0.02	Cum SA (acres)	1301.06	1731.02	537.08

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	989.78	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.16	Wt. n-Val.	0.037	0.037	
W.S. Elev (ft)	988.62	Reach Len. (ft)	395.00	449.00	545.00
Crit W.S. (ft)	983.47	Flow Area (sq ft)	4821.31	14720.97	
E.G. Slope (ft/ft)	0.001462	Area (sq ft)	4821.31	14720.97	
Q Total (cfs)	164000.00	Flow (cfs)	29704.86	134295.10	
Top Width (ft)	1602.90	Top Width (ft)	591.30	1011.60	
Vel Total (ft/s)	8.39	Avg. Vel. (ft/s)	6.16	9.12	
Max Chl Dpth (ft)	16.02	Hydr. Depth (ft)	8.15	14.55	
Conv. Total (cfs)	4289077.0	Conv. (cfs)	776868.4	3512208.0	
Length Wtd. (ft)	442.77	Wetted Per. (ft)	599.90	1016.63	
Min Ch El (ft)	972.60	Shear (lb/sq ft)	0.73	1.32	
Alpha	1.07	Stream Power (lb/ft s)	4.52	12.06	
Frctn Loss (ft)	0.74	Cum Volume (acre-ft)	354.76	15873.64	30.85
C & E Loss (ft)	0.02	Cum SA (acres)	60.41	1733.12	5.87

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 204.53

INPUT
Description: 204.53
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17504.9	987.8	17516.3	987.9	17522.8	987.1	17597	987.9	17615.7	987.3
17634.6	987.5	17637.7	988.1	17645.9	986.3	17657.9	988	17704.2	989.7
17740.1	1006.3	17784.7	1004.7	17850.8	1006.5	17875.5	988.5	17970.4	986.9
18011.9	987.2	18027.9	986.1	18091.1	986.1	18155.5	985.2	18204.4	984.7
18283.5	984.5	18320.2	984.4	18443	984.3	18501.9	983.9	18579.8	983.6
18647	982.6	18678.7	980.4	18706.4	982.9	18747	982.6	18757	983.3
18815.9	983.6	18827.1	980.6	18916.2	981.2	18927.3	982	19007.2	982.5
19073.9	982.8	19175.3	983.2	19185.4	983.5	19240.3	981	19276	975.9
19293	975	19359.2	979.5	19386	976	19409.2	976.4	19468.7	973.1
19520.6	973	19547.6	973.9	19571.2	975.5	19585.1	972.9	19610.7	972.7
19729.3	972.9	19787.3	973	19805.5	973.5	19860.6	976.1	19930.7	975.8
19979.8	973.4	19994.9	973.6	20150.7	974	20174.8	974	20434.3	974.4
20443.5	974.5	20465.7	985.2	20495.9	987.1	20550.8	986.4	20566	984.8
20629.6	984.7	20701.1	984.8	20780.4	985	20872.2	985	20943	985.1
21022.1	985.1	21052.3	985	21118.4	984.9	21183.9	984.8	21260.2	985
21337.7	986.1	21351.7	986.3	21381.4	984.7	21472.3	984.9	21564.8	985.3
21626.7	986.2	21653.6	986.5	21678.1	985.5	21716.4	985.3	21781	984.7
21817.6	987.6	21875.1	987.3	21880.1	988.5	21884.2	988.1	21885	988.9
21887.9	987.2	21894.1	988.4	21914.7	989.1	21935.1	988.6	21999.2	989.8
22011	990.1								

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
17504.9	.025	18647	.037	19185.4	.037	20495.9	.037	20566	.025

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

19185.4	20495.9	570	552	525	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17504.9	18730	1000	F
20495.9	22011	1000	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	988.93	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.25	Wt. n-Val.	0.037	0.037	
W.S. Elev (ft)	987.68	Reach Len. (ft)	570.00	552.00	525.00
Crit W.S. (ft)	982.99	Flow Area (sq ft)	2401.60	16442.59	
E.G. Slope (ft/ft)	0.001814	Area (sq ft)	4931.95	16442.59	3265.12
Q Total (cfs)	164000.00	Flow (cfs)	12437.51	151562.50	
Top Width (ft)	4061.16	Top Width (ft)	1366.62	1310.50	1384.04
Vel Total (ft/s)	8.70	Avg. Vel. (ft/s)	5.18	9.22	
Max Chl Dpth (ft)	14.98	Hydr. Depth (ft)	5.27	12.55	
Conv. Total (cfs)	3850514.0	Conv. (cfs)	292017.1	3558497.0	
Length Wtd. (ft)	552.82	Wetted Per. (ft)	455.86	1314.36	
Min Ch El (ft)	972.70	Shear (lb/sq ft)	0.60	1.42	
Alpha	1.06	Stream Power (lb/ft s)	3.09	13.06	
Frctn Loss (ft)	1.15	Cum Volume (acre-ft)	4447.78	15168.91	966.09
C & E Loss (ft)	0.01	Cum SA (acres)	1272.84	1719.05	519.59

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	989.03	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.35	Wt. n-Val.	0.037	0.037	
W.S. Elev (ft)	987.68	Reach Len. (ft)	570.00	552.00	525.00
Crit W.S. (ft)	982.94	Flow Area (sq ft)	1560.11	16445.87	
E.G. Slope (ft/ft)	0.001919	Area (sq ft)	1560.11	16445.87	
Q Total (cfs)	164000.00	Flow (cfs)	8110.36	155889.60	
Top Width (ft)	1610.90	Top Width (ft)	300.40	1310.50	
Vel Total (ft/s)	9.11	Avg. Vel. (ft/s)	5.20	9.48	
Max Chl Dpth (ft)	14.98	Hydr. Depth (ft)	5.19	12.55	
Conv. Total (cfs)	3743779.0	Conv. (cfs)	185142.7	3558637.0	
Length Wtd. (ft)	552.45	Wetted Per. (ft)	307.13	1314.94	
Min Ch El (ft)	972.70	Shear (lb/sq ft)	0.61	1.50	
Alpha	1.05	Stream Power (lb/ft s)	3.16	14.20	
Frctn Loss (ft)	1.21	Cum Volume (acre-ft)	325.82	15713.02	30.85
C & E Loss (ft)	0.01	Cum SA (acres)	56.36	1721.15	5.87

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 204.42

INPUT
Description: 204.42

Right Channel Bank Station Interpolated
Station Elevation Data num= 90

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17576	985.4	17608.5	985.2	17708	984.7	17783.2	985.9	17832.4	987.2
17853.5	986.1	17871.5	986.6	17926.9	986	17956.8	985.7	18023.8	985.6
18149.3	988.2	18169.7	988.1	18191.3	988.5	18226.7	987.2	18239	992.9
18240.3	993.2	18241.4	992.8	18249.3	987	18255.2	986.8	18279.8	990.2
18308.3	987.7	18322.1	985.5	18347.4	985.3	18488.4	983.7	18517.8	983
18560.8	983.8	18635.1	982.4	18650.1	983	18667.7	983	18723.8	982.5
18733.2	982.4	18795.2	981.7	18839.1	981.2	18874.1	983.2	18899.1	981.9
18955.6	982.5	18998.6	983.3	19025.4	984.6	19040.4	981.3	19045	980.6
19052.9	980.4	19095.4	981.9	19166.1	982.1	19255.9	982	19280.2	982
19341.8	981.8	19381.9	981.6	19437	981.1	19475.3	981	19500.2	980.6
19543.1	978.9	19552.9	979.1	19561.9	978.3	19576.9	979.5	19599.7	980.5
19616.5	980.7	19649.2	979.5	19653	978.6	19672.9	972.5	19732	972.5
19781.3	972.6	19794.7	975.8	19805.4	972.9	19824.4	972.6	19905.9	971.4
19930	972.8	19954.4	972.4	19966.8	973.5	19992	972.4	20006.4	972.1
20057.7	972.3	20101.5	973	20150.5	972	20162.2	972.1	20303.9	972.1
20322.7	972.1	20397.5	972.3	20434.6	971.9	20454.2	972.5	20468.3	973.3
20548.4	973.9	20577.1	973.9	20609.6	973.2	20616.9	972.5	20646	972.8
20682.09	987.6656	20689.7	990.8	20701.7	992.2	20714.4	988.5	20967	988.5

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
17576	.025	18839.1	.037	19025.4	.037	20689.7	.037	20701.7	.025

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19025.4 20682.09 430 453 500 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17576	18874.1	993.2	F
20689.7	20967	993.2	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	987.76	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.36	Wt. n-Val.	0.037	0.037	
W.S. Elev (ft)	986.40	Reach Len. (ft)	430.00	453.00	500.00
Crit W.S. (ft)	982.76	Flow Area (sq ft)	550.34	17165.11	
E.G. Slope (ft/ft)	0.002432	Area (sq ft)	2664.73	17165.11	
Q Total (cfs)	164000.00	Flow (cfs)	2577.06	161422.90	
Top Width (ft)	2778.70	Top Width (ft)	1125.08	1653.63	
Vel Total (ft/s)	9.26	Avg. Vel. (ft/s)	4.68	9.40	
Max Chl Dpth (ft)	15.00	Hydr. Depth (ft)	3.64	10.38	
Conv. Total (cfs)	3325542.0	Conv. (cfs)	52256.9	3273285.0	
Length Wtd. (ft)	452.82	Wetted Per. (ft)	151.38	1658.94	

								Pre-Project			
* Min Ch El (ft)	*	971.40	* Shear (lb/sq ft)	*	0.55	*	1.57	*			
* Alpha	*	1.02	* Stream Power (lb/ft s)	*	2.58	*	14.77	*			
* Frctn Loss (ft)	*	1.11	* Cum Volume (acre-ft)	*	4398.08	*	14955.97	*	946.41	*	
* C & E Loss (ft)	*	0.00	* Cum SA (acres)	*	1256.53	*	1700.27	*	511.25	*	

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	*	987.81	* Element	*	Left OB	*	Channel	*	Right OB	*	
* Vel Head (ft)	*	1.42	* Wt. n-Val.	*		*	0.037	*		*	
* W.S. Elev (ft)	*	986.38	* Reach Len. (ft)	*	430.00	*	453.00	*	500.00	*	
* Crit W.S. (ft)	*	982.73	* Flow Area (sq ft)	*		*	17129.48	*		*	
* E.G. Slope (ft/ft)	*	0.002531	* Area (sq ft)	*		*	17129.48	*		*	
* Q Total (cfs)	*	164000.00	* Flow (cfs)	*		*	164000.00	*		*	
* Top Width (ft)	*	1653.57	* Top Width (ft)	*		*	1653.57	*		*	
* Vel Total (ft/s)	*	9.57	* Avg. Vel. (ft/s)	*		*	9.57	*		*	
* Max Chl Dpth (ft)	*	14.98	* Hydr. Depth (ft)	*		*	10.36	*		*	
* Conv. Total (cfs)	*	3259710.0	* Conv. (cfs)	*		*	3259710.0	*		*	
* Length Wtd. (ft)	*	453.00	* Wetted Per. (ft)	*		*	1660.67	*		*	
* Min Ch El (ft)	*	971.40	* Shear (lb/sq ft)	*		*	1.63	*		*	
* Alpha	*	1.00	* Stream Power (lb/ft s)	*		*	15.61	*		*	
* Frctn Loss (ft)	*	1.13	* Cum Volume (acre-ft)	*	315.62	*	15500.28	*	30.85	*	
* C & E Loss (ft)	*	0.02	* Cum SA (acres)	*	54.40	*	1702.37	*	5.87	*	

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 204.34

INPUT
Description: 204.34

Left and Right Channel Bank Stations Interpolated
Station Elevation Data num= 74

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18066.2	985.2	18081.3	985	18158.1	983.7	18200	983.2	18226	984
18228.2	983.4	18283.2	983.4	18339.1	987.8	18395.4	986.8	18498.7	986.6
18514.4	986.2	18516	986.7	18586.8	985.6	18638.2	981.3	18678.3	981
18721.9	979.9	18774.5	984.6	18806.4	982.8	18806.6	981.1	18864.9	982.2
18888.3	975.4	18906.9	980.7	18919.1	979.8	18932.5	981.8	18936.3	983.3
18988.6	982.9	19004.9	982.1	19086.4	981.7	19100	981.6	723 19184.5	981.5
19245.5	981	19310.8	980.7	19329.3	980.7	19389.4	980.3	19453.4	979.8
19487.9	979.5	19552	979.2	19615.6	978.7	19689.1	978.5	19736.5	978.7
19757.1	988.9	19782.1	971.2	19783.9	970.6	19819.5	969.3	19835.1	971.8
19891	971	19954.9	970.8	20009.4	971.2	20054.1	972.9	20100.5	973.1
20107.5	972.7	20175.2	972.5	20253	971.7	20324.6	971.9	20395.6	971.7
20465.2	971.4	20539.7	971.3	20603.2	971.5	20661.9	971.9	20671.8	972
20743.2	970.2	20773.2	970	20795.3	976.9	20816.2	3986.0	935 20827.4	991
20878.6	990.5	20887.2	987	22239.1	987.1	22248.4	987.2	22254.3	988.2
22259.5	985.8	22266.1	987.7	22287.1	988.3	22317.8	988		

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
18066.2	.025	18774.5	.037	20827.4	.037	20878.6	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
19100	20816.23	495	488	480 .1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
18066.2	19100	991	F
20827.4	22317.8	991	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	*	986.65	* Element	*	Left OB	*	Channel	*	Right OB	*	
* Vel Head (ft)	*	1.37	* Wt. n-Val.	*		*	0.037	*		*	
* W.S. Elev (ft)	*	985.28	* Reach Len. (ft)	*	495.00	*	488.00	*	480.00	*	
* Crit W.S. (ft)	*	981.45	* Flow Area (sq ft)	*		*	17462.96	*		*	
* E.G. Slope (ft/ft)	*	0.002470	* Area (sq ft)	*	2117.99	*	17462.96	*		*	
* Q Total (cfs)	*	164000.00	* Flow (cfs)	*		*	164000.00	*		*	
* Top Width (ft)	*	2452.20	* Top Width (ft)	*	750.25	*	1701.95	*		*	
* Vel Total (ft/s)	*	9.39	* Avg. Vel. (ft/s)	*		*	9.39	*		*	
* Max Chl Dpth (ft)	*	15.98	* Hydr. Depth (ft)	*		*	10.26	*		*	
* Conv. Total (cfs)	*	3299565.0	* Conv. (cfs)	*		*	3299565.0	*		*	
* Length Wtd. (ft)	*	488.00	* Wetted Per. (ft)	*		*	1711.20	*		*	
* Min Ch El (ft)	*	969.30	* Shear (lb/sq ft)	*		*	1.57	*		*	
* Alpha	*	1.00	* Stream Power (lb/ft s)	*		*	14.78	*		*	
* Frctn Loss (ft)	*	1.97	* Cum Volume (acre-ft)	*	4374.47	*	14775.92	*	946.41	*	
* C & E Loss (ft)	*	0.22	* Cum SA (acres)	*	1247.28	*	1682.83	*	511.25	*	

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid,

water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	986.66	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.37	Wt. n-Val.		0.037	
W.S. Elev (ft)	985.29	Reach Len. (ft)	495.00	488.00	480.00
Crit W.S. (ft)	981.45	Flow Area (sq ft)		17480.30	
E.G. Slope (ft/ft)	0.002469	Area (sq ft)		17480.30	
Q Total (cfs)	164000.00	Flow (cfs)		164000.00	
Top Width (ft)	1701.99	Top Width (ft)		1701.99	
Vel Total (ft/s)	9.38	Avg. Vel. (ft/s)		9.38	
Max Chl Dpth (ft)	15.99	Hydr. Depth (ft)		10.27	
Conv. Total (cfs)	3300310.0	Conv. (cfs)		3300310.0	
Length Wtd. (ft)	488.00	Wetted Per. (ft)		1714.87	
Min Ch El (ft)	969.30	Shear (lb/sq ft)		1.57	
Alpha	1.00	Stream Power (lb/ft s)		14.74	
Frctn Loss (ft)	1.97	Cum Volume (acre-ft)	315.62	15320.32	30.85
C & E Loss (ft)	0.22	Cum SA (acres)	54.40	1684.92	5.87

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 204.25

INPUT
Description: 204.25

Left and Right Channel Bank Stations Interpolated
Station Elevation Data num= 202

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
13993.51	986.914130.56	987.4114486.44	987.43 14755.8	987.0314937.72	987.04				
15050.6	988.115090.94	987.5715102.07	987.5715109.44	988.6415116.98	989.38				
15128.77	988.115132.01	987.97 15140	988.4715148.98	986.9315153.86	985.73				
15173.36	986.215690.75	986.1815878.25	985.1815889.67	986.2815904.51	988.05				
15907.38	988.115919.42	987.92 15924.1	987.4715931.02	985.8315970.22	986.25				
16049	986.116175.22	986.0216450.56	986.1616463.91	986.2916480.31	987.87				
16486.56	987.416495.93	987.116504.19	987.7916511.66	987.916518.49	987.78				
16535.99	985.816542.09	985.62 16555	985.5516564.89	984.2816584.86	984.26				
16687.99	984.816810.65	985.2916823.94	985.32 16873.9	984.7316893.09	984.53				
16922.74	984.6 16941.4	984.2616960.75	984.6616990.05	984.3317020.18	984.79				
17048.94	986.617091.64	985.2817177.92	98517208.14	985.117249.69	984.95				
17398.31	984.317414.87	984.49 17522.6	984.3917556.82	984.2117600.03	984.35				
17721.19	984.217812.48	984.25 17851.5	984.8117861.89	984.59 17867.1	984.93				
17880.92	98517892.56	984.3517898.26	983.9217932.23	986.4917944.09	986.98				
17988.7	986.718005.49	986.89 18050.6	987.5718083.28	987.6218106.23	986.76				
18158.97	986.818174.45	987.118185.88	987.1218240.34	986.9218277.05	986.27				
18300.85	986.118323.52	985.5518372.65	985.1418410.49	985.0818449.87	985.08				
18490.27	985.5 18520.4	985.1518569.61	985.8 18587.9	985.7618609.93	985.4				
18633.73	984.818652.28	984.25 18660.4	983.8518672.96	983.4118703.66	978.51				
18719.46	976.218724.94	975.718730.59	976.2818765.73	981.3818788.83	981.86				
18812.39	98218851.86	982.6718856.84	982.0218876.79	980.9318917.58	980.72				
18958.37	980.818990.64	980.15 19005.3	981.3 19038	982.5519054.34	981.71				
19061.47	981.919088.33	981.0319097.24	980.6119117.27	982.08 19126.5	981.33				
19134.63	980.819139.73	980.7919178.34	980.9919189.92	980.9119237.27	980.78				
19263.33	980.219297.08	979.95 19300	979.93619332.52	979.7819361.32	979.52				
19438.75	979.41 19458.3	979.519506.35	978.719519.13	978.8519527.66	978.72				
19542.19	978.7319623.64	978.619631.41	978.619649.23	978.6319696.73	978.82				
19703.53	975.7119717.53	970.2 19739	971.319747.27	974.51 19771.1	974.27				
20035.47	970.8820227.56	972.420273.64	972.3620297.51	972.19 20307.7	971.98				
20309.92	971.7420357.54	969.8 20436.7	969.4420448.29	969.4520499.51	969.22				
20526.05	969.29 20588.3	969.720612.99	970.1420643.57	971.0820655.61	971.37				
20680.85	971.2420705.02	971.520710.67	971.3720740.01	974.1420776.89	977.31				
20818.53	981.025320830.46	982.09 20922.2	989.620964.06	989.9520995.89	990.41				
21004.86	987.3921018.73	981.0821052.72	981.121087.73	980.7921108.33	980.92				
21157.66	981.421178.54	981.5221210.73	981.221262.99	982.6321279.42	982.45				
21290.06	979.4521361.92	980.42 21408.6	981.221446.51	981.421456.08	981.58				
21481.84	981.6121499.03	981.7121649.19	981.921681.55	982.0721787.28	982.66				
21862.63	982.921876.61	982.9521939.71	983.421983.01	983.3822043.39	983.78				
22083.67	984.1722130.05	984.4322172.04	984.422225.83	984.5822265.02	984.87				
22339.34	986.3522389.33	985.4622416.26	985.922438.79	986.0322474.98	986.32				
22486.29	987.5222500.35	987.24							

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
13993.51	.03518812.39	.03221290.06	.025		

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
1930020818.53 510 508 500 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
13993.51	19300	990	F
20922.22	2500.35	990	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	984.46	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.56	Wt. n-Val.		0.032	
W.S. Elev (ft)	980.90	Reach Len. (ft)	510.00	508.00	500.00
Crit W.S. (ft)	980.90	Flow Area (sq ft)		10836.44	
E.G. Slope (ft/ft)	0.007742	Area (sq ft)	277.23	10836.44	82.25
Q Total (cfs)	164000.00	Flow (cfs)		164000.00	

Pre-Project

* Top Width (ft)	* 1993.93	* Top Width (ft)	* 339.61	* 1517.18	* 137.15	*		
* Vel Total (ft/s)	* 15.13	* Avg. Vel. (ft/s)	*	* 15.13	*	*		
* Max Chl Dpth (ft)	* 11.68	* Hydr. Depth (ft)	*	* 7.14	*	*		
* Conv. Total (cfs)	*1863855.0	* Conv. (cfs)	*	*1863855.0	*	*		
* Length Wtd. (ft)	* 508.00	* Wetted Per. (ft)	*	* 1520.08	*	*		
* Min Ch El (ft)	* 969.22	* Shear (lb/sq ft)	*	* 3.45	*	*		
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 52.15	*	*		
* Frctn Loss (ft)	* 1.15	* Cum Volume (acre-ft)	* 4360.86	*14617.40	* 945.96	*		
* C & E Loss (ft)	* 0.79	* Cum SA (acres)	* 1241.09	* 1664.79	* 510.50	*		

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 984.46	* Element	* Left OB	* Channel	* Right OB	*		
* Vel Head (ft)	* 3.57	* Wt. n-Val.	*	* 0.032	*	*		
* W.S. Elev (ft)	* 980.89	* Reach Len. (ft)	* 510.00	* 508.00	* 500.00	*		
* Crit W.S. (ft)	* 980.89	* Flow Area (sq ft)	*	*10810.89	*	*		
* E.G. Slope (ft/ft)	*0.007809	* Area (sq ft)	*	*10810.89	*	*		
* Q Total (cfs)	*164000.00	* Flow (cfs)	*	*164000.00	*	*		
* Top Width (ft)	* 1516.99	* Top Width (ft)	*	* 1516.99	*	*		
* Vel Total (ft/s)	* 15.17	* Avg. Vel. (ft/s)	*	* 15.17	*	*		
* Max Chl Dpth (ft)	* 11.67	* Hydr. Depth (ft)	*	* 7.13	*	*		
* Conv. Total (cfs)	*1855915.0	* Conv. (cfs)	*	*1855915.0	*	*		
* Length Wtd. (ft)	* 508.00	* Wetted Per. (ft)	*	* 1520.84	*	*		
* Min Ch El (ft)	* 969.22	* Shear (lb/sq ft)	*	* 3.47	*	*		
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 52.57	*	*		
* Frctn Loss (ft)	* 1.15	* Cum Volume (acre-ft)	* 315.62	*15161.85	* 30.85	*		
* C & E Loss (ft)	* 0.80	* Cum SA (acres)	* 54.40	* 1666.89	* 5.87	*		

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 204.15

INPUT
Description: 204.15

Left and Right Channel Bank Stations Interpolated
Station Elevation Data num= 80

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16507.2	984.4	16600	985	16650.2	986.1	16657.8	983.8	16666.8	986
16708.7	983.2	16800.2	983.6	16895.3	983.8	16963.7	983.3	17111.7	982.5
17141.8	982.4	17289.1	982.7	17397	983.7	17427.8	983.8	17571.9	983.4
17609.8	983.3	17719.7	983.5	17833.6	983	17949.9	982.8	18031.8	984.3
18081.2	983.6	18087	981.9	18093.6	985.1	18094.5	983.7	18130.3	986
18214.6	985.6	18280.4	986.6	18357.2	984.7	18446.1	985.5	18578.2	984.4
18725.8	984.7	18824.1	985.3	18862.3	983.1	18888.3	980.6	18907	981.1
18955.1	980	19045.1	979.6	19065.5	979.9	19074.1	976.8	19104	969
19192.6	971.7	19200	971.7	19310.3	971.7	19331.3	970.9	19446.3	971.9
19486.8	971.6	19501.3	966.1	19595	966	19644.2	966.2	19661	973.6
19681	970.2	19769.8	971.6	19860.6	972.7	19968.4	974.8	20027.5	972.3
20066.1	967.9	20074.7	967.9	20209.5	968	20337.2	968.2	20441.7	967.7
20540.9	966.7	20554.5	966.5	20580.4	968.8	20679.7	967.8	20753.2	967.1
20790.2	968.9	20795.8	969.9	20814.5	969.5	20911.6	969.2	20940	967.1
20986.5	968.3	21033.3	8981.5	872	21042.6	984.2	21131.4	985.3	21379.2	985.3
22652.4	985.2	22684.9	986.3	22693	983.9	22700.1	985.5	22708.9	985.4

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16507.2	.035	18824.1	.032	21131.4	.025	21379.2	.025

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19200 21033.38 510 509 510 .1 .3
Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
16507.2	19200	986.6	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 982.09	* Element	* Left OB	* Channel	* Right OB	*		
* Vel Head (ft)	* 0.93	* Wt. n-Val.	*	* 0.032	*	*		
* W.S. Elev (ft)	* 981.17	* Reach Len. (ft)	* 510.00	* 509.00	* 510.00	*		
* Crit W.S. (ft)	* 975.82	* Flow Area (sq ft)	*	*21240.76	*	*		

Pre-Project

E.G. Slope (ft/ft)	0.001058	Area (sq ft)	1488.78	21240.76			
Q Total (cfs)	164000.00	Flow (cfs)		164000.00			
Top Width (ft)	2149.48	Top Width (ft)	317.59	1831.90			
Vel Total (ft/s)	7.72	Avg. Vel. (ft/s)		7.72			
Max Chl Dpth (ft)	15.17	Hydr. Depth (ft)		11.59			
Conv. Total (cfs)	5042939.0	Conv. (cfs)		5042939.0			
Length Wtd. (ft)	509.00	Wetted Per. (ft)		1837.25			
Min Ch El (ft)	966.00	Shear (lb/sq ft)		0.76			
Alpha	1.00	Stream Power (lb/ft s)		5.89			
Frctn Loss (ft)	0.68	Cum Volume (acre-ft)	4350.52	14430.35	945.48		
C & E Loss (ft)	0.02	Cum SA (acres)	1237.24	1645.27	509.71		

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

			Left OB	Channel	Right OB
E.G. Elev (ft)	982.11	Element			
Vel Head (ft)	0.92	Wt. n-Val.		0.032	
W.S. Elev (ft)	981.18	Reach Len. (ft)	510.00	509.00	510.00
Crit W.S. (ft)	975.82	Flow Area (sq ft)		21274.63	
E.G. Slope (ft/ft)	0.001059	Area (sq ft)		21274.63	
Q Total (cfs)	164000.00	Flow (cfs)		164000.00	
Top Width (ft)	1831.89	Top Width (ft)		1831.89	
Vel Total (ft/s)	7.71	Avg. Vel. (ft/s)		7.71	
Max Chl Dpth (ft)	15.18	Hydr. Depth (ft)		11.61	
Conv. Total (cfs)	5038994.0	Conv. (cfs)		5038994.0	
Length Wtd. (ft)	509.00	Wetted Per. (ft)		1846.75	
Min Ch El (ft)	966.00	Shear (lb/sq ft)		0.76	
Alpha	1.00	Stream Power (lb/ft s)		5.87	
Frctn Loss (ft)	0.68	Cum Volume (acre-ft)	315.62	14974.75	30.85
C & E Loss (ft)	0.02	Cum SA (acres)	54.40	1647.37	5.87

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 204.05

INPUT
Description: 204.05

Left and Right Channel Bank Stations Interpolated
Station Elevation Data num= 73

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18304.1	982.1	18322.9	981.3	18412.7	981.2	18490.1	981.1	18499.9	981.4
18523	980.8	18527.4	981.7	18530.5	980.8	18552.5	980.6	18585.3	987.2
18649.8	986.5	18710.4	987.1	18782.2	985.8	18858.9	986.9	18882.3	985.9
18903.8	986.2	18952	984.5	18962.59	980.697	18970.1	978	18992.5	968.5
19020.9	971.4	19097.5	973.6	19099.9	973.6	19168.9	971.6	19234.1	970.7
19315.1	973.1	19401.3	974.1	19432.4	974.2	19453	972.9	19510.9	971.5
19570.9	965.6	19644.7	967.7	19662	968.9	19741.3	971.7	19784.3	975.1
19860.9	975.2	19946.2	976.1	20026.3	975.5	20061.6	973.5	20142.4	974.9
20200.7	974.3	20222.7	972.5	20272.6	972.8	20286.9	973.4	20327.7	971.7
20354.5	969.2	20434.3	970.9	20491.6	971.4	20536	969.7	20605	969.1
20618.5	968.7	20679.5	965	20701.3	965.4	20715.6	967	20746.4	966
20828.1	965.9	20914.2	966.5	20930	968.1	20994	968.4	21024.5	966.7
21045.1	967	21067.8	975.8	21081.76	980.6	981	21090.6	983.8	21160.1	983.8
22668.7	984.2	22676.7	984.2	22773.1	984.3	22829	984.6	22836.3	985.6
22843	983.5	22852.2	986	22860.7	985.9				

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
18304.1	.05	18552.5	.035	18858.9	.032	21090.6	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
18962.59	21081.76	510	505	520	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
18304.1	18750	987.2	F

CROSS SECTION OUTPUT Profile #PF#1

			Left OB	Channel	Right OB
E.G. Elev (ft)	981.39	Element			
Vel Head (ft)	1.12	Wt. n-Val.		0.032	
W.S. Elev (ft)	980.27	Reach Len. (ft)	510.00	505.00	520.00
Crit W.S. (ft)	976.80	Flow Area (sq ft)		19320.37	
E.G. Slope (ft/ft)	0.001759	Area (sq ft)		19320.37	
Q Total (cfs)	164000.00	Flow (cfs)		164000.00	
Top Width (ft)	2116.76	Top Width (ft)		2116.76	
Vel Total (ft/s)	8.49	Avg. Vel. (ft/s)		8.49	
Max Chl Dpth (ft)	15.27	Hydr. Depth (ft)		9.13	
Conv. Total (cfs)	3910438.0	Conv. (cfs)		3910438.0	
Length Wtd. (ft)	505.00	Wetted Per. (ft)		2123.09	
Min Ch El (ft)	965.00	Shear (lb/sq ft)		1.00	
Alpha	1.00	Stream Power (lb/ft s)		8.48	
Frctn Loss (ft)	1.42	Cum Volume (acre-ft)	4341.81	14193.37	945.48
C & E Loss (ft)	0.10	Cum SA (acres)	1235.38	1622.20	509.71

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 981.41	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 1.11	* Wt. n-Val.	*	* 0.032	* *
* W.S. Elev (ft)	* 980.29	* Reach Len. (ft)	* 510.00	* 505.00	* 520.00 *
* Crit W.S. (ft)	* 976.80	* Flow Area (sq ft)	*	*19370.37	* *
* E.G. Slope (ft/ft)	*0.001744	* Area (sq ft)	*	*19370.37	* *
* Q Total (cfs)	*164000.00	* Flow (cfs)	*	*164000.00	* *
* Top Width (ft)	* 2116.76	* Top Width (ft)	*	* 2116.76	* *
* Vel Total (ft/s)	* 8.47	* Avg. Vel. (ft/s)	*	* 8.47	* *
* Max Chl Dpth (ft)	* 15.29	* Hydr. Depth (ft)	*	* 9.15	* *
* Conv. Total (cfs)	*3927263.0	* Conv. (cfs)	*	*3927263.0	* *
* Length Wtd. (ft)	* 505.00	* Wetted Per. (ft)	*	* 2123.13	* *
* Min Ch El (ft)	* 965.00	* Shear (lb/sq ft)	*	* 0.99	* *
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 8.41	* *
* Frctn Loss (ft)	* 1.35	* Cum Volume (acre-ft)	* 315.62	*14737.29	* 30.85 *
* C & E Loss (ft)	* 0.09	* Cum SA (acres)	* 54.40	* 1624.30	* 5.87 *

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 203.96

INPUT
Description: 203.96

Right Channel Bank Staion Interpolated
Station Elevation Data num= 91

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16511.6	983.5	16713.4	983.8	16774.3	983.9	16908.7	984.4	16963.5	986.3
16968.1	982.5	16973.8	984.3	17039.3	980.6	17126.9	980	17138.9	980
17175.8	974.9	17222.8	980.2	17277.4	983.2	17284.8	982.3	17330	982.5
17366.5	984.4	17465.6	982.2	17576.8	981.2	17680.4	980.6	17774.7	979.6
17869.9	981.4	17958.4	981.2	18010.3	980.8	18015.8	982.2	18024.6	982.8
18047.1	980.2	18070.6	981.5	18128.1	982.9	18242.5	983.3	18284.4	984.3
18384	982.4	18469.6	983.6	18481.1	980.9	18496.2	979.1	18583.4	978
18607.3	975.5	18626.7	976.9	18657.9	976	18690	978.1	18723.2	976.2
18730.8	978.5	18760	974.5	18783.2	969.3	18801.2	968.9	18811.7	967.4
18891.8	971.9	18902.5	971.8	18997.2	971.4	19057.4	972	19069.5	973.6
19145.7	973.5	19201.5	971.8	19284.9	973.5	19375	977.1	19427.1	976
19471.7	976.7	19531.2	976.1	19556.4	976.8	19606.4	965.6	19696.9	968.3
19784.2	968.9	19847.3	971.5	19965.6	970.7	19998.5	972.3	20089.8	973.2
20179.8	972.3	20254.9	970.6	20367	970.8	20411.5	970.7	20421.4	969.4
20435.9	965.4	20451.7	964.7	20529.6	965	20554.9	967	20642.7	965.7
20735.2	964.2	20738.9	964.1	20767.7	971.220790.38978.7393			20803.5	983.1
20835.5	994.9	20850.3	995.2	20872.5	997.5	20910.1	984.2	20997.3	981.9
21108.2	981.9	21539.6	982	21552	986.1	21559.4	984.2	21657.7	986.4
21694	988.5								

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16511.6	.025	17175.8	.043	18469.6	.043	18902.5	.032	20835.5	.037

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
18730.8	20790.38	495	502	505 .1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
16511.6	18730.8	997.5	F
20835.5	21694	997.5	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 979.86	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 2.15	* Wt. n-Val.	*	* 0.033	* *
* W.S. Elev (ft)	* 977.71	* Reach Len. (ft)	* 495.00	* 502.00	* 505.00 *
* Crit W.S. (ft)	* 976.71	* Flow Area (sq ft)	*	*13938.65	* *
* E.G. Slope (ft/ft)	*0.005220	* Area (sq ft)	* 202.34	*13938.65	* *
* Q Total (cfs)	*164000.00	* Flow (cfs)	*	*164000.00	* *
* Top Width (ft)	* 2225.53	* Top Width (ft)	* 174.77	* 2050.76	* *
* Vel Total (ft/s)	* 11.77	* Avg. Vel. (ft/s)	*	* 11.77	* *
* Max Chl Dpth (ft)	* 13.61	* Hydr. Depth (ft)	*	* 6.80	* *
* Conv. Total (cfs)	*2269861.0	* Conv. (cfs)	*	*2269861.0	* *
* Length Wtd. (ft)	* 502.00	* Wetted Per. (ft)	*	* 2056.12	* *
* Min Ch El (ft)	* 964.10	* Shear (lb/sq ft)	*	* 2.21	* *
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 25.99	* *
* Frctn Loss (ft)	* 0.90	* Cum Volume (acre-ft)	* 4340.62	*14000.58	* 945.48 *
* C & E Loss (ft)	* 0.43	* Cum SA (acres)	* 1234.36	* 1598.04	* 509.71 *

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 979.97	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 1.99	* Wt. n-Val.	*	* 0.033	* *

						Pre-Project					
* W.S. Elev (ft)	* 977.98	* Reach Len. (ft)	*	495.00	* 502.00	* 505.00	*				
* Crit W.S. (ft)	* 976.71	* Flow Area (sq ft)	*		*14478.25	*					
* E.G. Slope (ft/ft)	*0.004601	* Area (sq ft)	*		*14478.25	*					
* Q Total (cfs)	*164000.00	* Flow (cfs)	*		*164000.00	*					
* Top Width (ft)	* 2050.76	* Top Width (ft)	*		* 2050.76	*					
* Vel Total (ft/s)	* 11.33	* Avg. Vel. (ft/s)	*		* 11.33	*					
* Max Chl Dpth (ft)	* 13.88	* Hydr. Depth (ft)	*		* 7.06	*					
* Conv. Total (cfs)	*2417852.0	* Conv. (cfs)	*		*2417852.0	*					
* Length Wtd. (ft)	* 502.00	* Wetted Per. (ft)	*		* 2056.64	*					
* Min Ch El (ft)	* 964.10	* Shear (lb/sq ft)	*		* 2.02	*					
* Alpha	* 1.00	* Stream Power (lb/ft s)	*		* 22.90	*					
* Frctn Loss (ft)	* 0.83	* Cum Volume (acre-ft)	*	315.62	*14541.08	* 30.85	*				
* C & E Loss (ft)	* 0.39	* Cum SA (acres)	*	54.40	* 1600.14	* 5.87	*				

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 203.86

INPUT
Description: 203.86

Right Channel Bank Staion Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17504.9	979.4	17555	980.7	17589.4	982.1	17613.5	980.8	17620.6	979.8
17657.6	978.3	17694.3	979.8	17718.4	978.9	17729	980.8	17762.1	977.4
17780.7	978.7	17821.9	984.3	17861.6	984.2	17888.2	982.4	17897.5	983.2
17930.6	983.2	17969.6	984.1	17989.1	983.6	18013.3	984	18044.9	981.7
18064.4	979.2	18096.7	981.5	18136.8	979.8	18171.7	980	18207.5	982
18243.1	982.7	18290.8	981.3	18353.7	982	18421.5	981.7	18458.6	982.1
18488.1	978.2	18540.3	978.5	18564	971	18599.5	968.8	18660.4	971
18700.2	971.8	18760.2	970	18806.7	971.3	18853.4	969.4	18891.2	969
18974.3	973.5	19064.8	976.5	19077.3	975.8	19161.8	973.4	19223.1	970.5
19246.5	967.4	19268.5	965.8	19288.8	962.4	19365.2	962.6	19365.7	962.6
19450.7	962.8	19451.6	962.8	19539.2	963.1	19611.5	963	19690.6	962.4
19743.6	962.3	19811.2	962.7	19858.2	963.1	19928.9	963.6	19992.8	963.8
20013.5	963.8	20076.4	964	20099.2	964	20196.1	964.2	20254.4	964.2
20298.4	964.5	20318.1	968.2	20429.2	967.6	20486.9	967.6	20543.1	968.6
20555	966.5	20576	964.2	20634.3	964.2	20650.7	964.2	20663.3	965.7
20676.9	965.8	20697.7	967.2	20730.9	976.1	20735.9	978.6	323 20761.9	991.8
20803.3	981	20878.5	982.5	20946.4	982.5	20965.7	981.1	21031.2	980.5
21099.9	980.6	21167.6	980.7	21198.2	981	21258.8	981.1	21324.9	981
21359.8	980.5	21368.4	981	21395.8	980.4	21405.9	982.4	21411.7	980.4
21482.6	980.2	21488.8	980.2						

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
17504.9	.043	18243.1	.043	18891.2	.032	20761.9	.037

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
18488.1	20735.9	505	498	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17504.9	18243.1	991.8	F
20761.9	21488.8	991.8	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 978.53	* Element	*	Left OB	* Channel	* Right OB	*				
* Vel Head (ft)	* 0.72	* Wt. n-Val.	*		* 0.033	*					
* W.S. Elev (ft)	* 977.81	* Reach Len. (ft)	*	505.00	* 498.00	* 480.00	*				
* Crit W.S. (ft)	* 971.84	* Flow Area (sq ft)	*		*24032.73	*					
* E.G. Slope (ft/ft)	*0.000902	* Area (sq ft)	*	2.00	*24032.73	*					
* Q Total (cfs)	*164000.00	* Flow (cfs)	*		*164000.00	*					
* Top Width (ft)	* 2201.58	* Top Width (ft)	*	9.80	* 2191.78	*					
* Vel Total (ft/s)	* 6.82	* Avg. Vel. (ft/s)	*		* 6.82	*					
* Max Chl Dpth (ft)	* 15.51	* Hydr. Depth (ft)	*		* 10.96	*					
* Conv. Total (cfs)	*5460451.0	* Conv. (cfs)	*		*5460451.0	*					
* Length Wtd. (ft)	* 498.00	* Wetted Per. (ft)	*		* 2196.27	*					
* Min Ch El (ft)	* 962.30	* Shear (lb/sq ft)	*		* 0.62	*					
* Alpha	* 1.00	* Stream Power (lb/ft s)	*		* 4.21	*					
* Frctn Loss (ft)	* 0.44	* Cum Volume (acre-ft)	*	4339.46	*13781.79	* 945.48	*				
* C & E Loss (ft)	* 0.03	* Cum SA (acres)	*	1233.31	* 1573.59	* 509.71	*				

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 978.75	* Element	*	Left OB	* Channel	* Right OB	*				
* Vel Head (ft)	* 0.69	* Wt. n-Val.	*		* 0.033	*					
* W.S. Elev (ft)	* 978.06	* Reach Len. (ft)	*	505.00	* 498.00	* 480.00	*				
* Crit W.S. (ft)	* 971.84	* Flow Area (sq ft)	*		*24588.83	*					
* E.G. Slope (ft/ft)	*0.000838	* Area (sq ft)	*		*24588.83	*					
* Q Total (cfs)	*164000.00	* Flow (cfs)	*		*164000.00	*					
* Top Width (ft)	* 2191.78	* Top Width (ft)	*		* 2191.78	*					
* Vel Total (ft/s)	* 6.67	* Avg. Vel. (ft/s)	*		* 6.67	*					
* Max Chl Dpth (ft)	* 15.76	* Hydr. Depth (ft)	*		* 11.22	*					
* Conv. Total (cfs)	*5666380.0	* Conv. (cfs)	*		*5666380.0	*					
* Length Wtd. (ft)	* 498.00	* Wetted Per. (ft)	*		* 2196.77	*					

								Pre-Project			
* Min Ch El (ft)	*	962.30	* Shear (lb/sq ft)	*		*	0.59	*		*	
* Alpha	*	1.00	* Stream Power (lb/ft s)	*		*	3.90	*		*	
* Frctn Loss (ft)	*	0.41	* Cum Volume (acre-ft)	*	315.62	*	14315.97	*	30.85	*	
* C & E Loss (ft)	*	0.03	* Cum SA (acres)	*	54.40	*	1575.69	*	5.87	*	

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 203.77

INPUT
Description: 203.77

Left and Right Channel Bank Staions Interpolated
Station Elevation Data num= 98

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
15516.5	980.4	15611.3	979.8	15668.7	980.9	15700.1	979.6	15734.7	982.9
15797.9	987.2	15835	986	15865.2	981.2	15920	981.4	15937.6	976.9
15947.6	978.2	15969.6	982.9	15985.2	984.3	16056.9	984.3	16076.8	983.7
16103.9	981.6	16184.4	981.2	16265.9	982.1	16312.5	981.7	16348.3	982.1
16366.7	978.9	16400.4	980.3	16452.6	980.5	16569.1	980.4	16622.2	980.5
16857.6	980.3	17032.7	979.9	17052.5	979.9	17220.4	979.9	17326.1	979.2
17424.8	979	17450	979.3	17461.6	980.3	17495.9	980.1	17515.6	978.2
17558.9	979.2	17678.1	978.7	17709.3	979.1	17747.1	977.4	17826.8	982.9
17879.9	983.7	17902.1	982.1	17924.4	981.6	18003.9	982.8	18091.9	980.7
18117.2	979.8	18191	981.8	18222.6	1978.2	686	18227.7	977.7	18281.9	974.6
18343.8	974.4	18371.2	970.5	18451.7	968.1	18515.7	969.6	18591.7	968.7
18603.5	969.7	18721.8	967.3	18770.9	970.5	18803.6	971.5	18834.8	974.6
18888.2	976.1	18941.5	973.8	18956.3	972.3	18974.2	976.6	18983.5	976.3
19032.5	965.6	19113.9	965.1	19224	964.8	19282.2	964.6	19290.6	969.7
19307.6	974.2	19313.1	973.7	19322.8	969.5	19338.6	967.2	19345.7	964.7
19426.8	964.5	19492.9	964.4	19606.6	964.2	19685.9	964.3	19717.5	964.1
19865.4	964.1	19957	963.3	20019.3	964.3	20221.9	964.3	20253.9	964.3
20282.3	966.5	20325.8	965.1	20328.7	964.2	20338.6	965.4	20430	966.2
20524.9	966.2	20609.1	966.4	20684.8	966.7	20728.9	97120745.61978.2692		
20746.6	978.7	20820.8	981.2	20854	997.6				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
15516.5	.025	17495.9	.043	18191	.043	18803.6	.032	20820.8	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
18222.6	120745.61	490	498	480	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
15516.5	18191	997.6	F
20820.8	20854	997.6	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	*	978.06	* Element	*	Left OB	*	Channel	*	Right OB	*	
* Vel Head (ft)	*	0.63	* Wt. n-Val.	*		*	0.033	*		*	
* W.S. Elev (ft)	*	977.43	* Reach Len. (ft)	*	490.00	*	498.00	*	480.00	*	
* Crit W.S. (ft)	*	971.58	* Flow Area (sq ft)	*		*	25746.39	*		*	
* E.G. Slope (ft/ft)	*	0.000873	* Area (sq ft)	*	1.65	*	25746.39	*		*	
* Q Total (cfs)	*	164000.00	* Flow (cfs)	*		*	164000.00	*		*	
* Top Width (ft)	*	2518.56	* Top Width (ft)	*	7.28	*	2511.27	*		*	
* Vel Total (ft/s)	*	6.37	* Avg. Vel. (ft/s)	*		*	6.37	*		*	
* Max Chl Dpth (ft)	*	14.13	* Hydr. Depth (ft)	*		*	10.25	*		*	
* Conv. Total (cfs)	*	5549798.0	* Conv. (cfs)	*		*	5549798.0	*		*	
* Length Wtd. (ft)	*	497.87	* Wetted Per. (ft)	*		*	2519.23	*		*	
* Min Ch El (ft)	*	963.30	* Shear (lb/sq ft)	*		*	0.56	*		*	
* Alpha	*	1.00	* Stream Power (lb/ft s)	*		*	3.55	*		*	
* Frctn Loss (ft)	*	0.45	* Cum Volume (acre-ft)	*	4339.44	*	13497.24	*	945.48	*	
* C & E Loss (ft)	*	0.00	* Cum SA (acres)	*	1233.21	*	1546.71	*	509.71	*	

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	*	978.32	* Element	*	Left OB	*	Channel	*	Right OB	*	
* Vel Head (ft)	*	0.60	* Wt. n-Val.	*		*	0.033	*		*	
* W.S. Elev (ft)	*	977.72	* Reach Len. (ft)	*	490.00	*	498.00	*	480.00	*	
* Crit W.S. (ft)	*	971.58	* Flow Area (sq ft)	*		*	26473.99	*		*	
* E.G. Slope (ft/ft)	*	0.000799	* Area (sq ft)	*		*	26473.99	*		*	
* Q Total (cfs)	*	164000.00	* Flow (cfs)	*		*	164000.00	*		*	
* Top Width (ft)	*	2511.27	* Top Width (ft)	*		*	2511.27	*		*	
* Vel Total (ft/s)	*	6.19	* Avg. Vel. (ft/s)	*		*	6.19	*		*	
* Max Chl Dpth (ft)	*	14.42	* Hydr. Depth (ft)	*		*	10.54	*		*	
* Conv. Total (cfs)	*	5803637.0	* Conv. (cfs)	*		*	5803637.0	*		*	
* Length Wtd. (ft)	*	497.94	* Wetted Per. (ft)	*		*	2519.80	*		*	
* Min Ch El (ft)	*	963.30	* Shear (lb/sq ft)	*		*	0.52	*		*	
* Alpha	*	1.00	* Stream Power (lb/ft s)	*		*	3.24	*		*	
* Frctn Loss (ft)	*	0.42	* Cum Volume (acre-ft)	*	315.62	*	14024.08	*	30.85	*	
* C & E Loss (ft)	*	0.01	* Cum SA (acres)	*	54.40	*	1548.81	*	5.87	*	

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 203.67

INPUT
Description: 203.67

Right Channel Bank Staion Interpolated
Station Elevation Data num= 74

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
15401.1	982.5	15424.7	984.1	15508.1	982.3	15591.4	979.1	15681.8	979.9
15787.8	979.3	15920	979.3	16055.7	978.9	16157.5	979.1	16260.6	979.3
16282.2	979.2	16477	979.1	16627.1	979.9	16750.8	980.1	16865.7	979.3
16957.3	981.3	16980.5	980.6	17002.4	977.7	17014.1	979.2	17103.7	973.3
17179.5	973.2	17215.7	975.7	17267.4	969.7	17366.5	975.6	17541.8	974.3
17694.8	973.7	17837.2	974.1	17962.6	973.8	17982.5	973.7	18104.5	972.8
18289.3	972.9	18348.9	975.3	18350.2	973.2	18394.8	968.7	18516.9	971.1
18627.3	969.9	18690.1	970.4	18740.2	966.8	18787.4	966.3	18802.9	968.2
18941.9	973.8	19049	974.1	19155.9	972.4	19180.7	975.8	19211.3	962.3
19411.4	963.8	19519	963.9	19654.3	964.2	19798.6	964.3	19832.9	964.3
20036.1	964.3	20137.2	965.3	20302.2	963	20432.8	965.2	20537.5	965.2
20656.2	965.3	20661.5	965.6	20693.5	975.1	20699.3	977.8	20708.7	982.2
20796	983.8	20827.7	980.1	20837	982.9	20858.2	981.6	21858.6	983.5
21904.3	982.5	23520.4	980	23527.3	982.8	23545.1	983.5	23556.1	980.2
23584.2	981.5	23593	977.2	23603.5	980.1	23621	979.7		

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
15401.1	.025	16957.3	.037	18348.9	.037	18941.9	.032	20708.7	.032
20796	.025								

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
18348.9	20699.3	470	490	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
15401.1	17837.2	984.1	F
20708.7	23621	984.1	F

CROSS SECTION OUTPUT Profile #PF#1

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	977.61	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.67	Wt. n-Val.	0.037	0.033	
W.S. Elev (ft)	976.93	Reach Len. (ft)	470.00	490.00	505.00
Crit W.S. (ft)	971.58	Flow Area (sq ft)	1810.56	23835.66	
E.G. Slope (ft/ft)	0.000940	Area (sq ft)	4152.06	23835.66	
Q Total (cfs)	164000.00	Flow (cfs)	5176.53	158823.50	
Top Width (ft)	3648.91	Top Width (ft)	1300.39	2348.53	
Vel Total (ft/s)	6.39	Avg. Vel. (ft/s)	2.86	6.66	
Max Chl Dpth (ft)	14.63	Hydr. Depth (ft)	3.54	10.15	
Conv. Total (cfs)	5348655.0	Conv. (cfs)	168825.9	5179829.0	
Length Wtd. (ft)	489.59	Wetted Per. (ft)	511.75	2355.25	
Min Ch El (ft)	962.30	Shear (lb/sq ft)	0.21	0.59	
Alpha	1.06	Stream Power (lb/ft s)	0.59	3.96	
Frctn Loss (ft)	0.46	Cum Volume (acre-ft)	4316.08	13213.81	945.48
C & E Loss (ft)	0.00	Cum SA (acres)	1225.85	1518.93	509.71

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	977.89	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.66	Wt. n-Val.	0.037	0.033	
W.S. Elev (ft)	977.23	Reach Len. (ft)	470.00	490.00	505.00
Crit W.S. (ft)	971.58	Flow Area (sq ft)	882.63	24525.28	
E.G. Slope (ft/ft)	0.000885	Area (sq ft)	882.63	24525.28	
Q Total (cfs)	164000.00	Flow (cfs)	2635.92	161364.10	
Top Width (ft)	2567.43	Top Width (ft)	218.90	2348.53	
Vel Total (ft/s)	6.45	Avg. Vel. (ft/s)	2.99	6.58	
Max Chl Dpth (ft)	14.93	Hydr. Depth (ft)	4.03	10.44	
Conv. Total (cfs)	5512272.0	Conv. (cfs)	88597.1	5423675.0	
Length Wtd. (ft)	489.82	Wetted Per. (ft)	223.36	2355.54	
Min Ch El (ft)	962.30	Shear (lb/sq ft)	0.22	0.58	
Alpha	1.03	Stream Power (lb/ft s)	0.65	3.79	
Frctn Loss (ft)	0.43	Cum Volume (acre-ft)	310.65	13732.55	30.85
C & E Loss (ft)	0.01	Cum SA (acres)	53.17	1521.03	5.87

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 203.58

INPUT
Description: 203.58

Right Channel Bank Staion Interpolated
Station Elevation Data num= 75

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
15526.8	983.1	15573.8	984.7	15577.9	981.7	15586.4	984.8	15648.9	982.8
15684.7	983.7	15735.5	978.7	15806.7	977.9	15925.6	978.3	15954.8	978.2
16031.7	974.4	16204.9	973.9	16321.4	974.3	16490.9	975.4	16570	975.3
16706.6	974.9	16819.9	975.7	16971.3	975.7	17120	975.1	17136.9	976.6
17168.4	976.1	17202.6	978.2	17251.4	973.9	17388.1	976	17458.2	974.6
17489	971.8	17596.3	976.7	17707.8	975.2	17790.7	972.4	17873.7	975.6
17978	974.3	18064.9	975.2	18204	975.9	18355.4	971.3	18433.8	971.3
18553.6	967.4	18636	970.5	18664.8	967.3	18681	970.8	18724	969.1
18765.5	971	18876.6	970.7	18988.9	970	19101.4	968.2	19228.7	965.4
19261.3	964.2	19337.3	967.8	19426.3	965.2	19456.9	967.4	19474	963.9
19482.9	963.9	19725.9	963.6	19842.5	963.6	19929.1	963.8	20222.2	963.5
20355.7	963.9	20380	963.9	20543.8	963.6	20636	963.9	20645.5	962.1
20704.9	8977.3	868 20706.2	977.7	20767.4	979.5	20782.3	981.3	20788.1	979.3

20818.3	979.5	20825.7	982.3	20859.8	981.5	22062.2	983.3	22098	982.2
23711.2	980	23724.5	982.4	23738.8	982.8	23750.9	979.2	23783	979.2

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
15526.8	.025	17202.6	.037	18204	.037	18681	.032	20782.3	.025

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

1820420704.98		560	513	495	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
15526.8	17707.8	984.8	F
20782.3	23783	984.8	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	977.14	Element	Left OB | Channel | Right OB
Vel Head (ft)	0.68	Wt. n-Val.	0.037 | 0.032 |
W.S. Elev (ft)	976.47	Reach Len. (ft)	560.00 | 513.00 | 495.00
Crit W.S. (ft)	971.52	Flow Area (sq ft)	859.98 | 24480.33 |
E.G. Slope (ft/ft)	0.000945	Area (sq ft)	3274.81 | 24480.33 |
Q Total (cfs)	164000.00	Flow (cfs)	1532.00 | 162468.00 |
Top Width (ft)	4630.96	Top Width (ft)	2133.56 | 2497.40 |
Vel Total (ft/s)	6.47	Avg. Vel. (ft/s)	1.78 | 6.64 |
Max Chl Dpth (ft)	14.37	Hydr. Depth (ft)	1.73 | 9.80 |
Conv. Total (cfs)	5333542.0	Conv. (cfs)	49822.9 | 5283719.0 |
Length Wtd. (ft)	514.20	Wetted Per. (ft)	496.32 | 2500.83 |
Min Ch El (ft)	962.10	Shear (lb/sq ft)	0.10 | 0.58 |
Alpha	1.04	Stream Power (lb/ft s)	0.18 | 3.83 |
Frctn Loss (ft)	0.56	Cum Volume (acre-ft)	4276.01 | 12942.06 | 945.48
C & E Loss (ft)	0.00	Cum SA (acres)	1207.33 | 1491.67 | 509.71

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	977.46	Element	Left OB | Channel | Right OB
Vel Head (ft)	0.65	Wt. n-Val.	0.037 | 0.032 |
W.S. Elev (ft)	976.81	Reach Len. (ft)	560.00 | 513.00 | 495.00
Crit W.S. (ft)	971.52	Flow Area (sq ft)	248.33 | 25349.32 |
E.G. Slope (ft/ft)	0.000858	Area (sq ft)	248.33 | 25349.32 |
Q Total (cfs)	164000.00	Flow (cfs)	360.60 | 163639.40 |
Top Width (ft)	2676.39	Top Width (ft)	179.00 | 2497.39 |
Vel Total (ft/s)	6.41	Avg. Vel. (ft/s)	1.45 | 6.46 |
Max Chl Dpth (ft)	14.71	Hydr. Depth (ft)	1.39 | 10.15 |
Conv. Total (cfs)	5599491.0	Conv. (cfs)	12312.0 | 5587179.0 |
Length Wtd. (ft)	513.05	Wetted Per. (ft)	181.03 | 2501.17 |
Min Ch El (ft)	962.10	Shear (lb/sq ft)	0.07 | 0.54 |
Alpha	1.01	Stream Power (lb/ft s)	0.11 | 3.50 |
Frctn Loss (ft)	0.52	Cum Volume (acre-ft)	304.55 | 13452.04 | 30.85
C & E Loss (ft)	0.00	Cum SA (acres)	51.02 | 1493.77 | 5.87

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 203.48

INPUT
Description: 203.48

Right Channel Bank Staion Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
15578.8	977.1	15693.5	976.9	15717.9	977	15814.4	976.9	15880.9	978.5
15900.7	978.2	15967.5	973.1	16013.9	973.9	16068.7	973.5	16168.1	973.8
16324.7	974	16419.6	974.1	16584.4	974.1	16657.7	974.3	16810.8	974.5
16932.4	974.5	17066.5	974.6	17177.1	974.2	17201.7	974.2	17312.2	975.1
17331.6	976	17341.7	975.7	17369.6	978.2	17434.9	970.7	17473.9	969.3
17535.6	971.3	17609.4	970.9	17714.8	972.8	17721.6	972.8	17841.5	973.7
17932.6	974	18016.7	972.4	18039.3	972.1	18120.3	973.5	18171.8	968
18184	969.1	18267.5	973.4	18353.5	970.9	18380.1	969.8	18439	969.7
18521.1	965.52	18538.6	965.3	18561.3	969.6	18571.7	970	18619.2	968.6
18635.6	969.2	18675.5	973.1	18730.7	972.2	18817.1	970.9	18956	969.1
18991.1	970.6	19035.5	973.7	19082.7	974.1	19116.8	968.9	19177.6	972.2
19217.3	970.5	19332.9	970.5	19399.6	962.9	19491.7	962.7	19584.5	965.1
19624.3	962.2	19645.8	962.3	19669.3	965	19679.4	965.3	19794.5	963.4
19884.7	963.3	19987.2	964.5	20013.9	964.4	20199.2	964	20220.6	964.7
20227.4	967.6	20231.3	963.9	20325.6	963.9	20342.5	963.9	20345.7	965.5
20353.5	967.3	20358.6	964.3	20404	963.2	20433.1	965.2	20458.7	965
20480	963.1	20588.9	964.7	20638.4	966.8	20725.1	968.7	20785.1	971.2
20856.76	976.9083	20866.7	977.7	20886.7	979.4	20901.8	978.6	20909.2	979.5
20915.7	978.5	20925.9	979.4	20953.9	979.4	20960.7	978.7	20985.4	978.7
20989.2	980.3	20999	981.2						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
15578.8	.025	17369.6	.037	17932.6	.037	18619.2	.032	20886.7	.025

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

17932.620856.76		500	505.82	515	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
15578.8	17369.6	981.2	F
20999	20999	981.2	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	976.58	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.67	Wt. n-Val.	0.037	0.032	
W.S. Elev (ft)	975.92	Reach Len. (ft)	500.00	505.82	515.00
Crit W.S. (ft)	972.02	Flow Area (sq ft)	2009.24	23608.84	
E.G. Slope (ft/ft)	0.001248	Area (sq ft)	4384.68	23608.84	
Q Total (cfs)	164000.00	Flow (cfs)	6815.32	157184.70	
Top Width (ft)	4863.77	Top Width (ft)	1952.06	2911.72	
Vel Total (ft/s)	6.40	Avg. Vel. (ft/s)	3.39	6.66	
Max Chl Dpth (ft)	13.72	Hydr. Depth (ft)	3.70	8.11	
Conv. Total (cfs)	4642347.0	Conv. (cfs)	192921.2	4449426.0	
Length Wtd. (ft)	505.61	Wetted Per. (ft)	543.50	2918.40	
Min Ch El (ft)	962.20	Shear (lb/sq ft)	0.29	0.63	
Alpha	1.05	Stream Power (lb/ft s)	0.98	4.20	
Frctn Loss (ft)	0.65	Cum Volume (acre-ft)	4226.78	12658.89	945.48
C & E Loss (ft)	0.00	Cum SA (acres)	1181.07	1459.82	509.71

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	976.94	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.69	Wt. n-Val.		0.033	
W.S. Elev (ft)	976.25	Reach Len. (ft)	500.00	505.82	515.00
Crit W.S. (ft)	971.97	Flow Area (sq ft)		24567.80	
E.G. Slope (ft/ft)	0.001196	Area (sq ft)		24567.80	
Q Total (cfs)	164000.00	Flow (cfs)		164000.00	
Top Width (ft)	2911.71	Top Width (ft)		2911.71	
Vel Total (ft/s)	6.68	Avg. Vel. (ft/s)		6.68	
Max Chl Dpth (ft)	14.05	Hydr. Depth (ft)		8.44	
Conv. Total (cfs)	4742364.0	Conv. (cfs)		4742364.0	
Length Wtd. (ft)	505.82	Wetted Per. (ft)		2920.97	
Min Ch El (ft)	962.20	Shear (lb/sq ft)		0.63	
Alpha	1.00	Stream Power (lb/ft s)		4.19	
Frctn Loss (ft)	0.62	Cum Volume (acre-ft)	302.96	13158.11	30.85
C & E Loss (ft)	0.00	Cum SA (acres)	49.87	1461.92	5.87

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 203.39

INPUT
Description: 203.39
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
15500	974.4	15548.5	978.1	15604.9	974.8	15609.8	975.3	15717.3	976.3
15722.2	976.3	15836.5	975.1	15864.7	976.6	15875.6	973	15888.1	975.4
15914.3	976.1	16076.8	976.1	16271.9	976.2	16290.8	976.1	16376.9	976.2
16390.2	976.2	16520.6	976	16549.4	977.1	16694.9	973.2	16751.5	970.2
16832.2	968.6	16901	973.2	17053.7	971.4	17105.6	971.5	17120	974.9
17136.1	970.9	17147.5	974.3	17212	975.5	17260.9	972.8	17296.2	974.2
17353	971.2	17382.3	974.9	17417.1	974.8	17453.9	976.4	17519.2	968.1
17602.4	973.1	17694.4	971.8	17733.8	970.7	17815.5	973	17901.2	972.3
17947.7	972.1	17970.8	973	18042	972.8	18114	969.5	18199.7	969.1
18207.5	968.6	18224.3	964.4	18259.9	963.8	18330.5	967.6	18418.7	967.4
18507.8	969.8	18601.7	972.8	18629.1	974.7	18686.7	980.9	18738	974.3
18773.9	975.9	18902.4	975	19023.2	970.3	19056.6	971.7	19105.2	965.4
19218.1	968.3	19268.2	972	19346.8	971.4	19370.8	969.4	19397.9	965.7
19418.4	960.4	19479.4	959.9	19491.4	962	19633	960.6	19736.1	965
19770.9	965.7	19800.9	963.8	19816.1	965.5	19916.4	965	20010.4	963.8
20159.5	964.6	20260.9	963.8	20303.7	964.2	20330.3	963.1	20346	964.4
20389.8	962.9	20483.7	964.2	20485.1	964.9	20576.8	964.7	20682.1	965.3
20789.2	969.4	20834.2	971.9	20922.2	969.5	20993.5	968.3	21038.8	975.6
21082.9	975.6	21098.5	976.5	21138.2	977.4	21143.6	978.2	21153.1	976.5
21223	978.3								

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
15500	.025	16832.2	.037	17970.8	.037	18601.7	.032	21038.8	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
17970.8	21038.8	500	505	500 .1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
15500	17519.2	980.9	F
21223.3	21223	980.9	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	975.93	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.70	Wt. n-Val.	0.037	0.033	
W.S. Elev (ft)	975.23	Reach Len. (ft)	500.00	505.00	500.00
Crit W.S. (ft)	971.15	Flow Area (sq ft)	1495.78	23366.65	
E.G. Slope (ft/ft)	0.001331	Area (sq ft)	3866.15	23366.65	
Q Total (cfs)	164000.00	Flow (cfs)	4867.25	159132.80	
Top Width (ft)	4207.76	Top Width (ft)	1350.37	2857.40	
Vel Total (ft/s)	6.60	Avg. Vel. (ft/s)	3.25	6.81	
Max Chl Dpth (ft)	15.33	Hydr. Depth (ft)	3.31	8.18	
Conv. Total (cfs)	4495896.0	Conv. (cfs)	133430.7	4362466.0	
Length Wtd. (ft)	504.81	Wetted Per. (ft)	451.83	2861.57	
Min Ch El (ft)	959.90	Shear (lb/sq ft)	0.28	0.68	
Alpha	1.04	Stream Power (lb/ft s)	0.89	4.62	
Frctn Loss (ft)	0.73	Cum Volume (acre-ft)	4179.42	12386.15	945.48
C & E Loss (ft)	0.00	Cum SA (acres)	1162.11	1426.33	509.71

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	976.32	Element	Left OB	Channel	Right OB	
Vel Head (ft)	0.69	Wt. n-Val.		0.033		
W.S. Elev (ft)	975.62	Reach Len. (ft)	500.00	505.00	500.00	
Crit W.S. (ft)	971.10	Flow Area (sq ft)		24520.14		
E.G. Slope (ft/ft)	0.001254	Area (sq ft)		24520.14		
Q Total (cfs)	164000.00	Flow (cfs)		164000.00		
Top Width (ft)	2930.05	Top Width (ft)		2930.05		
Vel Total (ft/s)	6.69	Avg. Vel. (ft/s)		6.69		
Max Chl Dpth (ft)	15.72	Hydr. Depth (ft)		8.37		
Conv. Total (cfs)	4631119.0	Conv. (cfs)		4631119.0		
Length Wtd. (ft)	505.00	Wetted Per. (ft)		2937.30		
Min Ch El (ft)	959.90	Shear (lb/sq ft)		0.65		
Alpha	1.00	Stream Power (lb/ft s)		4.37		
Frctn Loss (ft)	0.69	Cum Volume (acre-ft)	302.96	12873.10	30.85	
C & E Loss (ft)	0.01	Cum SA (acres)	49.87	1428.00	5.87	

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 203.29

INPUT
Description: 203.29

Right Channel Bank Staion Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
14306.7	975.2	14398.4	975.7	14462.6	975.2	14487	977.9	14491.6	976.6
14498.9	977.7	14515.3	976.7	14528	974	14553.9	972.7	14670.7	972.7
14687.5	972.7	14856.4	972.7	14867.5	972.7	15002.5	972.7	15006.1	972.7
15100.1	972.9	15122.5	975.2	15172.8	972.4	15364.8	972.7	15484.5	974
15649.2	973.6	15701.1	973.4	15710	975.9	15724.5	974.3	15776.8	976.4
15815.8	974	15918.9	974.9	15999.4	974.9	16112.9	975.4	16114.8	975.5
16293.6	975.5	16301	975.5	16411.1	976	16465.5	976	16664.1	976
16733.3	975.8	16808.3	976.1	16968.8	976.1	17062.2	976.1	17153	976.2
17251.7	975.1	17286.9	974.6	17327.4	969.3	17410.1	970.5	17467.7	974.5
17469.8	973.6	17539	974.4	17590	968.4	17649.5	971.4	17775.2	971.1
17888.5	970.4	17987.9	968.4	18065.6	972.5	18117.7	969.6	18146.3	971.6
18204.1	968.8	18247.3	971.6	18266.5	967.8	18378.2	963.9	18464	968.2
18535.2	966.5	18593.9	967.2	18627.7	974.8	18719.2	971.5	18838.7	974.7
18920	973.9	18947.9	969.3	19046.6	972.7	19166.7	971.8	19269	971.6
19295.1	965.4	19325.9	960.7	19447.7	960.9	19552.4	961.6	19655.6	961.1
19756.7	962.1	19849.6	963.4	19945.3	963	20028	965.9	20124.9	965.7
20226	965.2	20297.8	963.6	20378.8	964.4	20396.1	961.9	20494.8	962.8
20586	966.7	20676.2	969.1	20796.8	969	20894.8	969.2	20935.1	968.4
20981.6	969.2	21027.6	966.62	1082.58	975.7	482 21088.3	976.7	21155	977.1
21257.1	975.6	21295	976.3						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
14306.7	.025	16968.8	.037	18065.6	.037	18535.2	.032	21088.3	.025

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
18065.6 21082.58 620 535 420 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
14306.7	17590	977.9	F
21088.3	21295	977.9	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	975.20	Element	Left OB	Channel	Right OB	
Vel Head (ft)	0.73	Wt. n-Val.	0.037	0.033		
W.S. Elev (ft)	974.46	Reach Len. (ft)	620.00	535.00	420.00	
Crit W.S. (ft)	970.77	Flow Area (sq ft)	1911.74	22390.42		
E.G. Slope (ft/ft)	0.001572	Area (sq ft)	4404.29	22390.42		
Q Total (cfs)	164000.00	Flow (cfs)	7692.92	156307.10		
Top Width (ft)	4967.77	Top Width (ft)	2002.07	2965.71		
Vel Total (ft/s)	6.75	Avg. Vel. (ft/s)	4.02	6.98		
Max Chl Dpth (ft)	13.76	Hydr. Depth (ft)	4.02	7.55		
Conv. Total (cfs)	4136567.0	Conv. (cfs)	194038.3	3942529.0		
Length Wtd. (ft)	540.60	Wetted Per. (ft)	475.81	2970.14		
Min Ch El (ft)	960.70	Shear (lb/sq ft)	0.39	0.74		
Alpha	1.04	Stream Power (lb/ft s)	1.59	5.16		
Frctn Loss (ft)	0.91	Cum Volume (acre-ft)	4131.96	12120.92	945.48	
C & E Loss (ft)	0.01	Cum SA (acres)	1142.87	1392.57	509.71	

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	975.63	Element	Left OB	Channel	Right OB	
Vel Head (ft)	0.75	Wt. n-Val.		0.033		
W.S. Elev (ft)	974.88	Reach Len. (ft)	620.00	535.00	420.00	
Crit W.S. (ft)	970.71	Flow Area (sq ft)		23633.34		
E.G. Slope (ft/ft)	0.001478	Area (sq ft)		23633.34		

Pre-Project

Q Total (cfs)	164000.00	Flow (cfs)		164000.00				
Top Width (ft)	3009.26	Top Width (ft)		3009.26				
Vel Total (ft/s)	6.94	Avg. Vel. (ft/s)		6.94				
Max Chl Dpth (ft)	14.18	Hydr. Depth (ft)		7.85				
Conv. Total (cfs)	4265774.0	Conv. (cfs)		4265774.0				
Length Wtd. (ft)	535.03	Wetted Per. (ft)		3016.54				
Min Ch El (ft)	960.70	Shear (lb/sq ft)		0.72				
Alpha	1.00	Stream Power (lb/ft s)		5.02				
Frctn Loss (ft)	0.88	Cum Volume (acre-ft)	302.96	12593.97		30.85		
C & E Loss (ft)	0.00	Cum SA (acres)	49.87	1393.58		5.87		

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 203.19

INPUT
Description: 203.19

Right Channel Bank Staion Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16639.2	974.6	16696.5	974.6	16879.5	976.3	16960.6	976.7	16982.2	976.1
16987.1	975.2	16999.5	976.6	17045.2	975.2	17145.4	975	17180.8	974.8
17306.9	974	17389.7	974.5	17513.2	972.9	17539	972.7	17596.6	969.7
17650.2	971	17690.3	968.3	17762.5	967.5	17781.9	968.4	17812.7	966.2
17893.5	967.8	17945.6	971.7	18023.5	971.3	18058.7	964.6	18099.2	971.6
18139.8	972.1	18185.8	967.2	18251.5	970.8	18282.1	971.9	18338.2	971.3
18384.4	969	18406.2	969.7	18445.9	965.2	18495.1	966.4	18521	969
18558.4	964.7	18605.8	963.2	18623.9	961.2	18659	961.4	18701.5	965.4
18712.2	964.5	18734.5	964.5	18797.4	970	18848.7	968.9	18911.7	969.9
18983.1	969.7	19009.9	968.7	19025	967.1	19031	968.2	19080.8	968.8
19095.4	970.3	19159	970.9	19191.3	967.9	19256	967.2	19294.3	960.1
19346.5	959	19442.2	956.7	19471.8	962.7	19542.3	963	19643.7	963.4
19644.6	963.4	19721.9	962.3	19788.7	962.7	19870	964.6	19925.6	962.6
19971.9	966.8	20041.3	966	20111.2	965.3	20142.5	963.8	20233.9	963.3
20336.2	963.2	20384.6	963.4	20398.2	962.6	20462.1	962.2	20541.1	965.2
20570.6	966.9	20635.2	967.1	20669.2	965.5	20696.2	966.5	20752.9	964.7
20795.4	967.4	20825.2	966.9	20848.9	967.5	20865.3	966.7	20898.7	966.8
20928.5	970.1	20952.6	973.8	20965.39	974.9	827 20981.8	976.5	20999	975.6
21013	977.9	21075.8	975.9	21096.9	975.8	21174.9	976.1	21273.9	975.8
21344.5	975.8	21380	975.6						

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16639.2	.025	17762.5	.043	18282.1	.043	18734.5	.037	20981.8	.025
21013	.025								

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
18282.12	20965.39	535	520	485 .1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
16639.2	17587	978	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	974.28	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.69	Wt. n-Val.	0.036	0.038	
W.S. Elev (ft)	973.59	Reach Len. (ft)	535.00	520.00	485.00
Crit W.S. (ft)	970.04	Flow Area (sq ft)	3019.47	22027.15	
E.G. Slope (ft/ft)	0.001787	Area (sq ft)	3161.07	22027.15	
Q Total (cfs)	164000.00	Flow (cfs)	13926.43	150073.60	
Top Width (ft)	3491.38	Top Width (ft)	822.24	2669.14	
Vel Total (ft/s)	6.55	Avg. Vel. (ft/s)	4.61	6.81	
Max Chl Dpth (ft)	16.89	Hydr. Depth (ft)	4.34	8.25	
Conv. Total (cfs)	3879641.0	Conv. (cfs)	329448.5	3550193.0	
Length Wtd. (ft)	521.19	Wetted Per. (ft)	697.10	2673.29	
Min Ch El (ft)	956.70	Shear (lb/sq ft)	0.48	0.92	
Alpha	1.03	Stream Power (lb/ft s)	2.23	6.26	
Frctn Loss (ft)	1.01	Cum Volume (acre-ft)	4078.12	11848.15	945.48
C & E Loss (ft)	0.01	Cum SA (acres)	1122.77	1357.97	509.71

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	974.74	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.79	Wt. n-Val.	0.043	0.038	
W.S. Elev (ft)	973.95	Reach Len. (ft)	535.00	520.00	485.00
Crit W.S. (ft)	970.04	Flow Area (sq ft)	48.25	22993.21	
E.G. Slope (ft/ft)	0.001849	Area (sq ft)	48.25	22993.21	
Q Total (cfs)	164000.00	Flow (cfs)	118.21	163881.80	
Top Width (ft)	2689.14	Top Width (ft)	20.00	2669.14	
Vel Total (ft/s)	7.12	Avg. Vel. (ft/s)	2.45	7.13	
Max Chl Dpth (ft)	17.25	Hydr. Depth (ft)	2.41	8.61	
Conv. Total (cfs)	3814345.0	Conv. (cfs)	2749.4	3811596.0	
Length Wtd. (ft)	520.03	Wetted Per. (ft)	22.78	2673.65	
Min Ch El (ft)	956.70	Shear (lb/sq ft)	0.24	0.99	
Alpha	1.00	Stream Power (lb/ft s)	0.60	7.07	
Frctn Loss (ft)	1.04	Cum Volume (acre-ft)	302.61	12307.64	30.85
C & E Loss (ft)	0.02	Cum SA (acres)	49.73	1358.71	5.87

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 203.09

INPUT
Description: 203.09

Right Channel Bank Staion Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16077.3	972.6	16108.8	973.2	16114.5	973.9	16141.2	974.9	16147	976.1
16177.1	975.5	16186.3	974.5	16217.9	974.3	16296.3	973.5	16396.3	973.6
16495.1	973.6	16619.4	973.4	16649.6	973.4	16802.2	973.6	16847.8	974.3
16927.3	974.4	16967.8	974.4	17063.1	975.3	17138.5	975.2	17150.2	974.9
17158.9	972.7	17171.5	974	17175.5	975.3	17183.4	974.2	17268	973.7
17382	973.8	17583.9	974.5	17588.1	974.4	17656.3	973	17724.5	971.9
17787.2	966	17835	968.2	17878.2	968.6	17889.9	967.6	17960.8	969
18034.5	970.7	18151.5	966.1	18178.5	966.8	18202.2	966.1	18277.6	970
18313.5	969.4	18321.1	969.7	18364.1	965.2	18437	969.5	18507	971.4
18541.2	970.5	18605.3	962.2	18681.6	963	18770.4	960.8	18814.5	971
18875.7	969	18992.4	969.2	19035.2	968.4	19104.8	968.6	19136.4	968
19190.2	961.9	19211.5	961.8	19247.1	964	19266.9	960.3	19282.4	958.7
19461.8	959.9	19573.5	959.6	19585.9	960.2	19653.1	960.1	19682.3	962.4
19752.6	963.1	19757	963.1	19865.5	961.3	19934.1	962.2	20005.1	964.6
20113.7	965.7	20184.3	965.7	20264.8	966	20287.7	966.2	20364.7	966.6
20397.2	966.4	20469.2	966.1	20498.9	964.4	20517.6	961.6	20546.5	960.5
20610.5	960.6	20636.9	964.4	20681.6	965.4	20709.6	964.4	20742.1	962.1
20765.3	962.2	20780	963.2	20812.8	959.6	20837.9	961.3	20914.8	2973.8939
20917.3	974.3	20926.9	975.4	20942.8	974.2	20972.4	973.4	21023.3	975.3
21111.6	973.6	21171	974.1						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16077.3	.025	17588.1	.043	18507	.043	18814.5	.037	20917.3	.025

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
1850720914.82 520 518 500 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
16077.3	17583.9	976.1	F
20917.3	21171	976.1	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	973.25	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.83	Wt. n-Val.	0.043	0.038	
W.S. Elev (ft)	972.42	Reach Len. (ft)	520.00	518.00	500.00
Crit W.S. (ft)	969.19	Flow Area (sq ft)	3133.13	20204.47	
E.G. Slope (ft/ft)	0.002112	Area (sq ft)	3133.13	20204.47	
Q Total (cfs)	164000.00	Flow (cfs)	12200.67	151799.30	
Top Width (ft)	3213.89	Top Width (ft)	815.04	2398.85	
Vel Total (ft/s)	7.03	Avg. Vel. (ft/s)	3.89	7.51	
Max Chl Dpth (ft)	13.72	Hydr. Depth (ft)	3.84	8.42	
Conv. Total (cfs)	3568365.0	Conv. (cfs)	265466.2	3302899.0	
Length Wtd. (ft)	518.12	Wetted Per. (ft)	816.06	2403.51	
Min Ch El (ft)	958.70	Shear (lb/sq ft)	0.51	1.11	
Alpha	1.08	Stream Power (lb/ft s)	1.97	8.33	
Frctn Loss (ft)	0.99	Cum Volume (acre-ft)	4039.47	11596.08	945.48
C & E Loss (ft)	0.02	Cum SA (acres)	1112.72	1327.72	509.71

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	973.69	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.94	Wt. n-Val.	0.043	0.038	
W.S. Elev (ft)	972.75	Reach Len. (ft)	520.00	518.00	500.00
Crit W.S. (ft)	968.97	Flow Area (sq ft)	185.01	20978.55	
E.G. Slope (ft/ft)	0.002162	Area (sq ft)	185.01	20978.55	
Q Total (cfs)	164000.00	Flow (cfs)	516.86	163483.10	
Top Width (ft)	2475.85	Top Width (ft)	77.00	2398.85	
Vel Total (ft/s)	7.75	Avg. Vel. (ft/s)	2.79	7.79	
Max Chl Dpth (ft)	14.05	Hydr. Depth (ft)	2.40	8.75	
Conv. Total (cfs)	3526911.0	Conv. (cfs)	11115.5	3515796.0	
Length Wtd. (ft)	518.00	Wetted Per. (ft)	80.70	2403.84	
Min Ch El (ft)	958.70	Shear (lb/sq ft)	0.31	1.18	
Alpha	1.01	Stream Power (lb/ft s)	0.86	9.18	
Frctn Loss (ft)	0.98	Cum Volume (acre-ft)	301.18	12045.18	30.85
C & E Loss (ft)	0.04	Cum SA (acres)	49.13	1328.46	5.87

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 202.99

INPUT
Description: 202.99
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17058.5	973.2	17114.3	973.5	17267.7	973.8	17289	973.9	17305.6	974.4
17316.7	973.3	17329.5	974.7	17397.2	973.4	17508.3	973.5	17530.6	972.5
17571.7	973.2	17646.3	973.1	17659.9	972.5	17696.1	969.8	17713.5	970
17723.9	969.1	17781.1	967.5	17850.9	965.7	17864.6	967.2	17879.9	968
17893	968.2	17922	965.3	17941	964	17984.7	968.4	18035.6	970
18091.7	969.9	18126.6	969.7	18186.5	969.9	18238.3	970	18288.7	964.3
18293.1	963.9	18346.5	968.2	18360.3	967.9	18420.8	969.3	18469.4	969.3
18497.6	968.2	18580.4	968.7	18586.2	968.9	18608.3	967.1	18619.4	964.4
18650.8	965	18666.5	962.2	18686.7	961.6	18748.1	962.5	18789.2	962.8
18875	962.8	18906.3	963.4	18945.7	961.5	18988.8	963.5	19005.4	963.6
19058	964.4	19119.4	964.2	19128.8	964.3	19182	965.3	19208.5	964.3
19269.4	961.7	19318.8	960.3	19334.7	959.8	19391.3	959.8	19415.3	959.6
19435.9	960	19527.6	959.5	19609.2	959.5	19725.7	959.2	19759.9	960.9
19828.4	961.4	19945.2	960.7	19948	960.7	20028.5	959.3	20090	960.7
20131.7	963.1	20172.8	964.1	20227.9	965.4	20241.1	965.3	20304	965
20364.7	965.9	20422.1	964.9	20460.6	964.9	20528.6	963.3	20552.5	959.7
20558.2	959.8	20619.9	962.6	20665.6	962	20682.4	960.6	20692.5	959.3
20713.5	960.1	20748.9	960	20773.8	959.3	20789	960.3	20808	960.6
20818.5	963.8	20841.7	963.9	20894.5	963.1	20926.9	970.2	20960.7	976.4
20976	975.9								

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
17058.5	.025	17646.3	.043	18469.4	.043	19058	.037	20926.9	.043

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

18469.4	20926.9	480	456	424	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
17058.5	17646.3	976	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	972.24	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.75	Wt. n-Val.	0.043	0.038	0.043
W.S. Elev (ft)	971.50	Reach Len. (ft)	480.00	456.00	424.00
Crit W.S. (ft)	967.56	Flow Area (sq ft)	2580.34	22030.56	4.58
E.G. Slope (ft/ft)	0.001726	Area (sq ft)	2580.34	22030.56	4.58
Q Total (cfs)	164000.00	Flow (cfs)	8104.63	155890.50	4.86
Top Width (ft)	3260.60	Top Width (ft)	796.04	2457.50	7.06
Vel Total (ft/s)	6.66	Avg. Vel. (ft/s)	3.14	7.08	1.06
Max Chl Dpth (ft)	12.30	Hydr. Depth (ft)	3.24	8.96	0.65
Conv. Total (cfs)	3947903.0	Conv. (cfs)	195099.2	3752686.0	117.1
Length Wtd. (ft)	457.42	Wetted Per. (ft)	797.26	2460.41	7.18
Min Ch El (ft)	959.20	Shear (lb/sq ft)	0.35	0.96	0.07
Alpha	1.08	Stream Power (lb/ft s)	1.10	6.83	0.07
Frctn Loss (ft)	0.68	Cum Volume (acre-ft)	4005.36	11344.96	945.46
C & E Loss (ft)	0.04	Cum SA (acres)	1103.10	1298.84	509.67

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	972.66	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.79	Wt. n-Val.		0.038	
W.S. Elev (ft)	971.87	Reach Len. (ft)	480.00	456.00	424.00
Crit W.S. (ft)	967.53	Flow Area (sq ft)		22949.27	
E.G. Slope (ft/ft)	0.001673	Area (sq ft)		22949.27	
Q Total (cfs)	164000.00	Flow (cfs)		164000.00	
Top Width (ft)	2457.50	Top Width (ft)		2457.50	
Vel Total (ft/s)	7.15	Avg. Vel. (ft/s)		7.15	
Max Chl Dpth (ft)	12.67	Hydr. Depth (ft)		9.34	
Conv. Total (cfs)	4009597.0	Conv. (cfs)		4009597.0	
Length Wtd. (ft)	456.00	Wetted Per. (ft)		2464.65	
Min Ch El (ft)	959.20	Shear (lb/sq ft)		0.97	
Alpha	1.00	Stream Power (lb/ft s)		6.95	
Frctn Loss (ft)	0.67	Cum Volume (acre-ft)	300.08	11784.00	30.85
C & E Loss (ft)	0.04	Cum SA (acres)	48.67	1299.58	5.87

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 202.9

INPUT
Description: 202.9

Right Channel Bank Staion Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16149.3	972.1	16219	972.6	16381.4	973.3	16446.1	973.3	16495.7	974.5
16526.4	971.9	16579.2	972.6	16597.9	974.5	16618	973.6	16631.4	972.3
16699.5	972.9	16755	974.1	16804	971.3	16823.8	973.1	16887.1	972.5
16957.5	972.2	16968.8	972.6	17046.9	971.4	17089.7	971.9	17151.8	972
17172.3	972.1	17235.7	971.8	17304.6	971.3	17369.1	970.9	17440.5	971.3
17504.7	971	17572.9	970.6	17644	970	17676.2	972.2	17699.3	970.6
17772.5	968.5	17815	965.7	17875.4	965.2	17896.7	963.8	17966.8	965.8
18000.2	967.5	18046.2	967	18087.7	964.4	18148.3	968.4	18203.5	967.3
18258.7	965	18308.6	967.1	18383	966.5	18433.6	966.6	18455.6	968.2
18517.5	967.7	18563	962.4	18611.6	961.8	18646	958.2	18714	961.6
18808.1	961.6	18872.7	961.1	18917	963.4	18971.7	963.8	19054.2	965.2
19121.2	965.8	19211.2	964.4	19215.4	966	19303.3	961.5	19368.9	960.3
19378.2	959.7	19431.8	961.6	19460.5	960.1	19592.2	957.9	19666.6	958.3
19722.9	960.9	19833.6	959	19903.1	959.5	19944.9	961	20063.7	959.6
20145.5	959.8	20206.7	960.4	20250.7	959.4	20318.7	958.5	20412.7	962.7

20460.7	961.4	20488.5	963.8	20502.9	964	20545	960.1	20596	959.7		
20624.3	960.6	20694.4	959	20754.9	958.5	20806.5	956.5	20831.6	957.9		
20858.2	961.1	20861.7	962.3	20936.5	969.5	20988.5	971.9	20993.5	972.3		
21011	973.7	21025.1	975.7	21027.9	980.1	21042.4	977	21052.5	978.4		
21066.1	978.5	21080	974.2								

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16149.3	.025	17815	.043	18455.6	.043	18872.7	.037	21011	.043

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
18455.6	20993.5	575	538	460	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
16149.3	17500	980.1	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	971.52	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.60	Wt. n-Val.	0.041	0.038	
W.S. Elev (ft)	970.92	Reach Len. (ft)	575.00	538.00	460.00
Crit W.S. (ft)	966.33	Flow Area (sq ft)	3303.01	23985.46	
E.G. Slope (ft/ft)	0.001285	Area (sq ft)	3303.09	23985.46	
Q Total (cfs)	164000.00	Flow (cfs)	11302.34	152697.70	
Top Width (ft)	3419.52	Top Width (ft)	907.81	2511.71	
Vel Total (ft/s)	6.01	Avg. Vel. (ft/s)	3.42	6.37	
Max Chl Dpth (ft)	14.42	Hydr. Depth (ft)	3.67	9.55	
Conv. Total (cfs)	4574160.0	Conv. (cfs)	315236.0	4258924.0	
Length Wtd. (ft)	540.74	Wetted Per. (ft)	901.08	2514.33	
Min Ch El (ft)	956.50	Shear (lb/sq ft)	0.29	0.77	
Alpha	1.07	Stream Power (lb/ft s)	1.01	4.87	
Frctn Loss (ft)	0.66	Cum Volume (acre-ft)	3972.95	11104.10	945.44
C & E Loss (ft)	0.02	Cum SA (acres)	1093.71	1272.83	509.63

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	971.95	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.67	Wt. n-Val.		0.038	
W.S. Elev (ft)	971.28	Reach Len. (ft)	575.00	538.00	460.00
Crit W.S. (ft)	966.26	Flow Area (sq ft)		24881.66	
E.G. Slope (ft/ft)	0.001315	Area (sq ft)		24881.66	
Q Total (cfs)	164000.00	Flow (cfs)		164000.00	
Top Width (ft)	2511.71	Top Width (ft)		2511.71	
Vel Total (ft/s)	6.59	Avg. Vel. (ft/s)		6.59	
Max Chl Dpth (ft)	14.78	Hydr. Depth (ft)		9.91	
Conv. Total (cfs)	4523109.0	Conv. (cfs)		4523109.0	
Length Wtd. (ft)	538.00	Wetted Per. (ft)		2517.77	
Min Ch El (ft)	956.50	Shear (lb/sq ft)		0.81	
Alpha	1.00	Stream Power (lb/ft s)		5.35	
Frctn Loss (ft)	0.68	Cum Volume (acre-ft)	300.08	11533.64	30.85
C & E Loss (ft)	0.02	Cum SA (acres)	48.67	1273.57	5.87

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 202.8

INPUT
Description: 202.8

Right Channel Bank Staion Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16524.8	970.3	16556.4	971.5	16586.6	971.3	16591.4	972.2	16622.9	972.3
16660.4	974.1	16671.5	973.8	16699.8	970.7	16750	971.8	16768.2	970.7
16810	971.7	16908.3	970.6	16968.5	970.2	16997.3	973.4	17058.9	971.8
17081	970.9	17148.9	971	17188.6	970.2	17279.5	971.1	17348.6	971
17423	970.4	17488.6	969.6	17496.3	969.7	17556.3	970.2	17607.5	969.3
17662.7	971.7	17678.2	969.4	17755.1	968.2	17771.4	968.3	17836.1	965.5
17897.9	964.9	17974.2	962.8	18017.4	962.7	18037.3	963.4	18039.7	964
18135.1	964.3	18137.8	964.2	18205	963.3	18273.4	965.1	18313.6	965.5
18348.1	967.5	18390.8	968.8	18406.9	966.2	18434.5	959.9	18478	958.9
18492.5	956.4	18526.7	958.4	18618	960.3	18696.7	962.9	18716.3	963.1
18761.6	962.1	18858.8	963.6	18897.8	963.7	18966.5	960.9	18996.3	959.9
19072.2	959.5	19083	959.6	19151.4	960.5	19243.7	960.1	19333.5	960.5
19396.1	960.6	19435.5	960.4	19525.6	959.5	19621.8	960.4	19685.6	961.9
19750.9	962.5	19813.5	963.5	19828.2	963.6	19893.3	963.5	19985.3	961.5
20027.7	961	20127.3	961.5	20220.9	962	20261.5	962.8	20325.2	962.5
20339.8	963.1	20397.5	960.8	20461	959.3	20525.1	958.4	20576.6	957.1
20634.6	957.7	20682.6	958.4	20759.8	957.1	20823.5	956.8	20855.2	957.6
20859.5	958.4	20873	957.9	20906.1	958.3	20955.4	956.8	20983.8	959.2
20987.6	962.6	21013.7	97121014.96971.6307			21019.3	973.8	21057.4	987.6
21082.8	986	21093	986.3						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16524.8	.025	17771.4	.043	18390.8	.043	19243.7	.037	21019.3	.043

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
18390.82	21014.96	600	555.5	450	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
16524.8	17279.5	987.6	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	970.84	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.52	Wt. n-Val.	0.042	0.039	
W.S. Elev (ft)	970.32	Reach Len. (ft)	600.00	555.50	450.00
Crit W.S. (ft)	965.61	Flow Area (sq ft)	3650.87	25399.50	
E.G. Slope (ft/ft)	0.001157	Area (sq ft)	3652.99	25399.50	
Q Total (cfs)	164000.00	Flow (cfs)	13003.14	150996.90	
Top Width (ft)	3577.40	Top Width (ft)	956.63	2620.78	
Vel Total (ft/s)	5.65	Avg. Vel. (ft/s)	3.56	5.94	
Max Chl Dpth (ft)	13.92	Hydr. Depth (ft)	3.97	9.69	
Conv. Total (cfs)	4820928.0	Conv. (cfs)	382239.1	4438689.0	
Length Wtd. (ft)	558.84	Wetted Per. (ft)	920.28	2625.07	
Min Ch El (ft)	956.40	Shear (lb/sq ft)	0.29	0.70	
Alpha	1.05	Stream Power (lb/ft s)	1.02	4.16	
Frctn Loss (ft)	0.71	Cum Volume (acre-ft)	3927.04	10799.13	945.44
C & E Loss (ft)	0.01	Cum SA (acres)	1081.41	1241.14	509.63

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	971.25	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.61	Wt. n-Val.		0.039	
W.S. Elev (ft)	970.64	Reach Len. (ft)	600.00	555.50	450.00
Crit W.S. (ft)	965.52	Flow Area (sq ft)		26258.33	
E.G. Slope (ft/ft)	0.001223	Area (sq ft)		26258.33	
Q Total (cfs)	164000.00	Flow (cfs)		164000.00	
Top Width (ft)	2620.78	Top Width (ft)		2620.78	
Vel Total (ft/s)	6.25	Avg. Vel. (ft/s)		6.25	
Max Chl Dpth (ft)	14.24	Hydr. Depth (ft)		10.02	
Conv. Total (cfs)	4688712.0	Conv. (cfs)		4688712.0	
Length Wtd. (ft)	555.50	Wetted Per. (ft)		2627.25	
Min Ch El (ft)	956.40	Shear (lb/sq ft)		0.76	
Alpha	1.00	Stream Power (lb/ft s)		4.77	
Frctn Loss (ft)	0.75	Cum Volume (acre-ft)	300.08	11217.83	30.85
C & E Loss (ft)	0.01	Cum SA (acres)	48.67	1241.88	5.87

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 202.69

INPUT
Description: 202.69

Right Channel Bank Staion Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17011.6	967.7	17023.5	967.7	17027.5	969.7	17103.8	970.9	17146.9	971.1
17176.2	972.4	17191.8	969.4	17194.6	968.5	17229	967.1	17294.2	968.5
17355.9	968.4	17445.9	967	17473.9	966.6	17539	968.1	17612.5	967.1
17670.9	967.5	17744.3	967.8	17814.2	967.3	17864	971	17864.9	969.3
17868	967.6	17892.1	965.9	17941.9	963.7	18000.1	961.6	18034.8	963.6
18086.5	962.2	18149.2	965.2	18155.1	964.6	18181.7	966.5	18238.5	967.5
18278.8	966.4	18296.3	967	18357.8	968.5	18371.8	972.9	18377.8	973.6
18394.4	971.5	18484.4	971	18522.7	971.5	18539.1	964.7	18552.9	960.1
18644.5	957.3	18707	953.7	18734.1	956.4	18813.8	956	18848.2	955.5
18893.1	956.3	18953	954.8	19004.8	957.3	19084.1	957.6	19157.7	958.3
19178.7	958.5	19240.7	959.5	19322.9	960.8	19365.9	962.7	19411.4	962.6
19474.6	962.5	19548.6	961.5	19628.5	961.4	19720.2	962.7	19779.3	961
19788.6	961.1	19848.4	962	19949.8	964.6	20005.6	961.1	20016.8	961.1
20083.2	961	20101.5	960.8	20164.7	959.6	20249.5	962.2	20340.4	963
20436.6	963.5	20463.4	963.4	20522.8	963.7	20592.1	963.4	20658.5	962.2
20698.9	961.2	20768.7	958.6	20856.6	958.8	20890.1	958.6	21023.8	956.8
21070.8	960.8	21077.4	967.1	21081.8	970.8403	21085.4	973.9	21098	980.8
21103.6	981.6	21111.1	978.1	21139.5	981.1	21166.7	979.8	21198.8	976.9
21211.8	978.5	21216.7	978.5	21220.2	977.8	21223.7	977.9	21225.4	978.5
21238.2	975.1	21274	973.3						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
17011.6	.025	17868	.043	18377.8	.043	19084.1	.037	21103.6	.043

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
18377.8 21081.8 585 566.1 510 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17011.6	17176.2	981.6	F
21274.4	21274	981.6	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	970.12	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.61	Wt. n-Val.	0.037	0.039	
W.S. Elev (ft)	969.50	Reach Len. (ft)	585.00	566.10	510.00
Crit W.S. (ft)	965.26	Flow Area (sq ft)	3370.61	23641.28	
E.G. Slope (ft/ft)	0.001416	Area (sq ft)	3395.31	23641.28	
Q Total (cfs)	164000.00	Flow (cfs)	11595.49	152404.50	
Top Width (ft)	3716.99	Top Width (ft)	1164.28	2552.71	
Vel Total (ft/s)	6.07	Avg. Vel. (ft/s)	3.44	6.45	
Max Chl Dpth (ft)	15.80	Hydr. Depth (ft)	2.93	9.26	
Conv. Total (cfs)	4357701.0	Conv. (cfs)	308107.7	4049594.0	
Length Wtd. (ft)	567.45	Wetted Per. (ft)	1150.25	2558.76	

Pre-Project

* Min Ch El (ft)	*	953.70	* Shear (lb/sq ft)	*	0.26	*	0.82	*			
* Alpha	*	1.07	* Stream Power (lb/ft s)	*	0.89	*	5.27	*			
* Frctn Loss (ft)	*	0.88	* Cum Volume (acre-ft)	*	3878.50	*	10486.43	*	945.44	*	
* C & E Loss (ft)	*	0.01	* Cum SA (acres)	*	1066.80	*	1208.15	*	509.63	*	

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	*	970.49	* Element	*	Left OB	*	Channel	*	Right OB	*	
* Vel Head (ft)	*	0.70	* Wt. n-Val.	*		*	0.039	*		*	
* W.S. Elev (ft)	*	969.79	* Reach Len. (ft)	*	585.00	*	566.10	*	510.00	*	
* Crit W.S. (ft)	*	965.27	* Flow Area (sq ft)	*		*	24379.59	*		*	
* E.G. Slope (ft/ft)	*	0.001483	* Area (sq ft)	*		*	24379.59	*		*	
* Q Total (cfs)	*	164000.00	* Flow (cfs)	*		*	164000.00	*		*	
* Top Width (ft)	*	2553.41	* Top Width (ft)	*		*	2553.41	*		*	
* Vel Total (ft/s)	*	6.73	* Avg. Vel. (ft/s)	*		*	6.73	*		*	
* Max Chl Dpth (ft)	*	16.09	* Hydr. Depth (ft)	*		*	9.55	*		*	
* Conv. Total (cfs)	*	4258962.0	* Conv. (cfs)	*		*	4258962.0	*		*	
* Length Wtd. (ft)	*	566.10	* Wetted Per. (ft)	*		*	2559.81	*		*	
* Min Ch El (ft)	*	953.70	* Shear (lb/sq ft)	*		*	0.88	*		*	
* Alpha	*	1.00	* Stream Power (lb/ft s)	*		*	5.93	*		*	
* Frctn Loss (ft)	*	0.93	* Cum Volume (acre-ft)	*	300.08	*	10894.95	*	30.85	*	
* C & E Loss (ft)	*	0.01	* Cum SA (acres)	*	48.67	*	1208.88	*	5.87	*	

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 202.59

INPUT
Description: 202.59

Right Channel Bank Staion Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17002.6	972.3	17024.4	972.3	17044.5	970.3	17059.2	968	17094.8	969.6
17174.4	971.6	17206.5	971.5	17240	970.3	17269.6	966.5	17294.8	968.3
17332.9	969.6	17346.3	969	17365.3	965.5	17382.1	965.5	17399.6	966.6
17456.2	967.4	17523.1	966.7	17531.4	966.1	17557.2	966	17651.6	966.7
17719.5	967.2	17792.8	966.6	17824.5	966	17874.3	968.6	17886.2	967.6
17905.4	963.2	17965.1	963.4	18022.2	961.6	18100.5	965.1	18174.1	965.7
18210.5	964.5	18233.1	965.7	18298.3	968.6	18346.1	966.9	18416.7	969.6
18505.8	969.5	18556.9	967.5	18622.3	970	18641.7	970	18695.8	961.6
18704.2	959.5	18757.3	962	18789.4	959.6	18857.2	957.4	18891.5	955.7
18960	953.7	18984.2	957.3	19041.9	957.5	19094.7	960.1	19217.7	959.4
19264.1	960.3	19322.3	963.2	19396.6	964.3	19407.1	961.9	19425.6	960
19426	960.9	19488.2	960.7	19564.4	961.7	19640.1	961.8	19698.4	962.2
19757.8	961.8	19850.5	959.2	19935.3	960.1	19956.2	961	19994.3	961.1
20000.8	960.6	20005.1	959.6	20026.1	957.7	20112.1	958.6	20156.3	960.2
20218.5	960.8	20291.8	962.8	20371.5	961.1	20441.9	962	20501.9	959.5
20592.8	959.1	20699	957.2	20711	957	20803.1	957	20825.8	957.1
20901.9	957.5	20941	958.6	20978.1	956.7	21025	956.8	21152.1	957.5
21195.09	969.8993	21199.6	971.2	21234.1	969.1	21236.8	970.4	21264.7	967.7
21299.7	971.3	21305.5	967.6	21325.7	957.4	21362.7	958.8	21403.9	974
21429.1	977	21478	977.8						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
17002.6	.025	18022.2	.043	18416.7	.043	19217.7	.037	21403.9	.043

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
18416.72 19195.09 400 561.2 640 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17002.6	17332.9	977.8	F
21200	21478	977.8	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	*	969.23	* Element	*	Left OB	*	Channel	*	Right OB	*	
* Vel Head (ft)	*	0.68	* Wt. n-Val.	*	0.030	*	0.038	*		*	
* W.S. Elev (ft)	*	968.55	* Reach Len. (ft)	*	400.00	*	561.20	*	640.00	*	
* Crit W.S. (ft)	*	964.73	* Flow Area (sq ft)	*	2690.62	*	22510.76	*		*	
* E.G. Slope (ft/ft)	*	0.001710	* Area (sq ft)	*	2741.01	*	22510.76	*	645.31	*	
* Q Total (cfs)	*	164000.00	* Flow (cfs)	*	11762.68	*	152237.30	*		*	
* Top Width (ft)	*	3795.64	* Top Width (ft)	*	1100.09	*	2593.47	*	102.09	*	
* Vel Total (ft/s)	*	6.51	* Avg. Vel. (ft/s)	*	4.37	*	6.76	*		*	
* Max Chl Dpth (ft)	*	14.85	* Hydr. Depth (ft)	*	2.60	*	8.68	*		*	
* Conv. Total (cfs)	*	3966361.0	* Conv. (cfs)	*	284481.9	*	3681879.0	*		*	
* Length Wtd. (ft)	*	549.75	* Wetted Per. (ft)	*	1037.30	*	2598.01	*		*	
* Min Ch El (ft)	*	953.70	* Shear (lb/sq ft)	*	0.28	*	0.92	*		*	
* Alpha	*	1.03	* Stream Power (lb/ft s)	*	1.21	*	6.25	*		*	
* Frctn Loss (ft)	*	0.91	* Cum Volume (acre-ft)	*	3837.29	*	10186.54	*	941.66	*	
* C & E Loss (ft)	*	0.01	* Cum SA (acres)	*	1051.60	*	1174.71	*	509.04	*	

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	*	969.56	* Element	*	Left OB	*	Channel	*	Right OB	*	
* Vel Head (ft)	*	0.78	* Wt. n-Val.	*		*	0.038	*		*	

						Pre-Project					
* W.S. Elev (ft)	*	968.77	* Reach Len. (ft)	*	400.00	*	561.20	*	640.00	*
* Crit W.S. (ft)	*	964.70	* Flow Area (sq ft)	*		*	23099.83	*		*
* E.G. Slope (ft/ft)	*	0.001832	* Area (sq ft)	*		*	23099.83	*		*
* Q Total (cfs)	*	164000.00	* Flow (cfs)	*		*	164000.00	*		*
* Top Width (ft)	*	2606.65	* Top Width (ft)	*		*	2606.65	*		*
* Vel Total (ft/s)	*	7.10	* Avg. Vel. (ft/s)	*		*	7.10	*		*
* Max Chl Dpth (ft)	*	15.07	* Hydr. Depth (ft)	*		*	8.86	*		*
* Conv. Total (cfs)	*	3831880.0	* Conv. (cfs)	*		*	3831880.0	*		*
* Length Wtd. (ft)	*	561.08	* Wetted Per. (ft)	*		*	2611.44	*		*
* Min Ch El (ft)	*	953.70	* Shear (lb/sq ft)	*		*	1.01	*		*
* Alpha	*	1.00	* Stream Power (lb/ft s)	*		*	7.18	*		*
* Frctn Loss (ft)	*	1.02	* Cum Volume (acre-ft)	*	300.08	*	10586.43	*	30.85	*
* C & E Loss (ft)	*	0.00	* Cum SA (acres)	*	48.67	*	1175.35	*	5.87	*

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 202.48

INPUT
Description: 202.48

Right Channel Bank Staion Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17009.6	967.6	17022.6	967.5	17087.4	968.9	17103.6	970.4	17112.7	969.9
17147.3	972	17156.9	971.8	17158.2	972.3	17178.9	971	17194.4	968
17247.5	968.9	17346.9	969.1	17398.9	969.9	17439.3	968.6	17487.9	968.6
17510.1	966.5	17588.4	966.2	17656.6	965	17699.5	965.1	17766.7	963.2
17818.3	961.3	17890	963.8	17903.9	964.7	17928.8	961.3	17945.4	959.8
17990.2	960.1	18038.4	959.4	18049.4	960.1	18123	963.9	18190.8	965.8
18202.9	966.1	18268.8	964.1	18281.9	963.4	18373.9	966.8	18446.2	967.8
18518.9	965.4	18575.8	971.2	18611.2	970.9	18639.1	969.5	18713	961.6
18741.6	959.3	18784.7	961.7	18862.1	959	18930.8	954.4	19044.5	952.5
19074.6	956.5	19142.6	957.5	19190.4	959.1	19212.4	958.4	19300.6	961.8
19319.9	962.4	19391.1	961.2	19413.8	960.8	19449.5	958.2	19532.2	958.9
19643.4	959	19750	959.8	19755	959.8	19836.5	958.7	19940.1	961.4
20015	957.1	20042.9	956.5	20093.3	957.6	20148	959.8	20169.8	958.7
20238.1	957.7	20350.9	956.9	20382.1	955.8	20443.3	956.5	20518.7	957.1
20582.5	957.3	20605	956.3	20635.4	956.3	20720.3	959.3	20738.9	959.4
20761.4	962.7	20791.3	965.4	20855.9	962.6	20874.6	962	20962.4	963.2
21037.1	963.2	21067	962.7	21100.7	957.5	21141.9	956.9	21226.2	955.6
21274.2	959.7	21307.36	968.958	21309.3	969.5	21365.5	967.8	21385.7	965.3
21411.6	965.6	21424.5	960.8	21433.2	956.4	21477.4	957.2	21505.2	969
21532	978.5	21590.9	977.9						

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
17009.6	.043	18575.8	.043	19074.6	.037	21532	.043

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
18575.8	21307.36	700	576.2	385	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17009.6	17398.9	978.5	F
21309.3	21590.9	978.5	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	*	968.30	* Element	*	Left OB	*	Channel	*	Right OB	*	
* Vel Head (ft)	*	0.65	* Wt. n-Val.	*	0.043	*	0.038	*		*	
* W.S. Elev (ft)	*	967.66	* Reach Len. (ft)	*	700.00	*	576.20	*	385.00	*	
* Crit W.S. (ft)	*	963.72	* Flow Area (sq ft)	*	3546.47	*	22956.75	*		*	
* E.G. Slope (ft/ft)	*	0.001617	* Area (sq ft)	*	3548.41	*	22956.75	*	824.39	*	
* Q Total (cfs)	*	164000.00	* Flow (cfs)	*	11539.59	*	152460.40	*		*	
* Top Width (ft)	*	3830.22	* Top Width (ft)	*	1048.52	*	2646.34	*	135.36	*	
* Vel Total (ft/s)	*	6.19	* Avg. Vel. (ft/s)	*	3.25	*	6.64	*		*	
* Max Chl Dpth (ft)	*	15.16	* Hydr. Depth (ft)	*	3.45	*	8.67	*		*	
* Conv. Total (cfs)	*	4078760.0	* Conv. (cfs)	*	286995.3	*	3791765.0	*		*	
* Length Wtd. (ft)	*	585.03	* Wetted Per. (ft)	*	1029.25	*	2650.03	*		*	
* Min Ch El (ft)	*	952.50	* Shear (lb/sq ft)	*	0.35	*	0.87	*		*	
* Alpha	*	1.09	* Stream Power (lb/ft s)	*	1.13	*	5.81	*		*	
* Frctn Loss (ft)	*	0.91	* Cum Volume (acre-ft)	*	3808.41	*	9893.65	*	930.86	*	
* C & E Loss (ft)	*	0.02	* Cum SA (acres)	*	1041.73	*	1140.96	*	507.29	*	

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	*	968.54	* Element	*	Left OB	*	Channel	*	Right OB	*	
* Vel Head (ft)	*	0.77	* Wt. n-Val.	*	0.043	*	0.038	*		*	
* W.S. Elev (ft)	*	967.77	* Reach Len. (ft)	*	700.00	*	576.20	*	385.00	*	
* Crit W.S. (ft)	*	963.79	* Flow Area (sq ft)	*	163.17	*	23252.06	*		*	
* E.G. Slope (ft/ft)	*	0.001789	* Area (sq ft)	*	163.17	*	23252.06	*		*	
* Q Total (cfs)	*	164000.00	* Flow (cfs)	*	236.09	*	163763.90	*		*	
* Top Width (ft)	*	2826.14	* Top Width (ft)	*	178.75	*	2647.39	*		*	
* Vel Total (ft/s)	*	7.00	* Avg. Vel. (ft/s)	*	1.45	*	7.04	*		*	
* Max Chl Dpth (ft)	*	15.27	* Hydr. Depth (ft)	*	0.91	*	8.78	*		*	
* Conv. Total (cfs)	*	3877911.0	* Conv. (cfs)	*	5582.5	*	3872328.0	*		*	
* Length Wtd. (ft)	*	576.90	* Wetted Per. (ft)	*	180.40	*	2651.19	*		*	
* Min Ch El (ft)	*	952.50	* Shear (lb/sq ft)	*	0.10	*	0.98	*		*	
* Alpha	*	1.01	* Stream Power (lb/ft s)	*	0.15	*	6.90	*		*	

```
                                                                    Pre-Project
* Frctn Loss (ft)        *    1.00  * Cum Volume (acre-ft)   *  299.33  *10287.85  *   30.85  *
* C & E Loss (ft)        *    0.02  * Cum SA (acres)         *   47.85  * 1141.51  *    5.87  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                RS: 202.37

INPUT
Description: 202.37

Right Channel Bank Staion Interpolated
Station Elevation Data    num=      97
    Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
*********************************************************************************
 17046.5      966 17144.2    966.4 17159.7    966.4 17174.6    968.6 17199.8    968.8
 17234.1    972.8 17240.1    970.8 17243.5    970.9 17244.9    973.1 17262.2      972
 17288.2    966.3 17339.4    966.6 17390.7    968.1 17480.2    967.1 17572.6    967.5
 17609.6    965.2 17687.4    964.4   17729    964.2 17762.4    962.8 17818.6    964.2
 17908.4    962.3 17967.5    961.6 18000.2      964 18038.7    964.1 18072.2    959.7
 18099.8    957.9 18104.7    958.4 18151.6    958.4 18194.7    959.1 18243.6    962.8
 18315.7    961.8 18394.4    965.8 18412.7    966.2 18470.8    964.2 18481.7    964.7
 18501.3    969.1 18508.1      970 18598.8    969.5 18602.7    969.6 18648.3    963.8
 18679.8    963.2   18704    957.9 18743.6    960.5 18769.5    961.1 18842.5    955.2
 18917.4    955.9 18993.6    955.2 19026.1    956.5 19078.6    954.6 19116.4    956.7
 19134.5    956.6 19275.2    955.9 19317.5    959.5 19392.9    961.2 19411.7    961.2
 19457.9    957.5 19505.5    956.4 19577.4    956.1 19580.5    956.2 19670.2    956.8
 19746.9    961.5 19839.2    958.9 19936.5    957.1   20045    956.9 20086.7    957.3
 20169.3    956.2 20237.2    955.3 20328.5      958 20334.1    957.4 20399.8      957
 20463.4    959.2 20513.6      962 20602.6    959.9 20704.3    960.7 20742.9      961
 20844.4    960.5 20908.1    960.2 20950.1    961.7 21049.7    960.9 21054.1    960.9
 21135.1    960.3 21179.1    960.2 21212.7    956.8 21338.5    957.1 21366.3    957.1
 21382.6    961.2 21402.5    967.3 21411.9    966.7 21431.9    963.9 21452.4    962.7
   21480    964.4 21496.8      956 21544.1    956.621581.78968.0081 21601.9    974.1
 21642.4      975   21693    974.4

Manning's n Values        num=       5
     Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val
*********************************************************************************
 17046.5    .025 17390.7    .043 18508.1    .043 18743.6    .037 21601.9    .043

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       18508.121581.78              430   400.7     360             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
 17046.5 17390.7     975        F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         *  967.38  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.58  * Wt. n-Val.            *   0.043  *   0.037  *          *
* W.S. Elev (ft)         *  966.79  * Reach Len. (ft)       *  430.00  *  400.70  *  360.00  *
* Crit W.S. (ft)         *  962.77  * Flow Area (sq ft)     * 3570.38  *24155.44  *          *
* E.G. Slope (ft/ft)     *0.001487  * Area (sq ft)          * 3653.85  *24155.44  *          *
* Q Total (cfs)          *164000.00  * Flow (cfs)          *11849.87  *152150.10  *          *
* Top Width (ft)         * 4026.46  * Top Width (ft)       * 1083.03  * 2943.43  *          *
* Vel Total (ft/s)       *    5.92  * Avg. Vel. (ft/s)     *    3.32  *    6.30  *          *
* Max Chl Dpth (ft)      *   12.19  * Hydr. Depth (ft)     *    3.94  *    8.21  *          *
* Conv. Total (cfs)      *4253334.0  * Conv. (cfs)         *307326.0  *3946008.0  *          *
* Length Wtd. (ft)       *  401.97  * Wetted Per. (ft)     *  908.19  * 2950.76  *          *
* Min Ch El (ft)         *  954.60  * Shear (lb/sq ft)     *    0.36  *    0.76  *          *
* Alpha                  *    1.07  * Stream Power (lb/ft s) *    1.21  *    4.79  *          *
* Frctn Loss (ft)        *    0.43  * Cum Volume (acre-ft)   * 3750.54  * 9582.06  *  927.22  *
* C & E Loss (ft)        *    0.06  * Cum SA (acres)         * 1024.61  * 1103.99  *  506.69  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)         *  967.52  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.69  * Wt. n-Val.            *   0.043  *   0.037  *          *
* W.S. Elev (ft)         *  966.82  * Reach Len. (ft)       *  430.00  *  400.70  *  360.00  *
* Crit W.S. (ft)         *  963.06  * Flow Area (sq ft)     *  598.51  *24244.56  *          *
* E.G. Slope (ft/ft)     *0.001673  * Area (sq ft)          *  598.51  *24244.56  *          *
* Q Total (cfs)          *164000.00  * Flow (cfs)          * 1619.72  *162380.30  *          *
* Top Width (ft)         * 3165.40  * Top Width (ft)       *  221.16  * 2944.24  *          *
* Vel Total (ft/s)       *    6.60  * Avg. Vel. (ft/s)     *    2.71  *    6.70  *          *
* Max Chl Dpth (ft)      *   12.22  * Hydr. Depth (ft)     *    2.71  *    8.23  *          *
* Conv. Total (cfs)      *4009107.0  * Conv. (cfs)         * 39595.2  *3969512.0  *          *
* Length Wtd. (ft)       *  400.84  * Wetted Per. (ft)     *  225.94  * 2951.60  *          *
* Min Ch El (ft)         *  954.60  * Shear (lb/sq ft)     *    0.28  *    0.86  *          *
* Alpha                  *    1.02  * Stream Power (lb/ft s) *    0.75  *    5.75  *          *
* Frctn Loss (ft)        *    0.45  * Cum Volume (acre-ft)   *  293.21  * 9973.71  *   30.85  *
* C & E Loss (ft)        *    0.09  * Cum SA (acres)         *   44.64  * 1104.53  *    5.87  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION
```

RIVER: 1
REACH: 1 RS: 202.29

INPUT
Description: 202.29
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17300	969.4	17300.2	969.4	17310.5	971.8	17342.5	971.5	17346.7	971.3
17352.1	970.9	17359.3	970.4	17377.2	970.2	17388.5	970.1	17410.3	969.8
17443.6	969.4	17469.5	969.2	17494.3	969	17512.1	968.3	17537.2	968.2
17551.3	968.6	17580.1	968.2	17588.6	968.1	17610.9	968	17662.1	967.6
17695.1	967.2	17731.2	966.7	17756	966.3	17772.6	965.6	17783.7	965.5
17806	965.9	17845.1	965.4	17859.1	965.2	17870.8	965.1	17909	964.8
17939.7	964.2	17948.3	964	17978	963.3	17983.9	963.1	18035.9	962.8
18043.8	962.7	18050.9	962.7	18093.6	962.3	18093.8	962.8	18107.2	962.7
18151	961.8	18180	961.8	18197.4	961.8	18203.9	961.7	18212.7	961.5
18297.3	960.6	18444	959	18520.4	958	18577.3	957.8	18667.8	958.1
18744.1	957.7	18943.8	956.4	18989.6	956.6	19224.4	957.4	19228.7	957.4
19485.5	956.7	19523.1	956.9	19553.4	956.9	19827.7	956.8	19864.8	956.1
19898	956.1	20171.5	956.3	20383.2	955.7	20442.4	955.9	20499.8	957.2
20499.9	957.2	20696.8	957.3	20777.7	957.4	20879.1	956.5	20964	956.5
21129.5	956.9	21176.5	956.6	21222.8	956.1	21262.9	955.8	21273.6	955.5
21305.8	956.3	21343.7	957	21400.4	957.2	21410.8	957.3	21495.3	956.7
21550.9	957.9	21563.4	959.3	21703.1	961	21803	962.3	21973.7	964.9
22093.3	966.9	22138.1	968.1	22178	968.7	22302.7	970.7	22344.1	970.7
22388.8	970.9	22553.3	971.9	22676.5	971.2	22717.7	971.3	22766.5	972.1
22785.4	971.9								

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
17300	.025	17469.5	.043	18197.4	.043	18989.6	.037	21563.4	.043
21803	.043								

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
18197.4	21803	590	583.1	600	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
21803	22785.4	972.1	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	966.88	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.37	Wt. n-Val.	0.043	0.038	
W.S. Elev (ft)	966.51	Reach Len. (ft)	590.00	583.10	600.00
Crit W.S. (ft)	961.30	Flow Area (sq ft)	1223.63	33003.69	
E.G. Slope (ft/ft)	0.000809	Area (sq ft)	1223.63	33003.69	575.33
Q Total (cfs)	164000.00	Flow (cfs)	2326.17	161673.80	
Top Width (ft)	4327.50	Top Width (ft)	454.68	3605.60	267.22
Vel Total (ft/s)	4.79	Avg. Vel. (ft/s)	1.90	4.90	
Max Chl Dpth (ft)	11.01	Hydr. Depth (ft)	2.69	9.15	
Conv. Total (cfs)	5764473.0	Conv. (cfs)	81763.2	5682710.0	
Length Wtd. (ft)	583.21	Wetted Per. (ft)	455.07	3605.80	
Min Ch El (ft)	955.50	Shear (lb/sq ft)	0.14	0.46	
Alpha	1.03	Stream Power (lb/ft s)	0.26	2.27	
Frctn Loss (ft)	0.64	Cum Volume (acre-ft)	3726.47	9319.16	924.84
C & E Loss (ft)	0.02	Cum SA (acres)	1017.02	1073.87	505.59

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	966.97	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.38	Wt. n-Val.		0.038	
W.S. Elev (ft)	966.59	Reach Len. (ft)	590.00	583.10	600.00
Crit W.S. (ft)	961.30	Flow Area (sq ft)		33283.39	
E.G. Slope (ft/ft)	0.000812	Area (sq ft)		33283.39	
Q Total (cfs)	164000.00	Flow (cfs)		164000.00	
Top Width (ft)	3605.60	Top Width (ft)		3605.60	
Vel Total (ft/s)	4.93	Avg. Vel. (ft/s)		4.93	
Max Chl Dpth (ft)	11.09	Hydr. Depth (ft)		9.23	
Conv. Total (cfs)	5756355.0	Conv. (cfs)		5756355.0	
Length Wtd. (ft)	583.10	Wetted Per. (ft)		3614.88	
Min Ch El (ft)	955.50	Shear (lb/sq ft)		0.47	
Alpha	1.00	Stream Power (lb/ft s)		2.30	
Frctn Loss (ft)	0.64	Cum Volume (acre-ft)	290.25	9709.12	30.85
C & E Loss (ft)	0.02	Cum SA (acres)	43.55	1074.40	5.87

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 202.18

INPUT
Description: 202.18

Right Channel Bank Staion Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17052.9	966.6	17168.5	966	17288.7	965.2	17328.5	965.5	17342.3	968
17346	967	17354.3	968	17364.1	966.7	17396.2	967.4	17415.4	969
17507.1	967.7	17613.8	965.1	17631.5	964.7	17747.4	962.9	17748.5	962.9
17865.9	962.4	17961.7	963.1	18017.5	963.4	18100.5	963.8	18139.7	964.7
18194.4	960.2	18256	959.9	18292.6	958.2	18331.5	958.9	18344.2	960.8
18389	961.7	18415.9	960.6	18473.5	964.7	18525.3	966.1	18612.9	966.4
18643.2	962.4	18672.1	961.3	18707.1	957.3	18769	952.6	18804.3	955.4

18910.2	957.1	18976	956.3	19019.3	958.4	19048.9	958.7	19085.4	956.1		
19142.3	957	19169.3	958.6	19183.3	960.5	19235.6	960.8	19285.1	963		
19369.7	960.1	19472.8	957.3	19559.8	955.6	19630.4	954.7	19686.5	951.8		
19727.7	955.4	19747.8	950.7	19844.5	951.9	19893.9	954	19954	950		
20009	954	20067.8	952	20110.4	954.4	20177.3	963.5	20231.5	963.4		
20240.9	962.3	20277.5	960.8	20351.6	962	20380	959.9	20405.9	959.3		
20492.4	961.5	20578.7	962.9	20684.9	962.3	20769.5	960.5	20826.3	963.1		
20876.8	962.2	20900.3	963.5	20997.2	958.5	21014.5	957.4	21075.2	957.9		
21127.2	959.8	21207.6	957.2	21255	956.2	21287.8	957.6	21353.8	957.8		
21374.8	961.6	21414.6	960.9	21415.3	960.1	21444.1	956.6	21527.2	959.6		
21591.2	960.1	21643.6	958.8	21685.6	954	21737.8	955.1	21787.2	954.7		
21808.8	955.3	21829.3	951.8	21869.4	951.7	21919.3	955.9	21938.4	1966.7	695	
21957.1	977.4	21992	978.3								

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
17052.9	.025	17415.4	.043	18139.7	.043	18976	.037	21957.1	.043

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

18139.7	21938.41	525	511.84	500	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
17052.9	17415.4	978.3	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	966.23	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.53	Wt. n-Val.	0.043	0.038	
W.S. Elev (ft)	965.70	Reach Len. (ft)	525.00	511.84	500.00
Crit W.S. (ft)	961.75	Flow Area (sq ft)	1254.37	27384.83	
E.G. Slope (ft/ft)	0.001545	Area (sq ft)	1287.41	27384.83	
Q Total (cfs)	164000.00	Flow (cfs)	2949.36	161050.60	
Top Width (ft)	4356.13	Top Width (ft)	666.91	3689.21	
Vel Total (ft/s)	5.73	Avg. Vel. (ft/s)	2.35	5.88	
Max Chl Dpth (ft)	15.70	Hydr. Depth (ft)	2.28	7.42	
Conv. Total (cfs)	4172957.0	Conv. (cfs)	75045.9	4097911.0	
Length Wtd. (ft)	512.05	Wetted Per. (ft)	550.64	3697.85	
Min Ch El (ft)	950.00	Shear (lb/sq ft)	0.22	0.71	
Alpha	1.04	Stream Power (lb/ft s)	0.52	4.20	
Frctn Loss (ft)	1.19	Cum Volume (acre-ft)	3709.47	8914.98	920.88
C & E Loss (ft)	0.04	Cum SA (acres)	1009.42	1025.04	503.75

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	966.31	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.55	Wt. n-Val.		0.038	
W.S. Elev (ft)	965.77	Reach Len. (ft)	525.00	511.84	500.00
Crit W.S. (ft)	961.75	Flow Area (sq ft)		27619.54	
E.G. Slope (ft/ft)	0.001559	Area (sq ft)		27619.54	
Q Total (cfs)	164000.00	Flow (cfs)		164000.00	
Top Width (ft)	3692.06	Top Width (ft)		3692.06	
Vel Total (ft/s)	5.94	Avg. Vel. (ft/s)		5.94	
Max Chl Dpth (ft)	15.77	Hydr. Depth (ft)		7.48	
Conv. Total (cfs)	4154161.0	Conv. (cfs)		4154161.0	
Length Wtd. (ft)	511.84	Wetted Per. (ft)		3701.82	
Min Ch El (ft)	950.00	Shear (lb/sq ft)		0.73	
Alpha	1.00	Stream Power (lb/ft s)		4.31	
Frctn Loss (ft)	1.19	Cum Volume (acre-ft)	290.25	9301.49	30.85
C & E Loss (ft)	0.04	Cum SA (acres)	43.55	1025.56	5.87

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 202.09

INPUT
Description: 202.09

Right Channel Bank Staion Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12423.7	965.6	17099.8	965.6	17186	965.4	17264.6	965.3	17349.3	965
17358.9	964.8	17418	967.1	17422.9	965.6	17428.2	966.9	17452	965.9
17476.4	966.1	17491.8	967.5	17574.4	967	17614.9	967.2	17693.5	967.2
17814.7	961.1	17920.2	960.8	17951.8	961.2	18050.9	963.8	18132.1	964.1
18212.9	964.4	18247.5	964.7	18306	959.3	18322.2	960.3	18340.5	958.1
18363.8	957.3	18389.5	962.4	18475.1	961.1	18485.9	960.9	18523.3	964.1
18558.3	962.3	18573.3	963.2	18621.2	963.3	18652.7	957.8	18708.8	958.1
18748.7	952.2	18769.9	955.2	18859.3	957.7	18962.1	957.3	18975.3	957.3
19086	957.5	19165.3	959.6	19217.9	961	19287.9	955.2	19344.8	963
19434.4	961.7	19513.8	958.9	19564.6	953.8	19623.2	957.6	19686.2	956.9
19738.7	957.5	19783.4	954.5	19908.5	952.6	19947.2	952	20093.1	950
20106.3	950	20143.3	952.6	20167.6	955.5	20187.3	956.2	20207.9	958
20254	956.6	20271.4	957.6	20297.7	960.4	20396.6	960.4	20472.8	959.6
20529.3	963.3	20613.6	962.6	20698	962.2	20720.5	961.5	20787.7	964.2

Pre-Project

20816.2	959.4	20866.2	961.1	20916.3	960.7	20996.8	963.3	21047.5	963.6		
21101.6	961.6	21155	960.7	21221.6	961.5	21280.8	956.9	21370.9	957.5		
21444.4	956.7	21456.1	957.6	21466.3	959.4	21503.9	959	21516.7	956.6		
21530.5	955.5	21561.3	958	21627.9	959.2	21709	959.7	21751.4	954.3		
21825.3	953.8	21856.2	951.2	21912.9	951.7	21928.2	955.7	21938.26	965.332		
21947	973.7	21985	973.7								

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
12423.7	.025	17491.8	.043	18212.9	.043	19086	.037	21947	.043

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

18212.9	21938.26	510	509.32	500	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
12423.7	17491.8	973.7	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	965.01	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.92	Wt. n-Val.	0.043	0.038	
W.S. Elev (ft)	964.09	Reach Len. (ft)	510.00	509.32	500.00
Crit W.S. (ft)	961.98	Flow Area (sq ft)	685.44	*20909.31	
E.G. Slope (ft/ft)	*0.003848	Area (sq ft)	685.44	*20909.31	
Q Total (cfs)	*164000.00	Flow (cfs)	2203.35	*161796.70	
Top Width (ft)	4052.05	Top Width (ft)	373.14	3678.91	
Vel Total (ft/s)	7.59	Avg. Vel. (ft/s)	3.21	7.74	
Max Chl Dpth (ft)	14.09	Hydr. Depth (ft)	1.84	5.68	
Conv. Total (cfs)	*2643855.0	Conv. (cfs)	35520.3	*2608335.0	
Length Wtd. (ft)	509.33	Wetted Per. (ft)	373.25	3688.94	
Min Ch El (ft)	950.00	Shear (lb/sq ft)	0.44	1.36	
Alpha	1.03	Stream Power (lb/ft s)	1.42	10.54	
Frctn Loss (ft)	1.03	Cum Volume (acre-ft)	3697.58	8631.24	920.88
C & E Loss (ft)	0.10	Cum SA (acres)	1003.15	981.75	503.75

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	965.09	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.93	Wt. n-Val.		0.038	
W.S. Elev (ft)	964.16	Reach Len. (ft)	510.00	509.32	500.00
Crit W.S. (ft)	961.95	Flow Area (sq ft)		*21163.39	
E.G. Slope (ft/ft)	*0.003803	Area (sq ft)		*21163.39	
Q Total (cfs)	*164000.00	Flow (cfs)		*164000.00	
Top Width (ft)	3682.20	Top Width (ft)		3682.20	
Vel Total (ft/s)	7.75	Avg. Vel. (ft/s)		7.75	
Max Chl Dpth (ft)	14.16	Hydr. Depth (ft)		5.75	
Conv. Total (cfs)	*2659472.0	Conv. (cfs)		*2659472.0	
Length Wtd. (ft)	509.32	Wetted Per. (ft)		3692.31	
Min Ch El (ft)	950.00	Shear (lb/sq ft)		1.36	
Alpha	1.00	Stream Power (lb/ft s)		10.54	
Frctn Loss (ft)	1.02	Cum Volume (acre-ft)	290.25	9014.89	30.85
C & E Loss (ft)	0.11	Cum SA (acres)	43.55	982.23	5.87

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 201.99

INPUT
Description: 201.99

Right Channel Bank Staion Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12423.7	962.9	12792.3	963.8	13061.9	964.2	13286.8	963.1	13510.3	962
13746.9	961.3	13984	962.2	14217.9	962.9	14443.4	963.1	14690.7	964.7
14908.9	964.6	14956.9	968.1	14966.2	964.3	15216	964.5	15450.3	964.3
15717.5	963.6	15947.7	963	16170.3	962.3	16226.7	962.5	16243.5	964.4
16481.8	963.7	16706	964.8	16931.9	964.5	17163.9	965	17409.1	965.4
17507.7	965.1	17760.7	967.9	18000.5	959.7	18235.1	962.5	18353.1	960.5
18417.7	956.5	18440	960.5	18639.2	962	18674	954.8	18737.7	957.9
18818.4	957.6	18843.9	951.9	18894.5	956	19104.7	956.3	19162.4	959.4
19182	952.7	19244.4	958.4	19290	953.9	19357.8	953.9	19392.3	959.4
19476.2	956.3	19599.7	958.8	19757.3	956.9	19806.8	958.1	19854.1	952.5
20078.1	951.3	20095.8	953	20192.9	950.6	20250.9	959.6	20290.2	950.4
20347.4	962.9	20368.6	965.8	20433.1	963	20465.1	950.1	20577.2	949.5
20589	951.7	20619.5	951.7	20638.1	949.5	20700.3	949.5	20727.6	954.8
20735.3	964.1	20750.8	961.1	20862.1	965.2	20904	975.7	20956.4	975.3
20989.8	964.1	21038.3	963.3	21074.1	972.2	21105.1	970	21109	967.5
21138.5	968.2	21163.6	953.1	21180.4	949.1	21267.5	949.1	21538.3	949.1
21555.3	949.1	21578	958.4	21595.4	955.8	21617.3	955.7	21641.7	951.9
21676.1	954.4	21726.5	948.7	21821.2	953.2	21862.8	963.6	21892.7	1964.4166
21991	967.1	22006.5	964	22019.9	967.9	22243.3	966.9	22585.6	967
22917.2	966.9	23024.3	966.9						

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
12423.7	.025	17507.7	.043	17760.7	.043	19357.8	.032	20250.9	.037
21991	.037	22006.5	.025						

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
18235.121892.71 470 477.46 490 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
12423.7	17760.7	975.7	F
21990.9	23024.3	975.7	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	963.87	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.58	Wt. n-Val.	0.043	0.036	
W.S. Elev (ft)	963.29	Reach Len. (ft)	470.00	477.46	490.00
Crit W.S. (ft)	958.65	Flow Area (sq ft)	702.50	26531.65	
E.G. Slope (ft/ft)	0.001252	Area (sq ft)	2110.20	26531.65	
Q Total (cfs)	164000.00	Flow (cfs)	1394.28	162605.70	
Top Width (ft)	5331.46	Top Width (ft)	2122.37	3209.09	
Vel Total (ft/s)	6.02	Avg. Vel. (ft/s)	1.98	6.13	
Max Chl Dpth (ft)	14.59	Hydr. Depth (ft)	2.07	8.27	
Conv. Total (cfs)	4634981.0	Conv. (cfs)	39405.2	4595576.0	
Length Wtd. (ft)	477.43	Wetted Per. (ft)	339.69	3231.97	
Min Ch El (ft)	948.70	Shear (lb/sq ft)	0.16	0.64	
Alpha	1.03	Stream Power (lb/ft s)	0.32	3.93	
Frctn Loss (ft)	0.47	Cum Volume (acre-ft)	3681.21	8353.90	920.88
C & E Loss (ft)	0.05	Cum SA (acres)	988.54	941.48	503.75

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	963.96	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.58	Wt. n-Val.		0.036	
W.S. Elev (ft)	963.38	Reach Len. (ft)	470.00	477.46	490.00
Crit W.S. (ft)	958.65	Flow Area (sq ft)		26811.01	
E.G. Slope (ft/ft)	0.001241	Area (sq ft)		26811.01	
Q Total (cfs)	164000.00	Flow (cfs)		164000.00	
Top Width (ft)	3219.77	Top Width (ft)		3219.77	
Vel Total (ft/s)	6.12	Avg. Vel. (ft/s)		6.12	
Max Chl Dpth (ft)	14.68	Hydr. Depth (ft)		8.33	
Conv. Total (cfs)	4655852.0	Conv. (cfs)		4655852.0	
Length Wtd. (ft)	477.46	Wetted Per. (ft)		3243.71	
Min Ch El (ft)	948.70	Shear (lb/sq ft)		0.64	
Alpha	1.00	Stream Power (lb/ft s)		3.92	
Frctn Loss (ft)	0.46	Cum Volume (acre-ft)	290.25	8734.42	30.85
C & E Loss (ft)	0.05	Cum SA (acres)	43.55	941.88	5.87

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 201.9

INPUT
Description: 201.9

Right Channel Bank Staion Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12498	962.4	12680.7	963	12847.7	963.1	13015.1	963.3	13199.8	963.2
13361.7	963.7	13371.9	960.2	13574.5	962.7	13724.8	961.4	13908.8	961.8
14082.1	962.6	14282	963.2	14504.3	963.3	14674.9	963	14875.2	963.6
15026	967.2	15036.6	963.6	15225.9	964.3	15398.3	964.4	15600.8	964.2
15790.8	963.8	15996.8	963.9	16181.7	962.7	16294.9	962.8	16309.4	964.3
16331.6	962	16525.6	962.6	16699.1	963.6	16881.9	964.4	17117.4	963.7
17353.6	965.3	17563.8	966.2	17569	964.3	17769.9	966.6	17941.7	966
17954.3	963.8	18181.9	958.7	18226.6	955.3	18260.2	960.7	18291.8	960.5
18303.9	958.6	18480.2	961.7	18648.9	961.8	18745.5	962	18798.7	956.2
18820.8	957.2	18854.3	951.8	18909.2	955.3	19138.4	956.3	19200	953.3
19336.3	962.3	19389.1	958.9	19449.9	951.5	19624.1	955.9	19782.3	957.2
19911.4	951.6	20081.9	950.6	20221.5	952.6	20269.4	959.3	20331.6	955.1
20356	957.7	20398.9	948.7	20567.7	948.5	20744.7	949.1	20888.3	947.2
20954.4	949.9	21000.8	949	21037.1	957.5	21099.1	956	21139.7	949.7
21300.7	952.4	21411.2	949.7	21444.1	955.9	21487.9	956.1	21503.4	949
21546.8	949	21556.2	952.2	21567.4	960.5	21588	955.9	21628.6	952.2
21667.7	955.7	21698.6	949	21736.9	950	21748.7	952.4	21786.7	952.8
21827.41	963.9898	21842	968	21955.2	963.2	21982.2	967.4	22181.8	966
22228.4	965.8	22400.7	965.8	22432.3	965.9	22634.3	966.5	22801.2	966.1
23008.7	966	23096	965.3						

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
12498	.025	17569	.043	17769.9	.043	19389.1	.032	20331.6	.037
21842	.037	21982.2	.025						

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
17954.321827.41 500 495.8 500 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
12498	17769.9	968	F
21842.1	23096	968	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	963.35	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.41	Wt. n-Val.		0.036	
W.S. Elev (ft)	962.94	Reach Len. (ft)	500.00	495.80	500.00
Crit W.S. (ft)	957.27	Flow Area (sq ft)		31873.70	
E.G. Slope (ft/ft)	0.000785	Area (sq ft)	1051.08	31873.70	
Q Total (cfs)	164000.00	Flow (cfs)		164000.00	
Top Width (ft)	5241.54	Top Width (ft)	1410.58	3830.97	
Vel Total (ft/s)	5.15	Avg. Vel. (ft/s)		5.15	
Max Chl Dpth (ft)	15.74	Hydr. Depth (ft)		8.32	
Conv. Total (cfs)	5852611.0	Conv. (cfs)		5852611.0	
Length Wtd. (ft)	495.80	Wetted Per. (ft)		3845.63	
Min Ch El (ft)	947.20	Shear (lb/sq ft)		0.41	
Alpha	1.00	Stream Power (lb/ft s)		2.09	
Frctn Loss (ft)	0.34	Cum Volume (acre-ft)	3664.16	8033.81	920.88
C & E Loss (ft)	0.02	Cum SA (acres)	969.48	902.90	503.75

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	963.45	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.40	Wt. n-Val.		0.036	
W.S. Elev (ft)	963.05	Reach Len. (ft)	500.00	495.80	500.00
Crit W.S. (ft)	957.27	Flow Area (sq ft)		32284.29	
E.G. Slope (ft/ft)	0.000756	Area (sq ft)		32284.29	
Q Total (cfs)	164000.00	Flow (cfs)		164000.00	
Top Width (ft)	3830.97	Top Width (ft)		3830.97	
Vel Total (ft/s)	5.08	Avg. Vel. (ft/s)		5.08	
Max Chl Dpth (ft)	15.85	Hydr. Depth (ft)		8.43	
Conv. Total (cfs)	5964132.0	Conv. (cfs)		5964132.0	
Length Wtd. (ft)	495.80	Wetted Per. (ft)		3845.85	
Min Ch El (ft)	947.20	Shear (lb/sq ft)		0.40	
Alpha	1.00	Stream Power (lb/ft s)		2.01	
Frctn Loss (ft)	0.33	Cum Volume (acre-ft)	290.25	8410.55	30.85
C & E Loss (ft)	0.02	Cum SA (acres)	43.55	903.24	5.87

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 201.81

INPUT
Description: 201.81

Left and Right Channel Bank Staions Interpolated
Station Elevation Data num= 98

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12574.1	961.8	12761.8	962	12923.9	962.6	13108.8	962.8	13276.3	963
13435.2	962.8	13461.6	960.9	13640.2	962.7	13758.3	961.2	13887.4	962.7
14049.5	962.4	14230.8	962.1	14408	962.7	14585.1	963.8	14774.2	962.7
14940.9	962.1	15056.2	964.1	15099	967.8	15104.2	963.1	15275.2	964.2
15444.5	964.1	15610.6	963.9	15771.8	963.8	15946.1	963.3	16142.1	962.7
16322.1	962	16382.5	963.6	16475.3	960.8	16709.7	962.1	16947.6	962.4
17136	963	17301	963.8	17538.6	963.1	17700.9	964.2	17890.2	965.6
17935.7	965.6	17946.8	963.6227	17964	960.6	18130	958	18246.7	956.1
18277.1	959.5	18483.2	960.9	18556.4	960.8	18619.6	964.6	18716.1	963.4
18765	964.3	18860.5	957.6	18955	958.4	19006.4	951.6	19072.9	957.9
19139.8	953.9	19294.5	954.6	19378.9	957.7	19550.9	954.4	19605.4	951.1
19693.5	953.4	19720.4	950.1	19883.7	950.2	20049.4	953	20182.8	953.5
20285.8	953.2	20377.1	957.6	20392.1	962.6	20421.1	948.6	20597	946.8
20665	946.7	20832.3	946.1	20846.8	951.1	20855.6	956.4	20869.8	954.4
20881.2	950.3	20908.5	949.6	20924	952.5	20962.6	950.9	21000.7	946.6
21169.8	946	21187.6	953.2	21244.2	956.3	21263.5	960.4	21295.1	951.3
21322.9	946.6	21496.1	948.5	21522.9	951.7	21690.5	950.7	21775	950.9
21803.2	796	3.6213	21811	967.1	21860	969.2	21904.1	961.6	21929.9	965
21975.7	963.6	22175.4	965.3	22352.1	965	22654	963.5	22715.1	963.5
22875.2	962.8	23093.9	964.4	23169.5	964.2				

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
12574.1	.025	17700.9	.065	17935.7	.065	19378.9	.032	20392.1	.037
21860	.025	21975.7	.025						

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
17946.89	21803.27	535	511.61	515	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
12574.1	17935.7	969.2	F
21859.6	23169.5	969.2	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	962.99	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.36	Wt. n-Val.		0.037	
W.S. Elev (ft)	962.64	Reach Len. (ft)	535.00	511.61	515.00
Crit W.S. (ft)	955.84	Flow Area (sq ft)		34251.95	
E.G. Slope (ft/ft)	0.000619	Area (sq ft)	1201.75	34251.95	7.18
Q Total (cfs)	164000.00	Flow (cfs)		164000.00	
Top Width (ft)	5916.44	Top Width (ft)	2255.78	3646.80	13.87
Vel Total (ft/s)	4.79	Avg. Vel. (ft/s)		4.79	
Max Chl Dpth (ft)	16.64	Hydr. Depth (ft)		9.39	
Conv. Total (cfs)	6592084.0	Conv. (cfs)		6592084.0	

* Length Wtd. (ft)	* 511.64	* Wetted Per. (ft)	*	* 3662.92	*	*
* Min Ch El (ft)	* 946.00	* Shear (lb/sq ft)	*	* 0.36	*	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 1.73	*	*
* Frctn Loss (ft)	* 0.51	* Cum Volume (acre-ft)	* 3651.23	* 7657.48	* 920.84	*
* C & E Loss (ft)	* 0.02	* Cum SA (acres)	* 948.44	* 860.35	* 503.67	*

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 963.10	* Element	* Left OB	* Channel	* Right OB	*
* Vel Head (ft)	* 0.35	* Wt. n-Val.	*	* 0.037	*	*
* W.S. Elev (ft)	* 962.75	* Reach Len. (ft)	* 535.00	* 511.61	* 515.00	*
* Crit W.S. (ft)	* 955.84	* Flow Area (sq ft)	*	*34684.20	*	*
* E.G. Slope (ft/ft)	*0.000597	* Area (sq ft)	*	*34684.20	*	*
* Q Total (cfs)	*164000.00	* Flow (cfs)	*	*164000.00	*	*
* Top Width (ft)	* 3650.46	* Top Width (ft)	*	* 3650.46	*	*
* Vel Total (ft/s)	* 4.73	* Avg. Vel. (ft/s)	*	* 4.73	*	*
* Max Chl Dpth (ft)	* 16.75	* Hydr. Depth (ft)	*	* 9.50	*	*
* Conv. Total (cfs)	*6711267.0	* Conv. (cfs)	*	*6711267.0	*	*
* Length Wtd. (ft)	* 511.61	* Wetted Per. (ft)	*	* 3666.82	*	*
* Min Ch El (ft)	* 946.00	* Shear (lb/sq ft)	*	* 0.35	*	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 1.67	*	*
* Frctn Loss (ft)	* 0.49	* Cum Volume (acre-ft)	* 290.25	* 8029.43	* 30.85	*
* C & E Loss (ft)	* 0.03	* Cum SA (acres)	* 43.55	* 860.66	* 5.87	*

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 201.71

INPUT
Description: 201.71

Left Channel Bank Staion Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12659.2	961.6	12855.6	961	13000	961	13129.9	960.8	13180.2	962.1
13187.7	959.3	13371.2	960	13521.5	960.3	13689.3	960.5	13844.9	960.6
13979.7	960.3	14193.8	960.9	14324.5	960.9	14461	961	14593.2	960.9
14774.5	961.4	14909.4	960.6	15132.5	961.7	15192.9	963.1	15384.5	962.1
15537.8	962.3	15716.6	961.2	15856.1	961.1	16082.6	960.9	16210.7	961.2
16383	961	16543.7	961	16684.4	961.3	16813.5	961.2	16941.4	961.7
17106.2	961.5	17255.2	962	17388.3	961.5	17585.2	961.5	17706.7	962.1
17766.4	963.8	17769.2	962.5	17794.4	964.5	17957.8	964.3	18096.3	964.8
18107.05	962.8899	18140.2	957	18197.6	953.2	18356.6	956.6	18441.5	961.3
18556.1	957.7	18600.1	958.6	18651.3	956.4	18676.1	956.9	18707	951.3
18764	957	18831.5	958.2	19007.5	955.3	19076.4	952	19279.5	954.1
19409.2	953.7	19475.6	949.9	19555.7	955.6	19660.9	959	19739.3	954.2
19763.1	949.4	19910.3	951	19978.4	951.1	20023.1	954.8	20199	956
20304.5	951.4	20347.1	954.9	20447.3	951.1	20499.8	956.3	20554.9	954.5
20692.6	956.1	20848.5	954.8	20899.8	950.2	20984.5	949.7	21011.3	946
21148.8	948.4	21186.8	951.7	21268.1	954.5	21355	953.1	21433.7	954.9
21490.6	959.4	21528.5	960.3	21661.1	959.7	21837.7	959.7	21975.8	962.2
22098	963.6	22111.4	961.1	22160.6	964.1	22190.7	962.9	22353.1	963.4
22385.7	963.3	22516.6	964.2	22615.8	964.3	22832.1	963.4	22981.6	963.4
23127.8	962.8	23246	962						

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
12659.2	.025	17706.7	.065	18096.3	.065	19660.9	.032	20554.9	.037
21355	.025	21528.5	.025						

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
18107.05	21528.5	505	489.63	495	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
12659.2	18096.3	966	F
22098	23246	966	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 962.46	* Element	* Left OB	* Channel	* Right OB	*
* Vel Head (ft)	* 0.59	* Wt. n-Val.	*	* 0.040	* 0.025	*
* W.S. Elev (ft)	* 961.87	* Reach Len. (ft)	* 505.00	* 489.63	* 495.00	*
* Crit W.S. (ft)	* 958.21	* Flow Area (sq ft)	*	*25898.28	* 759.85	*
* E.G. Slope (ft/ft)	*0.001826	* Area (sq ft)	* 3860.96	*25898.28	* 766.25	*
* Q Total (cfs)	*164000.00	* Flow (cfs)	*	*161174.80	* 2825.19	*
* Top Width (ft)	* 8308.19	* Top Width (ft)	* 4446.92	* 3415.69	* 445.58	*
* Vel Total (ft/s)	* 6.15	* Avg. Vel. (ft/s)	*	* 6.22	* 3.72	*
* Max Chl Dpth (ft)	* 15.87	* Hydr. Depth (ft)	*	* 7.58	* 1.77	*
* Conv. Total (cfs)	*3838417.0	* Conv. (cfs)	*	*3772294.0	* 66123.6	*
* Length Wtd. (ft)	* 489.70	* Wetted Per. (ft)	*	* 3420.11	* 428.91	*
* Min Ch El (ft)	* 946.00	* Shear (lb/sq ft)	*	* 0.86	* 0.20	*
* Alpha	* 1.01	* Stream Power (lb/ft s)	*	* 5.37	* 0.75	*
* Frctn Loss (ft)	* 0.78	* Cum Volume (acre-ft)	* 3620.14	* 7304.25	* 916.27	*
* C & E Loss (ft)	* 0.02	* Cum SA (acres)	* 907.28	* 818.87	* 500.95	*

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	962.58	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.60	Wt. n-Val.		0.040	
W.S. Elev (ft)	961.98	Reach Len. (ft)	505.00	489.63	495.00
Crit W.S. (ft)	958.21	Flow Area (sq ft)		26277.29	
E.G. Slope (ft/ft)	0.001807	Area (sq ft)		26277.29	
Q Total (cfs)	164000.00	Flow (cfs)		164000.00	
Top Width (ft)	3415.69	Top Width (ft)		3415.69	
Vel Total (ft/s)	6.24	Avg. Vel. (ft/s)		6.24	
Max Chl Dpth (ft)	15.98	Hydr. Depth (ft)		7.69	
Conv. Total (cfs)	3858296.0	Conv. (cfs)		3858296.0	
Length Wtd. (ft)	489.63	Wetted Per. (ft)		3421.90	
Min Ch El (ft)	946.00	Shear (lb/sq ft)		0.87	
Alpha	1.00	Stream Power (lb/ft s)		5.41	
Frctn Loss (ft)	0.76	Cum Volume (acre-ft)	290.25	7671.43	30.85
C & E Loss (ft)	0.03	Cum SA (acres)	43.55	819.17	5.87

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 201.62

INPUT
Description: 201.62

Left Channel Bank Station Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12723.6	960.1	12862.6	960.3	13017.9	960.4	13156.4	960.4	13253.3	961.5
13267.4	959	13436.1	959.9	13621.5	960.4	13766.2	960.5	13909.8	960.4
14075.1	960.4	14269.1	960.4	14410.3	960.9	14542.3	960.9	14677.4	961
14845.4	961.8	15072.7	961	15207.9	961.9	15344.9	961.6	15510.2	961.6
15676.2	961	15821	960.6	15995.5	960.4	16157.9	960.8	16296	961.1
16491.6	961.1	16630.4	960.7	16799.9	960.5	16987.6	960.1	17022.4	962
17197.5	958.5	17331.6	959.3	17350.4	962.3	17555	961.1	17693.7	961.5
17788.7	963.5	17792.9	962.2	17963.6	963.3	18107	962.8	18229.7	963.9
18233.5	962.1533	18253.2	953.1	18417.5	953.4	18563.5	953.4	18723.5	952.3
18864.3	951.9	18956.1	956.6	19045.2	956.9	19129.4	952.1	19159.3	954.5
19237.7	952.1	19435.3	953.3	19483	951.6	19522	953.4	19577	948.8
19677.3	954.6	19737.2	953.8	19772.7	949.2	19918.1	949.3	20064.6	953.2
20213.3	953.8	20358.7	952.9	20472.9	952	20509.2	950	20584.5	955.3
20619.5	953.2	20653.6	948.7	20723.6	953.3	20794.2	955.3	20904.8	954.6
20962.2	949.9	20990.6	945.6	21150.5	945.9	21165.2	946.9	21199.1	955.3
21351	951.4	21457.3	955.6	21477.5	960.2	21514.2	959.4	21654.6	959.9
21824	959.8	21964.5	960.6	22074.2	961	22085	959.8	22090.5	961.3
22197.1	961.9	22233.4	963.7	22249.4	962.1	22301	963.2	22456.6	963.4
22491.4	963.3	22714.7	962.8	22775.6	962.8	22945.1	962.7	23131.5	962.5
23268.1	960.6	23318.4	961.5						

Manning's n Values num= 9

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
12723.6	.025	16799.9	.15	17197.5	.025	17792.9	.065	18229.7	.065
19577	.032	20509.2	.037	21351	.025	21477.5	.025		

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
18233.5	21477.5	485	486.48	510	.1

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
12723.6	18229.7	965	F
22233.4	23318.4	963.9	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	961.66	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.51	Wt. n-Val.		0.041	0.025
W.S. Elev (ft)	961.15	Reach Len. (ft)	485.00	486.48	510.00
Crit W.S. (ft)	956.72	Flow Area (sq ft)		28110.98	662.38
E.G. Slope (ft/ft)	0.001385	Area (sq ft)	2551.77	28110.98	681.56
Q Total (cfs)	164000.00	Flow (cfs)		162456.50	1543.48
Top Width (ft)	7614.80	Top Width (ft)	3690.53	3241.81	682.45
Vel Total (ft/s)	5.70	Avg. Vel. (ft/s)		5.78	2.33
Max Chl Dpth (ft)	15.55	Hydr. Depth (ft)		8.67	1.08
Conv. Total (cfs)	4406350.0	Conv. (cfs)		4364879.0	41470.3
Length Wtd. (ft)	486.98	Wetted Per. (ft)		3247.77	612.70
Min Ch El (ft)	945.60	Shear (lb/sq ft)		0.75	0.09
Alpha	1.02	Stream Power (lb/ft s)		4.33	0.22
Frctn Loss (ft)	0.78	Cum Volume (acre-ft)	3582.97	7000.71	908.04
C & E Loss (ft)	0.02	Cum SA (acres)	860.11	781.46	494.54

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	961.80	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.51	Wt. n-Val.		0.041	
W.S. Elev (ft)	961.28	Reach Len. (ft)	485.00	486.48	510.00
Crit W.S. (ft)	956.72	Flow Area (sq ft)		28552.62	
E.G. Slope (ft/ft)	0.001343	Area (sq ft)		28552.62	
Q Total (cfs)	164000.00	Flow (cfs)		164000.00	
Top Width (ft)	3241.81	Top Width (ft)		3241.81	

Pre-Project

* Vel Total (ft/s)	* 5.74	* Avg. Vel. (ft/s)	*	* 5.74	*	*			
* Max Chl Dpth (ft)	* 15.68	* Hydr. Depth (ft)	*	* 8.81	*	*			
* Conv. Total (cfs)	*4475808.0	* Conv. (cfs)	*	*4475808.0	*	*			
* Length Wtd. (ft)	* 486.48	* Wetted Per. (ft)	*	* 3248.99	*	*			
* Min Ch El (ft)	* 945.60	* Shear (lb/sq ft)	*	* 0.74	*	*			
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 4.23	*	*			
* Frctn Loss (ft)	* 0.77	* Cum Volume (acre-ft)	*	290.25	*	7363.28	*	30.85	*
* C & E Loss (ft)	* 0.01	* Cum SA (acres)	*	43.55	*	781.75	*	5.87	*

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 201.52

INPUT
Description: 201.52

Left Channel Bank Station Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12786.6	960.2	12939.6	960.1	13099	960.1	13244.9	960.2	13300.5	962.8
13357.3	959.7	13501.3	960.4	13678.7	959.8	13830.9	960	14035.1	959.9
14185.2	959.4	14386.6	959.8	14539	959.6	14722.7	959.3	14894.1	959.5
15114.2	959.2	15254.5	962.1	15427.2	959.8	15592.7	959.9	15779.1	959.7
15959.1	959.6	16138.8	959.3	16313.2	960.4	16492.7	958.5	16665.8	959
16834.1	958	17009.5	957.5	17081.3	959.5	17261.7	956	17408.3	957.9
17566	960	17731.1	959.6	17842.3	960.3	17845.2	962.91	17943.73	961.3971
18009.1	960.4	18087.6	959.9	18104.5	954	18264.9	951.7	18427.6	949.5
18577.1	948.4	18651.6	946.4	18699.1	952.7	18753.8	949	18784.8	949.1
18848.6	953.1	18893.8	954	18925.3	958	19065.9	958.5	19153	954.3
19223.7	956.3	19377	949.7	19404.1	948.6	19480.7	949.5	19540.9	947.7
19607.6	951.7	19748	954.6	19781.1	954.1	19818.6	949.6	19876.6	948.4
19936	956.7	20100.5	954.2	20244	952.7	20403.3	950.4	20550.4	948.2
20608.4	948	20715.6	953.3	20891.6	948.2	20923.4	941.8	20972.4	940.9
20990.6	945.3	21048.3	948	21178	947.3	21216.5	954.8	21254.9	957
21391.4	958.4	21554.4	958	21596.8	958.1	21777.9	958.2	21934.4	958.6
21995.7	958.3	22004.2	960.1	22157.3	959.4	22212.5	961.1	22218.9	959.2
22225.8	961.6	22299.7	963.1	22311.3	960.4	22338.4	962.5	22478.8	962.4
22674.4	962.5	22848.1	961.1	22905.9	961.6	23058.8	963.2	23081.5	963.2
23263.4	961.3	23370	959.8						

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
12786.6	.025	17009.5	.15	17261.7	.025	17845.2	.15	19480.7	.032
20244	.037	21391.4	.025						

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
17943.73	21391.4	495	492.06	495	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
12786.6	17845.2	963.2	F
22212.5	23370	963.2	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 960.87	* Element	*	Left OB	*	Channel	*	Right OB	*
* Vel Head (ft)	* 0.46	* Wt. n-Val.	*		*	0.049	*	0.025	*
* W.S. Elev (ft)	* 960.41	* Reach Len. (ft)	*	495.00	*	492.06	*	495.00	*
* Crit W.S. (ft)	* 955.39	* Flow Area (sq ft)	*		*	28831.95	*	1431.09	*
* E.G. Slope (ft/ft)	*0.001854	* Area (sq ft)	*	4789.06	*	28831.95	*	1448.82	*
* Q Total (cfs)	*164000.00	* Flow (cfs)	*		*	158597.90	*	5402.08	*
* Top Width (ft)	* 8984.51	* Top Width (ft)	*	4752.04	*	3382.87	*	849.60	*
* Vel Total (ft/s)	* 5.42	* Avg. Vel. (ft/s)	*		*	5.50	*	3.77	*
* Max Chl Dpth (ft)	* 19.51	* Hydr. Depth (ft)	*		*	8.52	*	1.79	*
* Conv. Total (cfs)	*3808935.0	* Conv. (cfs)	*		*	3683471.0	*	125464.6	*
* Length Wtd. (ft)	* 492.14	* Wetted Per. (ft)	*		*	3388.49	*	798.86	*
* Min Ch El (ft)	* 940.90	* Shear (lb/sq ft)	*		*	0.98	*	0.21	*
* Alpha	* 1.01	* Stream Power (lb/ft s)	*		*	5.42	*	0.78	*
* Frctn Loss (ft)	* 0.85	* Cum Volume (acre-ft)	*	3542.10	*	6682.74	*	895.57	*
* C & E Loss (ft)	* 0.01	* Cum SA (acres)	*	813.11	*	744.46	*	485.58	*

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 961.02	* Element	*	Left OB	*	Channel	*	Right OB	*
* Vel Head (ft)	* 0.49	* Wt. n-Val.	*		*	0.049	*		*
* W.S. Elev (ft)	* 960.53	* Reach Len. (ft)	*	495.00	*	492.06	*	495.00	*
* Crit W.S. (ft)	* 955.39	* Flow Area (sq ft)	*		*	29242.62	*		*
* E.G. Slope (ft/ft)	*0.001898	* Area (sq ft)	*		*	29242.62	*		*
* Q Total (cfs)	*164000.00	* Flow (cfs)	*		*	164000.00	*		*
* Top Width (ft)	* 3382.85	* Top Width (ft)	*		*	3382.85	*		*
* Vel Total (ft/s)	* 5.61	* Avg. Vel. (ft/s)	*		*	5.61	*		*
* Max Chl Dpth (ft)	* 19.63	* Hydr. Depth (ft)	*		*	8.64	*		*
* Conv. Total (cfs)	*3764143.0	* Conv. (cfs)	*		*	3764143.0	*		*
* Length Wtd. (ft)	* 492.06	* Wetted Per. (ft)	*		*	3390.73	*		*
* Min Ch El (ft)	* 940.90	* Shear (lb/sq ft)	*		*	1.02	*		*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*		*	5.73	*		*
* Frctn Loss (ft)	* 0.86	* Cum Volume (acre-ft)	*	290.25	*	7040.55	*	30.85	*
* C & E Loss (ft)	* 0.01	* Cum SA (acres)	*	43.55	*	744.76	*	5.87	*

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 201.43

INPUT
Description: 201.43

Left Channel Bank Station Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12790.4	959.2	12931.7	959.4	13106.1	959.5	13261.9	959.6	13426.6	960.3
13574.8	960.1	13719.2	960	13863.6	960.3	14015.4	959.4	14162.1	960.1
14260	960.7	14418.2	961.9	14556.8	961.4	14697.8	960.6	14846.1	959.1
15008.5	959.1	15194.6	958.6	15331.7	959.1	15511.6	959.4	15657.5	959.5
15799.1	959.9	15827.9	961.5	15973.4	960.8	16110.8	960.5	16254.2	959.9
16478.5	958.1	16617.9	958	16780.3	959.8	16924.1	959.3	17061.9	956
17202.1	956.4	17374.3	959	17594.2	959.4	17734	959.4	17844.3	960.3
17853.5	961.9	17859.2	959.6	18001.4	960.7	18014.9960.4907		18053	959.9
18066.9	952.8	18179.7	952.8	18317	950.6	18459.7	949.9	18597.4	947.5
18738.8	948.8	18799.8	954.8	18924.3	958	19076.8	958.9	19195.5	956.6
19253.6	950.7	19403.4	947	19416.1	948.3	19450.8	947.6	19528.4	954.4
19671.9	955.8	19712.9	955.8	19744.1	948.3	19847.5	947.6	19851.7	953.1
19996.8	955.1	20141.7	954.2	20303.2	954.8	20474.6	951.5	20649	946.3
20689.8	947.9	20719.5	943.8	20747.5	947.5	20911.6	947	20951.8	947.8
20976.3	941.3	21080.6	942.7	21100.4	945.1	21136.4	946.2	21179.1	944.6
21271.5	950.5	21342.1	957.5	21353.3	959.8	21363.1	957.2	21516.4	957.7
21676.7	958.3	21814.1	958.7	21883	958.4	22035.4	957.9	22182.8	959.4
22322.3	960.9	22328.9	958.7	22340	962.3	22362.8	960.4	22606.3	961.2
22648.5	961.2	22787	960.2	22945.6	960.3	23094.6	961.1	23289.3	961
23341.9	960.2	23387.4	958.8						

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
12790.4	.043	15827.9	.065	17202.1	.025	17853.5	.15	19253.6	.032
20649	.037	21342.1	.025						

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
18014.9 21342.1 555 519.88 505 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
12790.4	18000	962.3	F
22322.3	23387.4	962.3	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	960.01	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.55	Wt. n-Val.		0.042	0.025
W.S. Elev (ft)	959.46	Reach Len. (ft)	555.00	519.88	505.00
Crit W.S. (ft)	954.87	Flow Area (sq ft)		26895.29	1076.51
E.G. Slope (ft/ft)	0.001619	Area (sq ft)	1820.20	26895.29	1085.40
Q Total (cfs)	164000.00	Flow (cfs)		160971.10	3028.85
Top Width (ft)	6526.99	Top Width (ft)	2369.07	3288.24	869.68
Vel Total (ft/s)	5.86	Avg. Vel. (ft/s)		5.99	2.81
Max Chl Dpth (ft)	18.16	Hydr. Depth (ft)		8.18	1.28
Conv. Total (cfs)	4076199.0	Conv. (cfs)		4000917.0	75281.8
Length Wtd. (ft)	519.63	Wetted Per. (ft)		3296.86	844.04
Min Ch El (ft)	941.30	Shear (lb/sq ft)		0.82	0.13
Alpha	1.03	Stream Power (lb/ft s)		4.93	0.36
Frctn Loss (ft)	0.94	Cum Volume (acre-ft)	3504.55	6367.99	881.17
C & E Loss (ft)	0.01	Cum SA (acres)	772.65	706.78	475.81

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	960.15	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.56	Wt. n-Val.		0.042	
W.S. Elev (ft)	959.60	Reach Len. (ft)	555.00	519.88	505.00
Crit W.S. (ft)	954.87	Flow Area (sq ft)		27334.01	
E.G. Slope (ft/ft)	0.001604	Area (sq ft)		27334.01	
Q Total (cfs)	164000.00	Flow (cfs)		164000.00	
Top Width (ft)	3288.24	Top Width (ft)		3288.24	
Vel Total (ft/s)	6.00	Avg. Vel. (ft/s)		6.00	
Max Chl Dpth (ft)	18.30	Hydr. Depth (ft)		8.31	
Conv. Total (cfs)	4094692.0	Conv. (cfs)		4094692.0	
Length Wtd. (ft)	519.88	Wetted Per. (ft)		3299.09	
Min Ch El (ft)	941.30	Shear (lb/sq ft)		0.83	
Alpha	1.00	Stream Power (lb/ft s)		4.98	
Frctn Loss (ft)	0.92	Cum Volume (acre-ft)	290.25	6721.00	30.85
C & E Loss (ft)	0.01	Cum SA (acres)	43.55	707.08	5.87

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 201.33

INPUT
Description: 201.33

Left ChannelBank Station Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

12785.7	957.8	12951.9	958.1	13134.4	958.1	13293.5	958.1	13493.4	958.4		
13649.5	958.9	13744.1	960.9	13758.6	959.4	13925.5	959	14085.7	958.6		
14255.8	961.3	14420.6	961.4	14593.6	961.2	14794.8	960.7	14992.6	959.3		
15164	957.6	15345.7	958.5	15520.6	959.3	15694.3	959.9	15854.4	959.9		
16014.9	960.3	16184.1	960.4	16362.7	960.3	16517.9	960.6	16680.1	958.6		
16837.4	958.7	16937	956.7	17109.2	956.2	17266.3	958.7	17288.5	957.8		
17465.9	959.2	17667.7	959	17831.2	959.5	17862	961.6	17929.5	961.8		
17948.2	960.4	18049.52	959.5	026 18072.4	959.3	18086.6	953	18242.2	954.4		
18398.7	954.5	18556.7	954.3	18607.2	952.5	18626.2	948.5	18634.2	950		
18715.7	949.6	18791	954.8	18874.7	955.9	18937.2	954.7	18984.3	948		
19116.8	949.1	19140.9	943	19269.7	945.9	19315	948.3	19489.9	950.7		
19565.6	952.4	19588.8	955.2	19608.2	948.1	19752.9	948	19806.6	953		
19969.5	952.2	20134.6	953.3	20171.4	952.2	20226.7	955.4	20293.9	954.2		
20341.3	955.5	20424.9	951.7	20512.5	950.6	20548.8	944.7	20652.6	950		
20769.7	946.7	20843.2	955	21006.1	948.3	21057.8	946.6	21076.8	943.6		
21236.1	944.8	21304.1	946.3	21310.7	945	21357	957.5	21381.8	958.1		
21545.7	957.7	21548.3	957.8	21799.8	956.8	21810.6	956.8	22056.9	957.1		
22107.8	957.3	22115	958.6	22356.1	957.9	22513.8	959.5	22624.6	962.2		
22794.7	960.7	22966.1	961	23037.1	962.1	23192.4	961.3	23366.6	961.5		
23397.6	960.4	23444	960.7								

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
12785.7	.043	15854.4	.065	17266.3	.025	17929.5	.15	19116.8	.032
19315	.037	21381.8	.025						

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

18049.52	21381.8	515	514.62	515	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
12785.7	17929.5	962.2	F
22624.6	23444	962.2	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 959.06	* Element	* Left OB	* Channel * Right OB *
* Vel Head (ft)	* 0.63	* Wt. n-Val.	*	* 0.042 * 0.025 *
* W.S. Elev (ft)	* 958.44	* Reach Len. (ft)	* 515.00	* 514.62 * 515.00 *
* Crit W.S. (ft)	* 954.88	* Flow Area (sq ft)	*	*25245.53 * 889.59 *
* E.G. Slope (ft/ft)	*0.002024	* Area (sq ft)	* 944.14	*25245.53 * 889.59 *
* Q Total (cfs)	*164000.00	* Flow (cfs)	*	*161537.10 * 2462.93 *
* Top Width (ft)	* 5745.25	* Top Width (ft)	* 1467.85	* 3307.46 * 969.94 *
* Vel Total (ft/s)	* 6.28	* Avg. Vel. (ft/s)	*	* 6.40 * 2.77 *
* Max Chl Dpth (ft)	* 15.44	* Hydr. Depth (ft)	*	* 7.63 * 0.92 *
* Conv. Total (cfs)	*3645795.0	* Conv. (cfs)	*	*3591043.0 * 54752.0 *
* Length Wtd. (ft)	* 514.63	* Wetted Per. (ft)	*	* 3316.01 * 970.05 *
* Min Ch El (ft)	* 943.00	* Shear (lb/sq ft)	*	* 0.96 * 0.12 *
* Alpha	* 1.03	* Stream Power (lb/ft s)	*	* 6.15 * 0.32 *
* Frctn Loss (ft)	* 1.00	* Cum Volume (acre-ft)	* 3486.94	* 6056.85 * 869.72 *
* C & E Loss (ft)	* 0.01	* Cum SA (acres)	* 748.21	* 667.42 * 465.14 *

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 959.23	* Element	* Left OB	* Channel * Right OB *
* Vel Head (ft)	* 0.63	* Wt. n-Val.	*	* 0.042 * *
* W.S. Elev (ft)	* 958.60	* Reach Len. (ft)	* 515.00	* 514.62 * 515.00 *
* Crit W.S. (ft)	* 954.88	* Flow Area (sq ft)	*	*25785.53 * *
* E.G. Slope (ft/ft)	*0.001959	* Area (sq ft)	*	*25785.53 * *
* Q Total (cfs)	*164000.00	* Flow (cfs)	*	*164000.00 * *
* Top Width (ft)	* 3307.45	* Top Width (ft)	*	* 3307.45 * *
* Vel Total (ft/s)	* 6.36	* Avg. Vel. (ft/s)	*	* 6.36 * *
* Max Chl Dpth (ft)	* 15.60	* Hydr. Depth (ft)	*	* 7.80 * *
* Conv. Total (cfs)	*3705386.0	* Conv. (cfs)	*	*3705386.0 * *
* Length Wtd. (ft)	* 514.62	* Wetted Per. (ft)	*	* 3316.67 * *
* Min Ch El (ft)	* 943.00	* Shear (lb/sq ft)	*	* 0.95 * *
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 6.05 * *
* Frctn Loss (ft)	* 0.96	* Cum Volume (acre-ft)	* 290.25	* 6404.02 * 30.85 *
* C & E Loss (ft)	* 0.01	* Cum SA (acres)	* 43.55	* 667.72 * 5.87 *

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 201.24

INPUT
Description: 201.24

Left Channel Bank Station Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12806	955.8	12962.7	956.3	13145.6	957.3	13331.4	956.5	13517.2	956.2
13697.1	957.3	13855.5	957.4	14010.3	957	14164.7	956.7	14318.4	958.2
14482	958.5	14660	956.8	14688.4	957.7	14821.8	955.2	14989	957.8
15156	956.9	15324.8	957.6	15476.8	959	15632.7	959.6	15787	959.8
15939.5	959	16132.2	958.4	16296.2	957.9	16464.6	957.9	16632.1	958.1
16801.9	956.7	16986.8	954.6	17117.8	954.3	17180.2	958.7	17353.5	957.6
17566.1	957.4	17719.1	957.9	17947.6	957.8	18063.5	959.9	18067.36	958.4367
18084.6	951.9	18123.2	954.4	18273.7	954.7	18463.7	954.1	18640.4	954.1
18769.1	951.5	18834.7	946.6	18852.7	947.7	18957	944.8	19101.5	944.9
19190.4	949.6	19365.4	949.8	19479.4	950.7	19501.5	945.5	19659.5	947.2
19709.9	951	19861.9	951.5	20036.3	950.6	20116.5	953	20174.4	956.4

20272.4	956.3	20322.3	953.3	20397.8	952.3	20534.1	946.8	20728.3	949.3		
20901.9	952.6	21060.4	953.1	21108.8	948.4	21143.3	943.1	21322.6	943		
21477	945.1	21515.7	945.4	21547.4	956.4	21570	957.6	21573.6	955.3		
21742.9	955.8	21840.8	955.8	22073.6	956.2	22315.2	956.6	22474.6	957.8		
22660.5	959.5	22837.1	960.3	23006	960.7	23189	960.3	23372.7	959.3		
23535.3	958.6	23693.7	960.2	23701.8	958.7	23728.6	959.3	23733.9	957.9		
23745.1	960.6	23895.9	959.5	24055.3	959.7	24212	959	24364.3	958.6		
24523.2	960	24683.9	959.1	24867.9	960.4	25044.2	960.6	25240.9	961.6		
25449.6	962.7	25490	964.7								

Manning's n Values num= 9

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
12806	.043	16132.2	.065	17180.2	.025	17947.6	.15	18063.5	.15
18957	.037	19659.5	.032	20174.4	.037	21570	.025		

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
18067.36	21570	485 488.56	490	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
12806	18063.5	964.7	F
23006	25490	964.7	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	958.06	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.59	Wt. n-Val.		0.040	0.025
W.S. Elev (ft)	957.46	Reach Len. (ft)	485.00	488.56	490.00
Crit W.S. (ft)	953.61	Flow Area (sq ft)		25746.25	1138.86
E.G. Slope (ft/ft)	0.001852	Area (sq ft)	2208.10	25746.25	1138.86
Q Total (cfs)	164000.00	Flow (cfs)		160488.90	3511.11
Top Width (ft)	6935.04	Top Width (ft)	2577.63	3497.54	859.88
Vel Total (ft/s)	6.10	Avg. Vel. (ft/s)		6.23	3.08
Max Chl Dpth (ft)	14.46	Hydr. Depth (ft)		7.36	1.32
Conv. Total (cfs)	3811227.0	Conv. (cfs)		3729632.0	81595.2
Length Wtd. (ft)	488.58	Wetted Per. (ft)		3502.73	860.52
Min Ch El (ft)	943.00	Shear (lb/sq ft)		5.30	0.47
Alpha	1.03	Stream Power (lb/ft s)		5.30	0.47
Frctn Loss (ft)	0.68	Cum Volume (acre-ft)	3468.30	5755.64	857.73
C & E Loss (ft)	0.05	Cum SA (acres)	724.29	627.23	454.33

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	958.26	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.60	Wt. n-Val.		0.040	
W.S. Elev (ft)	957.66	Reach Len. (ft)	485.00	488.56	490.00
Crit W.S. (ft)	953.61	Flow Area (sq ft)		26420.07	
E.G. Slope (ft/ft)	0.001790	Area (sq ft)		26420.07	
Q Total (cfs)	164000.00	Flow (cfs)		164000.00	
Top Width (ft)	3500.08	Top Width (ft)		3500.08	
Vel Total (ft/s)	6.21	Avg. Vel. (ft/s)		6.21	
Max Chl Dpth (ft)	14.66	Hydr. Depth (ft)		7.55	
Conv. Total (cfs)	3876386.0	Conv. (cfs)		3876386.0	
Length Wtd. (ft)	488.56	Wetted Per. (ft)		3505.53	
Min Ch El (ft)	943.00	Shear (lb/sq ft)		0.84	
Alpha	1.00	Stream Power (lb/ft s)		5.23	
Frctn Loss (ft)	0.65	Cum Volume (acre-ft)	290.25	6095.64	30.85
C & E Loss (ft)	0.06	Cum SA (acres)	43.55	627.51	5.87

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 201.14

INPUT
Description: 201.14

Left Channel Bank Station Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12823.9	955.7	12999.4	956.2	13212.7	955.6	13428.9	956	13645.2	955.7
13816.9	955.8	13992.2	956	14163.4	956.5	14335.2	955.8	14527.3	956.5
14708.6	956.3	14909.6	955.2	15093.8	955.5	15267	954.8	15439.6	956.4
15609.9	956.4	15791	956.8	15950.3	959	16129.2	957.7	16303.6	956
16475	953.7	16660.8	955	16839.9	953.5	17004.5	951.4	17082.5	958.8
17162.8	956.1	17184.4	958.7	17362.4	957.4	17598.4	957.1	17832.2	956.8
18017.1	960	18032	960.2	18037.8	6957.9	083 18056.8	950.5	18241.1	949.4
18415.6	950.8	18585.7	951.8	18725.4	952.4	18733.1	949.9	18790.6	949.1
18818.8	941.6	18850.4	943.3	18986.4	943.9	19077.9	949.8	19149.1	948.9
19305.2	951	19389.8	945.3	19562.7	946.4	19610	949.5	19790.7	949.7
19961	950.3	20069.8	955.8	20203.6	953.6	20241.8	949.2	20445.4	947.5
20553.6	952	20738.9	949.5	20840.4	947.3	20887.4	943.5	20941.4	948.4
20992.7	949.8	21019.8	942	21063.4	942.9	21079.7	945.4	21128.6	946
21160	941.1	21202.5	940.4	21278.6	945.6	21455.1	945.3	21569.3	940.9
21644.4	944.5	21697.9	954.5	21721	955.2	21725.6	953.1	21741.2	955
22051.3	955.9	22155.8	956.1	22389.7	956.4	22512.4	956.8	22725.1	956.9
22832.8	959	22857.1	957	23030.8	959	23238.6	958.8	23414	958.9
23606.9	957.7	23803.1	958	24052.9	958.2	24291.1	958.1	24471.3	958.5
24625.1	958.9	24632.8	957.3	24637.8	958.9	24815.7	959.6	25013.4	960.6
25215.4	961.6	25365.2	962.4						

Manning's n Values num= 8

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val

```
 12823.9    .043 16303.6    .065 17184.4    .025   18032     .15 18850.4    .037
   19610    .032 20553.6    .037   21721    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      18037.86   21721             480  481.53     485            .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 12823.9   18032   962.4       F
 22832.8 25365.2   962.4       F

CROSS SECTION OUTPUT  Profile #PF#1
*************************************************************************************************
* E.G. Elev (ft)         *  957.32  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.42  * Wt. n-Val.            *          *   0.040  *   0.025  *
* W.S. Elev (ft)         *  956.91  * Reach Len. (ft)       *  480.00  *  481.53  *  485.00  *
* Crit W.S. (ft)         *  952.08  * Flow Area (sq ft)     *          * 31262.79  *  806.56  *
* E.G. Slope (ft/ft)     *0.001090  * Area (sq ft)          * 5150.77  *31262.79  *  806.56  *
* Q Total (cfs)          *164000.00  * Flow (cfs)          *          *162632.90  * 1367.12  *
* Top Width (ft)         * 8631.33  * Top Width (ft)       * 3946.34  * 3680.58  * 1004.42  *
* Vel Total (ft/s)       *    5.11  * Avg. Vel. (ft/s)     *          *    5.20  *    1.70  *
* Max Chl Dpth (ft)      *   16.51  * Hydr. Depth (ft)     *          *    8.49  *    0.80  *
* Conv. Total (cfs)      *4966393.0  * Conv. (cfs)         *          *4924992.0  * 41400.3  *
* Length Wtd. (ft)       *  481.58  * Wetted Per. (ft)     *          * 3687.66  * 1004.99  *
* Min Ch El (ft)         *  940.40  * Shear (lb/sq ft)     *          *    0.58  *    0.05  *
* Alpha                  *    1.03  * Stream Power (lb/ft s) *        *    3.00  *    0.09  *
* Frctn Loss (ft)        *    0.50  * Cum Volume (acre-ft)  * 3427.33  * 5435.94  *  846.79  *
* C & E Loss (ft)        *    0.03  * Cum SA (acres)        *  687.97  *  586.97  *  443.84  *
*************************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*************************************************************************************************
* E.G. Elev (ft)         *  957.55  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.40  * Wt. n-Val.            *          *   0.040  *          *
* W.S. Elev (ft)         *  957.15  * Reach Len. (ft)       *  480.00  *  481.53  *  485.00  *
* Crit W.S. (ft)         *  952.08  * Flow Area (sq ft)     *          * 32150.13  *          *
* E.G. Slope (ft/ft)     *0.001017  * Area (sq ft)          *          *32150.13  *          *
* Q Total (cfs)          *164000.00  * Flow (cfs)          *          *164000.00  *          *
* Top Width (ft)         * 3680.58  * Top Width (ft)       *          * 3680.58  *          *
* Vel Total (ft/s)       *    5.10  * Avg. Vel. (ft/s)     *          *    5.10  *          *
* Max Chl Dpth (ft)      *   16.75  * Hydr. Depth (ft)     *          *    8.74  *          *
* Conv. Total (cfs)      *5142934.0  * Conv. (cfs)         *          *5142934.0  *          *
* Length Wtd. (ft)       *  481.53  * Wetted Per. (ft)     *          * 3689.85  *          *
* Min Ch El (ft)         *  940.40  * Shear (lb/sq ft)     *          *    0.55  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *        *    2.82  *          *
* Frctn Loss (ft)        *    0.47  * Cum Volume (acre-ft)  *  290.25  * 5767.18  *   30.85  *
* C & E Loss (ft)        *    0.03  * Cum SA (acres)        *   43.55  *  587.24  *    5.87  *
*************************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 201.05

INPUT
Description: 201.05

Left Channel Bank Station Interpolated
Station Elevation Data    num=      97
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*************************************************************************************
 12848.3   954.5 13055.4   953.7 13276.2   955.4 13483.1   957.1 13684.3   954.7
 13886.2   954.5 14079.9     955 14267.8   955.7 14489.3   955.5   14686   954.3
 14893.9   954.8 15093.5   953.8 15286.8     955   15508   955.8 15694.8   955.4
 15890.9   955.3 16093.3   955.3 16296.5   955.9 16489.7   956.3 16687.2   954.3
 16876.1   953.1 17029.6   951.4   17090   955.6 17177.7   953.2 17211.7   959.1
 17239.8   956.7 17474.3   956.9 17712.8   956.3 17920.1   957.3 17947.8   957.7
17948.21 957.514 17963.9   950.4 18149.7   948.9 18366.7   949.3 18552.6   947.7
   18642   947.2 18662.5   941.8 18877.7   942.9 18965.7   942.8 19025.5   948.9
 19069.3   949.7   19115     948 19146.2   943.8 19305.4   944.7 19341.4   942.6
 19450.5   944.4   19486   951.1 19656.3   948.4 19742.2   949.2 19800.5   946.7
 19926.9     951 19979.4   950.2 20027.5   955.4 20105.3   953.3 20157.5   947.1
 20233.6   946.1 20272.3   948.2 20302.6   946.7 20402.5   950.2 20615.4   948.5
 20746.4   950.2 20793.3     949 20816.3   941.7 20964.1   941.5 20993.4   945.9
 21193.9   949.2 21384.8   948.9 21582.1     946 21750.2   942.4 21815.9   945.1
   21849   955.5 21881.2   953.7 21901.6   955.1   21907   953.3 21990.8   953.6
 22189.8   954.8 22244.5   955.2 22537.9   955.5 22570.5   955.5   22835   955.8
 22894.6   957.1 22905.9     959 22934.1   957.4 23165.2   957.6   23380     958
   23414     957 23451.8   959.3 23684.3   956.6 23933.2     957 24126.1   957.5
   24400   957.7 24595.1   958.4 24603.3   957.1 24622.7   959.8 24638.5   957.6
 24836.5   959.9 24997.1   961.2

Manning's n Values        num=       8
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************************************************
 12848.3    .043 16687.2     .15 17177.7    .025 17947.8     .15 18965.7    .037
   19486    .032 20402.5    .037   21849    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      17948.21   21849             520  512.89     510            .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 12848.3 17947.8   961.2       F
 22905.9 24997.1   961.2       F

CROSS SECTION OUTPUT  Profile #PF#1
*************************************************************************************************
* E.G. Elev (ft)         *  956.80  * Element               *  Left OB *  Channel * Right OB *
```

Pre-Project

* Vel Head (ft)	* 0.31	* Wt. n-Val.	*	* 0.045	* 0.025	*
* W.S. Elev (ft)	* 956.49	* Reach Len. (ft)	* 520.00	* 512.89	* 510.00	*
* Crit W.S. (ft)	* 950.99	* Flow Area (sq ft)	*	*35607.62	* 1502.82	*
* E.G. Slope (ft/ft)	*0.000974	* Area (sq ft)	* 6743.27	*35607.62	* 1502.82	*
* Q Total (cfs)	*164000.00	* Flow (cfs)	*	*160385.10	* 3614.90	*
* Top Width (ft)	* 9249.94	* Top Width (ft)	* 4334.00	* 3898.52	* 1017.42	*
* Vel Total (ft/s)	* 4.42	* Avg. Vel. (ft/s)	*	* 4.50	* 2.41	*
* Max Chl Dpth (ft)	* 14.99	* Hydr. Depth (ft)	*	* 9.13	* 1.48	*
* Conv. Total (cfs)	*5254537.0	* Conv. (cfs)	*	*5138716.0	*115820.9	*
* Length Wtd. (ft)	* 512.83	* Wetted Per. (ft)	*	* 3906.11	* 1017.82	*
* Min Ch El (ft)	* 941.50	* Shear (lb/sq ft)	*	* 0.55	* 0.09	*
* Alpha	* 1.02	* Stream Power (lb/ft s)	*	* 2.50	* 0.22	*
* Frctn Loss (ft)	* 0.41	* Cum Volume (acre-ft)	* 3361.80	* 5066.33	* 833.93	*
* C & E Loss (ft)	* 0.01	* Cum SA (acres)	* 642.35	* 545.08	* 432.59	*

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 957.06	* Element	* Left OB	* Channel	* Right OB	*
* Vel Head (ft)	* 0.31	* Wt. n-Val.	*	* 0.045	*	*
* W.S. Elev (ft)	* 956.74	* Reach Len. (ft)	* 520.00	* 512.89	* 510.00	*
* Crit W.S. (ft)	* 950.99	* Flow Area (sq ft)	*	*36618.90	*	*
* E.G. Slope (ft/ft)	*0.000928	* Area (sq ft)	*	*36618.90	*	*
* Q Total (cfs)	*164000.00	* Flow (cfs)	*	*164000.00	*	*
* Top Width (ft)	* 3898.52	* Top Width (ft)	*	* 3898.52	*	*
* Vel Total (ft/s)	* 4.48	* Avg. Vel. (ft/s)	*	* 4.48	*	*
* Max Chl Dpth (ft)	* 15.24	* Hydr. Depth (ft)	*	* 9.39	*	*
* Conv. Total (cfs)	*5383665.0	* Conv. (cfs)	*	*5383665.0	*	*
* Length Wtd. (ft)	* 512.89	* Wetted Per. (ft)	*	* 3907.62	*	*
* Min Ch El (ft)	* 941.50	* Shear (lb/sq ft)	*	* 0.54	*	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 2.43	*	*
* Frctn Loss (ft)	* 0.39	* Cum Volume (acre-ft)	* 290.25	* 5387.08	* 30.85	*
* C & E Loss (ft)	* 0.01	* Cum SA (acres)	* 43.55	* 545.35	* 5.87	*

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 200.95

INPUT
Description: 200.95

Left Channel Bank Station Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12874.8	952.5	13039.9	952	13212.3	952.3	13372.8	953.5	13537.8	953.7
13708.5	953.7	13872.8	954	14042.5	953.4	14205.3	953.3	14401.9	953.5
14603.1	953.1	14762	954.2	14934	952.2	15127.8	952.8	15312.6	953.8
15422.3	957.2	15583	954.7	15746.4	955	15906.8	956.3	15988.2	955.4
16164.6	957.4	16332.4	957.6	16504.4	956.6	16673	957.2	16861.4	956.7
17049	953.4	17207.8	951.7	17274	955.6	17440.2	954.4	17613.5	957.4
17631.7	953.8	17653.9	958.1	17824.4	958	17905.8	956.9	189 17952.4	956.3
17964.6	951.3	18135.4	946.6	18219.9	947	18317.2	949.6	18410.9	946.7
18428.8	949	18651.9	947.8	18690.8	946.2	18729.3	940.1	18914	943.4
19040.9	943.9	19102.9	941.9	19126.2	943.3	19190.9	941.9	19216.4	943.8
19237.2	941.5	19420.9	944.3	19517.6	943.7	19555.3	947.7	19758.1	946.5
19818.9	950.2	19947.1	951.5	20006.8	955.9	20184.2	954.1	20323.1	951.3
20414.3	945.7	20527.8	944.2	20653.3	949.4	20684.2	940.5	20842.4	942.7
20989.1	947.8	21069.4	948.4	21262.3	947.7	21448.8	948.8	21631.4	946.7
21802	942.6	21869.1	939.8	21909.3	943.4	21954	953.2	22148.5	954.1
22306.3	954	22378	955.4	22594.8	954	22757.8	954.9	22935.8	954.8
23107.3	956.2	23275.4	955.9	23411.6	954.8	23573.4	957.7	23629.1	956.7
23796.3	955.8	23971.7	955.8	24129.8	956	24294.4	955.8	24466.5	955.4
24623.6	955.4	24630	955.3	24639.7	957.8	24648.4	954.6	24662.5	958.2
24836.4	959.8	24988.3	960.7						

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
12874.8	.043	17824.4	.15	18729.3	.037	19517.6	.032	20323.1	.037
21954	.035								

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
17905.8	21954	475 474.38	480	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
12874.8	17824.4	960.7	F
23100	24988.3	960.7	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 956.38	* Element	* Left OB	* Channel	* Right OB	*
* Vel Head (ft)	* 0.29	* Wt. n-Val.	*	* 0.041	* 0.035	*
* W.S. Elev (ft)	* 956.09	* Reach Len. (ft)	* 475.00	* 474.38	* 480.00	*
* Crit W.S. (ft)	* 949.86	* Flow Area (sq ft)	*	*37268.25	* 1788.89	*
* E.G. Slope (ft/ft)	*0.000668	* Area (sq ft)	* 8739.61	*37268.25	* 2273.76	*
* Q Total (cfs)	*164000.00	* Flow (cfs)	*	*161348.80	* 2651.20	*
* Top Width (ft)	*10045.22	* Top Width (ft)	* 3687.99	* 4001.09	* 2356.15	*
* Vel Total (ft/s)	* 4.20	* Avg. Vel. (ft/s)	*	* 4.33	* 1.48	*
* Max Chl Dpth (ft)	* 16.29	* Hydr. Depth (ft)	*	* 9.31	* 1.57	*
* Conv. Total (cfs)	*6344019.0	* Conv. (cfs)	*	*6241462.0	*102556.5	*
* Length Wtd. (ft)	* 474.50	* Wetted Per. (ft)	*	* 4006.72	* 1140.01	*
* Min Ch El (ft)	* 939.80	* Shear (lb/sq ft)	*	* 0.39	* 0.07	*
* Alpha	* 1.05	* Stream Power (lb/ft s)	*	* 1.68	* 0.10	*
* Frctn Loss (ft)	* 0.44	* Cum Volume (acre-ft)	* 3269.39	* 4637.30	* 811.82	*

* C & E Loss (ft)	* 0.00	* Cum SA (acres)	* 594.47	* 498.58	* 412.84	*

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 956.66	* Element	* Left OB	* Channel	* Right OB	*
* Vel Head (ft)	* 0.28	* Wt. n-Val.	*	* 0.041	*	*
* W.S. Elev (ft)	* 956.38	* Reach Len. (ft)	* 475.00	* 474.38	* 480.00	*
* Crit W.S. (ft)	* 949.86	* Flow Area (sq ft)	*	*38407.73	*	*
* E.G. Slope (ft/ft)	*0.000629	* Area (sq ft)	*	*38407.73	*	*
* Q Total (cfs)	*164000.00	* Flow (cfs)	*	*164000.00	*	*
* Top Width (ft)	* 4001.09	* Top Width (ft)	*	* 4001.09	*	*
* Vel Total (ft/s)	* 4.27	* Avg. Vel. (ft/s)	*	* 4.27	*	*
* Max Chl Dpth (ft)	* 16.58	* Hydr. Depth (ft)	*	* 9.60	*	*
* Conv. Total (cfs)	*6536869.0	* Conv. (cfs)	*	*6536869.0	*	*
* Length Wtd. (ft)	* 474.38	* Wetted Per. (ft)	*	* 4010.18	*	*
* Min Ch El (ft)	* 939.80	* Shear (lb/sq ft)	*	* 0.38	*	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 1.61	*	*
* Frctn Loss (ft)	* 0.41	* Cum Volume (acre-ft)	* 290.25	* 4945.39	* 30.85	*
* C & E Loss (ft)	* 0.00	* Cum SA (acres)	* 43.55	* 498.84	* 5.87	*

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 200.86

INPUT
Description: 200.86

Left Channel Bank Station Interpolated
Station Elevation Data num= 98

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12893	952.7	13071.4	952.1	13217.7	954.6	13366.3	951.7	13513.8	953.9
13666	954.4	13820.1	953.4	13963.2	953.3	14149	953.3	14333.5	952.5
14509.1	952.1	14688.3	953.1	14861.7	952.4	15054.1	951.6	15210.6	951.7
15424.6	955	15571.3	952.8	15782.9	955.2	16020.2	955.6	16192.2	953.9
16399.2	952.8	16559.9	953	16714.8	953.3	16760.5	954.7	16916.6	953.9
17003.1	954.6	17168.1	950.1	17285.1	949.5	17360.5	954.6	17520.2	953
17694.7	956	17869.8	957	17934.1	958.1	17992.4	4956.5698	17995.1	956.5
17996	956.3408	18052.8	946.3	18288.3	948.1	18449.5	947.1	18628.5	947.7
18762	951.3	18912.7	950.4	19061.6	946.8	19092	945.3	19141.3	938.5
19175.6	940.7	19336.6	941.9	19619.6	944.7	19730.8	944.7	19826.2	949.9
19922.8	951.3	20011.5	955.4	20112.1	951.4	20184.7	943.1	20254	952.1
20308.4	952.8	20438.4	949.3	20464.9	944.1	20568.6	943.9	20744.1	941.1
20840.6	941.3	20896.7	945.9	20979.1	947.3	21100	946.2	21279.3	951.2
21459.1	946.8	21602.1	945.3	21642.4	941.5	21792.5	940.9	21831.9	940.3
21865.4	942.7	21898	952	22032	954.1	22187.6	953.7	22377.3	953.4
22522.7	953.4	22725.4	952.8	22947.9	954.9	23137.5	955	23294.6	956.1
23413.1	955.8	23420	954.5	23482.2	956.5	23641.6	956.7	23647.7	954.4
23806	955.4	23951.6	954.9	24112	954.8	24269.9	954.6	24426.7	954.8
24604.6	954.9	24656.8	954.3	24670.5	956.8	24680.8	954	24693.9	958.2
24856.4	958.5	25029.7	959	25175	960.2				

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
12893	.043	17934.1	.15	19619.6	.032	20308.4	.037	21898	.035
22032	.035								

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
17996 22032 525 523.32 525 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
12893	17750	960.2	F
23360	25175	960.2	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 955.94	* Element	* Left OB	* Channel	* Right OB	*
* Vel Head (ft)	* 0.31	* Wt. n-Val.	*	* 0.053	* 0.035	*
* W.S. Elev (ft)	* 955.63	* Reach Len. (ft)	* 525.00	* 523.32	* 525.00	*
* Crit W.S. (ft)	* 949.69	* Flow Area (sq ft)	*	*35548.44	* 2059.19	*
* E.G. Slope (ft/ft)	*0.001346	* Area (sq ft)	*11394.54	*35548.44	* 2898.59	*
* Q Total (cfs)	*164000.00	* Flow (cfs)	*	*159393.20	* 4606.83	*
* Top Width (ft)	*11080.59	* Top Width (ft)	* 4780.42	* 4032.00	* 2268.17	*
* Vel Total (ft/s)	* 4.36	* Avg. Vel. (ft/s)	*	* 4.48	* 2.24	*
* Max Chl Dpth (ft)	* 17.13	* Hydr. Depth (ft)	*	* 8.82	* 1.72	*
* Conv. Total (cfs)	*4470468.0	* Conv. (cfs)	*	*4344891.0	*125577.2	*
* Length Wtd. (ft)	* 523.36	* Wetted Per. (ft)	*	* 4037.40	* 1196.09	*
* Min Ch El (ft)	* 938.50	* Shear (lb/sq ft)	*	* 0.74	* 0.14	*
* Alpha	* 1.03	* Stream Power (lb/ft s)	*	* 3.32	* 0.32	*
* Frctn Loss (ft)	* 0.59	* Cum Volume (acre-ft)	* 3159.61	* 4240.80	* 783.33	*
* C & E Loss (ft)	* 0.00	* Cum SA (acres)	* 548.30	* 454.83	* 387.36	*

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

Pre-Project

E.G. Elev (ft)	956.24	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.31	Wt. n-Val.		0.053	
W.S. Elev (ft)	955.94	Reach Len. (ft)	525.00	523.32	525.00
Crit W.S. (ft)	949.69	Flow Area (sq ft)		36762.91	
E.G. Slope (ft/ft)	0.001276	Area (sq ft)		36762.91	
Q Total (cfs)	164000.00	Flow (cfs)		164000.00	
Top Width (ft)	4032.00	Top Width (ft)		4032.00	
Vel Total (ft/s)	4.46	Avg. Vel. (ft/s)		4.46	
Max Chl Dpth (ft)	17.44	Hydr. Depth (ft)		9.12	
Conv. Total (cfs)	4591685.0	Conv. (cfs)		4591685.0	
Length Wtd. (ft)	523.32	Wetted Per. (ft)		4039.54	
Min Ch El (ft)	938.50	Shear (lb/sq ft)		0.72	
Alpha	1.00	Stream Power (lb/ft s)		3.23	
Frctn Loss (ft)	0.55	Cum Volume (acre-ft)	290.25	4536.07	30.85
C & E Loss (ft)	0.00	Cum SA (acres)	43.55	455.10	5.87

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 200.77

INPUT
Description: 200.77
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12925.1	950.1	13101.8	952.3	13250.4	951	13436.7	950.7	13651.1	951.4
13804.4	951.9	14027	953.4	14249.5	951.8	14401.1	950.7	14592.6	949.7
14752.3	950.6	14873.3	950.3	15006	952.1	15110.8	950.9	15249.1	953.3
15443.8	954.5	15631.2	955.3	15702.9	951.3	15936.9	951	16108.8	954.5
16172	955.8	16295.1	951.4	16462	950.7	16530.6	949.9	16652.3	952.8
16854.8	954	17022.2	952.1	17185.4	949.9	17349.4	948.1	17402.8	955.2
17473.6	951.6	17660.6	954.4	17828.8	955.3	17926.5	954	17969.3	948
18147.9	944.4	18302.9	946.4	18524.1	946.1	18650.9	949	18815.8	948.8
18902.5	949.8	18913.4	952	19097	950.8	19277	951.3	19280.8	951.9
19280.9	949.5	19321.8	951.3	19557.8	943.7	19720.4	945.1	19857.8	946.5
19911.9	942.9	19989.5	951.1	20140.5	950.2	20288.5	945.2	20339.4	948.6
20362.3	944.7	20388.7	942.6	20487.8	944	20788	936.9	20804.9	937.1
20829.2	942.4	20906.3	944.7	21056	944.4	21222.9	942.6	21375.1	940.2
21524.6	940.4	21559.7	941	21581	950.6	21785.8	951.3	21951	952.4
22102.3	952.1	22329.8	953.2	22461	953	22651.4	953.3	22824.9	954.7
23050.7	954.8	23217.5	954.9	23380.5	954.5	23421.7	954.3	23434.6	956
23439.7	954.3	23489.2	957.2	23506.4	952.5	23514.1	955.4	23706.9	954.3
23876.7	954.3	24057.8	954.4	24216.1	954.4	24385.4	954.2	24554.4	953.9
24685.3	953.1	24698.2	956.8	24704.7	952.7	24723.6	958.6	24886.7	958.9
24978	959.5								

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
12925.1	.043	17828.8	.15	19321.8	.032	19857.8	.037	21785.8	.025
21951	.035								

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
17828.8	21951	500 495.64	520	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
12925.1	17630	960	F
23630	24978	960	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	955.35	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.33	Wt. n-Val.	0.043	0.043	0.035
W.S. Elev (ft)	955.02	Reach Len. (ft)	500.00	495.64	520.00
Crit W.S. (ft)	949.21	Flow Area (sq ft)	62.55	34826.94	1951.25
E.G. Slope (ft/ft)	0.000950	Area (sq ft)	14814.58	34826.94	2840.32
Q Total (cfs)	164000.00	Flow (cfs)	37.64	160936.30	3026.04
Top Width (ft)	11449.90	Top Width (ft)	4718.53	4101.49	2629.89
Vel Total (ft/s)	4.45	Avg. Vel. (ft/s)	0.60	4.62	1.55
Max Chl Dpth (ft)	18.12	Hydr. Depth (ft)	0.42	8.49	1.25
Conv. Total (cfs)	5320745.0	Conv. (cfs)	1221.1	5221349.0	98175.5
Length Wtd. (ft)	496.09	Wetted Per. (ft)	147.30	4108.72	1557.74
Min Ch El (ft)	936.90	Shear (lb/sq ft)	0.03	0.50	0.07
Alpha	1.06	Stream Power (lb/ft s)	0.02	2.32	0.12
Frctn Loss (ft)	0.55	Cum Volume (acre-ft)	3001.67	3818.06	748.74
C & E Loss (ft)	0.01	Cum SA (acres)	491.06	405.98	357.84

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	955.70	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.32	Wt. n-Val.		0.043	
W.S. Elev (ft)	955.38	Reach Len. (ft)	500.00	495.64	520.00
Crit W.S. (ft)	949.21	Flow Area (sq ft)		36283.86	
E.G. Slope (ft/ft)	0.000875	Area (sq ft)		36283.86	
Q Total (cfs)	164000.00	Flow (cfs)		164000.00	
Top Width (ft)	4122.20	Top Width (ft)		4122.20	
Vel Total (ft/s)	4.52	Avg. Vel. (ft/s)		4.52	
Max Chl Dpth (ft)	18.48	Hydr. Depth (ft)		8.80	
Conv. Total (cfs)	5545445.0	Conv. (cfs)		5545445.0	
Length Wtd. (ft)	495.65	Wetted Per. (ft)		4132.49	
Min Ch El (ft)	936.90	Shear (lb/sq ft)		0.48	
Alpha	1.00	Stream Power (lb/ft s)		2.17	
Frctn Loss (ft)	0.50	Cum Volume (acre-ft)	290.25	4097.29	30.85

* C & E Loss (ft)	* 0.00	* Cum SA (acres)	* 43.55	* 406.12	* 5.87	*

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 200.67

INPUT
Description: 200.67
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12952.7	947.8	13129.5	948.3	13308.2	948.8	13483.1	949.2	13641	952.6
13766	952	13870.6	949.3	14073.7	950.3	14282	951.5	14535.6	948.8
14746.4	948.7	14899.4	949.8	15045.4	950.6	15138.5	953.1	15312.3	952.8
15471.5	952.2	15651.1	951.4	15730.3	949.9	15964.5	954	16199.7	953.8
16438.6	948.9	16643.2	952.3	16796.2	954	17002.3	953.9	17133.8	952.2
17211.9	946.7	17315.9	947	17376.2	954.8	17384.7	952.3	17551.8	953.1
17732.2	954.1	17919.3	952.9	17950	943.8	18101.5	944.9	18330.6	947.4
18498.9	943.9	18565	943.8	18742.3	948.8	18888.2	952	18925.4	946.6
18962.8	948.9	19023.7	947.4	19040.9	949.6	19238.5	952.4	19366.3	948.8
19569.2	947.1	19719.3	940.8	19796.7	942.1	19832.7	943.8	19969	943
20047.1	949	20111	948.4	20263	939.8	20444.8	942.7	20609	942.6
20782.8	941.1	20963.8	942.2	20998.9	941.8	21090.6	944.3	21256.2	942.8
21298.3	943.3	21316	950.6	21367.7	945.7	21427.5	950.4	21604	951.9
21649.3	952.3	21939.5	952.7	21971.5	952.7	22194	953.4	22217.8	954.7
22233.1	953	22256.3	952.8	22476.8	953.9	22513.4	953.9	22711.5	955.1
22773.4	955.2	22873.4	959.1	23051.6	959.3	23158.6	956.6	23168.5	958.8
23393.6	957.5	23430	957.4	23431.7	955.9	23584.2	954.6	23749.1	953.9
23939.2	954	24125.4	954.8	24292.4	954.6	24492.9	954.3	24643.7	954.1
24725.3	954.1	24731.8	955.7	24741.4	953.7	24755.2	960.7	24923	959.7
24996.7	960								

Manning's n Values num= 8

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
12952.7	.043	17919.3	.15	18962.8	.032	19040.9	.15	19366.3	.032
20263	.043	21604	.025	21649.3	.025				

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
17919.3	21649.3	500 503.34	510	.1	.3

Ineffective Flow num= 3

Sta L	Sta R	Elev	Permanent
12952.7	17540	960	F
22230	23500	960	F
23915	24996.7	960	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 954.80	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 0.38	* Wt. n-Val.	* 0.043	* 0.047	* 0.025 *
* W.S. Elev (ft)	* 954.42	* Reach Len. (ft)	* 500.00	* 503.34	* 510.00 *
* Crit W.S. (ft)	* 948.98	* Flow Area (sq ft)	* 337.22	*32402.02	* 1045.48 *
* E.G. Slope (ft/ft)	*0.001288	* Area (sq ft)	*15971.37	*32402.02	* 1461.47 *
* Q Total (cfs)	*164000.00	* Flow (cfs)	* 386.70	*160716.40	* 2896.93 *
* Top Width (ft)	*10368.24	* Top Width (ft)	* 4962.41	* 3730.00	* 1675.83 *
* Vel Total (ft/s)	* 4.85	* Avg. Vel. (ft/s)	* 1.15	* 4.96	* 2.77 *
* Max Chl Dpth (ft)	* 14.62	* Hydr. Depth (ft)	* 0.89	* 8.69	* 1.21 *
* Conv. Total (cfs)	*4569344.0	* Conv. (cfs)	* 10774.2	*4477856.0	* 80713.9 *
* Length Wtd. (ft)	* 503.48	* Wetted Per. (ft)	* 379.31	* 3734.79	* 862.41 *
* Min Ch El (ft)	* 939.80	* Shear (lb/sq ft)	* 0.07	* 0.70	* 0.10 *
* Alpha	* 1.03	* Stream Power (lb/ft s)	* 0.08	* 3.46	* 0.27 *
* Frctn Loss (ft)	* 0.65	* Cum Volume (acre-ft)	* 2824.98	* 3435.59	* 723.07 *
* C & E Loss (ft)	* 0.00	* Cum SA (acres)	* 435.50	* 361.42	* 332.14 *

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 955.20	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 0.36	* Wt. n-Val.	* 0.043	* 0.047	* *
* W.S. Elev (ft)	* 954.84	* Reach Len. (ft)	* 500.00	* 503.34	* 510.00 *
* Crit W.S. (ft)	* 948.98	* Flow Area (sq ft)	* 341.27	*33939.87	* *
* E.G. Slope (ft/ft)	*0.001158	* Area (sq ft)	* 341.27	*33939.87	* *
* Q Total (cfs)	*164000.00	* Flow (cfs)	* 457.27	*163542.70	* *
* Top Width (ft)	* 4009.30	* Top Width (ft)	* 279.30	* 3730.00	* *
* Vel Total (ft/s)	* 4.78	* Avg. Vel. (ft/s)	* 1.34	* 4.82	* *
* Max Chl Dpth (ft)	* 15.04	* Hydr. Depth (ft)	* 1.22	* 9.10	* *
* Conv. Total (cfs)	*4819677.0	* Conv. (cfs)	* 13438.4	*4806238.0	* *
* Length Wtd. (ft)	* 503.33	* Wetted Per. (ft)	* 280.55	* 3737.32	* *
* Min Ch El (ft)	* 939.80	* Shear (lb/sq ft)	* 0.09	* 0.66	* *
* Alpha	* 1.01	* Stream Power (lb/ft s)	* 0.12	* 3.16	* *
* Frctn Loss (ft)	* 0.59	* Cum Volume (acre-ft)	* 288.29	* 3697.77	* 30.85 *
* C & E Loss (ft)	* 0.00	* Cum SA (acres)	* 41.94	* 361.45	* 5.87 *

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 200.58

INPUT
Description: 200.58

Right Channel Bank Station Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
13004.2	946.1	13252.7	946	13406.6	945.2	13565.9	944.9	13774.2	944.6
13943.1	945.5	14116.9	945	14279.1	946.6	14438.8	947.7	14609	948.4
14768.3	947.1	14929	947.1	15050.5	947.2	15202.4	950.2	15286.6	950.1
15344.6	952	15501.3	950.2	15638.8	948.6	15758.4	951.1	15992.6	950.5
16109.8	952.6	16227.7	949.4	16451.3	948.4	16610.1	950.8	16708	953.4
16925.1	953.5	17149.3	953.1	17163.9	953.3	17234.2	944.5	17318.9	945.5
17387.8	953.1	17544.8	952.5	17768	953.3	17947	953.3	18120.4	944.7
18239.5	947	18479.6	944.5	18689.4	943	18899.8	947.1	18982.6	947.4
19060.5	950.5	19193.4	946.5	19239.2	951	19272	950.3	19281	947.8
19435	949.5	19481.5	950.8	19780.1	939.9	19839	939.1	20105.5	937.6
20341.3	941.2	20411.6	945.7	20456.8	943.9	20469.2	941.9	20590	941.2
20660	946.3	20712.1	943.5	20803.5	943.1	20830.7	941.2	21002.3	943.4
21117.8	946.3	21272	946.4	21425	950.4	21450	950.6778	21452	950.7
21643	952.3	21667.2	952.4	21820.3	952	21847.8	952	22017.1	952.7
22213.8	952.2	22244.2	960.6	22257.8	957.2	22270.2	958.5	22289.1	952.8
22392.9	953.3	22566.6	953.5	22797.3	954.2	22998.5	955.3	23151	955.4
23322.6	954.9	23399.1	953.2	23498	953.6	23506	952.3	23516.9	955.5
23555.1	955.9	23578.4	953.2	23779.1	953.4	23989.5	954.5	24174.8	954.3
24351.4	954.1	24538.2	953.8	24699.8	953.7	24771.3	955.3	24776.5	952.9
24795.5	960.4	24969.5	959.5						

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
13004.2	.15	14609	.043	17947	.15	19481.5	.032	20105.5	.043
21425	.025	21643	.025						

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
17947	21450	475 479.55	530	.1	.3

Ineffective Flow num= 3

Sta L	Sta R	Elev	Permanent
13004.2	17460	960	F
22800	23380	960	F
24200	24969.5	960	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	954.14	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.39	Wt. n-Val.	0.043	0.048	0.025
W.S. Elev (ft)	953.76	Reach Len. (ft)	475.00	479.55	530.00
Crit W.S. (ft)	948.29	Flow Area (sq ft)	366.16	31612.27	1563.34
E.G. Slope (ft/ft)	0.001313	Area (sq ft)	23418.66	31612.27	1568.20
Q Total (cfs)	164000.00	Flow (cfs)	379.05	159405.60	4215.36
Top Width (ft)	10091.02	Top Width (ft)	4942.80	3503.00	1645.22
Vel Total (ft/s)	4.89	Avg. Vel. (ft/s)	1.04	5.04	2.70
Max Chl Dpth (ft)	16.16	Hydr. Depth (ft)	0.75	9.02	1.02
Conv. Total (cfs)	4526509.0	Conv. (cfs)	10462.2	4399700.0	116346.8
Length Wtd. (ft)	481.45	Wetted Per. (ft)	487.00	3505.02	1540.52
Min Ch El (ft)	937.60	Shear (lb/sq ft)	0.06	0.74	0.08
Alpha	1.04	Stream Power (lb/ft s)	0.06	3.73	0.22
Frctn Loss (ft)	0.53	Cum Volume (acre-ft)	2598.92	3065.74	705.33
C & E Loss (ft)	0.02	Cum SA (acres)	378.65	319.63	312.70

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	954.60	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.37	Wt. n-Val.	0.043	0.048	
W.S. Elev (ft)	954.23	Reach Len. (ft)	475.00	479.55	530.00
Crit W.S. (ft)	948.29	Flow Area (sq ft)	521.74	33271.84	
E.G. Slope (ft/ft)	0.001187	Area (sq ft)	521.74	33271.84	
Q Total (cfs)	164000.00	Flow (cfs)	697.49	163302.50	
Top Width (ft)	3940.00	Top Width (ft)	437.00	3503.00	
Vel Total (ft/s)	4.85	Avg. Vel. (ft/s)	1.34	4.91	
Max Chl Dpth (ft)	16.63	Hydr. Depth (ft)	1.19	9.50	
Conv. Total (cfs)	4759369.0	Conv. (cfs)	20241.6	4739127.0	
Length Wtd. (ft)	479.52	Wetted Per. (ft)	438.60	3508.58	
Min Ch El (ft)	937.60	Shear (lb/sq ft)	0.09	0.70	
Alpha	1.02	Stream Power (lb/ft s)	0.12	3.45	
Frctn Loss (ft)	0.49	Cum Volume (acre-ft)	283.34	3309.45	30.85
C & E Loss (ft)	0.01	Cum SA (acres)	37.83	319.66	5.87

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 200.49

INPUT
Description: 200.49
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
13048.9	945.6	13261.8	944.9	13471.4	944.9	13640.6	945.6	13821.9	945.7
13998.1	945.5	14204.4	944.8	14399.4	943.8	14586.6	943.4	14763.6	943
14951.3	943.1	15156.1	943.2	15371.2	945.2	15548.1	948.1	15769.6	946.9
15979.3	948.4	16200.3	947.6	16375.3	947.1	16493.4	953	16719	952.8
16949.5	951	17106.4	951.7	17132.4	947.4	17168	952.5	17198.4	950.8
17234.4	945.1	17404.6	947.6	17536.5	952.7	17719.3	953.3	17750.3	952.7
17791.5	947.5	17816.7	949.6	17852.9	949	17862.5	950.8	18012.9	951.3
18153.1	947.1	18273.7	941.6	18480.3	943.2	18739.9	945	18856.4	944.7
19028.1	939.7	19085	944.7	19190.4	945.3	19261.7	948.1	19342.5	943.7

Pre-Project

19490.6	939.8	19542	943.5	19650.1	948.1	19854.1	940.8	19947.1	937.5		
20192	936.9	20201.4	940.9	20275.4	939.8	20324.1	944	20367.7	939.3		
20425.1	937.8	20452	941.7	20573.6	946.4	20608.5	941.9	20627	944.1		
20638.3	940.9	20706.1	939.4	20811.1	939.3	20837.1	942.5	20956.7	943.3		
20975.1	941.9	21136.8	944.8	21171	950.3	21342.1	950.2	21559.3	950.8		
21830.5	950.9	21861.8	951.1	21876.9	959.1	21891.8	959	21905.4	951.7		
22133.6	952.2	22336	952.4	22590.8	952.7	22633.1	952.7	22813.2	952.3		
23018.2	953.8	23185.8	954.6	23401.6	954.5	23519	954	23540.6	951.9		
23589.4	954.7	23609.6	952	23780.4	952.4	23946.1	952.4	24145	952.4		
24343.4	952.9	24514.6	953.3	24725.8	953.2	24810.9	953.5	24835.6	958		
24956.8	957.1										

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
13048.9	.15	15548.1	.043	17719.3	.043	18273.7	.15	19342.5	.032
20192	.043	21171	.025						

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

17719.3	21171	510	497.59	510	.1	.3

Ineffective Flow num= 4

Sta L	Sta R	Elev	Permanent
13048.9	17380	960	F
21840	22160	960	F
22950	23300	960	F
24485	24956.8	960	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	953.59	Element	Left OB	Channel / Right OB
Vel Head (ft)	0.32	Wt. n-Val.	0.043	0.047 / 0.025
W.S. Elev (ft)	953.28	Reach Len. (ft)	510.00	497.59 / 510.00
Crit W.S. (ft)	946.97	Flow Area (sq ft)	607.04	*33688.59 / 3074.81
E.G. Slope (ft/ft)	*0.000940	Area (sq ft)	*29543.49	*33688.59 / 3468.71
Q Total (cfs)	*164000.00	Flow (cfs)	961.51	*154777.40 / * 8261.14 *
Top Width (ft)	*10978.11	Top Width (ft)	4663.19	* 3450.48 / 2864.45
Vel Total (ft/s)	4.39	Avg. Vel. (ft/s)	1.58	4.59 / 2.69
Max Chl Dpth (ft)	16.38	Hydr. Depth (ft)	1.83	9.76 / 1.29
Conv. Total (cfs)	*5347928.0	Conv. (cfs)	* 31354.1	*5047184.0 / *269389.9 *
Length Wtd. (ft)	498.40	Wetted Per. (ft)	332.19	* 3455.46 / 2378.92
Min Ch El (ft)	936.90	Shear (lb/sq ft)	0.11	0.57 / 0.08
Alpha	1.05	Stream Power (lb/ft s)	0.17	2.63 / 0.20
Frctn Loss (ft)	0.41	Cum Volume (acre-ft)	* 2310.15	* 2706.29 / 674.69
C & E Loss (ft)	0.01	Cum SA (acres)	326.27	* 281.36 / 285.27

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	954.10	Element	Left OB	Channel / Right OB
Vel Head (ft)	0.33	Wt. n-Val.	0.043	0.047 /
W.S. Elev (ft)	953.77	Reach Len. (ft)	510.00	497.59 / 510.00
Crit W.S. (ft)	946.97	Flow Area (sq ft)	775.44	*35402.63 /
E.G. Slope (ft/ft)	*0.000893	Area (sq ft)	775.44	*35402.63 /
Q Total (cfs)	*164000.00	Flow (cfs)	* 1371.76	*162628.30 / * *
Top Width (ft)	* 3791.00	Top Width (ft)	339.30	* 3451.70 /
Vel Total (ft/s)	4.53	Avg. Vel. (ft/s)	1.77	4.59 /
Max Chl Dpth (ft)	16.87	Hydr. Depth (ft)	2.29	10.26 /
Conv. Total (cfs)	*5487085.0	Conv. (cfs)	* 45896.2	*5441189.0 / * *
Length Wtd. (ft)	497.80	Wetted Per. (ft)	345.94	* 3460.15 /
Min Ch El (ft)	936.90	Shear (lb/sq ft)	0.13	0.57 /
Alpha	1.02	Stream Power (lb/ft s)	0.22	2.62 /
Frctn Loss (ft)	0.39	Cum Volume (acre-ft)	276.27	* 2931.44 / 30.85
C & E Loss (ft)	0.01	Cum SA (acres)	33.60	281.38 / 5.87

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 200.39

INPUT
Description: 200.39
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
13083.9	945.2	13254.6	945.3	13486.8	945.5	13742.8	945.8	14008.5	946
14273.9	945.9	14454.3	945.6	14637.7	945.4	14834.7	945.2	15022.8	944.7
15192.5	944.4	15417.5	944.4	15642.9	944.4	15819.7	943.9	16016.8	943.5
16254.5	943.6	16478.3	943.8	16652.7	943.9	16819.7	947.8	16875.2	949.8
16928.9	948.8	16992.7	951.1	17168.8	950.1	17242.1	945	17439	948.6
17484.9	949	17507.9	946.2	17527.7	949.5	17682.5	952.2	17714.9	945.6
17726.7	949.9	17781	947.5	17966.7	946.8	18026.8	945.7	18050.3	941.5
18183	941.3	18379.8	942.6	18534.2	941	18751.2	942.5	18800.2	941.7
18918.7	944.9	19025.6	941.5	19161.9	944.8	19220.8	943.5	19267.5	947.7
19444.5	940.9	19506.7	939	19763.7	940.6	19785	940.5	20110.3	939.9
20152.6	937	20199	940.6	20240.6	941.7	20272.3	938.7	20460.6	948.4
20515.5	946.8	20585.3	946.5	20659.8	939.5	20714.2	938.7	20742	943.3
20788.5	938.9	20812.7	939.9	20854.3	937.8	20978.7	940.9	21041	951.3
21062	949.6	21134.2	949.8	21326.6	949.6	21342.1	949.6	21606.3	951
21865.7	950.7	21893.4	950.9	21911.5	958	21918.5	956.7	21925.9	957.8
21937.7	950.6	22152.6	950.7	22336.4	951.5	22566.3	951.6	22807.6	951.9
23031.4	952.1	23203.3	953.2	23429.6	953.3	23573.8	952	23600	955.9
23653.9	951.2	23829	950.5	24004.5	950.7	24185.9	951.4	24362.4	951.7
24572.6	951.5	24742.1	951.6	24842.9	953.7	24848.9	951.1	24857.3	956.6
24952.5	957.6								

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
13083.9	.15	16875.2	.043	17682.5	.043	18751.2	.15	19506.7	.032
20199	.043	21041	.025						

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
17682.5 21041 550 506.5 480 .1 .3

Ineffective Flow num= 3

Sta L	Sta R	Elev	Permanent
13080	17300	960	F
21400	22680	960	F
24775	24952.5	960	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	953.17	Element	Left OB	Channel / Right OB
Vel Head (ft)	0.28	Wt. n-Val.	0.043	0.045 / 0.025
W.S. Elev (ft)	952.89	Reach Len. (ft)	550.00	506.50 / 480.00
Crit W.S. (ft)	946.26	Flow Area (sq ft)	1497.02	34887.88 / 3429.20
E.G. Slope (ft/ft)	0.000739	Area (sq ft)	33168.13	34887.88 / 5797.26
Q Total (cfs)	164000.00	Flow (cfs)	3488.42	151819.00 / 8692.53
Top Width (ft)	11315.74	Top Width (ft)	4598.60	3358.50 / 3358.64
Vel Total (ft/s)	4.12	Avg. Vel. (ft/s)	2.33	4.35 / 2.53
Max Chl Dpth (ft)	15.89	Hydr. Depth (ft)	3.91	10.39 / 1.65
Conv. Total (cfs)	6034760.0	Conv. (cfs)	128364.4	5586533.0 / 319861.9
Length Wtd. (ft)	507.09	Wetted Per. (ft)	382.99	3363.45 / 2078.59
Min Ch El (ft)	937.00	Shear (lb/sq ft)	0.18	0.48 / 0.08
Alpha	1.06	Stream Power (lb/ft s)	0.42	2.08 / 0.19
Frctn Loss (ft)	0.54	Cum Volume (acre-ft)	1943.04	2314.62 / 620.44
C & E Loss (ft)	0.02	Cum SA (acres)	272.06	242.47 / 248.84

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	953.70	Element	Left OB	Channel / Right OB
Vel Head (ft)	0.29	Wt. n-Val.	0.043	0.045 /
W.S. Elev (ft)	953.40	Reach Len. (ft)	550.00	506.50 / 480.00
Crit W.S. (ft)	946.26	Flow Area (sq ft)	1694.62	36622.89 /
E.G. Slope (ft/ft)	0.000702	Area (sq ft)	1694.62	36622.89 /
Q Total (cfs)	164000.00	Flow (cfs)	4130.06	159869.90 /
Top Width (ft)	3741.00	Top Width (ft)	382.50	3358.50 /
Vel Total (ft/s)	4.28	Avg. Vel. (ft/s)	2.44	4.37 /
Max Chl Dpth (ft)	16.40	Hydr. Depth (ft)	4.43	10.90 /
Conv. Total (cfs)	6188329.0	Conv. (cfs)	155842.5	6032486.0 /
Length Wtd. (ft)	508.20	Wetted Per. (ft)	390.34	3365.56 /
Min Ch El (ft)	937.00	Shear (lb/sq ft)	0.19	0.48 /
Alpha	1.02	Stream Power (lb/ft s)	0.46	2.08 /
Frctn Loss (ft)	0.49	Cum Volume (acre-ft)	261.81	2520.06 / 30.85
C & E Loss (ft)	0.02	Cum SA (acres)	29.37	242.48 / 5.87

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 200.3

INPUT
Description: 200.3
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
13125.5	945.5	13316	945.5	13495.7	945.7	13687.9	945.9	13882.5	945.7
14123.9	945.2	14361.2	945.8	14546.2	945.8	14737.5	945.3	14938.1	945.4
15122.2	945.1	15335	945.6	15433	945.6	15567.6	939.4	15743.1	943.1
15926.3	943.9	16194.5	945.4	16429.4	944.1	16628.2	944	16879.3	943.5
17113.8	942.4	17377.6	941.9	17498.6	943.3	17607.2	938.9	17628.8	936.3
17658.3	936.3	17675	944.5	17697.5	951.2	17780.4	950.6	17838.1	947
17867.7	942.5	17967.1	945	18084.3	942	18261.2	944.6	18437.1	945.1
18628.2	943.1	18829.4	943.7	19025	944.9	19214.9	946.9	19248.3	947.6
19276.7	941.7	19395.7	940.8	19474.4	946.5	19525.1	941.1	19863.4	942.3
20078.8	940.7	20263.9	939.9	20310.8	939.3	20322.1	942.6	20372.8	938
20488.5	939.3	20499.7	937.7	20594.1	938.9	20626.9	940.5	20657.3	939.8
20690.1	946.3	20711.8	945.7	20725.9	942.7	20819.1	942.7	20861.5	948.6
20879.4	947.5	20896	957	20906	955	20980	955.9	20990	954.6
21051.2	955.9	21071.8	953.9	21206.4	955	21247.3	956.9	21438.7	956
21607.6	952.1	21652.6	956.5	21832	957.6	22017.2	957.7	22136.9	954
22358.1	956.8	22480.5	957.8	22661.3	957.9	22684.8	957.8	22918.3	956.9
22985.5	956.5	23086.3	950.7	23165.3	950.8	23400.3	954	23576.8	954.1
23691	953.2	23717.5	950.5	23919.1	949.7	24108.8	949.5	24379.6	950.1
24590.3	950.3	24795.9	950.7	24878.3	952.9	24883.6	950.7	24903	957.1
24983.7	956.7								

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
13125.5	.15	17780.4	.15	18261.2	.065	19395.7	.032	20263.9	.043
20896	.043	21206.4	.053						

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
17780.4 20896 520 515.72 560 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
13125	17205	960	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	952.61	Element	Left OB	Channel / Right OB

Pre-Project

* Vel Head (ft)	* 0.49	* Wt. n-Val.	* 0.150	* 0.046	* 0.053	*					
* W.S. Elev (ft)	* 952.12	* Reach Len. (ft)	* 520.00	* 515.72	* 560.00	*					
* Crit W.S. (ft)	* 947.18	* Flow Area (sq ft)	* 5257.79	*28732.01	* 2497.26	*					
* E.G. Slope (ft/ft)	*0.001603	* Area (sq ft)	*35712.51	*28732.01	* 2497.26	*					
* Q Total (cfs)	*179750.00	* Flow (cfs)	* 9082.61	*166347.00	* 4320.39	*					
* Top Width (ft)	* 9118.91	* Top Width (ft)	* 4654.90	* 3107.07	* 1356.93	*					
* Vel Total (ft/s)	* 4.93	* Avg. Vel. (ft/s)	* 1.73	* 5.79	* 1.73	*					
* Max Chl Dpth (ft)	* 15.82	* Hydr. Depth (ft)	* 9.14	* 9.25	* 1.84	*					
* Conv. Total (cfs)	*4488975.0	* Conv. (cfs)	*226824.0	*4154256.0	*107895.0	*					
* Length Wtd. (ft)	* 517.47	* Wetted Per. (ft)	* 578.54	* 3112.25	* 1357.60	*					
* Min Ch El (ft)	* 937.70	* Shear (lb/sq ft)	* 0.91	* 0.92	* 0.18	*					
* Alpha	* 1.29	* Stream Power (lb/ft s)	* 1.57	* 5.35	* 0.32	*					
* Frctn Loss (ft)	* 0.93	* Cum Volume (acre-ft)	* 1508.19	* 1944.74	* 574.75	*					
* C & E Loss (ft)	* 0.01	* Cum SA (acres)	* 213.64	* 204.88	* 222.85	*					

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 953.18	* Element	* Left OB	* Channel	* Right OB	*					
* Vel Head (ft)	* 0.46	* Wt. n-Val.	* 0.150	* 0.046	*	*					
* W.S. Elev (ft)	* 952.73	* Reach Len. (ft)	* 520.00	* 515.72	* 560.00	*					
* Crit W.S. (ft)	* 947.17	* Flow Area (sq ft)	* 5605.86	*30611.86	*	*					
* E.G. Slope (ft/ft)	*0.001382	* Area (sq ft)	* 5605.86	*30611.86	*	*					
* Q Total (cfs)	*179750.00	* Flow (cfs)	* 9271.11	*170478.90	*	*					
* Top Width (ft)	* 3683.53	* Top Width (ft)	* 575.40	* 3108.13	*	*					
* Vel Total (ft/s)	* 4.96	* Avg. Vel. (ft/s)	* 1.65	* 5.57	*	*					
* Max Chl Dpth (ft)	* 16.43	* Hydr. Depth (ft)	* 9.74	* 9.85	*	*					
* Conv. Total (cfs)	*4835241.0	* Conv. (cfs)	*249391.0	*4585850.0	*	*					
* Length Wtd. (ft)	* 516.00	* Wetted Per. (ft)	* 589.04	* 3113.47	*	*					
* Min Ch El (ft)	* 937.70	* Shear (lb/sq ft)	* 0.82	* 0.85	*	*					
* Alpha	* 1.20	* Stream Power (lb/ft s)	* 1.36	* 4.72	*	*					
* Frctn Loss (ft)	* 0.80	* Cum Volume (acre-ft)	* 215.72	* 2129.17	* 30.85	*					
* C & E Loss (ft)	* 0.01	* Cum SA (acres)	* 23.33	* 204.89	* 5.87	*					

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 200.2

INPUT
Description: 200.2

Left Channel Bank Station Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
13153.3	944.6	13349.8	941	13453.5	941.7	13506.2	944.4	13667.2	944.5
13896.4	944.4	14116.1	944.3	14330.9	944.2	14491.6	944.1	14677.3	943.8
14757.1	939.6	14939.8	944.1	15110.7	943.8	15278.6	943.3	15461.1	943.2
15632.4	943.3	15866.9	943.9	16084.9	943.3	16260.8	943.4	16458.2	942.6
16696.4	943.8	16928.4	942.2	17115942.0292		17146.9	942	17406.4	942.7
17643.4	942.6	17703.7	941.7	17728.1	936.2	17754.7	936.2	17774.2	941
17960.5	949.6	18052.3	948	18086.8	939.2	18113.1	940.7	18233.7	939.8
18402.1	943	18511.7	944.8	18531.7	941.8	18707.3	944.7	18794.8	941.3
19017.2	943.2	19081.1	945.2	19247.5	944.2	19313.2	945.7	19482.3	942.9
19591.6	942.6	20062.3	940.4	20235.8	940	20296.5	940.6	20329.2	937.6
20402.2	940.4	20578.4	937.9	20633	938.7	20676	937	20686.1	939.7
20744	948	20822.3	948	20949.1	954.9	21027.6	947.5	21215	947.3
21338.5	947.2	21527.5	948.5	21746	948.8	21841.7	948.3	22059	949.1
22185.4	949.1	22507.1	948.8	22551.2	949	22836.7	949.8	22992.3	949.2
23156.3	950.7	23327.5	950.2	23492.3	951.2	23633.4	950.7	23641.6	948.8
23667.9	953.3	23785.4	949.4	23980	949	24145.7	948.5	24326	947.5
24336.6	946.6	24353.9	949.4	24529.6	949.2	24626.1	949.5	24679.5	947.3
24861.6	949.3	24983.4	948.5	24990.2	949.6	24999.2	947	25138.6	950
25169.5	955.5	25202.4	950.9	25239.2	950	25434.2	953.6	25474.7	955.9
25481.6	954.7	25498.7	958.4						

Manning's n Values num= 8

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
13153.3	.15	17960.5	.15	18233.7	.065	19482.3	.032	20235.8	.043
20744	.043	21215	.025	23667.9	.053				

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
17960.5 20744 535 525.73 515 .1 .3

Ineffective Flow num= 3

Sta L	Sta R	Elev	Permanent
13150	17115	960	F
20744	23100	960	F
25169.5	25498.7	960	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 951.67	* Element	* Left OB	* Channel	* Right OB	*					
* Vel Head (ft)	* 0.56	* Wt. n-Val.	* 0.150	* 0.046	* 0.051	*					
* W.S. Elev (ft)	* 951.10	* Reach Len. (ft)	* 535.00	* 525.73	* 515.00	*					
* Crit W.S. (ft)	* 946.78	* Flow Area (sq ft)	* 7123.41	*24953.69	* 3542.48	*					
* E.G. Slope (ft/ft)	*0.002027	* Area (sq ft)	*37700.66	*24953.69	* 9020.27	*					
* Q Total (cfs)	*179750.00	* Flow (cfs)	*13140.99	*158890.60	* 7718.37	*					
* Top Width (ft)	*11857.73	* Top Width (ft)	* 4807.20	* 2783.50	* 4267.03	*					
* Vel Total (ft/s)	* 5.05	* Avg. Vel. (ft/s)	* 1.84	* 6.37	* 2.18	*					
* Max Chl Dpth (ft)	* 14.90	* Hydr. Depth (ft)	* 8.43	* 8.96	* 1.84	*					
* Conv. Total (cfs)	*3992119.0	* Conv. (cfs)	*291851.9	*3528848.0	*171419.5	*					
* Length Wtd. (ft)	* 525.91	* Wetted Per. (ft)	* 846.90	* 2786.31	* 1924.34	*					
* Min Ch El (ft)	* 937.00	* Shear (lb/sq ft)	* 1.06	* 1.13	* 0.23	*					
* Alpha	* 1.43	* Stream Power (lb/ft s)	* 1.96	* 7.22	* 0.51	*					

* Frctn Loss (ft)	* 0.98	* Cum Volume (acre-ft)	* 1070.00	* 1626.94 * 500.71 *
* C & E Loss (ft)	* 0.03	* Cum SA (acres)	* 157.16	* 170.01 * 186.70 *

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 952.38	* Element	* Left OB	* Channel * Right OB *
* Vel Head (ft)	* 0.55	* Wt. n-Val.	* 0.150	* 0.046 * *
* W.S. Elev (ft)	* 951.83	* Reach Len. (ft)	* 535.00	* 525.73 * 515.00 *
* Crit W.S. (ft)	* 946.77	* Flow Area (sq ft)	* 7740.51	*26985.25 * *
* E.G. Slope (ft/ft)	*0.001732	* Area (sq ft)	* 7740.51	*26985.25 * *
* Q Total (cfs)	*179750.00	* Flow (cfs)	*13843.60	*165906.40 * *
* Top Width (ft)	* 3629.00	* Top Width (ft)	* 845.50	* 2783.50 * *
* Vel Total (ft/s)	* 5.18	* Avg. Vel. (ft/s)	* 1.79	* 6.15 * *
* Max Chl Dpth (ft)	* 15.63	* Hydr. Depth (ft)	* 9.15	* 9.69 * *
* Conv. Total (cfs)	*4319022.0	* Conv. (cfs)	*332633.1	*3986389.0 * *
* Length Wtd. (ft)	* 526.30	* Wetted Per. (ft)	* 856.71	* 2790.14 * *
* Min Ch El (ft)	* 937.00	* Shear (lb/sq ft)	* 0.98	* 1.05 * *
* Alpha	* 1.31	* Stream Power (lb/ft s)	* 1.75	* 6.43 * *
* Frctn Loss (ft)	* 0.81	* Cum Volume (acre-ft)	* 136.06	* 1788.21 * 30.85 *
* C & E Loss (ft)	* 0.04	* Cum SA (acres)	* 14.85	* 170.01 * 5.87 *

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 200.1

INPUT
Description: 200.1
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
13401.5	961.6	13404.9	959.9	13406.7	957.2	13436.1	949.3	13438.3	947.2
13608.9	944.8	13771.4	944.1	13861.6	946.2	14093.6	944.2	14363	943.5
14599.1	944	14804.9	943.5	14985.6	943.6	15188.8	942.7	15425.2	942.8
15650.8	942.8	15834.1	942.9	16015.4	942.8	16214.7	941.9	16467.4	941.6
16641.3	942.8	16821.1	944	17077.9	942.2	17313	941.7	17523.7	941.6
17672.5	940.7	17733.3	943.5	17903.5	943	18097	942	18197	940.9
18244	934.9	18278.2	934.7	18280	936.9	18289	936.2	18327.6	941.8
18505.3	941.8	18602	941.2	18752.8	944.8	18927.6	940.3	19044.3	938.9
19072.3	941.3	19130.7	943	19301.3	943.1	19402.1	944.8	19524.2	937.7
19631.9	945.9	19875.1	939.3	20104.9	934.9	20306.5	934.5	20329.5	935.2
20520.9	935.5	20604.1	936.7	20643	947.2	20857.2	946.5	21112.6	946.5
21165.6	945.5	21339.7	946.3	21499.9	947.4	21673.2	947.4	21692.7	947.4
21938.1	947.6	21976.2	947.6	22310	947.7	22366.6	947.7	22620.5	948
22748	948.7	23104.3	950.4	23323.4	950.8	23521	950.1	23671.5	950.7
23677.2	948.1	23730.1	951.6	23754.2	948.1	23760.8	950.1	23949.5	948.5
24132.7	948.8	24309.4	949	24354.9	949.5	24372.1	946.9	24561.3	948.7
24717.9	946.9	24773.6	949.1	24952.8	948.5	25016.6	946.2	25028.8	948.4
25039.1	944.7	25073.4	947.5	25256.1	949.3	25287.2	954.4	25301	949.1
25375.9	953.1	25528.9	956	25539.2	957.4	25551.8	955.4	25735.3	957.8
25963	960								

Manning's n Values num= 8

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
13401.5	.15	15425.2	.043	16821.1	.15	18752.8	.15	19524.2	.032
20643	.043	21165.6	.025	23730.1	.053				

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
17733.3	20643	490 491.65	495	.1	.3

Ineffective Flow num= 3

Sta L	Sta R	Elev	Permanent
13400	17030	960	F
20800	23000	960	F
25287.2	25965	960	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 950.66	* Element	* Left OB	* Channel * Right OB *
* Vel Head (ft)	* 0.47	* Wt. n-Val.	* 0.150	* 0.050 * 0.050 *
* W.S. Elev (ft)	* 950.19	* Reach Len. (ft)	* 490.00	* 491.65 * 495.00 *
* Crit W.S. (ft)	* 945.22	* Flow Area (sq ft)	* 5946.08	*28462.42 * 3251.01 *
* E.G. Slope (ft/ft)	*0.001730	* Area (sq ft)	*30238.28	*28462.42 * 9247.00 *
* Q Total (cfs)	*179750.00	* Flow (cfs)	*10167.66	*163284.20 * 6298.19 *
* Top Width (ft)	*11254.10	* Top Width (ft)	* 4300.50	* 2909.70 * 4043.90 *
* Vel Total (ft/s)	* 4.77	* Avg. Vel. (ft/s)	* 1.71	* 5.74 * 1.94 *
* Max Chl Dpth (ft)	* 15.69	* Hydr. Depth (ft)	* 8.45	* 9.78 * 1.79 *
* Conv. Total (cfs)	*4321296.0	* Conv. (cfs)	*244436.5	*3925447.0 *151412.3 *
* Length Wtd. (ft)	* 491.84	* Wetted Per. (ft)	* 703.37	* 2913.88 * 1823.03 *
* Min Ch El (ft)	* 934.50	* Shear (lb/sq ft)	* 0.91	* 1.06 * 0.19 *
* Alpha	* 1.33	* Stream Power (lb/ft s)	* 1.56	* 6.05 * 0.37 *
* Frctn Loss (ft)	* 0.58	* Cum Volume (acre-ft)	* 652.79	* 1304.60 * 392.73 *
* C & E Loss (ft)	* 0.06	* Cum SA (acres)	* 101.23	* 135.65 * 137.58 *

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 951.53	* Element	* Left OB	* Channel * Right OB *
* Vel Head (ft)	* 0.42	* Wt. n-Val.	* 0.150	* 0.051 * 0.043 *

				Pre-Project	
* W.S. Elev (ft)	* 951.11	* Reach Len. (ft)	* 490.00	* 491.65	* 495.00 *
* Crit W.S. (ft)	* 945.22	* Flow Area (sq ft)	* 6594.26	*31144.08	* 653.90 *
* E.G. Slope (ft/ft)	*0.001392	* Area (sq ft)	* 6594.26	*31144.08	* 653.90 *
* Q Total (cfs)	*179750.00	* Flow (cfs)	*10748.50	*166859.30	* 2142.24 *
* Top Width (ft)	* 3770.00	* Top Width (ft)	* 703.30	* 2909.70	* 157.00 *
* Vel Total (ft/s)	* 4.68	* Avg. Vel. (ft/s)	* 1.63	* 5.36	* 3.28 *
* Max Chl Dpth (ft)	* 16.61	* Hydr. Depth (ft)	* 9.38	* 10.70	* 4.16 *
* Conv. Total (cfs)	*4818061.0	* Conv. (cfs)	*288105.3	*4472535.0	* 57421.1 *
* Length Wtd. (ft)	* 491.67	* Wetted Per. (ft)	* 711.94	* 2913.88	* 161.42 *
* Min Ch El (ft)	* 934.50	* Shear (lb/sq ft)	* 0.80	* 0.93	* 0.35 *
* Alpha	* 1.23	* Stream Power (lb/ft s)	* 1.31	* 4.98	* 1.15 *
* Frctn Loss (ft)	* 0.51	* Cum Volume (acre-ft)	* 48.03	* 1437.43	* 26.99 *
* C & E Loss (ft)	* 0.04	* Cum SA (acres)	* 5.33	* 135.65	* 4.95 *

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 200

INPUT
Description: 200
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
13751.9	957.5	13774.9	950.4	13899.2	945.3	14075.2	943.6	14247.4	943.4
14390.2	944.1	14410.8	941.9	14489.5	944.7	14707.6	944.7	14871.6	945
15032.5	944.4	15300.2	944.1	15460.8	944.8	15628	944.3	15784.9	944.2
15958.7	943.4	16114	943.3	16279	942.4	16452	942.3	16652.4	942.7
16843.9	942.3	17008.1	943.8	17197.2	943.5	17388.9	942.5	17552.5	941.8
17738.6	942.2	17904	942.1	18074.8	942.9	18250.5	943.4	18433.6	942.2
18601	942.2	18626	940.2	18638.8	934	18658.5	933.4	18693.5	940.2
18768.9	944.3	18874.7	940.2	19043.7	940.6	19233.3	941.2	19416.4	942.6
19566.9	941.6	19720.1	935.8	19796.8	938.8	19975	934.4	20272.3	934.1
20276.6	934.2	20626.2	936.3	20790.5	935.3	20829	944.5	21085.6	944
21172.7	942.8	21329.4	945.1	21406.2	952.7	21433.8	946.6	21513.2	947.1
21713.7	947	21747.4	947	21906.5	946.8	21920.3	946.8	22147.8	946
22206.3	945.8	22451.9	946.8	22701.3	947.9	22901.9	948.3	23151.7	949.3
23234.2	950.1	23323.5	948.7	23510.9	949.9	23672.1	949.6	23707.3	949.9
23712.7	946.9	23720.9	949.2	23769.1	950.4	23820.8	947.8	23989.1	947.8
24020.6	947.1	24029.2	945.6	24038	947.6	24198.6	947	24361	947.2
24513.5	945.6	24672.5	946.4	24863.2	946.6	25018.9	946.3	25064.3	946
25075.8	943.9	25087.5	947.1	25163.5	947.5	25181.3	953.2	25200.7	953.7
25211	947.8	25384.8	952.1	25573.3	956	25602.8	956.1	25616.3	960.7
25622.7	961.4								

Manning's n Values num= 9

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
13751.9	.15	15628	.043	17008.1	.15	18601	.15	19566.9	.032
20829	.032	21329.4	.043	21713.7	.025	23769.1	.053		

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
17008.1	20829	520 521.67	525	.1	.3

Ineffective Flow num= 3

Sta L	Sta R	Elev	Permanent
13751	16950	960	F
21350	23200	960	F
25200.7	25625	960	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 950.01	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 0.27	* Wt. n-Val.	* 0.043	* 0.049	* 0.039 *
* W.S. Elev (ft)	* 949.74	* Reach Len. (ft)	* 520.00	* 521.67	* 525.00 *
* Crit W.S. (ft)	* 944.16	* Flow Area (sq ft)	* 360.81	*37062.06	* 7114.48 *
* E.G. Slope (ft/ft)	*0.000864	* Area (sq ft)	*18898.55	*37062.06	*11612.06 *
* Q Total (cfs)	*179750.00	* Flow (cfs)	* 1238.45	*158884.00	*19627.52 *
* Top Width (ft)	*11193.60	* Top Width (ft)	* 3217.23	* 3820.90	* 4155.47 *
* Vel Total (ft/s)	* 4.04	* Avg. Vel. (ft/s)	* 3.43	* 4.29	* 2.76 *
* Max Chl Dpth (ft)	* 16.34	* Hydr. Depth (ft)	* 6.21	* 9.70	* 3.14 *
* Conv. Total (cfs)	*6113840.0	* Conv. (cfs)	* 42123.5	*5404126.0	*667591.3 *
* Length Wtd. (ft)	* 521.96	* Wetted Per. (ft)	* 58.10	* 3824.60	* 2271.73 *
* Min Ch El (ft)	* 933.40	* Shear (lb/sq ft)	* 0.34	* 0.52	* 0.17 *
* Alpha	* 1.05	* Stream Power (lb/ft s)	* 1.15	* 2.24	* 0.47 *
* Frctn Loss (ft)	* 0.40	* Cum Volume (acre-ft)	* 376.42	* 934.82	* 274.21 *
* C & E Loss (ft)	* 0.02	* Cum SA (acres)	* 58.95	* 97.67	* 90.99 *

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 950.98	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 0.28	* Wt. n-Val.	* 0.043	* 0.050	* 0.032 *
* W.S. Elev (ft)	* 950.70	* Reach Len. (ft)	* 520.00	* 521.67	* 525.00 *
* Crit W.S. (ft)	* 944.16	* Flow Area (sq ft)	* 416.36	*40715.75	* 1418.00 *
* E.G. Slope (ft/ft)	*0.000792	* Area (sq ft)	* 416.36	*40715.75	* 1418.00 *
* Q Total (cfs)	*179750.00	* Flow (cfs)	* 1388.62	*172089.50	* 6271.86 *
* Top Width (ft)	* 4100.00	* Top Width (ft)	* 58.10	* 3820.90	* 221.00 *
* Vel Total (ft/s)	* 4.22	* Avg. Vel. (ft/s)	* 3.34	* 4.23	* 4.42 *
* Max Chl Dpth (ft)	* 17.30	* Hydr. Depth (ft)	* 7.17	* 10.66	* 6.42 *
* Conv. Total (cfs)	*6388853.0	* Conv. (cfs)	* 49355.8	*6116576.0	*222920.5 *
* Length Wtd. (ft)	* 521.71	* Wetted Per. (ft)	* 65.53	* 3824.60	* 227.63 *
* Min Ch El (ft)	* 933.40	* Shear (lb/sq ft)	* 0.31	* 0.53	* 0.31 *
* Alpha	* 1.00	* Stream Power (lb/ft s)	* 1.05	* 2.22	* 1.36 *
* Frctn Loss (ft)	* 0.35	* Cum Volume (acre-ft)	* 8.60	* 1031.90	* 15.22 *
* C & E Loss (ft)	* 0.02	* Cum SA (acres)	* 1.05	* 97.67	* 2.80 *

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 199.91

INPUT
Description: 199.91
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
14357	952	14390.5	944.3	14519.8	944.3	14639.2	944	14799.9	943.3
14919	943.3	15064.9	943.3	15201.6	943.3	15338.6	943.4	15454.7	943.3
15584.5	943.3	15701.7	943.3	15826.7	943	15946.8	942.7	16066.9	942.8
16186	942.4	16318.5	941.2	16444.9	941.2	16595	941.2	16734.2	941.2
16862.4	941.9	16985.5	941.6	17123.4	941.2	17256.1	940.2	17418.5	940.8
17583.3	941.1	17747.3	940.1	17924.2	940.7	18048.2	942.2	18185	942.2
18189.1	942.2	18396.1	942.1	18544.2	943.4	18752.1	941	18756.5	940.1
18757.1	941.1	18776.4	938.5	18875.1	932.1	19009.5	940.1	19154.1	941.2
19274.4	940.6	19412.9	940.1	19433.2	938.2	19665	944.1	19683.4	944.3
20122	935.3	20357	935.3	20396.2	935.2	20513.6	938.9	20603.3	938.2
20817.6	934.9	20841.2	934.9	21013	935.1	21078.3	935.1	21141.2	941.5
21181.1	941.5	21315.9	945	21377.5	952.3	21405.6	945.7	21555.3	946.7
21673.9	946.5	21886.3	946.2	22065.2	946.2	22189.8	945.7	22354.3	945.2
22462	946.4	22675.7	948.1	22731	948.3	22992.2	947.3	23079.5	947.2
23195.8	947.1	23332.1	947.2	23499	947.4	23628.6	947.3	23678.5	948.1
23685.3	950.9	23692.1	948.2	23702.9	950.2	23747.7	949.7	23766.7	947.4
23890.2	946.9	24000	946.9	24127.8	946.1	24323.2	945.3	24446.3	945.3
24602.1	944.4	24749.8	944.2	24887.7	943.5	25018.7	945.8	25033.6	942.4
25046.9	947.2	25137.9	947.1	25214.4	951.6	25285.5	947.1	25444.7	950.8
25559.1	953.2								

Manning's n Values num= 10

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
14357	.15	16318.5	.043	17747.3	.15	18544.2	.15	19433.2	.032
21013	.043	21315.9	.043	21377.5	.025	23702.9	.053	25018.7	.025

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
16862.4 21315.9 465 466.41 465 .1 .3

Ineffective Flow num= 3

Sta L	Sta R	Elev	Permanent
14357	16800	960	F
21330	23050	960	F
25200	25559.1	960	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	949.60	Element	Left OB	Channel / Right OB
Vel Head (ft)	0.21	Wt. n-Val.	0.043	0.046 / 0.044
W.S. Elev (ft)	949.39	Reach Len. (ft)	465.00	466.41 / 465.00
Crit W.S. (ft)	943.36	Flow Area (sq ft)	477.76	43007.52 / 6769.67
E.G. Slope (ft/ft)	0.000668	Area (sq ft)	16319.12	43007.52 / 11526.39
Q Total (cfs)	179750.00	Flow (cfs)	1657.71	164523.10 / 13569.20
Top Width (ft)	10846.61	Top Width (ft)	2494.03	4453.50 / 3899.08
Vel Total (ft/s)	3.58	Avg. Vel. (ft/s)	3.47	3.83 / 2.00
Max Chl Dpth (ft)	17.29	Hydr. Depth (ft)	7.66	9.66 / 3.25
Conv. Total (cfs)	6954198.0	Conv. (cfs)	64133.8	6365097.0 / 524967.6
Length Wtd. (ft)	466.19	Wetted Per. (ft)	62.40	4455.54 / 2083.72
Min Ch El (ft)	932.10	Shear (lb/sq ft)	0.32	0.40 / 0.14
Alpha	1.08	Stream Power (lb/ft s)	1.11	1.54 / 0.27
Frctn Loss (ft)	0.50	Cum Volume (acre-ft)	166.22	455.37 / 134.77
C & E Loss (ft)	0.01	Cum SA (acres)	24.86	48.12 / 42.45

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	950.61	Element	Left OB	Channel / Right OB
Vel Head (ft)	0.22	Wt. n-Val.	0.043	0.046 / 0.043
W.S. Elev (ft)	950.39	Reach Len. (ft)	465.00	466.41 / 465.00
Crit W.S. (ft)	943.36	Flow Area (sq ft)	540.67	47497.17 / 64.28
E.G. Slope (ft/ft)	0.000573	Area (sq ft)	540.67	47497.17 / 64.28
Q Total (cfs)	179750.00	Flow (cfs)	1727.02	177898.40 / 124.56
Top Width (ft)	4530.00	Top Width (ft)	62.40	4453.50 / 14.10
Vel Total (ft/s)	3.74	Avg. Vel. (ft/s)	3.19	3.75 / 1.94
Max Chl Dpth (ft)	18.29	Hydr. Depth (ft)	8.66	10.67 / 4.56
Conv. Total (cfs)	7510252.0	Conv. (cfs)	72157.5	7432890.0 / 5204.4
Length Wtd. (ft)	466.37	Wetted Per. (ft)	71.24	4455.54 / 17.92
Min Ch El (ft)	932.10	Shear (lb/sq ft)	0.27	0.38 / 0.13
Alpha	1.00	Stream Power (lb/ft s)	0.87	1.43 / 0.25
Frctn Loss (ft)	0.47	Cum Volume (acre-ft)	2.89	503.68 / 6.28
C & E Loss (ft)	0.00	Cum SA (acres)	0.33	48.12 / 1.38

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 199.82

INPUT
Description: 199.82

Left Channel Bank Station Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
14626.5	957.7	14665	955.3	14714.8	947.7	14731.9	943.6	14878.2	942.2
15038.4	942.1	15177.1	942.1	15312	942.9	15442.8	943.5	15572.5	942.6
15710.4	942.1	15843.3	942.2	15981.6	942	16111.7	941.9	16269.4	941.3
16337.7	941.1	16490	941.8	16647.8	941.2	16807.1	940.1	16870	940.1
16937.5	940.1	17070.8	940.1	17202.5	940.1	17339.2	940.1	17503.8	940.1
17635.5	940.1	17774.7	939.1	17955.5	939.8	18107	939.8	18236.3	940.2
18376.6	941.1	18554.9	941.8	18684.9	940.6	18768.3	940	18787.7	931.4
18818.1	931.2	18845.4	938.1	18894.5	940	19032.4	940.6	19165.1	939.3
19236.6	938.1	19354.5	941.6	19458.6	938.6	20124.2	939.3	20322.3	939.2
20533.6	938.6	20766.2	939.3	20910.7	936.7	20926	937.9	21009.9	936.6
21146.9	939.7	21241.8	942.2	21405.4	944.5	21551.8	945.7	21756.1	945.8
21937.2	945.7	22121.7	945.7	22347.1	945.6	22491.6	945.9	22657.2	946.2
22790.5	945.6	22925.1	946.5	23055.8	946.4	23218.3	946.1	23364.5	946.1
23514.8	945.8	23642	948.2	23655.7	947.2	23663.6	949.2	23669.7	947
23724.8	949.5	23780.9	946.5	23947	945	24077.1	944.4	24199.5	945.5
24210.3	943.6	24214.2	944.9	24354.9	943.6	24545.8	943	24742.9	943.3
24928.6	944	25002.7	943.7	25010.2	942.2	25023.6	945.4	25153.6	945.8
25304.8	946.9	25434.7	948.1	25588.5	950.5	25663.5	951.7	25798.3	956.3
25810.1	957.9	25834.3	954.9	25859.3	957.7	25991.9	960.7	26149.5	962.1
26241.6	962.1	26277	964.4						

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
14626.5	.15	18554.9	.15	19165.1	.065	21405.4	.025	23724.8	.053
25002.7	.025								

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
16870 21405.4 0 0 0 .1 .3

Ineffective Flow num= 3

Sta L	Sta R	Elev	Permanent
14626.5	16870	960	F
21650	22900	960	F
25350	26127	960	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	949.09	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	Wt. n-Val.		0.089	0.039
W.S. Elev (ft)	948.90	Reach Len. (ft)			
Crit W.S. (ft)	943.28	Flow Area (sq ft)		42049.83	9729.14
E.G. Slope (ft/ft)	0.002007	Area (sq ft)	14822.50	42049.83	13723.95
Q Total (cfs)	179750.00	Flow (cfs)		138919.60	40830.43
Top Width (ft)	10752.57	Top Width (ft)	2163.06	4535.40	4054.11
Vel Total (ft/s)	3.47	Avg. Vel. (ft/s)		3.30	4.20
Max Chl Dpth (ft)	17.70	Hydr. Depth (ft)		9.27	3.65
Conv. Total (cfs)	4012368.0	Conv. (cfs)		3100954.0	911414.0
Length Wtd. (ft)		Wetted Per. (ft)		4538.42	2669.79
Min Ch El (ft)	931.20	Shear (lb/sq ft)		1.16	0.46
Alpha	1.03	Stream Power (lb/ft s)		3.84	1.92
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	950.14	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.24	Wt. n-Val.		0.089	0.025
W.S. Elev (ft)	949.90	Reach Len. (ft)			
Crit W.S. (ft)	943.25	Flow Area (sq ft)		46585.23	1112.80
E.G. Slope (ft/ft)	0.002185	Area (sq ft)		46585.23	1112.80
Q Total (cfs)	179750.00	Flow (cfs)		171357.00	8392.96
Top Width (ft)	4780.00	Top Width (ft)		4535.40	244.60
Vel Total (ft/s)	3.77	Avg. Vel. (ft/s)		3.68	7.54
Max Chl Dpth (ft)	18.70	Hydr. Depth (ft)		10.27	4.55
Conv. Total (cfs)	3845833.0	Conv. (cfs)		3666262.0	179571.2
Length Wtd. (ft)		Wetted Per. (ft)		4548.22	248.76
Min Ch El (ft)	931.20	Shear (lb/sq ft)		1.40	0.61
Alpha	1.10	Stream Power (lb/ft s)		5.14	4.60
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

SUMMARY OF MANNING'S N VALUES

River:1

Reach	River Sta.	n1	n2	n3	n4	n5	n6	n7	n8	n9	n10
1	214.14	.04	.035	.04							
1	214.04	.04	.035	.04							
1	213.95	.04	.035	.04							
1	213.85	.04	.035	.04							
1	213.75	.037	.032	.037							
1	213.745	Bridge									
1	213.74	.037	.032	.037							
1	213.66	.037	.032	.037							
1	213.57	.037	.032	.037							
1	213.47	.037	.032	.037							
1	213.38	.037	.032	.037							
1	213.33	.037	.032	.037							
1	213.26	.037	.032	.037							

*1	*	213.255	*Bridge	*	*	*	*	*	*	*	*	*	*
*1	*	213.25	*	.037*	.032*	.037*	*	*	*	*	*	*	*
*1	*	213.21	*	.037*	.032*	.037*	*	*	*	*	*	*	*
*1	*	213.11	*	.037*	.032*	.037*	*	*	*	*	*	*	*
*1	*	213.03	*	.037*	.032*	.037*	*	*	*	*	*	*	*
*1	*	212.93	*	.037*	.032*	.037*	*	*	*	*	*	*	*
*1	*	212.84	*	.037*	.032*	.037*	*	*	*	*	*	*	*
*1	*	212.74	*	.037*	.032*	.037*	*	*	*	*	*	*	*
*1	*	212.68	*	.037*	.032*	.037*	*	*	*	*	*	*	*
*1	*	212.675	*Bridge	*	*	*	*	*	*	*	*	*	*
*1	*	212.67	*	.037*	.032*	.037*	*	*	*	*	*	*	*
*1	*	212.56	*	.037*	.032*	.037*	*	*	*	*	*	*	*
*1	*	212.46	*	.037*	.032*	.037*	*	*	*	*	*	*	*
*1	*	212.37	*	.037*	.032*	.037*	*	*	*	*	*	*	*
*1	*	212.27	*	.045*	.033*	.04*	*	*	*	*	*	*	*
*1	*	212.18	*	.045*	.033*	.04*	*	*	*	*	*	*	*
*1	*	212.08	*	.045*	.033*	.04*	*	*	*	*	*	*	*
*1	*	211.99	*	.045*	.033*	.04*	*	*	*	*	*	*	*
*1	*	211.89	*	.045*	.033*	.04*	*	*	*	*	*	*	*
*1	*	211.79	*	.045*	.033*	.04*	*	*	*	*	*	*	*
*1	*	211.71	*	.045*	.033*	.04*	*	*	*	*	*	*	*
*1	*	211.64	*	.045*	.033*	.04*	*	*	*	*	*	*	*
*1	*	211.54	*	.037*	.032*	.037*	*	*	*	*	*	*	*
*1	*	211.525	*Bridge	*	*	*	*	*	*	*	*	*	*
*1	*	211.51	*	.037*	.032*	.037*	*	*	*	*	*	*	*
*1	*	211.41	*	.037*	.032*	.037*	*	*	*	*	*	*	*
*1	*	211.31	*	.037*	.032*	.037*	*	*	*	*	*	*	*
*1	*	211.21	*	.037*	.032*	.037*	*	*	*	*	*	*	*
*1	*	211.12	*	.037*	.032*	.037*	*	*	*	*	*	*	*
*1	*	211.02	*	.037*	.032*	.037*	*	*	*	*	*	*	*
*1	*	210.93	*	.037*	.032*	.037*	*	*	*	*	*	*	*
*1	*	210.83	*	.037*	.032*	.037*	*	*	*	*	*	*	*
*1	*	210.74	*	.037*	.032*	.037*	*	*	*	*	*	*	*
*1	*	210.64	*	.037*	.032*	.037*	*	*	*	*	*	*	*
*1	*	210.55	*	.037*	.032*	.037*	*	*	*	*	*	*	*
*1	*	210.46	*	.037*	.032*	.037*	.037*	.025*	*	*	*	*	*
*1	*	210.36	*	.032*	.037*	.025*	.025*	*	*	*	*	*	*
*1	*	210.26	*	.037*	.032*	.037*	.037*	.025*	*	*	*	*	*
*1	*	210.17	*	.037*	.032*	.037*	.025*	*	*	*	*	*	*
*1	*	210.07	*	.032*	.037*	.025*	*	*	*	*	*	*	*
*1	*	209.98	*	.037*	.032*	.035*	.037*	*	*	*	*	*	*
*1	*	209.88	*	.037*	.032*	.035*	.025*	*	*	*	*	*	*
*1	*	209.79	*	.037*	.032*	.035*	.025*	*	*	*	*	*	*
*1	*	209.69	*	.037*	.032*	.035*	.025*	*	*	*	*	*	*
*1	*	209.60	*	.037*	.032*	.032*	.035*	.025*	*	*	*	*	*
*1	*	209.54	*	.025*	.032*	.037*	*	*	*	*	*	*	*
*1	*	209.535	*Bridge	*	*	*	*	*	*	*	*	*	*
*1	*	209.53	*	.025*	.032*	.037*	*	*	*	*	*	*	*
*1	*	209.42	*	.037*	.032*	.032*	.025*	*	*	*	*	*	*
*1	*	209.33	*	.037*	.032*	.037*	*	*	*	*	*	*	*
*1	*	209.24	*	.037*	.032*	.037*	.032*	.025*	*	*	*	*	*
*1	*	209.14	*	.037*	.032*	.037*	.032*	.025*	*	*	*	*	*
*1	*	209.04	*	.037*	.032*	.037*	.032*	.025*	*	*	*	*	*
*1	*	208.95	*	.037*	.032*	.032*	.037*	.025*	*	*	*	*	*
*1	*	208.85	*	.037*	.032*	.032*	.037*	*	*	*	*	*	*
*1	*	208.75	*	.037*	.032*	.032*	*	*	*	*	*	*	*
*1	*	208.67	*	.037*	.032*	.032*	.037*	*	*	*	*	*	*
*1	*	208.57	*	.037*	.032*	.032*	.037*	*	*	*	*	*	*
*1	*	208.48	*	.043*	.032*	.032*	.037*	*	*	*	*	*	*
*1	*	208.39	*	.043*	.032*	.032*	.037*	.025*	*	*	*	*	*
*1	*	208.29	*	.025*	.043*	.032*	.037*	*	*	*	*	*	*
*1	*	208.19	*	.025*	.043*	.043*	.032*	.032*	.037*	*	*	*	*
*1	*	208.10	*	.025*	.043*	.032*	.032*	.032*	*	*	*	*	*
*1	*	207.99	*	.043*	.032*	.032*	*	*	*	*	*	*	*
*1	*	207.90	*	.043*	.032*	.032*	*	*	*	*	*	*	*
*1	*	207.80	*	.043*	.032*	.032*	.032*	*	*	*	*	*	*
*1	*	207.71	*	.025*	.032*	.032*	.032*	*	*	*	*	*	*
*1	*	207.62	*	.025*	.043*	.032*	.032*	.032*	*	*	*	*	*
*1	*	207.49	*	.032*	.037*	*	*	*	*	*	*	*	*
*1	*	207.485	*Bridge	*	*	*	*	*	*	*	*	*	*
*1	*	207.48	*	.032*	.037*	*	*	*	*	*	*	*	*
*1	*	207.43	*	.025*	.043*	.032*	.037*	*	*	*	*	*	*
*1	*	207.34	*	.025*	.043*	.032*	.037*	*	*	*	*	*	*
*1	*	207.27	*	.025*	.043*	.032*	.032*	*	*	*	*	*	*
*1	*	207.16	*	.025*	.043*	.032*	.037*	*	*	*	*	*	*
*1	*	207.07	*	.043*	.032*	.032*	.032*	*	*	*	*	*	*
*1	*	206.97	*	.025*	.043*	.032*	.032*	.032*	*	*	*	*	*
*1	*	206.88	*	.025*	.043*	.032*	.032*	.032*	.025*	*	*	*	*
*1	*	206.79	*	.025*	.043*	.032*	.032*	.032*	*	*	*	*	*
*1	*	206.7	*	.025*	.043*	.032*	.032*	.032*	*	*	*	*	*
*1	*	206.6	*	.025*	.043*	.032*	.032*	.032*	*	*	*	*	*
*1	*	206.51	*	.025*	.043*	.032*	.032*	.032*	*	*	*	*	*
*1	*	206.41	*	.025*	.043*	.032*	.032*	.032*	*	*	*	*	*
*1	*	206.32	*	.043*	.032*	.032*	.032*	.025*	*	*	*	*	*
*1	*	206.22	*	.043*	.043*	.032*	.025*	*	*	*	*	*	*
*1	*	206.13	*	.043*	.033*	.032*	*	*	*	*	*	*	*
*1	*	206.03	*	.043*	.033*	.032*	*	*	*	*	*	*	*
*1	*	205.94	*	.043*	.033*	.032*	.037*	*	*	*	*	*	*
*1	*	205.84	*	.043*	.043*	.032*	.032*	.037*	*	*	*	*	*
*1	*	205.75	*	.043*	.043*	.043*	.025*	*	*	*	*	*	*
*1	*	205.62	*	.025*	.043*	.043*	.032*	.032*	.025*	*	*	*	*
*1	*	205.52	*	.043*	.043*	.032*	.032*	.025*	*	*	*	*	*
*1	*	205.43	*	.043*	.043*	.032*	.032*	.025*	*	*	*	*	*
*1	*	205.4	*	.043*	.043*	.032*	.032*	*	*	*	*	*	*
*1	*	205.34	*	.043*	.043*	.025*	*	*	*	*	*	*	*
*1	*	205.25	*	.025*	.037*	.037*	.025*	*	*	*	*	*	*
*1	*	205.15	*	.025*	.037*	.037*	.025*	*	*	*	*	*	*
*1	*	205.06	*	.037*	.037*	.037*	.025*	*	*	*	*	*	*
*1	*	204.97	*	.025*	.037*	.037*	.025*	*	*	*	*	*	*
*1	*	204.87	*	.025*	.037*	.037*	.025*	*	*	*	*	*	*
*1	*	204.78	*	.025*	.037*	.037*	.025*	*	*	*	*	*	*
*1	*	204.68	*	.025*	.037*	.037*	.037*	.025*	*	*	*	*	*
*1	*	204.61	*	.025*	.037*	.037*	.025*	*	*	*	*	*	*
*1	*	204.53	*	.025*	.037*	.037*	.037*	.025*	*	*	*	*	*
*1	*	204.42	*	.025*	.037*	.037*	.037*	.025*	*	*	*	*	*
*1	*	204.34	*	.025*	.037*	.037*	.025*	*	*	*	*	*	*

*1	*	204.25	*	.035*	.032*	.025*	*	*	*	*	*	*
*1	*	204.15	*	.035*	.032*	.025*	.025*	*	*	*	*	*
*1	*	204.05	*	.05*	.035*	.032*	.025*	*	*	*	*	*
*1	*	203.96	*	.025*	.043*	.043*	.032*	.037*	*	*	*	*
*1	*	203.86	*	.043*	.043*	.032*	.037*	*	*	*	*	*
*1	*	203.77	*	.025*	.043*	.043*	.032*	.025*	*	*	*	*
*1	*	203.67	*	.025*	.037*	.037*	.032*	.032*	.025*	*	*	*
*1	*	203.58	*	.025*	.037*	.037*	.032*	.025*	*	*	*	*
*1	*	203.48	*	.025*	.037*	.037*	.032*	.025*	*	*	*	*
*1	*	203.39	*	.025*	.037*	.037*	.032*	.025*	*	*	*	*
*1	*	203.29	*	.025*	.037*	.037*	.032*	.025*	*	*	*	*
*1	*	203.19	*	.025*	.043*	.043*	.037*	.025*	.025*	*	*	*
*1	*	203.09	*	.025*	.043*	.043*	.037*	.025*	*	*	*	*
*1	*	202.99	*	.025*	.043*	.043*	.037*	.043*	*	*	*	*
*1	*	202.9	*	.025*	.043*	.043*	.037*	.043*	*	*	*	*
*1	*	202.8	*	.025*	.043*	.043*	.037*	.043*	*	*	*	*
*1	*	202.69	*	.025*	.043*	.043*	.037*	.043*	*	*	*	*
*1	*	202.59	*	.025*	.043*	.043*	.037*	.043*	*	*	*	*
*1	*	202.48	*	.043*	.043*	.037*	.043*	*	*	*	*	*
*1	*	202.37	*	.025*	.043*	.043*	.037*	.043*	*	*	*	*
*1	*	202.29	*	.025*	.043*	.043*	.037*	.043*	.043*	*	*	*
*1	*	202.18	*	.025*	.043*	.043*	.037*	.043*	*	*	*	*
*1	*	202.09	*	.025*	.043*	.043*	.037*	.043*	*	*	*	*
*1	*	201.99	*	.025*	.043*	.043*	.032*	.037*	.037*	.025*	*	*
*1	*	201.9	*	.025*	.043*	.043*	.032*	.037*	.037*	.025*	*	*
*1	*	201.81	*	.025*	.065*	.065*	.032*	.037*	.025*	.025*	*	*
*1	*	201.71	*	.025*	.065*	.065*	.032*	.037*	.025*	.025*	*	*
*1	*	201.62	*	.025*	.15*	.025*	.065*	.065*	.032*	.037*	.025*	.025*
*1	*	201.52	*	.025*	.15*	.025*	.15*	.032*	.037*	.025*	*	*
*1	*	201.43	*	.043*	.065*	.025*	.15*	.032*	.037*	.025*	*	*
*1	*	201.33	*	.043*	.065*	.025*	.15*	.032*	.037*	.025*	*	*
*1	*	201.24	*	.043*	.065*	.025*	.15*	.15*	.037*	.032*	.037*	.025*
*1	*	201.14	*	.043*	.065*	.025*	.15*	.037*	.032*	.037*	.025*	*
*1	*	201.05	*	.043*	.15*	.025*	.15*	.037*	.032*	.037*	.025*	*
*1	*	200.95	*	.043*	.15*	.037*	.032*	.037*	.035*	*	*	*
*1	*	200.86	*	.043*	.15*	.032*	.037*	.035*	.035*	*	*	*
*1	*	200.77	*	.043*	.15*	.032*	.037*	.025*	.035*	*	*	*
*1	*	200.67	*	.043*	.15*	.032*	.15*	.032*	.043*	.025*	.025*	*
*1	*	200.58	*	.15*	.043*	.15*	.032*	.043*	.025*	.025*	*	*
*1	*	200.49	*	.15*	.043*	.043*	.15*	.032*	.043*	.025*	*	*
*1	*	200.39	*	.15*	.043*	.043*	.15*	.032*	.043*	.025*	*	*
*1	*	200.3	*	.15*	.15*	.065*	.032*	.043*	.043*	.053*	*	*
*1	*	200.2	*	.15*	.15*	.065*	.032*	.043*	.043*	.025*	.053*	*
*1	*	200.1	*	.15*	.043*	.15*	.15*	.032*	.043*	.025*	.053*	*
*1	*	200	*	.15*	.043*	.15*	.15*	.032*	.032*	.043*	.025*	.053*
*1	*	199.91	*	.15*	.043*	.15*	.15*	.032*	.043*	.043*	.025*	.053*
*1	*	199.82	*	.15*	.15*	.065*	.025*	.053*	.025*	*	*	*

SUMMARY OF REACH LENGTHS

River: 1

*	Reach	* River Sta.	* Left	* Channel *	Right *
*1	*	214.14	* 475*	510.51*	570*
*1	*	214.04	* 495*	493.12*	480*
*1	*	213.95	* 500*	504.25*	500*
*1	*	213.85	* 521*	520.04*	541*
*1	*	213.75	* 125*	116.36*	120*
*1	*	213.745	*Bridge *	*	*
*1	*	213.74	* 391*	373.47*	361*
*1	*	213.66	* 490*	491.08*	495*
*1	*	213.57	* 650*	500.37*	390*
*1	*	213.47	* 500*	493.66*	485*
*1	*	213.38	* 210*	290.06*	395*
*1	*	213.33	* 266*	316.41*	426*
*1	*	213.26	* 155*	152.22*	155*
*1	*	213.255	*Bridge *	*	*
*1	*	213.25	* 121*	123.36*	121*
*1	*	213.21	* 450*	531.57*	745*
*1	*	213.11	* 425*	459.38*	565*
*1	*	213.03	* 475*	495*	525*
*1	*	212.93	* 495*	501.9*	535*
*1	*	212.84	* 565*	538.19*	480*
*1	*	212.74	* 296*	242.17*	66*
*1	*	212.68	* 155*	154.01*	155*
*1	*	212.675	*Bridge *	*	*
*1	*	212.67	* 481*	557.08*	901*
*1	*	212.56	* 495*	502.71*	525*
*1	*	212.46	* 495*	497.81*	510*
*1	*	212.37	* 500*	495.84*	485*
*1	*	212.27	* 510*	495*	475*
*1	*	212.18	* 500*	502.53*	485*
*1	*	212.08	* 510*	519.85*	475*
*1	*	211.99	* 740*	489.19*	710*
*1	*	211.89	* 507*	527.46*	640*
*1	*	211.79	* 680*	450.74*	290*
*1	*	211.71	* 780*	392.06*	500*
*1	*	211.64	* 481*	521.13*	221*
*1	*	211.54	* 125*	125.49*	120*
*1	*	211.525	*Bridge *	*	*
*1	*	211.51	* 541*	562.88*	606*
*1	*	211.41	* 500*	501.53*	505*
*1	*	211.31	* 540*	523.28*	460*
*1	*	211.21	* 495*	493.11*	475*
*1	*	211.12	* 500*	505.73*	500*
*1	*	211.02	* 485*	493.19*	495*
*1	*	210.93	* 505*	505.14*	505*
*1	*	210.83	* 505*	505.61*	500*
*1	*	210.74	* 495*	503.39*	500*
*1	*	210.64	* 520*	515.29*	495*
*1	*	210.55	* 475*	473.19*	495*
*1	*	210.46	* 520*	522.28*	505*

*1	*	210.36	*	480*	487.62*	480*
*1	*	210.26	*	505*	512.65*	520*
*1	*	210.17	*	505*	497.78*	495*
*1	*	210.07	*	511*	494.01*	499*
*1	*	209.98	*	519*	492.54*	497*
*1	*	209.88	*	504*	500.82*	498*
*1	*	209.79	*	497*	500.22*	505*
*1	*	209.69	*	540*	544.5*	549*
*1	*	209.60	*	243*	288.7*	318*
*1	*	209.54	*	114*	116.26*	106*
*1	*	209.535	*Bridge	*	*	*
*1	*	209.53	*	615*	589.4*	627*
*1	*	209.42	*	501*	486.04*	526*
*1	*	209.33	*	563*	490.4*	583*
*1	*	209.24	*	514*	515.61*	523*
*1	*	209.14	*	515*	499.52*	517*
*1	*	209.04	*	495*	493.13*	531*
*1	*	208.95	*	458*	514.75*	603*
*1	*	208.85	*	511*	479.03*	452*
*1	*	208.75	*	565*	559.49*	569*
*1	*	208.67	*	456*	449.63*	359*
*1	*	208.57	*	685*	539.75*	467*
*1	*	208.48	*	521*	435.12*	469*
*1	*	208.39	*	509*	512.43*	494*
*1	*	208.29	*	577*	525.37*	560*
*1	*	208.19	*	537*	505.13*	617*
*1	*	208.10	*	582*	483.64*	477*
*1	*	207.99	*	483*	482.81*	544*
*1	*	207.90	*	539*	522.44*	631*
*1	*	207.80	*	562*	495.85*	534*
*1	*	207.71	*	493*	488.78*	530*
*1	*	207.62	*	493*	471.11*	510*
*1	*	207.49	*	244*	246.48*	308*
*1	*	207.485	*Bridge	*	*	*
*1	*	207.48	*	236*	236.83*	302*
*1	*	207.43	*	493*	507.55*	548*
*1	*	207.34	*	478*	511.15*	584*
*1	*	207.27	*	413*	467.91*	513*
*1	*	207.16	*	586*	585.23*	607*
*1	*	207.07	*	510*	514.11*	520*
*1	*	206.97	*	480*	491.78*	480*
*1	*	206.88	*	480*	487.71*	505*
*1	*	206.79	*	495*	489.96*	520*
*1	*	206.7	*	500*	500.23*	500*
*1	*	206.6	*	515*	504.63*	520*
*1	*	206.51	*	495*	496.45*	500*
*1	*	206.41	*	495*	494.64*	490*
*1	*	206.32	*	515*	513.83*	520*
*1	*	206.22	*	500*	502.44*	460*
*1	*	206.13	*	490*	483.44*	540*
*1	*	206.03	*	590*	513.6*	510*
*1	*	205.94	*	505*	506.69*	510*
*1	*	205.84	*	495*	496*	480*
*1	*	205.75	*	825*	642*	490*
*1	*	205.62	*	560*	523*	510*
*1	*	205.52	*	430*	470*	400*
*1	*	205.43	*	175*	171.89*	125*
*1	*	205.4	*	305*	315*	370*
*1	*	205.34	*	485*	492*	450*
*1	*	205.25	*	505*	506*	485*
*1	*	205.15	*	495*	495.39*	495*
*1	*	205.06	*	505*	505*	530*
*1	*	204.97	*	510*	503*	550*
*1	*	204.87	*	495*	499*	505*
*1	*	204.78	*	505*	515*	550*
*1	*	204.68	*	325*	407*	570*
*1	*	204.61	*	395*	449*	545*
*1	*	204.53	*	570*	552*	525*
*1	*	204.42	*	430*	453*	500*
*1	*	204.34	*	495*	488*	480*
*1	*	204.25	*	510*	508*	500*
*1	*	204.15	*	510*	509*	510*
*1	*	204.05	*	510*	505*	520*
*1	*	203.96	*	495*	502*	505*
*1	*	203.86	*	505*	498*	480*
*1	*	203.77	*	490*	498*	480*
*1	*	203.67	*	470*	490*	505*
*1	*	203.58	*	560*	513*	495*
*1	*	203.48	*	500*	505.82*	515*
*1	*	203.39	*	500*	505*	500*
*1	*	203.29	*	620*	535*	420*
*1	*	203.19	*	535*	520*	485*
*1	*	203.09	*	520*	518*	500*
*1	*	202.99	*	480*	456*	424*
*1	*	202.9	*	575*	538*	460*
*1	*	202.8	*	600*	555.5*	450*
*1	*	202.69	*	585*	566.1*	510*
*1	*	202.59	*	400*	561.2*	640*
*1	*	202.48	*	700*	576.2*	385*
*1	*	202.37	*	430*	400.7*	360*
*1	*	202.29	*	590*	583.1*	600*
*1	*	202.18	*	525*	511.84*	500*
*1	*	202.09	*	510*	509.32*	500*
*1	*	201.99	*	470*	477.46*	490*
*1	*	201.9	*	500*	495.8*	500*
*1	*	201.81	*	535*	511.61*	515*
*1	*	201.71	*	505*	489.63*	495*
*1	*	201.62	*	485*	486.48*	510*
*1	*	201.52	*	495*	492.06*	495*
*1	*	201.43	*	555*	519.88*	505*
*1	*	201.33	*	515*	514.62*	515*
*1	*	201.24	*	485*	488.56*	490*
*1	*	201.14	*	480*	481.53*	485*
*1	*	201.05	*	520*	512.89*	510*
*1	*	200.95	*	475*	474.38*	480*
*1	*	200.86	*	525*	523.32*	525*

*1	*	200.77	*	500*	495.64*	520*
*1	*	200.67	*	500*	503.34*	510*
*1	*	200.58	*	475*	479.55*	530*
*1	*	200.49	*	510*	497.59*	510*
*1	*	200.39	*	550*	506.5*	480*
*1	*	200.3	*	520*	515.72*	560*
*1	*	200.2	*	535*	525.73*	515*
*1	*	200.1	*	490*	491.65*	495*
*1	*	200	*	520*	521.67*	525*
*1	*	199.91	*	465*	466.41*	465*
*1	*	199.82	*	0*	0*	0*

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: 1

	Reach	River Sta.	Contr.	Expan.
*1	*	214.14 *	.1*	.3*
*1	*	214.04 *	.1*	.3*
*1	*	213.95 *	.1*	.3*
*1	*	213.85 *	.1*	.3*
*1	*	213.75 *	.1*	.3*
*1	*	213.745 *Bridge	*	*
*1	*	213.74 *	.1*	.3*
*1	*	213.66 *	.1*	.3*
*1	*	213.57 *	.1*	.3*
*1	*	213.47 *	.1*	.3*
*1	*	213.38 *	.1*	.3*
*1	*	213.33 *	.1*	.3*
*1	*	213.26 *	.1*	.3*
*1	*	213.255 *Bridge	*	*
*1	*	213.25 *	.1*	.3*
*1	*	213.21 *	.1*	.3*
*1	*	213.11 *	.1*	.3*
*1	*	213.03 *	.1*	.3*
*1	*	212.93 *	.1*	.3*
*1	*	212.84 *	.1*	.3*
*1	*	212.74 *	.1*	.3*
*1	*	212.68 *	.1*	.3*
*1	*	212.675 *Bridge	*	*
*1	*	212.67 *	.1*	.3*
*1	*	212.56 *	.1*	.3*
*1	*	212.46 *	.1*	.3*
*1	*	212.37 *	.1*	.3*
*1	*	212.27 *	.1*	.3*
*1	*	212.18 *	.1*	.3*
*1	*	212.08 *	.1*	.3*
*1	*	211.99 *	.1*	.3*
*1	*	211.89 *	.1*	.3*
*1	*	211.79 *	.1*	.3*
*1	*	211.71 *	.1*	.3*
*1	*	211.64 *	.1*	.3*
*1	*	211.54 *	.1*	.3*
*1	*	211.525 *Bridge	*	*
*1	*	211.51 *	.1*	.3*
*1	*	211.41 *	.1*	.3*
*1	*	211.31 *	.1*	.3*
*1	*	211.21 *	.1*	.3*
*1	*	211.12 *	.1*	.3*
*1	*	211.02 *	.1*	.3*
*1	*	210.93 *	.1*	.3*
*1	*	210.83 *	.1*	.3*
*1	*	210.74 *	.1*	.3*
*1	*	210.64 *	.1*	.3*
*1	*	210.55 *	.1*	.3*
*1	*	210.46 *	.1*	.3*
*1	*	210.36 *	.1*	.3*
*1	*	210.26 *	.1*	.3*
*1	*	210.17 *	.1*	.3*
*1	*	210.07 *	.1*	.3*
*1	*	209.98 *	.1*	.3*
*1	*	209.88 *	.1*	.3*
*1	*	209.79 *	.1*	.3*
*1	*	209.69 *	.1*	.3*
*1	*	209.60 *	.1*	.3*
*1	*	209.54 *	.3*	.5*
*1	*	209.535 *Bridge	*	*
*1	*	209.53 *	.3*	.5*
*1	*	209.42 *	.1*	.3*
*1	*	209.33 *	.1*	.3*
*1	*	209.24 *	.1*	.3*
*1	*	209.14 *	.1*	.3*
*1	*	209.04 *	.1*	.3*
*1	*	208.95 *	.1*	.3*
*1	*	208.85 *	.1*	.3*
*1	*	208.75 *	.1*	.3*
*1	*	208.67 *	.1*	.3*
*1	*	208.57 *	.1*	.3*
*1	*	208.48 *	.1*	.3*
*1	*	208.39 *	.1*	.3*
*1	*	208.29 *	.1*	.3*
*1	*	208.19 *	.1*	.3*
*1	*	208.10 *	.1*	.3*
*1	*	207.99 *	.1*	.3*
*1	*	207.90 *	.1*	.3*
*1	*	207.80 *	.1*	.3*
*1	*	207.71 *	.1*	.3*
*1	*	207.62 *	.1*	.3*
*1	*	207.49 *	.3*	.5*
*1	*	207.485 *Bridge	*	*
*1	*	207.48 *	.3*	.5*
*1	*	207.43 *	.1*	.3*

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*1              *    207.34  *       .1*       .3*
*1              *    207.27  *       .1*       .3*
*1              *    207.16  *       .1*       .3*
*1              *    207.07  *       .1*       .3*
*1              *    206.97  *       .1*       .3*
*1              *    206.88  *       .1*       .3*
*1              *    206.79  *       .1*       .3*
*1              *    206.7   *       .1*       .3*
*1              *    206.6   *       .1*       .3*
*1              *    206.51  *       .1*       .3*
*1              *    206.41  *       .1*       .3*
*1              *    206.32  *       .1*       .3*
*1              *    206.22  *       .1*       .3*
*1              *    206.13  *       .1*       .3*
*1              *    206.03  *       .1*       .3*
*1              *    205.94  *       .1*       .3*
*1              *    205.84  *       .1*       .3*
*1              *    205.75  *       .1*       .3*
*1              *    205.62  *       .1*       .3*
*1              *    205.52  *       .1*       .3*
*1              *    205.43  *       .1*       .3*
*1              *    205.4   *       .1*       .3*
*1              *    205.34  *       .1*       .3*
*1              *    205.25  *       .1*       .3*
*1              *    205.15  *       .1*       .3*
*1              *    205.06  *       .1*       .3*
*1              *    204.97  *       .1*       .3*
*1              *    204.87  *       .1*       .3*
*1              *    204.78  *       .1*       .3*
*1              *    204.68  *       .1*       .3*
*1              *    204.61  *       .1*       .3*
*1              *    204.53  *       .1*       .3*
*1              *    204.42  *       .1*       .3*
*1              *    204.34  *       .1*       .3*
*1              *    204.25  *       .1*       .3*
*1              *    204.15  *       .1*       .3*
*1              *    204.05  *       .1*       .3*
*1              *    203.96  *       .1*       .3*
*1              *    203.86  *       .1*       .3*
*1              *    203.77  *       .1*       .3*
*1              *    203.67  *       .1*       .3*
*1              *    203.58  *       .1*       .3*
*1              *    203.48  *       .1*       .3*
*1              *    203.39  *       .1*       .3*
*1              *    203.29  *       .1*       .3*
*1              *    203.19  *       .1*       .3*
*1              *    203.09  *       .1*       .3*
*1              *    202.99  *       .1*       .3*
*1              *    202.9   *       .1*       .3*
*1              *    202.8   *       .1*       .3*
*1              *    202.69  *       .1*       .3*
*1              *    202.59  *       .1*       .3*
*1              *    202.48  *       .1*       .3*
*1              *    202.37  *       .1*       .3*
*1              *    202.29  *       .1*       .3*
*1              *    202.18  *       .1*       .3*
*1              *    202.09  *       .1*       .3*
*1              *    201.99  *       .1*       .3*
*1              *    201.9   *       .1*       .3*
*1              *    201.81  *       .1*       .3*
*1              *    201.71  *       .1*       .3*
*1              *    201.62  *       .1*       .3*
*1              *    201.52  *       .1*       .3*
*1              *    201.43  *       .1*       .3*
*1              *    201.33  *       .1*       .3*
*1              *    201.24  *       .1*       .3*
*1              *    201.14  *       .1*       .3*
*1              *    201.05  *       .1*       .3*
*1              *    200.95  *       .1*       .3*
*1              *    200.86  *       .1*       .3*
*1              *    200.77  *       .1*       .3*
*1              *    200.67  *       .1*       .3*
*1              *    200.58  *       .1*       .3*
*1              *    200.49  *       .1*       .3*
*1              *    200.39  *       .1*       .3*
*1              *    200.3   *       .1*       .3*
*1              *    200.2   *       .1*       .3*
*1              *    200.1   *       .1*       .3*
*1              *    200     *       .1*       .3*
*1              *    199.91  *       .1*       .3*
*1              *    199.82  *       .1*       .3*
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Profile Output Table - CHECKRAS

Reach	River Sta	Froude # Chl	Top Wdth Act (ft)	Conv. Total (cfs)	Prof Delta WS (ft)	Left Sta Eff (ft)	Enc Sta L (ft)	Center Station (ft)	Enc Sta R (ft)	Rght Sta Eff (ft)	Min Ch El (ft)	Left Stagn (ft)	Right Stagn (ft)
1	214.14		0.36	726.91	5961484.0		19654.95		20020.10	21089.67	1048.70		
1	214.14		0.36	726.86	5963943.0	0.01	19654.97	19654.97	20020.10	20381.83	20381.83	1048.70	
1	214.04		0.36	733.94	5809707.0		19637.86		20006.70	20922.39	1048.80		
1	214.04		0.36	733.89	5812338.0	0.01	19637.88	19637.88	20006.70	20371.77	20371.77	1048.80	
1	213.95		0.43	745.37	4843418.0		19586.39		19935.90	20814.54	1049.30		

1	213.95		0.43	745.19	4846870.0	0.01	19586.54	19586.54	19935.90	
20331.73	20331.73	1049.30								
1	213.85		0.58	702.64	3578540.0		19618.33		20057.05	
	20320.97	1048.10								
1	213.85		0.58	702.59	3579632.0	0.01	19618.33	19618.33	20057.05	
20320.92	20320.92	1048.10								
1	213.75		0.41	656.45	5575129.0		19640.95		19969.30	
	20297.39	1044.60								
1	213.75		0.41	656.35	5578780.0	0.01	19641.00	19641.00	19969.30	
20297.35	20297.35	1044.60								
1	213.745 BR U		0.44	634.96	4375788.0		19641.74		19969.30	
	20296.71	1044.60								
1	213.745 BR U		0.44	635.01	4378146.0	0.01	19641.72	19641.00	19969.30	
20297.35	20296.73	1044.60								
1	213.745 BR D		0.44	633.79	4316097.0		19642.37		19969.30	
	20296.16	1044.60								
1	213.745 BR D		0.44	633.84	4318510.0	0.01	19642.35	19641.87	19969.30	
20296.60	20296.18	1044.60								
1	213.74		0.42	654.76	5459470.0		19641.85		19969.30	
	20296.61	1044.60								
1	213.74		0.42	654.73	5462967.0	0.01	19641.87	19641.87	19969.30	
20296.60	20296.60	1044.60								
1	213.66		0.62	566.02	3604114.0		19599.41		19986.45	
	20253.57	1047.60								
1	213.66		0.62	565.99	3608339.0	0.01	19687.57	19687.57	19986.45	
20253.56	20253.56	1047.60								
1	213.57		0.55	852.17	3949740.0		19095.13		19929.15	
	20336.67	1046.70								
1	213.57		0.55	852.16	3953934.0	0.02	19484.50	19484.50	19929.15	
20336.66	20336.66	1046.70								
1	213.47		0.52	1023.14	4106424.0		18842.44		19758.75	
	20266.44	1045.80								
1	213.47		0.52	1023.12	4110138.0	0.02	19243.30	19243.30	19758.75	
20266.42	20266.42	1045.80								
1	213.38		0.37	1101.78	5943323.0		19196.18		19909.55	
	20447.88	1045.40								
1	213.38		0.37	1101.75	5937578.0	0.02	19346.10	19346.10	19909.55	
20447.85	20447.85	1045.40								
1	213.33		0.33	1185.64	6865352.0		19328.90		19921.90	
	20514.54	1045.40								
1	213.33		0.33	1185.62	6854778.0	0.01	19328.90	19328.90	19921.90	
20514.52	20514.52	1045.40								
1	213.26		0.32	881.25	7091406.0		19497.16		19938.05	
	20378.41	1040.40								
1	213.26		0.32	881.21	7098895.0	0.01	19497.18	19497.18	19938.05	
20378.39	20378.39	1040.40								
1	213.255 BR U		0.34	860.74	5381226.0		19497.36		19938.05	
	20378.10	1040.40								
1	213.255 BR U		0.34	860.81	5386143.0	0.01	19497.33	19497.18	19938.05	
20378.39	20378.14	1040.40								
1	213.255 BR D		0.34	859.92	5322311.0		19497.68		19938.05	
	20377.60	1040.40								
1	213.255 BR D		0.34	859.99	5327335.0	0.01	19497.65	19497.55	19938.05	
20377.79	20377.64	1040.40								
1	213.25		0.33	880.24	6986536.0		19497.55		19938.05	
	20377.79	1040.40								
1	213.25		0.33	880.24	6994050.0	0.01	19497.55	19497.55	19938.05	
20377.79	20377.79	1040.40								
1	213.21		0.31	1010.19	7351368.0		19408.31		19954.40	
	20418.50	1044.90								
1	213.21		0.31	928.20	7227547.0	0.01	19490.30	19490.30	19954.40	
20418.50	20418.50	1044.90								
1	213.11		0.40	927.80	5493675.0		19616.88		20102.60	
	20544.67	1047.60								
1	213.11		0.40	927.79	5496745.0	0.01	19616.88	19616.88	20102.60	
20544.67	20544.67	1047.60								
1	213.03		0.42	965.60	5167811.0		19602.70		20131.96	
	20591.83	1046.70								
1	213.03		0.42	919.76	5170676.0	0.01	19672.07	19672.00	20131.96	
20591.83	20591.83	1046.70								

* 1	* 212.93	*	0.48 *	798.99 *	4575514.0 *	*	19690.76 *	*	20090.25 *	
*	20754.14 *	1045.40 *	*	*	*	*	*	*	*	
* 1	* 212.93	*	0.48 *	798.99 *	4579008.0 *	0.01 *	19690.76 *	19690.76 *	20090.25 *	
20489.75 *	20489.75 *	1045.40 *	*	*	*	*	*	*	*	
*	*	*	*	*	*	*	*	*	*	
* 1	* 212.84	*	0.58 *	635.75 *	3778154.0 *	*	19711.50 *	*	20029.38 *	
*	20347.25 *	1043.10 *	*	*	*	*	*	*	*	
* 1	* 212.84	*	0.58 *	635.75 *	3782263.0 *	0.01 *	19711.50 *	19711.50 *	20029.38 *	
20347.25 *	20347.25 *	1043.10 *	*	*	*	*	*	*	*	
*	*	*	*	*	*	*	*	*	*	
* 1	* 212.74	*	0.51 *	676.59 *	4336312.0 *	*	19690.61 *	*	20028.90 *	
*	20367.19 *	1041.60 *	*	*	*	*	*	*	*	
* 1	* 212.74	*	0.51 *	676.59 *	4341428.0 *	0.01 *	19690.61 *	19690.61 *	20028.90 *	
20367.20 *	20367.20 *	1041.60 *	*	*	*	*	*	*	*	
*	*	*	*	*	*	*	*	*	*	
* 1	* 212.68	*	0.44 *	629.02 *	5173110.0 *	*	19501.07 *	*	19815.59 *	
*	20130.09 *	1036.90 *	*	*	*	*	*	*	*	
* 1	* 212.68	*	0.44 *	629.03 *	5178274.0 *	0.01 *	19501.07 *	19501.07 *	19815.59 *	
20130.10 *	20130.10 *	1036.90 *	*	*	*	*	*	*	*	
*	*	*	*	*	*	*	*	*	*	
* 1	* 212.675 BR U *		0.46 *	603.60 *	3867106.0 *	*	19501.78 *	*	19815.59 *	
*	20129.38 *	1036.90 *	*	*	*	*	*	*	*	
* 1	* 212.675 BR U *		0.47 *	603.16 *	3846322.0 *	-0.09 *	19502.00 *	19501.07 *	19815.59 *	
20130.10 *	20129.17 *	1036.90 *	*	*	*	*	*	*	*	
*	*	*	*	*	*	*	*	*	*	
* 1	* 212.675 BR D *		0.48 *	601.64 *	3774164.0 *	*	19502.77 *	*	19815.59 *	
*	20128.41 *	1036.90 *	*	*	*	*	*	*	*	
* 1	* 212.675 BR D *		0.48 *	601.23 *	3754689.0 *	-0.08 *	19502.97 *	19502.33 *	19815.59 *	
20128.84 *	20128.20 *	1036.90 *	*	*	*	*	*	*	*	
*	*	*	*	*	*	*	*	*	*	
* 1	* 212.67	*	0.45 *	626.50 *	4999902.0 *	*	19502.34 *	*	19815.59 *	
*	20128.83 *	1036.90 *	*	*	*	*	*	*	*	
* 1	* 212.67	*	0.45 *	626.51 *	5002046.0 *	0.01 *	19502.33 *	19502.33 *	19815.59 *	
20128.84 *	20128.84 *	1036.90 *	*	*	*	*	*	*	*	
*	*	*	*	*	*	*	*	*	*	
* 1	* 212.56	*	0.90 *	520.87 *	2374592.0 *	*	19731.19 *	*	19991.60 *	
*	20452.05 *	1039.30 *	*	*	*	*	*	*	*	
* 1	* 212.56	*	0.89 *	521.09 *	2400862.0 *	0.11 *	19731.05 *	19731.05 *	19991.60 *	
20252.14 *	20252.14 *	1039.30 *	*	*	*	*	*	*	*	
*	*	*	*	*	*	*	*	*	*	
* 1	* 212.46	*	0.72 *	557.52 *	3013623.0 *	*	19743.48 *	*	20022.17 *	
*	20301.00 *	1037.20 *	*	*	*	*	*	*	*	
* 1	* 212.46	*	0.72 *	557.66 *	2974820.0 *	0.06 *	19743.34 *	19743.34 *	20022.17 *	
20301.00 *	20301.00 *	1037.20 *	*	*	*	*	*	*	*	
*	*	*	*	*	*	*	*	*	*	
* 1	* 212.37	*	0.87 *	573.56 *	2431159.0 *	*	19745.67 *	*	20032.38 *	
*	20319.24 *	1036.60 *	*	*	*	*	*	*	*	
* 1	* 212.37	*	0.87 *	573.59 *	2432618.0 *	0.01 *	19745.66 *	19744.06 *	20032.38 *	
20320.69 *	20319.25 *	1036.60 *	*	*	*	*	*	*	*	
*	*	*	*	*	*	*	*	*	*	
* 1	* 212.27	*	0.89 *	605.48 *	2294057.0 *	*	19720.20 *	*	20022.80 *	
*	20325.67 *	1035.10 *	*	*	*	*	*	*	*	
* 1	* 212.27	*	0.89 *	605.47 *	2293842.0 *	0.00 *	19720.20 *	19715.25 *	20022.80 *	
20330.35 *	20325.67 *	1035.10 *	*	*	*	*	*	*	*	
*	*	*	*	*	*	*	*	*	*	
* 1	* 212.18	*	0.66 *	627.49 *	3199385.0 *	*	19707.00 *	*	20020.71 *	
*	20334.49 *	1030.80 *	*	*	*	*	*	*	*	
* 1	* 212.18	*	0.66 *	627.48 *	3199239.0 *	0.00 *	19707.00 *	19706.85 *	20020.71 *	
20334.57 *	20334.49 *	1030.80 *	*	*	*	*	*	*	*	
*	*	*	*	*	*	*	*	*	*	
* 1	* 212.08	*	0.49 *	589.61 *	4412668.0 *	*	19681.20 *	*	19975.99 *	
*	20270.81 *	1025.90 *	*	*	*	*	*	*	*	
* 1	* 212.08	*	0.49 *	589.61 *	4413183.0 *	0.00 *	19681.20 *	19681.09 *	19975.99 *	
20270.90 *	20270.81 *	1025.90 *	*	*	*	*	*	*	*	
*	*	*	*	*	*	*	*	*	*	
* 1	* 211.99	*	0.55 *	549.09 *	3888639.0 *	*	18069.28 *	*	19974.71 *	
*	20248.98 *	1025.39 *	*	*	*	*	*	*	*	
* 1	* 211.99	*	0.55 *	549.11 *	3889154.0 *	0.00 *	19699.89 *	19699.77 *	19974.71 *	
20249.64 *	20249.00 *	1025.39 *	*	*	*	*	*	*	*	
*	*	*	*	*	*	*	*	*	*	
* 1	* 211.89	*	0.52 *	564.71 *	4149337.0 *	*	19685.89 *	*	19968.25 *	
*	20250.60 *	1024.19 *	*	*	*	*	*	*	*	
* 1	* 211.89	*	0.52 *	564.72 *	4149889.0 *	0.00 *	19685.88 *	19685.75 *	19968.25 *	
20250.74 *	20250.60 *	1024.19 *	*	*	*	*	*	*	*	
*	*	*	*	*	*	*	*	*	*	
* 1	* 211.79	*	0.52 *	567.50 *	4124639.0 *	*	18955.02 *	*	19933.79 *	
*	20217.53 *	1023.84 *	*	*	*	*	*	*	*	
* 1	* 211.79	*	0.52 *	567.51 *	4125269.0 *	0.00 *	19650.03 *	19649.87 *	19933.79 *	
20217.70 *	20217.54 *	1023.84 *	*	*	*	*	*	*	*	
*	*	*	*	*	*	*	*	*	*	
* 1	* 211.71	*	0.52 *	569.01 *	4120833.0 *	*	19628.62 *	*	19913.13 *	
*	20197.63 *	1023.19 *	*	*	*	*	*	*	*	
* 1	* 211.71	*	0.52 *	569.02 *	4121579.0 *	0.00 *	19628.61 *	19628.43 *	19913.13 *	
20197.84 *	20197.63 *	1023.19 *	*	*	*	*	*	*	*	
*	*	*	*	*	*	*	*	*	*	
* 1	* 211.64	*	0.55 *	561.64 *	3930905.0 *	*	19657.93 *	*	19938.75 *	
*	20592.41 *	1022.58 *	*	*	*	*	*	*	*	
* 1	* 211.64	*	0.55 *	561.65 *	3931813.0 *	0.00 *	19657.92 *	19657.70 *	19938.75 *	
20219.80 *	20219.57 *	1022.58 *	*	*	*	*	*	*	*	

1	211.54		0.63	525.33	3466509.0			19603.98			19830.70
	20129.31	1021.90									
1	211.54		0.63	525.34	3467896.0	0.01		19603.97	19603.65		19830.70
20129.64	20129.31	1021.90									
1	211.525 BR U		0.72	493.41	2497613.0			19605.44			19830.70
	20127.85	1021.90									
1	211.525 BR U		0.72	493.43	2498846.0	0.01		19605.43	19603.65		19830.70
20129.64	20127.86	1021.90									
1	211.525 BR D		0.78	494.83	2317641.0			19617.96			19876.38
	20135.99	1021.80									
1	211.525 BR D		0.78	494.84	2319813.0	0.01		19617.96	19615.19		19876.38
20137.39	20136.01	1021.80									
1	211.51		0.71	520.99	3040814.0			19615.80			19876.38
	20136.78	1021.80									
1	211.51		0.71	521.01	3043486.0	0.01		19615.78	19615.19		19876.38
20137.39	20136.80	1021.80									
1	211.41		0.59	565.09	3723457.0			19638.86			19922.07
	20203.95	1018.30									
1	211.41		0.59	565.16	3726865.0	0.01		19638.84	19638.10		19922.07
20206.06	20204.00	1018.30									
1	211.31		0.73	819.02	2860516.0			19532.96			19943.65
	20351.98	1020.80									
1	211.31		0.72	819.22	2870580.0	0.03		19532.90	19531.21		19943.65
20356.09	20352.13	1020.80									
1	211.21		0.64	987.73	3242435.0			19531.12			20025.00
	20518.84	1021.10									
1	211.21		0.63	987.91	3261421.0	0.05		19531.02	19528.75		20025.00
20521.25	20518.94	1021.10									
1	211.12		0.35	1059.19	6313674.0			19500.14			20035.33
	20559.33	1015.70									
1	211.12		0.35	1059.33	6337007.0	0.04		19500.07	19498.47		20035.33
20610.00	20559.41	1015.70									
1	211.02		0.52	1081.97	4130580.0			19489.44			19940.71
	21286.05	1019.40									
1	211.02		0.52	945.81	4102233.0	-0.01		19489.46	19487.12		19940.71
21150.00	21150.00	1019.40									
1	210.93		0.52	2037.92	4009489.0			19482.32			19946.96
	21576.00	1018.70									
1	210.93		0.52	2037.03	4021802.0	0.02		19482.28	19479.13		19946.96
21575.00	21575.00	1018.70									
1	210.83		0.56	2215.18	3756437.0			19454.76			19930.41
	21718.96	1019.10									
1	210.83		0.56	2196.26	3753292.0	0.01		19454.75	19450.42		19930.41
21700.00	21700.00	1019.10									
1	210.74		0.45	1394.20	4705337.0			19430.23			19929.91
	21787.04	1018.20									
1	210.74		0.45	1394.33	4714385.0	0.02		19430.20	19426.13		19929.91
21800.00	21787.09	1018.20									
1	210.64		0.45	2361.82	4657061.0			19401.48			19924.60
	21800.00	1017.70									
1	210.64		0.45	2362.04	4669916.0	0.02		19401.32	19388.60		19924.60
21800.00	21800.00	1017.70									
1	210.55		0.50	1540.89	4153846.0			19333.43			19902.68
	21300.00	1018.00									
1	210.55		0.50	1378.23	4164224.0	0.02		19333.36	19322.17		19902.68
21110.00	21110.00	1018.00									
1	210.46		0.25	1881.48	7866662.0			19377.00			20330.50
	21258.48	1016.30									
1	210.46		0.25	1881.52	7832858.0	0.02		19377.00	19377.00		20330.50
21284.00	21258.52	1016.30									
1	210.36		0.37	1899.91	5535841.0			19381.21			20333.16
	21281.13	1017.40									
1	210.36		0.37	1900.00	5551006.0	0.02		19381.18	19375.17		20333.16
21291.16	21281.18	1017.40									
1	210.26		0.33	1932.18	5961462.0			19384.50			20354.45
	21316.69	1016.90									
1	210.26		0.33	1932.30	5978500.0	0.02		19384.46	19377.08		20354.45
21331.80	21316.77	1016.90									
1	210.17		0.42	1967.99	4745589.0			19354.60			20344.66
	21322.59	1014.70									

* 1	* 210.17	*	0.42 *	1968.06 *	4763808.0 *	0.03 *	19354.60 *	19354.60 *	20344.66 *	21334.72 *
*	21322.66 *	1014.70 *	*	*	*	*	*	*	*	*
* 1	* 210.07	*	0.26 *	2076.36 *	6984499.0 *	*	19210.00 *	*	20090.45 *	21286.36 *
*	1009.00 *	*	*	*	*	*	*	*	*	*
* 1	* 210.07	*	0.27 *	2015.00 *	6849836.0 *	0.02 *	19210.00 *	19210.00 *	20090.45 *	21225.00 *
*	21225.00 *	1009.00 *	*	*	*	*	*	*	*	*
* 1	* 209.98	*	0.21 *	1907.06 *	10403710.0 *	*	19324.97 *	*	19936.38 *	21329.37 *
*	999.33 *	*	*	*	*	*	*	*	*	*
* 1	* 209.98	*	0.22 *	1833.73 *	10183330.0 *	-0.01 *	19324.98 *	19316.53 *	19936.38 *	21256.06 *
*	21256.06 *	999.33 *	*	*	*	*	*	*	*	*
* 1	* 209.88	*	0.23 *	1597.15 *	9887774.0 *	*	19521.68 *	*	19986.20 *	21326.38 *
*	997.69 *	*	*	*	*	*	*	*	*	*
* 1	* 209.88	*	0.23 *	1570.95 *	9847829.0 *	0.01 *	19521.67 *	19516.39 *	19986.20 *	21299.85 *
*	21299.85 *	997.69 *	*	*	*	*	*	*	*	*
* 1	* 209.79	*	0.22 *	1789.56 *	10178590.0 *	*	19511.09 *	*	19963.95 *	21325.43 *
*	1002.93 *	*	*	*	*	*	*	*	*	*
* 1	* 209.79	*	0.22 *	1764.08 *	10130470.0 *	0.01 *	19511.07 *	19444.07 *	19963.95 *	21299.89 *
*	21299.89 *	1002.93 *	*	*	*	*	*	*	*	*
* 1	* 209.69	*	0.34 *	1430.95 *	6177526.0 *	*	19502.09 *	*	20018.32 *	21316.41 *
*	1004.31 *	*	*	*	*	*	*	*	*	*
* 1	* 209.69	*	0.34 *	1407.56 *	6161978.0 *	0.00 *	19502.09 *	19492.43 *	20018.32 *	21293.09 *
*	21293.09 *	1004.31 *	*	*	*	*	*	*	*	*
* 1	* 209.60	*	0.49 *	1587.43 *	4324798.0 *	*	19452.34 *	*	20255.11 *	21064.47 *
*	1004.15 *	*	*	*	*	*	*	*	*	*
* 1	* 209.60	*	0.49 *	1582.46 *	4309231.0 *	0.00 *	19457.31 *	19457.31 *	20255.11 *	21064.47 *
*	21064.47 *	1004.15 *	*	*	*	*	*	*	*	*
* 1	* 209.54	*	0.38 *	1096.35 *	5640504.0 *	*	19475.80 *	*	20033.00 *	20572.14 *
*	1004.27 *	*	*	*	*	*	*	*	*	*
* 1	* 209.54	*	0.38 *	1096.36 *	5642901.0 *	0.00 *	19475.79 *	19471.75 *	20033.00 *	20594.25 *
*	20572.15 *	1004.27 *	*	*	*	*	*	*	*	*
* 1	* 209.535 BR U *		0.43 *	1014.66 *	4207075.0 *	*	19475.95 *	*	20033.00 *	20570.61 *
*	1004.27 *	*	*	*	*	*	*	*	*	*
* 1	* 209.535 BR U *		0.43 *	1014.69 *	4208869.0 *	0.00 *	19475.94 *	19471.75 *	20033.00 *	20594.25 *
*	20570.64 *	1004.27 *	*	*	*	*	*	*	*	*
* 1	* 209.535 BR D *		0.44 *	1013.38 *	4139909.0 *	*	19476.04 *	*	20033.00 *	20569.42 *
*	1004.27 *	*	*	*	*	*	*	*	*	*
* 1	* 209.535 BR D *		0.44 *	1013.42 *	4141772.0 *	0.01 *	19476.03 *	19471.75 *	20033.00 *	20594.25 *
*	20569.45 *	1004.27 *	*	*	*	*	*	*	*	*
* 1	* 209.53	*	0.40 *	1095.30 *	5455480.0 *	*	19475.91 *	*	20033.00 *	20571.21 *
*	1004.27 *	*	*	*	*	*	*	*	*	*
* 1	* 209.53	*	0.40 *	1095.33 *	5458030.0 *	0.00 *	19475.91 *	19471.75 *	20033.00 *	20594.25 *
*	20571.24 *	1004.27 *	*	*	*	*	*	*	*	*
* 1	* 209.42	*	0.48 *	1258.67 *	4385964.0 *	*	19350.65 *	*	19964.52 *	20609.32 *
*	998.44 *	*	*	*	*	*	*	*	*	*
* 1	* 209.42	*	0.48 *	1258.70 *	4389570.0 *	0.01 *	19350.64 *	19318.56 *	19964.52 *	20610.47 *
*	20609.34 *	998.44 *	*	*	*	*	*	*	*	*
* 1	* 209.33	*	0.38 *	1631.50 *	5534275.0 *	*	19127.49 *	*	19900.75 *	20773.14 *
*	993.71 *	*	*	*	*	*	*	*	*	*
* 1	* 209.33	*	0.38 *	1587.64 *	5538129.0 *	0.01 *	19127.46 *	19086.19 *	19900.75 *	20715.31 *
*	20715.11 *	993.71 *	*	*	*	*	*	*	*	*
* 1	* 209.24	*	0.49 *	1877.17 *	3994065.0 *	*	18962.64 *	*	19614.93 *	20907.53 *
*	1003.00 *	*	*	*	*	*	*	*	*	*
* 1	* 209.24	*	0.49 *	1837.88 *	3987012.0 *	0.00 *	19001.66 *	19001.66 *	19614.93 *	20907.53 *
*	20907.53 *	1003.00 *	*	*	*	*	*	*	*	*
* 1	* 209.14	*	0.52 *	2057.90 *	3630274.0 *	*	19082.28 *	*	19672.84 *	21140.18 *
*	1002.87 *	*	*	*	*	*	*	*	*	*
* 1	* 209.14	*	0.52 *	2015.26 *	3626796.0 *	-0.01 *	19124.92 *	19124.92 *	19672.84 *	21140.18 *
*	21140.18 *	1002.87 *	*	*	*	*	*	*	*	*
* 1	* 209.04	*	0.45 *	2255.52 *	4314713.0 *	*	19097.89 *	*	19645.60 *	21356.72 *
*	1007.02 *	*	*	*	*	*	*	*	*	*
* 1	* 209.04	*	0.44 *	2229.47 *	4326838.0 *	0.00 *	19124.03 *	19124.03 *	19645.60 *	21356.72 *
*	21356.72 *	1007.02 *	*	*	*	*	*	*	*	*
* 1	* 208.95	*	0.36 *	1809.46 *	5748423.0 *	*	19160.89 *	*	20005.15 *	20972.84 *
*	997.33 *	*	*	*	*	*	*	*	*	*
* 1	* 208.95	*	0.36 *	1796.50 *	5750654.0 *	0.00 *	19173.85 *	19173.85 *	20005.15 *	20972.83 *
*	20972.83 *	997.33 *	*	*	*	*	*	*	*	*
* 1	* 208.85	*	0.47 *	1908.75 *	4240165.0 *	*	19212.02 *	*	20070.50 *	21127.41 *
*	998.88 *	*	*	*	*	*	*	*	*	*
* 1	* 208.85	*	0.47 *	1908.80 *	4243892.0 *	0.01 *	19212.01 *	19206.02 *	20070.50 *	21155.77 *
*	21127.43 *	998.88 *	*	*	*	*	*	*	*	*

1	208.75		0.43	1816.78	5008106.0		19218.63		20082.97		
	21098.69	1000.44									
1	208.75		0.43	1732.32	5011115.0	0.01	19218.62	19212.98	20082.97		
20952.96	20950.93	1000.44									
1	208.67		0.54	1612.99	3775089.0		19326.33		20038.11		
	20939.32	1003.03									
1	208.67		0.54	1612.41	3781648.0	0.01	19326.31	19317.69	20038.11		
20938.72	20938.72	1003.03									
1	208.57		0.77	1378.43	2621607.0		19392.97		20056.84		
	20771.40	1002.61									
1	208.57		0.77	1338.18	2627760.0	0.02	19392.94	19382.56	20056.84		
20731.12	20731.12	1002.61									
1	208.48		0.55	2180.58	3536993.0		18503.93		19596.58		
	20684.51	998.70									
1	208.48		0.54	2180.73	3563806.0	0.04	18503.84	18501.92	19596.58		
20691.24	20684.57	998.70									
1	208.39		0.53	2249.31	3588056.0		18472.56		19596.68		
	20721.87	998.71									
1	208.39		0.53	2249.44	3630500.0	0.06	18472.43	18468.95	19596.68		
20724.42	20721.87	998.71									
1	208.29		0.55	2309.08	3520900.0		18574.06		19735.48		
	20892.04	1002.85									
1	208.29		0.53	2309.28	3605403.0	0.12	18573.90	18561.82	19735.48		
20909.13	20892.24	1002.85									
1	208.19		0.49	2546.08	3891190.0		18695.75		19990.62		
	21295.39	1001.01									
1	208.19		0.48	2562.33	4017658.0	0.18	18695.75	18679.18	19990.62		
21343.20	21295.87	1001.01									
1	208.10		0.50	2827.08	3945011.0		18869.32		19863.89		
	21696.39	999.34									
1	208.10		0.47	2828.04	4192829.0	0.30	18868.85	18822.37	19863.89		
21737.69	21696.89	999.34									
1	207.99		0.56	2515.31	3518848.0		19106.22		19935.06		
	21851.41	996.98									
1	207.99		0.52	2625.07	3819440.0	0.49	19184.36	19184.36	19935.06		
21863.07	21855.81	996.98									
1	207.90		0.49	2938.81	4010707.0		19109.71		19918.00		
	22136.83	991.51									
1	207.90		0.43	3027.09	4606292.0	0.70	19108.17	19103.92	19918.00		
22135.26	22135.26	991.51									
1	207.80		0.55	2391.44	3717606.0		19273.22		20187.29		
	21870.08	992.47									
1	207.80		0.53	2093.48	3876604.0	0.67	19658.16	19658.16	20187.29		
21871.22	21871.05	992.47									
1	207.71		0.58	2121.42	3567418.0		19409.55		20037.57		
	21699.84	992.51									
1	207.71		0.60	1893.18	3540702.0	0.50	19531.66	19527.65	20037.57		
21424.84	21424.84	992.51									
1	207.62		0.51	1909.13	4134863.0		19190.08		19964.29		
	21469.30	990.12									
1	207.62		0.58	1444.32	3671629.0	0.05	19583.58	19577.92	19964.29		
21105.73	21105.73	990.12									
1	207.49		0.49	1601.02	4094975.0		19445.40		20292.04		
	21046.42	984.35									
1	207.49		0.46	1603.82	4412316.0	0.52	19445.40	19387.28	20292.04		
21132.01	21049.22	984.35									
1	207.485	BR U	0.55	1538.30	3235899.0		19445.40		20292.04		
	21043.70	984.35									
1	207.485	BR U	0.51	1541.61	3524138.0	0.61	19445.40	19387.28	20292.04		
21132.01	21047.01	984.35									
1	207.485	BR D	0.59	1530.55	3021671.0		19450.66		20259.64		
	21041.20	984.35									
1	207.485	BR D	0.53	1535.72	3358953.0	0.73	19449.45	19387.28	20259.64		
21132.01	21045.17	984.35									
1	207.48		0.58	1589.66	3456670.0		19450.87		20259.64		
	21040.53	984.35									
1	207.48		0.52	1595.08	3897568.0	0.77	19449.60	19387.28	20259.64		
21132.01	21044.68	984.35									
1	207.43		0.57	1660.26	3510649.0		19267.15		20166.20		
	20927.41	983.56									
1	207.43		0.50	1569.10	4025333.0	0.90	19363.86	19363.86	20166.20		
20968.54	20932.96	983.56									

1	207.34		0.39	1465.55	5369246.0			19283.77			20053.55
	20749.32	983.49									
1	207.34		0.36	1422.33	5901829.0		0.94	19328.88	19328.88		20053.55
20778.22	20751.21	983.49									
1	207.27		0.34	1410.68	6421410.0			19268.13			19965.99
	20725.32	982.68									
1	207.27		0.32	1047.92	6854151.0		0.95	19441.55	19441.55		19965.99
20490.77	20489.47	982.68									
1	207.16		0.16	1893.47	14746040.0			18601.44			19925.62
	20501.37	969.66									
1	207.16		0.16	1107.07	14775160.0		0.89	19371.46	19371.46		19925.62
20479.77	20478.53	969.66									
1	207.07		0.86	2121.27	2286164.0			18413.03			20268.81
	20748.27	992.80									
1	207.07		0.88	1710.74	2254410.0		0.43	18857.57	18857.57		20268.81
20748.18	20748.18	992.80									
1	206.97		0.36	1872.81	5970014.0			18394.10			20268.25
	20800.00	981.70									
1	206.97		0.36	1567.64	6019868.0		0.90	18850.00	18850.00		20268.25
20800.00	20800.00	981.70									
1	206.88		0.31	2078.38	7226234.0			18332.23			20264.40
	20800.00	981.80									
1	206.88		0.31	1800.86	7191503.0		0.89	18838.93	18838.93		20264.40
20800.00	20800.00	981.80									
1	206.79		0.29	2279.32	7514464.0			18343.49			20279.13
	20895.15	981.80									
1	206.79		0.29	1934.31	7590998.0		0.91	18806.01	18806.01		20279.13
20895.15	20895.15	981.80									
1	206.7		0.27	2572.12	7908733.0			18250.64			20324.45
	21165.35	981.80									
1	206.7		0.27	2093.13	8015485.0		0.93	18784.84	18784.84		20324.45
21138.80	21138.11	981.80									
1	206.6		0.33	2786.93	6230824.0			17938.02			20306.18
	21066.25	981.80									
1	206.6		0.33	2185.35	6298256.0		0.89	18675.58	18675.58		20306.18
21066.25	21066.25	981.80									
1	206.51		0.45	2915.00	4521128.0			17700.00			20084.15
	20615.00	981.80									
1	206.51		0.46	2053.65	4533739.0		0.82	18561.35	18561.35		20084.15
20622.10	20615.00	981.80									
1	206.41		0.46	3564.70	4380634.0			17111.00			20154.06
	20685.21	982.50									
1	206.41		0.47	2190.50	4381569.0		0.80	18494.71	18494.71		20154.06
20685.21	20685.21	982.50									
1	206.32		0.46	3656.33	4293590.0			17150.00			20171.80
	20854.87	982.80									
1	206.32		0.47	2377.93	4288577.0		0.79	18476.94	18476.94		20171.80
20854.87	20854.87	982.80									
1	206.22		0.52	3772.23	3853835.0			16969.39			20127.88
	20977.29	983.00									
1	206.22		0.51	2441.77	3986076.0		0.87	18435.00	18435.00		20127.88
20977.29	20977.29	983.00									
1	206.13		0.52	3610.69	3625268.0			17049.27			20059.00
	20914.89	984.60									
1	206.13		0.57	2386.31	3294110.0		0.58	18370.00	18370.00		20059.00
20914.89	20914.89	984.60									
1	206.03		0.61	3627.33	3071777.0			16967.78			19987.25
	21127.08	984.50									
1	206.03		0.67	2131.13	2786996.0		0.18	18320.00	18320.00		19987.25
20772.60	20772.60	984.50									
1	205.94		0.48	3651.58	3932557.0			17284.78			19792.05
	21215.00	981.00									
1	205.94		0.45	2567.00	4259277.0		0.58	18200.00	18200.00		19792.05
20767.00	20767.00	981.00									
1	205.84		0.38	3746.65	5233237.0			17620.55			19511.65
	21450.00	979.50									
1	205.84		0.36	2435.70	5449105.0		0.61	18100.00	18100.00		19511.65
20535.70	20535.70	979.50									
1	205.75		0.37	3257.26	3950065.0			18027.86			19249.15
	21400.00	973.90									

1	205.75		0.35	2402.30	4290733.0	0.74	18048.00	18048.00	19249.15	
20450.30	20450.30	973.90								
1	205.62		0.31	3845.50	6366636.0		17560.75		19333.05	
	21480.00	976.00								
1	205.62		0.31	2234.10	6407340.0	0.71	18216.00	18216.00	19333.05	
20450.10	20450.10	976.00								
1	205.52		0.28	3732.69	7454148.0		17650.00		19601.55	
	21400.00	975.90								
1	205.52		0.29	2019.90	7126233.0	0.65	18591.60	18591.60	19601.55	
20611.50	20611.50	975.90								
1	205.43		0.29	3335.92	7116273.0		17800.00		19843.95	
	21400.00	976.10								
1	205.43		0.33	1842.37	6524281.0	0.53	18922.07	18917.50	19843.95	
20770.40	20764.44	976.10								
1	205.4		0.24	3650.00	8621961.0		17800.00		19893.90	
	21450.00	975.50								
1	205.4		0.26	1747.80	8073093.0	0.57	19020.00	19020.00	19893.90	
20767.80	20767.80	975.50								
1	205.34		0.30	3427.47	5172262.0		17906.05		20013.65	
	21400.00	975.57								
1	205.34		0.35	1562.96	4487226.0	0.34	19180.00	19180.00	20013.65	
20742.96	20742.96	975.57								
1	205.25		0.28	3390.62	6571525.0		17950.00		20227.10	
	21340.62	973.40								
1	205.25		0.32	1482.30	5737392.0	0.23	19300.00	19300.00	20227.10	
20782.30	20782.30	973.40								
1	205.15		0.49	3035.78	3632205.0		18072.60		20266.70	
	21134.21	973.10								
1	205.15		0.47	1445.00	3844879.0	0.49	19385.00	19385.00	20266.70	
20830.00	20830.00	973.10								
1	205.06		0.47	2103.93	3787357.0		18080.00		20287.35	
	20907.77	970.50								
1	205.06		0.46	1435.30	3871248.0	0.51	19470.00	19470.00	20287.35	
20905.30	20905.30	970.50								
1	204.97		0.36	2834.16	4869981.0		18200.00		20253.15	
	21034.16	973.30								
1	204.97		0.42	1516.30	4255498.0	0.20	19445.00	19445.00	20253.15	
20961.30	20961.30	973.30								
1	204.87		0.31	2652.20	5920537.0		18300.00		20208.57	
	20952.20	968.10								
1	204.87		0.34	1542.20	5343764.0	0.18	19410.00	19410.00	20208.57	
20952.20	20952.20	968.10								
1	204.78		0.25	2430.43	7512086.0		18400.00		20115.46	
	20830.43	967.60								
1	204.78		0.28	1620.43	6634912.0	0.13	19210.00	19210.00	20115.46	
20830.43	20830.43	967.60								
1	204.68		0.33	2091.37	5457597.0		18455.00		19935.21	
	20546.37	971.40								
1	204.68		0.38	1586.28	4834418.0	-0.04	18960.00	18960.00	19935.21	
20546.37	20546.28	971.40								
1	204.61		0.41	1891.94	4447568.0		18570.00		19977.10	
	20482.90	972.60								
1	204.61		0.42	1602.90	4289077.0	0.03	18880.00	18880.00	19977.10	
20482.90	20482.90	972.60								
1	204.53		0.46	1765.90	3850514.0		18730.00		19840.65	
	20495.90	972.70								
1	204.53		0.47	1610.90	3743779.0	0.00	18885.00	18885.00	19840.65	
20495.90	20495.90	972.70								
1	204.42		0.51	1804.93	3325542.0		18874.10		19853.75	
	20679.03	971.40								
1	204.42		0.52	1653.57	3259710.0	-0.02	19025.40	19025.40	19853.75	
20679.03	20678.97	971.40								
1	204.34		0.52	1701.95	3299565.0		19100.00		19958.12	
	20814.38	969.30								
1	204.34		0.52	1701.99	3300310.0	0.01	19100.00	19100.00	19958.12	
20814.38	20814.38	969.30								
1	204.25		1.00	1517.18	1863855.0		19300.00		20059.27	
	20817.18	969.22								
1	204.25		1.00	1516.99	1855915.0	-0.02	19300.00	19300.00	20059.27	
20817.18	20816.99	969.22								

1	204.15		0.40	1831.90	5042939.0		18882.41			20116.69
	21031.89	966.00								
1	204.15		0.40	1831.89	5038994.0	0.02	19200.00	19200.00		20116.69
21031.89	21031.89	966.00								
1	204.05		0.50	2116.76	3910438.0		18963.78			20022.18
	21080.54	965.00								
1	204.05		0.49	2116.76	3927263.0	0.02	18963.78	18963.78		20022.18
21080.54	21080.54	965.00								
1	203.96		0.80	2050.76	2269861.0		18736.54			19760.59
	20787.30	964.10								
1	203.96		0.75	2050.76	2417852.0	0.26	18736.54	18736.54		19760.59
20787.30	20787.30	964.10								
1	203.86		0.36	2191.78	5460451.0		18542.49			19612.00
	20734.27	962.30								
1	203.86		0.35	2191.78	5666380.0	0.25	18542.49	18542.49		19612.00
20734.27	20734.27	962.30								
1	203.77		0.35	2511.27	5549798.0		18232.41			19484.11
	20743.68	963.30								
1	203.77		0.34	2511.27	5803637.0	0.29	18232.41	18232.41		19484.11
20743.68	20743.68	963.30								
1	203.67		0.37	2860.23	5348655.0		17837.20			19524.10
	20697.43	962.30								
1	203.67		0.36	2567.43	5512272.0	0.29	18130.00	18130.00		19524.10
20697.43	20697.43	962.30								
1	203.58		0.37	2993.59	5333542.0		17707.80			19454.49
	20701.39	962.10								
1	203.58		0.36	2676.39	5599491.0	0.35	18025.00	18025.00		19454.49
20701.39	20701.39	962.10								
1	203.48		0.41	3454.84	4642347.0		17389.48			19394.68
	20844.31	962.20								
1	203.48		0.40	2911.71	4742364.0	0.33	17932.60	17932.60		19394.68
20844.31	20844.31	962.20								
1	203.39		0.42	3309.00	4495896.0		17519.20			19504.80
	21036.48	959.90								
1	203.39		0.41	2930.05	4631119.0	0.40	17970.80	17970.80		19504.80
21036.47	21036.47	959.90								
1	203.29		0.45	3441.31	4136567.0		17590.00			19574.09
	21074.86	960.70								
1	203.29		0.44	3009.26	4265774.0	0.41	18065.60	18065.60		19574.09
21074.86	21074.86	960.70								
1	203.19		0.42	3364.24	3879641.0		17587.00			19623.75
	20951.24	956.70								
1	203.19		0.43	2689.14	3814345.0	0.36	18262.10	18262.10		19623.75
20951.24	20951.24	956.70								
1	203.09		0.46	3213.89	3568365.0		17691.96			19710.91
	20905.85	958.70								
1	203.09		0.46	2475.85	3526911.0	0.32	18430.00	18430.00		19710.91
20905.85	20905.85	958.70								
1	202.99		0.42	3260.60	3947903.0		17673.37			19698.15
	20933.96	959.20								
1	202.99		0.41	2457.50	4009597.0	0.37	18469.40	18469.40		19698.15
20926.90	20926.90	959.20								
1	202.9		0.36	3412.11	4574160.0		17518.03			19724.55
	20967.30	956.50								
1	202.9		0.37	2511.71	4523109.0	0.36	18455.60	18455.60		19724.55
20967.31	20967.31	956.50								
1	202.8		0.34	3540.65	4820928.0		17429.80			19702.88
	21011.58	956.40								
1	202.8		0.35	2620.78	4688712.0	0.33	18390.80	18390.80		19702.88
21011.58	21011.58	956.40								
1	202.69		0.37	3701.48	4357701.0		17191.27			19729.80
	21080.23	953.70								
1	202.69		0.38	2553.41	4258962.0	0.29	18526.82	18377.80		19729.80
21080.23	21080.23	953.70								
1	202.59		0.40	3629.52	3966361.0		17348.76			19805.89
	21190.40	953.70								
1	202.59		0.42	2606.65	3831880.0	0.23	18524.37	18416.70		19805.89
21190.40	21190.40	953.70								
1	202.48		0.40	3674.66	4078760.0		17497.88			19941.58
	21302.69	952.50								
1	202.48		0.42	2826.14	3877911.0	0.11	18360.00	18360.00		19941.58
21302.70	21302.70	952.50								

1	202.37		0.39	3850.50	4253334.0		17583.96			20044.94
	21577.77	954.60								
1	202.37		0.41	3165.40	4009107.0	0.03	18270.00	18270.00		20044.94
21577.77	21577.77	954.60								
1	202.29		0.29	4060.28	5764473.0		17742.72			20000.20
	21803.00	955.50								
1	202.29		0.29	3605.60	5756355.0	0.08	18197.40	18197.40		20000.20
21803.00	21803.00	955.50								
1	202.18		0.38	4239.81	4172957.0		17589.10			20039.05
	21936.53	950.00								
1	202.18		0.38	3692.06	4154161.0	0.06	18139.70	18139.70		20039.05
21936.54	21936.54	950.00								
1	202.09		0.57	4052.05	2643855.0		17755.36			20075.58
	21936.96	950.00								
1	202.09		0.57	3682.20	2659472.0	0.07	18253.40	18212.90		20075.58
21936.96	21936.96	950.00								
1	201.99		0.38	3548.70	4634981.0		17895.49			20063.91
	21861.56	948.70								
1	201.99		0.37	3219.77	4655852.0	0.09	18235.10	18235.10		20063.91
21861.56	21861.56	948.70								
1	201.9		0.31	3830.97	5852611.0		17992.63			19890.86
	21823.60	947.20								
1	201.9		0.31	3830.97	5964132.0	0.11	17992.63	17992.63		19890.86
21823.60	21823.60	947.20								
1	201.81		0.28	3646.80	6592084.0		17952.48			19875.08
	21801.08	946.00								
1	201.81		0.27	3650.46	6711267.0	0.12	17952.48	17952.48		19875.08
21801.08	21801.08	946.00								
1	201.71		0.40	3844.58	3838417.0		18112.81			19817.78
	21957.39	946.00								
1	201.71		0.40	3415.69	3858296.0	0.11	18112.81	18112.81		19817.78
21528.50	21528.50	946.00								
1	201.62		0.35	3854.25	4406350.0		18235.69			19855.50
	22089.94	945.60								
1	201.62		0.34	3241.81	4475808.0	0.14	18235.69	18235.69		19855.50
21477.50	21477.50	945.60								
1	201.52		0.33	4181.52	3808935.0		18008.54			19667.57
	22190.05	940.90								
1	201.52		0.34	3382.85	3764143.0	0.12	18008.55	18008.55		19667.57
21391.40	21391.40	940.90								
1	201.43		0.37	4131.77	4076199.0		18053.86			19678.50
	22188.55	941.30								
1	201.43		0.37	3288.24	4094692.0	0.13	18053.86	18053.86		19678.50
21342.10	21342.10	941.30								
1	201.33		0.41	4277.40	3645795.0		18074.35			19715.66
	22408.97	943.00								
1	201.33		0.40	3307.45	3705386.0	0.16	18074.35	18074.35		19715.66
21381.80	21381.80	943.00								
1	201.24		0.40	4357.41	3811227.0		18069.92			19818.68
	22430.09	943.00								
1	201.24		0.40	3500.08	3876386.0	0.19	18069.92	18069.92		19818.68
21570.00	21570.00	943.00								
1	201.14		0.31	4685.00	4966393.0		18040.42			19879.43
	22725.42	940.40								
1	201.14		0.30	3680.58	5142934.0	0.24	18040.42	18040.42		19879.43
21721.00	21721.00	940.40								
1	201.05		0.26	4915.94	5254537.0		17950.48			19898.61
	22866.42	941.50								
1	201.05		0.26	3898.52	5383665.0	0.26	17950.48	17950.48		19898.61
21849.00	21849.00	941.50								
1	200.95		0.25	5141.07	6344019.0		17952.91			19929.90
	23093.98	939.80								
1	200.95		0.24	4001.09	6536869.0	0.28	17952.91	17952.91		19929.90
21954.00	21954.00	939.80								
1	200.86		0.27	5228.08	4470468.0		18000.00			20014.00
	23228.08	938.50								
1	200.86		0.26	4032.00	4591685.0	0.30	18000.00	18000.00		20014.00
22032.00	22032.00	938.50								
1	200.77		0.28	5805.53	5320745.0		17630.00			19889.90
	23630.00	936.90								

1	200.77		0.27	4122.20	5545445.0	0.35	17828.80	17828.80	19889.90
21951.00	21951.00	936.90							
1	200.67		0.30	4971.62	4569344.0		17540.00		19784.30
	23915.00	939.80							
1	200.67		0.28	4009.30	4819677.0	0.41	17640.00	17640.00	19784.30
21649.30	21649.30	939.80							
1	200.58		0.30	5529.80	4526509.0		17460.00		19698.50
	23847.47	937.60							
1	200.58		0.28	3940.00	4759369.0	0.47	17510.00	17510.00	19698.50
21450.00	21450.00	937.60							
1	200.49		0.26	6161.28	5347928.0		17380.00		19445.15
	24485.00	936.90							
1	200.49		0.25	3791.00	5487085.0	0.50	17380.00	17380.00	19445.15
21171.00	21171.00	936.90							
1	200.39		0.24	5819.36	6034760.0		17300.00		19361.75
	24775.00	937.00							
1	200.39		0.23	3741.00	6188329.0	0.52	17300.00	17300.00	19361.75
21041.00	21041.00	937.00							
1	200.3		0.34	5039.41	4488975.0		17205.00		19338.20
	24887.90	937.70							
1	200.3		0.31	3683.53	4835241.0	0.60	17205.00	17205.00	19338.20
20896.00	20888.53	937.70							
1	200.2		0.37	5551.98	3992119.0		17115.00		19352.25
	25144.80	937.00							
1	200.2		0.35	3629.00	4319022.0	0.73	17115.00	17115.00	19352.25
20744.00	20744.00	937.00							
1	200.1		0.32	5433.71	4321296.0		17030.00		19188.15
	25261.51	934.50							
1	200.1		0.29	3770.00	4818061.0	0.92	17030.00	17030.00	19188.15
20800.00	20800.00	934.50							
1	200		0.24	6148.14	6113840.0		16950.00		18918.55
	25170.51	933.40							
1	200		0.23	4100.00	6388853.0	0.96	16950.00	16950.00	18918.55
21050.00	21050.00	933.40							
1	199.91		0.22	6597.49	6954198.0		16800.00		19089.15
	25176.77	932.10							
1	199.91		0.20	4530.00	7510252.0	1.01	16800.00	16800.00	19089.15
21330.00	21330.00	932.10							
1	199.82		0.19	7203.54	4012368.0		16870.00		19137.70
	25350.00	931.20							
1	199.82		0.20	4780.00	3845833.0	1.00	16870.00	16870.00	19137.70
21650.00	21650.00	931.20							

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ERRORS WARNINGS AND NOTES
Errors Warnings and Notes for Plan : PrePrj

River: 1 Reach: 1 RS: 214.14 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 214.14 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 214.04 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 214.04 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 213.95 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 213.95 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 213.85 Profile: PF#1
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 213.85 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate

the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 213.75 Profile: PF#1
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 213.75 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 213.745 Profile: PF#1 Upstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 213.745 Profile: PF#1 Downstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 213.745 Profile: PF#2 Upstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 213.745 Profile: PF#2 Downstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 213.74 Profile: PF#1
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 213.74 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 213.66 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 213.66 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 213.57 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 213.57 Profile: PF#2
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 213.47 Profile: PF#1
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 213.47 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 213.38 Profile: PF#1
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 213.38 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 213.33 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 213.33 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 213.26 Profile: PF#1
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 213.26 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 213.255 Profile: PF#1 Upstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 213.255 Profile: PF#1 Downstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 213.255 Profile: PF#2 Upstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 213.255 Profile: PF#2 Downstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 213.25 Profile: PF#1
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 213.25 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 213.21 Profile: PF#1
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 213.21 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 213.11 Profile: PF#1
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 213.11 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 213.03 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 213.03 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 212.93 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 212.93 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 212.84 Profile: PF#1
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 212.84 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 212.74 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 212.74 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 212.68 Profile: PF#1
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 212.68 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 212.675 Profile: PF#1
Note: Momentum answer is not valid if the water surface is above the low chord or if there is weir flow. The momentum answer has been disregarded.
River: 1 Reach: 1 RS: 212.675 Profile: PF#1 Upstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 212.675 Profile: PF#1 Downstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 212.675 Profile: PF#2 Upstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 212.675 Profile: PF#2 Downstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 212.67 Profile: PF#1
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 212.67 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 212.56 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 212.56 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 212.46 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 212.46 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 212.37 Profile: PF#1
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 212.37 Profile: PF#2
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 212.27 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 212.27 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate

the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 212.18 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 212.18 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 212.08 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 212.08 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 211.99 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 211.99 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 211.89 Profile: PF#1
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 211.89 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 211.79 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 211.79 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 211.71 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 211.71 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 211.64 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 211.64 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 211.54 Profile: PF#1
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 211.54 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 211.525 Profile: PF#1 Upstream
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 211.525 Profile: PF#1 Downstream
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 211.525 Profile: PF#2 Upstream
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 211.525 Profile: PF#2 Downstream
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 211.51 Profile: PF#1
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 211.51 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 211.41 Profile: PF#1
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: 1 Reach: 1 RS: 211.41 Profile: PF#2
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: 1 Reach: 1 RS: 211.31 Profile: PF#1
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 211.31 Profile: PF#2

Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 211.21 Profile: PF#1
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 211.21 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 211.12 Profile: PF#1
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 211.12 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 211.02 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 211.02 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 210.93 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 210.93 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 210.83 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 210.83 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 210.74 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 210.74 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 210.64 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 210.64 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 210.55 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 210.55 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 210.46 Profile: PF#1
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 210.46 Profile: PF#2
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 210.36 Profile: PF#1
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 210.36 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 210.26 Profile: PF#1
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was

used.
River: 1 Reach: 1 RS: 210.26 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 210.17 Profile: PF#1
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 210.17 Profile: PF#2
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 210.07 Profile: PF#1
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 210.07 Profile: PF#2
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 209.98 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 209.98 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 209.88 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 209.88 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 209.79 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 209.79 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 209.69 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 209.69 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 209.60 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 209.60 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 209.54 Profile: PF#1
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 209.54 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 209.535 Profile: PF#1 Upstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 209.535 Profile: PF#1 Downstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 209.535 Profile: PF#2 Upstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 209.535 Profile: PF#2 Downstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 209.53 Profile: PF#1
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 209.53 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 209.42 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 209.42 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 209.33 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 209.33 Profile: PF#2

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 209.24 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 209.24 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 209.14 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 209.14 Profile: PF#2
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 209.04 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 209.04 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 208.95 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 208.95 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 208.85 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 208.85 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 208.75 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 208.75 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 208.67 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 208.67 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 208.57 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 208.57 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 208.48 Profile: PF#1
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 208.48 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 208.39 Profile: PF#1
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 208.39 Profile: PF#2
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 208.29 Profile: PF#1
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 208.29 Profile: PF#2

Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 208.19 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 208.19 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 208.10 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 208.10 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 207.99 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 207.99 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 207.90 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 207.90 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 207.80 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 207.80 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 207.71 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 207.71 Profile: PF#2
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 207.62 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 207.62 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 207.49 Profile: PF#1
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 207.49 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 207.485 Profile: PF#1
Note: Momentum answer is not valid if the water surface is above the low chord or if there is weir flow. The momentum answer has been disregarded.
River: 1 Reach: 1 RS: 207.485 Profile: PF#1 Upstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 207.485 Profile: PF#1 Downstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 207.485 Profile: PF#2 Upstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 207.485 Profile: PF#2 Downstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 207.48 Profile: PF#1
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 207.48 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 207.43 Profile: PF#1
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 207.43 Profile: PF#2
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 207.34 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 207.34 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 207.27 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 207.27 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 207.16 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 207.16 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 207.07 Profile: PF#1
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 207.07 Profile: PF#2
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 206.97 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 206.97 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 206.88 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 206.88 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 206.79 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 206.79 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 206.7 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 206.7 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 206.6 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 206.6 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 206.51 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 206.51 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 206.41 Profile: PF#1
Warning:Divided flow computed for this cross-section.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 206.41 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 206.32 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 206.32 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 206.22 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 206.22 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 206.13 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: 1 Reach: 1 RS: 206.13 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: 1 Reach: 1 RS: 206.03 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: 1 Reach: 1 RS: 206.03 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 205.94 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 205.94 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 205.84 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 205.84 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 205.75 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 205.75 Profile: PF#2
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 205.62 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 205.62 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 205.52 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 205.52 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 205.43 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 205.43 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 205.4 Profile: PF#1
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 205.4 Profile: PF#2
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 205.34 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 205.34 Profile: PF#2

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 205.25 Profile: PF#1

Warning:Divided flow computed for this cross-section.

Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 205.25 Profile: PF#2

Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 205.15 Profile: PF#1

Warning:Divided flow computed for this cross-section.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 205.15 Profile: PF#2

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 205.06 Profile: PF#1

Warning:Divided flow computed for this cross-section.

Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 205.06 Profile: PF#2

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 204.97 Profile: PF#1

Warning:Divided flow computed for this cross-section.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 204.97 Profile: PF#2

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 204.87 Profile: PF#1

Warning:Divided flow computed for this cross-section.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 204.87 Profile: PF#2

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 204.78 Profile: PF#1

Warning:Divided flow computed for this cross-section.

Warning:The cross-section end points had to be extended vertically for the computed water surface.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 204.78 Profile: PF#2

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 204.68 Profile: PF#1

Warning:Divided flow computed for this cross-section.

Warning:The cross-section end points had to be extended vertically for the computed water surface.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 204.68 Profile: PF#2

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 204.61 Profile: PF#1

Warning:Divided flow computed for this cross-section.

Warning:The cross-section end points had to be extended vertically for the computed water surface.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 204.61 Profile: PF#2

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 204.53 Profile: PF#1

Warning:Divided flow computed for this cross-section.

Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 204.53 Profile: PF#2

Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 204.42 Profile: PF#1

Warning:Divided flow computed for this cross-section.

Warning:The cross-section end points had to be extended vertically for the computed water surface.

Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 204.42 Profile: PF#2

Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 204.34 Profile: PF#1

Warning:Divided flow computed for this cross-section.

Warning:The cross-section end points had to be extended vertically for the computed water surface.

Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 204.34 Profile: PF#2

Warning:Divided flow computed for this cross-section.

Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 204.25 Profile: PF#1
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 204.25 Profile: PF#2
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 204.15 Profile: PF#1
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 204.15 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 204.05 Profile: PF#1
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 204.05 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 203.96 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 203.96 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 203.86 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 203.86 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 203.77 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 203.77 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 203.67 Profile: PF#1
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 203.67 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 203.58 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 203.58 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 203.48 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 203.48 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 203.39 Profile: PF#1
Warning:Divided flow computed for this cross-section.

Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 203.39 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 203.29 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 203.29 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 203.19 Profile: PF#1
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 203.19 Profile: PF#2
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 203.09 Profile: PF#1
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 203.09 Profile: PF#2
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 202.99 Profile: PF#1
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 202.99 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 202.9 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 202.9 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 202.8 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 202.8 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 202.69 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 202.69 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 202.59 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 202.59 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 202.48 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 202.48 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 202.37 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 202.37 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 202.29 Profile: PF#1
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 202.29 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 202.18 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate

the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 202.18 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 202.09 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 202.09 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 201.99 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 201.99 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 201.9 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 201.9 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 201.81 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 201.81 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 201.71 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 201.71 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 201.62 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 201.62 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 201.52 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 201.52 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 201.43 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 201.43 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 201.33 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 201.33 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 201.24 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 201.24 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was

used.
River: 1 Reach: 1 RS: 201.14 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 201.14 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 201.05 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 201.05 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 200.95 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 200.95 Profile: PF#2
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 200.86 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 200.86 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 200.77 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 200.77 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 200.67 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 200.67 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 200.58 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 200.58 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 200.49 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 200.49 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 200.39 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 200.39 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 200.3 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 200.3 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 200.2 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 200.2 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 200.1 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 200.1 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 200 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 200 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 199.91 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 199.91 Profile: PF#2
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 199.82 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 199.82 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

cHECk-RAS Report

HEC-RAS Project: *pre-project.prj*
Plan File: *pre-project.p01*
Geometry File: *pre-project.g02*
Flow File: *pre-project.f01*
Report Date: *9/25/2013*

Message ID	Message	Cross sections affected	Comments
BR LF 01	This is ($strucname$). The selected profile is $profilename$. Type of flow is low flow because, 1. EGEL 3 of $egel3$ is less than or equal to MinTopRd of $minelweirflow$. 2. EGEL 3 of $egel3$ is less than MxLoCdU of $mxlocdu$.	207.485(Bridge-UP); 209.535(Bridge-UP); 211.525(Bridge-UP); 213.255(Bridge-UP); 213.745(Bridge-UP)	
BR LW 02	This is a Bridge Section. The selected profile is $profilename$. EGEL of $egel3$ at Section 3 is higher than the MinTopRd of $minelweirflow$. However, weir flow is not computed at this structure. Please investigate the problem.	212.675(Bridge-UP)	
BR PW 02	This is a Bridge Section. The selected profile is $profilename$. Type of flow is submerged pressure and weir flow because, 1. EGEL 3 of $egel3$ is greater than MinTopRd of $minelweirflow$. 2. EGEL 3 of $egel3$ is equal to or greater than MxLoCdU of $mxlocdu$. 3. WSEL 2 of $wsel2$ is equal to or greater than MxLoCdD of $mxlocdd$.	212.675(Bridge-UP)	
BR PW 05	This is a Bridge Section. The selected profile is $profilename$. EGEL of $egel3$ at Section 3 is higher than the MinTopRd of $minelweirflow$. However, weir flow is not computed at this structure. Please investigate the problem.	212.675(Bridge-UP)	
FW FW 01L	The Left encroachment station is within the channel. The Left encroachment station $encrstal$ is more than left channel bank station $stalob$. The left encroachment station should be the same as the left channel bank station.	200.86; 200.95; 201.05; 201.14; 201.24; 201.33; 201.43; 201.52; 201.62; 201.71; 201.81; 201.9; 203.77; 203.86; 203.96; 204.05; 209.04; 209.14; 209.24; 210.26; 210.36; 210.55; 210.74; 210.83; 210.93; 211.12; 211.21; 211.31; 211.41; 213.11; 213.66; 213.95; 214.04; 214.14	
FW FW 01R	The Right encroachment station is within the channel. The Right encroachment station $encrstar$ is less than right channel bank station $starob$. The right encroachment station should be the same as the right channel bank station.	201.81; 201.9; 201.99; 202.09; 202.18; 202.37; 202.48; 202.59; 202.69; 202.8; 202.9; 203.09; 203.19; 203.29; 203.39; 203.48; 203.58; 203.67; 203.77; 203.86; 203.96; 204.05; 204.15; 204.25; 204.34; 204.42; 204.68; 204.78; 204.87; 206.13; 206.22; 206.32; 206.41; 207.07; 210.26; 210.36; 211.21; 211.31; 211.79; 211.99; 213.11; 213.33; 213.38; 213.47; 213.57; 213.66; 213.85; 213.95; 214.04; 214.14	

FW FW 03L	The left channel bank elevation of $lobelev$ is higher than the 1-percent-annual-chance WSEL of $wsel$. Relocate the left channel bank station at or below the 1-percent-annual-chance WSEL. Do not place the bank stations at the bottom of the channel. Do not place the bank stations at the low flow channel. Use the Horizontal Variation in "n" Values option in HEC-RAS to assign different "n" values to the left bank slope, low flow channel, and the right bank slope. Let HEC-RAS compute the composite "n" value based on the depth of flow.	200.49; 200.77; 201.05; 201.9; 202.09; 202.37; 202.48; 202.59; 202.69; 203.86; 203.96; 204.05; 205.43; 206.03; 206.13; 206.22; 206.7; 206.79; 206.97; 207.07; 207.62; 207.71; 207.9; 208.19; 208.29; 208.39; 208.48; 208.57; 208.67; 208.75; 208.85; 209.04; 209.14; 209.24; 209.33; 209.42; 209.6; 209.69; 209.79; 209.88; 209.98; 210.64; 211.12; 211.41; 211.71; 213.11; 213.66; 213.95; 214.04; 214.14	
FW FW 03R	The right channel bank elevation of $robelev$ is higher than the 1-percent annual chance WSEL of $wsel$. Relocate the right channel bank station at or below the 1-percent annual chance WSEL. Do not place the bank stations at the bottom of the channel. Do not place the bank stations at the low flow channel. Use the Horizontal Variation in "n" Values option in HEC-RAS to assign different "n" values to the left bank slope, low flow channel, and the right bank slope. Let HEC-RAS compute the composite "n" value based on the depth of flow.	200.3; 201.24; 202.09; 202.48; 202.9; 203.39; 205.43; 205.84; 205.94; 206.7; 207.16; 207.27; 207.34; 207.43; 208.19; 208.29; 208.39; 208.48; 208.75; 208.85; 208.95; 209.33; 209.42; 209.69; 209.79; 209.88; 209.98; 210.17; 210.46; 210.55; 210.64; 210.74; 210.83; 210.93; 211.02; 211.12; 211.71; 211.89; 212.08; 213.11; 213.33; 213.38; 213.47; 213.57; 213.66; 213.85; 213.95; 214.04; 214.14	
FW FW 04L	The 1-percent-annual-chance floodplain is outside of the channel. The left station effective of $ineffstal$ for the 1-percent-annual-chance floodplain is less than the left channel bank station $stalob$. However, the left encroachment station $encstal$ is outside of the 1-percent-annual-chance floodplain. Adjust the left encroachment station so that it will be within the floodplain.	208.1	
FW FW 04R	The 1-percent-annual-chance floodplain is outside of the channel. The right station effective of $ineffstar$ for the 1-percent-annual-chance floodplain is greater than the right channel bank station $starob$. However, the right encroachment station $encstar$ is outside of the 1-percent-annual-chance floodplain. Adjust the right encroachment station so that it will be within the floodplain.	207.8; 207.99; 208.1; 208.85; 210.74	
FW FW 05L	The 1-percent annual chance flood is contained within the channel. The Left encroachment station $encstal$ is outside the channel. The Left channel bank station is $stalob$. Adjust the left encroachment station so that it is the same as the left channel bank station.	208.19	

FW FW 05R	The 1-percent annual chance flood is contained within the channel. The Right encroachment station $encstar$ is outside the channel. Right channel bank station is $starob$. Adjust the right encroachment station so that it is the same as the right channel bank station..	208.19; 211.12; 212.08	
FW FW 06L	The left side of the floodway boundary is within the channel. The left station effective of $ineffstal$ for the floodway profile is more than the left channel bank station of $stalob$. The left encroachment station of $encstal$ is less than the left channel bank station. Adjust the left encroachment station so that it is the same as the left channel bank station.	208.19	
FW FW 06R	The right side of the floodway boundary is within the channel. The right station effective of $ineffstar$ for the floodway profile is less than the right channel bank station of $starob$. The right encroachment station of $encstar$ is more than the right channel bank station. Adjust the right encroachment station so that it is the same as the right channel bank station.	207.27; 208.19; 211.12; 212.08	
FW SC 02	The surcharge value of $surcharge$ is greater than the maximum allowable value of $allowsurchrg$. Use the suggestions from the Help section to reduce the computed surcharge value to be no more than $allowsurchrg$.	199.91	
FW ST 04BDL	This is ($strucname$) downstream internal section. The left encroachment station is within the channel. The left encroachment station of $encstal$ is greater than the left bank station of $stalob$. The leftencroachment station should be the same as the left channel bank station.	213.255(Bridge-DN); 213.745(Bridge-DN)	
FW ST 04BUL	This is ($strucname$) upstream internal section. The left encroachment station is within the channel. The left encroachment station of $encstal$ is greater than the left bank station of $stalob$. The left encroachment station should be the same as the left channel bank station.	211.525(Bridge-UP); 213.255(Bridge-UP); 213.745(Bridge-UP)	
FW ST 04S2L	This is Section 2 of a hydraulic structure. The left encroachment station is within the channel. The left encroachment station of $encstal$ is greater than the left bank station of $stalob$. The left encroachment station should be the same as the left channel bank station.	211.51; 213.25; 213.74	
FW ST 04S2R	This is Section 2 of a hydraulic structure. The right encroachment station is within the channel. The right encroachment station of $encstar$ is less than the right bank station of $starob$. The right encroachment station should be the same as right channel bank station.	211.51; 213.25; 213.74	

FW ST 04S3L	This is Section 3 of a hydraulic structure. The Left Channel Bank station is outside the Left Abutment station. The left encroachment station is within the channel. The left encroachment station of $encstal$ is greater than the left bank station of $stalob$. The left encroachment station should be the same as the left channel bank station.	211.54; 213.26; 213.75	
FW ST 04S3R	This is Section 3 of a hydraulic structure. The right encroachment station is within the channel. The right encroachment station of $encstar$ is less than the right bank station of $starob$. The right encroachment station should be the same as the right channel bank station.	211.54; 213.26; 213.75	
FW ST 06BU	This is the Upstream Bridge Internal Section. Negative surcharge value of $negsurchrg$ occurs at this section. Use the suggestions from the Help section such that negative surcharge value will not be less than (-0.09) foot.	212.675(Bridge-UP)	
FW ST 08S3L	This is Section 3 of a hydraulic structure. The left encroachment station is outside the 1%-annual-chance floodplain. The left station effective of $ineffstal$ for the 1%-annual-chance profile is less than the left channel bank station of $stalob$. The 1%-annual-chance floodplain is outside the channel. The left encroachment station of $encstal$ is less than the left station effective of $ineffstal$ for the 1%-annual-chance profile. The Enc_Sta_L must be within the 1%-annual-chance floodplain.	207.49	
MP SW 01DK	The name of the stream is ($streamname$). The flow regime is subcritical or mixed flow. Starting water-surface elevations are computed from Known WSELs as the downstream boundary condition. Provide backup information on Known water-surface elevations or use same energy slope for all the profiles as the starting boundary condition and rerun the plan.		
NT RC 05	The left overbank n-value of $nlob$ and the right overbank n-value of $nrob$ are less than or equal to the channel n-value of nch. Follow the procedure in (FHWA, 1984) to compute the n-value for the natural floodplain and the channel. Or follow the procedure in (USGS, 1977) to compute the n-value for urban development. Please submit supporting information on the evaluation of n-values.	204.42; 204.53; 204.61; 204.68; 204.78; 204.87; 205.06; 205.15; 205.25; 205.75; 206.32; 206.41; 206.51; 206.6; 206.7; 206.79; 206.88; 206.97; 207.07; 207.62; 207.71; 208.1; 209.04; 209.6; 210.07; 210.26; 210.46	

NT RS 02BDC	This is the Downstream Bridge Section (BRD). The channel n value of $chldn$ for the downstream internal bridge opening section is equal to or larger than the channel n value of $chl2$ at Section 2. Usually, the channel "n" value of the bridge opening section represents the area below the bridge deck and is less than the channel "n" value of Section 2. The "n" value for Section 2 represents the natural valley channel section roughness for the reach between Section 3 and Section 4. Please change the "n" value of the internal bridge opening section or provide supporting information for the use of the higher "n" value.	207.485(Bridge-DN); 209.535(Bridge-DN); 211.525(Bridge-DN); 213.255(Bridge-DN); 213.745(Bridge-DN)	
NT RS 02BUC	This is the Upstream Bridge Section (BRU). The channel n value of $chlup$ for the upstream internal bridge opening section is equal to or larger than the channel n value of $chl3$ at Section 3. Usually, the channel "n" value of the bridge opening section represents the area below the bridge deck and is less than the channel "n" value of Section 3. The "n" value for Section 3 represents the natural valley channel section roughness for the reach between Section 3 and Section 4. Please change the "n" value of the internal bridge opening section or provide supporting information for the use of a higher "n" value.	207.485(Bridge-UP); 209.535(Bridge-UP); 211.525(Bridge-UP); 212.675(Bridge-UP); 213.255(Bridge-UP); 213.745(Bridge-UP)	
NT TL 01S2	This is Section2 of a hydraulic structure. The contraction and expansion loss coefficients are cc and ce. They should be equal to 0.3 and 0.5, respectively, for typical structure sections according to page 5-8 of the HEC-RAS Hydraulic Reference Manual (HEC, 2010).	211.51; 212.67; 213.25; 213.74	
NT TL 01S3	This is Section3 of a hydraulic structure. The contraction and expansion loss coefficients are cc and ce. They should be equal to 0.3 and 0.5, respectively, for typical structure sections according to page 5-8 of the HEC-RAS Hydraulic Reference Manual (HEC, 2010).	211.54; 212.68; 213.26; 213.75	
NT TL 01S4	This is Section 4 of a hydraulic structure. The contraction and expansion loss coefficients are cc and ce. They should be equal to 0.3 and 0.5, respectively according to page 5-8 of the HEC-RAS Hydraulic Reference Manual (HEC, 2010)..	207.62; 209.6; 211.64; 212.74; 213.33; 213.85	

ST DT 01B	This is ($strucname$). 'Upstream Dist' of $distup$ in "Bridge Width Table" is less than the height of the bridge opening of $height$. This indicates that Section 3 may not be placed at the foot of the road embankment or wing walls and may not represent the natural valley cross section. Section 3 should be relocated or provide a statement that it represents the natural valley cross section. The HEC-RAS geometry file may need to be recreated using a GIS program. Lengths at Sections 4, 3 and 2 and 'Upstream Dist' should be adjusted.	209.535(Bridge-UP); 211.525(Bridge-UP); 213.255(Bridge-UP); 213.745(Bridge-UP)	
ST DT 02B	This is ($strucname$). 'Downstream Dist' of $distdn$ in 'Bridge Width Table' is less than the height of the bridge opening of $height$. This indicates that Section 2 may not be placed at the foot of the road embankment or wing walls and may not represent the natural valley cross section. Section 2 should be relocated or provide a statement that it represents the natural valley cross section. A HEC-RAS geometry file may need to be recreated using a GIS program. Lengths at Sections 3 and 2 should be adjusted.	209.535(Bridge-DN); 211.525(Bridge-DN); 213.255(Bridge-DN); 213.745(Bridge-DN)	
ST DT 03	This is ($Structure$) section. The Contraction Length is longer than the Expansion Length. Section 4 channel distance of $Length_Chnl4$ is longer than Section 2 channel distance of $Length_Chnl2$. Section 4 and Section 1 should be relocated. The HEC-RAS geometry file may need to be recreated using a GIS program.	207.485(Bridge-UP); 213.255(Bridge-UP); 213.745(Bridge-UP)	
ST GD 06	Left and/or right abutment station computed by the cHECk-RAS program is equal to zero. cHECk-RAS cannot evaluate this structure.	212.675(Bridge)	
ST IF 05S2L	This is Section 2 of a hydraulic structure. The left ineffective flow station is within the opening area of the structure. The left ineffective flow station of $ineffstal$ is greater than the downstream left abutment station of $abutstal$ at ($strucname$). The Left ineffective flow station should be adjusted.	207.48(Bridge); 211.51(Bridge); 212.67(Bridge)	
ST IF 05S2R	This is Section 2 of a hydraulic structure. The right ineffective flow station is within the opening area of the structure. The right ineffective flow station of $ineffstar$ is less than the upstream right abutment station of $abutstar$ at ($strucname$). The Right ineffective flow station should be adjusted.	211.51(Bridge)	

ST IF 05S3L	This is Section 3 of a hydraulic structure. The left ineffective flow station is within the opening area of the structure. The left ineffective flow station of $ineffstal$ is greater than the upstream left abutment station of $abutstal$ at ($strucname$). The Left ineffective flow station should be adjusted.	207.49(Bridge); 212.68(Bridge)	
ST IF 05S3R	This is Section 3 of a hydraulic structure. The right ineffective flow station is within the opening area of the structure. The right ineffective flow station of $ineffstar$ is less than the upstream right abutment station of $abutstar$ at ($strucname$). The Right ineffective flow station should be adjusted.	211.54(Bridge)	
ST IF 06S2L	This is Section 2. The selected profile is $profilename$. Low or pressure flow occurs at ($strucname$). The Dn_Dist of $dndist$ at the structure is less than the opening height of $openheight$ of the structure. The cHECk-RAS computed left ineffective flow station of $compineffstal$ is less than the input left ineffective flow station of $ineffstal$. The left ineffective flow station should be adjusted per the help instructions and the HEC-RAS manual.	209.53(Bridge); 211.51(Bridge); 213.25(Bridge); 213.74(Bridge)	
ST IF 06S2R	This is Section 2. The selected profile is $profilename$. Low or pressure flow occurs at ($strucname$). The Dn_Dist of $dndist$ at the structure is less than the opening height of $openheight$ of the structure. The cHECk-RAS computed right ineffective flow station of $compineffstar$ is greater than the input right ineffective flow station of $ineffstar$. The right ineffective flow station should be adjusted per the help instructions and the HEC-RAS manual.	209.53(Bridge); 211.51(Bridge); 213.25(Bridge); 213.74(Bridge)	
ST IF 06S3L	This is Section 3. The selected profile is $profilename$. Low or pressure flow occurs at ($strucname$). The Up_Dist of $updist$ at the structure is less than the opening height of $openheight$ of the structure. The cHECk-RAS computed left ineffective flow station of $compineffstal$ is less than the input left ineffective flow station of $ineffstal$. The left ineffective flow station should be adjusted per the help instructions and the HEC-RAS manual.	209.54(Bridge); 213.26(Bridge); 213.75(Bridge)	

ST IF 06S3R	This is Section 3. The selected profile is $profilename$. Low or pressure flow occurs at ($strucname$). The Up_Dist of $updist$ at the structure is less than the opening height of $openheight$ of the structure. The cHECk-RAS computed right ineffective flow station of $compineffstar$ is greater than the input right ineffective flow station of $ineffstar$. The right ineffective flow station should be adjusted per the help instructions and the HEC-RAS manual.	209.54(Bridge); 211.54(Bridge); 213.26(Bridge); 213.75(Bridge)	
ST IF 07S1L	This is Section 1. Left Ineffective flow option was considered at this section. However, it should be a fully expanded cross section. Ineffective flow stations and elevations should be cleared from this section, unless the areas beyond the ineffective flow stations are not within the flow path of the stream. This message should be ignored if this section is Section 3 of the downstream structure.	207.43(Bridge); 209.42(Bridge); 212.56(Bridge); 213.21(Bridge); 213.66(Bridge)	
ST IF 07S1R	This is Section 1. Right Ineffective flow option was considered at this section. However, it should be a fully expanded cross section. Ineffective flow stations and elevations should be cleared from this section, unless the areas beyond the ineffective flow stations are not within the flow path of the stream. This message should be ignored if this section is Section 3 of the downstream structure.	207.43(Bridge); 209.42(Bridge); 212.56(Bridge); 213.21(Bridge); 213.66(Bridge)	
ST IF 07S4L	This is Section 4. Left Ineffective flow option was considered at this section. However, it should be a fully expanded cross section. Ineffective flow stations and elevations should be cleared from this section, unless the areas beyond the ineffective flow stations are not within the flow path of the stream. This message should be ignored if this section is Section 2 of the upstream structure.	207.62(Bridge); 209.6(Bridge); 212.74(Bridge); 213.33(Bridge); 213.85(Bridge)	
ST IF 07S4R	This is Section 4. Right Ineffective flow option was considered at this section. However, it should be a fully expanded cross section. Ineffective flow stations and elevations should be cleared from this section, unless the areas beyond the ineffective flow stations are not within the flow path of the stream. This message should be ignored if this section is Section 2 of the upstream structure.	207.62(Bridge); 209.6(Bridge); 212.74(Bridge); 213.33(Bridge); 213.85(Bridge)	

XS CD 01	Critical Depth occurs at $assignedname$ flood. Flow Code will be "C". The Ineffective flow option is used. The Ineffective Flow elevation is equal to or higher than the Critical WSEL. Please investigate whether this selection is appropriate.	204.25; 207.07	
XS DC 01	Discharge decreases in the downstream direction for $assignedname$ flood. There are no lateral structures. Documentation of hydrologic analysis is required or provide explanation.	205.4; 213.21	
XS DT 01	Both the right overbank distance of rob and the left overbank distance of lob are longer than the channel distance of chl . Please review the creation of left overbank, channel and right overbank distances. The HEC-RAS geometry file may need to be recreated using a GIS program. Please resolve the differences among the distances.	207.8; 208.19; 208.29; 208.48; 209.33; 209.53; 211.71; 211.99	
XS IF 03L	The Left Ineffective Flow Station is within the channel. The Left Ineffective Flow Station of $ineffstal$ is greater than the LeftBankSta of $bankstal$. The Left Ineffective Flow Station or the LeftBankSta should be adjusted.	207.48; 208.19; 208.29; 208.39; 209.53; 209.54	
XS IF 03R	The Right Ineffective Flow Station is within the channel. The Right Ineffective Flow Station of $ineffstar$ is less than the RightBankSta of $bankstar$. The Right Ineffective Flow Station or the RightBankSta should be adjusted.	206.51; 207.48; 207.49; 208.29; 208.39; 209.53; 209.54	
XS SW 01DK	The name of the stream is $streamname$. The flow regime is subcritical or mixed flow. Starting WSEL is computed from Known WSEL as the downstream boundary for $Assigned_Name$ flood. Provide backup information on Known WSEL or use energy slope as the downstream boundary.	199.82	

APPENDIX E

POST-PROJECT MODEL

HEC-RAS Plan: PostPrj River: 1 Reach: 1

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
1	214.14	169000.00	1048.70	1075.50	1062.66	1077.01	0.000804	9.84	17180.89	1312.52	0.36
1	214.14	169000.00	1048.70	1075.51	1062.66	1077.01	0.000803	9.83	17184.88	726.86	0.36
1	214.04	169000.00	1048.80	1075.04	1062.64	1076.58	0.000846	9.95	16977.45	813.60	0.36
1	214.04	169000.00	1048.80	1075.05	1062.64	1076.59	0.000845	9.95	16981.83	733.89	0.36
1	213.95	169000.00	1049.30	1074.16	1063.67	1076.05	0.001218	11.04	15307.12	777.40	0.43
1	213.95	169000.00	1049.30	1074.16	1063.67	1076.06	0.001216	11.04	15312.49	745.19	0.43
1	213.85	169000.00	1048.10	1071.66	1065.14	1075.08	0.002230	14.98	11764.97	1017.61	0.58
1	213.85	169000.00	1048.10	1071.66	1065.14	1075.09	0.002229	14.98	11769.51	702.59	0.58
1	213.75	169000.00	1044.60	1071.97	1060.91	1073.93	0.000919	11.25	15022.46	656.45	0.41
1	213.75	169000.00	1044.60	1071.98	1060.91	1073.94	0.000918	11.25	15027.91	656.35	0.41
1	213.745	Bridge									
1	213.74	169000.00	1044.60	1071.66	1060.91	1073.68	0.000958	11.40	14818.63	654.76	0.42
1	213.74	169000.00	1044.60	1071.67	1060.91	1073.69	0.000957	11.40	14824.30	654.73	0.42
1	213.66	169000.00	1047.60	1069.25	1063.62	1072.99	0.002199	15.51	10898.94	586.13	0.62
1	213.66	169000.00	1047.60	1069.27	1063.62	1073.00	0.002194	15.50	10906.67	565.99	0.62
1	213.57	169000.00	1046.70	1069.19	1063.08	1071.61	0.001831	12.49	13535.60	1275.10	0.55
1	213.57	169000.00	1046.70	1069.20	1063.08	1071.62	0.001827	12.47	13548.71	852.16	0.55
1	213.47	169000.00	1045.80	1068.60	1061.42	1070.60	0.001694	11.35	14886.30	1424.00	0.52
1	213.47	169000.00	1045.80	1068.62	1061.42	1070.62	0.001691	11.34	14903.79	1023.12	0.52
1	213.38	169000.00	1045.40	1068.60	1059.34	1069.81	0.000809	8.83	19139.19	1251.70	0.37
1	213.38	169000.00	1045.40	1068.61	1059.34	1069.82	0.000810	8.82	19155.73	1101.75	0.37
1	213.33	169000.00	1045.40	1068.57	1057.70	1069.53	0.000606	7.87	21480.53	1371.95	0.33
1	213.33	169000.00	1045.40	1068.58	1057.70	1069.54	0.000608	7.86	21497.32	1185.62	0.33
1	213.26	169000.00	1040.40	1068.16	1055.61	1069.32	0.000568	8.67	19493.06	881.25	0.32
1	213.26	169000.00	1040.40	1068.17	1055.61	1069.34	0.000567	8.66	19505.43	881.21	0.32
1	213.255	Bridge									
1	213.25	169000.00	1040.40	1067.95	1055.61	1069.14	0.000585	8.75	19310.07	880.24	0.33
1	213.25	169000.00	1040.40	1067.96	1055.61	1069.15	0.000584	8.75	19322.76	880.24	0.33
1	213.21	166000.00	1044.90	1067.99	1055.88	1069.03	0.000510	8.17	20358.92	1540.79	0.31
1	213.21	166000.00	1044.90	1068.00	1055.88	1069.04	0.000528	8.17	20315.02	928.20	0.31
1	213.11	166000.00	1047.60	1067.16	1058.35	1068.63	0.000913	9.73	17066.41	927.80	0.40
1	213.11	166000.00	1047.60	1067.16	1058.35	1068.63	0.000912	9.72	17072.18	927.79	0.40
1	213.03	166000.00	1046.70	1066.57	1058.30	1068.17	0.001032	10.14	16391.47	965.60	0.42
1	213.03	166000.00	1046.70	1066.58	1058.30	1068.17	0.001031	10.13	16382.68	919.76	0.42
1	212.93	166000.00	1045.40	1065.48	1058.04	1067.55	0.001316	11.53	14402.09	850.19	0.48
1	212.93	166000.00	1045.40	1065.49	1058.04	1067.55	0.001314	11.52	14408.82	798.99	0.48
1	212.84	166000.00	1043.10	1063.54	1057.57	1066.65	0.001930	14.14	11737.26	635.75	0.58
1	212.84	166000.00	1043.10	1063.56	1057.57	1066.66	0.001926	14.13	11745.09	635.75	0.58
1	212.74	166000.00	1041.60	1063.06	1055.53	1065.57	0.001465	12.71	13064.60	721.72	0.51
1	212.74	166000.00	1041.60	1063.08	1055.53	1065.58	0.001462	12.70	13074.10	676.59	0.51
1	212.68	166000.00	1036.90	1063.02	1052.69	1065.16	0.001030	11.74	14139.91	629.02	0.44
1	212.68	166000.00	1036.90	1063.04	1052.69	1065.17	0.001028	11.73	14148.66	629.03	0.44
1	212.675	Bridge									
1	212.67	166000.00	1036.90	1062.53	1052.69	1064.77	0.001102	12.00	13830.37	626.50	0.45
1	212.67	166000.00	1036.90	1062.54	1052.69	1064.77	0.001101	12.00	13834.12	626.51	0.45
1	212.56	166000.00	1039.30	1056.87	1055.74	1063.23	0.004887	20.23	8207.39	521.49	0.90
1	212.56	166000.00	1039.30	1056.98	1055.74	1063.25	0.004781	20.09	8264.06	521.09	0.89
1	212.46	166000.00	1037.20	1056.23	1052.77	1060.78	0.003034	17.11	9703.67	1555.15	0.72
1	212.46	166000.00	1037.20	1056.29	1052.77	1060.80	0.003114	17.05	9738.24	557.66	0.72

HEC-RAS Plan: PostPrj River: 1 Reach: 1 (Continued)

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
1	212.37	166000.00	1036.60	1053.09	1051.73	1058.81	0.004662	19.19	8648.65	573.56	0.87
1	212.37	166000.00	1036.60	1053.09	1051.73	1058.81	0.004657	19.19	8651.94	573.59	0.87
1	212.27	166000.00	1035.10	1050.67	1049.57	1056.35	0.005236	19.12	8681.56	2800.96	0.89
1	212.27	166000.00	1035.10	1050.67	1049.57	1056.35	0.005237	19.12	8681.05	605.47	0.89
1	212.18	166000.00	1030.80	1050.25	1045.89	1053.95	0.002692	15.42	10761.93	2340.52	0.66
1	212.18	166000.00	1030.80	1050.25	1045.89	1053.94	0.002692	15.43	10761.62	627.48	0.66
1	212.08	166000.00	1025.90	1050.04	1041.45	1052.67	0.001415	13.00	12773.65	2180.71	0.49
1	212.08	166000.00	1025.90	1050.04	1041.45	1052.67	0.001415	12.99	12774.58	589.61	0.49
1	211.99	166000.00	1025.39	1048.55	1041.17	1051.77	0.001822	14.40	11524.03	1310.27	0.55
1	211.99	166000.00	1025.39	1048.55	1041.17	1051.78	0.001822	14.40	11525.16	549.11	0.55
1	211.89	166000.00	1024.19	1047.93	1039.97	1050.85	0.001601	13.70	12113.14	564.71	0.52
1	211.89	166000.00	1024.19	1047.93	1039.97	1050.85	0.001600	13.70	12114.25	564.72	0.52
1	211.79	166000.00	1023.84	1047.07	1039.26	1050.00	0.001620	13.72	12095.68	1185.32	0.52
1	211.79	166000.00	1023.84	1047.08	1039.26	1050.00	0.001619	13.72	12097.01	567.51	0.52
1	211.71	166000.00	1023.19	1046.34	1038.56	1049.27	0.001623	13.72	12101.25	635.03	0.52
1	211.71	166000.00	1023.19	1046.35	1038.56	1049.27	0.001622	13.72	12102.79	569.02	0.52
1	211.64	166000.00	1022.58	1045.45	1038.24	1048.58	0.001783	14.19	11699.97	828.67	0.55
1	211.64	166000.00	1022.58	1045.46	1038.24	1048.58	0.001783	14.19	11701.82	561.65	0.55
1	211.54	166000.00	1021.90	1043.47	1038.07	1047.44	0.002293	15.99	10379.89	525.33	0.63
1	211.54	166000.00	1021.90	1043.48	1038.07	1047.45	0.002291	15.99	10382.65	525.34	0.63
1	211.525	Bridge									
1	211.51	166000.00	1021.80	1041.77	1037.98	1046.46	0.002980	17.37	9556.95	520.99	0.71
1	211.51	166000.00	1021.80	1041.78	1037.98	1046.46	0.002975	17.36	9562.29	521.01	0.71
1	211.41	166000.00	1018.30	1041.28		1044.73	0.001988	14.89	11146.87	565.09	0.59
1	211.41	166000.00	1018.30	1041.30		1044.73	0.001984	14.88	11153.56	565.16	0.59
1	211.31	166000.00	1020.80	1039.90	1037.24	1043.44	0.003368	15.11	10986.19	819.02	0.73
1	211.31	166000.00	1020.80	1039.93	1037.24	1043.46	0.003345	15.08	11010.38	819.22	0.72
1	211.21	166000.00	1021.10	1039.00	1035.55	1041.61	0.002621	12.98	12788.78	987.73	0.64
1	211.21	166000.00	1021.10	1039.04	1035.55	1041.64	0.002591	12.93	12834.36	987.91	0.63
1	211.12	166000.00	1015.70	1039.45	1029.88	1040.57	0.000691	8.47	19589.91	1059.19	0.35
1	211.12	166000.00	1015.70	1039.50	1029.88	1040.61	0.000686	8.45	19634.26	1059.33	0.35
1	211.02	166000.00	1019.40	1037.87	1032.11	1039.96	0.001615	11.66	14590.39	1081.93	0.52
1	211.02	166000.00	1019.40	1037.86	1032.11	1039.99	0.001638	11.73	14248.20	945.79	0.52
1	210.93	166000.00	1018.70	1037.31	1034.18	1039.02	0.001715	11.10	17836.14	2652.63	0.52
1	210.93	166000.00	1018.70	1037.34	1034.18	1039.04	0.001705	11.08	17877.24	2037.02	0.52
1	210.83	166000.00	1019.10	1036.06	1032.21	1038.07	0.001954	11.76	16572.73	2245.18	0.56
1	210.83	166000.00	1019.10	1036.07	1032.19	1038.08	0.001959	11.78	16513.45	2196.24	0.56
1	210.74	166000.00	1018.20	1035.63	1029.79	1037.14	0.001245	10.10	17684.78	1394.18	0.45
1	210.74	166000.00	1018.20	1035.65	1029.79	1037.15	0.001241	10.09	17705.54	1394.30	0.45
1	210.64	166000.00	1017.70	1035.01	1029.00	1036.50	0.001272	10.01	18830.82	2977.45	0.45
1	210.64	166000.00	1017.70	1035.03	1029.00	1036.51	0.001265	9.99	18876.09	2361.98	0.45
1	210.55	166000.00	1018.00	1033.98	1028.55	1035.74	0.001599	10.66	15645.69	1780.30	0.50
1	210.55	166000.00	1018.00	1034.00	1028.55	1035.76	0.001591	10.64	15620.99	1370.58	0.50
1	210.46	166000.00	1016.30	1034.50	1025.05	1035.00	0.000446	5.64	29415.75	2040.38	0.25
1	210.46	166000.00	1016.30	1034.52	1025.05	1035.01	0.000450	5.64	29448.14	1881.51	0.25
1	210.36	166000.00	1017.40	1033.83	1027.55	1034.64	0.000900	7.26	22862.09	1899.90	0.37
1	210.36	166000.00	1017.40	1033.84	1027.55	1034.66	0.000896	7.25	22895.48	1899.97	0.37
1	210.26	166000.00	1016.90	1033.50	1026.47	1034.20	0.000776	6.70	24788.11	1932.15	0.33
1	210.26	166000.00	1016.90	1033.52	1026.47	1034.22	0.000773	6.69	24825.62	1932.26	0.33

HEC-RAS Plan: PostPrj River: 1 Reach: 1 (Continued)

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
1	210.17	166000.00	1014.70	1032.74	1027.95	1033.68	0.001226	7.80	21281.46	2172.14	0.42
1	210.17	166000.00	1014.70	1032.76	1027.95	1033.70	0.001218	7.78	21329.98	1968.03	0.42
1	210.07	166000.00	1009.00	1032.55	1025.16	1033.20	0.000552	5.80	28260.77	2494.02	0.26
1	210.07	166000.00	1009.00	1032.62	1024.39	1033.19	0.000574	5.94	28057.58	2015.00	0.27
1	209.98	166000.00	999.33	1032.54	1020.16	1032.95	0.000255	5.37	33527.46	1907.07	0.21
1	209.98	166000.00	999.33	1032.54	1019.84	1032.96	0.000266	5.49	32636.46	1833.72	0.22
1	209.88	166000.00	997.69	1032.27	1018.95	1032.80	0.000282	6.24	29857.02	1597.17	0.23
1	209.88	166000.00	997.69	1032.27	1018.95	1032.81	0.000284	6.26	29659.79	1570.83	0.23
1	209.79	166000.00	1002.93	1032.21	1018.56	1032.63	0.000266	5.59	32602.03	2124.70	0.22
1	209.79	166000.00	1002.93	1032.21	1018.56	1032.64	0.000269	5.62	32395.18	1764.06	0.22
1	209.69	166000.00	1004.31	1031.52	1021.24	1032.38	0.000722	7,11	22319.88	1880.46	0.34
1	209.69	166000.00	1004.31	1031.52	1021.24	1032.39	0.000721	7.11	22332.98	1431.39	0.34
1	209.60	166000.00	1004.15	1030.41	1024.57	1031.78	0.001473	9.51	17810.42	2206.11	0.49
1	209.60	166000.00	1004.15	1030.41	1024.59	1031.79	0.001484	9.55	17807.37	1582.46	0.49
1	209.54	166000.00	1004.27	1030.18	1021.90	1031.42	0.000866	8.96	18531.54	1096.35	0.38
1	209.54	166000.00	1004.27	1030.18	1021.90	1031.43	0.000865	8.96	18535.29	1096.36	0.38
1	209.535	Bridge									
1	209.53	166000.00	1004.27	1029.83	1021.90	1031.13	0.000926	9.14	18155.34	1095.30	0.40
1	209.53	166000.00	1004.27	1029.84	1021.90	1031.13	0.000925	9.14	18159.63	1095.33	0.40
1	209.42	166000.00	998.44	1028.89	1023.49	1030.40	0.001432	9.87	16826.90	1341.50	0.48
1	209.42	166000.00	998.44	1028.89	1023.49	1030.40	0.001430	9.86	16833.66	1258.70	0.48
1	209.33	166000.00	993.71	1028.74	1019.27	1029.68	0.000900	7.81	21286.58	1846.56	0.38
1	209.33	166000.00	993.71	1028.74	1019.27	1029.69	0.000899	7.80	21270.94	1587.64	0.38
1	209.24	166000.00	1003.00	1027.66	1023.98	1029.02	0.001727	7.87	18344.79	3253.98	0.49
1	209.24	166000.00	1003.00	1027.66	1023.92	1029.02	0.001734	7.96	18239.16	1837.81	0.49
1	209.14	166000.00	1002.87	1026.71	1023.36	1028.02	0.002090	8.18	18290.09	2920.93	0.52
1	209.14	166000.00	1002.87	1026.71	1023.40	1028.02	0.002087	8.24	18278.28	2040.18	0.52
1	209.04	166000.00	1007.02	1026.13	1021.52	1027.00	0.001479	7.60	22163.77	2880.33	0.45
1	209.04	166000.00	1007.02	1026.13	1021.52	1027.00	0.001471	7.67	22150.92	2229.68	0.44
1	208.95	166000.00	997.33	1025.59	1018.20	1026.45	0.000833	7.47	22432.89	2457.62	0.36
1	208.95	166000.00	997.33	1025.59	1018.20	1026.45	0.000833	7.47	22433.54	1796.52	0.36
1	208.85	166000.00	998.88	1024.64	1020.18	1025.85	0.001531	8.84	19085.01	2504.30	0.47
1	208.85	166000.00	998.88	1024.65	1020.18	1025.85	0.001528	8.84	19096.89	1908.89	0.47
1	208.75	166000.00	1000.44	1024.13	1017.95	1025.18	0.001097	8.24	20173.12	2367.88	0.43
1	208.75	166000.00	1000.44	1024.14	1017.95	1025.19	0.001096	8.24	20147.45	1732.34	0.43
1	208.67	166000.00	1003.03	1022.73	1019.08	1024.33	0.001929	10.25	16637.54	2042.32	0.54
1	208.67	166000.00	1003.03	1022.74	1019.08	1024.34	0.001922	10.24	16656.62	1612.42	0.54
1	208.57	166000.00	1002.61	1020.28	1018.75	1023.02	0.003954	13.29	12521.77	1408.87	0.77
1	208.57	166000.00	1002.61	1020.30	1018.75	1023.03	0.003935	13.27	12508.58	1338.24	0.76
1	208.48	166000.00	998.70	1019.79	1016.90	1021.03	0.002142	8.93	18579.98	2180.85	0.54
1	208.48	166000.00	998.70	1019.83	1016.90	1021.06	0.002110	8.89	18664.64	2181.00	0.54
1	208.39	166000.00	998.71	1018.93	1015.86	1020.12	0.001995	8.76	18953.92	2230.78	0.53
1	208.39	166000.00	998.71	1018.99	1015.86	1020.16	0.001951	8.70	19085.91	2231.08	0.52
1	208.29	166000.00	1002.85	1017.77	1014.93	1019.02	0.002276	8.97	18505.57	2265.26	0.55
1	208.29	166000.00	1002.85	1017.89	1014.93	1019.10	0.002173	8.84	18768.40	2265.55	0.54
1	208.19	166000.00	1001.01	1016.78	1013.70	1017.86	0.001975	8.31	19979.46	2467.04	0.51
1	208.19	166000.00	1001.01	1016.97	1013.70	1018.00	0.001848	8.12	20442.17	2484.58	0.50
1	208.10	166000.00	999.34	1015.82	1012.76	1016.87	0.001845	8.57	20756.91	2840.42	0.51
1	208.10	166000.00	999.34	1016.12	1012.76	1017.09	0.001634	8.23	21591.61	2790.37	0.48

HEC-RAS Plan: PostPrj River: 1 Reach: 1 (Continued)

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
1	207.99	166000.00	996.98	1014.47	1012.00	1015.86	0.002225	9.93	18376.68	2515.31	0.56
1	207.99	166000.00	996.98	1014.96	1011.99	1016.21	0.001889	9.43	19328.08	2625.07	0.52
1	207.90	166000.00	991.51	1013.80	1010.85	1014.78	0.001713	8.45	21572.66	2938.81	0.49
1	207.90	166000.00	991.51	1014.50	1010.85	1015.31	0.001299	7.72	23686.78	3027.09	0.43
1	207.80	166000.00	992.47	1012.20	1009.50	1013.72	0.001994	10.68	18131.66	2391.44	0.55
1	207.80	166000.00	992.47	1012.87	1009.36	1014.40	0.001834	10.58	17851.93	2093.48	0.53
1	207.71	166000.00	992.51	1010.84	1008.26	1012.64	0.002165	11.51	16812.95	2121.42	0.58
1	207.71	166000.00	992.51	1011.34	1008.53	1013.35	0.002198	11.88	15793.05	1893.18	0.60
1	207.62	166000.00	990.12	1010.06	1007.03	1011.65	0.001612	11.09	17790.25	1909.13	0.51
1	207.62	166000.00	990.12	1010.12	1007.20	1012.29	0.002044	12.52	15011.23	1444.32	0.58
1	207.49	166000.00	984.35	1009.45	1005.21	1010.81	0.001643	9.35	17760.44	1888.79	0.49
1	207.49	166000.00	984.35	1009.97	1005.21	1011.21	0.001415	8.93	18589.04	1661.94	0.46
1	207.485	Bridge									
1	207.48	166000.00	984.35	1008.36	1005.21	1010.03	0.002306	10.36	16016.13	1589.66	0.58
1	207.48	166000.00	984.35	1009.13	1005.21	1010.57	0.001814	9.63	17236.84	1595.08	0.52
1	207.43	166000.00	983.56	1007.83	1004.49	1009.49	0.002236	10.32	16148.90	1660.26	0.57
1	207.43	166000.00	983.56	1008.74	1004.49	1010.13	0.001701	9.49	17493.35	1569.10	0.50
1	207.34	166000.00	983.49	1007.54	1000.99	1008.60	0.000956	8.30	20174.96	1583.79	0.39
1	207.34	166000.00	983.49	1008.48	1000.97	1009.43	0.000791	7.85	21155.80	1422.33	0.36
1	207.27	166000.00	982.68	1007.12	997.48	1008.19	0.000668	8.37	20628.88	1449.48	0.34
1	207.27	166000.00	982.68	1008.07	997.48	1009.08	0.000587	8.07	20566.80	1047.92	0.32
1	207.16	166000.00	969.66	1007.50	986.51	1007.86	0.000127	4.91	37551.92	2625.39	0.16
1	207.16	166000.00	969.66	1008.40	986.51	1008.78	0.000126	4.98	33336.06	1107.07	0.16
1	207.07	166000.00	992.80	1004.30	1004.30	1007.37	0.005272	15.04	12709.44	2121.27	0.86
1	207.07	166000.00	992.80	1004.74	1004.74	1008.25	0.005422	15.68	11728.65	1710.74	0.88
1	206.97	166000.00	981.70	1003.73	995.22	1004.80	0.000773	8.53	21352.60	2153.01	0.36
1	206.97	166000.00	981.70	1004.63	995.22	1005.77	0.000760	8.62	19950.52	1567.64	0.36
1	206.88	166000.00	981.80	1003.59	993.27	1004.41	0.000528	7.55	24354.50	2551.40	0.31
1	206.88	166000.00	981.80	1004.48	993.27	1005.39	0.000533	7.71	22622.29	1800.86	0.31
1	206.79	166000.00	981.80	1003.43	992.85	1004.13	0.000488	6.93	26343.78	3026.51	0.29
1	206.79	166000.00	981.80	1004.34	992.85	1005.10	0.000478	7.08	24760.10	1934.31	0.29
1	206.7	166000.00	981.80	1003.32	994.04	1003.85	0.000441	6.03	29831.77	3518.68	0.27
1	206.7	166000.00	981.80	1004.25	994.04	1004.82	0.000429	6.14	27986.52	2093.13	0.27
1	206.6	166000.00	981.80	1002.90	996.86	1003.56	0.000710	6.91	26877.21	3305.80	0.33
1	206.6	166000.00	981.80	1003.79	996.68	1004.54	0.000695	7.14	24927.56	2185.35	0.33
1	206.51	166000.00	981.80	1002.02	998.52	1003.04	0.001348	8.99	22111.25	4076.37	0.45
1	206.51	166000.00	981.80	1002.84	999.19	1004.02	0.001341	9.36	20116.29	2060.75	0.46
1	206.41	166000.00	982.50	1001.41	997.88	1002.32	0.001436	8.71	23370.94	3862.05	0.46
1	206.41	166000.00	982.50	1002.21	998.36	1003.30	0.001435	9.12	20569.79	2190.50	0.47
1	206.32	166000.00	982.80	1000.76	997.04	1001.56	0.001495	8.05	24553.57	3961.10	0.46
1	206.32	166000.00	982.80	1001.56	997.90	1002.55	0.001498	8.50	21191.37	2377.93	0.47
1	206.22	166000.00	983.00	999.83	996.54	1000.70	0.001855	8.54	24922.30	3819.75	0.52
1	206.22	166000.00	983.00	1000.69	996.71	1001.72	0.001734	8.70	21236.13	2441.77	0.51
1	206.13	166000.00	984.60	998.84		999.71	0.002097	8.44	24241.50	3610.69	0.52
1	206.13	166000.00	984.60	999.43		1000.66	0.002539	9.44	19323.79	2386.31	0.57
1	206.03	166000.00	984.50	997.19	995.40	998.47	0.002920	10.04	20468.71	3627.33	0.61
1	206.03	166000.00	984.50	997.37	995.41	999.15	0.003548	11.22	16111.43	2131.13	0.67
1	205.94	166000.00	981.00	996.28	992.36	997.17	0.001782	8.09	23804.66	3972.87	0.48
1	205.94	166000.00	981.00	996.85	992.30	997.71	0.001519	7.77	22932.78	2567.00	0.45

HEC-RAS Plan: PostPrj River: 1 Reach: 1 (Continued)

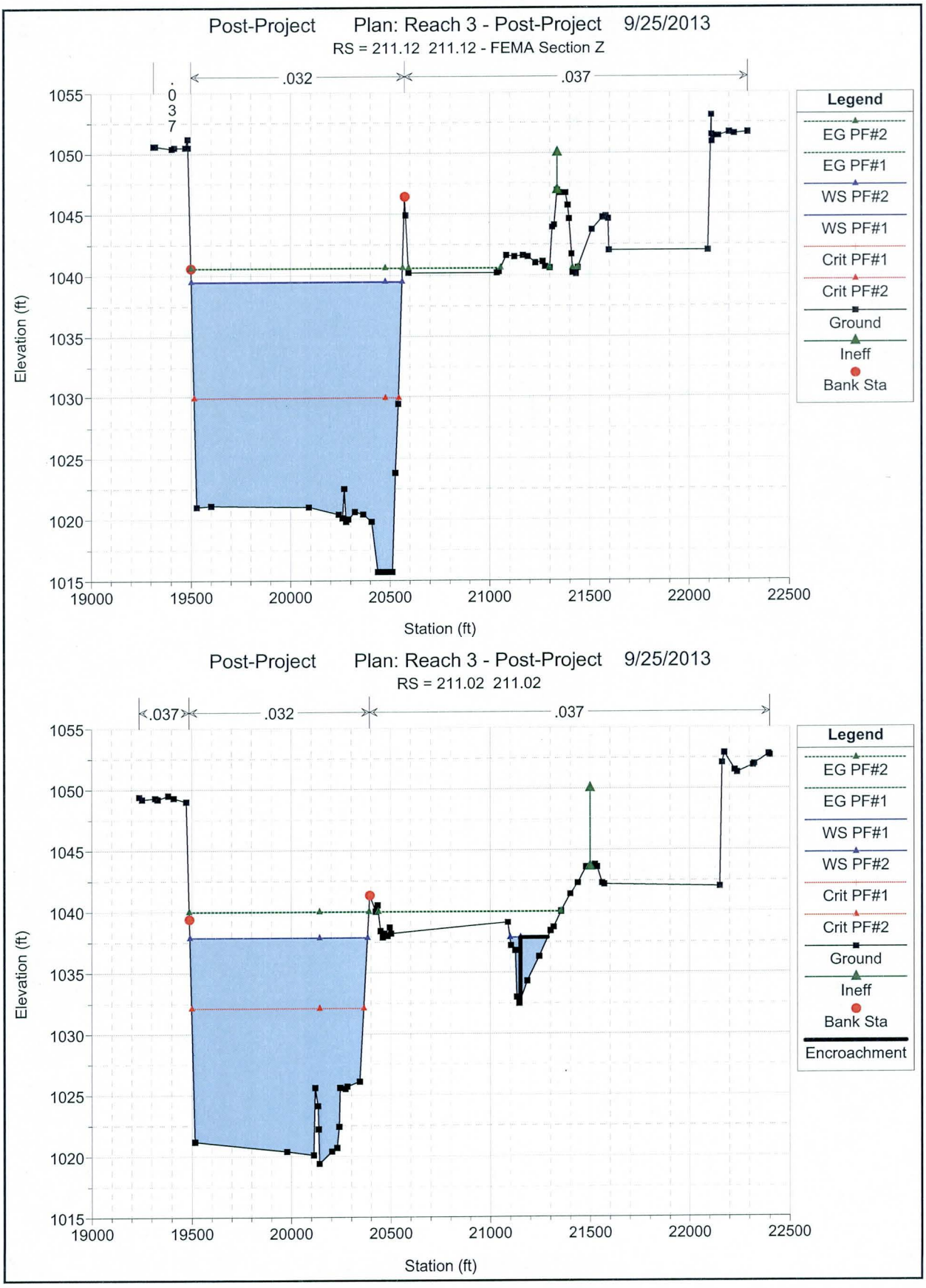
Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
1	205.84	166000.00	979.50	995.78	991.10	996.43	0.001006	6.80	27802.52	3933.88	0.38
1	205.84	166000.00	979.50	996.39	991.10	997.06	0.000928	6.78	25657.05	2435.70	0.36
1	205.75	166000.00	973.90	995.10	989.59	995.78	0.001766	6.71	25677.68	3323.85	0.37
1	205.75	166000.00	973.90	995.83	989.59	996.48	0.001497	6.46	25689.44	2402.30	0.35
1	205.62	166000.00	976.00	994.55	988.70	995.07	0.000680	5.99	30115.70	4036.31	0.31
1	205.62	166000.00	976.00	995.25	988.65	995.85	0.000671	6.18	26878.39	2234.10	0.31
1	205.52	166000.00	975.90	994.29	987.07	994.75	0.000496	5.67	33142.23	4244.89	0.28
1	205.52	166000.00	975.90	994.95	987.28	995.53	0.000543	6.12	27121.18	2019.90	0.29
1	205.43	166000.00	976.10	994.00	986.93	994.50	0.000544	6.04	31497.11	3841.68	0.29
1	205.43	166000.00	976.10	994.53	986.96	995.24	0.000647	6.76	24572.45	1842.37	0.33
1	205.4	164000.00	975.50	993.99	984.67	994.40	0.000362	5.41	35918.39	4097.71	0.24
1	205.4	164000.00	975.50	994.56	984.67	995.10	0.000413	5.90	27793.38	1747.80	0.26
1	205.34	164000.00	975.57	993.64	986.68	994.20	0.001005	6.45	29523.69	7348.85	0.30
1	205.34	164000.00	975.57	993.98	986.65	994.85	0.001336	7.53	22084.53	1562.96	0.35
1	205.25	164000.00	973.40	993.26	985.26	993.82	0.000623	6.64	30541.15	4512.59	0.28
1	205.25	164000.00	973.40	993.49	985.16	994.34	0.000817	7.64	22668.13	1482.30	0.32
1	205.15	164000.00	973.10	991.76	987.66	993.21	0.002039	10.40	19449.29	3049.28	0.49
1	205.15	164000.00	973.10	992.25	987.65	993.69	0.001819	10.06	17454.60	1445.00	0.47
1	205.06	164000.00	970.50	990.85	984.95	992.22	0.001875	9.62	18539.88	2210.68	0.47
1	205.06	164000.00	970.50	991.36	984.95	992.79	0.001795	9.65	17328.48	1435.30	0.46
1	204.97	164000.00	973.30	990.56	984.97	991.30	0.001134	7.35	24819.05	3736.09	0.36
1	204.97	164000.00	973.30	990.76	985.05	991.87	0.001485	8.49	19457.05	1516.30	0.42
1	204.87	164000.00	968.10	990.19	982.94	990.80	0.000767	6.60	27860.69	3635.74	0.31
1	204.87	164000.00	968.10	990.37	982.85	991.20	0.000942	7.37	22409.55	1542.20	0.34
1	204.78	164000.00	967.60	990.01	980.93	990.45	0.000477	5.68	31874.88	4837.51	0.25
1	204.78	164000.00	967.60	990.13	980.78	990.77	0.000611	6.47	25928.85	1620.43	0.28
1	204.68	164000.00	971.40	989.36	982.91	990.10	0.000903	7.28	24862.56	3375.81	0.33
1	204.68	164000.00	971.40	989.32	982.81	990.31	0.001151	8.21	21000.50	1586.28	0.38
1	204.61	164000.00	972.60	988.59	983.53	989.64	0.001360	8.79	20900.84	7282.60	0.41
1	204.61	164000.00	972.60	988.62	983.47	989.78	0.001462	9.12	19542.28	1602.90	0.42
1	204.53	164000.00	972.70	987.68	982.99	988.93	0.001814	9.22	18844.19	4061.16	0.46
1	204.53	164000.00	972.70	987.68	982.94	989.03	0.001919	9.48	18005.97	1610.90	0.47
1	204.42	164000.00	971.40	986.40	982.76	987.76	0.002432	9.40	17715.45	2778.70	0.51
1	204.42	164000.00	971.40	986.38	982.73	987.81	0.002531	9.57	17129.48	1653.57	0.52
1	204.34	164000.00	969.30	985.28	981.45	986.65	0.002470	9.39	17462.96	2452.20	0.52
1	204.34	164000.00	969.30	985.29	981.45	986.66	0.002469	9.38	17480.30	1701.99	0.52
1	204.25	164000.00	969.22	980.90	980.90	984.46	0.007742	15.13	10836.44	1993.93	1.00
1	204.25	164000.00	969.22	980.89	980.89	984.46	0.007809	15.17	10810.89	1516.99	1.00
1	204.15	164000.00	966.00	981.17	975.82	982.09	0.001058	7.72	21240.76	2149.48	0.40
1	204.15	164000.00	966.00	981.18	975.82	982.11	0.001059	7.71	21274.63	1831.89	0.40
1	204.05	164000.00	965.00	980.27	976.80	981.39	0.001759	8.49	19320.37	2116.76	0.50
1	204.05	164000.00	965.00	980.29	976.80	981.41	0.001744	8.47	19370.37	2116.76	0.49
1	203.96	164000.00	964.10	977.71	976.71	979.86	0.005220	11.77	13938.65	2225.53	0.80
1	203.96	164000.00	964.10	977.98	976.71	979.97	0.004601	11.33	14478.25	2050.76	0.75
1	203.86	164000.00	962.30	977.81	971.84	978.53	0.000902	6.82	24032.73	2201.58	0.36
1	203.86	164000.00	962.30	978.06	971.84	978.75	0.000838	6.67	24588.83	2191.78	0.35
1	203.77	164000.00	963.30	977.43	971.58	978.06	0.000873	6.37	25746.39	2518.56	0.35
1	203.77	164000.00	963.30	977.72	971.58	978.32	0.000799	6.19	26473.99	2511.27	0.34
1	203.67	164000.00	962.30	976.93	971.58	977.61	0.000940	6.66	25646.21	3648.91	0.37

HEC-RAS Plan: PostPrj River: 1 Reach: 1 (Continued)

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
1	203.67	164000.00	962.30	977.23	971.58	977.89	0.000885	6.58	25407.91	2567.43	0.36
1	203.58	164000.00	962.10	976.47	971.52	977.14	0.000945	6.64	25340.30	4630.96	0.37
1	203.58	164000.00	962.10	976.81	971.52	977.46	0.000858	6.46	25597.65	2676.39	0.36
1	203.48	164000.00	962.20	975.92	972.02	976.58	0.001248	6.66	25618.08	4863.77	0.41
1	203.48	164000.00	962.20	976.25	971.97	976.94	0.001196	6.68	24567.80	2911.71	0.40
1	203.39	164000.00	959.90	975.23	971.15	975.93	0.001331	6.81	24862.43	4207.76	0.42
1	203.39	164000.00	959.90	975.62	971.10	976.32	0.001254	6.69	24520.14	2930.05	0.41
1	203.29	164000.00	960.70	974.46	970.77	975.20	0.001572	6.98	24302.16	4967.77	0.45
1	203.29	164000.00	960.70	974.88	970.71	975.63	0.001478	6.94	23633.34	3009.26	0.44
1	203.19	164000.00	956.70	973.59	970.04	974.28	0.001787	6.81	25046.62	3491.38	0.42
1	203.19	164000.00	956.70	973.95	970.04	974.74	0.001849	7.13	23041.46	2689.14	0.43
1	203.09	164000.00	958.70	972.42	969.19	973.25	0.002112	7.51	23337.60	3213.89	0.46
1	203.09	164000.00	958.70	972.75	968.97	973.69	0.002162	7.79	21163.56	2475.85	0.46
1	202.99	164000.00	959.20	971.50	967.56	972.24	0.001726	7.08	24615.47	3260.60	0.42
1	202.99	164000.00	959.20	971.87	967.53	972.66	0.001673	7.15	22949.27	2457.50	0.41
1	202.9	164000.00	956.50	970.92	966.33	971.52	0.001285	6.37	27288.47	3419.52	0.36
1	202.9	164000.00	956.50	971.28	966.26	971.95	0.001315	6.59	24881.66	2511.71	0.37
1	202.8	164000.00	956.40	970.32	965.61	970.84	0.001157	5.94	29050.37	3577.40	0.34
1	202.8	164000.00	956.40	970.64	965.52	971.25	0.001223	6.25	26258.33	2620.78	0.35
1	202.69	164000.00	953.70	969.50	965.26	970.12	0.001416	6.45	27011.89	3716.99	0.37
1	202.69	164000.00	953.70	969.79	965.27	970.49	0.001483	6.73	24379.59	2553.41	0.38
1	202.59	164000.00	953.70	968.55	964.73	969.23	0.001710	6.76	25201.38	3795.64	0.40
1	202.59	164000.00	953.70	968.77	964.70	969.56	0.001832	7.10	23099.83	2606.65	0.42
1	202.48	164000.00	952.50	967.66	963.72	968.30	0.001617	6.64	26503.22	3830.22	0.40
1	202.48	164000.00	952.50	967.77	963.79	968.54	0.001789	7.04	23415.23	2826.14	0.42
1	202.37	164000.00	954.60	966.79	962.77	967.38	0.001487	6.30	27725.82	4026.46	0.39
1	202.37	164000.00	954.60	966.82	963.06	967.52	0.001673	6.70	24843.07	3165.40	0.41
1	202.29	164000.00	955.50	966.51	961.30	966.88	0.000809	4.90	34227.32	4327.50	0.29
1	202.29	164000.00	955.50	966.59	961.30	966.97	0.000812	4.93	33283.39	3605.60	0.29
1	202.18	164000.00	950.00	965.70	961.75	966.23	0.001545	5.88	28639.20	4356.13	0.38
1	202.18	164000.00	950.00	965.77	961.75	966.31	0.001559	5.94	27619.54	3692.06	0.38
1	202.09	164000.00	950.00	964.09	961.98	965.01	0.003848	7.74	21594.75	4052.05	0.57
1	202.09	164000.00	950.00	964.16	961.95	965.09	0.003803	7.75	21163.39	3682.20	0.57
1	201.99	164000.00	948.70	963.29	958.65	963.87	0.001252	6.13	27234.15	5331.46	0.38
1	201.99	164000.00	948.70	963.38	958.65	963.96	0.001241	6.12	26811.01	3219.77	0.37
1	201.9	164000.00	947.20	962.94	957.27	963.35	0.000785	5.15	31873.70	5241.54	0.31
1	201.9	164000.00	947.20	963.05	957.27	963.45	0.000756	5.08	32284.29	3830.97	0.31
1	201.81	164000.00	946.00	962.64	955.84	962.99	0.000619	4.79	34251.95	5916.44	0.28
1	201.81	164000.00	946.00	962.75	955.84	963.10	0.000597	4.73	34684.20	3650.46	0.27
1	201.71	164000.00	946.00	961.87	958.21	962.46	0.001826	6.22	26658.13	8308.19	0.40
1	201.71	164000.00	946.00	961.98	958.21	962.58	0.001807	6.24	26277.29	3415.69	0.40
1	201.62	164000.00	945.60	961.15	956.72	961.66	0.001385	5.78	28773.37	7614.80	0.35
1	201.62	164000.00	945.60	961.28	956.72	961.80	0.001343	5.74	28552.62	3241.81	0.34
1	201.52	164000.00	940.90	960.41	955.39	960.87	0.001854	5.50	30263.04	8984.51	0.33
1	201.52	164000.00	940.90	960.53	955.39	961.02	0.001898	5.61	29242.62	3382.85	0.34
1	201.43	164000.00	941.30	959.46	954.87	960.01	0.001619	5.99	27971.80	6526.99	0.37
1	201.43	164000.00	941.30	959.60	954.87	960.15	0.001604	6.00	27334.01	3288.24	0.37
1	201.33	164000.00	943.00	958.44	954.88	959.06	0.002024	6.40	26135.11	5745.25	0.41
1	201.33	164000.00	943.00	958.60	954.88	959.23	0.001959	6.36	25785.53	3307.45	0.40

HEC-RAS Plan: PostPrj River: 1 Reach: 1 (Continued)

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
1	201.24	164000.00	943.00	957.46	953.61	958.06	0.001852	6.23	26885.10	6935.04	0.40
1	201.24	164000.00	943.00	957.66	953.61	958.26	0.001790	6.21	26420.07	3500.08	0.40
1	201.14	164000.00	940.40	956.91	952.08	957.32	0.001090	5.20	32069.34	8631.33	0.31
1	201.14	164000.00	940.40	957.15	952.08	957.55	0.001017	5.10	32150.13	3680.58	0.30
1	201.05	164000.00	941.50	956.49	950.99	956.80	0.000974	4.50	37110.44	9249.94	0.26
1	201.05	164000.00	941.50	956.74	950.99	957.06	0.000928	4.48	36618.90	3898.52	0.26
1	200.95	164000.00	939.80	956.09	949.86	956.38	0.000668	4.33	39057.14	10045.22	0.25
1	200.95	164000.00	939.80	956.38	949.86	956.66	0.000629	4.27	38407.73	4001.09	0.24
1	200.86	164000.00	938.50	955.63	949.69	955.94	0.001346	4.48	37607.63	11080.59	0.27
1	200.86	164000.00	938.50	955.94	949.69	956.24	0.001276	4.46	36762.91	4032.00	0.26
1	200.77	164000.00	936.90	955.02	949.21	955.35	0.000950	4.62	36840.73	11449.90	0.28
1	200.77	164000.00	936.90	955.38	949.21	955.70	0.000875	4.52	36283.86	4122.20	0.27
1	200.67	164000.00	939.80	954.42	948.98	954.80	0.001288	4.96	33784.71	10368.24	0.30
1	200.67	164000.00	939.80	954.84	948.98	955.20	0.001158	4.82	34281.14	4009.30	0.28
1	200.58	164000.00	937.60	953.76	948.29	954.14	0.001313	5.04	33541.77	10091.02	0.30
1	200.58	164000.00	937.60	954.23	948.29	954.60	0.001187	4.91	33793.59	3940.00	0.28
1	200.49	164000.00	936.90	953.28	946.97	953.59	0.000940	4.59	37370.44	10978.11	0.26
1	200.49	164000.00	936.90	953.77	946.97	954.10	0.000893	4.59	36178.07	3791.00	0.25
1	200.39	164000.00	937.00	952.89	946.26	953.17	0.000739	4.35	39814.10	11315.74	0.24
1	200.39	164000.00	937.00	953.40	946.26	953.70	0.000702	4.37	38317.51	3741.00	0.23
1	200.3	179750.00	937.70	952.12	947.18	952.61	0.001603	5.79	36487.07	9118.91	0.34
1	200.3	179750.00	937.70	952.73	947.17	953.18	0.001382	5.57	36217.73	3683.53	0.31
1	200.2	179750.00	937.00	951.10	946.78	951.67	0.002027	6.37	35619.57	11857.73	0.37
1	200.2	179750.00	937.00	951.83	946.77	952.38	0.001732	6.15	34725.75	3629.00	0.35
1	200.1	179750.00	934.50	950.19	945.22	950.66	0.001730	5.74	37659.50	11254.10	0.32
1	200.1	179750.00	934.50	951.11	945.22	951.53	0.001392	5.36	38392.25	3770.00	0.29
1	200	179750.00	933.40	949.74	944.16	950.01	0.000864	4.29	44537.34	11193.60	0.24
1	200	179750.00	933.40	950.70	944.16	950.98	0.000792	4.23	42550.11	4100.00	0.23
1	199.91	179750.00	932.10	949.39	943.36	949.60	0.000668	3.83	50254.95	10846.61	0.22
1	199.91	179750.00	932.10	950.39	943.36	950.61	0.000573	3.75	48102.12	4530.00	0.20
1	199.82	179750.00	931.20	948.90	943.28	949.09	0.002007	3.30	51778.97	10752.57	0.19
1	199.82	179750.00	931.20	949.90	943.25	950.14	0.002185	3.68	47698.04	4780.00	0.20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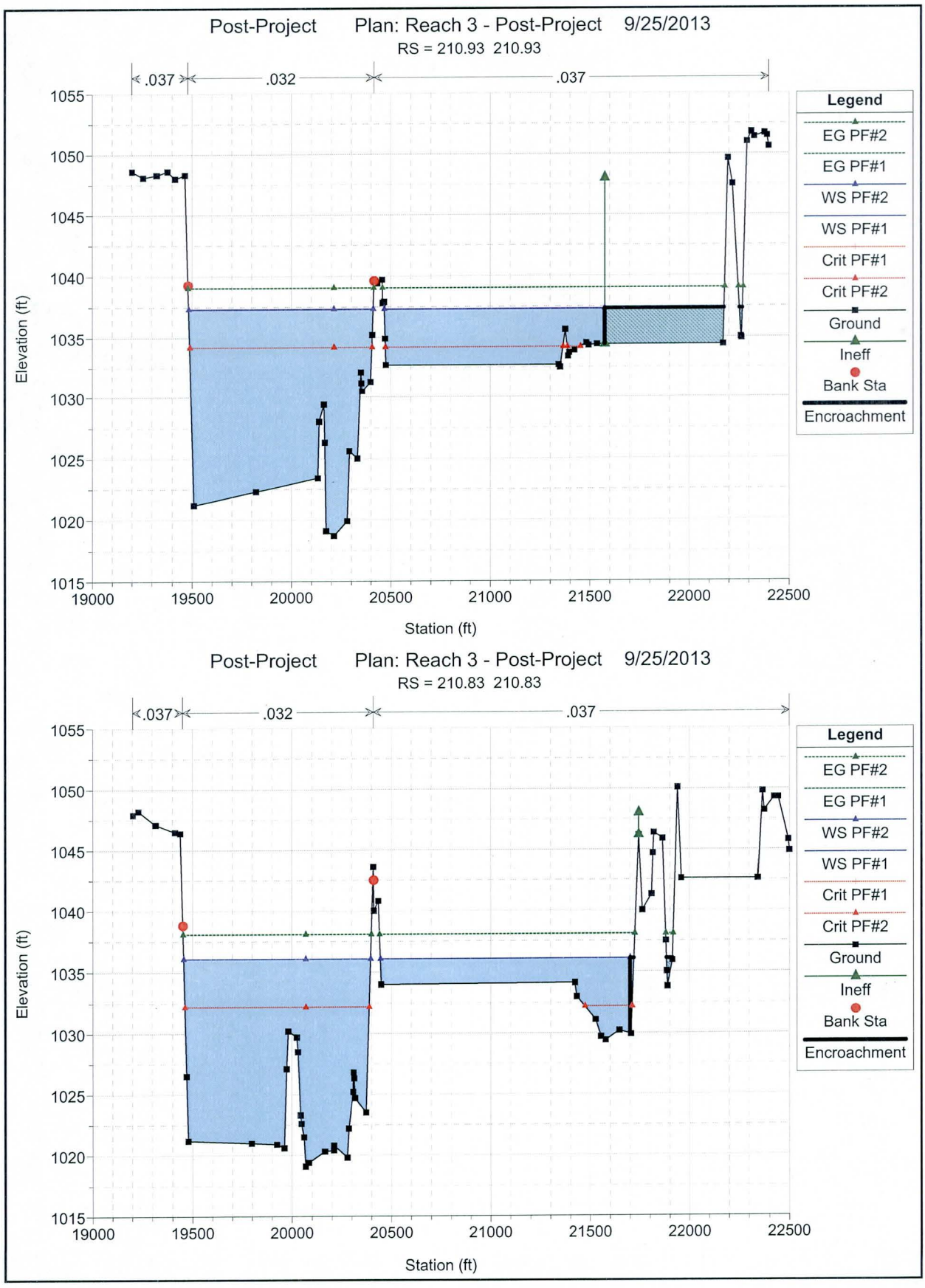
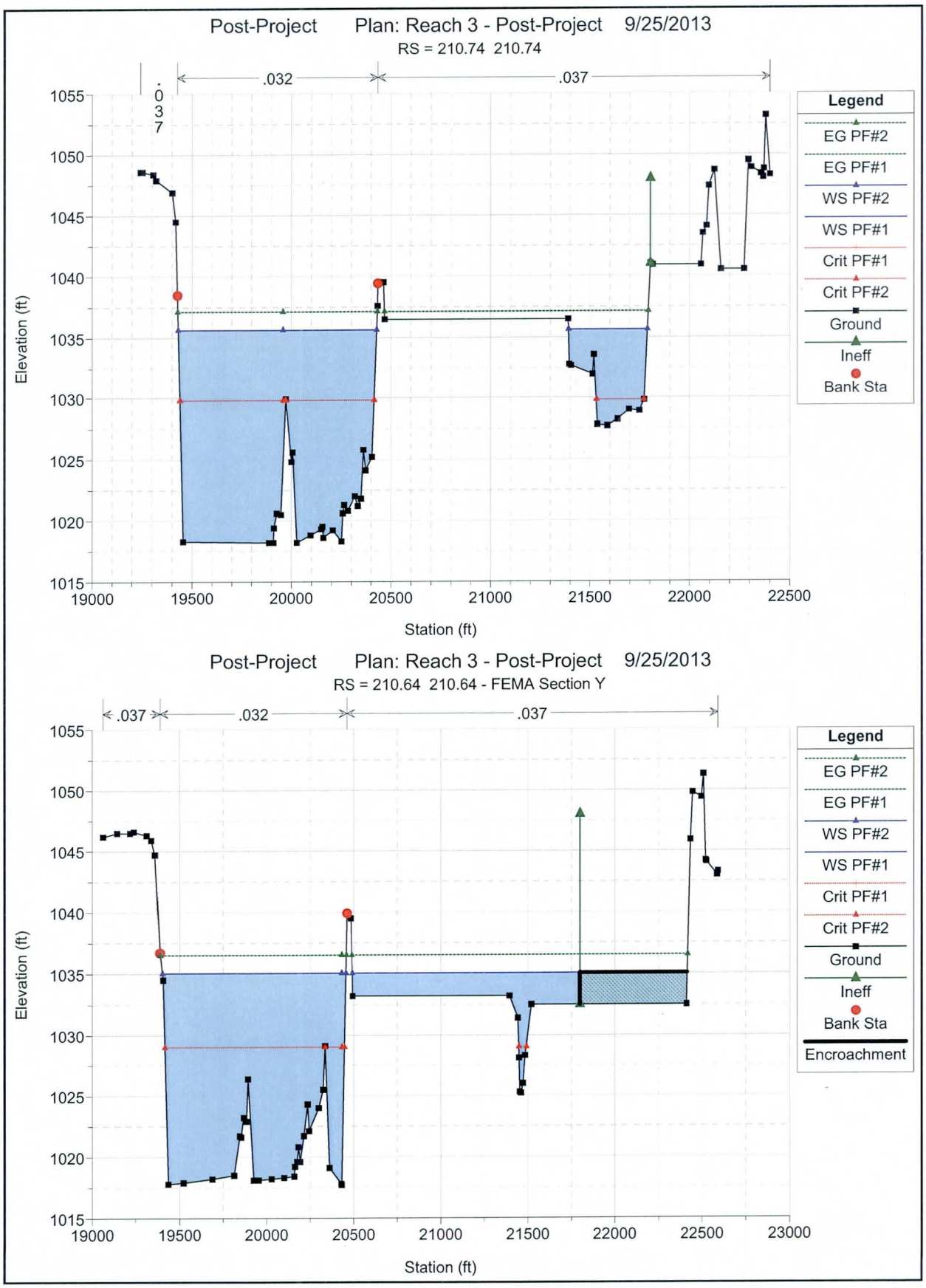
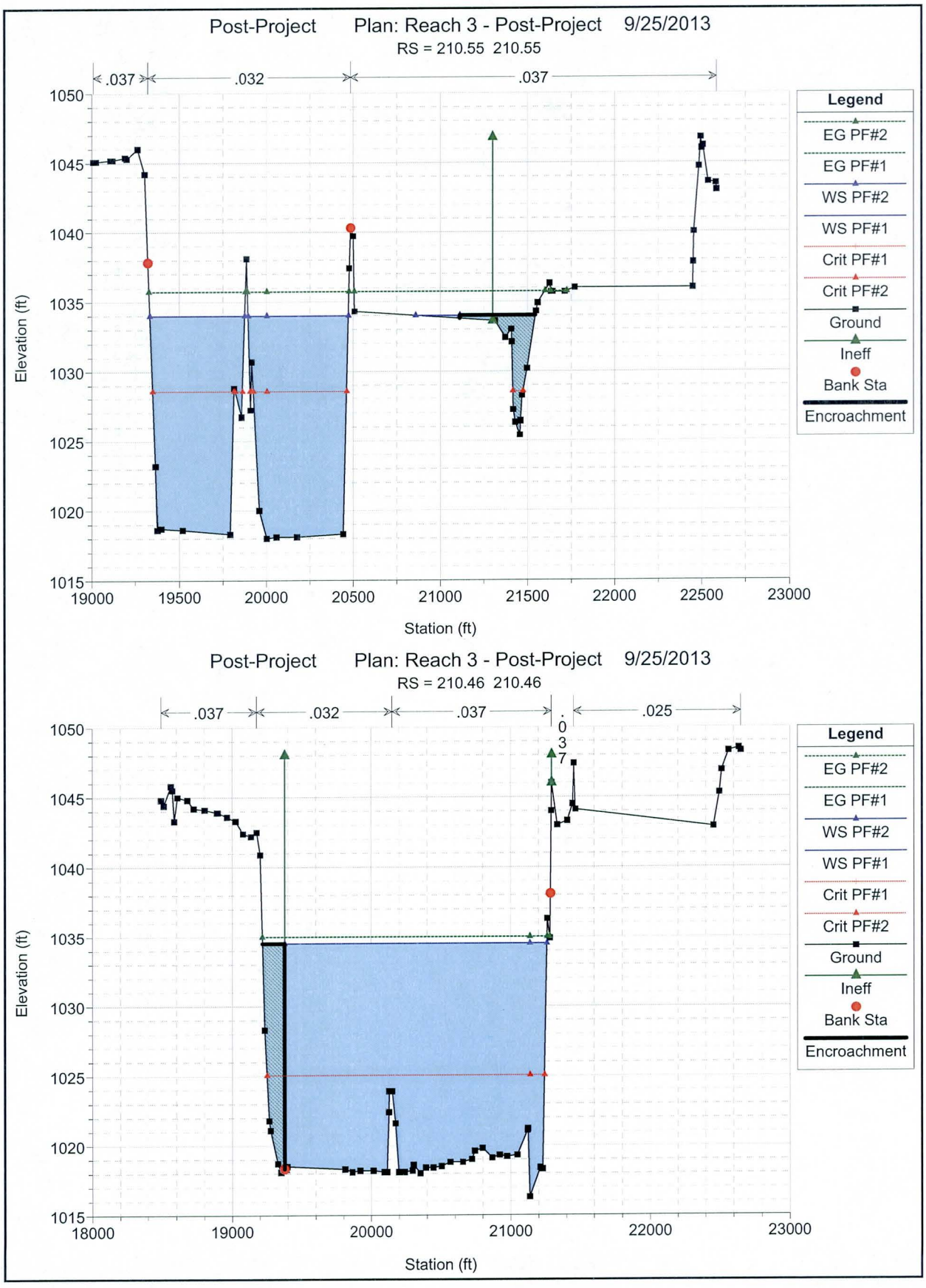
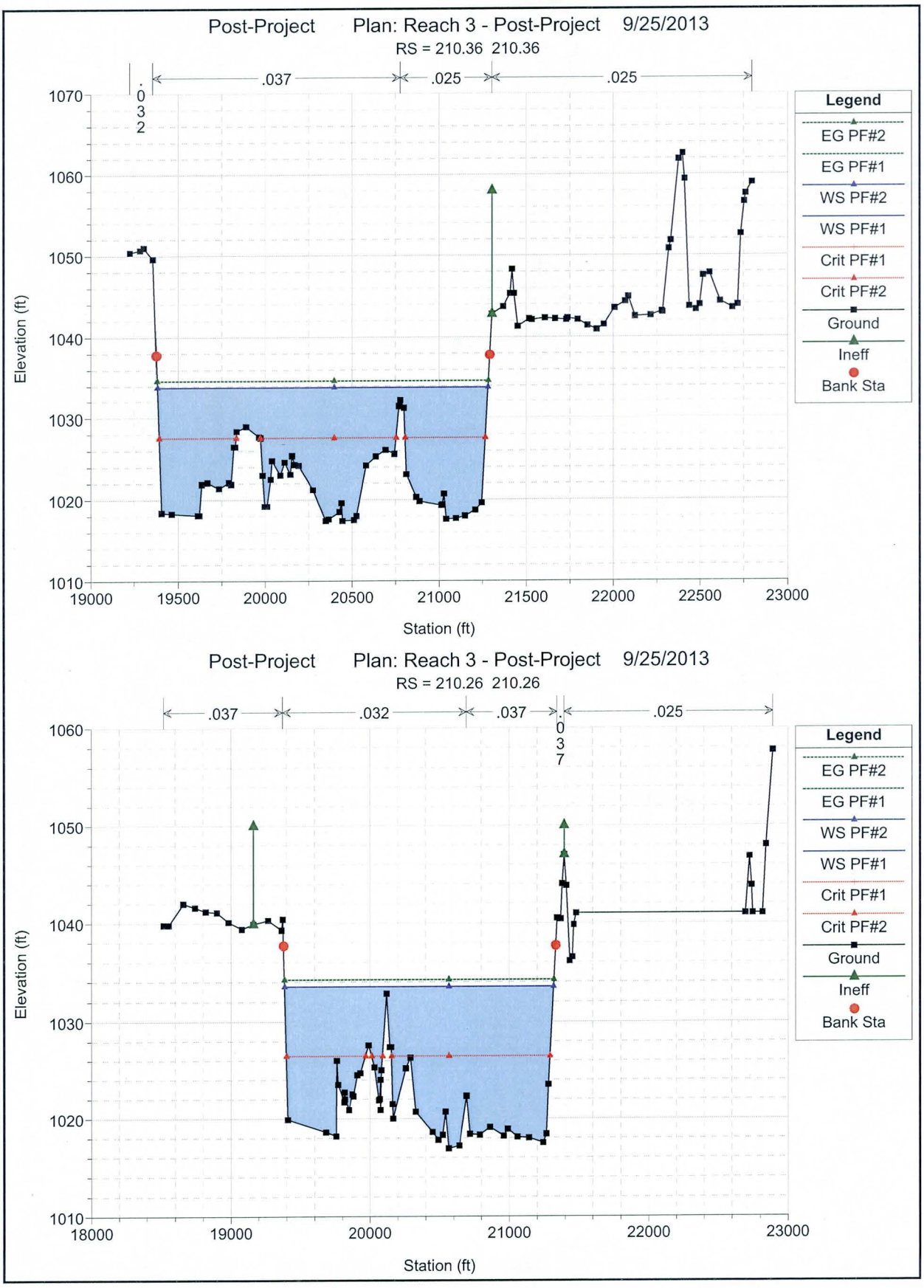
RS = 211.12 211.12 - FEMA Section Z
.037
.032
.037
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Post-Project Plan: Reach 3 - Post-Project 9/25/2013
RS = 211.02 211.02
.037
.032
.037
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#1
WS PF#2
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment


Post-Project Plan: Reach 3 - Post-Project 9/25/2013
RS = 210.93 210.93
.037
.032
.037
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Post-Project Plan: Reach 3 - Post-Project 9/25/2013
RS = 210.83 210.83
.037
.032
.037
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment


Post-Project Plan: Reach 3 - Post-Project 9/25/2013
RS = 210.74 210.74
.037
.032
.037
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Post-Project Plan: Reach 3 - Post-Project 9/25/2013
RS = 210.64 210.64 - FEMA Section Y
.037
.032
.037
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment


Post-Project Plan: Reach 3 - Post-Project 9/25/2013
RS = 210.55 210.55
.037
.032
.037
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
1050
1045
1040
1035
1030
1025
1020
1015
19000
19500
20000
20500
21000
21500
22000
22500
23000
Post-Project Plan: Reach 3 - Post-Project 9/25/2013
RS = 210.46 210.46
.037
.032
.037
.037
.025
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
1050
1045
1040
1035
1030
1025
1020
1015
18000
19000
20000
21000
22000
23000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.025
.025
.032
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
1070
1060
1050
1040
1030
1020
1010
19000
19500
20000
20500
21000
21500
22000
22500
23000
Post-Project Plan: Reach 3 - Post-Project 9/25/2013
RS = 210.26 210.26
.037
.032
.037
.025
.037
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
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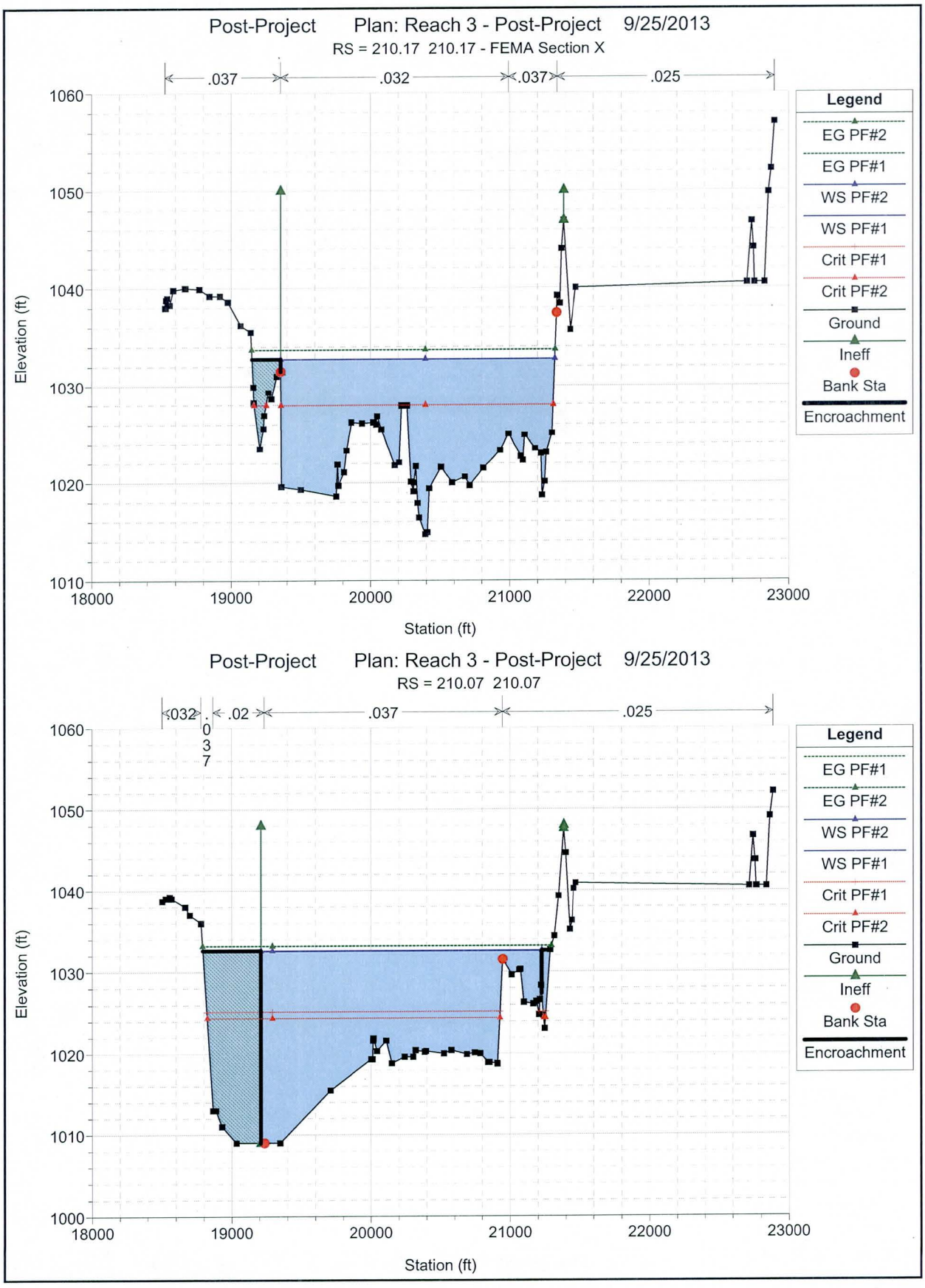
1050
1040
1030
1020
1010
18000
19000
20000
21000
22000
23000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.032
.037
.025
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
1060
1050
1040
1030
1020
1010
18000
19000
20000
21000
22000
23000
Post-Project Plan: Reach 3 - Post-Project 9/25/2013
RS = 210.07 210.07
.032
.037
.02
.037
.025
Legend
EG PF#1
EG PF#2
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
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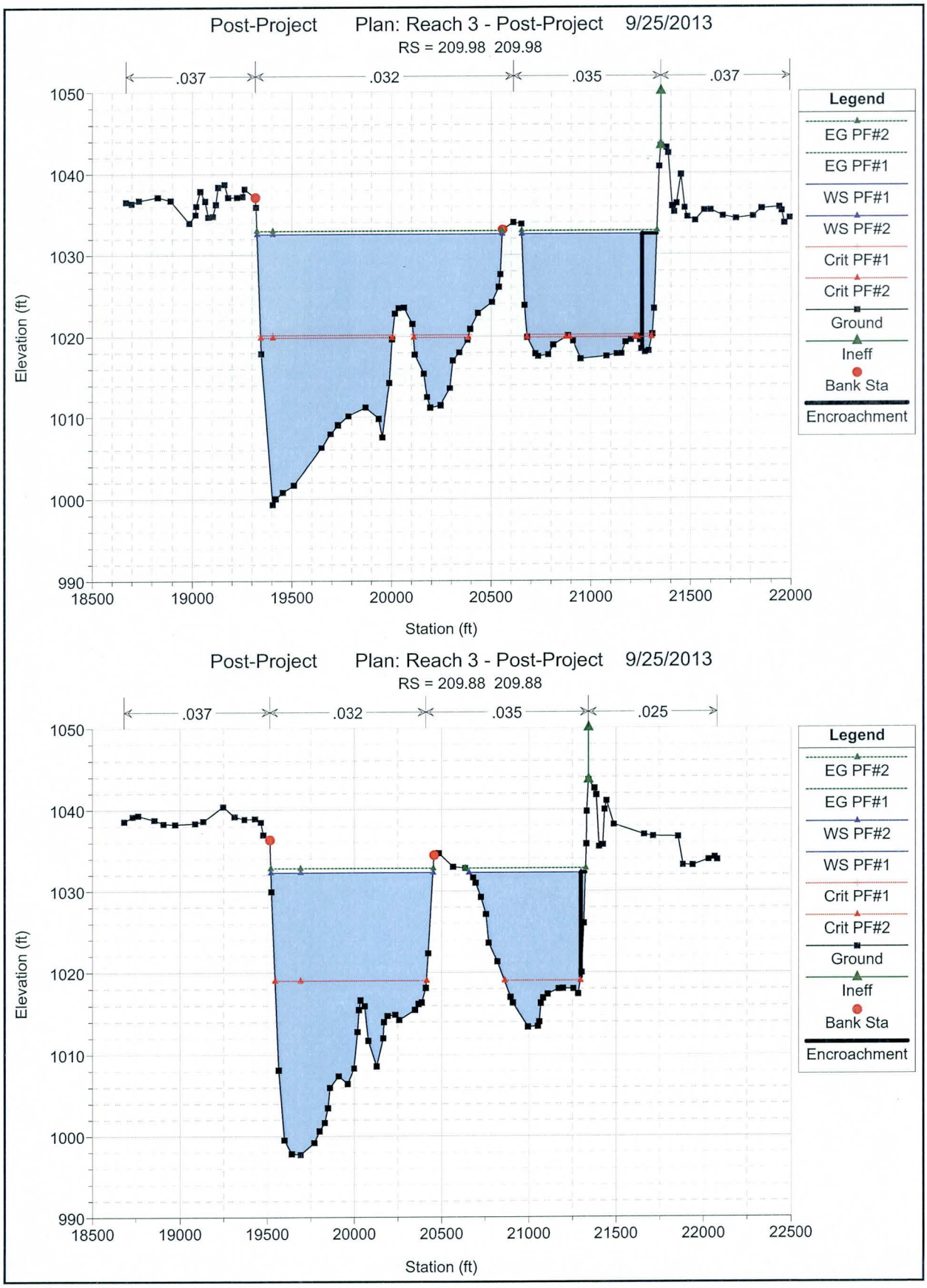
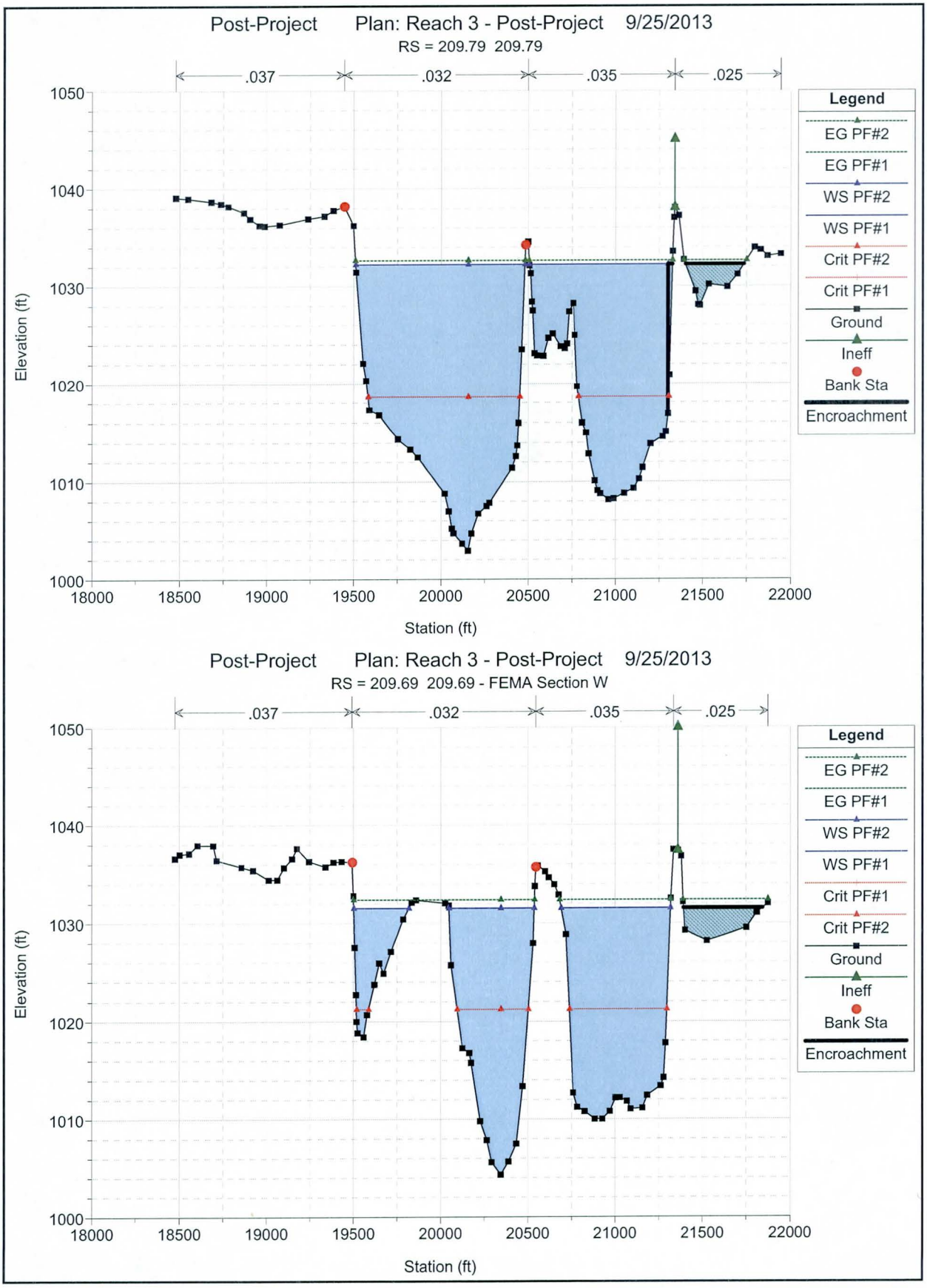
1050
1040
1030
1020
1010
1000
18000
19000
20000
21000
22000
23000


Post-Project Plan: Reach 3 - Post-Project 9/25/2013
RS = 209.98 209.98
.037
.032
.035
.037
Legend
EG PF#2
EG PF#1
WS PF#1
WS PF#2
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
Post-Project Plan: Reach 3 - Post-Project 9/25/2013
RS = 209.88 209.88
.037
.032
.035
.025
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)


Post-Project Plan: Reach 3 - Post-Project 9/25/2013
RS = 209.79 209.79
.037
.032
.035
.025
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#2
Crit PF#1
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
1050
1040
1030
1020
1010
1000
18000
18500
19000
19500
20000
20500
21000
21500
22000
Post-Project Plan: Reach 3 - Post-Project 9/25/2013
RS = 209.69 209.69 - FEMA Section W
.037
.032
.035
.025
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
1050
1040
1030
1020
1010
1000
18000
18500
19000
19500
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21000
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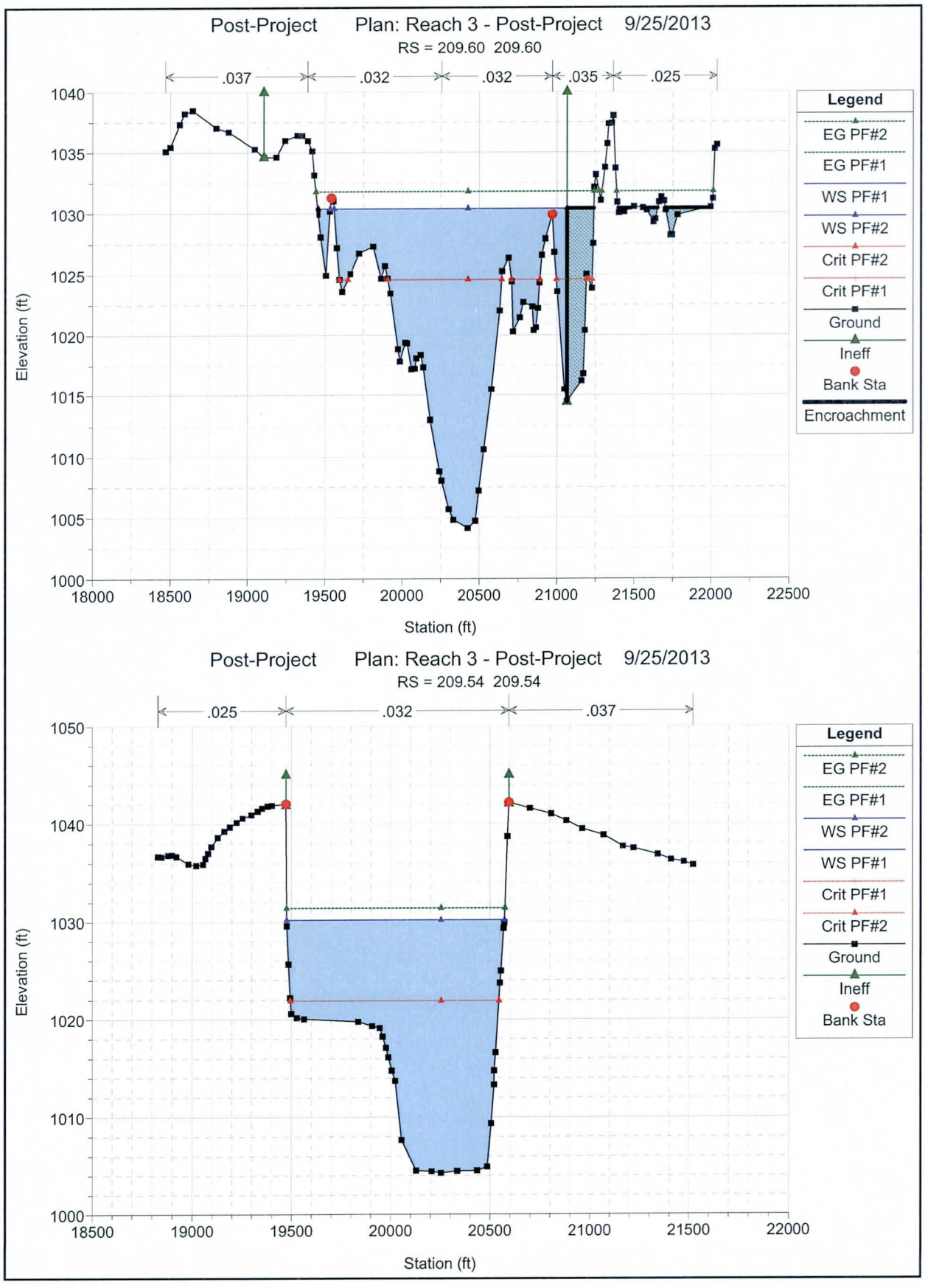
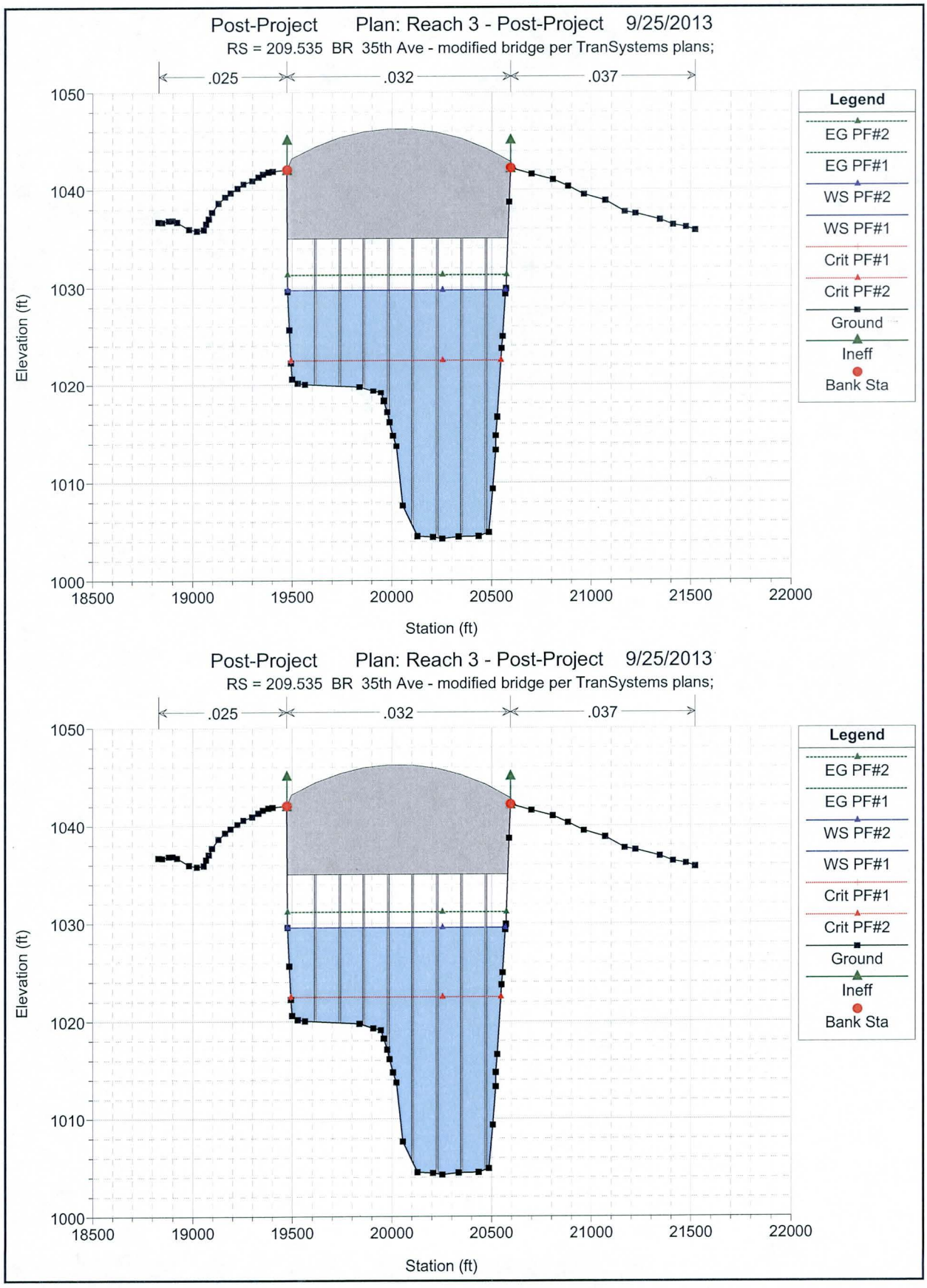
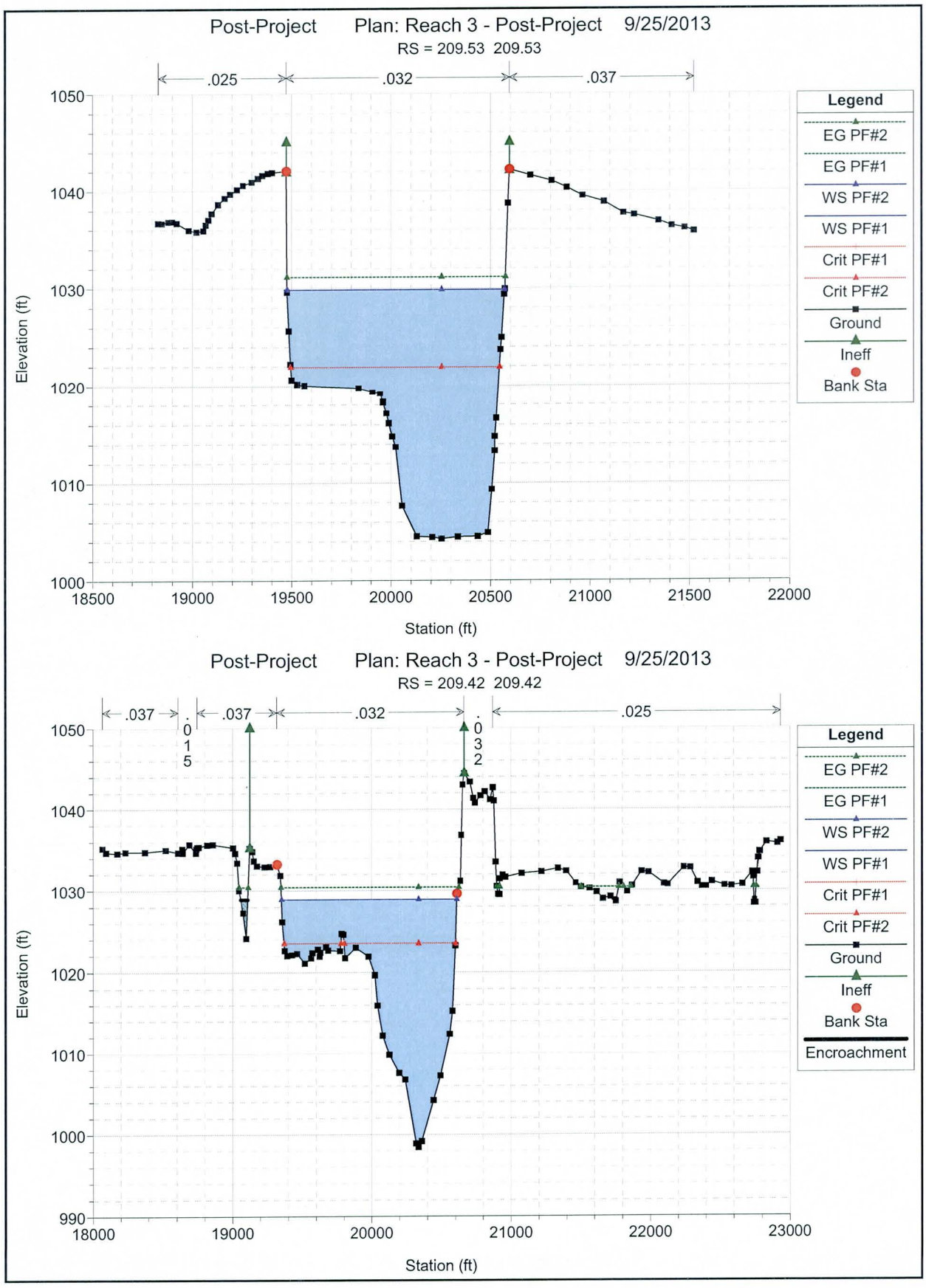
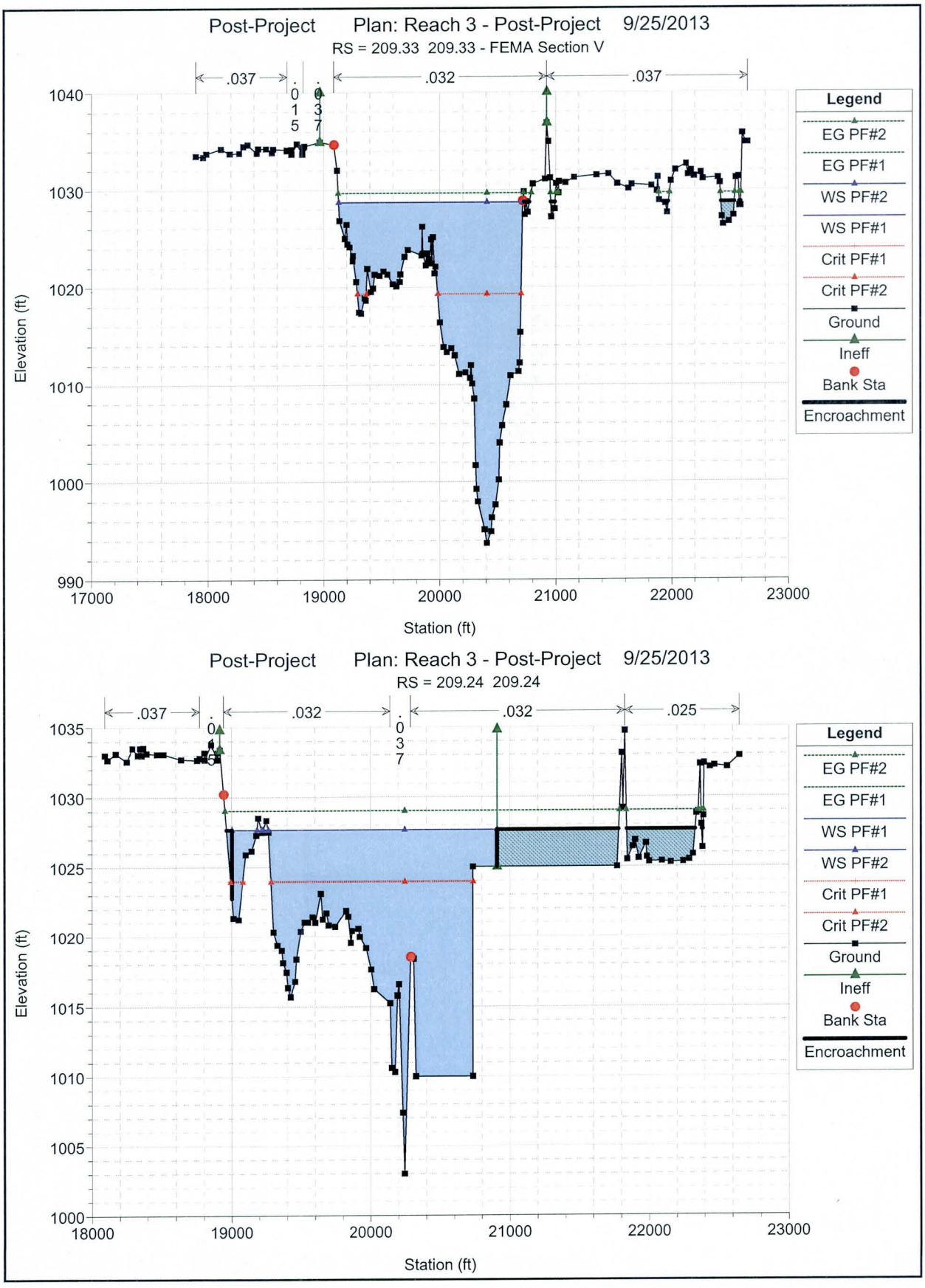
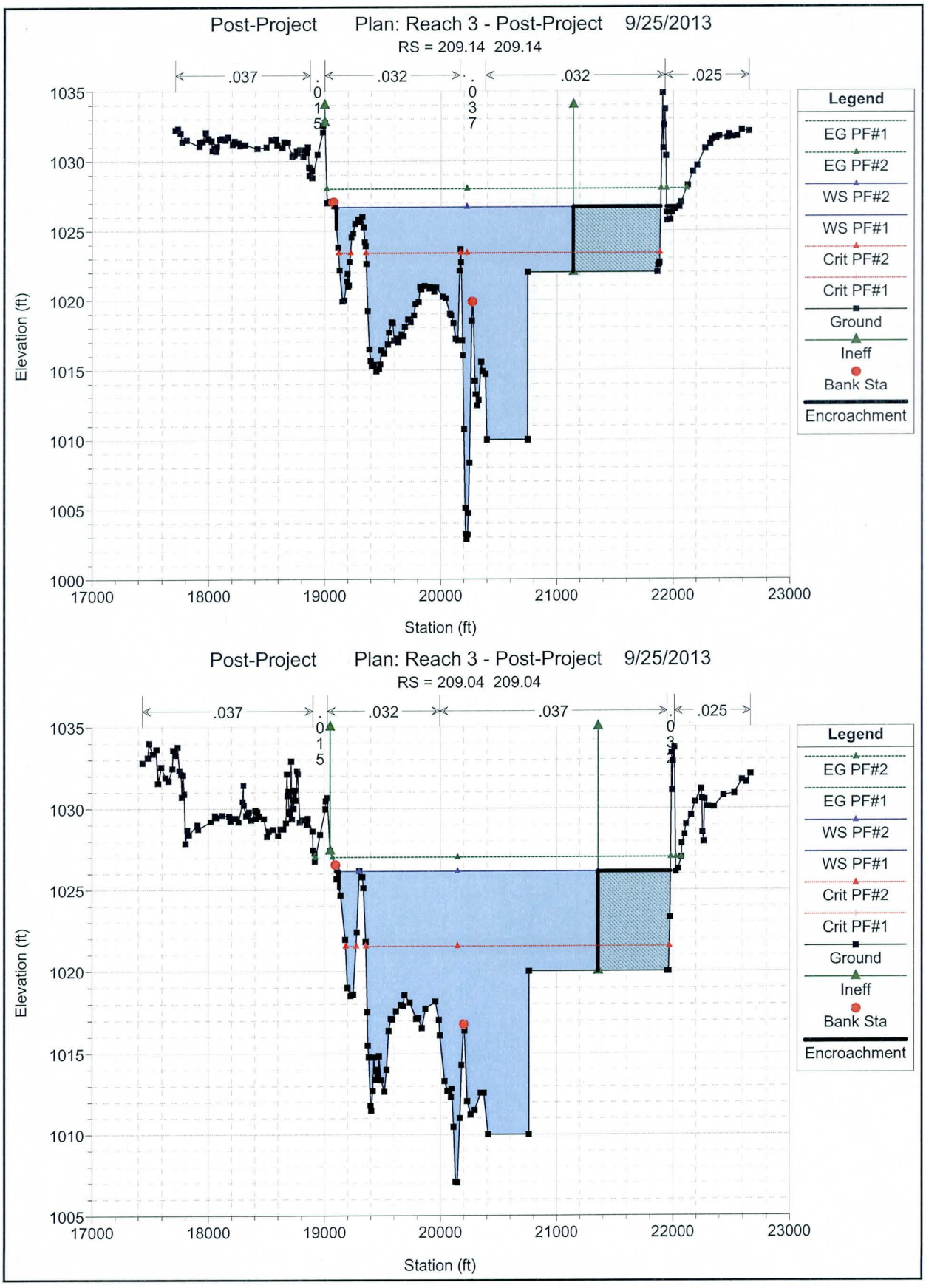
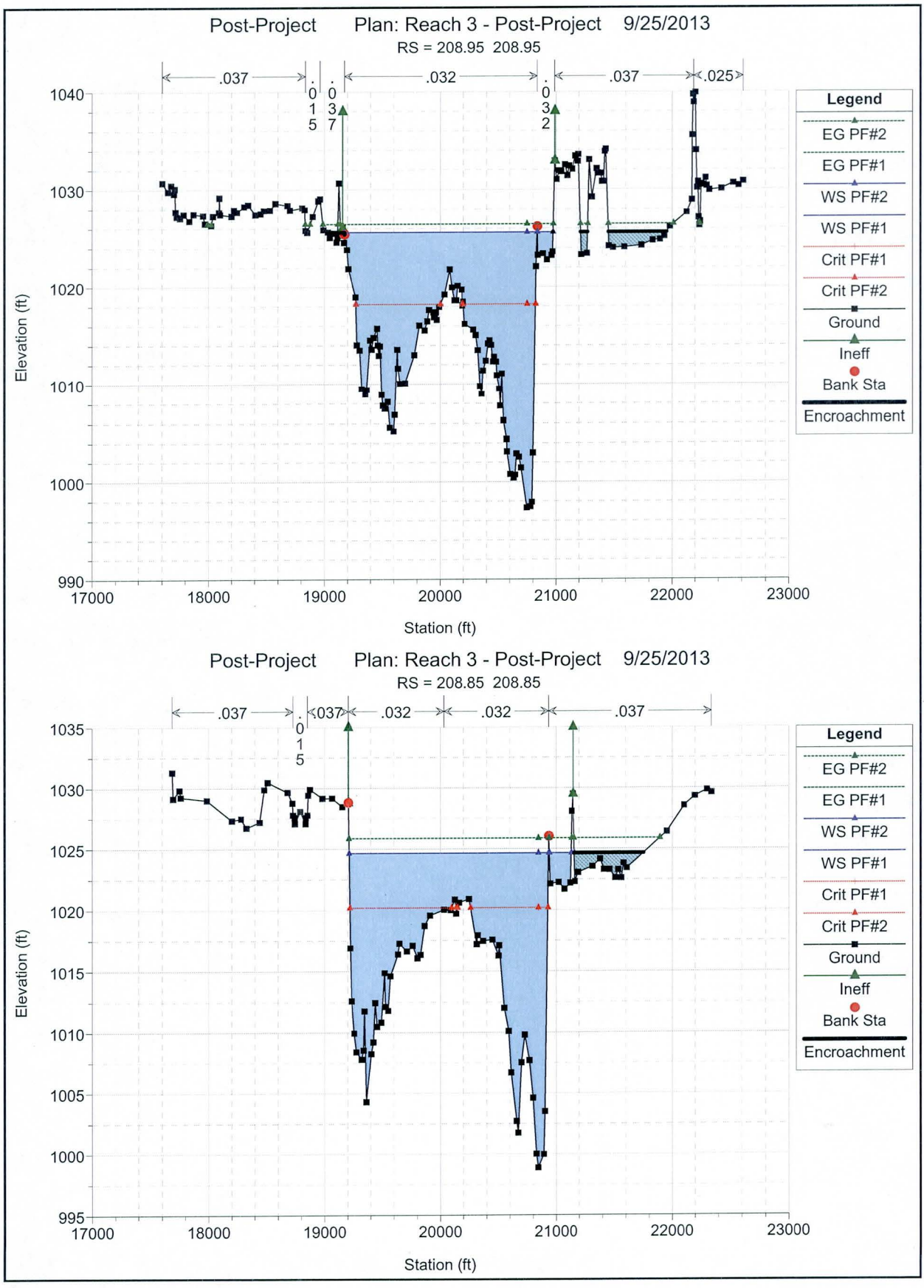

Post-Project
Plan: Reach 3 - Post-Project
9/25/2013
RS = 209.60 209.60
.037
.032
.032
.035
.025
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#1
WS PF#2
Crit PF#2
Crit PF#1
Ground
Ineff
Bank Sta
Encroachment
Post-Project
Plan: Reach 3 - Post-Project
9/25/2013
RS = 209.54 209.54
.025
.032
.037
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta

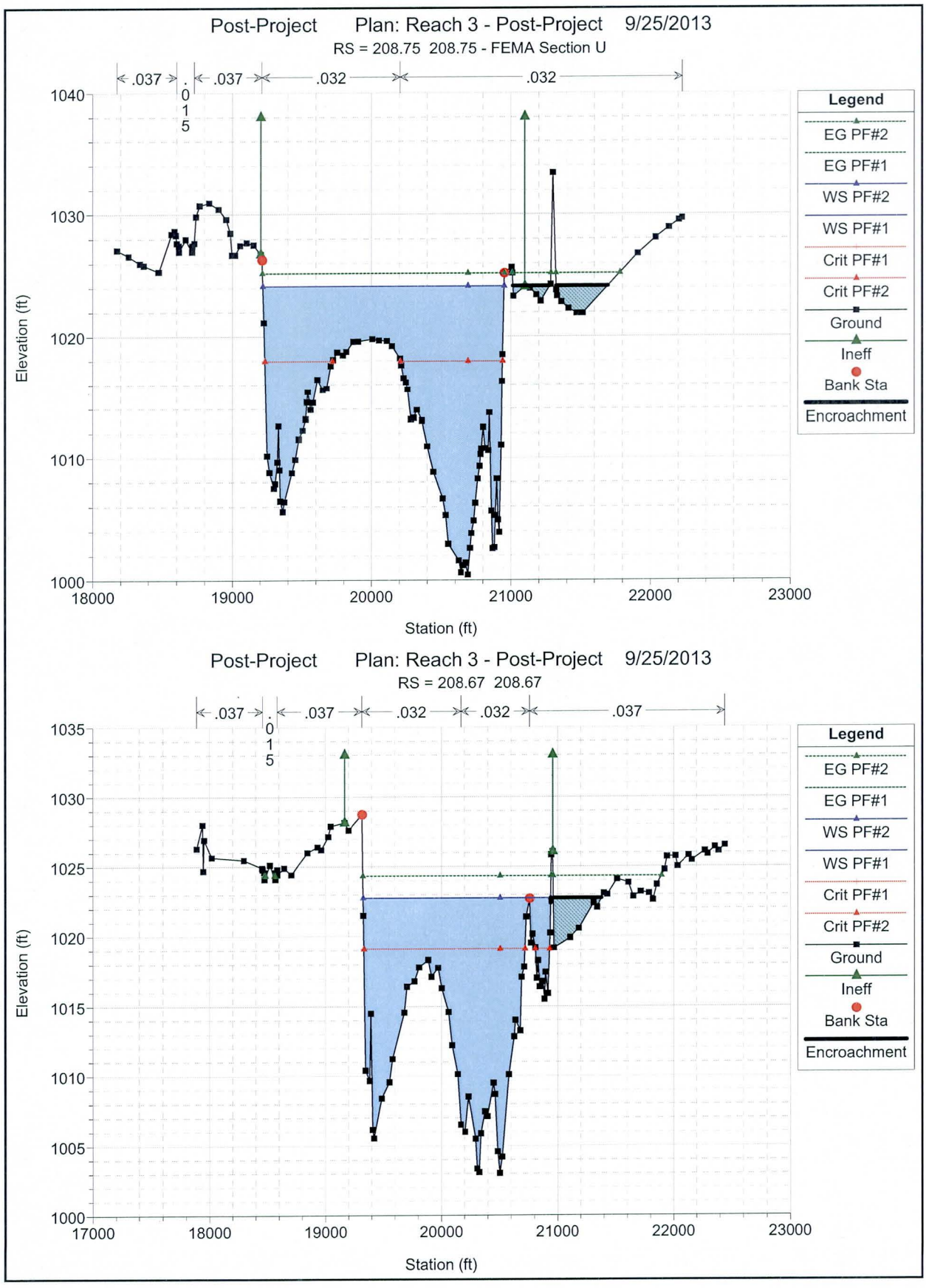

Post-Project Plan: Reach 3 - Post-Project 9/25/2013
RS = 209.535 BR 35th Ave - modified bridge per TranSystems plans;
.025
.032
.037
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
1050
1040
1030
1020
1010
1000
18500
19000
19500
20000
20500
21000
21500
22000
Post-Project Plan: Reach 3 - Post-Project 9/25/2013
RS = 209.535 BR 35th Ave - modified bridge per TranSystems plans;
.025
.032
.037
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

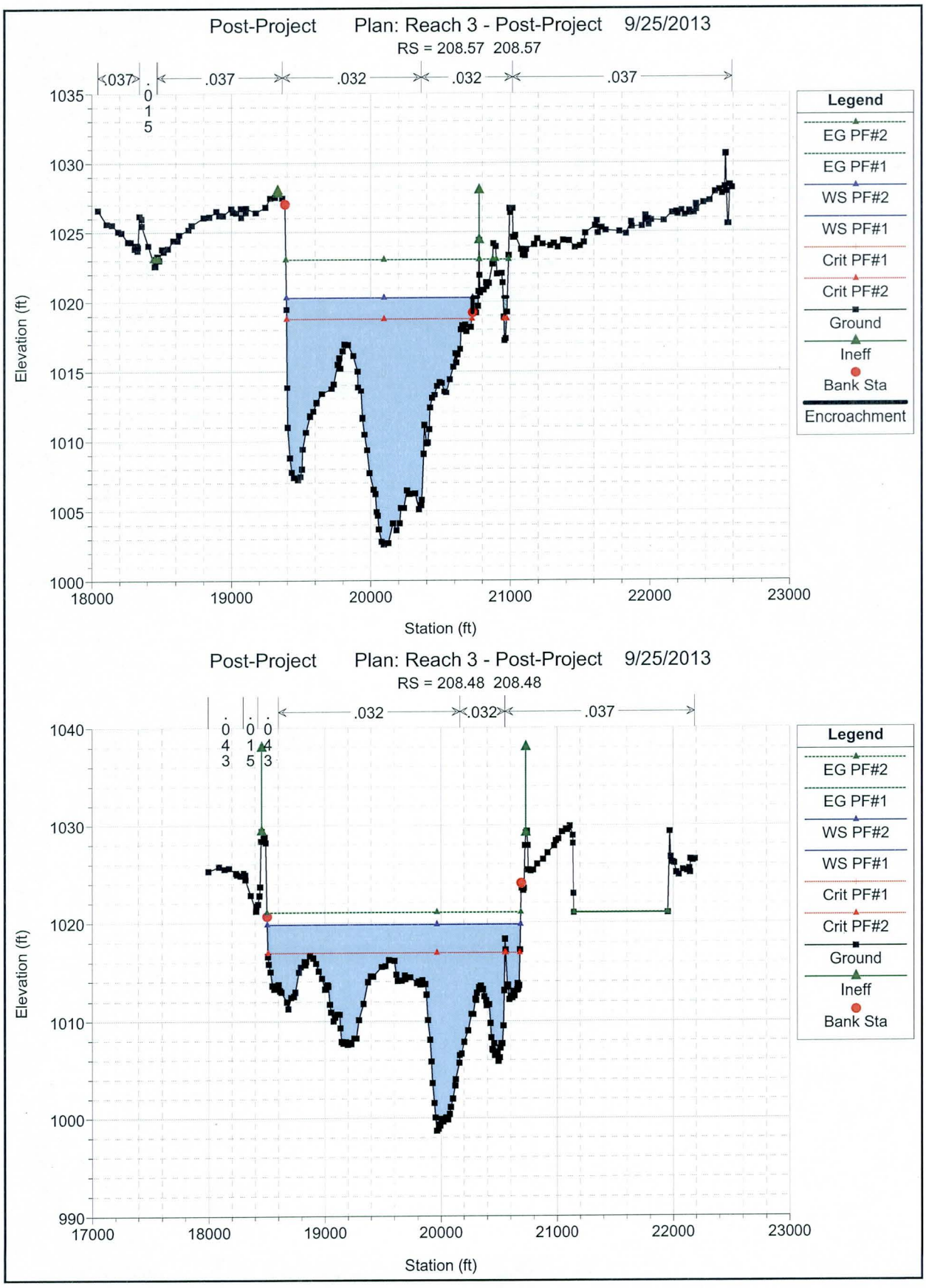

Post-Project
Plan: Reach 3 - Post-Project
9/25/2013
RS = 209.53 209.53
.025
.032
.037
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Post-Project
Plan: Reach 3 - Post-Project
9/25/2013
RS = 209.42 209.42
.037
.015
.037
.032
.032
.025
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment

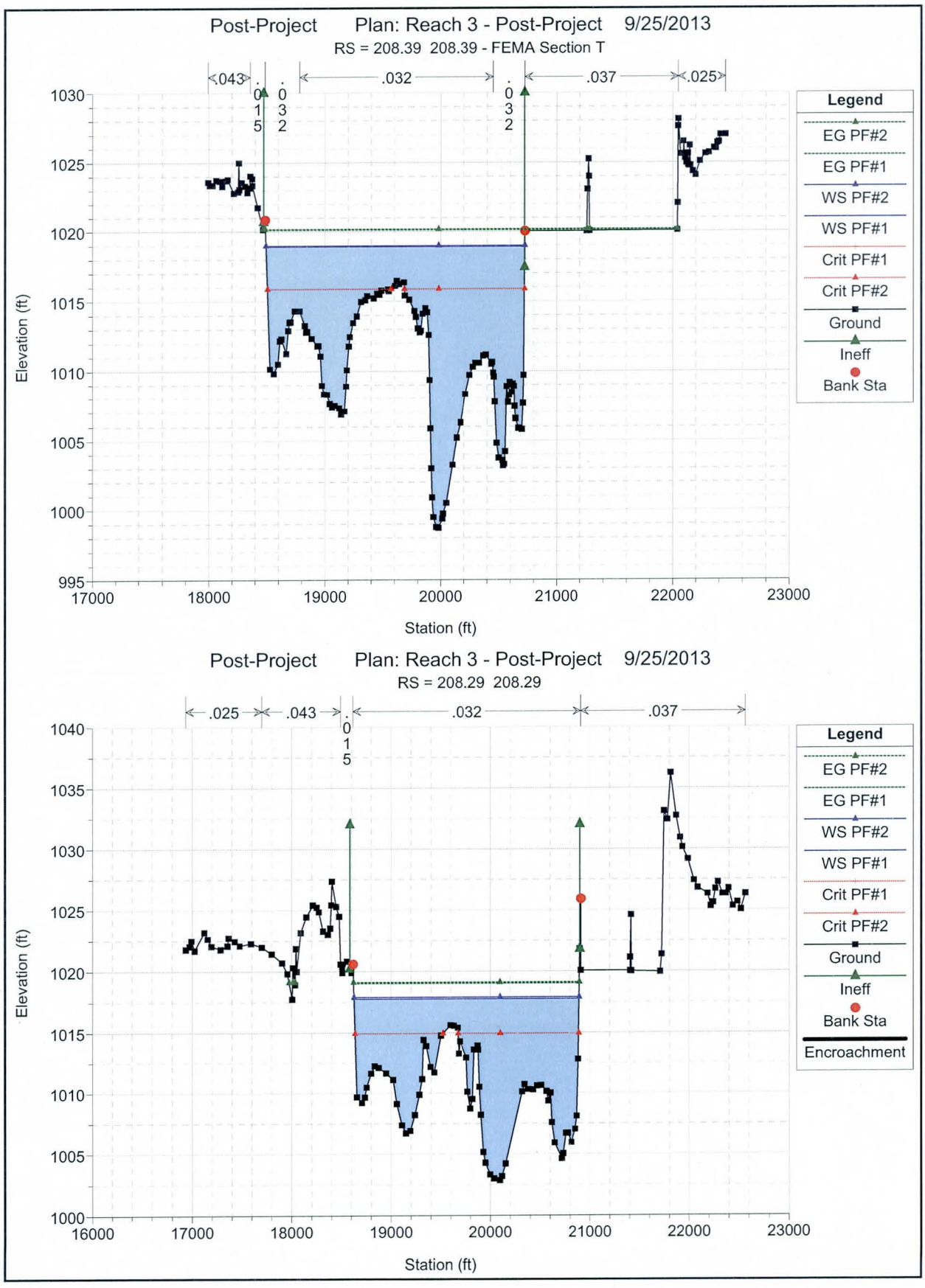

Post-Project Plan: Reach 3 - Post-Project 9/25/2013
RS = 209.33 209.33 - FEMA Section V
.037
.015
.037
.032
.037
1040
1030
1020
1010
1000
990
Elevation (ft)
17000
18000
19000
20000
21000
22000
23000
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Post-Project Plan: Reach 3 - Post-Project 9/25/2013
RS = 209.24 209.24
.037
.015
.032
.037
.032
.025
1035
1030
1025
1020
1015
1010
1005
1000
Elevation (ft)
18000
19000
20000
21000
22000
23000
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#1
WS PF#2
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment

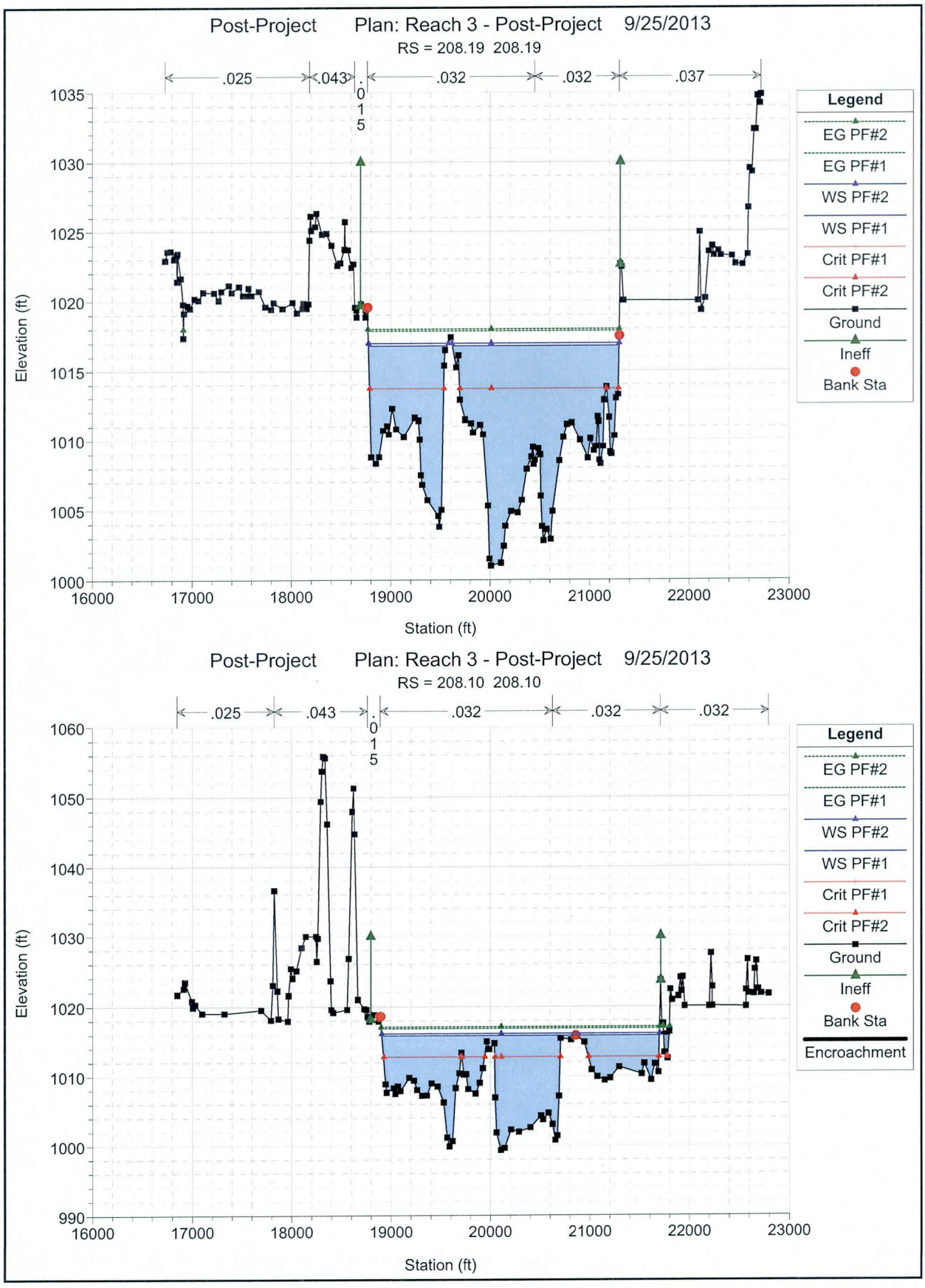

Post-Project Plan: Reach 3 - Post-Project 9/25/2013
RS = 209.14 209.14
.037
.032
.032
.025
Legend
EG PF#1
EG PF#2
WS PF#2
WS PF#1
Crit PF#2
Crit PF#1
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
Post-Project Plan: Reach 3 - Post-Project 9/25/2013
RS = 209.04 209.04
.037
.032
.037
.025
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#2
Crit PF#1
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)

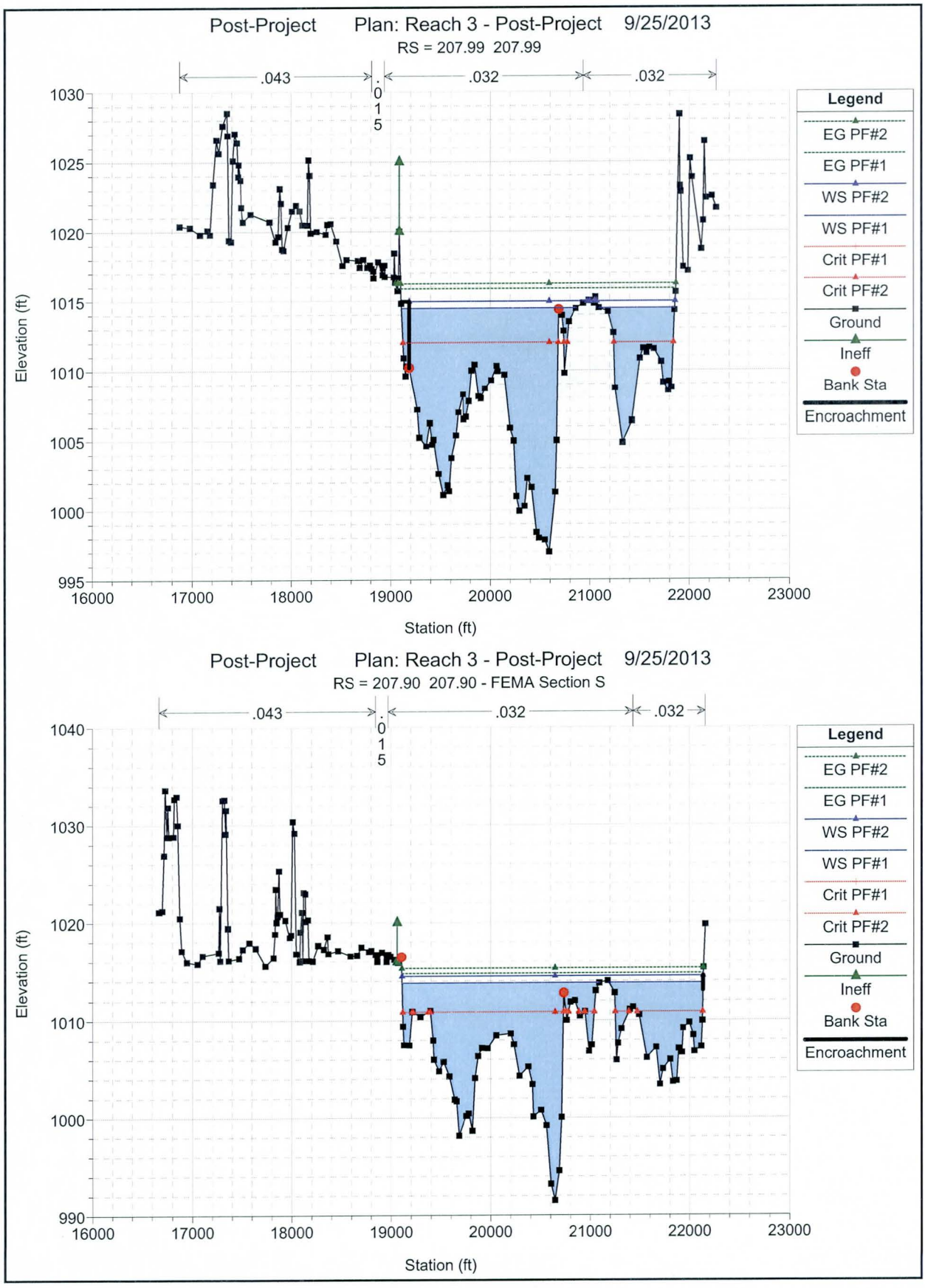

Post-Project
Plan: Reach 3 - Post-Project
9/25/2013
RS = 208.95 208.95
.037
.015
.037
.032
.032
.037
.025
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
Post-Project
Plan: Reach 3 - Post-Project
9/25/2013
RS = 208.85 208.85
.037
.015
.037
.032
.032
.037
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)

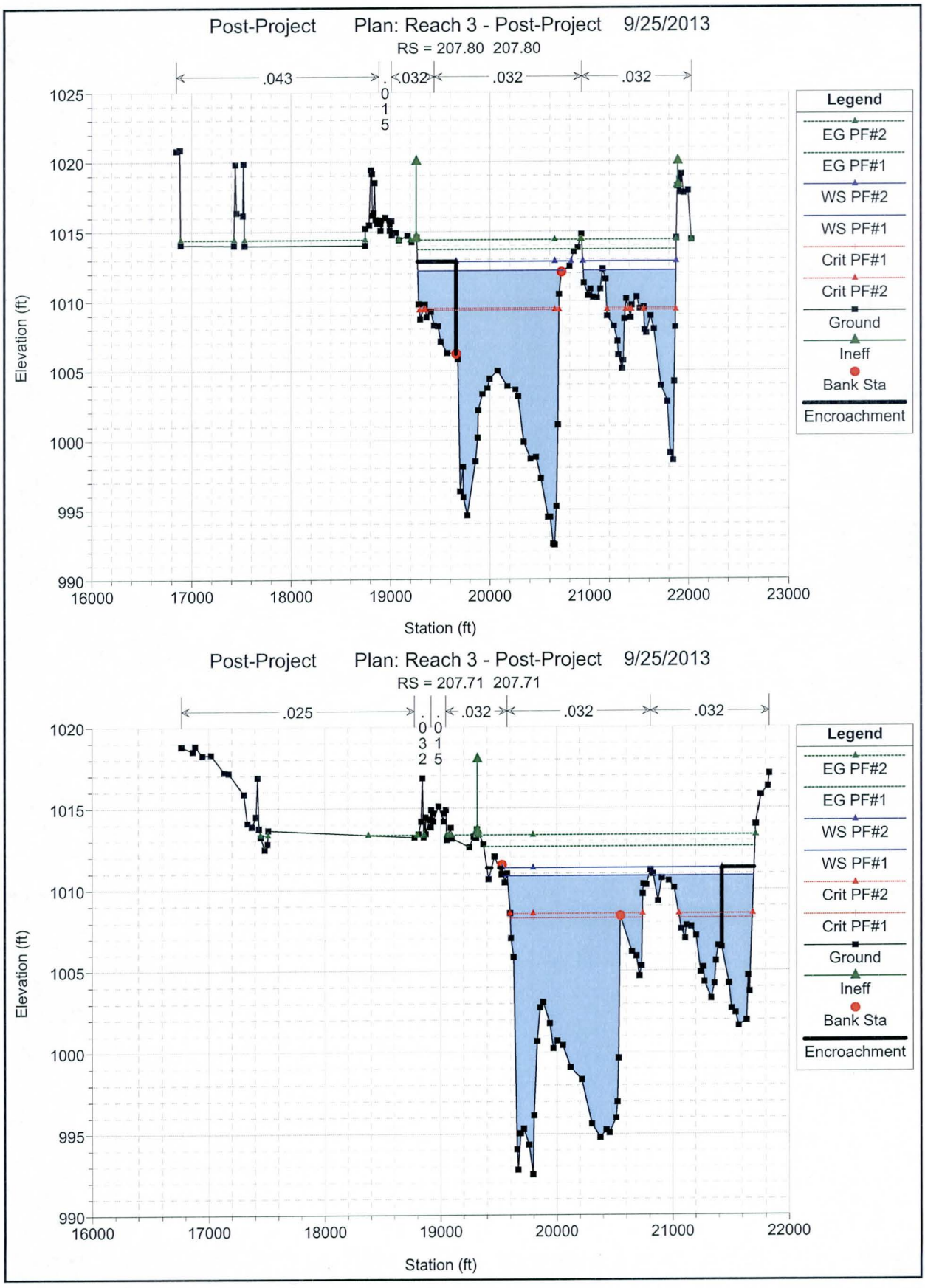

Post-Project Plan: Reach 3 - Post-Project 9/25/2013
RS = 208.75 208.75 - FEMA Section U
.037
.015
.037
.032
.032
Elevation (ft)
1040
1030
1020
1010
1000
18000
19000
20000
21000
22000
23000
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Post-Project Plan: Reach 3 - Post-Project 9/25/2013
RS = 208.67 208.67
.037
.015
.037
.032
.032
.037
Elevation (ft)
1035
1030
1025
1020
1015
1010
1005
1000
17000
18000
19000
20000
21000
22000
23000
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment

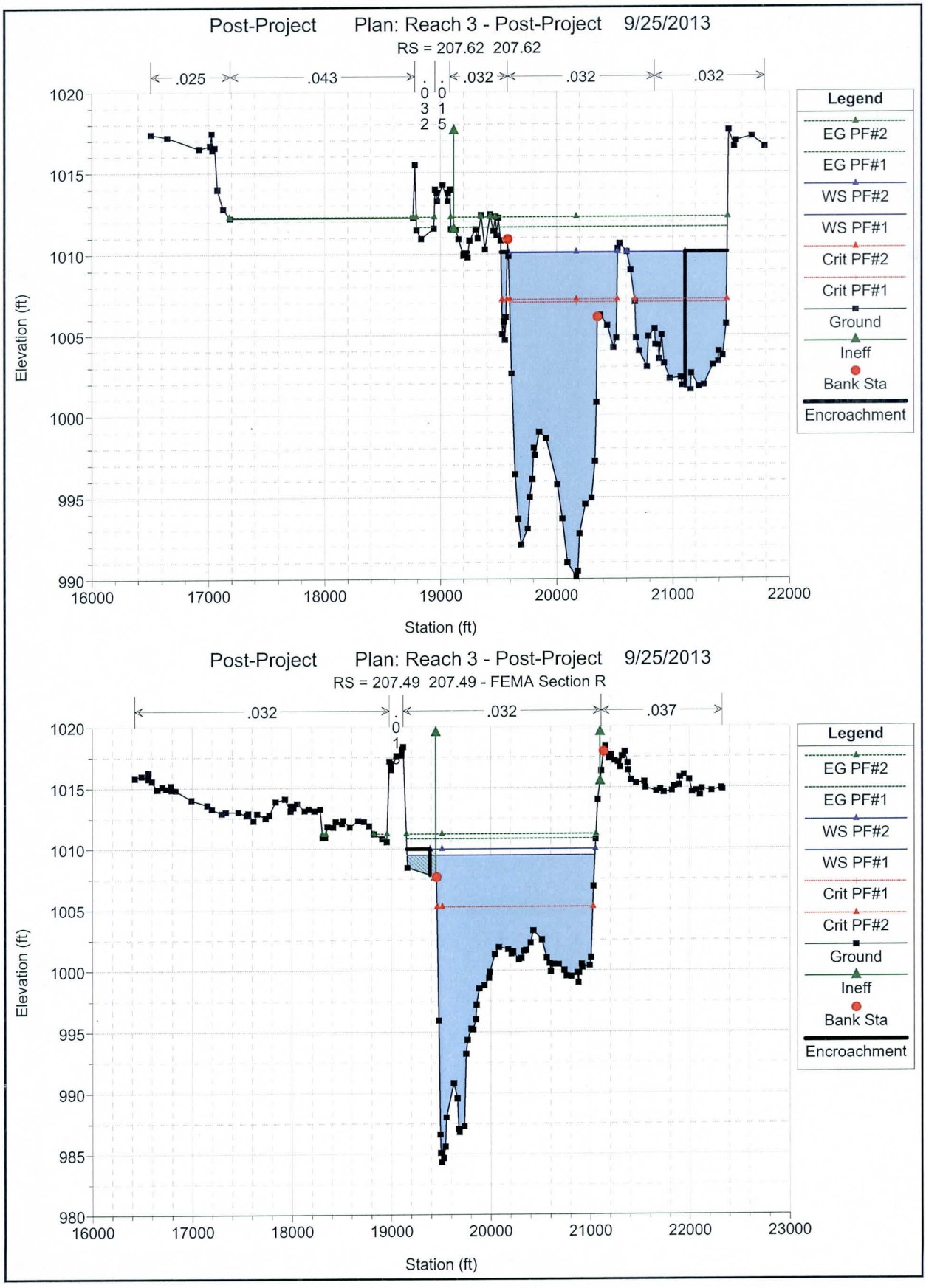

Post-Project Plan: Reach 3 - Post-Project 9/25/2013
RS = 208.57 208.57
.037
.015
.037
.032
.032
.037
Elevation (ft)
1035
1030
1025
1020
1015
1010
1005
1000
18000
19000
20000
21000
22000
23000
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Post-Project Plan: Reach 3 - Post-Project 9/25/2013
RS = 208.48 208.48
.043
.015
.043
.032
.032
.037
Elevation (ft)
1040
1030
1020
1010
1000
990
17000
18000
19000
20000
21000
22000
23000
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta

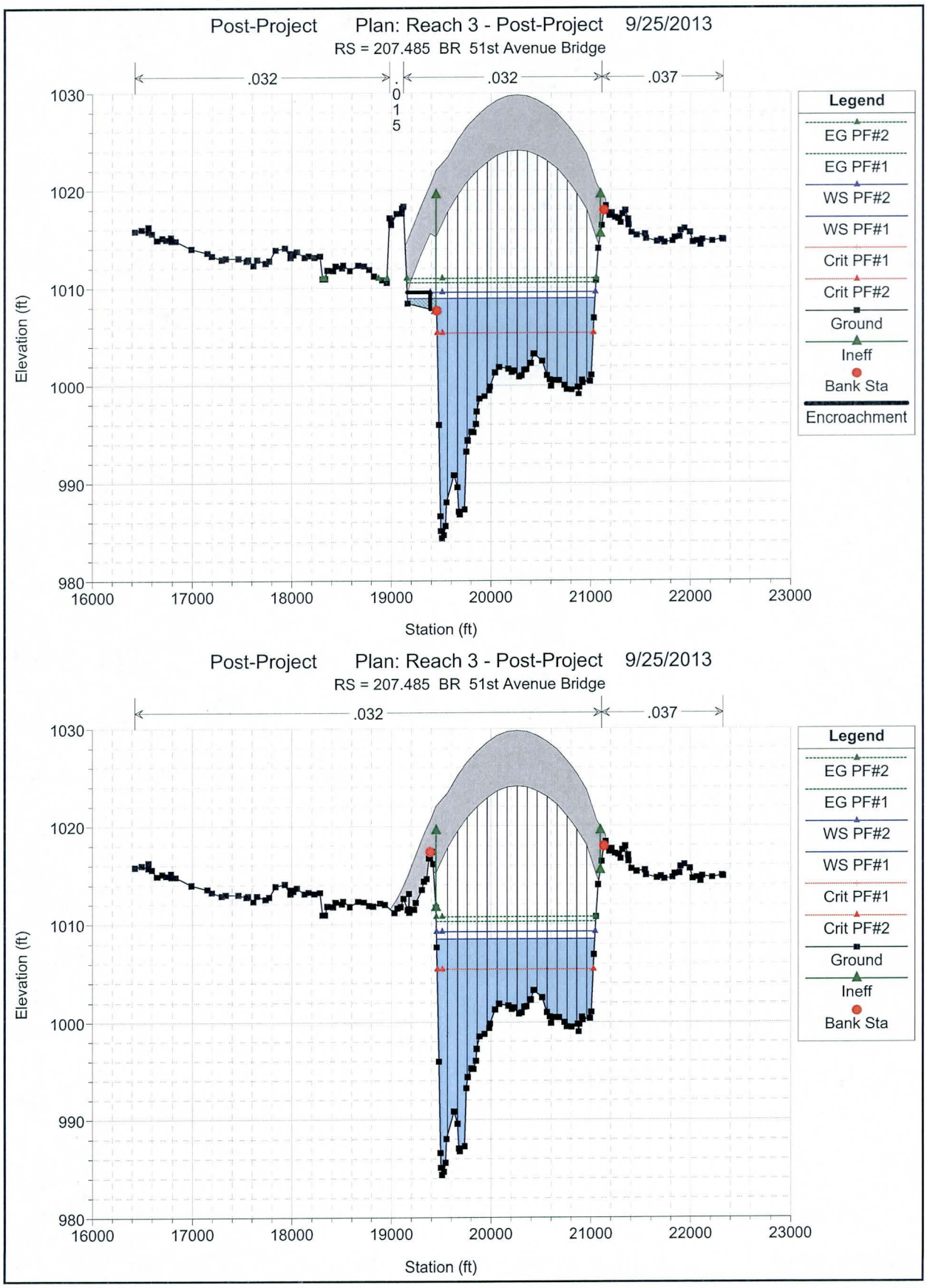

Post-Project Plan: Reach 3 - Post-Project 9/25/2013
RS = 208.39 208.39 - FEMA Section T
.043
.015
.032
.032
.037
.025
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Post-Project Plan: Reach 3 - Post-Project 9/25/2013
RS = 208.29 208.29
.025
.043
.015
.032
.037
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment

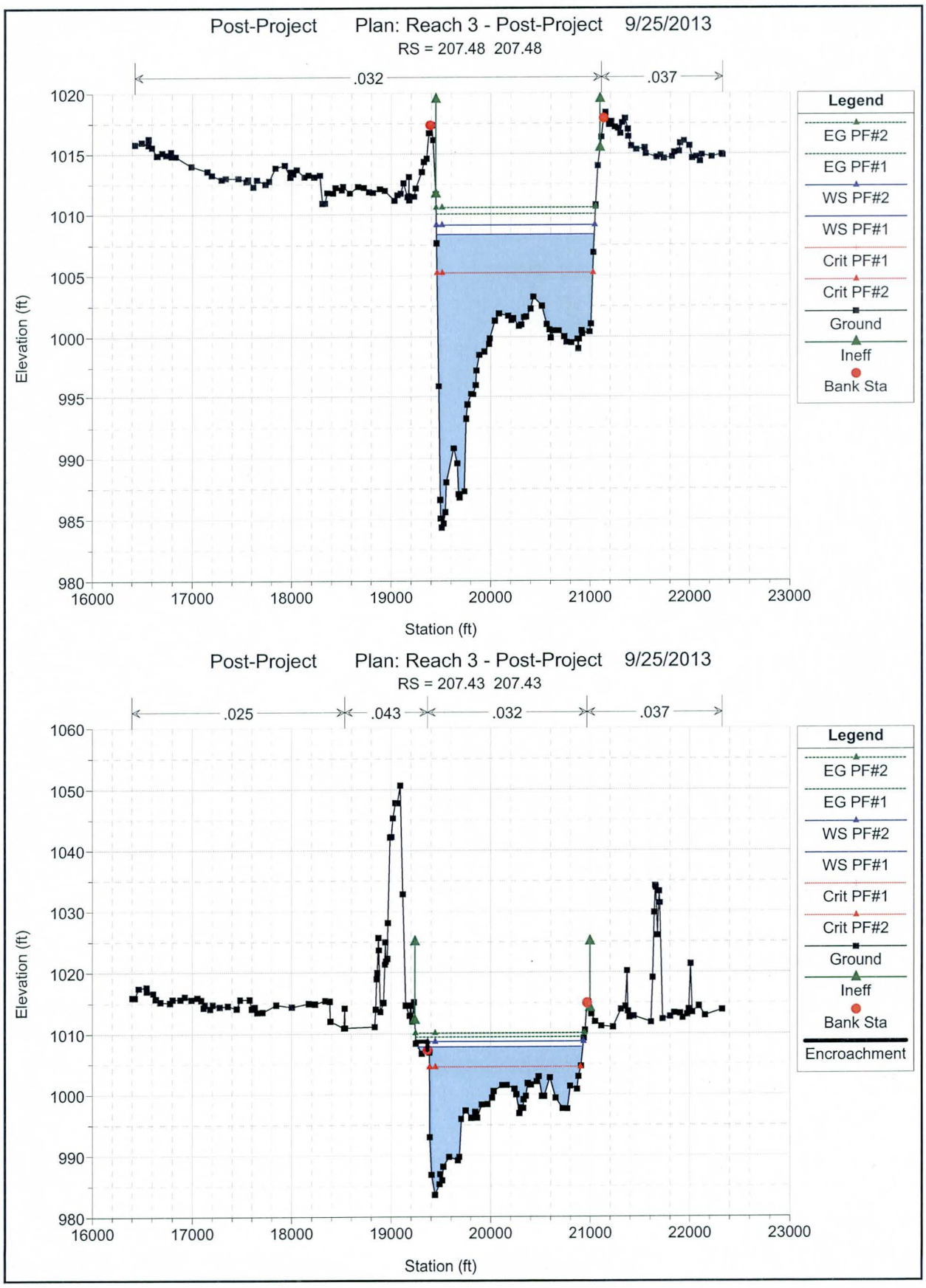

Post-Project
Plan: Reach 3 - Post-Project
9/25/2013
RS = 208.19 208.19
.025
.043
.015
.032
.032
.037
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Post-Project
Plan: Reach 3 - Post-Project
9/25/2013
RS = 208.10 208.10
.025
.043
.015
.032
.032
.032
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment

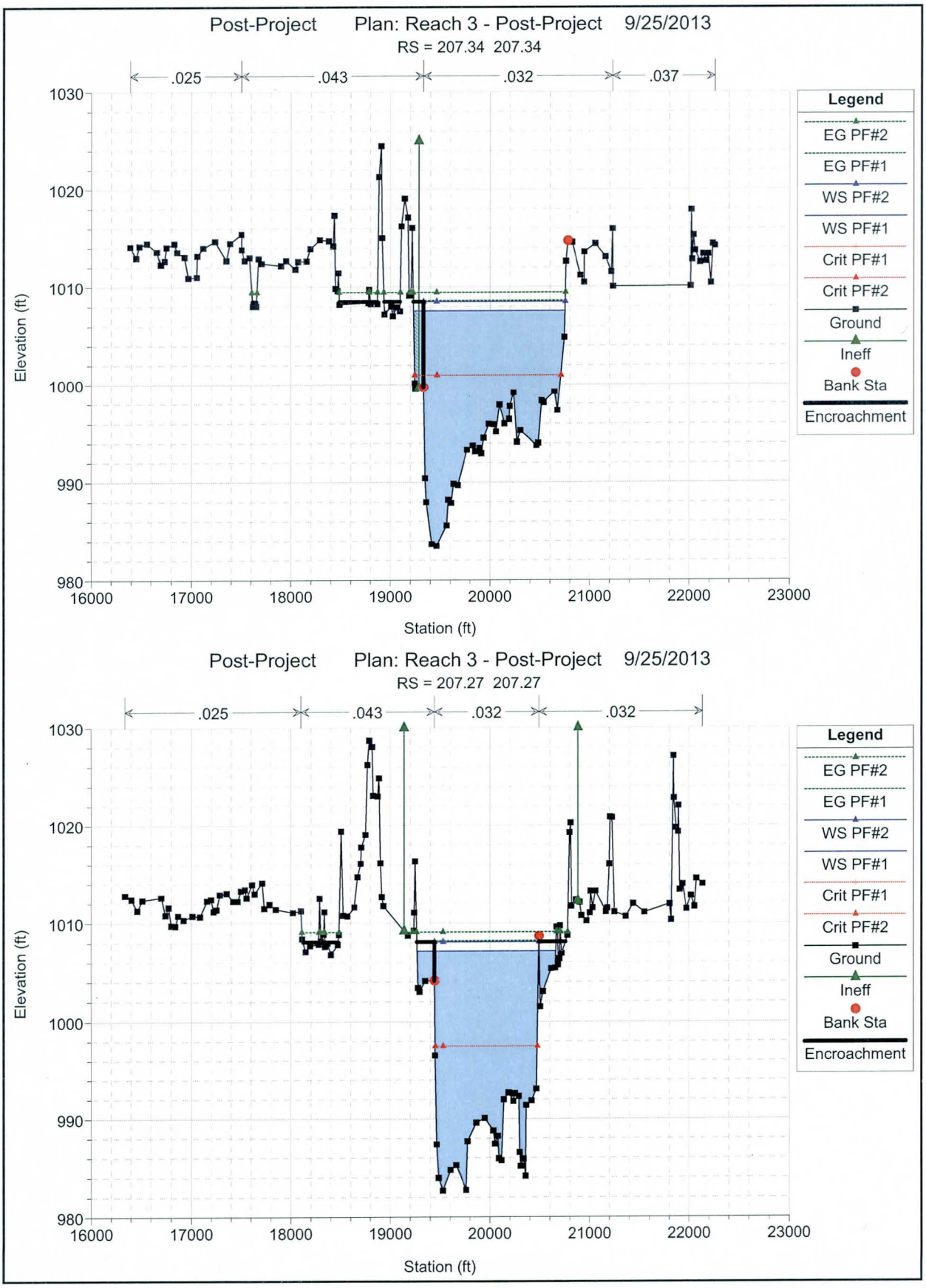

Post-Project Plan: Reach 3 - Post-Project 9/25/2013
RS = 207.99 207.99
.043
.0
1
5
.032
.032
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Post-Project Plan: Reach 3 - Post-Project 9/25/2013
RS = 207.90 207.90 - FEMA Section S
.043
.0
1
5
.032
.032
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment

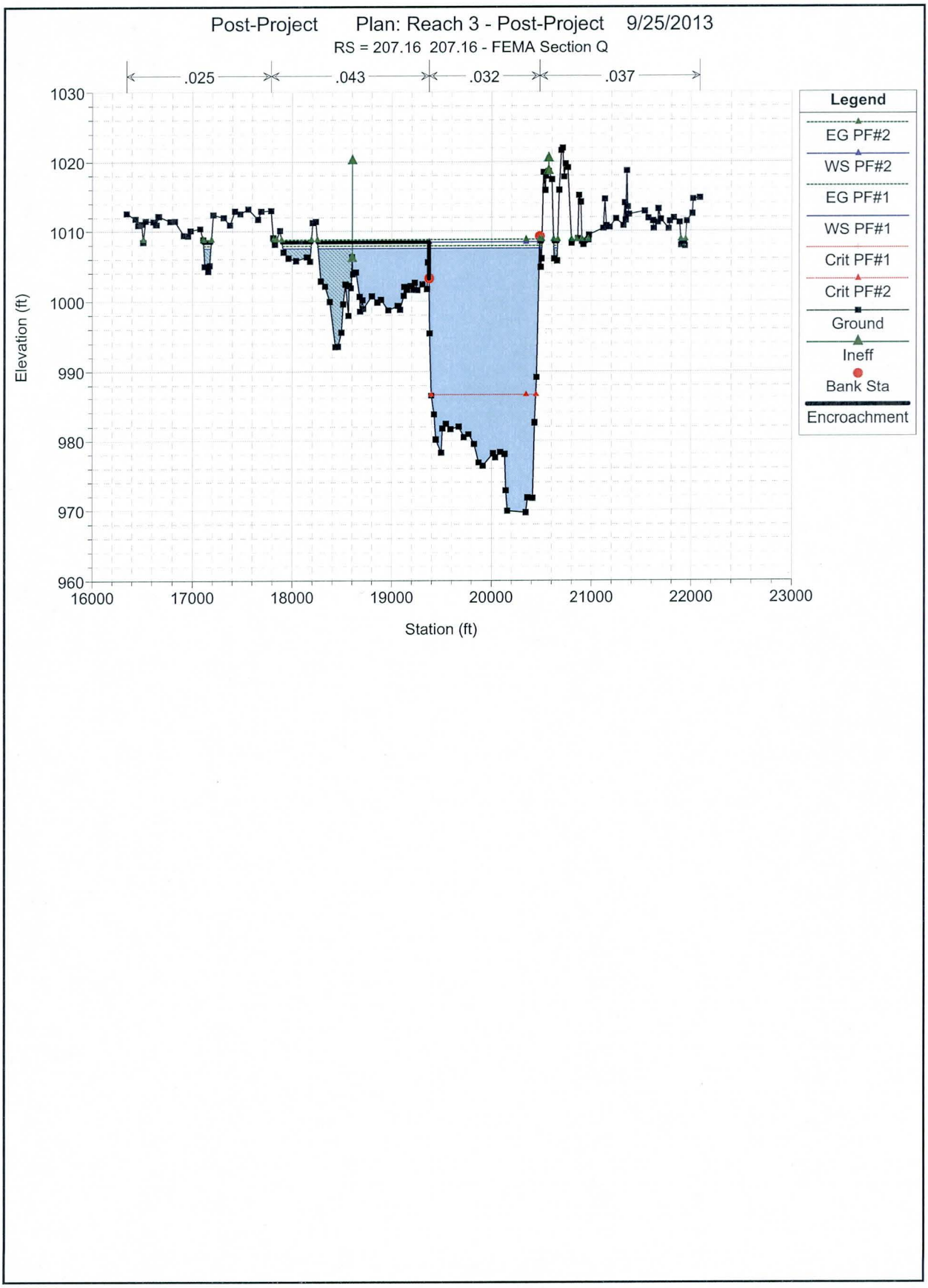

Post-Project Plan: Reach 3 - Post-Project 9/25/2013
RS = 207.80 207.80
.043
.032
.032
.032
.015
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Post-Project Plan: Reach 3 - Post-Project 9/25/2013
RS = 207.71 207.71
.025
.032
.032
.032
.032015
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#2
Crit PF#1
Ground
Ineff
Bank Sta
Encroachment


Post-Project Plan: Reach 3 - Post-Project 9/25/2013
RS = 207.62 207.62
.025
.043
.032
.032
.032
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#2
Crit PF#1
Ground
Ineff
Bank Sta
Encroachment
Post-Project Plan: Reach 3 - Post-Project 9/25/2013
RS = 207.49 207.49 - FEMA Section R
.032
.032
.037
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment


Post-Project Plan: Reach 3 - Post-Project 9/25/2013
RS = 207.485 BR 51st Avenue Bridge
.032
.032
.037
.015
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
1030
1020
1010
1000
990
980
16000
17000
18000
19000
20000
21000
22000
23000
Post-Project Plan: Reach 3 - Post-Project 9/25/2013
RS = 207.485 BR 51st Avenue Bridge
.032
.037
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


Post-Project Plan: Reach 3 - Post-Project 9/25/2013
RS = 207.48 207.48
.032
.037
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Post-Project Plan: Reach 3 - Post-Project 9/25/2013
RS = 207.43 207.43
.025
.043
.032
.037
Elevation (ft)
Station (ft)
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment


Post-Project
Plan: Reach 3 - Post-Project
9/25/2013
RS = 207.34 207.34
.025
.043
.032
.037
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
1030
1020
1010
1000
990
980
16000
17000
18000
19000
20000
21000
22000
23000
Post-Project
Plan: Reach 3 - Post-Project
9/25/2013
RS = 207.27 207.27
.025
.043
.032
.032
Legend
EG PF#2
EG PF#1
WS PF#2
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
1030
1020
1010
1000
990
980
16000
17000
18000
19000
20000
21000
22000
23000


Post-Project Plan: Reach 3 - Post-Project 9/25/2013
RS = 207.16 207.16 - FEMA Section Q
.025
.043
.032
.037
Elevation (ft)
1030
1020
1010
1000
990
980
970
960
16000
17000
18000
19000
20000
21000
22000
23000
Station (ft)
Legend
EG PF#2
WS PF#2
EG PF#1
WS PF#1
Crit PF#1
Crit PF#2
Ground
Ineff
Bank Sta
Encroachment

HEC-RAS Version 4.0.0 March 2008
U.S. Army Corps of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

```
X     X  XXXXXX    XXXX        XXXX       XX      XXXX
X     X  X        X    X       X   X     X  X     X
X     X  X        X            X   X    X    X    X
XXXXXXX  XXXX     X       XXX  XXXX     XXXXXX    XXXX
X     X  X        X            X  X     X    X        X
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X     X  XXXXXX    XXXX        X    X   X    X   XXXXX
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```
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PROJECT DATA
Project Title: Post-Project
Project File : Post-Project.prj
Run Date and Time: 9/25/2013 10:18:41 AM

Project in English units

Project Description:
City of Phoenix ARS  (AZTEC project No AZE1005)
Salt River Effective model -
Received from FEMA for LOMR case no. 08-09-1412P
Salt River Effective model -
Received from FEMA for LOMR case no.
08-09-1294P

================================================================
==========
Used the model obtained from LOMR 08-09-1412P which modified
sections 209.33 to 209.98 based on TranSystems mapping and grading plans and
Modified cross section 208.57, 208.67, 208.75 & 208.85 based on LOMR
08-09-1294P to create the Duplicate Effective
Model

================================================================
=====
Pre-Project Model created from new mapping for the area between FEMA
Section Q and FEMA Section X.  New mapping done by Kenney Aerial Mapping on
September 24, 2010, 1"=40' mapping with a 1' contour.
Revised Cross Sections
207.19 to 209.98 with new
mapping

================================================================
=======
Post-Project Model created based on the proposed Avenido Rio
Salado/Broadway Road horizontal and vertical alignment.

S.Smedley May 2013


*****************************************************************************

PLAN DATA

Plan Title: Reach 3 - Post-Project
Plan File : R:\Phoenix\Projects\AZE1005-ARS_ProgramManagement\Technical\Drainage\HEC-RAS\Post-Project Model\Post-Project.p01

          Geometry Title: Salt River Reach 3 - Post-Project
          Geometry File : R:\Phoenix\Projects\AZE1005-ARS_ProgramManagement\Technical\Drainage\HEC-RAS\Post-Project Model\Post-Project.g02

          Flow Title    : Reach 3 - Floodway
          Flow File     : R:\Phoenix\Projects\AZE1005-ARS_ProgramManagement\Technical\Drainage\HEC-RAS\Post-Project Model\Post-Project.f01

Plan Summary Information:
Number of:  Cross Sections =  160    Multiple Openings  =    0
            Culverts       =    0    Inline Structures  =    0
            Bridges        =    6    Lateral Structures =    0

Computational Information
    Water surface calculation tolerance  =  0.01
    Critical depth calculation tolerance =  0.01
    Maximum number of iterations         =  20
    Maximum difference tolerance         =  0.3
    Flow tolerance factor                =  0.001

Computation Options
    Critical depth computed only where necessary
    Conveyance Calculation Method: At breaks in n values only
    Friction Slope Method:         Average Conveyance
    Computational Flow Regime:     Subcritical Flow

Encroachment Data
   Equal Conveyance = True
   Left Offset      =        0
   Right Offset     =        0

River = 1               Reach = 1
RS      Profile          Method  Value1  Value2
214.14  PF#2                    119654.9720381.83
214.04  PF#2                    119637.8820371.77
213.95  PF#2                    119586.5420331.73
213.85  PF#2                    119618.3320320.92
213.75  PF#2                    1   1964120297.35
213.74  PF#2                    119641.87 20296.6
213.66  PF#2                    119687.5720253.56
213.57  PF#2                    1 19484.520336.66
213.47  PF#2                    1 19243.320266.42
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213.38	PF#2	1 19346.120447.85
213.33	PF#2	1 19328.920514.52
213.26	PF#2	119497.1820378.39
213.25	PF#2	119497.5520377.79
213.21	PF#2	1 19490.3 20418.5
213.11	PF#2	119616.8820544.67
213.03	PF#2	1 1967220591.83
212.93	PF#2	119690.7620489.75
212.84	PF#2	1 19711.520347.25
212.74	PF#2	119690.61 20367.2
212.68	PF#2	119501.07 20130.1
212.67	PF#2	119502.3320128.84
212.56	PF#2	119731.0520252.14
212.46	PF#2	119743.34 20301
212.37	PF#2	119744.0620320.69
212.27	PF#2	119715.2520330.35
212.18	PF#2	119706.8520334.57
212.08	PF#2	119681.09 20270.9
211.99	PF#2	119699.7720249.64
211.89	PF#2	119685.7520250.74
211.79	PF#2	119649.87 20217.7
211.71	PF#2	119628.4320197.84
211.64	PF#2	1 19657.7 20219.8
211.54	PF#2	119603.6520129.64
211.51	PF#2	119615.1920137.39
211.41	PF#2	1 19638.120206.06
211.31	PF#2	119531.2120356.09
211.21	PF#2	119528.7520521.25
211.12	PF#2	119498.47 20610
211.02	PF#2	119487.12 21150
210.93	PF#2	119479.13 21575
210.83	PF#2	119450.42 21700
210.74	PF#2	119426.13 21800
210.64	PF#2	1 19388.6 21800
210.55	PF#2	119322.17 21110
210.46	PF#2	1 19377 21284
210.36	PF#2	119375.1721291.16
210.26	PF#2	119377.08 21331.8
210.17	PF#2	1 19354.621334.72
210.07	PF#2	1 19210 21225
209.98	PF#2	119316.5321256.06
209.88	PF#2	119516.3921299.85
209.79	PF#2	119444.0721299.89
209.69	PF#2	119492.43 21350
209.60	PF#2	119457.3121064.47
209.54	PF#2	119471.7520594.25
209.53	PF#2	119471.7520594.25
209.42	PF#2	119318.5620610.47
209.33	PF#2	119086.1920715.31
209.24	PF#2	119001.6620907.53
209.14	PF#2	1 1910021140.18
209.04	PF#2	119124.0321356.72
208.95	PF#2	119173.8520972.83
208.85	PF#2	119206.0221155.77
208.75	PF#2	119212.9820952.96
208.67	PF#2	119317.6920938.72
208.57	PF#2	119382.5620731.12
208.48	PF#2	118501.9220691.24
208.39	PF#2	118468.9520724.42
208.29	PF#2	118561.8220909.13
208.19	PF#2	118679.18 21343.2
208.10	PF#2	118822.3721737.69
207.99	PF#2	119184.3621863.07
207.90	PF#2	119103.9222135.26
207.80	PF#2	119658.1621871.22
207.71	PF#2	119527.6521424.84
207.62	PF#2	119577.9221105.73
207.49	PF#2	119387.2821132.01
207.48	PF#2	119387.2821132.01
207.43	PF#2	119363.8620968.54
207.34	PF#2	119328.8820778.22
207.27	PF#2	119441.5520490.43
207.16	PF#2	119371.4620479.77
207.07	PF#2	118857.5720748.18
206.97	PF#2	1 18850 20800
206.88	PF#2	118838.93 20800
206.79	PF#2	118806.0120895.15
206.7	PF#2	118784.84 21138.8
206.6	PF#2	118675.5821066.25
206.51	PF#2	118561.35 20622.1
206.41	PF#2	118494.7120685.21
206.32	PF#2	118476.9420854.87
206.22	PF#2	1 1843520977.29
206.13	PF#2	1 1837020914.89
206.03	PF#2	1 18320 20772.6
205.94	PF#2	1 18200 20767
205.84	PF#2	1 18100 20535.7
205.75	PF#2	1 18048 20450.3
205.62	PF#2	1 18216 20450.1
205.52	PF#2	1 18591.6 20611.5
205.43	PF#2	1 18917.5 20770.4
205.4	PF#2	1 19020 20767.8
205.34	PF#2	1 1918020742.96
205.25	PF#2	1 19300 20782.3
205.15	PF#2	1 19385 20830
205.06	PF#2	1 19470 20905.3
204.97	PF#2	1 19445 20961.3
204.87	PF#2	1 19410 20952.2
204.78	PF#2	1 1921020830.43
204.68	PF#2	1 1896020546.37
204.61	PF#2	1 18880 20482.9
204.53	PF#2	1 18885 20495.9
204.42	PF#2	1 19025.420679.03
204.34	PF#2	1 1910020814.38
204.25	PF#2	1 1930020817.18
204.15	PF#2	1 1920021031.89

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204.05  PF#2                  118963.7821080.54
203.96  PF#2                  118736.54 20787.3
203.86  PF#2                  118542.4920734.27
203.77  PF#2                  118232.4120743.68
203.67  PF#2                  1   1813020697.43
203.58  PF#2                  1   1802520701.39
203.48  PF#2                  1 17932.620844.31
203.39  PF#2                  1 17970.821036.47
203.29  PF#2                  1 18065.621074.86
203.19  PF#2                  1 18262.120951.24
203.09  PF#2                  1   1843020905.85
202.99  PF#2                  1 18469.4 20926.9
202.9   PF#2                  1 18455.620967.31
202.8   PF#2                  1 18390.821011.58
202.69  PF#2                  1 18377.821080.23
202.59  PF#2                  1 18416.7 21190.4
202.48  PF#2                  1   18360 21302.7
202.37  PF#2                  1   1827021577.77
202.29  PF#2                  1 18197.4   21803
202.18  PF#2                  1 18139.721936.54
202.09  PF#2                  1 18212.921936.96
201.99  PF#2                  1 18235.121861.56
201.9   PF#2                  117992.63 21823.6
201.81  PF#2                  117952.4821801.08
201.71  PF#2                  118112.81 21528.5
201.62  PF#2                  118235.69 21477.5
201.52  PF#2                  118008.55 21391.4
201.43  PF#2                  118053.86 21342.1
201.33  PF#2                  118074.35 21381.8
201.24  PF#2                  118069.92   21570
201.14  PF#2                  118040.42   21721
201.05  PF#2                  117950.48   21849
200.95  PF#2                  117952.91   21954
200.86  PF#2                  1   18000   22032
200.77  PF#2                  1 17828.8   21951
200.67  PF#2                  1   17640 21649.3
200.58  PF#2                  1   17510   21450
200.49  PF#2                  1   17380   21171
200.39  PF#2                  1   17300   21041
200.3   PF#2                  1   17205   20896
200.2   PF#2                  1   17115   20744
200.1   PF#2                  1   17030   20800
200     PF#2                  1   16950   21050
199.91  PF#2                  1   16800   21330
199.82  PF#2                  1   16870   21650

*****************************************************************************

FLOW DATA

Flow Title: Reach 3 - Floodway
Flow File : R:\Phoenix\Projects\AZE1005-ARS_ProgramManagement\Technical\Drainage\HEC-RAS\Post-Project Model\Post-Project.f01

Flow Data (cfs)
*****************************************************************************
* River          Reach          RS      *          PF#1          PF#2 *
* 1              1              214.14  *        169000        169000 *
* 1              1              213.21  *        166000        166000 *
* 1              1              205.4   *        164000        164000 *
* 1              1              200.3   *        179750        179750 *
*****************************************************************************

Boundary Conditions
*************************************************************************************************************
* River          Reach          Profile         *          Upstream                 Downstream    *
*************************************************************************************************************
* 1              1              PF#1            *       Normal S = 0.001        Known WS = 948.9 *
* 1              1              PF#2            *       Normal S = 0.001        Known WS = 949.9 *
*************************************************************************************************************

*****************************************************************************

GEOMETRY DATA

Geometry Title: Salt River Reach 3 - Post-Project
Geometry File : R:\Phoenix\Projects\AZE1005-ARS_ProgramManagement\Technical\Drainage\HEC-RAS\Post-Project Model\Post-Project.g02

CROSS SECTION


RIVER: 1
REACH: 1                RS: 214.14

INPUT
Description: 214.14
Station Elevation Data    num=      96
    Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
*****************************************************************************
 18555.4  1082.6 18577.7  1082.5 18586.5  1082.5 18650.6    1082 18678.8  1082.1
 18707.4  1081.7 18729.5    1082 18771.6  1082.1 18793.7  1081.8   18836  1080.9
 18859.7  1080.3 18935.6  1078.9 19050.6  1077.2 19056.7  1077.2 19059.9  1077.1
 19062.9  1076.9 19063.3    1077 19067.8  1077.1 19071.9  1077.1 19078.2  1077.1
 19188.3  1078.1 19249.7  1079.4 19290.2  1080.1 19298.1  1080.2 19313.1  1080.4
 19327.5  1080.7 19358.6  1080.6 19391.6  1080.5 19412.8  1080.3 19520.8  1077.9
 19554.8  1077.5 19580.2  1077.3 19610.8  1076.5 19651.9  1076.7 19697.7  1058.7
 19715.9  1051.7 19732.8  1050.2 19750.7  1048.7 20032.7    1049 20292.3  1049.2
 20350.9  1065.9 20388.3  1077.5 20405.5  1075.6   20406 1075.6 20439.7  1075.6
 20637.3  1075.5 20899.6  1075.4 20920.6  1075.5 20941.8  1075.4 20947.4  1075.5
   20962  1075.5   20980  1075.4 20989.9  1075.4 21074.1  1075.4 21119.6  1075.7
 21168.7  1076.8   21222  1076.6 21326.8  1076.2 21327.4  1076.2 21342.2    1075
 21390.6    1075 21428.8    1075 21455.3  1075.3 21502.1  1076.4 21502.4  1076.2
 21505.4  1076.4 21551.9  1077.5 21591.8  1077.6 21726.3  1078.4 21759.2  1078.5
 21766.3  1078.3 21792.4  1078.4 21884.6  1078.9   22013  1079.1 22034.3  1079.5
 22101.6  1079.7 22156.1  1080.1 22201.4    1080 22204.6  1079.9 22217.3  1080.5
   22235  1081.3 22238.1  1081.3 22264.5    1081 22267.7  1080.9 22269.4  1080.7
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 22269.9  1080.6 22272.4  1080.4 22280.3  1079.8 22341.9  1080.2   22431  1080.6
 22501.3  1081.2 22591.2  1081.8 22602.9    1082 22619.7    1083 22686.6  1082.9
 22710.3  1082.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
 18555.4     .04 19651.9    .035 20388.3     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       19651.9 20388.3             475  510.51     570             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 18555.4 19651.9    1082       F
 20388.3 22710.3    1082       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         * 1077.01  * Element                * Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.50  * Wt. n-Val.            *          *   0.035  *          *
* W.S. Elev (ft)         * 1075.50  * Reach Len. (ft)       *  475.00  *  510.51  *  570.00  *
* Crit W.S. (ft)         * 1062.66  * Flow Area (sq ft)     *          *17180.89  *          *
* E.G. Slope (ft/ft)     *0.000804  * Area (sq ft)          *          *17180.89  *   83.10  *
* Q Total (cfs)          *169000.00  * Flow (cfs)           *          *169000.00  *          *
* Top Width (ft)         * 1312.52  * Top Width (ft)        *          *  726.91  *  585.60  *
* Vel Total (ft/s)       *    9.84  * Avg. Vel. (ft/s)      *          *    9.84  *          *
* Max Chl Dpth (ft)      *   26.80  * Hydr. Depth (ft)      *          *   23.64  *          *
* Conv. Total (cfs)      *5961484.0  * Conv. (cfs)          *          *5961484.0  *          *
* Length Wtd. (ft)       *  510.51  * Wetted Per. (ft)      *          *  735.31  *          *
* Min Ch El (ft)         * 1048.70  * Shear (lb/sq ft)      *          *    1.17  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   11.53  *          *
* Frctn Loss (ft)        *    0.42  * Cum Volume (acre-ft)  * 9061.19  *34453.18  * 3408.12  *
* C & E Loss (ft)        *    0.00  * Cum SA (acres)        * 2003.14  * 3134.70  *  994.17  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)         * 1077.01  * Element                * Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.50  * Wt. n-Val.            *          *   0.035  *          *
* W.S. Elev (ft)         * 1075.51  * Reach Len. (ft)       *  475.00  *  510.51  *  570.00  *
* Crit W.S. (ft)         * 1062.66  * Flow Area (sq ft)     *          *17184.88  *          *
* E.G. Slope (ft/ft)     *0.000803  * Area (sq ft)          *          *17184.88  *          *
* Q Total (cfs)          *169000.00  * Flow (cfs)           *          *169000.00  *          *
* Top Width (ft)         *  726.86  * Top Width (ft)        *          *  726.86  *          *
* Vel Total (ft/s)       *    9.83  * Avg. Vel. (ft/s)      *          *    9.83  *          *
* Max Chl Dpth (ft)      *   26.81  * Hydr. Depth (ft)      *          *   23.64  *          *
* Conv. Total (cfs)      *5963943.0  * Conv. (cfs)          *          *5963943.0  *          *
* Length Wtd. (ft)       *  510.51  * Wetted Per. (ft)      *          *  735.29  *          *
* Min Ch El (ft)         * 1048.70  * Shear (lb/sq ft)      *          *    1.17  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   11.52  *          *
* Frctn Loss (ft)        *    0.42  * Cum Volume (acre-ft)  * 1211.33  *35384.91  * 1414.74  *
* C & E Loss (ft)        *    0.00  * Cum SA (acres)        *  203.87  * 3138.84  *  205.53  *
*********************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 214.04

INPUT
Description: 214.04
Station Elevation Data    num=      96
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 19072.9  1079.7 19093.4  1080.3 19132.2  1080.8 19189.9  1082.5 19193.8  1082.6
 19198.4  1082.5 19239.2    1081 19288.1  1081.2 19324.4  1080.7 19371.7  1079.1
 19395.9  1078.4 19428.8    1078 19449.6  1077.2 19490.6  1077.5 19513.1  1077.7
 19544.1  1077.9 19555.9  1077.7 19588.8  1076.5 19610.7  1075.7 19613.2  1075.7
 19632.1  1075.8 19635.6  1075.8 19636.8  1075.4 19702.8    1053 19711.2  1052.5
 19718.8  1052.3 19726.8  1051.2 19735.4  1048.8 20175.7    1049 20286.6    1049
 20298.5  1052.8 20376.6  1076.5 20387.2  1075.5 20390.3  1075.2 20574.2    1076
 20667.2  1076.1 20825.6  1075.6 20839.5  1075.5 20839.8  1075.5 20855.8    1073
 20864.2  1073.4 20909.3  1072.6 20914.5  1072.6 20915.6  1072.9 20928.6    1077
 20951.8    1077 20990.8  1076.9 20996.8  1076.9 21016.8  1077.3 21040.9  1077.5
 21130.4  1077.3 21234.3  1076.9 21246.3  1076.9 21256.8  1076.2 21294.9  1076.5
 21366.4  1076.6 21461.4  1076.5 21539.2  1076.3 21557.9  1076.3 21565.1  1076.3
 21586.9  1076.6 21607.7  1076.8 21639.2  1077.1 21662.1  1077.5 21690.5  1078.1
 21711.2  1078.3 21774.8  1078.5 21799.9  1079.2 21800.4  1079.3 21942.9  1079.4
   21971  1079.3 22001.7  1079.3 22020.7  1079.3 22177.7  1078.3 22203.1  1078.1
 22217.2  1078.1 22226.8    1078 22231.1    1078 22238.5    1078   22248  1077.8
 22357.9  1076.9 22384.7  1077.9 22394.1  1078.2 22399.6  1078.1 22400.9  1078.1
 22428.8  1077.9 22430.1  1077.9 22450.6  1078.2 22542.8  1078.3   22554  1078.5
 22667.1  1079.2 22667.7  1079.3 22717.7  1081.1 22725.6  1081.1 22727.3  1081.2
 22747.1    1084

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
 19072.9     .04 19636.8    .035 20376.6     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       19636.8 20376.6             495  493.12     480             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 19072.9 19636.8    1083       F
 20376.6 22747.1    1083       F

CROSS SECTION OUTPUT  Profile #PF#1
```

Post-Project

E.G. Elev (ft)	1076.58	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.54	Wt. n-Val.		0.035	
W.S. Elev (ft)	1075.04	Reach Len. (ft)	495.00	493.12	480.00
Crit W.S. (ft)	1062.64	Flow Area (sq ft)		16977.45	
E.G. Slope (ft/ft)	0.000846	Area (sq ft)		16977.45	143.39
Q Total (cfs)	169000.00	Flow (cfs)		169000.00	
Top Width (ft)	813.60	Top Width (ft)		733.94	79.66
Vel Total (ft/s)	9.95	Avg. Vel. (ft/s)		9.95	
Max Chl Dpth (ft)	26.24	Hydr. Depth (ft)		23.13	
Conv. Total (cfs)	5809707.0	Conv. (cfs)		5809707.0	
Length Wtd. (ft)	493.12	Wetted Per. (ft)		741.89	
Min Ch El (ft)	1048.80	Shear (lb/sq ft)		1.21	
Alpha	1.00	Stream Power (lb/ft s)		12.03	
Frctn Loss (ft)	0.50	Cum Volume (acre-ft)	9061.19	34253.02	3406.64
C & E Loss (ft)	0.04	Cum SA (acres)	2003.14	3126.14	989.82

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1076.59	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.54	Wt. n-Val.		0.035	
W.S. Elev (ft)	1075.05	Reach Len. (ft)	495.00	493.12	480.00
Crit W.S. (ft)	1062.64	Flow Area (sq ft)		16981.83	
E.G. Slope (ft/ft)	0.000845	Area (sq ft)		16981.83	
Q Total (cfs)	169000.00	Flow (cfs)		169000.00	
Top Width (ft)	733.89	Top Width (ft)		733.89	
Vel Total (ft/s)	9.95	Avg. Vel. (ft/s)		9.95	
Max Chl Dpth (ft)	26.25	Hydr. Depth (ft)		23.14	
Conv. Total (cfs)	5812338.0	Conv. (cfs)		5812338.0	
Length Wtd. (ft)	493.12	Wetted Per. (ft)		741.87	
Min Ch El (ft)	1048.80	Shear (lb/sq ft)		1.21	
Alpha	1.00	Stream Power (lb/ft s)		12.02	
Frctn Loss (ft)	0.50	Cum Volume (acre-ft)	1211.33	35184.70	1414.74
C & E Loss (ft)	0.04	Cum SA (acres)	203.87	3130.28	205.53

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 213.95

INPUT
Description: 213.95 - FEMA Section AG
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
19012.2	1082.3	19071.8	1081.2	19072.8	1081.2	19073.5	1081.2	19172.6	1080
19176.1	1079.9	19177	1079.9	19191.6	1079.8	19233.8	1079.1	19245.6	1079.2
19283.7	1079.1	19366	1078.5	19459.9	1077.8	19508.7	1075.2	19510	1075.1
19510.4	1075.2	19511.8	1075.3	19534.7	1076.7	19583.1	1074.4	19622.2	1071.5
19627.4	1072.4	19631.4	1072.9	19699.3	1056.7	19729	1049.4	19783.8	1049.5
20255.4	1049.3	20277.7	1056.5	20337.1	1075.9	20360.3	1074.9	20361.6	1074.8
20403.2	1074.5	20653.5	1075.3	20691.9	1075.3	20740	1075.5	20772	1075.4
20775.5	1075.1	20784.4	1073.9	20808.5	1074.1	20840.9	1074.4	20844.2	1074.5
20853.7	1075.1	20870	1074.8	20875	1074.6	20914.9	1075.6	20922.3	1075.7
20949.7	1076.5	20960.6	1076.8	20964.2	1076.9	20966.3	1078.4	20973	1080.1
21108.8	1079.4	21171.4	1079.5	21176.1	1079.5	21183	1079.7	21200.9	1076.8
21203.1	1076.6	21232.6	1076.3	21271.1	1076	21272.6	1076	21274.1	1076
21377.7	1076.7	21386.9	1076.7	21400.8	1076.7	21470.9	1077.6	21502.4	1077.7
21528	1077.6	21534	1077.9	21534.2	1077.9	21537	1078	21542.7	1077.4
21542.9	1077.8	21554.1	1077.4	21695.2	1077.7	21731.7	1077.2	21736.1	1076.3
21743.3	1075.1	21752	1076.3	21753.2	1076.5	21753.7	1076.6	21759.1	1078.6
21760.3	1079.1	21763.3	1079.6	21764.1	1079.5	21772.7	1079.3	21784.7	1079.3
21791.6	1079.5	21806.1	1079.6	21832.6	1079.8	21918.1	1079.8	21918.4	1080.2
22000.8	1079.8	22342	1078.4	22351.4	1078.4	22362.3	1078.4	22373.8	1078.7
22391.3	1078.7								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
19012.2	.04	19534.7	.035	20337.1	.04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19534.7 20337.1 500 504.25 500 .1 .3
Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
19012.2	19534.7	1082.3	F
20337.1	22391.3	1082.3	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1076.05	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.89	Wt. n-Val.		0.035	
W.S. Elev (ft)	1074.16	Reach Len. (ft)	500.00	504.25	500.00
Crit W.S. (ft)	1063.67	Flow Area (sq ft)		15307.12	
E.G. Slope (ft/ft)	0.001218	Area (sq ft)		15307.12	4.17
Q Total (cfs)	169000.00	Flow (cfs)		169000.00	
Top Width (ft)	777.40	Top Width (ft)		745.37	32.04
Vel Total (ft/s)	11.04	Avg. Vel. (ft/s)		11.04	
Max Chl Dpth (ft)	24.86	Hydr. Depth (ft)		20.54	
Conv. Total (cfs)	4843418.0	Conv. (cfs)		4843418.0	
Length Wtd. (ft)	504.21	Wetted Per. (ft)		752.31	
Min Ch El (ft)	1049.30	Shear (lb/sq ft)		1.55	
Alpha	1.00	Stream Power (lb/ft s)		17.07	
Frctn Loss (ft)	0.81	Cum Volume (acre-ft)	9061.19	34070.28	3405.82
C & E Loss (ft)	0.15	Cum SA (acres)	2003.14	3117.77	989.20

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1076.06	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.89	Wt. n-Val.		0.035	
W.S. Elev (ft)	1074.16	Reach Len. (ft)	500.00	504.25	500.00
Crit W.S. (ft)	1063.67	Flow Area (sq ft)		15312.49	
E.G. Slope (ft/ft)	0.001216	Area (sq ft)		15312.49	
Q Total (cfs)	169000.00	Flow (cfs)		169000.00	
Top Width (ft)	745.19	Top Width (ft)		745.19	
Vel Total (ft/s)	11.04	Avg. Vel. (ft/s)		11.04	
Max Chl Dpth (ft)	24.86	Hydr. Depth (ft)		20.55	
Conv. Total (cfs)	4846870.0	Conv. (cfs)		4846870.0	
Length Wtd. (ft)	504.21	Wetted Per. (ft)		752.16	
Min Ch El (ft)	1049.30	Shear (lb/sq ft)		1.55	
Alpha	1.00	Stream Power (lb/ft s)		17.05	
Frctn Loss (ft)	0.81	Cum Volume (acre-ft)	1211.33	35001.90	1414.74
C & E Loss (ft)	0.15	Cum SA (acres)	203.87	3121.91	205.53

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 213.85

INPUT
Description: 213.85
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17827.8	1078.7	17849.3	1078.5	17962.5	1078	17983.6	1077.8	18087.6	1077.7
18117.7	1077.6	18209	1077.4	18245.6	1077.6	18313.2	1077.9	18389.3	1078.8
18415.4	1078.8	18437.5	1078.2	18449	1078.3	18463.7	1078.2	18513.6	1077.6
18548.9	1077.6	18753.1	1077.6	18798.9	1077.6	18834.2	1077.6	18917.4	1077
19257.5	1075.3	19264.9	1075.1	19293.5	1075.6	19308	1069.8	19333.3	1060.1
19342.5	1063.1	19360.7	1068.8	19366.6	1068.9	19391	1069.1	19423.4	1069.4
19453.2	1068.8	19469.5	1068.4	19505	1067.4	19506.5	1067.3	19507.3	1067.3
19507.8	1067.3	19547.4	1067.3	19584.5	1067.6	19698.5	1068	19698.6	1068
19700.1	1067.8	19706.3	1067	19707.5	1066.9	19732.9	1066.7	19742.3	1067
19770.4	1067.6	19785.4	1067.6	19789.2	1066.5	19853.9	1048.1	19906.4	1048.1
20083.9	1048.2	20249.9	1048.3	20313.2	1069.1	20328.7	1074.2	20334.9	1074.2
20586	1074.1	20640.3	1074.2	20781.1	1074.5	20824.2	1074.1	20842	1073.7
20852.3	1073.7	20870.3	1073.9	20934.9	1073.8	20979.5	1074.4	21111.7	1075.1
21125.5	1075	21144.4	1074.8	21152.1	1075.1	21185.5	1076.2	21224.6	1075.6
21230.8	1075.4	21246.8	1077.2	21248.3	1077.3	21269	1076.4	21270.4	1076.3
21272.5	1076.3	21337.9	1076.3	21381.5	1076.2	21384.6	1076.3	21498.8	1077.1
21503.7	1077.1	21545.5	1077.1	21557.5	1077.1	21587	1077.2	21625.9	1077.3
21671.9	1077.5	21707.6	1077.4	21723.9	1077.4	21767.4	1077.3	21770.2	1077.3
21773.6	1077.4	21774.6	1077.4	21801.1	1079.6	21831.2	1078.8	21907.4	1079.1
21970.5	1078.8								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
17827.8	.04	19785.4	.035	20328.7	.04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19785.4 20328.7 521 520.04 541 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17827.8	19618.33	1078	F
20328.7	21970.5	1078	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1075.08	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.43	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	1071.66	Reach Len. (ft)	521.00	520.04	541.00
Crit W.S. (ft)	1065.14	Flow Area (sq ft)	694.18	11070.79	
E.G. Slope (ft/ft)	0.002230	Area (sq ft)	1959.01	11070.79	
Q Total (cfs)	169000.00	Flow (cfs)	3146.51	165853.50	
Top Width (ft)	1017.61	Top Width (ft)	482.04	535.57	
Vel Total (ft/s)	14.36	Avg. Vel. (ft/s)	4.53	14.98	
Max Chl Dpth (ft)	23.56	Hydr. Depth (ft)	4.16	20.67	
Conv. Total (cfs)	3578540.0	Conv. (cfs)	66626.8	3511913.0	
Length Wtd. (ft)	520.05	Wetted Per. (ft)	167.15	542.03	
Min Ch El (ft)	1048.10	Shear (lb/sq ft)	0.58	2.84	
Alpha	1.07	Stream Power (lb/ft s)	2.62	42.60	
Frctn Loss (ft)	0.71	Cum Volume (acre-ft)	9049.95	33917.61	3405.80
C & E Loss (ft)	0.44	Cum SA (acres)	2000.37	3110.36	989.02

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1075.09	Element	Left OB	Channel	Right OB

```
                                                                    Post-Project
* Vel Head (ft)          *    3.43  * Wt. n-Val.              *   0.040  *   0.035  *          *
* W.S. Elev (ft)         * 1071.66  * Reach Len. (ft)        *  521.00  *  520.04  *  541.00  *
* Crit W.S. (ft)         * 1065.14  * Flow Area (sq ft)      *  695.26  *11074.25  *          *
* E.G. Slope (ft/ft)     *0.002229  * Area (sq ft)           *  695.26  *11074.25  *          *
* Q Total (cfs)          *169000.00  * Flow (cfs)            * 3105.07  *165894.90  *          *
* Top Width (ft)         *  702.59  * Top Width (ft)         *  167.07  *  535.52  *          *
* Vel Total (ft/s)       *   14.36  * Avg. Vel. (ft/s)       *    4.47  *   14.98  *          *
* Max Chl Dpth (ft)      *   23.56  * Hydr. Depth (ft)       *    4.16  *   20.68  *          *
* Conv. Total (cfs)      *3579632.0  * Conv. (cfs)           * 65769.3  *3513862.0  *          *
* Length Wtd. (ft)       *  520.05  * Wetted Per. (ft)       *  171.10  *  542.00  *          *
* Min Ch El (ft)         * 1048.10  * Shear (lb/sq ft)       *    0.57  *    2.84  *          *
* Alpha                  *    1.07  * Stream Power (lb/ft s) *    2.53  *   42.59  *          *
* Frctn Loss (ft)        *    0.71  * Cum Volume (acre-ft)   * 1207.34  *34849.18  * 1414.74  *
* C & E Loss (ft)        *    0.44  * Cum SA (acres)         *  202.91  * 3114.50  *  205.53  *
*****************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 213.75

INPUT
Description: 213.75
Station Elevation Data    num=      28
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
   18435    1076   19470    1076   19600    1080 19633.4 1080.84 19633.5 1074.13
 19633.6  1073.5 19636.5  1073.5   19709 1048.55   19764    1047 19769.5    1047
 19834.5 1047.15   19899  1046.6   19904  1046.6   19959    1047   20034 1044.61
   20039  1044.6   20104    1045   20169  1045.5   20174  1045.5 20240.5 1049.35
   20302  1073.8   20305  1073.8 20305.1  1074.8 20305.2  1081.5   20340    1080
   20490    1076   20925    1075   21465    1076

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
   18435    .037 19633.5    .032 20305.1    .037

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       19633.5 20305.1             125  116.36     120             .1       .3
Ineffective Flow     num=       2
   Sta L    Sta R    Elev  Permanent
   18435 19633.5 1074.13       F
 20305.1   21465  1074.8       F

CROSS SECTION OUTPUT  Profile #PF#1
*****************************************************************************************
* E.G. Elev (ft)         * 1073.93  * Element              *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.97  * Wt. n-Val.           *          *   0.032  *          *
* W.S. Elev (ft)         * 1071.97  * Reach Len. (ft)      *    0.10  *    0.10  *    0.10  *
* Crit W.S. (ft)         * 1060.91  * Flow Area (sq ft)    *          *15022.46  *          *
* E.G. Slope (ft/ft)     *0.000919  * Area (sq ft)         *          *15022.46  *          *
* Q Total (cfs)          *169000.00  * Flow (cfs)          *          *169000.00  *          *
* Top Width (ft)         *  656.45  * Top Width (ft)       *          *  656.45  *          *
* Vel Total (ft/s)       *   11.25  * Avg. Vel. (ft/s)     *          *   11.25  *          *
* Max Chl Dpth (ft)      *   27.37  * Hydr. Depth (ft)     *          *   22.88  *          *
* Conv. Total (cfs)      *5575129.0  * Conv. (cfs)         *          *5575129.0  *          *
* Length Wtd. (ft)       *    0.10  * Wetted Per. (ft)     *          *  664.87  *          *
* Min Ch El (ft)         * 1044.60  * Shear (lb/sq ft)     *          *    1.30  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   14.58  *          *
* Frctn Loss (ft)        *          * Cum Volume (acre-ft) * 9038.24  *33761.85  * 3405.80  *
* C & E Loss (ft)        *          * Cum SA (acres)       * 1997.49  * 3103.24  *  989.02  *
*****************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

CROSS SECTION OUTPUT  Profile #PF#2
*****************************************************************************************
* E.G. Elev (ft)         * 1073.94  * Element              *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.96  * Wt. n-Val.           *          *   0.032  *          *
* W.S. Elev (ft)         * 1071.98  * Reach Len. (ft)      *    0.10  *    0.10  *    0.10  *
* Crit W.S. (ft)         * 1060.91  * Flow Area (sq ft)    *          *15027.91  *          *
* E.G. Slope (ft/ft)     *0.000918  * Area (sq ft)         *          *15027.91  *          *
* Q Total (cfs)          *169000.00  * Flow (cfs)          *          *169000.00  *          *
* Top Width (ft)         *  656.35  * Top Width (ft)       *          *  656.35  *          *
* Vel Total (ft/s)       *   11.25  * Avg. Vel. (ft/s)     *          *   11.25  *          *
* Max Chl Dpth (ft)      *   27.38  * Hydr. Depth (ft)     *          *   22.90  *          *
* Conv. Total (cfs)      *5578780.0  * Conv. (cfs)         *          *5578780.0  *          *
* Length Wtd. (ft)       *    0.10  * Wetted Per. (ft)     *          *  664.82  *          *
* Min Ch El (ft)         * 1044.60  * Shear (lb/sq ft)     *          *    1.30  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   14.56  *          *
* Frctn Loss (ft)        *          * Cum Volume (acre-ft) * 1203.18  *34693.37  * 1414.74  *
* C & E Loss (ft)        *          * Cum SA (acres)       *  201.91  * 3107.39  *  205.53  *
*****************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

BRIDGE


RIVER: 1
REACH: 1                 RS: 213.745

INPUT
```

Description: 7th Street Bridge
Distance from Upstream XS = .1
Deck/Roadway Width = 115.36
Weir Coefficient = 2.6
Upstream Deck/Roadway Coordinates
num= 8

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
19633.4	1080.84 1074.13	19633.5	1080.84 1074.13	19764	1084.56 1077.81
19899	1085.96 1079.23	20039	1085.95 1079.2	20174	1084.45 1077.7
20305	1081.53 1074.82	20305.2	1081.5 1074.82		

Upstream Bridge Cross Section Data
Station Elevation Data num= 28

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18435	1076	19470	1076	19600	1080	19633.4	1080.84	19633.5	1074.13
19633.6	1073.5	19636.5	1073.5	19709	1048.55	19764	1047	19769.5	1047
19834.5	1047.15	19899	1046.6	19904	1046.6	19959	1047	20034	1044.61
20039	1044.6	20104	1045	20169	1045.5	20174	1045.5	20240.5	1049.35
20302	1073.8	20305	1073.8	20305.1	1074.8	20305.2	1081.5	20340	1080
20490	1076	20925	1075	21465	1076				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
18435	.037	19633.5	.032	20305.1	.037

Bank Sta: Left Right Coeff Contr. Expan.
19633.5 20305.1 .1 .3
Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
18435	19633.5	1074.13	F
20305.1	21465	1074.8	F

Downstream Deck/Roadway Coordinates
num= 8

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
19633.4	1080.84 1074.13	19633.5	1080.84 1074.13	19764	1084.56 1077.81
19899	1085.96 1079.23	20039	1085.95 1079.2	20174	1084.45 1077.7
20305	1081.53 1074.82	20305.2	1081.5 1074.82		

Downstream Bridge Cross Section Data
Station Elevation Data num= 28

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18435	1076	19470	1076	19600	1080	19633.4	1080.84	19633.5	1074.13
19633.6	1073.5	19636.5	1073.5	19709	1048.55	19764	1047	19769.5	1047
19834.5	1047.15	19899	1046.6	19904	1046.6	19959	1047	20034	1044.61
20039	1044.6	20104	1045	20169	1045.5	20174	1045.5	20240.5	1049.35
20302	1073.8	20305	1073.8	20305.1	1074.8	20305.2	1081.5	20340	1080
20490	1076	20925	1075	21465	1076				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
18435	.037	19633.5	.032	20305.1	.037

Bank Sta: Left Right Coeff Contr. Expan.
19633.5 20305.1 .1 .3
Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
18435	19633.5	1074.13	F
20305.1	21465	1074.8	F

Upstream Embankment side slope = horiz. to 1.0 vertical
Downstream Embankment side slope = horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .95
Elevation at which weir flow begins =
Energy head used in spillway design =
Spillway height used in design =
Weir crest shape = Broad Crested

Number of Piers = 4

Pier Data
Pier Station Upstream= 19766.5 Downstream= 19766.5
Upstream num= 2

Width	Elev	Width	Elev
5	1047	5	1077.88

Downstream num= 2

Width	Elev	Width	Elev
5	1047	5	1077.88

Pier Data
Pier Station Upstream= 19901.5 Downstream= 19901.5
Upstream num= 2

Width	Elev	Width	Elev
5	1046.6	5	1079.2

Downstream num= 2

Width	Elev	Width	Elev
5	1046.6	5	1079.2

Pier Data
Pier Station Upstream= 20036.5 Downstream= 20036.5
Upstream num= 2

Width	Elev	Width	Elev
5	1044.6	5	1079.2

Downstream num= 2

Width	Elev	Width	Elev

```
*********************************
       5  1044.6       5  1079.2

Pier Data
Pier Station     Upstream= 20171.5    Downstream= 20171.5
Upstream     num=       2
    Width   Elev    Width   Elev
*********************************
       5  1045.5       5  1077.7
Downstream     num=       2
    Width   Elev    Width   Elev
*********************************
       5  1045.5       5  1077.7

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
       Momentum               Cd   =     1.2
       Yarnell                KVal =    1.05
Selected Low Flow Methods = Highest Energy Answer

High Flow Method
       Energy Only

Additional Bridge Parameters
       Add Friction component to Momentum
       Add Weight component to Momentum
       Class B flow critical depth computations use critical depth
          inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT  Profile #PF#1
*************************************************************************************************
* E.G. US. (ft)          *    1073.93  * Element               *Inside BR US *Inside BR DS *
* W.S. US. (ft)          *    1071.97  * E.G. Elev (ft)        *    1073.86  *    1073.68  *
* Q Total (cfs)          *  169000.00  * W.S. Elev (ft)        *    1071.70  *    1071.48  *
* Q Bridge (cfs)         *  169000.00  * Crit W.S. (ft)        *    1061.26  *    1061.26  *
* Q Weir (cfs)           *             * Max Chl Dpth (ft)      *      27.10  *      26.88  *
* Weir Sta Lft (ft)      *             * Vel Total (ft/s)       *      11.80  *      11.91  *
* Weir Sta Rgt (ft)      *             * Flow Area (sq ft)      *   14327.87  *   14190.25  *
* Weir Submerg           *             * Froude # Chl           *       0.44  *       0.44  *
* Weir Max Depth (ft)    *             * Specif Force (cu ft)   *  236120.50  *  233627.70  *
* Min El Weir Flow (ft)  *    1075.01  * Hydr Depth (ft)        *      22.56  *      22.39  *
* Min El Prs (ft)        *    1079.23  * W.P. Total (ft)        *     849.45  *     846.46  *
* Delta EG (ft)          *       0.26  * Conv. Total (cfs)      *  4375788.0  *  4316097.0  *
* Delta WS (ft)          *       0.31  * Top Width (ft)         *     634.96  *     633.79  *
* BR Open Area (sq ft)   *   18211.62  * Frctn Loss (ft)        *             *             *
* BR Open Vel (ft/s)     *      11.91  * C & E Loss (ft)        *             *             *
* Coef of Q              *             * Shear Total (lb/sq ft) *       1.57  *       1.60  *
* Br Sel Method          *   Momentum  * Power Total (lb/ft s)  *      18.53  *      19.11  *
*************************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

BRIDGE OUTPUT  Profile #PF#2
*************************************************************************************************
* E.G. US. (ft)          *    1073.94  * Element               *Inside BR US *Inside BR DS *
* W.S. US. (ft)          *    1071.98  * E.G. Elev (ft)        *    1073.86  *    1073.69  *
* Q Total (cfs)          *  169000.00  * W.S. Elev (ft)        *    1071.70  *    1071.49  *
* Q Bridge (cfs)         *  169000.00  * Crit W.S. (ft)        *    1061.26  *    1061.26  *
* Q Weir (cfs)           *             * Max Chl Dpth (ft)      *      27.10  *      26.89  *
* Weir Sta Lft (ft)      *             * Vel Total (ft/s)       *      11.79  *      11.90  *
* Weir Sta Rgt (ft)      *             * Flow Area (sq ft)      *   14333.29  *   14195.82  *
* Weir Submerg           *             * Froude # Chl           *       0.44  *       0.44  *
* Weir Max Depth (ft)    *             * Specif Force (cu ft)   *  236219.40  *  233727.90  *
* Min El Weir Flow (ft)  *    1081.09  * Hydr Depth (ft)        *      22.57  *      22.40  *
* Min El Prs (ft)        *    1079.23  * W.P. Total (ft)        *     849.57  *     846.58  *
* Delta EG (ft)          *       0.26  * Conv. Total (cfs)      *  4378146.0  *  4318510.0  *
* Delta WS (ft)          *       0.31  * Top Width (ft)         *     635.01  *     633.84  *
* BR Open Area (sq ft)   *   18185.24  * Frctn Loss (ft)        *             *             *
* BR Open Vel (ft/s)     *      11.90  * C & E Loss (ft)        *             *             *
* Coef of Q              *             * Shear Total (lb/sq ft) *       1.57  *       1.60  *
* Br Sel Method          *   Momentum  * Power Total (lb/ft s)  *      18.50  *      19.09  *
*************************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 213.74

INPUT
Description: 213.74
Station Elevation Data    num=      28
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
   18435    1076   19470    1076   19600    1080 19633.4 1080.84 19633.5 1074.13
 19633.6  1073.5 19636.5  1073.5   19709 1048.55   19764    1047 19769.5    1047
 19834.5 1047.15   19899  1046.6   19904  1046.6   19959    1047   20034 1044.61
   20039  1044.6   20104    1045   20169  1045.5   20174  1045.5 20240.5 1049.35
   20302  1073.8   20305  1073.8 20305.1  1074.8 20305.2  1081.5   20340    1080
   20490    1076   20925    1075   21465    1076

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
   18435    .037 19633.5    .032 20305.1    .037
```

```
Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      19633.5 20305.1                391  373.47     361            .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
   18435 19633.5 1074.13       F
 20305.1   21465  1074.8       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         * 1073.68  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    2.02  * Wt. n-Val.             *          *   0.032  *          *
* W.S. Elev (ft)         * 1071.66  * Reach Len. (ft)        *  391.00  *  373.47  *  361.00  *
* Crit W.S. (ft)         * 1060.91  * Flow Area (sq ft)      *          * 14818.63 *          *
* E.G. Slope (ft/ft)     *0.000958  * Area (sq ft)           *          * 14818.63 *          *
* Q Total (cfs)          *169000.00  * Flow (cfs)            *          *169000.00  *          *
* Top Width (ft)         *  654.76  * Top Width (ft)        *          *  654.76  *          *
* Vel Total (ft/s)       *   11.40  * Avg. Vel. (ft/s)      *          *   11.40  *          *
* Max Chl Dpth (ft)      *   27.06  * Hydr. Depth (ft)      *          *   22.63  *          *
* Conv. Total (cfs)      *5459470.0  * Conv. (cfs)           *          *5459470.0  *          *
* Length Wtd. (ft)       *  373.47  * Wetted Per. (ft)      *          *  663.07  *          *
* Min Ch El (ft)         * 1044.60  * Shear (lb/sq ft)      *          *    1.34  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   15.25  *          *
* Frctn Loss (ft)        *    0.52  * Cum Volume (acre-ft)   * 9038.24  *33723.75  * 3405.80  *
* C & E Loss (ft)        *    0.17  * Cum SA (acres)         * 1997.49  * 3101.55  *  989.02  *
*********************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)         * 1073.69  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    2.02  * Wt. n-Val.             *          *   0.032  *          *
* W.S. Elev (ft)         * 1071.67  * Reach Len. (ft)        *  391.00  *  373.47  *  361.00  *
* Crit W.S. (ft)         * 1060.91  * Flow Area (sq ft)      *          * 14824.30 *          *
* E.G. Slope (ft/ft)     *0.000957  * Area (sq ft)           *          * 14824.30 *          *
* Q Total (cfs)          *169000.00  * Flow (cfs)            *          *169000.00  *          *
* Top Width (ft)         *  654.73  * Top Width (ft)        *          *  654.73  *          *
* Vel Total (ft/s)       *   11.40  * Avg. Vel. (ft/s)      *          *   11.40  *          *
* Max Chl Dpth (ft)      *   27.07  * Hydr. Depth (ft)      *          *   22.64  *          *
* Conv. Total (cfs)      *5462967.0  * Conv. (cfs)           *          *5462967.0  *          *
* Length Wtd. (ft)       *  373.47  * Wetted Per. (ft)      *          *  663.07  *          *
* Min Ch El (ft)         * 1044.60  * Shear (lb/sq ft)      *          *    1.34  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   15.23  *          *
* Frctn Loss (ft)        *    0.52  * Cum Volume (acre-ft)   * 1203.18  *34655.25  * 1414.74  *
* C & E Loss (ft)        *    0.17  * Cum SA (acres)         *  201.91  * 3105.69  *  205.53  *
*********************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

CROSS SECTION


RIVER: 1
REACH: 1                RS: 213.66

INPUT
Description: 213.66
Station Elevation Data    num=      96
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 17026.7  1076.4 17035.9  1076.4   17047  1076.4 17057.3  1076.5 17212.3  1077.3
 17306.5  1077.8 17311.3  1077.7 17325.2  1077.3 17326.2  1077.3 17343.4  1077.3
 17442.9  1076.7 17474.5  1076.6   17571    1076 17573.6    1076 17595.6  1076.1
   17610  1076.1 17705.1    1075 17741.5  1075.1 17947.8  1075.4 17953.1  1075.5
 18038.8  1075.4 18185.8  1075.6 18234.4  1076.1 18300.9  1076.4 18318.8  1076.5
   18414  1075.5 18414.6  1075.5 18415.1  1075.5 18415.7  1075.5 18448.6  1075.8
 18455.1  1075.4 18472.5  1073.3 18527.9  1073.3   18683    1073 18718.7    1073
 18832.1  1073.3 18873.8  1073.2 18878.4  1072.9 18881.8  1072.9 18892.6  1074.2
 18901.3  1075.2 19033.1  1075.2 19131.6  1074.9 19140.9  1074.8 19157.1  1074.8
 19235.1  1073.7 19291.4  1073.4 19291.9  1073.4 19292.2  1073.4 19391.8  1069.9
 19418.5  1069.7 19442.4  1069.3 19496.9    1070 19532.6  1070.6 19537.6  1070.2
   19543  1070.6 19572.3  1071.8 19605.3  1068.7 19616.1  1068.2 19621.3  1069.8
 19633.2  1073.3 19663.1  1073.7 19675.2  1073.6 19689.7  1068.5 19748.8  1047.6
 19750.4  1047.6 20010.7  1047.7 20194.9  1047.9   20235  1062.5 20260.3  1071.7
 20270.2  1073.7 20288.3  1076.6 20297.7  1078.3 20387.2  1078.5 20416.3  1078.5
 20457.1  1078.5 20464.9  1076.1 20469.4  1075.3 20825.5  1074.4 20828.5  1074.4
 20828.8  1074.4 20830.9  1074.4 20837.2  1074.9 20839.2  1074.9 20870.3  1074.9
 20871.4  1074.9 20872.6  1074.6 20872.8  1074.7 20900.8  1074.1 20901.5    1074
 20908.4  1073.9 20912.4  1073.9 20915.4    1074   20927  1075.1 20951.2  1077.5
 20999.4  1077.6

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
 17026.7    .037 19675.2    .032 20297.7    .037

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      19675.2 20297.7                490  491.08     495            .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 17026.7 19675.2  1078.5       F
 20297.7 20999.4  1078.5       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
```

```
                                                                    Post-Project
* E.G. Elev (ft)         * 1072.99  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    3.73  * Wt. n-Val.            *          *    0.032  *          *
* W.S. Elev (ft)         * 1069.25  * Reach Len. (ft)       *  490.00  *  491.08  *  495.00  *
* Crit W.S. (ft)         * 1063.62  * Flow Area (sq ft)     *          * 10898.94  *          *
* E.G. Slope (ft/ft)     *0.002199  * Area (sq ft)          *   12.11  * 10898.94  *          *
* Q Total (cfs)          *169000.00  * Flow (cfs)           *          * 169000.00  *          *
* Top Width (ft)         *  586.13  * Top Width (ft)       *   20.11  *  566.02  *          *
* Vel Total (ft/s)       *   15.51  * Avg. Vel. (ft/s)     *          *   15.51  *          *
* Max Chl Dpth (ft)      *   21.65  * Hydr. Depth (ft)     *          *   19.26  *          *
* Conv. Total (cfs)      *3604114.0  * Conv. (cfs)         *          * 3604114.0  *          *
* Length Wtd. (ft)       *  491.08  * Wetted Per. (ft)     *          *  573.50  *          *
* Min Ch El (ft)         * 1047.60  * Shear (lb/sq ft)     *          *    2.61  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *        *   40.45  *          *
* Frctn Loss (ft)        *    0.98  * Cum Volume (acre-ft)  * 9038.18  * 33613.50  * 3405.80  *
* C & E Loss (ft)        *    0.39  * Cum SA (acres)        * 1997.40  * 3096.31  *  989.02  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)         * 1073.00  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    3.73  * Wt. n-Val.            *          *    0.032  *          *
* W.S. Elev (ft)         * 1069.27  * Reach Len. (ft)       *  490.00  *  491.08  *  495.00  *
* Crit W.S. (ft)         * 1063.62  * Flow Area (sq ft)     *          * 10906.67  *          *
* E.G. Slope (ft/ft)     *0.002194  * Area (sq ft)          *          * 10906.67  *          *
* Q Total (cfs)          *169000.00  * Flow (cfs)           *          * 169000.00  *          *
* Top Width (ft)         *  565.99  * Top Width (ft)       *          *  565.99  *          *
* Vel Total (ft/s)       *   15.50  * Avg. Vel. (ft/s)     *          *   15.50  *          *
* Max Chl Dpth (ft)      *   21.67  * Hydr. Depth (ft)     *          *   19.27  *          *
* Conv. Total (cfs)      *3608339.0  * Conv. (cfs)         *          * 3608339.0  *          *
* Length Wtd. (ft)       *  491.08  * Wetted Per. (ft)     *          *  573.51  *          *
* Min Ch El (ft)         * 1047.60  * Shear (lb/sq ft)     *          *    2.60  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *        *   40.36  *          *
* Frctn Loss (ft)        *    0.98  * Cum Volume (acre-ft)  * 1203.18  * 34544.95  * 1414.74  *
* C & E Loss (ft)        *    0.39  * Cum SA (acres)        *  201.91  * 3100.46  *  205.53  *
*********************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                  RS: 213.57

INPUT
Description: 213.57 - FEMA Section AF
Station Elevation Data    num=      96
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 17508.1  1075.8 17669.7    1076 17677.2    1076 17679.4    1076 17681.9  1075.9
 17685.3  1075.9 17879.1  1077.7 17883.6  1077.7 17891.2  1077.7 17899.7  1077.7
 17907.2  1077.7 18293.4  1077.1 18302.2  1077.1 18305.6  1077.2   18335  1077.2
 18409.4  1076.8 18482.1    1076 18487.1  1075.3 18493.2  1074.6 18496.9  1074.6
   18674  1073.2   18717    1073 18743.5  1072.8 18755.4  1072.8   18802  1072.6
 18832.6  1072.6 18934.4  1072.7 18941.7  1072.7   18977    1069 18979.3  1068.7
 18979.7  1068.7 18981.1  1068.6 19032.8  1069.7 19078.3  1069.3 19123.5    1069
 19190.3  1068.3 19211.6  1068.4 19212.3  1068.4   19245  1068.5 19287.9    1069
 19318.4  1068.9 19384.7  1069.1 19398.3  1068.6 19484.5  1068.5 19514.1  1067.2
 19542.6  1063.6   19548  1062.9   19575  1062.8 19586.3  1062.5 19595.5  1063.8
 19603.2  1064.4 19612.3  1065.2 19617.4  1064.5 19668.9  1061.9 19672.3  1061.7
 19674.3  1061.7 19711.7  1060.1   19720  1057.4 19743.1  1047.9 20035.4    1047
 20123.9  1046.7 20135.8  1048.3 20147.5  1050.1 20202.7  1051.3 20261.3  1052.3
 20286.6    1053 20301.2  1052.6 20302.5  1052.5 20345.5  1073.5 20347.7  1074.6
 20347.8  1074.6 20348.2  1074.6 20373.8  1075.7 20384.8  1075.5 20390.6  1075.6
 20426.7  1075.7 20435.9  1075.7 20452.6  1075.3 20481.8  1075.4 20485.6  1075.2
 20501.3  1076.7   20634    1076 20804.5  1073.3 20853.6  1072.8 20858.1  1072.8
 20865.8  1073.1 20870.9    1073 20902.9  1071.5 20922.6  1075.2 20923.6  1075.4
 20925.3  1075.3 20936.8  1075.1 20950.5  1074.7 21085.5  1074.8 21211.9  1075.1
 21311.2  1074.8

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
 17508.1    .037 19484.5    .032 20373.8    .037

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       19484.5 20373.8             650  500.37     390             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 17508.1 19484.5  1077.7       F
 20373.8 21311.2  1077.7       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         * 1071.61  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    2.42  * Wt. n-Val.            *          *    0.032  *          *
* W.S. Elev (ft)         * 1069.19  * Reach Len. (ft)       *  650.00  *  500.37  *  390.00  *
* Crit W.S. (ft)         * 1063.08  * Flow Area (sq ft)     *          * 13535.60  *          *
* E.G. Slope (ft/ft)     *0.001831  * Area (sq ft)          *  189.41  * 13535.60  *          *
* Q Total (cfs)          *169000.00  * Flow (cfs)           *          * 169000.00  *          *
* Top Width (ft)         * 1275.10  * Top Width (ft)       *  422.92  *  852.17  *          *
* Vel Total (ft/s)       *   12.49  * Avg. Vel. (ft/s)     *          *   12.49  *          *
* Max Chl Dpth (ft)      *   22.49  * Hydr. Depth (ft)     *          *   15.88  *          *
```

								Post-Project			
* Conv. Total (cfs)	*3949740.0	* Conv. (cfs)	*	*3949740.0	*	*					
* Length Wtd. (ft)	* 500.37	* Wetted Per. (ft)	*	* 859.23	*	*					
* Min Ch El (ft)	* 1046.70	* Shear (lb/sq ft)	*	* 1.80	*	*					
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 22.48	*	*					
* Frctn Loss (ft)	* 0.88	* Cum Volume (acre-ft)	* 9037.05	*33475.77	* 3405.80	*					
* C & E Loss (ft)	* 0.13	* Cum SA (acres)	* 1994.90	* 3088.32	* 989.02	*					

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 1071.62	* Element	*	Left OB	*	Channel	*	Right OB	*		
* Vel Head (ft)	* 2.42	* Wt. n-Val.	*		*	0.032	*		*		
* W.S. Elev (ft)	* 1069.20	* Reach Len. (ft)	*	650.00	*	500.37	*	390.00	*		
* Crit W.S. (ft)	* 1063.08	* Flow Area (sq ft)	*		*13548.71		*		*		
* E.G. Slope (ft/ft)	*0.001827	* Area (sq ft)	*		*13548.71		*		*		
* Q Total (cfs)	*169000.00	* Flow (cfs)	*		*169000.00		*		*		
* Top Width (ft)	* 852.16	* Top Width (ft)	*		*	852.16	*		*		
* Vel Total (ft/s)	* 12.47	* Avg. Vel. (ft/s)	*		*	12.47	*		*		
* Max Chl Dpth (ft)	* 22.50	* Hydr. Depth (ft)	*		*	15.90	*		*		
* Conv. Total (cfs)	*3953934.0	* Conv. (cfs)	*		*3953934.0		*		*		
* Length Wtd. (ft)	* 500.37	* Wetted Per. (ft)	*		*	859.94	*		*		
* Min Ch El (ft)	* 1046.70	* Shear (lb/sq ft)	*		*	1.80	*		*		
* Alpha	* 1.00	* Stream Power (lb/ft s)	*		*	22.41	*		*		
* Frctn Loss (ft)	* 0.88	* Cum Volume (acre-ft)	* 1203.18		*34407.10		* 1414.74		*		
* C & E Loss (ft)	* 0.13	* Cum SA (acres)	* 201.91		* 3092.46		* 205.53		*		

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 213.47

INPUT
Description: 213.47
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17897	1072.3	17950.9	1072.3	17955.5	1073.1	17972.5	1074.8	18140.3	1074.1
18179.1	1074.1	18193.1	1074	18207.9	1073.9	18257.4	1074	18402.2	1073.7
18450.1	1073.2	18519.9	1072.6	18592.3	1071.7	18600.6	1071.6	18625.8	1071.9
18741.5	1071.7	18784.9	1071.7	18805.1	1070.7	18823.4	1069.4	18880.6	1067
18888.4	1066.7	18938.9	1066.6	18942.7	1066.6	18948.4	1066.6	18970.5	1067.2
19008	1068.2	19008.9	1068.2	19041.7	1068.5	19057.6	1068.6	19057.8	1068.6
19058.1	1068.6	19060.2	1068.6	19154.7	1068.1	19202.4	1067.9	19243.3	1067
19289	1066	19306.6	1065.6	19313.9	1065.3	19357.8	1064.8	19392.5	1064.4
19420.7	1063.8	19432.7	1063.5	19483.4	1062	19493.9	1061.7	19499.6	1061.8
19534.7	1062.6	19536.4	1062.5	19585.4	1061.2	19586.6	1061.2	19587.5	1061.2
19588.9	1061.1	19593.6	1060.6	19689.9	1051.5	19699.6	1050.5	19735.3	1047
19807.1	1046.8	19827.4	1046.8	19970.4	1046.6	19993.9	1046.3	20037.8	1046.2
20146.5	1045.8	20205.3	1048.7	20214.8	1049.3	20219.4	1049	20220.8	1048.9
20255.2	1063.1	20274.2	1072.4	20283.3	1072.6	20341.6	1072.5	20362.6	1072.6
20428.7	1074.9	20446.8	1074.9	20469.6	1074.9	20474.3	1074.9	20476.7	1075
20483.2	1074.9	20484.1	1074.9	20486.3	1074.9	20488.6	1074.7	20489.3	1074.7
20515.7	1073.2	20526.3	1073.3	20537.5	1073.5	20540.5	1073.4	20545	1073.8
20567.4	1075.2	20569.1	1075.4	20578.4	1075	20619.2	1074.5	20621.6	1074.4
20649.8	1074	20700.8	1074	20735.1	1074.2	20751.5	1074.5	20765.2	1074.8
20783.9	1075.1								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
17897	.037	19243.3	.032	20274.2	.037

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19243.3 20274.2 500 493.66 485 .1 .3
Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17897	19243.3	1075.4	F
20274.2	20783.9	1075.4	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 1070.60	* Element	*	Left OB	*	Channel	*	Right OB	*		
* Vel Head (ft)	* 2.00	* Wt. n-Val.	*		*	0.032	*		*		
* W.S. Elev (ft)	* 1068.60	* Reach Len. (ft)	*	500.00	*	493.66	*	485.00	*		
* Crit W.S. (ft)	* 1061.42	* Flow Area (sq ft)	*		*14886.30		*		*		
* E.G. Slope (ft/ft)	*0.001694	* Area (sq ft)	*	342.03	*14886.30		*		*		
* Q Total (cfs)	*169000.00	* Flow (cfs)	*		*169000.00		*		*		
* Top Width (ft)	* 1424.00	* Top Width (ft)	*	400.86	*	1023.14	*		*		
* Vel Total (ft/s)	* 11.35	* Avg. Vel. (ft/s)	*		*	11.35	*		*		
* Max Chl Dpth (ft)	* 22.80	* Hydr. Depth (ft)	*		*	14.55	*		*		
* Conv. Total (cfs)	*4106424.0	* Conv. (cfs)	*		*4106424.0		*		*		
* Length Wtd. (ft)	* 493.66	* Wetted Per. (ft)	*		*	1028.11	*		*		
* Min Ch El (ft)	* 1045.80	* Shear (lb/sq ft)	*		*	1.53	*		*		
* Alpha	* 1.00	* Stream Power (lb/ft s)	*		*	17.38	*		*		
* Frctn Loss (ft)	* 0.56	* Cum Volume (acre-ft)	* 9033.08		*33312.53		* 3405.80		*		
* C & E Loss (ft)	* 0.24	* Cum SA (acres)	* 1988.76		* 3077.55		* 989.02		*		

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid,

water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1070.62	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.00	Wt. n-Val.		0.032	
W.S. Elev (ft)	1068.62	Reach Len. (ft)	500.00	493.66	485.00
Crit W.S. (ft)	1061.42	Flow Area (sq ft)		14903.79	
E.G. Slope (ft/ft)	0.001691	Area (sq ft)		14903.79	
Q Total (cfs)	169000.00	Flow (cfs)		169000.00	
Top Width (ft)	1023.12	Top Width (ft)		1023.12	
Vel Total (ft/s)	11.34	Avg. Vel. (ft/s)		11.34	
Max Chl Dpth (ft)	22.82	Hydr. Depth (ft)		14.57	
Conv. Total (cfs)	4110138.0	Conv. (cfs)		4110138.0	
Length Wtd. (ft)	493.66	Wetted Per. (ft)		1029.73	
Min Ch El (ft)	1045.80	Shear (lb/sq ft)		1.53	
Alpha	1.00	Stream Power (lb/ft s)		17.32	
Frctn Loss (ft)	0.56	Cum Volume (acre-ft)	1203.18	34243.68	1414.74
C & E Loss (ft)	0.24	Cum SA (acres)	201.91	3081.69	205.53

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 213.38

INPUT
Description: 213.38
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17634.6	1070.7	17652.1	1070.7	17729.5	1071.2	17747.9	1072.2	17763.8	1073.1
17893.9	1073.4	17976.4	1073.1	18006.5	1072.7	18006.7	1072.7	18008	1072.7
18197.8	1072.8	18341.3	1071.5	18390.9	1071.3	18419.4	1070.9	18420.4	1070.9
18423.8	1070.9	18431	1071	18656.8	1070.5	18735	1070.6	18756.6	1070.9
18796.6	1071.1	18974.7	1070.8	19012.6	1070.8	19073.3	1070.8	19129.4	1069.7
19192.7	1068.9	19195.5	1068.8	19196.5	1068.5	19204.6	1068.3	19213.9	1068.2
19225.5	1067.5	19242.1	1066.8	19303.8	1064.4	19303.9	1064.4	19304.2	1064.4
19346.1	1064.6	19365.3	1061.2	19365.5	1061.2	19401.7	1061	19405.7	1060.8
19411.2	1060.6	19452.9	1058.9	19499.7	1059.7	19523.7	1060.4	19526.3	1060.4
19530.8	1060.5	19534.1	1060.4	19575.5	1058.6	19625.5	1054.4	19648.5	1052.9
19678.5	1053.7	19684.4	1053.8	19732.6	1049.4	19735.1	1049.2	19761.4	1050.8
19767.8	1050.7	19771.9	1050.2	19796.5	1046.2	19864.4	1045.8	20277.6	1045.7
20311.6	1045.6	20311.7	1045.4	20329.1	1049.4	20361.7	1051.6	20363.3	1052.8
20364.3	1052.8	20374	1053.5	20405.3	1054.8	20417	1056.5	20434.2	1065
20473	1075.2	20473.5	1075.2	20515.6	1074.3	20532	1073.2	20533.3	1073
20535.9	1073	20539.6	1072.9	20569.9	1072.5	20578	1072.1	20607.5	1072.2
20652.6	1074	20655.9	1074.1	20722.7	1075.3	20793.4	1076	20804.4	1076.4
20831.2	1076.4	20834	1075.7	20842.3	1072.9	20845.3	1072.1	20848.9	1072.1
20860.3	1072.3	20875.9	1072.3	20895.1	1072.4	20963.7	1072.4	20982.3	1071.9
20996.7	1072.4								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
17634.6	.037	19346.1	.032	20473	.037

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19346.1 20473 210 290.06 395 .1 .3
Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17634.6	19346.1	1076.4	F
20473	20996.7	1076.4	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1069.81	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.21	Wt. n-Val.		0.032	
W.S. Elev (ft)	1068.60	Reach Len. (ft)	210.00	290.06	395.00
Crit W.S. (ft)	1059.34	Flow Area (sq ft)		19139.19	
E.G. Slope (ft/ft)	0.000809	Area (sq ft)	395.62	19139.19	
Q Total (cfs)	169000.00	Flow (cfs)		169000.00	
Top Width (ft)	1251.70	Top Width (ft)	149.92	1101.78	
Vel Total (ft/s)	8.83	Avg. Vel. (ft/s)		8.83	
Max Chl Dpth (ft)	23.20	Hydr. Depth (ft)		17.37	
Conv. Total (cfs)	5943323.0	Conv. (cfs)		5943323.0	
Length Wtd. (ft)	290.06	Wetted Per. (ft)		1106.71	
Min Ch El (ft)	1045.40	Shear (lb/sq ft)		0.87	
Alpha	1.00	Stream Power (lb/ft s)		7.71	
Frctn Loss (ft)	0.20	Cum Volume (acre-ft)	9028.85	33119.73	3405.80
C & E Loss (ft)	0.07	Cum SA (acres)	1985.60	3065.51	989.02

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1069.82	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.21	Wt. n-Val.		0.032	
W.S. Elev (ft)	1068.61	Reach Len. (ft)	210.00	290.06	395.00
Crit W.S. (ft)	1059.34	Flow Area (sq ft)		19155.73	
E.G. Slope (ft/ft)	0.000810	Area (sq ft)		19155.73	
Q Total (cfs)	169000.00	Flow (cfs)		169000.00	
Top Width (ft)	1101.75	Top Width (ft)		1101.75	
Vel Total (ft/s)	8.82	Avg. Vel. (ft/s)		8.82	
Max Chl Dpth (ft)	23.21	Hydr. Depth (ft)		17.39	
Conv. Total (cfs)	5937578.0	Conv. (cfs)		5937578.0	

```
                                                                    Post-Project
* Length Wtd. (ft)       *  290.06  * Wetted Per. (ft)       *          * 1110.71  *          *
* Min Ch El (ft)         * 1045.40  * Shear (lb/sq ft)       *          *    0.87  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    7.70  *          *
* Frctn Loss (ft)        *    0.20  * Cum Volume (acre-ft)   * 1203.18  *34050.69  * 1414.74  *
* C & E Loss (ft)        *    0.07  * Cum SA (acres)         *  201.91  * 3069.65  *  205.53  *
*********************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 213.33

INPUT
Description: 213.33
Station Elevation Data    num=      96
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 17662.6  1072.6   17668  1072.6   17677  1072.6 17679.2  1072.7 17685.5  1072.7
 17890.3    1072 17891.3    1072 17919.8  1071.9 18055.2  1071.9 18114.9  1071.9
 18241.8  1071.2 18279.3  1070.9 18302.9  1070.9 18305.8  1070.8 18316.6  1070.7
 18337.3  1070.5 18464.8  1070.6 18565.2  1070.8 18644.2    1071 18654.1    1071
 18680.7  1070.7 18888.5    1070 18954.5  1069.6 19002.1  1069.7 19091.3    1069
 19104.2    1069 19104.4    1069 19107.7    1069 19109.5  1068.5 19112.3  1067.7
 19112.4  1067.7 19123.4  1067.3 19136.1  1067.1 19144.4  1069.1 19147.5  1069.9
 19163.9  1070.3 19173.4  1070.7 19184.4  1069.5 19203.3  1068.1 19209.7  1067.1
 19222.7    1066 19244.2  1064.1 19272.3    1063 19328.9  1063.5 19336.9  1063.4
 19344.3  1063.4 19367.2  1062.3   19389    1062 19396.3  1061.9 19416.7  1061.3
 19418.1  1060.9 19453.8  1059.7 19472.5  1059.2 19476.7  1057.5 19530.4  1058.7
 19538.8  1058.7   19541  1058.6   19590  1056.9 19629.4  1054.2 19644.5  1053.7
 19671.3  1051.4 19710.3  1047.2 19715.9  1046.8 19755.6  1046.4 19757.3  1046.3
 19759.3  1046.3 19761.3  1046.3 19780.3  1046.2 20358.7  1045.4 20444.8  1048.7
 20449.3  1048.9   20508  1066.2 20514.9  1068.7 20553.2  1069.1 20640.2  1069.7
 20662.5  1069.4   20704  1068.4 20729.7  1068.7 20782.7  1069.1 20784.7  1069.2
 20789.1  1069.5 20821.1  1071.4 20854.7    1073 20856.9  1073.1 20859.1  1073.1
   20896  1072.7 20902.1  1072.7 20919.8  1072.5 20932.4  1072.6 20967.3  1072.5
 21012.3  1072.8 21051.5    1073 21059.7    1073   21066  1073.1 21092.4    1073
 21244.4  1073.1

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
 17662.6    .037 19328.9    .032 20514.9    .037

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.    Expan.
       19328.9 20514.9              266  316.41     426            .1        .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 17662.6 19328.9  1073.1       F
 20640.2 21244.4  1073.1       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         * 1069.53  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.96  * Wt. n-Val.             *          *    0.032  *          *
* W.S. Elev (ft)         * 1068.57  * Reach Len. (ft)        *  266.00  *  316.41  *  426.00  *
* Crit W.S. (ft)         * 1057.70  * Flow Area (sq ft)      *          *21480.53  *          *
* E.G. Slope (ft/ft)     *0.000606  * Area (sq ft)           *  586.65  *21480.53  *    1.81  *
* Q Total (cfs)          *169000.00  * Flow (cfs)            *          *169000.00  *          *
* Top Width (ft)         * 1371.95  * Top Width (ft)        *  164.87  * 1185.64  *   21.44  *
* Vel Total (ft/s)       *    7.87  * Avg. Vel. (ft/s)      *          *    7.87  *          *
* Max Chl Dpth (ft)      *   23.17  * Hydr. Depth (ft)      *          *   18.12  *          *
* Conv. Total (cfs)      *6865352.0  * Conv. (cfs)          *          *6865352.0  *          *
* Length Wtd. (ft)       *  316.41  * Wetted Per. (ft)      *          * 1189.56  *          *
* Min Ch El (ft)         * 1045.40  * Shear (lb/sq ft)      *          *    0.68  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    5.37  *          *
* Frctn Loss (ft)        *    0.19  * Cum Volume (acre-ft)   * 9026.48  *32984.48  * 3405.79  *
* C & E Loss (ft)        *    0.02  * Cum SA (acres)         * 1984.84  * 3057.89  *  988.92  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)         * 1069.54  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.96  * Wt. n-Val.             *          *    0.032  *          *
* W.S. Elev (ft)         * 1068.58  * Reach Len. (ft)        *  266.00  *  316.41  *  426.00  *
* Crit W.S. (ft)         * 1057.70  * Flow Area (sq ft)      *          *21497.32  *          *
* E.G. Slope (ft/ft)     *0.000608  * Area (sq ft)           *          *21497.32  *          *
* Q Total (cfs)          *169000.00  * Flow (cfs)            *          *169000.00  *          *
* Top Width (ft)         * 1185.62  * Top Width (ft)        *          * 1185.62  *          *
* Vel Total (ft/s)       *    7.86  * Avg. Vel. (ft/s)      *          *    7.86  *          *
* Max Chl Dpth (ft)      *   23.18  * Hydr. Depth (ft)      *          *   18.13  *          *
* Conv. Total (cfs)      *6854778.0  * Conv. (cfs)          *          *6854778.0  *          *
* Length Wtd. (ft)       *  316.41  * Wetted Per. (ft)      *          * 1194.64  *          *
* Min Ch El (ft)         * 1045.40  * Shear (lb/sq ft)      *          *    0.68  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    5.37  *          *
* Frctn Loss (ft)        *    0.19  * Cum Volume (acre-ft)   * 1203.18  *33915.34  * 1414.74  *
* C & E Loss (ft)        *    0.02  * Cum SA (acres)         *  201.91  * 3062.04  *  205.53  *
*********************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 213.26

INPUT
```

Description: 213.26
Station Elevation Data num= 45

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17300	1071.7	17670	1072	17850	1073.6	18250	1075.5	19180	1078.2
19488.1	1078.1	19488.2	1072.97	19495.2	1069.2	19517.2	1057.5	19564.2	1055.45
19584.2	1051.3	19586.9	1051	19589.4	1051	19638.2	1048.1	19686.9	1047.3
19689.4	1047.3	19704.2	1047.2	19743.2	1042.2	19786.9	1042.15	19789.4	1042.2
19838.2	1042.8	19871.7	1042.9	19886.9	1043.85	19889.4	1043.8	19938.2	1044.1
19986.9	1042.7	19989.4	1042.7	20038.2	1042.3	20086.9	1042.85	20089.4	1042.8
20121.7	1043.3	20171.2	1041.05	20188.2	1040.9	20189.4	1040.9	20223.2	1040.4
20248.7	1042.2	20286.9	1043.4	20289.4	1043.4	20307.7	1044.35	20382.7	1069.6
20387.9	1070.4	20387.9	1072.9	20388	1078.19	20790	1078.3	21330	1075.5

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
17300	.037	19488.2	.032	20387.9	.037

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19488.2 20387.9 155 152.22 155 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17300	19488.2	1072.97	F
20387.9	21330	1070.4	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1069.32	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.17	Wt. n-Val.		0.032	
W.S. Elev (ft)	1068.16	Reach Len. (ft)	0.10	0.10	0.10
Crit W.S. (ft)	1055.61	Flow Area (sq ft)		19493.06	
E.G. Slope (ft/ft)	0.000568	Area (sq ft)		19493.06	
Q Total (cfs)	169000.00	Flow (cfs)		169000.00	
Top Width (ft)	881.25	Top Width (ft)		881.25	
Vel Total (ft/s)	8.67	Avg. Vel. (ft/s)		8.67	
Max Chl Dpth (ft)	27.76	Hydr. Depth (ft)		22.12	
Conv. Total (cfs)	7091406.0	Conv. (cfs)		7091406.0	
Length Wtd. (ft)	0.10	Wetted Per. (ft)		888.93	
Min Ch El (ft)	1040.40	Shear (lb/sq ft)		0.78	
Alpha	1.00	Stream Power (lb/ft s)		6.74	
Frctn Loss (ft)		Cum Volume (acre-ft)	9024.69	32835.67	3405.78
C & E Loss (ft)		Cum SA (acres)	1984.33	3050.38	988.82

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1069.34	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.17	Wt. n-Val.		0.032	
W.S. Elev (ft)	1068.17	Reach Len. (ft)	0.10	0.10	0.10
Crit W.S. (ft)	1055.61	Flow Area (sq ft)		19505.43	
E.G. Slope (ft/ft)	0.000567	Area (sq ft)		19505.43	
Q Total (cfs)	169000.00	Flow (cfs)		169000.00	
Top Width (ft)	881.21	Top Width (ft)		881.21	
Vel Total (ft/s)	8.66	Avg. Vel. (ft/s)		8.66	
Max Chl Dpth (ft)	27.77	Hydr. Depth (ft)		22.13	
Conv. Total (cfs)	7098895.0	Conv. (cfs)		7098895.0	
Length Wtd. (ft)	0.10	Wetted Per. (ft)		888.94	
Min Ch El (ft)	1040.40	Shear (lb/sq ft)		0.78	
Alpha	1.00	Stream Power (lb/ft s)		6.73	
Frctn Loss (ft)		Cum Volume (acre-ft)	1203.18	33766.42	1414.74
C & E Loss (ft)		Cum SA (acres)	201.91	3054.53	205.53

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

BRIDGE

RIVER: 1
REACH: 1 RS: 213.255

INPUT
Description: Central Avenue Bridge
Distance from Upstream XS = .1
Deck/Roadway Width = 151.22
Weir Coefficient = 2.6
Upstream Deck/Roadway Coordinates
num= 11

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
19488.1	1078.1	1072.97	19488.2	1078.14	1072.97	19586.9	1078.5	1073.28
19686.9	1078.86	1073.64	19786.9	1079.15	1073.93	19886.9	1079.37	1074.2
19989.4	1079.38	1074.2	20086.9	1079.13	1073.93	20188.2	1078.89	1073.7
20286.9	1078.53	1073.32	20388	1078.19	1072.98			

Upstream Bridge Cross Section Data
Station Elevation Data num= 45

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17300	1071.7	17670	1072	17850	1073.6	18250	1075.5	19180	1078.2
19488.1	1078.1	19488.2	1072.97	19495.2	1069.2	19517.2	1057.5	19564.2	1055.45
19584.2	1051.3	19586.9	1051	19589.4	1051	19638.2	1048.1	19686.9	1047.3
19689.4	1047.3	19704.2	1047.2	19743.2	1042.2	19786.9	1042.15	19789.4	1042.2
19838.2	1042.8	19871.7	1042.9	19886.9	1043.85	19889.4	1043.8	19938.2	1044.1
19986.9	1042.7	19989.4	1042.7	20038.2	1042.3	20086.9	1042.85	20089.4	1042.8
20121.7	1043.3	20171.2	1041.05	20188.2	1040.9	20189.4	1040.9	20223.2	1040.4
20248.7	1042.2	20286.9	1043.4	20289.4	1043.4	20307.7	1044.35	20382.7	1069.6
20387.9	1070.4	20387.9	1072.9	20388	1078.19	20790	1078.3	21330	1075.5

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val

```
**********************************************
   17300    .037 19488.2    .032 20387.9    .037

Bank Sta: Left   Right    Coeff Contr.   Expan.
       19488.2 20387.9            .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
   17300 19488.2 1072.97        F
 20387.9   21330  1070.4        F

Downstream  Deck/Roadway Coordinates
    num=      11
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
*****************************************************************************
 19488.1  1078.1 1072.97 19488.2 1078.14 1072.97 19586.9  1078.5 1073.28
 19686.9 1078.86 1073.64 19786.9 1079.15 1073.93 19886.9 1079.37  1074.2
 19989.4 1079.38  1074.2 20086.9 1079.13 1073.93 20188.2 1078.89  1073.7
 20286.9 1078.53 1073.32   20388 1078.19 1072.98

Downstream Bridge Cross Section Data
Station Elevation Data    num=      45
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
   17300  1071.7   17670    1072   17850  1073.6   18250  1075.5   19180  1078.2
 19488.1  1078.1 19488.2 1072.97 19495.2  1069.2 19517.2  1057.5 19564.2 1055.45
 19584.2  1051.3 19586.9    1051 19589.4    1051 19638.2  1048.1 19686.9  1047.3
 19689.4  1047.3 19704.2  1047.2 19743.2  1042.2 19786.9 1042.15 19789.4  1042.2
 19838.2  1042.8 19871.7  1042.9 19886.9 1043.85 19889.4  1043.8 19938.2  1044.1
 19986.9  1042.7 19989.4  1042.7 20038.2  1042.3 20086.9 1042.85 20089.4  1042.8
 20121.7  1043.3 20171.2 1041.05 20188.2  1040.9 20189.4  1040.9 20223.2  1040.4
 20248.7  1042.2 20286.9  1043.4 20289.4  1043.4 20307.7 1044.35 20382.7  1069.6
 20387.9  1070.4 20387.9  1072.9   20388 1078.19   20790  1078.3   21330  1075.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
**********************************************
   17300    .037 19488.2    .032 20387.9    .037

Bank Sta: Left   Right    Coeff Contr.   Expan.
       19488.2 20387.9            .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
   17300 19488.2 1072.97        F
 20387.9   21330  1070.4        F

Upstream Embankment side slope              =         horiz. to 1.0 vertical
Downstream Embankment side slope            =         horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Piers =  8

Pier Data
Pier Station     Upstream=19588.15    Downstream=19588.15
Upstream     num=       2
    Width   Elev    Width   Elev
*********************************
      2.5    1051     2.5 1073.28
Downstream     num=       2
    Width   Elev    Width   Elev
*********************************
      2.5    1051     2.5 1073.28

Pier Data
Pier Station     Upstream=19688.15    Downstream=19688.15
Upstream     num=       2
    Width   Elev    Width   Elev
*********************************
      2.5  1047.3     2.5  1073.7
Downstream     num=       2
    Width   Elev    Width   Elev
*********************************
      2.5  1047.3     2.5  1073.7

Pier Data
Pier Station     Upstream=19788.15    Downstream=19788.15
Upstream     num=       2
    Width   Elev    Width   Elev
*********************************
      2.5 1042.15     2.5  1073.9
Downstream     num=       2
    Width   Elev    Width   Elev
*********************************
      2.5 1042.15     2.5  1073.9

Pier Data
Pier Station     Upstream=19888.15    Downstream=19888.15
Upstream     num=       2
    Width   Elev    Width   Elev
*********************************
      2.5  1043.8     2.5  1074.2
Downstream     num=       2
    Width   Elev    Width   Elev
*********************************
      2.5  1043.8     2.5  1074.2

Pier Data
Pier Station     Upstream=19988.15    Downstream=19988.15
Upstream     num=       2
    Width   Elev    Width   Elev
*********************************
      2.5  1042.7     2.5  1074.2
Downstream     num=       2
```

Width	Elev	Width	Elev
2.5	1042.7	2.5	1074.2

Pier Data
Pier Station Upstream=20088.15 Downstream=20088.15
Upstream num= 2

Width	Elev	Width	Elev
2.5	1042.8	2.5	1073.9

Downstream num= 2

Width	Elev	Width	Elev
2.5	1042.8	2.5	1073.9

Pier Data
Pier Station Upstream=20189.45 Downstream=20189.45
Upstream num= 2

Width	Elev	Width	Elev
2.5	1040.9	2.5	1073.7

Downstream num= 2

Width	Elev	Width	Elev
2.5	1040.9	2.5	1073.7

Pier Data
Pier Station Upstream=20288.15 Downstream=20288.15
Upstream num= 2

Width	Elev	Width	Elev
2.5	1043.4	2.5	1073.3

Downstream num= 2

Width	Elev	Width	Elev
2.5	1043.4	2.5	1073.3

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data
Energy
Momentum Cd = 1.2
Yarnell KVal = 1.05
Selected Low Flow Methods = Highest Energy Answer

High Flow Method
Energy Only

Additional Bridge Parameters
Add Friction component to Momentum
Add Weight component to Momentum
Class B flow critical depth computations use critical depth inside the bridge at the upstream end
Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #PF#1

				Inside BR US	Inside BR DS
E.G. US. (ft)	1069.32	Element			
W.S. US. (ft)	1068.16	E.G. Elev (ft)	1069.29	1069.14
Q Total (cfs)	169000.00	W.S. Elev (ft)	1068.05	1067.88
Q Bridge (cfs)	169000.00	Crit W.S. (ft)	1055.83	1055.83
Q Weir (cfs)		Max Chl Dpth (ft)	27.65	27.48
Weir Sta Lft (ft)		Vel Total (ft/s)	8.93	9.00
Weir Sta Rgt (ft)		Flow Area (sq ft)	18925.37	18778.97
Weir Submerg		Froude # Chl	0.34	0.34
Weir Max Depth (ft)		Specif Force (cu ft)	270196.80	267354.20
Min El Weir Flow (ft)	1072.98	Hydr Depth (ft)	21.99	21.84
Min El Prs (ft)	1074.20	W.P. Total (ft)	1248.98	1245.37
Delta EG (ft)	0.19	Conv. Total (cfs)	5381226.0	5322311.0
Delta WS (ft)	0.21	Top Width (ft)	860.74	859.92
BR Open Area (sq ft)	23844.87	Frctn Loss (ft)		
BR Open Vel (ft/s)	9.00	C & E Loss (ft)		
Coef of Q		Shear Total (lb/sq ft)	0.93	0.95
Br Sel Method	Momentum	Power Total (lb/ft s)	8.33	8.54

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

BRIDGE OUTPUT Profile #PF#2

				Inside BR US	Inside BR DS
E.G. US. (ft)	1069.34	Element			
W.S. US. (ft)	1068.17	E.G. Elev (ft)	1069.30	1069.15
Q Total (cfs)	169000.00	W.S. Elev (ft)	1068.07	1067.90
Q Bridge (cfs)	169000.00	Crit W.S. (ft)	1055.83	1055.83
Q Weir (cfs)		Max Chl Dpth (ft)	27.67	27.50
Weir Sta Lft (ft)		Vel Total (ft/s)	8.92	8.99
Weir Sta Rgt (ft)		Flow Area (sq ft)	18937.56	18791.46
Weir Submerg		Froude # Chl	0.34	0.34
Weir Max Depth (ft)		Specif Force (cu ft)	270434.70	267595.70
Min El Weir Flow (ft)	1078.18	Hydr Depth (ft)	22.00	21.85
Min El Prs (ft)	1074.20	W.P. Total (ft)	1249.28	1245.67
Delta EG (ft)	0.19	Conv. Total (cfs)	5386143.0	5327335.0
Delta WS (ft)	0.21	Top Width (ft)	860.81	859.99
BR Open Area (sq ft)	23784.88	Frctn Loss (ft)		
BR Open Vel (ft/s)	8.99	C & E Loss (ft)		
Coef of Q		Shear Total (lb/sq ft)	0.93	0.95
Br Sel Method	Momentum	Power Total (lb/ft s)	8.31	8.52

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 213.25

INPUT
Description: 213.25 - FEMA Section AE
Station Elevation Data num= 45

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17300	1071.7	17670	1072	17850	1073.6	18250	1075.5	19180	1078.2
19488.1	1078.1	19488.2	1072.97	19495.2	1069.2	19517.2	1057.5	19564.2	1055.45
19584.2	1051.3	19586.9	1051	19589.4	1051	19638.2	1048.1	19686.9	1047.3
19689.4	1047.3	19704.2	1047.2	19743.2	1042.2	19786.9	1042.15	19789.4	1042.2
19838.2	1042.8	19871.7	1042.9	19886.9	1043.85	19889.4	1043.8	19938.2	1044.1
19986.9	1042.7	19989.4	1042.7	20038.2	1042.3	20086.9	1042.85	20089.4	1042.8
20121.7	1043.3	20171.2	1041.05	20188.2	1040.9	20189.4	1040.9	20223.2	1040.4
20248.7	1042.2	20286.9	1043.4	20289.4	1043.4	20307.7	1044.35	20382.7	1069.6
20387.9	1070.4	20387.9	1072.9	20388	1078.19	20790	1078.3	21330	1075.5

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
17300	.037	19488.2	.032	20387.9	.037

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19488.2 20387.9 121 123.36 121 .1 .3
Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17300	19488.2	1072.97	F
20387.9	21330	1070.4	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1069.14	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.19	Wt. n-Val.		0.032	
W.S. Elev (ft)	1067.95	Reach Len. (ft)	121.00	123.36	121.00
Crit W.S. (ft)	1055.61	Flow Area (sq ft)		19310.07	
E.G. Slope (ft/ft)	0.000585	Area (sq ft)		19310.07	
Q Total (cfs)	169000.00	Flow (cfs)		169000.00	
Top Width (ft)	880.24	Top Width (ft)		880.24	
Vel Total (ft/s)	8.75	Avg. Vel. (ft/s)		8.75	
Max Chl Dpth (ft)	27.55	Hydr. Depth (ft)		21.94	
Conv. Total (cfs)	6986536.0	Conv. (cfs)		6986536.0	
Length Wtd. (ft)	123.36	Wetted Per. (ft)		887.84	
Min Ch El (ft)	1040.40	Shear (lb/sq ft)		0.79	
Alpha	1.00	Stream Power (lb/ft s)		6.95	
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)	9024.69	32769.79	3405.78
C & E Loss (ft)	0.05	Cum SA (acres)	1984.33	3047.38	988.82

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1069.15	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.19	Wt. n-Val.		0.032	
W.S. Elev (ft)	1067.96	Reach Len. (ft)	121.00	123.36	121.00
Crit W.S. (ft)	1055.61	Flow Area (sq ft)		19322.76	
E.G. Slope (ft/ft)	0.000584	Area (sq ft)		19322.76	
Q Total (cfs)	169000.00	Flow (cfs)		169000.00	
Top Width (ft)	880.24	Top Width (ft)		880.24	
Vel Total (ft/s)	8.75	Avg. Vel. (ft/s)		8.75	
Max Chl Dpth (ft)	27.56	Hydr. Depth (ft)		21.95	
Conv. Total (cfs)	6994050.0	Conv. (cfs)		6994050.0	
Length Wtd. (ft)	123.36	Wetted Per. (ft)		887.87	
Min Ch El (ft)	1040.40	Shear (lb/sq ft)		0.79	
Alpha	1.00	Stream Power (lb/ft s)		6.94	
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)	1203.18	33700.49	1414.74
C & E Loss (ft)	0.05	Cum SA (acres)	201.91	3051.52	205.53

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 213.21

INPUT
Description: 213.21

Right Channel Bank Station Interpolated
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18330.9	1072.8	18364	1072.8	18412.8	1073.1	18447.9	1073	18475.1	1072.3
18506.2	1072	18530.5	1071.1	18588.6	1070	18604.7	1069.8	18607.3	1070
18638.6	1069.9	18645.2	1070	18646.8	1070	18647	1070	18648.3	1070
18679.6	1070.4	18691	1070.2	18696.8	1070.3	18826.1	1070.2	18853.1	1069.7
18879.8	1069.1	18990	1068.8	19004.3	1068.6	19030.8	1069	19071.8	1069.5
19171.4	1069.4	19189.5	1069.4	19238.8	1069.2	19251.2	1070	19253.8	1070
19283.8	1069	19284.7	1069	19384	1068.2	19385.3	1068.1	19387.8	1068.1
19391.2	1068.1	19421.7	1067.9	19486.6	1066.6	19490.3	1065.6	19518.8	1054.9
19533.4	1049	19535.9	1049.5	19545.6	1052	19551.4	1054.2	19576.8	1051.8
19595.9	1047.4	19611.2	1046.8	19618.6	1046.7	19619.1	1046.6	19626.3	1045.5
19627	1045.3	19697	1045.2	19802.7	1045.1	20377.2	1044.9	20380.6	1045
20387.2	1045.1	20389.8	1045.1	20418.5	1045.3	20484.9	1046.3	20500.9	1046.4
20506.4	1046.3	20545.8	1046.4	20547	1046.4	20573.1	1046	20581	1046
20584	1054.4	20584.6	1058.9	20634.9	1062.9	20654.9	1064.2	20663	1064.8
20687	1065.1	20732.3	1064.9	20749.5	1065.1	20761.2	1066	20787.8	1066.2

20803.3	1066.3	20840	1066.3	20853.8	1066.3	20900.8	1066.8	20929.7	1067.2
20948.4	1067.8	20957.7	1070.3	20963.6	1072.1	20965.8	1071.9	20972.5	1072.2
20980.1	1072.5	21025.3	1072.2	21041.7	1072.4	21049	1072.4	21083	1072.6
21094.6	1072.7	21137.7	1072.7	21224.3	1073.6	21258.5	1074.2	21274.1	1074.3
21278.4	1074.5								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
18330.9	.037	19490.3	.032	20418.5	.037

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
19490.3	20418.5	450 531.57	745	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
18330.9	19253.8	1074	F
20418.5	21278.4	1074	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1069.03	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.04	Wt. n-Val.	0.037	0.032	
W.S. Elev (ft)	1067.99	Reach Len. (ft)	450.00	531.57	745.00
Crit W.S. (ft)	1055.88	Flow Area (sq ft)	55.46	20303.46	
E.G. Slope (ft/ft)	0.000510	Area (sq ft)	55.46	20303.46	4648.82
Q Total (cfs)	166000.00	Flow (cfs)	38.71	165961.30	
Top Width (ft)	1540.79	Top Width (ft)	81.99	928.20	530.60
Vel Total (ft/s)	8.15	Avg. Vel. (ft/s)	0.70	8.17	
Max Chl Dpth (ft)	23.09	Hydr. Depth (ft)	0.68	21.87	
Conv. Total (cfs)	7351368.0	Conv. (cfs)	1714.1	7349654.0	
Length Wtd. (ft)	531.56	Wetted Per. (ft)	82.14	932.81	
Min Ch El (ft)	1044.90	Shear (lb/sq ft)	0.02	0.69	
Alpha	1.00	Stream Power (lb/ft s)	0.02	5.66	
Frctn Loss (ft)	0.36	Cum Volume (acre-ft)	9024.61	32713.70	3399.33
C & E Loss (ft)	0.04	Cum SA (acres)	1984.22	3044.82	988.08

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1069.04	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.04	Wt. n-Val.		0.032	
W.S. Elev (ft)	1068.00	Reach Len. (ft)	450.00	531.57	745.00
Crit W.S. (ft)	1055.88	Flow Area (sq ft)		20315.02	
E.G. Slope (ft/ft)	0.000528	Area (sq ft)		20315.02	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	928.20	Top Width (ft)		928.20	
Vel Total (ft/s)	8.17	Avg. Vel. (ft/s)		8.17	
Max Chl Dpth (ft)	23.10	Hydr. Depth (ft)		21.89	
Conv. Total (cfs)	7227547.0	Conv. (cfs)		7227547.0	
Length Wtd. (ft)	531.57	Wetted Per. (ft)		957.91	
Min Ch El (ft)	1044.90	Shear (lb/sq ft)		0.70	
Alpha	1.00	Stream Power (lb/ft s)		5.71	
Frctn Loss (ft)	0.36	Cum Volume (acre-ft)	1203.18	33644.37	1414.74
C & E Loss (ft)	0.04	Cum SA (acres)	201.91	3048.96	205.53

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 213.11

INPUT
Description: 213.11
Station Elevation Data num= 85

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17566.5	1070.1	17705.4	1071.3	17742.2	1071.6	17814.3	1070.1	17888.9	1069.6
17929.2	1069.8	17996.1	1072.7	18084.9	1073.4	18245.7	1073.1	18304.6	1073.3
18312.5	1071.8	18319.5	1069.3	18320.2	1069.1	18324.7	1069.1	18353.4	1069.6
18382.1	1068.8	18390	1068.3	18395.2	1069.2	18399.3	1071.7	18472.2	1071.2
18480.8	1071.2	18492.7	1070.4	18507.8	1070	18517.1	1069.2	18520.7	1069.6
18584	1071.9	18596.8	1072.2	18606	1072.4	18609.2	1072.4	18753.6	1072
18759.6	1071.8	18769.2	1073.7	18780.8	1075.5	18785.7	1075	18793.4	1074.4
18863.8	1073.8	18931.9	1074.1	18960.3	1074.3	18976.4	1074.4	19015.9	1075
19047.7	1075	19171.5	1072.4	19275.4	1071	19456	1071.1	19523.2	1069.3
19575	1067.9	19589.1	1068.3	19601.9	1071.4	19606.1	1072.1	19616.1	1067.5
19661.3	1047.6	20012.6	1047.6	20486.9	1047.9	20586.5	1081.1	20599.1	1086
20638.9	1086.2	20743.9	1086.8	20798.9	1087.3	20849	1087.5	20878.6	1087.6
20889.5	1087.8	20899.2	1087.8	20922	1087.5	21000.4	1087.3	21062.3	1085.9
21080.5	1084.4	21100.6	1083.3	21131.5	1083	21372.7	1078.3	21390.1	1077.6
21449.7	1073.9	21464.1	1073.6	21478.8	1073.9	21484.8	1073.8	21573.7	1073.9
21602.4	1073.9	21694.6	1073.6	21800.6	1072.4	21943.2	1070.8	22180.4	1070.9
22217.7	1071	22268.3	1071.4	22474.2	1073.6	22486.2	1076.3	22488.2	1077

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
17566.5	.037	19606.1	.032	20599.1	.037

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
19606.1	20599.1	425 459.38	565	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17566.5	18780.8	1087.8	F
20599.1	22488.2	1087.8	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1068.63	Element	Left OB	Channel	Right OB

Post-Project

* Vel Head (ft)	* 1.47	* Wt. n-Val.	*	* 0.032	*	*
* W.S. Elev (ft)	* 1067.16	* Reach Len. (ft)	* 425.00	* 459.38	* 565.00	*
* Crit W.S. (ft)	* 1058.35	* Flow Area (sq ft)	*	*17066.41	*	*
* E.G. Slope (ft/ft)	*0.000913	* Area (sq ft)	*	*17066.41	*	*
* Q Total (cfs)	*166000.00	* Flow (cfs)	*	*166000.00	*	*
* Top Width (ft)	* 927.80	* Top Width (ft)	*	* 927.80	*	*
* Vel Total (ft/s)	* 9.73	* Avg. Vel. (ft/s)	*	* 9.73	*	*
* Max Chl Dpth (ft)	* 19.56	* Hydr. Depth (ft)	*	* 18.39	*	*
* Conv. Total (cfs)	*5493675.0	* Conv. (cfs)	*	*5493675.0	*	*
* Length Wtd. (ft)	* 459.38	* Wetted Per. (ft)	*	* 935.04	*	*
* Min Ch El (ft)	* 1047.60	* Shear (lb/sq ft)	*	* 1.04	*	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 10.12	*	*
* Frctn Loss (ft)	* 0.45	* Cum Volume (acre-ft)	* 9024.33	*32485.68	* 3359.57	*
* C & E Loss (ft)	* 0.01	* Cum SA (acres)	* 1983.80	* 3033.49	* 983.54	*

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 1068.63	* Element	* Left OB	* Channel	* Right OB	*
* Vel Head (ft)	* 1.47	* Wt. n-Val.	*	* 0.032	*	*
* W.S. Elev (ft)	* 1067.16	* Reach Len. (ft)	* 425.00	* 459.38	* 565.00	*
* Crit W.S. (ft)	* 1058.35	* Flow Area (sq ft)	*	*17072.18	*	*
* E.G. Slope (ft/ft)	*0.000912	* Area (sq ft)	*	*17072.18	*	*
* Q Total (cfs)	*166000.00	* Flow (cfs)	*	*166000.00	*	*
* Top Width (ft)	* 927.79	* Top Width (ft)	*	* 927.79	*	*
* Vel Total (ft/s)	* 9.72	* Avg. Vel. (ft/s)	*	* 9.72	*	*
* Max Chl Dpth (ft)	* 19.56	* Hydr. Depth (ft)	*	* 18.40	*	*
* Conv. Total (cfs)	*5496745.0	* Conv. (cfs)	*	*5496745.0	*	*
* Length Wtd. (ft)	* 459.38	* Wetted Per. (ft)	*	* 935.04	*	*
* Min Ch El (ft)	* 1047.60	* Shear (lb/sq ft)	*	* 1.04	*	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 10.11	*	*
* Frctn Loss (ft)	* 0.44	* Cum Volume (acre-ft)	* 1203.18	*33416.25	* 1414.74	*
* C & E Loss (ft)	* 0.01	* Cum SA (acres)	* 201.91	* 3037.64	* 205.53	*

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 213.03

INPUT
Description: 213.03
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16056.5	1068.9	16069.1	1068.8	16071.5	1068.8	16197.1	1069.2	16383.9	1070
16409	1070	16413.8	1070	16414.4	1070	16428.8	1070	16501.9	1070.2
16550	1070.3	16603.1	1070.5	16734.3	1069.9	16759	1069.9	16800.6	1069.5
16821.1	1069.8	16943.1	1070.1	16956.6	1070.5	16985.9	1070.6	17193.9	1070.8
17238.8	1069.8	17263.2	1069.3	17296.6	1068.7	17461.4	1069.1	17486.5	1069.2
17576.5	1069.4	17728.6	1070.6	17908.4	1072	17938.3	1071.6	17974.7	1070.1
17987.3	1069.9	18028.7	1068.5	18086.7	1069.1	18107.5	1068.9	18113.8	1068.9
18246.2	1068.5	18370.2	1068.2	18382.5	1068.2	18389	1068.3	18394.9	1068.3
18496	1070.4	18502.4	1070.5	18521.4	1070.6	18643.8	1071	18700.9	1071.3
18708.1	1071.2	18723.6	1071.3	18831.5	1070.9	18846.4	1070.8	18847.1	1070.8
18848.3	1070.8	18969.8	1071.4	19007.8	1071.8	19178.9	1073.7	19181.7	1073.7
19324.1	1073.1	19588.8	1066.9	19627.1	1066	19640.5	1066.2	19662.1	1067.2
19666.3	1067.8	19672.1	1066.574	19703.2	1060	19755.3	1050.7	19776.1	1048.9
19807.6	1047.8	19807.9	1047.8	19808.6	1047.8	19883.7	1046.8	19936.5	1046.7
19974.6	1046.7	20168.5	1046.8	20481.5	1047.5	20531.6	1047.5	20536.3	1047.6
20551.1	1052.6	20591.83	1066.575	20595.4	1067.8	20639.6	1083	20645.8	1085
20668.5	1085.5	20744.1	1085.4	20806.7	1086.1	20879.4	1082	20936.8	1078.5
20990.3	1075.5	21125.9	1073.2	21137.8	1072.9	21183.6	1072.1	21221	1072
21240.8	1071.7	21303.4	1071.3	21328.8	1071.1	21394.9	1071.7	21406.3	1071.8
21439	1071.7	21481.2	1071.9						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
16056.5	.037	19672.1	.03	20591.83	.037

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19672.1 20591.83 475 495 525 .1 .3
Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
16056.5	19178.9	1086.1	F
20645.8	21481.2	1086.1	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 1068.17	* Element	* Left OB	* Channel	* Right OB	*
* Vel Head (ft)	* 1.60	* Wt. n-Val.	* 0.037	* 0.032	*	*
* W.S. Elev (ft)	* 1066.57	* Reach Len. (ft)	* 475.00	* 495.00	* 525.00	*
* Crit W.S. (ft)	* 1058.30	* Flow Area (sq ft)	* 14.85	*16376.62	*	*
* E.G. Slope (ft/ft)	*0.001032	* Area (sq ft)	* 14.85	*16376.62	*	*
* Q Total (cfs)	*166000.00	* Flow (cfs)	* 9.03	*165991.00	*	*
* Top Width (ft)	* 965.60	* Top Width (ft)	* 45.87	* 919.72	*	*
* Vel Total (ft/s)	* 10.13	* Avg. Vel. (ft/s)	* 0.61	* 10.14	*	*
* Max Chl Dpth (ft)	* 19.87	* Hydr. Depth (ft)	* 0.32	* 17.81	*	*
* Conv. Total (cfs)	*5167811.0	* Conv. (cfs)	* 281.1	*5167530.0	*	*
* Length Wtd. (ft)	* 495.00	* Wetted Per. (ft)	* 45.89	* 924.49	*	*
* Min Ch El (ft)	* 1046.70	* Shear (lb/sq ft)	* 0.02	* 1.14	*	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	* 0.01	* 11.57	*	*
* Frctn Loss (ft)	* 0.57	* Cum Volume (acre-ft)	* 9024.25	*32309.34	* 3359.57	*
* C & E Loss (ft)	* 0.05	* Cum SA (acres)	* 1983.57	* 3023.75	* 983.54	*

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid,

water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1068.17	Element	Left OB	Channel	Right OB	
Vel Head (ft)	1.59	Wt. n-Val.		0.032		
W.S. Elev (ft)	1066.58	Reach Len. (ft)	475.00	495.00	525.00	
Crit W.S. (ft)	1058.30	Flow Area (sq ft)		16382.68		
E.G. Slope (ft/ft)	0.001031	Area (sq ft)	0.00	16382.68		
Q Total (cfs)	166000.00	Flow (cfs)		166000.00		
Top Width (ft)	919.76	Top Width (ft)	0.03	919.73		
Vel Total (ft/s)	10.13	Avg. Vel. (ft/s)		10.13		
Max Chl Dpth (ft)	19.88	Hydr. Depth (ft)		17.81		
Conv. Total (cfs)	5170676.0	Conv. (cfs)		5170676.0		
Length Wtd. (ft)	495.00	Wetted Per. (ft)		924.50		
Min Ch El (ft)	1046.70	Shear (lb/sq ft)		1.14		
Alpha	1.00	Stream Power (lb/ft s)		11.55		
Frctn Loss (ft)	0.57	Cum Volume (acre-ft)	1203.18	33239.84	1414.74	
C & E Loss (ft)	0.05	Cum SA (acres)	201.91	3027.90	205.53	

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 212.93

INPUT
Description: 212.93

Left and Right Channel Bank Stations Interpolated
Station Elevation Data num= 93

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18913.7	1067.5	18940.6	1066.4	18961.6	1067.4	18996.4	1069.5	19034.7	1069.3
19121.7	1070.2	19158.8	1070.2	19269.6	1071.2	19362.4	1070.3	19381.3	1070.6
19412.2	1072.5	19420.1	1072.9	19430.8	1073.3	19436.5	1073.5	19633.3	1068.7
19645	1068.3	19645.7	1068.4	19645.9	1068.4	19653.4	1069	19673.1	1070.5
19690.76	1065.485	19697.4	1063.6	19757.3	1046.7	19779.3	1046.4	19826.6	1046.3
19850.5	1046.5	19924.2	1047.4	19928.9	1047.5	19929.5	1047.4	19958.7	1045.5
20129.7	1045.4	20271.7	1045.6	20345.4	1045.6	20426.9	1045.5	20489.75	1065.484
20489.8	1065.5	20498.7	1068.1	20501.4	1068	20587.1	1066.5	20637	1066.5
20655.9	1066.4	20685.9	1065.7	20749.1	1064.9	20804.3	1071.3	20847	1074.9
20872.4	1075.1	20941	1074.1	20990.9	1073	21005.7	1072.8	21075.3	1071.3
21079.7	1071.2	21083	1071.2	21113	1071.3	21246.3	1072.7	21249.5	1072.8
21261.8	1072.9	21268.5	1072.9	21332.8	1073.1	21571.4	1072.7	21590.1	1072.7
21815.9	1071.3	21853.1	1071.3	21982.5	1070.6	22017.6	1070.5	22314.9	1070
22499	1068.8	22548.8	1068.9	22568.2	1068.4	22648.5	1068.9	22948.3	1069.7
23054.9	1071.1	23121.6	1072	23140.9	1076.4	23143.5	1077.2	23151.2	1077.1
23159.2	1077	23162.2	1077.3	23171	1077.8	23179.9	1081.1	23202.7	1089.6
23248.6	1089.5	23303.8	1089.6	23327.8	1082.2	23331.1	1081	23333.2	1080.6
23345.9	1077.9	23350.9	1077.9	23361.3	1078.1	23377.6	1073.6	23386.3	1070.8
23389.2	1071	23392	1071.2	23394	1070.7				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
18913.7	.037	19690.76	.032	20489.75	.037

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19690.76 20489.75 495 501.9 535 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
18913.7	19673.1	1078	F
20498.7	23394	1078	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1067.55	Element	Left OB	Channel	Right OB	
Vel Head (ft)	2.06	Wt. n-Val.		0.032		
W.S. Elev (ft)	1065.48	Reach Len. (ft)	495.00	501.90	535.00	
Crit W.S. (ft)	1058.04	Flow Area (sq ft)		14402.09		
E.G. Slope (ft/ft)	0.001316	Area (sq ft)		14402.09	14.96	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00		
Top Width (ft)	850.19	Top Width (ft)		798.99	51.20	
Vel Total (ft/s)	11.53	Avg. Vel. (ft/s)		11.53		
Max Chl Dpth (ft)	20.08	Hydr. Depth (ft)		18.03		
Conv. Total (cfs)	4575514.0	Conv. (cfs)		4575514.0		
Length Wtd. (ft)	501.90	Wetted Per. (ft)		804.77		
Min Ch El (ft)	1045.40	Shear (lb/sq ft)		1.47		
Alpha	1.00	Stream Power (lb/ft s)		16.95		
Frctn Loss (ft)	0.79	Cum Volume (acre-ft)	9024.17	32134.46	3359.48	
C & E Loss (ft)	0.10	Cum SA (acres)	1983.32	3013.99	983.24	

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1067.55	Element	Left OB	Channel	Right OB	
Vel Head (ft)	2.06	Wt. n-Val.		0.032		
W.S. Elev (ft)	1065.49	Reach Len. (ft)	495.00	501.90	535.00	
Crit W.S. (ft)	1058.04	Flow Area (sq ft)		14408.82		
E.G. Slope (ft/ft)	0.001314	Area (sq ft)		14408.82		
Q Total (cfs)	166000.00	Flow (cfs)		166000.00		
Top Width (ft)	798.99	Top Width (ft)		798.99		
Vel Total (ft/s)	11.52	Avg. Vel. (ft/s)		11.52		
Max Chl Dpth (ft)	20.09	Hydr. Depth (ft)		18.03		
Conv. Total (cfs)	4579008.0	Conv. (cfs)		4579008.0		

								Post-Project			
* Length Wtd. (ft)	*	501.90	* Wetted Per. (ft)	*		*	804.79	*		*	
* Min Ch El (ft)	*	1045.40	* Shear (lb/sq ft)	*		*	1.47	*		*	
* Alpha	*	1.00	* Stream Power (lb/ft s)	*		*	16.92	*		*	
* Frctn Loss (ft)	*	0.79	* Cum Volume (acre-ft)	*	1203.18	*	33064.89	*	1414.74	*	
* C & E Loss (ft)	*	0.10	* Cum SA (acres)	*	201.91	*	3018.13	*	205.53	*	

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 212.84

INPUT
Description: 212.84 - FEMA Section AD

Left and Right Channel Bank Stations

Interpolated
Station Elevation Data num= 66

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16284.9	1068.4	16487.1	1068.9	16606	1069.3	16985	1071.2	17015.9	1071.4
17038.7	1071.8	17089.2	1071.1	17339.8	1070.2	17519.4	1069.1	17554.9	1069.1
17652.7	1069	17900.6	1068.7	18109.2	1068.8	18133.9	1069	19053.9	1067.7
19203.8	1066	19229.6	1065.8	19232.1	1065.8	19238.5	1065.7	19242.2	1065.7
19244.8	1065.8	19286.8	1067.4	19292.2	1069.2	19450.5	1067.9	19498.7	1067.5
19560.8	1067	19586	1066.9	19671.4	1066.8	19692.2	1068.3	19695.5	1068.9
19711.5	1063.544	19765.4	1045.5	19772.2	1043.1	19790.5	1043.1	19811.3	1043.2
20298.7	1043.5	20314.2	1050.2	20347.25	1063.544	20367.7	1071.8	20367.9	1071.8
20405.2	1072.8	20416.8	1072.7	20424.4	1072.7	20490.9	1070.9	20522.9	1069.8
20629.8	1070.1	20679.7	1070.1	20767.5	1070.4	20793.1	1070.2	20818.2	1069.1
20874.5	1068.7	20940.7	1070.4	20979.1	1070.3	21186.4	1069.3	21242.6	1069.1
21449.2	1070.2	21488.8	1070.8	21502.4	1071	21582.5	1070.9	21684.9	1071.4
21805.3	1070.7	21883.6	1070.5	21943.6	1070.2	22187.5	1070.4	22226.7	1070.2
22398.2	1069.8								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
16284.9	.037	19711.5	.03	22034	7.25 .037

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19711.5 20347.25 565 538.19 480 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
16284.9	19695.5	1072.8	F
20367.7	22398.2	1072.8	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	*	1066.65	* Element	*	Left OB	*	Channel	*	Right OB	*	
* Vel Head (ft)	*	3.11	* Wt. n-Val.	*		*	0.032	*		*	
* W.S. Elev (ft)	*	1063.54	* Reach Len. (ft)	*	565.00	*	538.19	*	480.00	*	
* Crit W.S. (ft)	*	1057.57	* Flow Area (sq ft)	*		*	11737.26	*		*	
* E.G. Slope (ft/ft)	*	0.001930	* Area (sq ft)	*		*	11737.26	*		*	
* Q Total (cfs)	*	166000.00	* Flow (cfs)	*		*	166000.00	*		*	
* Top Width (ft)	*	635.75	* Top Width (ft)	*		*	635.75	*		*	
* Vel Total (ft/s)	*	14.14	* Avg. Vel. (ft/s)	*		*	14.14	*		*	
* Max Chl Dpth (ft)	*	20.44	* Hydr. Depth (ft)	*		*	18.46	*		*	
* Conv. Total (cfs)	*	3778154.0	* Conv. (cfs)	*		*	3778154.0	*		*	
* Length Wtd. (ft)	*	538.19	* Wetted Per. (ft)	*		*	643.08	*		*	
* Min Ch El (ft)	*	1043.10	* Shear (lb/sq ft)	*		*	2.20	*		*	
* Alpha	*	1.00	* Stream Power (lb/ft s)	*		*	31.11	*		*	
* Frctn Loss (ft)	*	0.90	* Cum Volume (acre-ft)	*	9024.17	*	31983.87	*	3359.39	*	
* C & E Loss (ft)	*	0.18	* Cum SA (acres)	*	1983.32	*	3005.72	*	982.92	*	

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	*	1066.66	* Element	*	Left OB	*	Channel	*	Right OB	*	
* Vel Head (ft)	*	3.10	* Wt. n-Val.	*		*	0.032	*		*	
* W.S. Elev (ft)	*	1063.56	* Reach Len. (ft)	*	565.00	*	538.19	*	480.00	*	
* Crit W.S. (ft)	*	1057.57	* Flow Area (sq ft)	*		*	11745.09	*		*	
* E.G. Slope (ft/ft)	*	0.001926	* Area (sq ft)	*		*	11745.09	*		*	
* Q Total (cfs)	*	166000.00	* Flow (cfs)	*		*	166000.00	*		*	
* Top Width (ft)	*	635.75	* Top Width (ft)	*		*	635.75	*		*	
* Vel Total (ft/s)	*	14.13	* Avg. Vel. (ft/s)	*		*	14.13	*		*	
* Max Chl Dpth (ft)	*	20.46	* Hydr. Depth (ft)	*		*	18.47	*		*	
* Conv. Total (cfs)	*	3782263.0	* Conv. (cfs)	*		*	3782263.0	*		*	
* Length Wtd. (ft)	*	538.19	* Wetted Per. (ft)	*		*	643.10	*		*	
* Min Ch El (ft)	*	1043.10	* Shear (lb/sq ft)	*		*	2.20	*		*	
* Alpha	*	1.00	* Stream Power (lb/ft s)	*		*	31.04	*		*	
* Frctn Loss (ft)	*	0.90	* Cum Volume (acre-ft)	*	1203.18	*	32914.21	*	1414.74	*	
* C & E Loss (ft)	*	0.18	* Cum SA (acres)	*	201.91	*	3009.87	*	205.53	*	

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 212.74

INPUT
Description: 212.74

Left and Right Channel Bank Stations Interpolated
Station Elevation Data num= 70

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
15451.4	1067.1	15456.2	1067.3	15464.1	1067.8	15467.8	1068.3	15480.9	1067.9
15619.6	1066.5	15997.3	1067	16142.7	1066.6	16235	1067.1	16317.5	1067.4
16486.7	1067.9	16644.3	1068.2	16906.1	1067.7	17106.4	1067.8	17312.1	1069.3
17351.4	1069.8	17392.8	1069.3	17578.5	1067.9	17799	1066.9	17906.3	1067
18021.4	1067.4	18082.2	1066.6	18121.5	1067.1	18128.7	1067	19421.5	1067
19430.3	1070.5	19440.7	1074.4	19464.5	1074.9	19479.6	1075	19498.8	1064.8
19504.9	1062.5	19514.1	1062.5	19546.7	1062.8	19569.3	1066	19571.5	1066.5
19577.2	1066.5	19641.5	1067.1	19653.8	1066.8	19678.6	1067.3	19690.61	1063.061
19709.2	1056.5	19745.4	1042.1	19776.5	1041.9	20081.3	1041.6	20297.5	1041.8
20311.1	1046.1	20335	1053.3	20367.2	1063.063	20372.6	1064.7	20387.5	1069
20400.7	1069	20436.3	1069	20477.6	1068.5	20512.4	1068.7	20545.9	1068.9
20612.1	1068.9	20630.4	1069.2	20677.9	1069.9	20719.8	1069.6	20764.1	1069.6
20802.7	1069.4	20847.1	1068.9	20916.2	1069.1	20977.1	1068.7	21027.9	1068.8
21126.4	1069.4	21156	1069.5	21203.9	1069.2	21326.9	1068.9	21421.2	1069.1

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
15451.4	.037	19690.61	.032	20367.2	.037

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19690.61 20367.2 296 242.17 66 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
15451.4	19678.6	1074	F
20387.5	21421.2	1074	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1065.57	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.51	Wt. n-Val.		0.032	
W.S. Elev (ft)	1063.06	Reach Len. (ft)	296.00	242.17	66.00
Crit W.S. (ft)	1055.53	Flow Area (sq ft)		13064.60	
E.G. Slope (ft/ft)	0.001465	Area (sq ft)	19.23	13064.60	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	721.72	Top Width (ft)	45.13	676.58	
Vel Total (ft/s)	12.71	Avg. Vel. (ft/s)		12.71	
Max Chl Dpth (ft)	21.46	Hydr. Depth (ft)		19.31	
Conv. Total (cfs)	4336312.0	Conv. (cfs)		4336312.0	
Length Wtd. (ft)	242.17	Wetted Per. (ft)		683.64	
Min Ch El (ft)	1041.60	Shear (lb/sq ft)		1.75	
Alpha	1.00	Stream Power (lb/ft s)		22.22	
Frctn Loss (ft)	0.30	Cum Volume (acre-ft)	9024.05	31830.65	3359.39
C & E Loss (ft)	0.11	Cum SA (acres)	1983.03	2997.61	982.92

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1065.58	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.50	Wt. n-Val.		0.032	
W.S. Elev (ft)	1063.08	Reach Len. (ft)	296.00	242.17	66.00
Crit W.S. (ft)	1055.53	Flow Area (sq ft)		13074.10	
E.G. Slope (ft/ft)	0.001462	Area (sq ft)		13074.10	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	676.59	Top Width (ft)		676.59	
Vel Total (ft/s)	12.70	Avg. Vel. (ft/s)		12.70	
Max Chl Dpth (ft)	21.48	Hydr. Depth (ft)		19.32	
Conv. Total (cfs)	4341428.0	Conv. (cfs)		4341428.0	
Length Wtd. (ft)	242.17	Wetted Per. (ft)		683.67	
Min Ch El (ft)	1041.60	Shear (lb/sq ft)		1.75	
Alpha	1.00	Stream Power (lb/ft s)		22.16	
Frctn Loss (ft)	0.29	Cum Volume (acre-ft)	1203.18	32760.89	1414.74
C & E Loss (ft)	0.11	Cum SA (acres)	201.91	3001.76	205.53

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 212.68

INPUT
Description: 212.68

Upstream face of 7th Avenue bridge
Station Elevation Data num= 34

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18325	1064.21	19130.38	1068	19307.91	1072	19492.8	1073.03	19492.89	1066.21
19501.07	1063.02	19567.36	1037.2	19595.08	1037.5	19600.27	1037.5	19645.74	1037.8
19703.33	1037.88	19708.52	1037.88	19721.94	1039.1	19780.83	1037.6	19790.36	1040
19811.58	1039.4	19816.77	1039.4	19829.76	1037.2	19839.72	1038	19878.26	1039.3
19919.83	1037.5	19925.02	1037.5	19977.41	1036.9	20028.08	1038.1	20033.27	1038.1

```
20064.88  1037.5 20130.11063.02520137.19  1065.820137.28 1072.6620407.73    1072
20615.57    106820641.55  1067.620780.11    106821568.17  1069.3

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
   18325    .03719501.07    .032 20130.1    .037

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      19501.07 20130.1           155  154.01     155             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
   1832519492.89 1066.21       F
20137.1921568.17  1065.8       F

CROSS SECTION OUTPUT  Profile #PF#1
*****************************************************************************************
* E.G. Elev (ft)         * 1065.16  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    2.14  * Wt. n-Val.            *          *    0.032  *          *
* W.S. Elev (ft)         * 1063.02  * Reach Len. (ft)       *    0.10  *    0.10  *    0.10  *
* Crit W.S. (ft)         * 1052.69  * Flow Area (sq ft)     *          *14139.91  *          *
* E.G. Slope (ft/ft)     *0.001030  * Area (sq ft)          *          *14139.91  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *          *166000.00  *          *
* Top Width (ft)         *  629.02  * Top Width (ft)        *          *  629.02  *          *
* Vel Total (ft/s)       *   11.74  * Avg. Vel. (ft/s)      *          *   11.74  *          *
* Max Chl Dpth (ft)      *   26.12  * Hydr. Depth (ft)      *          *   22.48  *          *
* Conv. Total (cfs)      *5173110.0  * Conv. (cfs)          *          *5173110.0  *          *
* Length Wtd. (ft)       *    0.10  * Wetted Per. (ft)      *          *  639.38  *          *
* Min Ch El (ft)         * 1036.90  * Shear (lb/sq ft)      *          *    1.42  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   16.69  *          *
* Frctn Loss (ft)        *    0.00  * Cum Volume (acre-ft)  * 9023.98  *31755.03  * 3359.39  *
* C & E Loss (ft)        *    0.03  * Cum SA (acres)        * 1982.88  * 2993.98  *  982.92  *
*****************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

CROSS SECTION OUTPUT  Profile #PF#2
*****************************************************************************************
* E.G. Elev (ft)         * 1065.17  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    2.14  * Wt. n-Val.            *          *    0.032  *          *
* W.S. Elev (ft)         * 1063.04  * Reach Len. (ft)       *    0.10  *    0.10  *    0.10  *
* Crit W.S. (ft)         * 1052.69  * Flow Area (sq ft)     *          *14148.66  *          *
* E.G. Slope (ft/ft)     *0.001028  * Area (sq ft)          *          *14148.66  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *          *166000.00  *          *
* Top Width (ft)         *  629.03  * Top Width (ft)        *          *  629.03  *          *
* Vel Total (ft/s)       *   11.73  * Avg. Vel. (ft/s)      *          *   11.73  *          *
* Max Chl Dpth (ft)      *   26.14  * Hydr. Depth (ft)      *          *   22.49  *          *
* Conv. Total (cfs)      *5178274.0  * Conv. (cfs)          *          *5178274.0  *          *
* Length Wtd. (ft)       *    0.10  * Wetted Per. (ft)      *          *  639.41  *          *
* Min Ch El (ft)         * 1036.90  * Shear (lb/sq ft)      *          *    1.42  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   16.66  *          *
* Frctn Loss (ft)        *          * Cum Volume (acre-ft)  * 1203.18  *32685.22  * 1414.74  *
* C & E Loss (ft)        *          * Cum SA (acres)        *  201.91  * 2998.13  *  205.53  *
*****************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

BRIDGE


RIVER: 1
REACH: 1                  RS: 212.675

INPUT
Description: 7th Avenue Bridge
Distance from Upstream XS =       .1
Deck/Roadway Width        =    153.01
Weir Coefficient          =       2.6
Upstream  Deck/Roadway Coordinates
    num=       11
     Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord
*************************************************************************
   18325  1064.2  1064.219130.38    1068    106819307.91    1072    1072
 19492.8 1073.03 1073.0319492.89 1073.03 1066.2119595.08  1073.9 1067.07
19703.34 1074.35 1067.5219811.58 1074.48 1067.6419925.02 1074.24 1067.41
20033.27  1073.6 1066.7620137.19 1072.66 1065.84

Upstream Bridge Cross Section Data
Station Elevation Data    num=      34
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
*********************************************************************************************
   18325  1064.219130.38    106819307.91    1072 19492.8 1073.0319492.89 1066.21
19501.071063.02319567.36  1037.219595.08  1037.519600.27  1037.519645.74  1037.8
19703.33 1037.8819708.52 1037.8819721.94  1039.119780.83  1037.619790.36    1040
19811.58  1039.419816.77  1039.419829.76  1037.219839.72    103819878.26  1039.3
19919.83  1037.519925.02  1037.519977.41  1036.920028.08  1038.120033.27  1038.1
20064.88  1037.5 20130.11063.02520137.19  1065.820137.28 1072.6620407.73    1072
20615.57    106820641.55  1067.620780.11    106821568.17  1069.3

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
   18325    .03719501.07    .032 20130.1    .037

Bank Sta: Left   Right    Coeff Contr.   Expan.
      19501.07 20130.1            .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
   1832519492.89 1066.21       F
20137.1921568.17  1065.8       F

Downstream  Deck/Roadway Coordinates
    num=       11
     Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord
```

```
*****************************************************************************
   18325  1064.2  1064.219130.38    1068    106819307.91    1072    1072
 19492.8 1073.03 1073.0319492.89 1073.03 1066.2119595.08  1073.9 1067.07
19703.34 1074.35 1067.5219811.58 1074.48 1067.6419925.02 1074.24 1067.41
20033.27  1073.6 1066.7620137.19 1072.66 1065.84

Downstream Bridge Cross Section Data
Station Elevation Data    num=      34
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
*****************************************************************************************
   18325  1064.219130.38    106819307.91    1072 19492.8 1073.0319492.89 1066.21
19502.331062.53319567.36  1037.219595.08  1037.519600.27  1037.519645.74  1037.8
19703.33 1037.8819708.52 1037.8819721.94  1039.119780.83  1037.619790.36    1040
19811.58  1039.419816.77  1039.419829.76  1037.219839.72    103819878.26  1039.3
19919.83  1037.519925.02  1037.519977.41  1036.920028.08  1038.120033.27  1038.1
20064.88  1037.520128.841062.53220137.19  1065.820137.28 1072.6620407.73    1072
20615.57    106820641.55  1067.620780.11    106821568.17  1069.3

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
   18325    .03719502.33    .03220128.84    .037

Bank Sta: Left   Right    Coeff Contr.   Expan.
     19502.3320128.84           .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
   1832519492.89 1066.21       F
20137.1921568.17  1065.8       F

Upstream Embankment side slope              =         horiz. to 1.0 vertical
Downstream Embankment side slope            =         horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Piers =  5

Pier Data
Pier Station     Upstream=19597.67    Downstream=19597.67
Upstream     num=       2
    Width   Elev    Width   Elev
*********************************
     4.8    1036     4.8    1068
Downstream     num=       2
    Width   Elev    Width   Elev
*********************************
     4.8    1036     4.8    1068

Pier Data
Pier Station     Upstream=19705.06    Downstream=19705.06
Upstream     num=       2
    Width   Elev    Width   Elev
*********************************
     4.8    1036     4.8    1068
Downstream     num=       2
    Width   Elev    Width   Elev
*********************************
     4.8    1036     4.8    1068

Pier Data
Pier Station     Upstream=19814.17    Downstream=19814.17
Upstream     num=       2
    Width   Elev    Width   Elev
*********************************
     4.8    1036     4.8    1068
Downstream     num=       2
    Width   Elev    Width   Elev
*********************************
     4.8    1036     4.8    1068

Pier Data
Pier Station     Upstream=19922.42    Downstream=19922.42
Upstream     num=       2
    Width   Elev    Width   Elev
*********************************
     4.8    1036     4.8    1068
Downstream     num=       2
    Width   Elev    Width   Elev
*********************************
     4.8    1036     4.8    1068

Pier Data
Pier Station     Upstream=20030.67    Downstream=20030.67
Upstream     num=       2
    Width   Elev    Width   Elev
*********************************
     4.8    1036     4.8    1068
Downstream     num=       2
    Width   Elev    Width   Elev
*********************************
     4.8    1036     4.8    1068

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
       Momentum               Cd   =     1.2
       Yarnell                KVal =    1.05
Selected Low Flow Methods = Highest Energy Answer

High Flow Method
       Energy Only
```

Additional Bridge Parameters
Add Friction component to Momentum
Add Weight component to Momentum
Class B flow critical depth computations use critical depth
inside the bridge at the upstream end
Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT Profile #PF#1

E.G. US. (ft)	1065.16	Element	Inside BR US	Inside BR DS
W.S. US. (ft)	1063.02	E.G. Elev (ft)	1065.14	1064.84
Q Total (cfs)	166000.00	W.S. Elev (ft)	1062.75	1062.36
Q Bridge (cfs)	166000.00	Crit W.S. (ft)	1053.13	1053.12
Q Weir (cfs)		Max Chl Dpth (ft)	25.85	25.46
Weir Sta Lft (ft)		Vel Total (ft/s)	12.41	12.63
Weir Sta Rgt (ft)		Flow Area (sq ft)	13373.12	13142.99
Weir Submerg		Froude # Chl	0.46	0.48
Weir Max Depth (ft)		Specif Force (cu ft)	223159.50	219217.40
Min El Weir Flow (ft)	1065.81	Hydr Depth (ft)	22.16	21.85
Min El Prs (ft)	1067.64	W.P. Total (ft)	860.54	854.62
Delta EG (ft)	0.40	Conv. Total (cfs)	3867106.0	3774164.0
Delta WS (ft)	0.49	Top Width (ft)	603.60	601.64
BR Open Area (sq ft)	16032.12	Frctn Loss (ft)	0.29	0.00
BR Open Vel (ft/s)	12.63	C & E Loss (ft)	0.01	0.07
Coef of Q		Shear Total (lb/sq ft)	1.79	1.86
Br Sel Method	Energy only	Power Total (lb/ft s)	22.19	23.46

Note: Momentum answer is not valid if the water surface is above the low chord or if there is weir flow. The momentum answer has been disregarded.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

BRIDGE OUTPUT Profile #PF#2

E.G. US. (ft)	1065.17	Element	Inside BR US	Inside BR DS
W.S. US. (ft)	1063.04	E.G. Elev (ft)	1065.07	1064.78
Q Total (cfs)	166000.00	W.S. Elev (ft)	1062.66	1062.28
Q Bridge (cfs)	166000.00	Crit W.S. (ft)	1053.13	1053.12
Q Weir (cfs)		Max Chl Dpth (ft)	25.76	25.38
Weir Sta Lft (ft)		Vel Total (ft/s)	12.46	12.68
Weir Sta Rgt (ft)		Flow Area (sq ft)	13321.77	13094.60
Weir Submerg		Froude # Chl	0.47	0.48
Weir Max Depth (ft)		Specif Force (cu ft)	222270.50	218402.60
Min El Weir Flow (ft)	1072.75	Hydr Depth (ft)	22.09	21.78
Min El Prs (ft)	1067.64	W.P. Total (ft)	859.22	853.37
Delta EG (ft)	0.40	Conv. Total (cfs)	3846322.0	3754689.0
Delta WS (ft)	0.50	Top Width (ft)	603.16	601.23
BR Open Area (sq ft)	16000.11	Frctn Loss (ft)		
BR Open Vel (ft/s)	12.68	C & E Loss (ft)		
Coef of Q		Shear Total (lb/sq ft)	1.80	1.87
Br Sel Method	Momentum	Power Total (lb/ft s)	22.47	23.74

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 212.67

INPUT
Description: 212.67

Left and Right Channel Bank Stations Interpolated
Station Elevation Data num= 34

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18325	1064.21	19130.38	1068	19307.91	1072	19492.8	1073.03	19492.89	1066.21
19502.33	1062.53	19567.36	1037.21	9595.08	1037.51	9600.27	1037.51	9645.74	1037.8
19703.33	1037.88	19708.52	1037.88	19721.94	1039.11	9780.83	1037.61	9790.36	1040
19811.58	1039.41	9816.77	1039.41	9829.76	1037.21	9839.72	1038	19878.26	1039.3
19919.83	1037.51	9925.02	1037.51	9977.41	1036.92	0028.08	1038.12	0033.27	1038.1
20064.88	1037.52	0128.84	1062.53	20137.19	1065.82	0137.28	1072.66	20407.73	1072
20615.57	1068	20641.55	1067.62	0780.11	1068	21568.17	1069.3		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
18325	.037	19502.33	.037	20128.84	.037

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19502.3 20128.84 481 557.08 901 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
18325	19492.89	1066.21	F
20137.19	21568.17	1065.8	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1064.77	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.24	Wt. n-Val.		0.032	
W.S. Elev (ft)	1062.53	Reach Len. (ft)	481.00	557.08	901.00
Crit W.S. (ft)	1052.69	Flow Area (sq ft)		13830.37	
E.G. Slope (ft/ft)	0.001102	Area (sq ft)		13830.37	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	626.50	Top Width (ft)		626.50	
Vel Total (ft/s)	12.00	Avg. Vel. (ft/s)		12.00	
Max Chl Dpth (ft)	25.63	Hydr. Depth (ft)		22.08	
Conv. Total (cfs)	4999902.0	Conv. (cfs)		4999902.0	

```
                                                                    Post-Project
* Length Wtd. (ft)       *  557.08  * Wetted Per. (ft)       *          *  636.66  *          *
* Min Ch El (ft)         * 1036.90  * Shear (lb/sq ft)       *          *    1.49  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   17.94  *          *
* Frctn Loss (ft)        *    1.13  * Cum Volume (acre-ft)   * 9023.98  *31708.15  * 3359.39  *
* C & E Loss (ft)        *    0.41  * Cum SA (acres)         * 1982.88  * 2991.85  *  982.92  *
*********************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)         * 1064.77  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    2.24  * Wt. n-Val.             *          *    0.032  *          *
* W.S. Elev (ft)         * 1062.54  * Reach Len. (ft)        *  481.00  *  557.08  *  901.00  *
* Crit W.S. (ft)         * 1052.69  * Flow Area (sq ft)      *          *13834.12  *          *
* E.G. Slope (ft/ft)     *0.001101  * Area (sq ft)           *          *13834.12  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)            *          *166000.00  *          *
* Top Width (ft)         *  626.51  * Top Width (ft)         *          *  626.51  *          *
* Vel Total (ft/s)       *   12.00  * Avg. Vel. (ft/s)       *          *   12.00  *          *
* Max Chl Dpth (ft)      *   25.64  * Hydr. Depth (ft)       *          *   22.08  *          *
* Conv. Total (cfs)      *5002046.0  * Conv. (cfs)           *          *5002046.0  *          *
* Length Wtd. (ft)       *  557.08  * Wetted Per. (ft)       *          *  636.69  *          *
* Min Ch El (ft)         * 1036.90  * Shear (lb/sq ft)       *          *    1.49  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   17.93  *          *
* Frctn Loss (ft)        *    1.12  * Cum Volume (acre-ft)   * 1203.18  *32638.52  * 1414.74  *
* C & E Loss (ft)        *    0.40  * Cum SA (acres)         *  201.91  * 2996.00  *  205.53  *
*********************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

CROSS SECTION


RIVER: 1
REACH: 1                RS: 212.56

INPUT
Description: 212.56

Left and Right Channel Bank Stations Interpolated
Station Elevation Data    num=      84
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 18526.6  1067.7 18605.6  1068.5 18672.9  1069.1 18686.4    1060 19108.7  1062.5
 19147.3  1066.2 19151.5  1066.4 19161.7  1067.6 19184.3  1068.9 19238.8  1068.8
 19249.1  1068.8 19264.6    1065 19289.8  1059.5   19333  1060.5 19374.1  1060.3
 19381.8  1063.3 19405.9  1071.5 19420.1  1070.7 19427.9  1069.3 19436.8    1069
 19464.9  1070.8   19474  1071.7 19488.9  1073.8 19506.5  1072.1 19530.4  1065.8
   19539  1066.2   19604  1065.9 19607.1  1065.3 19613.7  1065.3 19619.1  1065.7
 19619.8  1066.4 19637.7    1068 19655.3  1067.8 19692.8  1068.819731.051056.917
 19757.5  1048.7 19785.4  1039.9   19929  1039.8 20217.8  1039.320252.141056.916
   20264    1063 20269.6  1061.5 20279.7  1059.4 20318.1  1058.6 20372.9  1059.3
 20398.1  1060.1 20425.6  1066.2 20438.5  1062.1 20445.5  1059.5 20451.6  1056.8
 20575.6  1077.4 20581.9  1078.8 20601.9  1079.3 20671.6  1080.6 20698.7  1080.1
 20732.1  1079.9 20755.7  1079.5 20791.2  1077.6 20834.9  1075.6 20892.5  1079.5
   20896  1079.6 20938.4  1078.1 20958.4  1077.9 21004.8  1078.7 21029.1  1078.1
 21101.8  1077.3 21144.7  1078.4 21165.1  1078.9 21203.3  1079.8 21236.8  1080.1
   21329  1071.7 21351.9  1069.5 21384.8  1066.8 21396.7    1060 21632.6    1060
 21640.1  1063.9 21686.7  1065.4 21688.1  1065.4 21734.9  1066.2 21757.8  1066.7
 21833.3  1068.7 21846.1  1068.8 21931.4  1069.9 21952.1    1069

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
 18526.6    .03719731.05    .03220252.14    .037

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      19731.0520252.14             495  502.71     525             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 18526.6 19692.8    1078       F
   20301 21952.1    1078       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         * 1063.23  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    6.35  * Wt. n-Val.             *          *    0.032  *          *
* W.S. Elev (ft)         * 1056.87  * Reach Len. (ft)        *  495.00  *  502.71  *  525.00  *
* Crit W.S. (ft)         * 1055.74  * Flow Area (sq ft)      *          * 8207.39  *          *
* E.G. Slope (ft/ft)     *0.004887  * Area (sq ft)           *          * 8207.39  *    0.02  *
* Q Total (cfs)          *166000.00  * Flow (cfs)            *          *166000.00  *          *
* Top Width (ft)         *  521.49  * Top Width (ft)         *          *  520.87  *    0.62  *
* Vel Total (ft/s)       *   20.23  * Avg. Vel. (ft/s)       *          *   20.23  *          *
* Max Chl Dpth (ft)      *   17.57  * Hydr. Depth (ft)       *          *   15.76  *          *
* Conv. Total (cfs)      *2374592.0  * Conv. (cfs)           *          *2374592.0  *          *
* Length Wtd. (ft)       *  502.71  * Wetted Per. (ft)       *          *  527.71  *          *
* Min Ch El (ft)         * 1039.30  * Shear (lb/sq ft)       *          *    4.75  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   95.97  *          *
* Frctn Loss (ft)        *    1.91  * Cum Volume (acre-ft)   * 9023.98  *31567.23  * 3359.39  *
* C & E Loss (ft)        *    0.54  * Cum SA (acres)         * 1982.88  * 2984.52  *  982.91  *
*********************************************************************************************
```

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1063.25	Element	Left OB	Channel	Right OB
Vel Head (ft)	6.27	Wt. n-Val.		0.032	
W.S. Elev (ft)	1056.98	Reach Len. (ft)	495.00	502.71	525.00
Crit W.S. (ft)	1055.74	Flow Area (sq ft)		8264.06	
E.G. Slope (ft/ft)	0.004781	Area (sq ft)		8264.06	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	521.09	Top Width (ft)		521.09	
Vel Total (ft/s)	20.09	Avg. Vel. (ft/s)		20.09	
Max Chl Dpth (ft)	17.68	Hydr. Depth (ft)		15.86	
Conv. Total (cfs)	2400862.0	Conv. (cfs)		2400862.0	
Length Wtd. (ft)	502.71	Wetted Per. (ft)		528.08	
Min Ch El (ft)	1039.30	Shear (lb/sq ft)		4.67	
Alpha	1.00	Stream Power (lb/ft s)		93.82	
Frctn Loss (ft)	1.92	Cum Volume (acre-ft)	1203.18	32497.21	1414.74
C & E Loss (ft)	0.53	Cum SA (acres)	201.91	2988.66	205.53

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 212.46

INPUT
Description: 212.46 - FEMA Section AC

Left and Right Channel Bank Stations
Interpolated
Station Elevation Data num= 66

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18753.5	1067.1	18827.8	1067.7	18877.5	1068.2	18898.4	1055	19357.3	1055.1
19382.1	1053.4	19409	1053.9	19429.7	1053.3	19445.8	1054.1	19481.5	1054.3
19531	1052.9	19550.5	1054.6	19656.6	1055	19684.4	1069.8	19700	1067.4
19714.7	1067.8	19743.34	1056.289	19787.6	1038.5	19877.7	1038.3	20214.4	1037.2
20270.9	1039.9	20290.3	1040.2	20301	1040.331	20380.4	1041.3	20415.6	1048.6
20422.7	1048.9	20436.9	1047.2	20446.3	1048.4	20484.2	1055.6	20494.5	1057
20510.9	1057.5	20553.9	1062.4	20563.5	1064	20616.9	1070.3	20661.5	1072.5
20691.8	1074.7	20705.2	1075.2	20771.8	1073.9	20836.5	1073.6	20841.8	1073.2
20893.4	1072.8	20932.3	1068.7	20999.5	1072.8	21028.4	1074	21091.5	1069.7
21143.4	1069.4	21187.1	1070.2	21222.4	1071.9	21234.8	1070.7	21242.4	1070.9
21265.3	1070.2	21277.9	1069.2	21302	1065.4	21326.5	1063.3	21392.1	1057.4
21427.4	1052.9	21482.8	1061.6	21523.6	1061.6	21591.7	1061.2	21609.9	1060.7
21657.5	1061.6	22674	1062	22695.3	1072.2	22728.6	1064.6	22746.1	1064.3
22917.1	1063.8								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
18753.5	.037	19743.34	.032	20301	.037

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19743.34 20301 495 497.81 510 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
18753.5	19684.4	1075.2	F
20301	22917.1	1075.2	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1060.78	Element	Left OB	Channel	Right OB
Vel Head (ft)	4.54	Wt. n-Val.		0.032	
W.S. Elev (ft)	1056.23	Reach Len. (ft)	495.00	497.81	510.00
Crit W.S. (ft)	1052.77	Flow Area (sq ft)		9703.67	
E.G. Slope (ft/ft)	0.003034	Area (sq ft)	1160.90	9703.67	2110.16
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	1555.15	Top Width (ft)	762.46	557.52	235.17
Vel Total (ft/s)	17.11	Avg. Vel. (ft/s)		17.11	
Max Chl Dpth (ft)	19.03	Hydr. Depth (ft)		17.41	
Conv. Total (cfs)	3013623.0	Conv. (cfs)		3013623.0	
Length Wtd. (ft)	497.81	Wetted Per. (ft)		561.02	
Min Ch El (ft)	1037.20	Shear (lb/sq ft)		3.28	
Alpha	1.00	Stream Power (lb/ft s)		56.05	
Frctn Loss (ft)	1.85	Cum Volume (acre-ft)	9017.39	31463.88	3346.67
C & E Loss (ft)	0.12	Cum SA (acres)	1978.55	2978.29	981.49

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1060.80	Element	Left OB	Channel	Right OB
Vel Head (ft)	4.51	Wt. n-Val.		0.032	

```
                                                                    Post-Project
* W.S. Elev (ft)          * 1056.29  * Reach Len. (ft)         *  495.00  *  497.81  *  510.00  *
* Crit W.S. (ft)          * 1052.77  * Flow Area (sq ft)       *          * 9738.24  *          *
* E.G. Slope (ft/ft)      *0.003114  * Area (sq ft)            *          * 9738.24  *          *
* Q Total (cfs)           *166000.00  * Flow (cfs)             *          *166000.00  *          *
* Top Width (ft)          *  557.66  * Top Width (ft)         *          *  557.66  *          *
* Vel Total (ft/s)        *   17.05  * Avg. Vel. (ft/s)       *          *   17.05  *          *
* Max Chl Dpth (ft)       *   19.09  * Hydr. Depth (ft)       *          *   17.46  *          *
* Conv. Total (cfs)       *2974820.0  * Conv. (cfs)            *          *2974820.0  *          *
* Length Wtd. (ft)        *  497.81  * Wetted Per. (ft)       *          *  577.14  *          *
* Min Ch El (ft)          * 1037.20  * Shear (lb/sq ft)       *          *    3.28  *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s) *          *   55.91  *          *
* Frctn Loss (ft)         *    1.88  * Cum Volume (acre-ft)   * 1203.18  *32393.33  * 1414.74  *
* C & E Loss (ft)         *    0.12  * Cum SA (acres)         *  201.91  * 2982.44  *  205.53  *
*****************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                  RS: 212.37

INPUT
Description: 212.37

Left and Right Channel Bank Stations Interpolated
Station Elevation Data    num=      53
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 18816.9  1066.3 18818.6  1066.2 18822.9  1066.3   18834  1066.3 18957.9    1066
 18989.9  1065.8   19000  1065.6 19036.9  1065.2 19054.2  1064.9 19092.2  1064.1
 19112.5  1063.4 19137.4  1064.7 19138.3  1064.8 19139.3  1064.8 19195.1  1066.9
 19209.3    1061 19668.8    1061 19681.7  1066.2 19684.6  1067.4 19684.8  1067.3
 19685.1  1067.2 19692.2  1064.6 19715.3    1065 19717.4  1065.1 19722.1  1063.2
19744.061053.778 19782.7  1037.2 19926.2  1036.9 20272.4  1037.1 20284.2  1036.6
 20285.4  1036.6 20288.8 1038.620320.691053.776 20338.6  1062.3 20338.7  1062.3
 20369.5  1065.2 20396.5  1069.4 20454.4  1070.1 20471.3  1070.1 20508.4    1061
 22070.8    1061 22075.2  1062.9 22088.8  1064.3 22125.1  1067.6 22147.7  1068.9
 22155.8  1069.3 22177.3  1071.8 22222.4  1065.3 22242.6  1063.6 22252.8  1063.9
 22275.2  1064.6 22382.7  1065.6 22407.8  1066.1

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
 18816.9    .03719744.06    .03220320.69    .037

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      19744.0620320.69                500  495.84     485             .1      .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 18816.9 19684.6    1070        F
 20396.5 22407.8    1070        F

CROSS SECTION OUTPUT  Profile #PF#1
*****************************************************************************************
* E.G. Elev (ft)          * 1058.81  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    5.72  * Wt. n-Val.             *          *   0.032  *          *
* W.S. Elev (ft)          * 1053.09  * Reach Len. (ft)        *  500.00  *  495.84  *  485.00  *
* Crit W.S. (ft)          * 1051.73  * Flow Area (sq ft)      *          * 8648.65  *          *
* E.G. Slope (ft/ft)      *0.004662  * Area (sq ft)           *          * 8648.65  *          *
* Q Total (cfs)           *166000.00  * Flow (cfs)            *          *166000.00  *          *
* Top Width (ft)          *  573.56  * Top Width (ft)        *          *  573.56  *          *
* Vel Total (ft/s)        *   19.19  * Avg. Vel. (ft/s)      *          *   19.19  *          *
* Max Chl Dpth (ft)       *   16.49  * Hydr. Depth (ft)      *          *   15.08  *          *
* Conv. Total (cfs)       *2431159.0  * Conv. (cfs)           *          *2431159.0  *          *
* Length Wtd. (ft)        *  495.84  * Wetted Per. (ft)      *          *  580.66  *          *
* Min Ch El (ft)          * 1036.60  * Shear (lb/sq ft)      *          *    4.34  *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s) *          *   83.21  *          *
* Frctn Loss (ft)         *    2.45  * Cum Volume (acre-ft)   * 9010.79  *31359.02  * 3334.32  *
* C & E Loss (ft)         *    0.01  * Cum SA (acres)         * 1974.21  * 2971.83  *  980.12  *
*****************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*****************************************************************************************
* E.G. Elev (ft)          * 1058.81  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    5.72  * Wt. n-Val.             *          *   0.032  *          *
* W.S. Elev (ft)          * 1053.09  * Reach Len. (ft)        *  500.00  *  495.84  *  485.00  *
* Crit W.S. (ft)          * 1051.73  * Flow Area (sq ft)      *          * 8651.94  *          *
* E.G. Slope (ft/ft)      *0.004657  * Area (sq ft)           *          * 8651.94  *          *
* Q Total (cfs)           *166000.00  * Flow (cfs)            *          *166000.00  *          *
* Top Width (ft)          *  573.59  * Top Width (ft)        *          *  573.59  *          *
* Vel Total (ft/s)        *   19.19  * Avg. Vel. (ft/s)      *          *   19.19  *          *
* Max Chl Dpth (ft)       *   16.49  * Hydr. Depth (ft)      *          *   15.08  *          *
* Conv. Total (cfs)       *2432618.0  * Conv. (cfs)           *          *2432618.0  *          *
* Length Wtd. (ft)        *  495.84  * Wetted Per. (ft)      *          *  580.69  *          *
* Min Ch El (ft)          * 1036.60  * Shear (lb/sq ft)      *          *    4.33  *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s) *          *   83.11  *          *
* Frctn Loss (ft)         *    2.45  * Cum Volume (acre-ft)   * 1203.18  *32288.25  * 1414.74  *
* C & E Loss (ft)         *    0.01  * Cum SA (acres)         *  201.91  * 2975.97  *  205.53  *
*****************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.
```

CROSS SECTION

RIVER: 1
REACH: 1 RS: 212.27

INPUT
Description: 212.27

Left and Right Channel Bank Stations Interpolated

Station Elevation Data num= 95

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17693.1	1064.6	17697.9	1064.6	17734.8	1064	17740.4	1063.9	17785.6	1063.1
17796.2	1063.1	17827.6	1062.5	17846.2	1062.4	17893.5	1062.2	18008.4	1061.5
18061.8	1061.5	18108.5	1062.4	18180.8	1062.8	18221.3	1063	18239.7	1059
18264.8	1054.5	18285.2	1054	18326.7	1048.1	18342.3	1046.2	18362.6	1053.4
18380.3	1046.2	18395.3	1042.4	18405.4	1039	18415.2	1036.5	18431.2	1031.5
18465.3	1023.5	18544.4	1025.1	18579.3	1015.6	18586.4	1013.2	18615.7	1013
18649.7	1013	18693.4	1012.9	18782.3	1012.3	18931.2	1012.8	18976.1	1012.6
18981.9	1012.7	19083	1012.1	19110	1012.1	19284.8	1012.2	19302.3	1012.4
19314.3	1019	19342.1	1028.5	19385.1	1048.2	19442.6	1044.9	19457.4	1044.6
19509.8	1062.9	19515.4	1063	19561	1063.7	19676.4	1065.4	19715.25	1052.334
19754.6	1039.1	19765.4	1035.4	19935.2	1035.2	20003.5	1035.2	20097.2	1035.1
20281.9	1035.1	20330.35	1052.334	20337	1054.7	20351	1059.5	20416.4	1037.6
20457	1023.9	20721.5	1023.4	20766.6	1022.9	20810.1	1022.2	20848.4	1021.5
20878.3	1023.7	20909.5	1025.8	20935.1	1026.2	20970.3	1026.8	20984	1027.2
21016.1	1028	21073.4	1026.9	21105.5	1026.6	21138.2	1026.2	21189.1	1025.7
21190.6	1025.7	21248.8	1040.7	21294.4	1051.5	21328.2	1059.6	21333.8	1060.2
21373.3	1067.4	21415.5	1061.7	21426.9	1059.4	21439.1	1056.3	21473.7	1050
21501.4	1044.9	21538.1	1038.9	21543.5	1037.9	21579.4	1046.2	21617.1	1054.3
21626.5	1056.1	21660.7	1060	21745.2	1060.6	21930.8	1061.7	21968.2	1061.7

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
17693.1	.045	19715.25	.033	20330.35	.04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19715.25 20330.35 510 495 475 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17693.1	19676.4	1065.4	F
20351	21968.2	1059.5	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1056.35	Element	Left OB	Channel	Right OB
Vel Head (ft)	5.68	Wt. n-Val.		0.033	
W.S. Elev (ft)	1050.67	Reach Len. (ft)	510.00	495.00	475.00
Crit W.S. (ft)	1049.57	Flow Area (sq ft)		8681.56	
E.G. Slope (ft/ft)	0.005236	Area (sq ft)	34318.96	8681.56	22223.41
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	2800.96	Top Width (ft)	1151.76	605.48	1043.72
Vel Total (ft/s)	19.12	Avg. Vel. (ft/s)		19.12	
Max Chl Dpth (ft)	38.57	Hydr. Depth (ft)		14.34	
Conv. Total (cfs)	2294057.0	Conv. (cfs)		2294057.0	
Length Wtd. (ft)	495.00	Wetted Per. (ft)		610.68	
Min Ch El (ft)	1035.10	Shear (lb/sq ft)		4.65	
Alpha	1.00	Stream Power (lb/ft s)		88.86	
Frctn Loss (ft)	1.81	Cum Volume (acre-ft)	8813.83	31260.38	3210.60
C & E Loss (ft)	0.59	Cum SA (acres)	1967.60	2965.12	974.31

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1056.35	Element	Left OB	Channel	Right OB
Vel Head (ft)	5.68	Wt. n-Val.		0.033	
W.S. Elev (ft)	1050.67	Reach Len. (ft)	510.00	495.00	475.00
Crit W.S. (ft)	1049.57	Flow Area (sq ft)		8681.05	
E.G. Slope (ft/ft)	0.005237	Area (sq ft)		8681.05	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	605.47	Top Width (ft)		605.47	
Vel Total (ft/s)	19.12	Avg. Vel. (ft/s)		19.12	
Max Chl Dpth (ft)	15.57	Hydr. Depth (ft)		14.34	
Conv. Total (cfs)	2293842.0	Conv. (cfs)		2293842.0	
Length Wtd. (ft)	495.00	Wetted Per. (ft)		610.67	
Min Ch El (ft)	1035.10	Shear (lb/sq ft)		4.65	
Alpha	1.00	Stream Power (lb/ft s)		88.88	
Frctn Loss (ft)	1.81	Cum Volume (acre-ft)	1203.18	32189.60	1414.74
C & E Loss (ft)	0.59	Cum SA (acres)	201.91	2969.26	205.53

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 212.18

INPUT
Description: 212.18

Left and Right Channel Bank Stations Interpolated
Station Elevation Data num= 87

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16867.12	1065.21	6906.93	1063.91	17072.69	1063.62	17369.21	1062.48	17505.56	1062.52
17612.28	1062.91	7794.36	1062.33	17881.75	1062.58	17916.47	1062.32	17948.21	1065.69
18039.48	1010.81	8149.75	1011.69	18168.39	1016.64	18177.08	1014.6	18188	1020.06
18220.51	1027.21	8252.71	1039.34	18269.64	1041.16	18292.43	1036.71	8335.96	1016.75
18454.36	1016.21	8568.19	1014.72	18633.81	1016.11	18764.91	1017.46	18823.95	1017.09
19046.22	1017.71	9156.65	1019.37	19198.34	1018.44	19223.89	1018.49	19248.34	1016.23
19311.18	1015.1	19393.8	1012.98	19433	1012.52	19464.03	1021.81	19488.46	1011.1
19574.96	1010.61	9614.98	1037.42	19649.87	1059.81	19685.1	1058.81	19706.85	1050.309
19749.09	1033.81	9960.28	1030.82	20229.47	1031.72	20272.48	1032.67	20319.31	1039.88
20334.57	1050.3	0720340.72	1054.51	20354.62	1060.32	20472.17	1061.55	20523.7	1061.62
20551.86	1053.04	20622.11	1048.82	20687.56	1052.22	20928.11	1055.29	21136.97	1058.41
21257.08	1058.69	21362.76	1060.71	21646.22	1067.22	21858.08	1068.11	22054.43	1067.43
22158.98	1065.96	22243.23	1064.32	22279.9	1062.82	22295.67	1065.59	22307.88	1060.91
22324.63	1061.39	22394.01	1058.43	22480.34	1058.92	22555.28	1058.92	22720.83	1059.92
22855.27	1061.54	22949.17	1061.49	22974.76	1060	23021.3	1058.52	3070.19	1058.44
23114.11	1060.29	23152.9	1060.08	23260.95	1061.42	3486.25	1061.05	23586.41	1061.15
23621.07	1061.47	23789.79	1060.37	23929.16	1060.4	24034.7	1061.82	4176.57	1062.42
24281.11	1062.33	24460.33	1061.22						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
16867.12	.04	519706.85	.03	320334.57	.04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19706.85 20334.57 500 502.53 485 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
16867.12	19649.87	1068	F
20523.72	24460.33	1068	F

CROSS SECTION OUTPUT Profile #PF#1

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	1053.95	Element			
Vel Head (ft)	3.69	Wt. n-Val.		0.033	
W.S. Elev (ft)	1050.25	Reach Len. (ft)	500.00	502.53	485.00
Crit W.S. (ft)	1045.89	Flow Area (sq ft)		10761.93	
E.G. Slope (ft/ft)	0.002692	Area (sq ft)	53172.74	10761.93	37.67
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	2340.52	Top Width (ft)	1661.09	627.49	51.95
Vel Total (ft/s)	15.42	Avg. Vel. (ft/s)		15.42	
Max Chl Dpth (ft)	39.65	Hydr. Depth (ft)		17.15	
Conv. Total (cfs)	3199385.0	Conv. (cfs)		3199385.0	
Length Wtd. (ft)	502.53	Wetted Per. (ft)		634.38	
Min Ch El (ft)	1030.80	Shear (lb/sq ft)		2.85	
Alpha	1.00	Stream Power (lb/ft s)		43.98	
Frctn Loss (ft)	0.96	Cum Volume (acre-ft)	8301.65	31149.91	3089.23
C & E Loss (ft)	0.32	Cum SA (acres)	1951.14	2958.11	968.33

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	1053.94	Element			
Vel Head (ft)	3.69	Wt. n-Val.		0.033	
W.S. Elev (ft)	1050.25	Reach Len. (ft)	500.00	502.53	485.00
Crit W.S. (ft)	1045.89	Flow Area (sq ft)		10761.62	
E.G. Slope (ft/ft)	0.002692	Area (sq ft)		10761.62	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	627.48	Top Width (ft)		627.48	
Vel Total (ft/s)	15.43	Avg. Vel. (ft/s)		15.43	
Max Chl Dpth (ft)	19.45	Hydr. Depth (ft)		17.15	
Conv. Total (cfs)	3199239.0	Conv. (cfs)		3199239.0	
Length Wtd. (ft)	502.53	Wetted Per. (ft)		634.37	
Min Ch El (ft)	1030.80	Shear (lb/sq ft)		2.85	
Alpha	1.00	Stream Power (lb/ft s)		43.98	
Frctn Loss (ft)	0.96	Cum Volume (acre-ft)	1203.18	32079.13	1414.74
C & E Loss (ft)	0.32	Cum SA (acres)	201.91	2962.26	205.53

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 212.08

INPUT
Description: 212.08

Left and Right Channel Bank Stations Interpolated
Station Elevation Data num= 101

Post-Project

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17052.4	1065.117093.98	1063.217330.91	1062.5917423.14	1062.2117562.97	1062.23				
17854.31	106117952.67	1061.3917989.42	1061.1 18003.9	1064.7218053.78	1032.77				
18092.97	1010.318121.67	1010.4218204.85	1011.4918218.51	1014.5318400.47	1013.68				
18430.19	1013.718591.23	1012.7318717.39	1012.5518827.36	1012.71 18982.9	1014.44				
19125.21	1014.119158.95	1014.27 19197.5	1013.7219237.59	1014.0519246.24	1012.73				
19261.95	1013.819287.74	1011.5219294.56	1009.4419377.18	1009.8819458.03	1009.79				
19560.86	1055.919603.52	1052.7719676.09	1052.9419681.091050.10619689.85		1045.14				
19720.06	1031.7419729.83	1028.619835.59	1026.9819956.58	1026.4520018.74	1026.48				
20046.86	1026.7120134.08	1025.920179.54	1025.9920234.17	1026.6520245.73	1033.13				
20270.89	1050.120275.07	1052.9220290.81	1060.920335.45	1060.3720383.25	1044.65				
20424.79	1044.3820442.88	1052.7920545.79	1055.720813.04	1061.3820956.27	1063.95				
21082.72	1065.9821252.33	1068.1621359.98	1067.921436.79	1067.7621473.77	1066.77				
21529.98	1066.4821607.29	1070.321676.41	1072.821730.28	1073.8421923.53	1073.03				
22030.61	1073.7622091.57	1073.1322182.24	1073.622303.01	1072.0522453.89	1069.64				
22595.45	1068.2222755.09	1066.8622966.16	1063.923129.47	1061.46 23222.4	1059.05				
23255.36	1058.6423268.74	1055.5123278.67	1058.323295.59	1055.5423328.26	1058.3				
23417.52	1058.423428.87	1058.123519.64	1059.323868.62	1059.1724082.28	1059.08				
24280.77	1060.1224441.84	1061.9124594.59	1060.924688.74	1061.7424871.91	1061.24				
24970.8	1060.3325012.15	1058.2625172.94	1060.8 25399.4	1060.1425629.95	1059.85				
25800.17	1059.4125815.84	1060.0725861.96	1079.725884.17	1080.2625963.83	1080.96				
26004.82	1061.65								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
17052.4	.04519681.09	.03320270.89	.04		

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19681.0920270.89 510 519.85 475 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17052.419560.86		1078	F
20290.826004.82		1078	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1052.67	Element	Left OB	Channel / Right OB
Vel Head (ft)	2.62	Wt. n-Val.		0.033 /
W.S. Elev (ft)	1050.04	Reach Len. (ft)	510.00	519.85 / 475.00
Crit W.S. (ft)	1041.45	Flow Area (sq ft)		12773.65 /
E.G. Slope (ft/ft)	0.001415	Area (sq ft)	53964.42	12773.65 / 308.33
Q Total (cfs)	166000.00	Flow (cfs)		166000.00 /
Top Width (ft)	2180.71	Top Width (ft)	1520.98	589.61 / 70.12
Vel Total (ft/s)	13.00	Avg. Vel. (ft/s)		13.00 /
Max Chl Dpth (ft)	40.60	Hydr. Depth (ft)		21.66 /
Conv. Total (cfs)	4412668.0	Conv. (cfs)		4412668.0 /
Length Wtd. (ft)	519.85	Wetted Per. (ft)		601.11 /
Min Ch El (ft)	1025.90	Shear (lb/sq ft)		1.88 /
Alpha	1.00	Stream Power (lb/ft s)		24.40 /
Frctn Loss (ft)	0.83	Cum Volume (acre-ft)	7686.77	31014.15 / 3087.30
C & E Loss (ft)	0.06	Cum SA (acres)	1932.87	2951.09 / 967.65

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1052.67	Element	Left OB	Channel / Right OB
Vel Head (ft)	2.62	Wt. n-Val.		0.033 /
W.S. Elev (ft)	1050.04	Reach Len. (ft)	510.00	519.85 / 475.00
Crit W.S. (ft)	1041.45	Flow Area (sq ft)		12774.58 /
E.G. Slope (ft/ft)	0.001415	Area (sq ft)		12774.58 /
Q Total (cfs)	166000.00	Flow (cfs)		166000.00 /
Top Width (ft)	589.61	Top Width (ft)		589.61 /
Vel Total (ft/s)	12.99	Avg. Vel. (ft/s)		12.99 /
Max Chl Dpth (ft)	24.14	Hydr. Depth (ft)		21.67 /
Conv. Total (cfs)	4413183.0	Conv. (cfs)		4413183.0 /
Length Wtd. (ft)	519.85	Wetted Per. (ft)		601.12 /
Min Ch El (ft)	1025.90	Shear (lb/sq ft)		1.88 /
Alpha	1.00	Stream Power (lb/ft s)		24.39 /
Frctn Loss (ft)	0.83	Cum Volume (acre-ft)	1203.18	31943.37 / 1414.74
C & E Loss (ft)	0.06	Cum SA (acres)	201.91	2955.24 / 205.53

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 211.99

INPUT
Description: 211.99 - FEMA Section AB

Left and Right Channel Bank Stations
Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17386.75	106217493.12	1060.3617883.55	1058.918026.04	1059.0818043.61	1064.43				
18128.52	1011.918212.07	1010.04 18284.3	1009.4118375.77	1031.9918386.79	1034.99				
18398.32	1031.618455.15	1010.4218634.29	1010.1518715.79	1026.1718726.98	1025.43				
18746.82	1028.918793.14	1039.1118826.55	1047.2218835.49	1050.27 18880.3	1056.14				
18928.65	1059.619023.07	1060.4719122.51	1058.69 19147.6	1056.9819172.92	1053.9				
19222.57	1059.719306.36	1064.7519387.36	1066.2619419.32	1065.7319467.92	1063.3				
19535.53	1055.9 19579.8	1052.519594.04	1050.0119626.09	1059.7519669.23	1060.17				

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19682.93  1052.119695.13  1051.719699.771048.63219734.91 1025.3919968.68 1025.66
 20018.4    102620129.78  1025.520175.87 1025.6620205.91  1027.820236.81 1047.09
20249.651048.632 20249.8 1048.6520268.39  1059.720319.37 1059.4520355.66 1049.61
20366.72 1051.1620380.34 1056.3120536.66  1059.720697.58 1062.9120861.07 1067.46
20969.05  1071.421086.46 1074.5421220.77  1077.821348.89 1078.3521519.24 1075.76
21606.23 1073.4221740.53 1069.1421834.91    106821936.77 1071.0222068.74 1077.26
22189.17 1082.4922398.45 1089.6222486.87  1090.322515.75 1089.9422616.83 1085.49
22698.81 1083.4322757.86 1080.0622899.81  1069.523059.97  1066.123300.96 1061.35
23457.95 1059.0923578.87 1055.29 23592.8  1052.823611.42  1057.123707.16 1057.71
23758.72 1057.8423837.72 1057.31   23902  1056.223950.13 1056.5724182.97 1056.91
24332.01 1056.0724582.04 1056.0124636.44    105924704.95 1057.5324865.28 1057.45
24966.74 1058.31 24996.3 1059.9325064.88  1059.825072.86 1059.0925171.62 1057.94
25224.27 1057.7525467.18 1058.61

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
**********************************************
17386.75    .04519699.77    .03320249.65     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      19699.7720249.65              740  489.19     710            .1      .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
17386.7519669.23    1078       F
 20268.325467.18    1078       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         * 1051.77  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    3.22  * Wt. n-Val.            *          *    0.033  *          *
* W.S. Elev (ft)         * 1048.55  * Reach Len. (ft)       *  740.00  *  489.19  *  710.00  *
* Crit W.S. (ft)         * 1041.17  * Flow Area (sq ft)     *          *11524.03  *          *
* E.G. Slope (ft/ft)     *0.001822  * Area (sq ft)          *22351.77  *11524.03  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *          *166000.00  *          *
* Top Width (ft)         * 1310.27  * Top Width (ft)       *  761.18  *  549.09  *          *
* Vel Total (ft/s)       *   14.40  * Avg. Vel. (ft/s)     *          *   14.40  *          *
* Max Chl Dpth (ft)      *   39.14  * Hydr. Depth (ft)     *          *   20.99  *          *
* Conv. Total (cfs)      *3888612.0  * Conv. (cfs)         *          *3888612.0  *          *
* Length Wtd. (ft)       *  489.19  * Wetted Per. (ft)     *          *  561.75  *          *
* Min Ch El (ft)         * 1025.39  * Shear (lb/sq ft)     *          *    2.33  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *        *   33.62  *          *
* Frctn Loss (ft)        *    0.83  * Cum Volume (acre-ft)  * 7240.01  *30869.16  * 3085.62  *
* C & E Loss (ft)        *    0.09  * Cum SA (acres)        * 1919.51  * 2944.30  *  967.27  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)         * 1051.78  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    3.22  * Wt. n-Val.            *          *    0.033  *          *
* W.S. Elev (ft)         * 1048.55  * Reach Len. (ft)       *  740.00  *  489.19  *  710.00  *
* Crit W.S. (ft)         * 1041.17  * Flow Area (sq ft)     *          *11525.16  *          *
* E.G. Slope (ft/ft)     *0.001822  * Area (sq ft)          *          *11525.16  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *          *166000.00  *          *
* Top Width (ft)         *  549.11  * Top Width (ft)       *          *  549.11  *          *
* Vel Total (ft/s)       *   14.40  * Avg. Vel. (ft/s)     *          *   14.40  *          *
* Max Chl Dpth (ft)      *   23.16  * Hydr. Depth (ft)     *          *   20.99  *          *
* Conv. Total (cfs)      *3889154.0  * Conv. (cfs)         *          *3889154.0  *          *
* Length Wtd. (ft)       *  489.19  * Wetted Per. (ft)     *          *  561.77  *          *
* Min Ch El (ft)         * 1025.39  * Shear (lb/sq ft)     *          *    2.33  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *        *   33.61  *          *
* Frctn Loss (ft)        *    0.83  * Cum Volume (acre-ft)  * 1203.18  *31798.37  * 1414.74  *
* C & E Loss (ft)        *    0.09  * Cum SA (acres)        *  201.91  * 2948.44  *  205.53  *
*********************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 211.89

INPUT
Description: 211.89

Left and Right Channel Bank Stations Interpolated
Station Elevation Data    num=      95
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
*********************************************************************************************
17673.64  1059.917830.52  1057.818075.45 1057.5918106.59 1061.3918156.21 1060.92
18181.64    105718268.15  1057.418570.49 1056.27 18656.7 1057.3718734.79  1059.4
18854.83  1058.1 18903.9 1058.6218933.75 1056.2618954.51  1054.319026.15 1059.53
19074.67  1064.519130.02 1067.6619166.92 1067.8219220.33 1064.2519291.97 1056.93
19339.05  1053.2 19355.5 1049.4119383.94 1051.7719506.58 1049.7319568.03 1052.09
19611.95  1052.419640.96 1059.4519668.79 1059.3319685.751048.02319719.16 1025.75
19877.45 1024.19   19996  1024.820046.95 1024.9420149.18 1025.3420215.53 1026.87
20231.37 1035.8620250.74 1048.0220268.71  1059.320317.76 1059.25 20347.9 1053.02
20357.11 1053.8720365.64 1057.4620503.92  1061.220587.79 1062.3220715.42 1064.82
20808.25 1066.4820898.25 1068.17 21050.2    107021240.42  1069.721365.85 1067.31
21444.39 1066.6721597.69 1066.8121747.36  1066.621837.61 1066.0122018.21 1062.79
22078.36 1061.7622206.84  1065.222377.75  1068.122579.85 1068.7522814.63 1068.78
22947.07 1067.96 23029.4 1068.0923191.51  1066.423528.26  1059.523662.78 1056.72
23775.83 1055.5423829.73 1054.1523844.87  1051.223876.82 1056.0923920.99    1057
23995.44 1056.4724052.85  1056.124082.77  1056.624140.98 1058.2724165.07 1058.25
24271.91 1056.4524411.05 1053.1724579.36  1053.324759.09 1054.04 24774.1 1055.28
24840.04 1057.6924883.78 1058.2624920.88  1055.825041.94 1055.2925284.44  1056.1
25336.01 1057.1325359.39 1058.3225402.51  1057.3 25726.4 1058.2326172.96 1058.11
 26295.6  1059.626333.92 1078.1726470.33  1078.826504.14  1058.926569.17 1059.94

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
```

```
**********************************************
17673.64    .04519685.75    .03320250.74     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
     19685.7520250.74             507  527.46     640             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
17673.6419640.96    1068       F
 20268.726569.17    1068       F

CROSS SECTION OUTPUT  Profile #PF#1
*************************************************************************************************
* E.G. Elev (ft)         * 1050.85  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    2.92  * Wt. n-Val.            *          *   0.033  *          *
* W.S. Elev (ft)         * 1047.93  * Reach Len. (ft)       *  507.00  *  527.46  *  640.00  *
* Crit W.S. (ft)         * 1039.97  * Flow Area (sq ft)     *          *12113.14  *          *
* E.G. Slope (ft/ft)     *0.001601  * Area (sq ft)          *          *12113.14  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *          *166000.00  *          *
* Top Width (ft)         *  564.71  * Top Width (ft)        *          *  564.71  *          *
* Vel Total (ft/s)       *   13.70  * Avg. Vel. (ft/s)      *          *   13.70  *          *
* Max Chl Dpth (ft)      *   23.74  * Hydr. Depth (ft)      *          *   21.45  *          *
* Conv. Total (cfs)      *4149297.0  * Conv. (cfs)          *          *4149297.0  *          *
* Length Wtd. (ft)       *  527.46  * Wetted Per. (ft)      *          *  577.30  *          *
* Min Ch El (ft)         * 1024.19  * Shear (lb/sq ft)     *          *    2.10  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   28.73  *          *
* Frctn Loss (ft)        *    0.85  * Cum Volume (acre-ft)  * 7050.16  *30736.43  * 3085.62  *
* C & E Loss (ft)        *    0.00  * Cum SA (acres)        * 1913.05  * 2938.05  *  967.27  *
*************************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*************************************************************************************************
* E.G. Elev (ft)         * 1050.85  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    2.92  * Wt. n-Val.            *          *   0.033  *          *
* W.S. Elev (ft)         * 1047.93  * Reach Len. (ft)       *  507.00  *  527.46  *  640.00  *
* Crit W.S. (ft)         * 1039.97  * Flow Area (sq ft)     *          *12114.25  *          *
* E.G. Slope (ft/ft)     *0.001600  * Area (sq ft)          *          *12114.25  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *          *166000.00  *          *
* Top Width (ft)         *  564.72  * Top Width (ft)        *          *  564.72  *          *
* Vel Total (ft/s)       *   13.70  * Avg. Vel. (ft/s)      *          *   13.70  *          *
* Max Chl Dpth (ft)      *   23.74  * Hydr. Depth (ft)      *          *   21.45  *          *
* Conv. Total (cfs)      *4149889.0  * Conv. (cfs)          *          *4149889.0  *          *
* Length Wtd. (ft)       *  527.46  * Wetted Per. (ft)      *          *  577.31  *          *
* Min Ch El (ft)         * 1024.19  * Shear (lb/sq ft)     *          *    2.10  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   28.72  *          *
* Frctn Loss (ft)        *    0.85  * Cum Volume (acre-ft)  * 1203.18  *31665.63  * 1414.74  *
* C & E Loss (ft)        *    0.00  * Cum SA (acres)        *  201.91  * 2942.19  *  205.53  *
*************************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 211.79

INPUT
Description: 211.79

Left and Right Channel Bank Stations Interpolated
Station Elevation Data    num=      85
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
18158.31  1058.118521.37 1057.9218711.98 1053.2918821.22 1049.9719332.48  1038.9
 19421.9  1034.719443.13 1034.6819494.83 1031.4519529.82 1033.8919593.73 1053.47
19613.84  1059.219631.93 1059.1219649.871047.18219683.64 1024.7119868.29 1023.84
19990.11 1024.4520071.01  1024.2   20181 1025.03 20210.4 1042.5420217.711047.186
20234.96 1058.1520266.77 1058.9620288.34  1058.220317.07 1049.6420327.91 1051.41
20334.62 1054.8620544.02 1058.1120748.52  1061.320960.89 1062.1921136.74 1063.31
21355.67 1062.99 21514.2 1062.9221680.46  1061.621736.21 1061.7621809.47 1060.69
21912.92 1059.5422164.31 1055.8622183.26  1055.422365.65 1059.3522456.33 1059.66
22607.29 1061.0722697.85 1061.2422757.13    106222877.22 1061.9822997.38 1061.21
23058.71 1061.6923238.58 1060.2923378.99  1059.623483.49 1059.3723694.55 1056.44
23766.47 1056.3523904.99 1053.8723939.63  1052.523954.41 1049.7323974.63 1054.92
24066.57 1057.0124104.95 1055.7224159.03  1054.924203.29 1053.77 24226.8 1054.13
24410.42 1054.11 24588.5 1054.8124806.33  1056.924857.28 1056.9224892.35 1056.25
 24937.4 1056.2724992.53 1057.9125025.07  1054.525154.69 1054.6325336.45 1057.87
25508.23 1059.0125689.64 1058.1825912.41  1058.826025.53 1058.4626235.18 1058.51
26315.33    105826360.96 1059.1426386.48  1071.426401.46 1071.61 26423.9  1078.8
26526.56 1078.9226547.02 1071.3226569.39  1067.826599.18 1058.2826670.85 1059.87

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
18158.31    .04519649.87    .03320217.71     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      19649.8720217.71             680  450.74     290             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
18158.3119613.84    1068       F
 20266.726670.85    1068       F

CROSS SECTION OUTPUT  Profile #PF#1
*************************************************************************************************
* E.G. Elev (ft)         * 1050.00  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    2.92  * Wt. n-Val.            *          *   0.033  *          *
* W.S. Elev (ft)         * 1047.07  * Reach Len. (ft)       *  680.00  *  450.74  *  290.00  *
* Crit W.S. (ft)         * 1039.26  * Flow Area (sq ft)     *          *12095.68  *          *
* E.G. Slope (ft/ft)     *0.001620  * Area (sq ft)          * 4235.66  *12095.68  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *          *166000.00  *          *
* Top Width (ft)         * 1185.32  * Top Width (ft)        *  617.82  *  567.50  *          *
```

Post-Project

* Vel Total (ft/s)	*	13.72	* Avg. Vel. (ft/s)	*		*	13.72	*			*
* Max Chl Dpth (ft)	*	23.23	* Hydr. Depth (ft)	*		*	21.31	*			*
* Conv. Total (cfs)	*	4124562.0	* Conv. (cfs)	*		*	4124562.0	*			*
* Length Wtd. (ft)	*	450.74	* Wetted Per. (ft)	*		*	580.41	*			*
* Min Ch El (ft)	*	1023.84	* Shear (lb/sq ft)	*		*	2.11	*			*
* Alpha	*	1.00	* Stream Power (lb/ft s)	*		*	28.92	*			*
* Frctn Loss (ft)	*	0.73	* Cum Volume (acre-ft)	*	7025.51	*	30589.86	*	3085.62		*
* C & E Loss (ft)	*	0.00	* Cum SA (acres)	*	1909.45	*	2931.19	*	967.27		*

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	*	1050.00	* Element	*	Left OB	*	Channel	*	Right OB		*
* Vel Head (ft)	*	2.92	* Wt. n-Val.	*		*	0.033	*			*
* W.S. Elev (ft)	*	1047.08	* Reach Len. (ft)	*	680.00	*	450.74	*	290.00		*
* Crit W.S. (ft)	*	1039.26	* Flow Area (sq ft)	*		*	12097.01	*			*
* E.G. Slope (ft/ft)	*	0.001619	* Area (sq ft)	*		*	12097.01	*			*
* Q Total (cfs)	*	166000.00	* Flow (cfs)	*		*	166000.00	*			*
* Top Width (ft)	*	567.51	* Top Width (ft)	*		*	567.51	*			*
* Vel Total (ft/s)	*	13.72	* Avg. Vel. (ft/s)	*		*	13.72	*			*
* Max Chl Dpth (ft)	*	23.24	* Hydr. Depth (ft)	*		*	21.32	*			*
* Conv. Total (cfs)	*	4125269.0	* Conv. (cfs)	*		*	4125269.0	*			*
* Length Wtd. (ft)	*	450.74	* Wetted Per. (ft)	*		*	580.41	*			*
* Min Ch El (ft)	*	1023.84	* Shear (lb/sq ft)	*		*	2.11	*			*
* Alpha	*	1.00	* Stream Power (lb/ft s)	*		*	28.91	*			*
* Frctn Loss (ft)	*	0.73	* Cum Volume (acre-ft)	*	1203.18	*	31519.05	*	1414.74		*
* C & E Loss (ft)	*	0.00	* Cum SA (acres)	*	201.91	*	2935.33	*	205.53		*

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 211.71

INPUT
Description: 211.71

Left and Right Channel Bank Stations Interpolated
Station Elevation Data num= 82

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18356.24	1056.618403.32	1056.5118836.53	1046.2619011.11	1054.3319170.81	1053.8				
19462.94	1052.519478.82	1053.0919497.62	1060.06	19533	1043.2819551.37	1045.32			
19595.29	105919611.46	1057.8119628.43	1046.4719661.32	1024.4919846.96	1023.81				
19928.43	1023.1919998.17	1023.220045.76	1023.2120158.51	1023.3920197.84	1046.47				
20216.14	1057.2120266.22	1057.7620314.99	1042.620325.03	1043.14 20337.2	1046.87				
20568.24	1050.2520851.05	1051.3120962.88	1051.521206.35	1051.6421388.45	1051.42				
21419.92	1051.2321727.44	1052.6221848.61	1053.521981.25	1052.7822130.55	1052.51				
22220.26	1051.5322459.24	1054.3422578.82	1055.122876.18	1055.9323025.66	1056.21				
23117.46	1056.8923238.24	1055.61 23357.2	1054.623446.32	1054.2323535.13	1054.99				
23685.75	1053.2823748.15	1053.5423836.62	1056.423904.67	1055.7524029.98	1052.16				
24046.15	1048.724064.65	1054.8424297.11	1054.624417.85	1054.0824709.66	1055.58				
24914.5	1057.2724949.53	1057.2425042.76	1055.725080.42	1056.7725117.12	1053.8				
25243.64	1054.8825321.41	1057.3325361.74	105825507.43	1059.54 25610.8	1058.49				
25724.65	1059.9825796.42	1060.0825841.82	1059.625987.23	1060.326062.01	1060.39				
26081.09	1058.8926241.81	1058.1126377.22	1057.126422.65	1058.2926467.41	1067.88				
26493.74	1078.7726570.07	1078.7926595.33	1080 26627.3	1065.29 26661.5	1058.87				
26693.27	1058.2226725.34	1059.01							

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
18356.24	.04519628.43	.03320197.84	.04		

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19628.4320197.84 780 392.06 500 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
18356.24	19595.3	1068	F
20266.226725.34		1068	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	*	1049.27	* Element	*	Left OB	*	Channel	*	Right OB		*
* Vel Head (ft)	*	2.92	* Wt. n-Val.	*		*	0.033	*			*
* W.S. Elev (ft)	*	1046.34	* Reach Len. (ft)	*	780.00	*	392.06	*	500.00		*
* Crit W.S. (ft)	*	1038.56	* Flow Area (sq ft)	*		*	12101.25	*			*
* E.G. Slope (ft/ft)	*	0.001623	* Area (sq ft)	*	49.35	*	12101.25	*	74.17		*
* Q Total (cfs)	*	166000.00	* Flow (cfs)	*		*	166000.00	*			*
* Top Width (ft)	*	635.03	* Top Width (ft)	*	33.48	*	569.01	*	32.54		*
* Vel Total (ft/s)	*	13.72	* Avg. Vel. (ft/s)	*		*	13.72	*			*
* Max Chl Dpth (ft)	*	23.15	* Hydr. Depth (ft)	*		*	21.27	*			*
* Conv. Total (cfs)	*	4120759.0	* Conv. (cfs)	*		*	4120759.0	*			*
* Length Wtd. (ft)	*	392.06	* Wetted Per. (ft)	*		*	581.88	*			*
* Min Ch El (ft)	*	1023.19	* Shear (lb/sq ft)	*		*	2.11	*			*
* Alpha	*	1.00	* Stream Power (lb/ft s)	*		*	28.90	*			*
* Frctn Loss (ft)	*	0.67	* Cum Volume (acre-ft)	*	6992.06	*	30464.67	*	3085.37		*
* C & E Loss (ft)	*	0.02	* Cum SA (acres)	*	1904.37	*	2925.31	*	967.16		*

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	*	1049.27	* Element	*	Left OB	*	Channel	*	Right OB		*
* Vel Head (ft)	*	2.92	* Wt. n-Val.	*		*	0.033	*			*

```
                                                                    Post-Project
* W.S. Elev (ft)         * 1046.35  * Reach Len. (ft)        *  780.00  *  392.06  *  500.00  *
* Crit W.S. (ft)         * 1038.56  * Flow Area (sq ft)      *          *12102.79  *          *
* E.G. Slope (ft/ft)     *0.001622  * Area (sq ft)           *          *12102.79  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *          *166000.00  *          *
* Top Width (ft)         *  569.02  * Top Width (ft)        *          *  569.02  *          *
* Vel Total (ft/s)       *   13.72  * Avg. Vel. (ft/s)      *          *   13.72  *          *
* Max Chl Dpth (ft)      *   23.16  * Hydr. Depth (ft)      *          *   21.27  *          *
* Conv. Total (cfs)      *4121579.0  * Conv. (cfs)          *          *4121579.0  *          *
* Length Wtd. (ft)       *  392.06  * Wetted Per. (ft)      *          *  581.89  *          *
* Min Ch El (ft)         * 1023.19  * Shear (lb/sq ft)      *          *    2.11  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   28.89  *          *
* Frctn Loss (ft)        *    0.67  * Cum Volume (acre-ft)   * 1203.18  *31393.84  * 1414.74  *
* C & E Loss (ft)        *    0.02  * Cum SA (acres)         *  201.91  * 2929.45  *  205.53  *
*****************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 211.64

INPUT
Description: 211.63

Left and Right Channel Bank Stations Interpolated
Station Elevation Data    num=       74
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
*************************************************************************************
18455.22  1055.618870.41 1054.6119083.17 1054.4919308.22 1054.2519426.55 1053.86
 19582.2  1054.119594.16 1050.2119604.79 1050.3319629.34 1057.4119639.51  1057.5
 19657.71045.60119689.19    102519804.58  1023.319911.42 1022.65 19986.5 1022.75
20036.19 1022.9320060.82  1023.620181.08 1022.5820196.63 1031.17 20219.81045.602
20238.13 1057.0220265.94 1057.5920288.34  1056.820321.05 1046.9420343.65 1039.08
20371.71 1043.95 20510.4 1045.0120712.01  1046.120789.36 1046.9121038.61 1047.48
21208.66 1048.1421454.04 1047.8221685.69  1048.521805.81 1048.0822092.18 1048.45
22242.98 1048.2222332.89 1048.1922513.12  1050.222770.05 1051.0723054.32  1051.7
23295.42 1051.6523472.95 1051.1123700.42  1052.523820.77 1054.7623926.54 1054.04
23949.21 1052.3623981.01 1052.4624008.88  1047.424037.13 1053.1124090.43 1054.01
24133.79 1054.5824302.75 1054.0624347.21  1053.624484.04    105424904.87 1055.84
 25102.6 1055.6325165.57 1054.9925293.65  1054.325400.67 1057.0625522.25 1059.22
25597.17 1058.4125713.85 1057.9825824.69  1060.625850.02 1060.9225980.05 1061.02
26040.31 1060.2826085.96 1060.1626115.36  1058.626378.37 1057.1726385.52 1058.22
26496.95 1078.6826605.38 1079.6726703.24  1058.126712.22 1058.41

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
************************************************
18455.22    .045 19657.7    .033 20219.8     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       19657.7 20219.8             481  521.13     221             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
18455.2219639.51    1068        F
 20265.926712.22    1068        F

CROSS SECTION OUTPUT  Profile #PF#1
*****************************************************************************************
* E.G. Elev (ft)         * 1048.58  * Element              *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    3.13  * Wt. n-Val.           *          *   0.033  *          *
* W.S. Elev (ft)         * 1045.45  * Reach Len. (ft)      *  481.00  *  521.13  *  221.00  *
* Crit W.S. (ft)         * 1038.24  * Flow Area (sq ft)    *          *11699.97  *          *
* E.G. Slope (ft/ft)     *0.001783  * Area (sq ft)         *          *11699.97  *  322.02  *
* Q Total (cfs)          *166000.00  * Flow (cfs)          *          *166000.00  *          *
* Top Width (ft)         *  828.67  * Top Width (ft)       *          *  561.64  *  267.04  *
* Vel Total (ft/s)       *   14.19  * Avg. Vel. (ft/s)     *          *   14.19  *          *
* Max Chl Dpth (ft)      *   22.87  * Hydr. Depth (ft)     *          *   20.83  *          *
* Conv. Total (cfs)      *3930828.0  * Conv. (cfs)         *          *3930828.0  *          *
* Length Wtd. (ft)       *  521.13  * Wetted Per. (ft)     *          *  574.06  *          *
* Min Ch El (ft)         * 1022.58  * Shear (lb/sq ft)     *          *    2.27  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   32.20  *          *
* Frctn Loss (ft)        *    1.05  * Cum Volume (acre-ft)   * 6991.62  *30357.56  * 3083.10  *
* C & E Loss (ft)        *    0.08  * Cum SA (acres)         * 1904.07  * 2920.22  *  965.44  *
*****************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*****************************************************************************************
* E.G. Elev (ft)         * 1048.58  * Element              *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    3.12  * Wt. n-Val.           *          *   0.033  *          *
* W.S. Elev (ft)         * 1045.46  * Reach Len. (ft)      *  481.00  *  521.13  *  221.00  *
* Crit W.S. (ft)         * 1038.24  * Flow Area (sq ft)    *          *11701.82  *          *
* E.G. Slope (ft/ft)     *0.001783  * Area (sq ft)         *          *11701.82  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)          *          *166000.00  *          *
* Top Width (ft)         *  561.65  * Top Width (ft)       *          *  561.65  *          *
* Vel Total (ft/s)       *   14.19  * Avg. Vel. (ft/s)     *          *   14.19  *          *
* Max Chl Dpth (ft)      *   22.88  * Hydr. Depth (ft)     *          *   20.83  *          *
* Conv. Total (cfs)      *3931813.0  * Conv. (cfs)         *          *3931813.0  *          *
* Length Wtd. (ft)       *  521.13  * Wetted Per. (ft)     *          *  574.07  *          *
* Min Ch El (ft)         * 1022.58  * Shear (lb/sq ft)     *          *    2.27  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   32.18  *          *
* Frctn Loss (ft)        *    1.05  * Cum Volume (acre-ft)   * 1203.18  *31286.72  * 1414.74  *
* C & E Loss (ft)        *    0.08  * Cum SA (acres)         *  201.91  * 2924.36  *  205.53  *
*****************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
```

additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 211.54

INPUT
Description: 211.54 - FEMA Section AA
Station Elevation Data num= 24

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18557	105619498.08	1062.8819570.11		1056.919585.13		1056.719633.01		1023.1	
19866.76	1021.920100.43	1023.220148.29		1056.820163.32		105720195.23		1056.3	
20223.6	1049.320265.59	1046.120326.25		1049.420339.59		1050.820360.21		1052.5	
20374.03	1055.420382.33	1055.9 20385.6		1055.9 20412.1		1057.320434.96		1056.7	
20443.92	1057.120456.54	1061.420479.34		1060.721248.52		1053.6			

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
18557	.03719498.08	.03220163.32		.037	

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19498.0820163.32 125 125.49 120 .1 .3
Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
1855719498.08		1070	F
20163.3221248.52		1070	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1047.44	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.97	Wt. n-Val.		0.032	
W.S. Elev (ft)	1043.47	Reach Len. (ft)	0.10	0.10	0.10
Crit W.S. (ft)	1038.07	Flow Area (sq ft)		*10379.89	
E.G. Slope (ft/ft)	*0.002293	Area (sq ft)		*10379.89	
Q Total (cfs)	*166000.00	Flow (cfs)		*166000.00	
Top Width (ft)	525.33	Top Width (ft)		525.33	
Vel Total (ft/s)	15.99	Avg. Vel. (ft/s)		15.99	
Max Chl Dpth (ft)	21.57	Hydr. Depth (ft)		19.76	
Conv. Total (cfs)	*3466441.0	Conv. (cfs)		*3466441.0	
Length Wtd. (ft)	0.10	Wetted Per. (ft)		538.18	
Min Ch El (ft)	1021.90	Shear (lb/sq ft)		2.76	
Alpha	1.00	Stream Power (lb/ft s)		44.16	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	6991.62	*30225.49	3082.28
C & E Loss (ft)	0.09	Cum SA (acres)	1904.07	2913.72	964.77

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1047.45	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.97	Wt. n-Val.		0.032	
W.S. Elev (ft)	1043.48	Reach Len. (ft)	0.10	0.10	0.10
Crit W.S. (ft)	1038.07	Flow Area (sq ft)		*10382.65	
E.G. Slope (ft/ft)	*0.002291	Area (sq ft)		*10382.65	
Q Total (cfs)	*166000.00	Flow (cfs)		*166000.00	
Top Width (ft)	525.34	Top Width (ft)		525.34	
Vel Total (ft/s)	15.99	Avg. Vel. (ft/s)		15.99	
Max Chl Dpth (ft)	21.58	Hydr. Depth (ft)		19.76	
Conv. Total (cfs)	*3467896.0	Conv. (cfs)		*3467896.0	
Length Wtd. (ft)	0.10	Wetted Per. (ft)		538.19	
Min Ch El (ft)	1021.90	Shear (lb/sq ft)		2.76	
Alpha	1.00	Stream Power (lb/ft s)		44.12	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	1203.18	*31154.61	1414.74
C & E Loss (ft)	0.09	Cum SA (acres)	201.91	2917.86	205.53

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

BRIDGE

RIVER: 1
REACH: 1 RS: 211.525

INPUT
Description: 19th Avenue Bridge
Distance from Upstream XS = .1
Deck/Roadway Width = 124.49
Weir Coefficient = 2.6
Upstream Deck/Roadway Coordinates
num= 11

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
18557	1056	105619498.08	1062.88	1062.8819498.08	1062.88 1056.33
19617.96	1065.1	1058.4319732.91	1067.4	1060.6819853.66	1068.72 1062.03
19974.41	1069.18	1062.5120095.16	1068.67	1061.9720215.91	1067.18 1060.46
20336.66	1064.77	1058.0320456.45	1061.4	1054.73	

Upstream Bridge Cross Section Data
Station Elevation Data num= 24

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

```
*******************************************************************************
   18557    105619498.08 1062.8819570.11  1056.919585.13  1056.719633.01  1023.1
19866.76  1021.920100.43  1023.220148.29  1056.820163.32    105720195.23  1056.3
 20223.6  1049.320265.59  1046.120326.25  1049.420339.59  1050.820360.21  1052.5
20374.03  1055.420382.33  1055.9 20385.6  1055.9 20412.1  1057.320434.96  1056.7
20443.92  1057.120456.54  1061.420479.34  1060.721248.52  1053.6

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
   18557    .03719498.08    .03220163.32    .037

Bank Sta: Left   Right    Coeff Contr.   Expan.
      19498.0820163.32            .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
   1855719498.08    1070       F
20163.3221248.52    1070       F

Downstream  Deck/Roadway Coordinates
    num=      11
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
*******************************************************************************
   18557    1056    105619498.08 1062.88 1062.8819498.08 1062.88 1056.33
19617.96  1065.1 1058.4319732.91  1067.4 1060.6819853.66 1068.72 1062.03
19974.41 1069.18 1062.5120095.16 1068.67 1061.9720215.91 1067.18 1060.46
20336.66 1064.77 1058.0320456.45  1061.4 1054.73

Downstream Bridge Cross Section Data
Station Elevation Data    num=      22
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*******************************************************************************
   18577    105619498.08 1062.8819510.11    105119579.82  1056.719594.75  1056.5
19642.62    102319876.38  1021.820110.04    102320157.91  1056.620172.93  1056.8
20204.85  1056.120210.17  1055.920249.54  1049.420344.26  1054.820347.44  1054.8
20366.65  1054.320380.75  1054.620418.55    105520428.15    105520456.54  1061.4
20479.34  1060.721248.52  1053.6

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
   18577    .03719579.82    .03220172.93    .037

Bank Sta: Left   Right    Coeff Contr.   Expan.
      19579.8220172.93            .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
   1857719579.82  1056.7       F
20172.9321248.52  1056.8       F

Upstream Embankment side slope              =         horiz. to 1.0 vertical
Downstream Embankment side slope            =         horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =      .95
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Piers =  7

Pier Data
Pier Station     Upstream=19615.06    Downstream=19615.06
Upstream     num=       2
    Width   Elev    Width   Elev
*********************************
      5.8  1046.9     5.8 1058.51
Downstream     num=       2
    Width   Elev    Width   Elev
*********************************
      5.8  1046.9     5.8 1058.51

Pier Data
Pier Station     Upstream=19735.81    Downstream=19735.81
Upstream     num=       2
    Width   Elev    Width   Elev
*********************************
      5.8    1022     5.8 1060.77
Downstream     num=       2
    Width   Elev    Width   Elev
*********************************
      5.8    1022     5.8 1060.77

Pier Data
Pier Station     Upstream=19856.56    Downstream=19856.56
Upstream     num=       2
    Width   Elev    Width   Elev
*********************************
      5.8 1020.85     5.8 1062.07
Downstream     num=       2
    Width   Elev    Width   Elev
*********************************
      5.8 1020.85     5.8 1062.07

Pier Data
Pier Station     Upstream=19977.31    Downstream=19977.31
Upstream     num=       2
    Width   Elev    Width   Elev
*********************************
      5.8 1028.55     5.8 1062.51
Downstream     num=       2
    Width   Elev    Width   Elev
*********************************
      5.8 1028.55     5.8 1062.51

Pier Data
Pier Station     Upstream=20098.06    Downstream=20098.06
```

```
Upstream     num=       2
    Width   Elev    Width   Elev
*********************************
     5.8 1033.84     5.8 1062.02
Downstream     num=       2
    Width   Elev    Width   Elev
*********************************
     5.8 1033.84     5.8 1062.02

Pier Data
Pier Station     Upstream=20218.81    Downstream=20218.81
Upstream     num=       2
    Width   Elev    Width   Elev
*********************************
     5.8 1039.95     5.8 1060.55
Downstream     num=       2
    Width   Elev    Width   Elev
*********************************
     5.8 1039.95     5.8 1060.55

Pier Data
Pier Station     Upstream=20339.56    Downstream=20339.56
Upstream     num=       2
    Width   Elev    Width   Elev
*********************************
     5.8 1045.78     5.8 1058.17
Downstream     num=       2
    Width   Elev    Width   Elev
*********************************
     5.8 1045.78     5.8 1058.17

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
       Momentum               Cd   =     1.2
       Yarnell                KVal =    1.05
Selected Low Flow Methods = Highest Energy Answer

High Flow Method
       Energy Only

Additional Bridge Parameters
       Add Friction component to Momentum
       Add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT  Profile #PF#1
*************************************************************************************************
* E.G. US. (ft)          *    1047.44  * Element                *Inside BR US *Inside BR DS *
* W.S. US. (ft)          *    1043.47  * E.G. Elev (ft)         *    1047.35  *    1046.70  *
* Q Total (cfs)          *  166000.00  * W.S. Elev (ft)         *    1042.45  *    1041.22  *
* Q Bridge (cfs)         *  166000.00  * Crit W.S. (ft)         *    1038.59  *    1038.44  *
* Q Weir (cfs)           *             * Max Chl Dpth (ft)      *      20.55  *      19.42  *
* Weir Sta Lft (ft)      *             * Vel Total (ft/s)       *      17.77  *      18.80  *
* Weir Sta Rgt (ft)      *             * Flow Area (sq ft)      *    9343.48  *    8831.50  *
* Weir Submerg           *             * Froude # Chl           *       0.72  *       0.78  *
* Weir Max Depth (ft)    *             * Specif Force (cu ft)   *  183094.10  *  178443.20  *
* Min El Weir Flow (ft)  *    1065.11  * Hydr Depth (ft)        *      18.94  *      17.85  *
* Min El Prs (ft)        *    1062.51  * W.P. Total (ft)        *     676.49  *     657.35  *
* Delta EG (ft)          *       0.99  * Conv. Total (cfs)      *  2497570.0  *  2317593.0  *
* Delta WS (ft)          *       1.70  * Top Width (ft)         *     493.41  *     494.83  *
* BR Open Area (sq ft)   *   19158.31  * Frctn Loss (ft)        *       0.59  *       0.00  *
* BR Open Vel (ft/s)     *      18.80  * C & E Loss (ft)        *       0.06  *       0.24  *
* Coef of Q              *             * Shear Total (lb/sq ft) *       3.81  *       4.30  *
* Br Sel Method          *Energy only  * Power Total (lb/ft s)  *      67.67  *      80.88  *
*************************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

BRIDGE OUTPUT  Profile #PF#2
*************************************************************************************************
* E.G. US. (ft)          *    1047.45  * Element                *Inside BR US *Inside BR DS *
* W.S. US. (ft)          *    1043.48  * E.G. Elev (ft)         *    1047.36  *    1046.71  *
* Q Total (cfs)          *  166000.00  * W.S. Elev (ft)         *    1042.46  *    1041.23  *
* Q Bridge (cfs)         *  166000.00  * Crit W.S. (ft)         *    1038.59  *    1038.44  *
* Q Weir (cfs)           *             * Max Chl Dpth (ft)      *      20.56  *      19.43  *
* Weir Sta Lft (ft)      *             * Vel Total (ft/s)       *      17.76  *      18.78  *
* Weir Sta Rgt (ft)      *             * Flow Area (sq ft)      *    9346.85  *    8837.18  *
* Weir Submerg           *             * Froude # Chl           *       0.72  *       0.78  *
* Weir Max Depth (ft)    *             * Specif Force (cu ft)   *  183125.00  *  178482.30  *
* Min El Weir Flow (ft)  *    1065.06  * Hydr Depth (ft)        *      18.94  *      17.86  *
* Min El Prs (ft)        *    1062.51  * W.P. Total (ft)        *     676.58  *     657.47  *
* Delta EG (ft)          *       0.99  * Conv. Total (cfs)      *  2498846.0  *  2319789.0  *
* Delta WS (ft)          *       1.70  * Top Width (ft)         *     493.43  *     494.84  *
* BR Open Area (sq ft)   *   18724.25  * Frctn Loss (ft)        *       0.59  *       0.00  *
* BR Open Vel (ft/s)     *      18.78  * C & E Loss (ft)        *       0.06  *       0.24  *
* Coef of Q              *             * Shear Total (lb/sq ft) *       3.81  *       4.30  *
* Br Sel Method          *Energy only  * Power Total (lb/ft s)  *      67.60  *      80.71  *
*************************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
```

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 211.51

INPUT
Description: 211.51

Begin 19th Ave Landfill channelization

Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18577	105619498.08	1062.8819510.11		105119579.82	1056.719594.75	1056.5			
19642.62	102319876.38	1021.820110.04		102320157.91	1056.620172.93	1056.8			
20204.85	1056.120210.17	1055.920249.54		1049.420344.26	1054.820347.44	1054.8			
20366.65	1054.320380.75	1054.620418.55		105520428.15	105520456.54	1061.4			
20479.34	1060.721248.52	1053.6							

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
18577	.03719579.82	.03220172.93	.037		

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19579.8220172.93 541 562.88 606 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
1857719579.82	1056.7	F	
20172.9321248.52	1056.8	F	

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1046.46	Element	Left OB	Channel	Right OB
Vel Head (ft)	4.68	Wt. n-Val.		0.032	
W.S. Elev (ft)	1041.77	Reach Len. (ft)	541.00	562.88	606.00
Crit W.S. (ft)	1037.98	Flow Area (sq ft)		9556.95	
E.G. Slope (ft/ft)	*0.002980	Area (sq ft)		9556.95	
Q Total (cfs)	*166000.00	Flow (cfs)		*166000.00	
Top Width (ft)	520.99	Top Width (ft)		520.99	
Vel Total (ft/s)	17.37	Avg. Vel. (ft/s)		17.37	
Max Chl Dpth (ft)	19.97	Hydr. Depth (ft)		18.34	
Conv. Total (cfs)	*3040748.0	Conv. (cfs)		*3040748.0	
Length Wtd. (ft)	562.88	Wetted Per. (ft)		532.84	
Min Ch El (ft)	1021.80	Shear (lb/sq ft)		3.34	
Alpha	1.00	Stream Power (lb/ft s)		57.96	
Frctn Loss (ft)	1.36	Cum Volume (acre-ft)	6991.62	*30199.30	3082.28
C & E Loss (ft)	0.37	Cum SA (acres)	1904.07	2912.30	964.77

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1046.46	Element	Left OB	Channel	Right OB
Vel Head (ft)	4.68	Wt. n-Val.		0.032	
W.S. Elev (ft)	1041.78	Reach Len. (ft)	541.00	562.88	606.00
Crit W.S. (ft)	1037.98	Flow Area (sq ft)		9562.29	
E.G. Slope (ft/ft)	*0.002975	Area (sq ft)		9562.29	
Q Total (cfs)	*166000.00	Flow (cfs)		*166000.00	
Top Width (ft)	521.01	Top Width (ft)		521.01	
Vel Total (ft/s)	17.36	Avg. Vel. (ft/s)		17.36	
Max Chl Dpth (ft)	19.98	Hydr. Depth (ft)		18.35	
Conv. Total (cfs)	*3043452.0	Conv. (cfs)		*3043452.0	
Length Wtd. (ft)	562.88	Wetted Per. (ft)		532.87	
Min Ch El (ft)	1021.80	Shear (lb/sq ft)		3.33	
Alpha	1.00	Stream Power (lb/ft s)		57.86	
Frctn Loss (ft)	1.35	Cum Volume (acre-ft)	1203.18	*31128.42	1414.74
C & E Loss (ft)	0.37	Cum SA (acres)	201.91	2916.44	205.53

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 211.41

INPUT
Description: 211.41

Left and Right Channel Bank Stations Interpolated
Station Elevation Data num= 98

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

Post-Project

```
18573.85  1055.518621.78 1056.6118655.14 1053.7918722.99 1053.2518902.93  1052.9
19132.77  1051.619320.33 1050.8719480.47 1049.5819533.31 1047.7219566.92  1049.4
 19611.4  1046.919634.53 1044.0819638.09 1041.7819668.43 1022.1819702.69 1018.56
19754.63 1019.6519786.92  1018.319889.98 1020.7419930.16 1020.8119994.45 1020.82
20076.61 1020.9120167.45  1021.220192.38 1033.0120195.55 1039.3220206.061041.777
20220.36 1045.1220236.46 1054.7820293.62    105620331.24 1065.2220351.37 1065.23
20357.03 1066.6220414.04 1056.96 20436.1  1062.220445.88 1058.7420504.13 1060.74
20521.21 1060.7920557.16 1066.5820578.69  1061.620603.37 1060.3620654.05 1060.04
20689.25 1058.2320722.97 1060.5820735.67 1057.720828.84 1057.0620846.13 1057.59
20898.33 1070.2520938.86 1063.6420980.02   106321017.32 1057.9221060.66 1055.82
21097.07 1055.5321119.44 1056.16 21132.9  1055.121181.47  1054.221283.06  1053.8
21298.44 1058.2121320.94 1060.3521339.43 1062.821380.38 1060.3221406.09 1052.45
21459.74 1053.4821477.97 1059.9821533.47   106121555.62 1081.8121619.68 1081.91
21644.09  1080.121655.42 1076.4821707.29 1075.321720.18 1072.1521749.96 1071.27
21770.47 1076.9921793.84 1054.8221802.85 1056.121842.36    105621864.05 1053.48
21891.41 1052.6921905.23 1051.4321991.71 1051.822210.76 1052.0622373.03 1052.78
22531.21 1052.1722650.75 1052.0922819.43  1052.522919.43 1053.1423211.23 1053.67
23252.71 1054.2423349.12 1054.0823463.55  1053.123574.33 1051.7923680.61 1051.32
23891.22 1051.5624133.09 1051.4824212.43  1051.924237.65 1050.3224284.73 1050.32
24320.22    105124361.59 1050.58 24444.1    1052

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
18573.85    .03719638.09    .03220206.06    .037

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      19638.0920206.06              500  501.53     505            .1      .3

CROSS SECTION OUTPUT  Profile #PF#1
*****************************************************************************************************
* E.G. Elev (ft)         * 1044.73  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    3.44  * Wt. n-Val.            *          *    0.032  *          *
* W.S. Elev (ft)         * 1041.28  * Reach Len. (ft)       *  500.00  *  501.53  *  505.00  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)     *          * 11146.87  *          *
* E.G. Slope (ft/ft)     *0.001988  * Area (sq ft)          *          * 11146.87  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *          *166000.00  *          *
* Top Width (ft)         *  565.09  * Top Width (ft)        *          *  565.09  *          *
* Vel Total (ft/s)       *   14.89  * Avg. Vel. (ft/s)      *          *   14.89  *          *
* Max Chl Dpth (ft)      *   22.98  * Hydr. Depth (ft)      *          *   19.73  *          *
* Conv. Total (cfs)      *3723381.0  * Conv. (cfs)          *          *3723381.0  *          *
* Length Wtd. (ft)       *  501.53  * Wetted Per. (ft)      *          *  577.76  *          *
* Min Ch El (ft)         * 1018.30  * Shear (lb/sq ft)      *          *    2.39  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   35.65  *          *
* Frctn Loss (ft)        *    1.28  * Cum Volume (acre-ft)  * 6991.62  *30065.54  * 3082.28  *
* C & E Loss (ft)        *    0.01  * Cum SA (acres)        * 1904.07  * 2905.28  *  964.77  *
*****************************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT  Profile #PF#2
*****************************************************************************************************
* E.G. Elev (ft)         * 1044.73  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    3.44  * Wt. n-Val.            *          *    0.032  *          *
* W.S. Elev (ft)         * 1041.30  * Reach Len. (ft)       *  500.00  *  501.53  *  505.00  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)     *          * 11153.56  *          *
* E.G. Slope (ft/ft)     *0.001984  * Area (sq ft)          *          * 11153.56  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *          *166000.00  *          *
* Top Width (ft)         *  565.16  * Top Width (ft)        *          *  565.16  *          *
* Vel Total (ft/s)       *   14.88  * Avg. Vel. (ft/s)      *          *   14.88  *          *
* Max Chl Dpth (ft)      *   22.99  * Hydr. Depth (ft)      *          *   19.74  *          *
* Conv. Total (cfs)      *3726792.0  * Conv. (cfs)          *          *3726792.0  *          *
* Length Wtd. (ft)       *  501.53  * Wetted Per. (ft)      *          *  577.83  *          *
* Min Ch El (ft)         * 1018.30  * Shear (lb/sq ft)      *          *    2.39  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   35.58  *          *
* Frctn Loss (ft)        *    1.27  * Cum Volume (acre-ft)  * 1203.18  *30994.57  * 1414.74  *
* C & E Loss (ft)        *    0.01  * Cum SA (acres)        *  201.91  * 2909.42  *  205.53  *
*****************************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

CROSS SECTION


RIVER: 1
REACH: 1                  RS: 211.31

INPUT
Description: 211.31

Left and Right Channel Bank Stations Interpolated
Station Elevation Data    num=      98
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 19209.8    1054 19309.4  1053.9   19371  1052.4 19415.6    1052 19462.5  1051.5
 19496.2  1050.5 19510.1  1050.5 19528.9  1041.9 19531.21040.766 19571.7  1020.8
   19614  1021.1 19677.8  1021.1 19724.1  1021.3 19888.2    1022 19928.3  1022.1
 19954.9  1021.8 19973.9    1032 19980.4  1029.8 19994.7  1027.2   20059  1026.6
   20112  1026.2 20123.3    1028 20158.9  1030.9 20198.7  1033.6 20212.5  1034.3
 20267.3  1034.5 20269.1  1035.1 20281.8  1034.8 20323.2  1035.6 20338.5  1037.1
   20343    1038 20356.11040.765 20425.9  1055.5 20434.4  1057.4 20457.3    1049
   20499  1049.5 20549.5  1051.1 20551.5    1051 20571.1  1052.5 20575.3  1055.6
 20584.2  1059.5   20614  1060.7 20625.4    1057   20636  1051.6 20682.5  1051.6
 20692.1  1051.6 20699.2    1055 20718.1  1055.1 20723.4  1052.3 20725.3  1052.3
 20778.6  1052.4   20806  1052.5 20808.3  1053.2 20835.4  1052.5 20836.7  1052.2
 20884.1  1051.7   20893  1051.9 20922.6  1067.4 20930.4  1067.8   20944  1066.2
 20964.4  1055.2 20970.5  1050.2 21010.5  1050.3 21036.1    1052 21040.8  1052.7
   21082  1053.8 21083.4  1053.5 21093.1  1049.5 21124.5  1050.5 21134.6  1050.2
 21141.3  1051.6 21160.1  1051.2 21201.6  1048.9 21204.4  1049.1 21219.3  1052.5
 21236.3  1049.8 21240.9  1049.4 21293.9    1049 21338.4  1048.2 21394.2  1047.1
   21457  1046.7 21459.4  1046.7 21510.1  1046.2 21538.8  1046.8   21571  1046.8
 21576.7  1047.8 21607.4  1058.3 21626.3  1059.1 21651.1  1060.7 21661.7  1060.9
 21672.8    1062 21684.6  1057.7 21696.7  1051.4 21740.6  1053.4 21745.1  1054.1
 21754.3  1054.6 21757.7    1053   21786  1052.5
```

```
Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
 19209.8    .037 19531.2    .032 20356.1    .037

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       19531.2 20356.1             540  523.28     460            .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
 20434.4   21786    1060       F

CROSS SECTION OUTPUT  Profile #PF#1
*****************************************************************************************
* E.G. Elev (ft)         * 1043.44  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    3.55  * Wt. n-Val.           *          *   0.032  *          *
* W.S. Elev (ft)         * 1039.90  * Reach Len. (ft)      *  540.00  *  523.28  *  460.00  *
* Crit W.S. (ft)         * 1037.24  * Flow Area (sq ft)    *          *10986.19  *          *
* E.G. Slope (ft/ft)     *0.003368  * Area (sq ft)         *          *10986.19  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)          *          *166000.00  *          *
* Top Width (ft)         *  819.02  * Top Width (ft)       *          *  819.02  *          *
* Vel Total (ft/s)       *   15.11  * Avg. Vel. (ft/s)     *          *   15.11  *          *
* Max Chl Dpth (ft)      *   19.10  * Hydr. Depth (ft)     *          *   13.41  *          *
* Conv. Total (cfs)      *2860350.0  * Conv. (cfs)         *          *2860350.0  *          *
* Length Wtd. (ft)       *  523.28  * Wetted Per. (ft)     *          *  827.48  *          *
* Min Ch El (ft)         * 1020.80  * Shear (lb/sq ft)     *          *    2.79  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   42.18  *          *
* Frctn Loss (ft)        *    1.55  * Cum Volume (acre-ft)  * 6991.62  *29938.12  * 3082.28  *
* C & E Loss (ft)        *    0.28  * Cum SA (acres)        * 1904.07  * 2897.31  *  964.77  *
*****************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*****************************************************************************************
* E.G. Elev (ft)         * 1043.46  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    3.53  * Wt. n-Val.           *          *   0.032  *          *
* W.S. Elev (ft)         * 1039.93  * Reach Len. (ft)      *  540.00  *  523.28  *  460.00  *
* Crit W.S. (ft)         * 1037.24  * Flow Area (sq ft)    *          *11010.38  *          *
* E.G. Slope (ft/ft)     *0.003345  * Area (sq ft)         *          *11010.38  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)          *          *166000.00  *          *
* Top Width (ft)         *  819.22  * Top Width (ft)       *          *  819.22  *          *
* Vel Total (ft/s)       *   15.08  * Avg. Vel. (ft/s)     *          *   15.08  *          *
* Max Chl Dpth (ft)      *   19.13  * Hydr. Depth (ft)     *          *   13.44  *          *
* Conv. Total (cfs)      *2870373.0  * Conv. (cfs)         *          *2870373.0  *          *
* Length Wtd. (ft)       *  523.28  * Wetted Per. (ft)     *          *  827.69  *          *
* Min Ch El (ft)         * 1020.80  * Shear (lb/sq ft)     *          *    2.78  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   41.88  *          *
* Frctn Loss (ft)        *    1.53  * Cum Volume (acre-ft)  * 1203.18  *30866.98  * 1414.74  *
* C & E Loss (ft)        *    0.28  * Cum SA (acres)        *  201.91  * 2901.45  *  205.53  *
*****************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 211.21

INPUT
Description: 211.21

Left and Right Channel Bank Stations Interpolated
Station Elevation Data    num=      88
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 19418.7    1050 19432.3  1049.9 19486.6    1051 19504.4  1050.9 19507.4  1051.4
   19520  1044.719528.741040.216   19566  1021.1 19781.8  1021.6 19997.4  1022.1
 20060.3  1022.2 20076.2  1032.8   20080    1035 20082.4  1032.7 20093.4  1024.4
 20174.8  1026.6 20183.9  1027.6 20204.6  1029.5 20217.4  1030.4 20229.3  1030.7
 20232.4  1030.9 20272.7  1031.9 20335.2  1032.6 20395.1    1032 20413.6  1031.7
 20425.2  1031.3 20429.3  1031.7 20447.4  1035.2 20472.4  1032.1 20501.4  1030.2
20521.261040.21620521.281040.226 20524.4  1041.8   20544  1051.9 20563.3  1064.6
 20571.8  1065.7 20580.9    1066 20589.3  1061.5 20605.5  1058.5 20622.4  1060.1
 20646.3  1062.6 20659.3  1063.4 20674.4  1064.8 20683.8  1065.5 20692.9  1064.2
 20760.3    1066   20772    1068 20791.6  1063.6 20814.8    1059 20846.6    1053
 20876.7  1045.5 20891.6  1044.9 20916.6  1044.2 20944.9  1044.5 20964.5  1044.9
 21002.8  1046.7 21028.1  1048.6 21034.5  1044.8 21035.5    1044 21113.8  1044.6
 21130.1  1044.6 21249.3    1044   21250  1044.1 21260.5  1047.3   21288  1046.8
 21324.8  1046.7 21359.3  1046.9 21432.1    1048 21449.9  1048.7 21452.1  1049.4
 21462.5  1051.8 21469.8  1052.8 21533.8    1052 21595.7  1051.9 21614.5  1051.8
 21642.6  1057.9 21645.8  1056.1 21673.8  1046.4   21698  1040.9 21967.4    1041
   21972  1044.7 21983.2  1052.6 21984.7  1051.9 21991.1  1050.7   21999  1051.3
 22028.7    1051 22088.3  1051.4   22171  1051.7

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
 19418.7    .03719528.74    .03220521.26    .037

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      19528.7420521.26             495  493.11     475            .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
 20571.8   22171    1068       F
```

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1041.61	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.62	Wt. n-Val.		0.032	
W.S. Elev (ft)	1039.00	Reach Len. (ft)	495.00	493.11	475.00
Crit W.S. (ft)	1035.55	Flow Area (sq ft)		12788.78	
E.G. Slope (ft/ft)	0.002621	Area (sq ft)		12788.78	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	987.73	Top Width (ft)		987.73	
Vel Total (ft/s)	12.98	Avg. Vel. (ft/s)		12.98	
Max Chl Dpth (ft)	17.90	Hydr. Depth (ft)		12.95	
Conv. Total (cfs)	3242182.0	Conv. (cfs)		3242182.0	
Length Wtd. (ft)	493.11	Wetted Per. (ft)		1002.50	
Min Ch El (ft)	1021.10	Shear (lb/sq ft)		2.09	
Alpha	1.00	Stream Power (lb/ft s)		27.10	
Frctn Loss (ft)	0.60	Cum Volume (acre-ft)	6991.62	29795.32	3082.28
C & E Loss (ft)	0.45	Cum SA (acres)	1904.07	2886.46	964.77

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1041.64	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.60	Wt. n-Val.		0.032	
W.S. Elev (ft)	1039.04	Reach Len. (ft)	495.00	493.11	475.00
Crit W.S. (ft)	1035.55	Flow Area (sq ft)		12834.36	
E.G. Slope (ft/ft)	0.002591	Area (sq ft)		12834.36	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	987.91	Top Width (ft)		987.91	
Vel Total (ft/s)	12.93	Avg. Vel. (ft/s)		12.93	
Max Chl Dpth (ft)	17.94	Hydr. Depth (ft)		12.99	
Conv. Total (cfs)	3261022.0	Conv. (cfs)		3261022.0	
Length Wtd. (ft)	493.11	Wetted Per. (ft)		1002.71	
Min Ch El (ft)	1021.10	Shear (lb/sq ft)		2.07	
Alpha	1.00	Stream Power (lb/ft s)		26.78	
Frctn Loss (ft)	0.59	Cum Volume (acre-ft)	1203.18	30723.76	1414.74
C & E Loss (ft)	0.45	Cum SA (acres)	201.91	2890.60	205.53

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 211.12

INPUT
Description: 211.12 - FEMA Section Z

Left Channel Bank Station Interpolated
Station Elevation Data num= 63

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
19314	1050.6	19321.1	1050.6	19403.5	1050.4	19415.2	1050.5	19470.9	1050.5
19482.5	1051.2	19483.7	1050.5	19498.46	1040.58	19527.6	1021	19600.2	1021.1
20090.7	1021	20239.6	1020.4	20259	1020.1	20267	1022.5	20276.5	1019.8
20287.8	1020	20321.5	1020.6	20364.3	1020.4	20406.5	1019.8	20438.1	1015.7
20453.3	1015.7	20484.3	1015.7	20510.9	1015.7	20526.1	1023.8	20540.7	1029.4
20572.2	1046.4	20577.1	1044.9	20591.9	1040.2	21035.6	1040.2	21045.7	1040.3
21082.9	1041.6	21123	1041.5	21166	1041.6	21189.7	1041.5	21228.3	1041
21264.3	1041.1	21277.3	1040.7	21299.3	1040.6	21311.7	1043.9	21321.5	1044.1
21335.9	1046.9	21349.5	1046.7	21377.3	1046.7	21389.3	1045.7	21395.8	1044.6
21409	1041.7	21414.3	1040.2	21431.9	1040.1	21441.7	1040.6	21511.5	1043.7
21564.5	1044.7	21580.3	1044.8	21593	1044.6	21597	1042	22094.6	1042
22111.5	1053.1	22112.9	1051.5	22113.7	1050.9	22123	1051.4	22146.6	1051.4
22200.7	1051.7	22225.6	1051.6	22293.4	1051.7				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
19314	.03	19498.46	.032	20572.2	.037

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19498.46 20572.2 500 505.73 500 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
21335.9	22293.4	1050	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1040.57	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.11	Wt. n-Val.		0.032	
W.S. Elev (ft)	1039.45	Reach Len. (ft)	500.00	505.73	500.00
Crit W.S. (ft)	1029.88	Flow Area (sq ft)		19589.91	
E.G. Slope (ft/ft)	0.000691	Area (sq ft)		19589.91	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	1059.19	Top Width (ft)		1059.19	
Vel Total (ft/s)	8.47	Avg. Vel. (ft/s)		8.47	
Max Chl Dpth (ft)	23.75	Hydr. Depth (ft)		18.50	

```
                                                                    Post-Project
* Conv. Total (cfs)      *6313340.0  * Conv. (cfs)           *          *6313340.0  *          *
* Length Wtd. (ft)       *  505.71  * Wetted Per. (ft)      *          * 1071.42  *          *
* Min Ch El (ft)         * 1015.70  * Shear (lb/sq ft)      *          *    0.79  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    6.69  *          *
* Frctn Loss (ft)        *    0.51  * Cum Volume (acre-ft)   * 6991.62  *29612.05  * 3082.28  *
* C & E Loss (ft)        *    0.10  * Cum SA (acres)         * 1904.07  * 2874.87  *  964.77  *
*********************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)         * 1040.61  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.11  * Wt. n-Val.            *          *    0.032  *          *
* W.S. Elev (ft)         * 1039.50  * Reach Len. (ft)       *  500.00  *   505.73  *   500.00  *
* Crit W.S. (ft)         * 1029.88  * Flow Area (sq ft)     *          *19634.26  *          *
* E.G. Slope (ft/ft)     *0.000686  * Area (sq ft)          *          *19634.26  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *          *166000.00  *          *
* Top Width (ft)         * 1059.33  * Top Width (ft)        *          * 1059.33  *          *
* Vel Total (ft/s)       *    8.45  * Avg. Vel. (ft/s)      *          *    8.45  *          *
* Max Chl Dpth (ft)      *   23.79  * Hydr. Depth (ft)      *          *   18.53  *          *
* Conv. Total (cfs)      *6336533.0  * Conv. (cfs)          *          *6336533.0  *          *
* Length Wtd. (ft)       *  505.72  * Wetted Per. (ft)      *          * 1071.59  *          *
* Min Ch El (ft)         * 1015.70  * Shear (lb/sq ft)      *          *    0.79  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    6.64  *          *
* Frctn Loss (ft)        *    0.51  * Cum Volume (acre-ft)   * 1203.18  *30539.98  * 1414.74  *
* C & E Loss (ft)        *    0.10  * Cum SA (acres)         *  201.91  * 2879.01  *  205.53  *
*********************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                RS: 211.02

INPUT
Description: 211.02

Left Channel Bank Station Interpolated
Station Elevation Data    num=      58
      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
*************************************************************************************
    19239  1049.4 19253.3  1049.2 19318.8  1049.3    19330  1049.2 19381.9  1049.5
 19409.6  1049.3 19472.3    104919487.121039.375 19515.1  1021.2 19977.7  1020.4
 20111.7  1020.1 20119.2  1025.6 20133.2  1024.1 20136.2  1022.2    20140  1019.4
 20202.9  1020.4 20228.3  1020.7 20238.9  1022.4 20243.6  1025.6 20270.1  1025.5
 20279.9  1025.7 20343.8  1026.1 20394.3  1041.3 20424.2    1040    20434  1040.5
 20448.3  1038.4 20459.5  1037.9 20468.8  1038.2 20484.1    1038 20494.6  1038.7
 20501.7  1038.2 21087.6  1039.1 21102.9  1037.2 21124.7  1036.8 21132.2    1033
 21144.9  1032.5 21184.2  1034.3 21243.7  1036.3 21300.5  1038.4 21315.9  1038.7
 21353.2    1040 21399.5  1041.4    21439  1042.3    21480  1043.6 21514.7  1043.6
 21524.4  1043.8 21535.1  1043.6 21559.7  1042.3 21570.6  1042.2 22151.3    1042
 22163.4  1052.1 22174.7  1052.9 22226.3  1051.5 22239.2  1051.3    22318  1051.9
 22324.3    1052 22393.8  1052.8 22399.8  1052.7

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
   19239    .03719487.12    .032 20394.3    .037

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
     19487.12 20394.3             485  493.19     495             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
   21500 22399.8    1050       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         * 1039.96  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    2.09  * Wt. n-Val.            *          *   0.032  *   0.037  *
* W.S. Elev (ft)         * 1037.87  * Reach Len. (ft)       *  485.00  *  493.19  *  495.00  *
* Crit W.S. (ft)         * 1032.11  * Flow Area (sq ft)     *          *14121.33  *  469.07  *
* E.G. Slope (ft/ft)     *0.001615  * Area (sq ft)          *          *14121.33  *  469.07  *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *          *164614.80  * 1385.15  *
* Top Width (ft)         * 1081.93  * Top Width (ft)        *          *  893.45  *  188.49  *
* Vel Total (ft/s)       *   11.38  * Avg. Vel. (ft/s)      *          *   11.66  *    2.95  *
* Max Chl Dpth (ft)      *   18.47  * Hydr. Depth (ft)      *          *   15.81  *    2.49  *
* Conv. Total (cfs)      *4130206.0  * Conv. (cfs)          *          *4095742.0  * 34463.7  *
* Length Wtd. (ft)       *  493.31  * Wetted Per. (ft)      *          *  904.60  *  189.55  *
* Min Ch El (ft)         * 1019.40  * Shear (lb/sq ft)      *          *    1.57  *    0.25  *
* Alpha                  *    1.04  * Stream Power (lb/ft s) *          *   18.35  *    0.74  *
* Frctn Loss (ft)        *    0.82  * Cum Volume (acre-ft)   * 6991.62  *29416.36  * 3079.59  *
* C & E Loss (ft)        *    0.12  * Cum SA (acres)         * 1904.07  * 2863.54  *  963.68  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)         * 1039.99  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    2.13  * Wt. n-Val.            *          *   0.032  *   0.037  *
* W.S. Elev (ft)         * 1037.86  * Reach Len. (ft)       *  485.00  *  493.19  *  495.00  *
```

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                                                                    Post-Project
* Crit W.S. (ft)         * 1032.11  * Flow Area (sq ft)       *          *14114.02  *  134.18  *
* E.G. Slope (ft/ft)     *0.001638  * Area (sq ft)           *          *14114.02  *  134.18  *
* Q Total (cfs)          *166000.00  * Flow (cfs)            *          *165620.60  *  379.38  *
* Top Width (ft)         *  945.79  * Top Width (ft)         *          *  893.40  *   52.39  *
* Vel Total (ft/s)       *   11.65  * Avg. Vel. (ft/s)       *          *   11.73  *    2.83  *
* Max Chl Dpth (ft)      *   18.46  * Hydr. Depth (ft)       *          *   15.80  *    2.56  *
* Conv. Total (cfs)      *4101719.0  * Conv. (cfs)           *          *4092345.0  *  9374.3  *
* Length Wtd. (ft)       *  493.31  * Wetted Per. (ft)       *          *  904.56  *   58.48  *
* Min Ch El (ft)         * 1019.40  * Shear (lb/sq ft)      *          *    1.60  *    0.23  *
* Alpha                  *    1.01  * Stream Power (lb/ft s) *          *   18.72  *    0.66  *
* Frctn Loss (ft)        *    0.82  * Cum Volume (acre-ft)   * 1203.18  *30344.07  * 1413.97  *
* C & E Loss (ft)        *    0.13  * Cum SA (acres)         *  201.91  * 2867.67  *  205.23  *
*****************************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                RS: 210.93

INPUT
Description: 210.93

Left Channel Bank Station Interpolated
Station Elevation Data    num=      50
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*************************************************************************
 19200.1  1048.6 19256.6  1048.1 19323.4  1048.3 19376.7  1048.6 19414.5    1048
 19464.2  1048.319479.121039.255 19508.9  1021.2 19821.8  1022.3 20131.9  1023.4
 20138.8    1028 20162.4  1029.4 20166.3  1026.3 20172.8  1019.1   20212  1018.7
 20278.3  1019.9   20290  1025.6 20331.4    1025 20349.2  1032.1 20351.6  1031.2
 20355.1  1030.5 20397.8  1031.3 20406.9  1035.2 20414.8  1039.6 20431.2  1039.4
 20455.9  1039.7 20458.7  1037.8 20465.5  1037.9 20470.4  1034.9 20474.7  1032.7
 21343.1  1032.7 21350.5  1032.5 21376.3  1035.6 21390.1  1033.4 21395.9  1033.7
 21424.3  1033.9 21484.4  1034.5 21494.9  1034.3   21537  1034.4 22171.3  1034.4
 22195.5  1049.6 22217.9  1047.5 22260.9    1035 22263.6  1034.9 22291.1    1051
 22312.1  1051.8 22326.6  1051.4 22375.7  1051.7 22388.8  1051.5 22397.4  1050.6

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
 19200.1    .03719479.12    .032 20414.8    .037

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      19479.12 20414.8              505  505.14     505            .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
   21576 22397.4    1048       F

CROSS SECTION OUTPUT  Profile #PF#1
*****************************************************************************************************
* E.G. Elev (ft)         * 1039.02  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.71  * Wt. n-Val.             *          *   0.032  *   0.037  *
* W.S. Elev (ft)         * 1037.31  * Reach Len. (ft)        *  505.00  *  505.14  *  505.00  *
* Crit W.S. (ft)         * 1034.18  * Flow Area (sq ft)      *          *13074.82  * 4761.32  *
* E.G. Slope (ft/ft)     *0.001715  * Area (sq ft)           *          *13074.82  * 6522.72  *
* Q Total (cfs)          *166000.00  * Flow (cfs)            *          *145110.50  *20889.52  *
* Top Width (ft)         * 2652.63  * Top Width (ft)         *          *  928.37  * 1724.26  *
* Vel Total (ft/s)       *    9.31  * Avg. Vel. (ft/s)       *          *   11.10  *    4.39  *
* Max Chl Dpth (ft)      *   18.61  * Hydr. Depth (ft)       *          *   14.08  *    4.29  *
* Conv. Total (cfs)      *4008755.0  * Conv. (cfs)           *          *3504292.0  *504463.6  *
* Length Wtd. (ft)       *  505.13  * Wetted Per. (ft)       *          *  942.88  * 1111.13  *
* Min Ch El (ft)         * 1018.70  * Shear (lb/sq ft)      *          *    1.48  *    0.46  *
* Alpha                  *    1.27  * Stream Power (lb/ft s) *          *   16.48  *    2.01  *
* Frctn Loss (ft)        *    0.92  * Cum Volume (acre-ft)   * 6991.62  *29262.40  * 3039.87  *
* C & E Loss (ft)        *    0.03  * Cum SA (acres)         * 1904.07  * 2853.23  *  952.82  *
*****************************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*****************************************************************************************************
* E.G. Elev (ft)         * 1039.04  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.70  * Wt. n-Val.             *          *   0.032  *   0.037  *
* W.S. Elev (ft)         * 1037.34  * Reach Len. (ft)        *  505.00  *  505.14  *  505.00  *
* Crit W.S. (ft)         * 1034.18  * Flow Area (sq ft)      *          *13094.88  * 4782.36  *
* E.G. Slope (ft/ft)     *0.001705  * Area (sq ft)           *          *13094.88  * 4782.36  *
* Q Total (cfs)          *166000.00  * Flow (cfs)            *          *145043.40  *20956.61  *
* Top Width (ft)         * 2037.02  * Top Width (ft)         *          *  928.45  * 1108.58  *
* Vel Total (ft/s)       *    9.29  * Avg. Vel. (ft/s)       *          *   11.08  *    4.38  *
* Max Chl Dpth (ft)      *   18.63  * Hydr. Depth (ft)       *          *   14.10  *    4.31  *
* Conv. Total (cfs)      *4020630.0  * Conv. (cfs)           *          *3513047.0  *507582.9  *
* Length Wtd. (ft)       *  505.13  * Wetted Per. (ft)       *          *  942.96  * 1113.10  *
* Min Ch El (ft)         * 1018.70  * Shear (lb/sq ft)      *          *    1.48  *    0.46  *
* Alpha                  *    1.27  * Stream Power (lb/ft s) *          *   16.37  *    2.00  *
* Frctn Loss (ft)        *    0.92  * Cum Volume (acre-ft)   * 1203.18  *30190.04  * 1386.03  *
* C & E Loss (ft)        *    0.03  * Cum SA (acres)         *  201.91  * 2857.36  *  198.64  *
*****************************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                RS: 210.83

INPUT
```

Description: 210.83

Left Channel Bank Station Interpolated
Station Elevation Data num= 61

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
19202.3	1047.9	19230.6	1048.2	19316.1	1047.1	19412.4	1046.5	19438.4	1046.4
19450.41	1038.8	13 19469.9	1026.5	19479.2	1021.2	19797.6	1021	19923.9	1020.9
19961.4	1020.6	19972.9	1027.1	19981.7	1030.2	20023.7	1029.7	20030.1	1028.5
20042.7	1023.3	20047.1	1022.6	20060.1	1021.5	20068	1019.1	20084.8	1019.4
20164.7	1020.3	20209.2	1020.4	20210.1	1020.8	20276.6	1019.8	20285.1	1022.2
20306.6	1025.2	20309	1026.8	20312.4	1026.3	20316.8	1024.7	20372.8	1023.5
20408.7	1043.6	20410.4	1042.5	20412	1040	20434.3	1040.8	20448.6	1034
21423.7	1034.1	21433.7	1033	21527.5	1031.1	21554.4	1029.7	21577.9	1029.4
21646.5	1030.2	21704.4	1029.9	21742.9	1046.2	21761.3	1040	21807.2	1041.3
21814	1044.7	21818.3	1046.4	21862.5	1045.9	21879.4	1037.5	21883.7	1035
21887.9	1033.8	21911.6	1035.9	21937.9	1050.1	21957.5	1042.6	22341.8	1042.6
22364.7	1049.8	22372.9	1048.2	22423	1049.3	22443.3	1049.3	22494.1	1045.8
22499.7	1044.9								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
19202.3	.037	19450.41	.032	20410.4	.037

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19450.41 20410.4 505 505.61 500 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
21742.9	22499.7	1048	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1038.07	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.01	Wt. n-Val.		0.032	0.037
W.S. Elev (ft)	1036.06	Reach Len. (ft)	505.00	505.61	500.00
Crit W.S. (ft)	1032.21	Flow Area (sq ft)		13077.97	3494.77
E.G. Slope (ft/ft)	0.001954	Area (sq ft)		13077.97	3531.45
Q Total (cfs)	166000.00	Flow (cfs)		153857.60	12142.44
Top Width (ft)	2245.18	Top Width (ft)		940.47	1304.71
Vel Total (ft/s)	10.02	Avg. Vel. (ft/s)		11.76	3.47
Max Chl Dpth (ft)	16.96	Hydr. Depth (ft)		13.91	2.74
Conv. Total (cfs)	3754969.0	Conv. (cfs)		3480304.0	274665.6
Length Wtd. (ft)	505.24	Wetted Per. (ft)		953.22	1276.53
Min Ch El (ft)	1019.10	Shear (lb/sq ft)		1.67	0.33
Alpha	1.29	Stream Power (lb/ft s)		19.69	1.16
Frctn Loss (ft)	0.78	Cum Volume (acre-ft)	6991.62	29110.76	2981.59
C & E Loss (ft)	0.15	Cum SA (acres)	1904.07	2842.39	935.26

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1038.08	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.01	Wt. n-Val.		0.032	0.037
W.S. Elev (ft)	1036.07	Reach Len. (ft)	505.00	505.61	500.00
Crit W.S. (ft)	1032.19	Flow Area (sq ft)		13083.37	3430.08
E.G. Slope (ft/ft)	0.001959	Area (sq ft)		13083.37	3430.08
Q Total (cfs)	166000.00	Flow (cfs)		154129.70	11870.31
Top Width (ft)	2196.24	Top Width (ft)		940.49	1255.75
Vel Total (ft/s)	10.05	Avg. Vel. (ft/s)		11.78	3.46
Max Chl Dpth (ft)	16.97	Hydr. Depth (ft)		13.91	2.73
Conv. Total (cfs)	3750854.0	Conv. (cfs)		3482639.0	268215.6
Length Wtd. (ft)	505.24	Wetted Per. (ft)		953.24	1262.48
Min Ch El (ft)	1019.10	Shear (lb/sq ft)		1.68	0.33
Alpha	1.28	Stream Power (lb/ft s)		19.77	1.15
Frctn Loss (ft)	0.78	Cum Volume (acre-ft)	1203.18	30038.25	1338.43
C & E Loss (ft)	0.15	Cum SA (acres)	201.91	2846.52	184.93

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 210.74

INPUT
Description: 210.74

Left Channel Bank Station Interpolated
Station Elevation Data num= 63

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
19243.9	1048.6	19252.9	1048.6	19306.8	1048.4	19320.5	1047.9	19400.4	1046.9
19417.4	1044.5	19426.12	1038.4	73 19455.3	1018.3	19887.7	1018.2	19910.2	1018.2
19912.1	1019.4	19926.7	1020.6	19947.1	1020.5	19971.2	1029.9	19999.5	1024.8
20005.9	1025.6	20026.7	1018.2	20095.6	1018.8	20149	1019.3	20154.3	1019.5
20159.1	1018.6	20206.5	1019.2	20250.3	1018.3	20256.9	1020.6	20263.3	1021.3
20281.7	1020.8	20318.1	1022	20333.5	1021.2	20349.8	1021.8	20361.7	1025.8
20373.2	1024.1	20404.6	1025.2	20432.5	1037.6	20433.7	1039.4	20462.4	1039.5
20468.2	1036.5	21389.5	1036.5	21394.6	1032.8	21404	1032.7	21513.7	1032
21520.3	1033.6	21537.2	1027.8	21587.9	1027.7	21638.9	1028.2	21695.6	1029
21747.1	1028.9	21771	1029.8	21801.8	1041	21813.2	1040.9	22057.2	1040.9
22066.5	1043.5	22085.1	1044.1	22096.2	1047.4	22123.7	1048.7	22156.7	1040.5
22272.5	1040.5	22293.7	1049.5	22308.5	1048.9	22356.6	1048.4	22365.3	1048.1
22369	1048.8	22377.5	1053.2	22399.8	1048.3				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
19243.9	.037	19426.12	.032	20433.7	.037

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19426.12 20433.7 495 503.39 500 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
21801.8	22399.8	1048	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1037.14	Element	Left OB	Channel / Right OB
Vel Head (ft)	1.51	Wt. n-Val.		0.032 / 0.037
W.S. Elev (ft)	1035.63	Reach Len. (ft)	495.00	503.39 / 500.00
Crit W.S. (ft)	1029.79	Flow Area (sq ft)		15459.24 / 2225.54
E.G. Slope (ft/ft)	0.001245	Area (sq ft)		15459.24 / 2225.54
Q Total (cfs)	166000.00	Flow (cfs)		156087.60 / 9912.42
Top Width (ft)	1394.18	Top Width (ft)		997.84 / 396.34
Vel Total (ft/s)	9.39	Avg. Vel. (ft/s)		10.10 / 4.45
Max Chl Dpth (ft)	17.43	Hydr. Depth (ft)		15.49 / 5.62
Conv. Total (cfs)	4703873.0	Conv. (cfs)		4422989.0 / 280884.1
Length Wtd. (ft)	503.21	Wetted Per. (ft)		1010.80 / 399.47
Min Ch El (ft)	1018.20	Shear (lb/sq ft)		1.19 / 0.43
Alpha	1.10	Stream Power (lb/ft s)		12.01 / 1.93
Frctn Loss (ft)	0.63	Cum Volume (acre-ft)	6991.62	28945.14 / 2948.54
C & E Loss (ft)	0.01	Cum SA (acres)	1904.07	2831.14 / 925.50

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1037.15	Element	Left OB	Channel / Right OB
Vel Head (ft)	1.50	Wt. n-Val.		0.032 / 0.037
W.S. Elev (ft)	1035.65	Reach Len. (ft)	495.00	503.39 / 500.00
Crit W.S. (ft)	1029.79	Flow Area (sq ft)		15474.10 / 2231.44
E.G. Slope (ft/ft)	0.001241	Area (sq ft)		15474.10 / 2231.44
Q Total (cfs)	166000.00	Flow (cfs)		156062.00 / 9938.00
Top Width (ft)	1394.30	Top Width (ft)		997.89 / 396.40
Vel Total (ft/s)	9.38	Avg. Vel. (ft/s)		10.09 / 4.45
Max Chl Dpth (ft)	17.45	Hydr. Depth (ft)		15.51 / 5.63
Conv. Total (cfs)	4711988.0	Conv. (cfs)		4429893.0 / 282094.9
Length Wtd. (ft)	503.21	Wetted Per. (ft)		1010.86 / 399.54
Min Ch El (ft)	1018.20	Shear (lb/sq ft)		1.19 / 0.43
Alpha	1.10	Stream Power (lb/ft s)		11.96 / 1.93
Frctn Loss (ft)	0.63	Cum Volume (acre-ft)	1203.18	29872.52 / 1305.94
C & E Loss (ft)	0.01	Cum SA (acres)	201.91	2835.27 / 175.45

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 210.64

INPUT
Description: 210.64 - FEMA Section Y
Station Elevation Data num= 56

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
19062.1	1046.2	19142.3	1046.5	19216.9	1046.5	19239.3	1046.6	19313.3	1046.3
19339.3	1045.9	19359.9	1044.7	19388.6	1036.7	19405.4	1034.5	19435.6	1017.8
19522.4	1017.9	19688	1018.2	19812.5	1018.5	19845.7	1021.7	19854.2	1021.6
19868.7	1023.2	19885.6	1022.9	19894.1	1026.4	19926.9	1018.1	19954	1018.1
20029.3	1018.2	20100.6	1018.3	20159.1	1018.4	20163.7	1019.2	20174.9	1019.6
20183.1	1020.8	20192.3	1019.6	20214.4	1021.7	20234.8	1024.3	20242.8	1022.1
20298.5	1024	20323.5	1025.5	20335	1029.1	20359.6	1019.1	20427.6	1017.8
20430.1	1017.7	20460.6	1039.9	20483.4	1039.5	20493.5	1033.2	21394.6	1033.2
21442.1	1031.4	21449.1	1028.1	21453.5	1025.3	21460.9	1025.2	21472.1	1026
21483.6	1028.3	21519.7	1032.5	22411.4	1032.5	22434.2	1045.9	22446.8	1049.8
22496.5	1049.4	22507.7	1051.3	22521	1044.2	22524.9	1044.1	22586.3	1043
22591.1	1043.3								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
19062.1	.037	19388.6	.032	20460.6	.037

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19388.6 20460.6 520 515.29 495 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
21800	22591.1	1048	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1036.50	Element	Left OB	Channel / Right OB
Vel Head (ft)	1.49	Wt. n-Val.		0.032 / 0.037
W.S. Elev (ft)	1035.01	Reach Len. (ft)	520.00	515.29 / 495.00
Crit W.S. (ft)	1029.00	Flow Area (sq ft)		15857.06 / 2973.76
E.G. Slope (ft/ft)	0.001272	Area (sq ft)		15857.06 / 4513.74
Q Total (cfs)	166000.00	Flow (cfs)		158651.30 / 7348.73
Top Width (ft)	2977.45	Top Width (ft)		1052.38 / 1925.07
Vel Total (ft/s)	8.82	Avg. Vel. (ft/s)		10.01 / 2.47
Max Chl Dpth (ft)	17.31	Hydr. Depth (ft)		15.07 / 2.27
Conv. Total (cfs)	4654881.0	Conv. (cfs)		4448812.0 / 206068.9
Length Wtd. (ft)	514.84	Wetted Per. (ft)		1067.72 / 1312.01
Min Ch El (ft)	1017.70	Shear (lb/sq ft)		1.18 / 0.18

```
                                                                                    Post-Project
* Alpha                 *    1.23  * Stream Power (lb/ft s) *          *   11.80  *    0.44  *
* Frctn Loss (ft)       *    0.73  * Cum Volume (acre-ft)   * 6991.62  *28764.19  * 2909.87  *
* C & E Loss (ft)       *    0.03  * Cum SA (acres)         * 1904.07  * 2819.29  *  912.17  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)        * 1036.51  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)         *    1.48  * Wt. n-Val.            *          *   0.032  *   0.037  *
* W.S. Elev (ft)        * 1035.03  * Reach Len. (ft)       *  520.00  *  515.29  *  495.00  *
* Crit W.S. (ft)        * 1029.00  * Flow Area (sq ft)     *          *15877.24  * 2998.86  *
* E.G. Slope (ft/ft)    *0.001265  * Area (sq ft)          *          *15877.24  * 2998.86  *
* Q Total (cfs)         *166000.00  * Flow (cfs)           *          *158575.80  * 7424.23  *
* Top Width (ft)        * 2361.98  * Top Width (ft)       *          * 1052.55  * 1309.43  *
* Vel Total (ft/s)      *    8.79  * Avg. Vel. (ft/s)     *          *    9.99  *    2.48  *
* Max Chl Dpth (ft)     *   17.33  * Hydr. Depth (ft)     *          *   15.08  *    2.29  *
* Conv. Total (cfs)     *4666447.0  * Conv. (cfs)          *          *4457743.0  *208703.5  *
* Length Wtd. (ft)      *  514.84  * Wetted Per. (ft)     *          * 1067.91  * 1314.57  *
* Min Ch El (ft)        * 1017.70  * Shear (lb/sq ft)     *          *    1.17  *    0.18  *
* Alpha                 *    1.24  * Stream Power (lb/ft s) *        *   11.73  *    0.45  *
* Frctn Loss (ft)       *    0.73  * Cum Volume (acre-ft)   * 1203.18  *29691.37  * 1275.92  *
* C & E Loss (ft)       *    0.03  * Cum SA (acres)         *  201.91  * 2823.43  *  165.66  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                RS: 210.55

INPUT
Description: 210.55

Left Channel Bank Station Interpolated
Station Elevation Data    num=      55
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*************************************************************************
   19008  1045.1 19023.1  1045.1 19106.6  1045.2 19117.1  1045.2 19188.7  1045.4
 19198.2  1045.3 19263.2    1046 19303.5  1044.219322.161037.828   19365  1023.2
 19375.9  1018.6 19396.7  1018.7 19519.3  1018.6   19791  1018.3 19813.4  1028.8
 19857.3  1026.7 19886.1  1038.1 19909.3  1027.2 19915.5  1030.7 19959.6    1020
 20002.1    1018 20058.3  1018.1 20175.7  1018.1 20440.7  1018.3 20476.7  1037.4
 20483.2  1040.3 20500.3  1039.7 20507.6  1034.3 21313.5  1033.6 21372.5  1032.4
 21406.9    1033 21409.3  1032.1 21417.2  1027.2   21429  1026.3 21456.2  1025.4
 21459.3  1026.4 21468.1  1028.2 21496.9  1030.2 21548.3  1034.3 21557.5  1034.9
 21626.2  1036.3 21634.2  1035.7 21643.8  1035.7   21713  1035.7 21771.2    1036
 22449.6    1036 22451.9  1037.8 22455.6    1040 22484.4  1044.7 22494.2  1046.8
 22499.9    1046 22506.9  1046.2 22537.1  1043.6 22580.7  1043.5   22585    1043

Manning's n Values        num=       3
      Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
   19008    .03719322.16    .032 20483.2    .037

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      19322.16 20483.2              475  473.19     495            .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
   21300   22585  1046.8       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)        * 1035.74  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)         *    1.76  * Wt. n-Val.            *          *   0.032  *   0.037  *
* W.S. Elev (ft)        * 1033.98  * Reach Len. (ft)       *  475.00  *  473.19  *  495.00  *
* Crit W.S. (ft)        * 1028.55  * Flow Area (sq ft)     *          *15569.62  *   76.06  *
* E.G. Slope (ft/ft)    *0.001599  * Area (sq ft)          *          *15569.62  *  836.95  *
* Q Total (cfs)         *166000.00  * Flow (cfs)           *          *165960.80  *   39.19  *
* Top Width (ft)        * 1780.30  * Top Width (ft)       *          * 1117.60  *  662.70  *
* Vel Total (ft/s)      *   10.61  * Avg. Vel. (ft/s)     *          *   10.66  *    0.52  *
* Max Chl Dpth (ft)     *   15.98  * Hydr. Depth (ft)     *          *   13.93  *    0.18  *
* Conv. Total (cfs)     *4151855.0  * Conv. (cfs)          *          *4150875.0  *   980.2  *
* Length Wtd. (ft)      *  473.19  * Wetted Per. (ft)     *          * 1131.76  *  418.47  *
* Min Ch El (ft)        * 1018.00  * Shear (lb/sq ft)     *          *    1.37  *    0.02  *
* Alpha                 *    1.01  * Stream Power (lb/ft s) *        *   14.63  *    0.01  *
* Frctn Loss (ft)       *    0.36  * Cum Volume (acre-ft)   * 6991.62  *28578.31  * 2879.46  *
* C & E Loss (ft)       *    0.38  * Cum SA (acres)         * 1904.07  * 2806.46  *  897.47  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)        * 1035.76  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)         *    1.76  * Wt. n-Val.            *          *   0.032  *   0.037  *
* W.S. Elev (ft)        * 1034.00  * Reach Len. (ft)       *  475.00  *  473.19  *  495.00  *
* Crit W.S. (ft)        * 1028.55  * Flow Area (sq ft)     *          *15593.23  *   27.76  *
* E.G. Slope (ft/ft)    *0.001591  * Area (sq ft)          *          *15593.23  *   27.76  *
* Q Total (cfs)         *166000.00  * Flow (cfs)           *          *165989.80  *   10.19  *
* Top Width (ft)        * 1370.58  * Top Width (ft)       *          * 1117.80  *  252.78  *
* Vel Total (ft/s)      *   10.63  * Avg. Vel. (ft/s)     *          *   10.64  *    0.37  *
* Max Chl Dpth (ft)     *   16.00  * Hydr. Depth (ft)     *          *   13.95  *    0.11  *
```

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                                                                    Post-Project
* Conv. Total (cfs)      *4161094.0  * Conv. (cfs)           *          *4160839.0  *   255.4  *
* Length Wtd. (ft)       *  473.19  * Wetted Per. (ft)       *          * 1131.97  *  253.00  *
* Min Ch El (ft)         * 1018.00  * Shear (lb/sq ft)       *          *    1.37  *    0.01  *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   14.57  *    0.00  *
* Frctn Loss (ft)        *    0.36  * Cum Volume (acre-ft)   * 1203.18  *29505.23  * 1258.72  *
* C & E Loss (ft)        *    0.38  * Cum SA (acres)         *  201.91  * 2810.59  *  156.78  *
*****************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                RS: 210.46

INPUT
Description: 210.46

Left and Right Channel Bank Stations Interpolated
Station Elevation Data    num=      74
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
 18491.3  1044.8 18509.6  1044.4 18559.8  1045.8 18571.1  1045.5 18584.8  1043.3
 18607.7    1045   18678  1044.8 18723.7  1044.2   18801  1044.1 18803.4  1044.1
 18891.1  1043.9 18897.1  1043.9 18962.7  1043.6 19022.5  1043.3 19024.4  1043.3
 19078.3  1042.4 19136.1  1042.2 19176.5  1042.5 19201.9  1040.9 19233.8  1028.3
 19266.3  1021.8 19276.2  1021.1 19328.5  1018.7 19351.6  1018.1   19377 1018.33
 19395.8  1018.5 19810.2  1018.3 19863.8  1018.1   19922  1018.2 20015.9  1018.2
 20094.1  1018.1 20114.1  1018.1 20127.6  1022.4 20129.6  1023.9 20150.4  1023.9
 20174.1  1021.6 20197.2  1018.1 20239.9  1018.1 20295.4  1018.2   20303  1018.6
 20351.5    1018 20390.4  1018.4 20443.9  1018.4 20502.8  1018.5 20565.4  1018.8
 20656.3  1018.8 20722.5    1019   20743  1019.6 20798.1  1019.8 20867.2  1019.1
 20920.3  1019.3 20973.2  1019.2 21047.3  1019.3 21120.7  1021.1   21123  1021.2
 21136.1  1016.3 21211.7  1018.4 21228.5  1018.3 21261.8  1036.3 21280.4  1034.9
   21284 1038.08 21290.7    1044 21292.3    1046 21334.2    1043 21405.2  1043.3
 21443.5  1044.5   21454  1047.4 21465.5  1044.1 22456.6  1042.9 22498.8  1045.3
   22515  1046.9 22564.7  1048.3 22637.2  1048.5   22652  1048.3

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*****************************************************************************
 18491.3    .037 19176.5    .032 20150.4    .037 21292.3    .037   21454    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          19377  21284             520  522.28     505             .1       .3
Ineffective Flow      num=       2
   Sta L   Sta R    Elev  Permanent
 18491.3   19377    1048        F
 21292.3   22652    1048        F

CROSS SECTION OUTPUT  Profile #PF#1
*****************************************************************************************
* E.G. Elev (ft)         * 1035.00  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.49  * Wt. n-Val.            *          *    0.035  *          *
* W.S. Elev (ft)         * 1034.50  * Reach Len. (ft)       *  520.00  *  522.28  *  505.00  *
* Crit W.S. (ft)         * 1025.05  * Flow Area (sq ft)     *          *29415.75  *          *
* E.G. Slope (ft/ft)     *0.000446  * Area (sq ft)          * 2034.49  *29415.75  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *          *166000.00  *          *
* Top Width (ft)         * 2040.38  * Top Width (ft)       *  158.90  * 1881.48  *          *
* Vel Total (ft/s)       *    5.64  * Avg. Vel. (ft/s)     *          *    5.64  *          *
* Max Chl Dpth (ft)      *   18.20  * Hydr. Depth (ft)     *          *   15.63  *          *
* Conv. Total (cfs)      *7863414.0  * Conv. (cfs)         *          *7863414.0  *          *
* Length Wtd. (ft)       *  522.28  * Wetted Per. (ft)     *          * 1888.09  *          *
* Min Ch El (ft)         * 1016.30  * Shear (lb/sq ft)     *          *    0.43  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    2.45  *          *
* Frctn Loss (ft)        *    0.32  * Cum Volume (acre-ft)   * 6980.53  *28333.97  * 2874.71  *
* C & E Loss (ft)        *    0.03  * Cum SA (acres)         * 1903.20  * 2790.17  *  893.70  *
*****************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*****************************************************************************************
* E.G. Elev (ft)         * 1035.01  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.49  * Wt. n-Val.            *          *    0.035  *          *
* W.S. Elev (ft)         * 1034.52  * Reach Len. (ft)       *  520.00  *  522.28  *  505.00  *
* Crit W.S. (ft)         * 1025.05  * Flow Area (sq ft)     *          *29448.14  *          *
* E.G. Slope (ft/ft)     *0.000450  * Area (sq ft)          *          *29448.14  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *          *166000.00  *          *
* Top Width (ft)         * 1881.51  * Top Width (ft)       *          * 1881.51  *          *
* Vel Total (ft/s)       *    5.64  * Avg. Vel. (ft/s)     *          *    5.64  *          *
* Max Chl Dpth (ft)      *   18.22  * Hydr. Depth (ft)     *          *   15.65  *          *
* Conv. Total (cfs)      *7827722.0  * Conv. (cfs)         *          *7827722.0  *          *
* Length Wtd. (ft)       *  522.28  * Wetted Per. (ft)     *          * 1904.32  *          *
* Min Ch El (ft)         * 1016.30  * Shear (lb/sq ft)     *          *    0.43  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    2.45  *          *
* Frctn Loss (ft)        *    0.32  * Cum Volume (acre-ft)   * 1203.18  *29260.59  * 1258.56  *
* C & E Loss (ft)        *    0.03  * Cum SA (acres)         *  201.91  * 2794.30  *  155.35  *
*****************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION
```

RIVER: 1
REACH: 1 RS: 210.36

INPUT
Description: 210.36

Left and Right Channel Bank Stations Interpolated
Station Elevation Data num= 99

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
19224.5	1050.4	19284.3	1050.7	19305	1051	19357.1	1049.6	19375.16	1037.787
19404.8	1018.4	19463.3	1018.3	19612.3	1018.1	19621.3	1018.1	19634.8	1021.9
19667.3	1022.1	19733.3	1021.4	19790.5	1022.1	19802.9	1021.9	19818.6	1026.5
19827	1026.5	19834.6	1028.4	19890.9	1029	19964.7	1027.7	19973.5	1027.6
19985.2	1023	19997.6	1019.2	20010.7	1019.2	20032.2	1022.5	20039.2	1024.8
20087.1	1023	20111.8	1024.6	20144.4	1023.1	20153.9	1025.4	20168.7	1024.3
20191.7	1024.2	20273.6	1021.2	20346.9	1017.4	20363.5	1017.6	20425.8	1018.5
20437.5	1019.6	20442.7	1017.4	20510.8	1017.5	20526.1	1018	20581.3	1024.2
20636.5	1025.3	20692.9	1026.1	20742.9	1025.6	20769.6	1031.4	20776.7	1032.1
20797.4	1031.2	20811.3	1023.1	20868.1	1020.3	20886.8	1019.8	21012.2	1019.3
21017.9	1019.4	21027	1020.7	21039.6	1017.6	21095.8	1017.7	21149.8	1018
21208.9	1018.7	21245	1019.6	21291.17	1037.786	21291.23	1037.81	21303.9	1042.8
21368	1043.7	21407.5	1045.3	21418.5	1048.3	21429.5	1045.3	21450.9	1041.3
21516.4	1042.2	21531.8	1042.1	21606.4	1042.3	21664.8	1042.2	21728.4	1042.1
21735.8	1042.3	21795.8	1042.1	21853	1041.4	21904.7	1040.9	21945.9	1041.5
22007.4	1043.5	22067.8	1044.3	22085.5	1044.9	22124.1	1042.5	22213.9	1042.6
22278	1043.1	22282.5	1043	22318.4	1050.8	22330.1	1051.8	22376	1061.9
22399.2	1062.6	22410.6	1059.4	22438.3	1043.7	22476	1043.3	22498.2	1043.9
22517.5	1047.5	22554.5	1047.8	22615.4	1044.3	22685.5	1043.5	22715.7	1043.9
22733.2	1052.6	22752.7	1056.6	22761.2	1057.6	22797.5	1059		

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
19224.5	.032	19357.1	.037	20776.7	.025	21303.9	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
19375.16	21291.17	480	487.62	480	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
21303.9	22797.5	1058	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1034.64	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.82	Wt. n-Val.		0.032	
W.S. Elev (ft)	1033.83	Reach Len. (ft)	480.00	487.62	480.00
Crit W.S. (ft)	1027.55	Flow Area (sq ft)		22862.09	
E.G. Slope (ft/ft)	0.000900	Area (sq ft)		22862.09	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	1899.90	Top Width (ft)		1899.90	
Vel Total (ft/s)	7.26	Avg. Vel. (ft/s)		7.26	
Max Chl Dpth (ft)	16.43	Hydr. Depth (ft)		12.03	
Conv. Total (cfs)	5532391.0	Conv. (cfs)		5532391.0	
Length Wtd. (ft)	487.62	Wetted Per. (ft)		1915.59	
Min Ch El (ft)	1017.40	Shear (lb/sq ft)		0.67	
Alpha	1.00	Stream Power (lb/ft s)		4.87	
Frctn Loss (ft)	0.41	Cum Volume (acre-ft)	6968.38	28020.57	2874.71
C & E Loss (ft)	0.04	Cum SA (acres)	1902.26	2767.50	893.70

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1034.66	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.82	Wt. n-Val.		0.032	
W.S. Elev (ft)	1033.84	Reach Len. (ft)	480.00	487.62	480.00
Crit W.S. (ft)	1027.55	Flow Area (sq ft)		22895.48	
E.G. Slope (ft/ft)	0.000896	Area (sq ft)		22895.48	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	1899.97	Top Width (ft)		1899.97	
Vel Total (ft/s)	7.25	Avg. Vel. (ft/s)		7.25	
Max Chl Dpth (ft)	16.44	Hydr. Depth (ft)		12.05	
Conv. Total (cfs)	5545466.0	Conv. (cfs)		5545466.0	
Length Wtd. (ft)	487.62	Wetted Per. (ft)		1915.67	
Min Ch El (ft)	1017.40	Shear (lb/sq ft)		0.67	
Alpha	1.00	Stream Power (lb/ft s)		4.85	
Frctn Loss (ft)	0.41	Cum Volume (acre-ft)	1203.18	28946.79	1258.56
C & E Loss (ft)	0.04	Cum SA (acres)	201.91	2771.63	155.35

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 210.26

INPUT
Description: 210.26

Left and Right Channel Bank Stations Interpolated
Station Elevation Data num= 75

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18518	1039.8	18554.5	1039.8	18657.8	1042	18741.9	1041.6	18818	1041.2
18898.6	1041.1	18982.3	1040.1	19077.8	1039.4	19162	1039.9	19268.1	1040.3
19363.8	1039.3	19372.2	1040.4	19377.07	1037.672	19408.8	1019.9	19682.2	1018.6
19755.3	1018.2	19759.5	1026	19769	1023.5	19813.4	1021.7	19816	1022.7
19816.8	1022	19849.2	1020.9	19871.6	1022.5	19881.3	1022.3	19909.8	1024.5

19932.2	1024.7	19991.1	1027.6	20032.1	1025.3	20063.9	1021.9	20070.8	1022		
20075.8	1024	20075.9	1020.9	20082.4	1025	20120.1	1032.8	20142.9	1027.4		
20152.1	1027.4	20162	1021.5	20166.1	1020	20257.3	1025.2	20290.7	1026.3		
20327.7	1020.7	20449	1018.6	20490.7	1017.8	20521.6	1018.3	20541.8	1020.7		
20564.4	1016.9	20641.9	1017.2	20694.8	1022.3	20718.8	1018.4	20789.5	1018.3		
20862.3	1019.1	20960	1018.2	20989.1	1018.9	21058.3	1018.1	21141	1018		
21241.8	1017.5	21265.8	1018.4	21280.3	1023.5	21331.8	21037.672	21342.1	1040.5		
21367.6	1040.4	21378.7	1044	21393.2	1047	21408.2	1043.8	21433.3	1036.1		
21453.3	1036.5	21462.7	1039.8	21481.6	1041	22697.5	1041	22726.9	1046.8		
22740.7	1043.8	22748.5	1041	22815.8	1041	22841.3	1048	22891	1057.7		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
18518	.037	19372.2	.032	20694.8	.037	21342.1	.037	21393.2	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
19377.07	21331.82	505	512.65	520	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
18518	19162	1050	F
21393.2	22891	1050	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1034.20	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.70	Wt. n-Val.		0.034	
W.S. Elev (ft)	1033.50	Reach Len. (ft)	505.00	512.65	520.00
Crit W.S. (ft)	1026.47	Flow Area (sq ft)		24788.11	
E.G. Slope (ft/ft)	0.000776	Area (sq ft)		24788.11	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	1932.15	Top Width (ft)		1932.15	
Vel Total (ft/s)	6.70	Avg. Vel. (ft/s)		6.70	
Max Chl Dpth (ft)	16.60	Hydr. Depth (ft)		12.83	
Conv. Total (cfs)	5957557.0	Conv. (cfs)		5957557.0	
Length Wtd. (ft)	512.65	Wetted Per. (ft)		1953.45	
Min Ch El (ft)	1016.90	Shear (lb/sq ft)		0.62	
Alpha	1.00	Stream Power (lb/ft s)		4.12	
Frctn Loss (ft)	0.49	Cum Volume (acre-ft)	6968.38	27753.87	2874.71
C & E Loss (ft)	0.02	Cum SA (acres)	1902.26	2746.05	893.70

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1034.22	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.69	Wt. n-Val.		0.034	
W.S. Elev (ft)	1033.52	Reach Len. (ft)	505.00	512.65	520.00
Crit W.S. (ft)	1026.47	Flow Area (sq ft)		24825.62	
E.G. Slope (ft/ft)	0.000773	Area (sq ft)		24825.62	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	1932.26	Top Width (ft)		1932.26	
Vel Total (ft/s)	6.69	Avg. Vel. (ft/s)		6.69	
Max Chl Dpth (ft)	16.62	Hydr. Depth (ft)		12.85	
Conv. Total (cfs)	5972355.0	Conv. (cfs)		5972355.0	
Length Wtd. (ft)	512.65	Wetted Per. (ft)		1953.56	
Min Ch El (ft)	1016.90	Shear (lb/sq ft)		0.61	
Alpha	1.00	Stream Power (lb/ft s)		4.10	
Frctn Loss (ft)	0.49	Cum Volume (acre-ft)	1203.18	28679.69	1258.56
C & E Loss (ft)	0.02	Cum SA (acres)	201.91	2750.18	155.35

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 210.17

INPUT
Description: 210.17 - FEMA Section X

Right Channel Bank Station
Interpolated
Station Elevation Data num= 81

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18525.7	1038	18530.7	1038	18532.2	1038.8	18540.9	1039	18542.7	1038.3
18559.1	1038.3	18583.6	1039.8	18667.3	1040	18672.2	1040	18771.1	1039.9
18843.2	1039.2	18918.6	1039.2	18975.6	1038.6	19067.9	1036.2	19141.4	1035.5
19159.7	1029.9	19162.1	1028.2	19206.3	1023.5	19232.4	1025.6	19237.8	1026.9
19267.8	1029.3	19288.9	1028.6	19327.1	1031	19354.6	1031.5	19359.6	1019.6
19498.4	1019.3	19752.3	1018.6	19761.8	1021.9	19768.4	1019.7	19807.9	1021.1
19826.4	1023.3	19861.6	1026.2	19939.7	1026.1	20019.7	1026.2	20040.5	1026
20047	1026.8	20077	1025.5	20173.1	1021.8	20204.7	1022.1	20221.8	1027.9
20260.5	1027.9	20289.3	1020.1	20308.5	1019.1	20310	1020	20324.5	1021.7
20336.8	1017.9	20348.1	1016.4	20392.6	1014.7	20407.8	1014.9	20421.1	1019.4
20505.4	1021.6	20584.7	1020	20677.5	1020.6	20713	1019.7	20811.2	1021.5
20931.9	1023.3	20991.7	1025	21079.4	1022.7	21093.5	1022.3	21106.3	1024.9
21181.2	1023.5	21223	1023	21231	1018.7	21249.3	1020.1	21260.4	1023.1
21302.8	1025.1	21334.72	1037.43	21339.3	1039.2	21359.2	1038.4	21371.3	1044
21385.9	1046.9	21435.8	1035.7	21473.1	1040	22703.8	1040.5	22737.6	1046.8
22750.2	1044.1	22757.2	1040.5	22826.4	1040.5	22854	1049.8	22873.2	1052.2
22897.3	1057								

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
18525.7	.037	19354.6	.032	20991.7	.037	21339.3	.025

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

```
      19354.621334.72              505  497.78     495              .1       .3
Ineffective Flow     num=       2
   Sta L    Sta R    Elev  Permanent
 18525.7 19354.6    1050       F
 21385.9 22897.3    1050       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         * 1033.68  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.94  * Wt. n-Val.           *          *    0.033  *          *
* W.S. Elev (ft)         * 1032.74  * Reach Len. (ft)      *  505.00  *  497.78  *  495.00  *
* Crit W.S. (ft)         * 1027.95  * Flow Area (sq ft)    *          * 21281.46  *          *
* E.G. Slope (ft/ft)     *0.001226  * Area (sq ft)         *  947.08  * 21281.46  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)          *          *166000.00  *          *
* Top Width (ft)         * 2172.14  * Top Width (ft)       *  204.17  * 1967.97  *          *
* Vel Total (ft/s)       *    7.80  * Avg. Vel. (ft/s)     *          *    7.80  *          *
* Max Chl Dpth (ft)      *   18.04  * Hydr. Depth (ft)     *          *   10.81  *          *
* Conv. Total (cfs)      *4740738.0  * Conv. (cfs)         *          *4740738.0  *          *
* Length Wtd. (ft)       *  497.92  * Wetted Per. (ft)     *          * 1984.47  *          *
* Min Ch El (ft)         * 1014.70  * Shear (lb/sq ft)     *          *    0.82  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *        *    6.40  *          *
* Frctn Loss (ft)        *    0.39  * Cum Volume (acre-ft)  * 6962.89  *27482.78  * 2874.71  *
* C & E Loss (ft)        *    0.09  * Cum SA (acres)        * 1901.07  * 2723.10  *  893.70  *
*********************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)         * 1033.70  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.94  * Wt. n-Val.           *          *    0.033  *          *
* W.S. Elev (ft)         * 1032.76  * Reach Len. (ft)      *  505.00  *  497.78  *  495.00  *
* Crit W.S. (ft)         * 1027.95  * Flow Area (sq ft)    *          * 21329.98  *          *
* E.G. Slope (ft/ft)     *0.001218  * Area (sq ft)         *          * 21329.98  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)          *          *166000.00  *          *
* Top Width (ft)         * 1968.03  * Top Width (ft)       *          * 1968.03  *          *
* Vel Total (ft/s)       *    7.78  * Avg. Vel. (ft/s)     *          *    7.78  *          *
* Max Chl Dpth (ft)      *   18.06  * Hydr. Depth (ft)     *          *   10.84  *          *
* Conv. Total (cfs)      *4756407.0  * Conv. (cfs)         *          *4756407.0  *          *
* Length Wtd. (ft)       *  497.87  * Wetted Per. (ft)     *          * 1985.79  *          *
* Min Ch El (ft)         * 1014.70  * Shear (lb/sq ft)     *          *    0.82  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *        *    6.36  *          *
* Frctn Loss (ft)        *    0.40  * Cum Volume (acre-ft)  * 1203.18  *28408.09  * 1258.56  *
* C & E Loss (ft)        *    0.11  * Cum SA (acres)        *  201.91  * 2727.23  *  155.35  *
*********************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                  RS: 210.07

INPUT
Description: 210.07

Left Channel Bank Station Interpolated
Station Elevation Data    num=      64
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
*************************************************************************************
 18501.7  1038.7 18526.7     1039 18555.4  1039.2 18568.3     1039 18666.5     1038
 18699.1     1037 18779.1     1036 18865.4     1013 18885.4     1013 18929.9     1011
 19033.6     1009 19235.4     1009 19348.4    100919707.92 1015.47 20002.2  1019.3
 20010.8  1019.3 20015.9  1021.6 20017.6  1021.9 20043.4  1020.3 20109.3  1021.6
 20149.1  1018.8 20241.7  1019.6 20301.9  1019.6 20319.7  1020.4 20385.2  1020.2
   20395  1020.3 20523.6     1020   20576  1020.4 20689.9  1019.9 20746.4  1020.1
 20785.8     1020 20842.9  1018.9 20851.6  1018.9 20907.6  1018.8 20909.5  1018.7
 20945.5  1031.5 20951.8  1031.4 21011.2  1029.6 21065.6  1030.2 21073.1  1030.3
 21098.1  1026.3 21164.8  1026.1 21186.9  1026.4 21207.2  1024.8 21212.4  1026.6
 21220.7  1028.3 21237.2  1024.7 21246.8  1023.1 21286.7  1032.7 21315.8  1034.4
 21346.3  1039.3 21383.5  1047.6 21397.9  1044.6 21428.3  1035.2 21444.5  1036.3
 21455.5  1040.2   21470  1040.9 22716.5  1040.5 22744.1  1046.7 22757.9  1043.7
 22766.1  1040.5 22836.3  1040.5 22861.9  1049.1 22885.1  1052.1

Manning's n Values        num=       5
     Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val
*************************************************************************
 18501.7    .032 18779.1    .037 18865.4     .02 19235.4    .037 20945.5    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      19235.4 20945.5             511  494.01     499             .1       .3
Ineffective Flow     num=       2
   Sta L    Sta R    Elev  Permanent
 18501.7    19210    1048       F
 21383.5 22885.1    1048       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         * 1033.20  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.65  * Wt. n-Val.           *   0.020  *   0.037  *   0.025  *
* W.S. Elev (ft)         * 1032.55  * Reach Len. (ft)      *  511.00  *  494.01  *  499.00  *
* Crit W.S. (ft)         * 1025.16  * Flow Area (sq ft)    *  598.14  *26116.53  * 1546.10  *
* E.G. Slope (ft/ft)     *0.000552  * Area (sq ft)         * 9112.67  *26116.53  * 1546.10  *
* Q Total (cfs)          *166000.00  * Flow (cfs)          * 8579.17  *151529.60  * 5891.20  *
* Top Width (ft)         * 2494.02  * Top Width (ft)       *  443.35  * 1710.10  *  340.57  *
* Vel Total (ft/s)       *    5.87  * Avg. Vel. (ft/s)     *   14.34  *    5.80  *    3.81  *
* Max Chl Dpth (ft)      *   23.55  * Hydr. Depth (ft)     *   23.55  *   15.27  *    4.54  *
* Conv. Total (cfs)      *7064359.0  * Conv. (cfs)         *365098.3  *6448552.0  *250708.0  *
* Length Wtd. (ft)       *  495.07  * Wetted Per. (ft)     *   25.40  * 1713.11  *  343.10  *
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                                                                    Post-Project
* Min Ch El (ft)          * 1009.00  * Shear (lb/sq ft)        *    0.81  *    0.53  *    0.16  *
* Alpha                   *    1.21  * Stream Power (lb/ft s) *   11.64  *    3.05  *    0.59  *
* Frctn Loss (ft)         *    0.18  * Cum Volume (acre-ft)   * 6904.58  *27211.96  * 2865.92  *
* C & E Loss (ft)         *    0.07  * Cum SA (acres)         * 1897.32  * 2702.09  *  891.77  *
*********************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)          * 1033.19  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.57  * Wt. n-Val.            *   0.020  *   0.037  *   0.025  *
* W.S. Elev (ft)          * 1032.62  * Reach Len. (ft)       *  511.00  *  494.01  *  499.00  *
* Crit W.S. (ft)          * 1024.39  * Flow Area (sq ft)     *  599.97  *26239.49  * 1218.13  *
* E.G. Slope (ft/ft)      *0.000574  * Area (sq ft)          *  599.97  *26239.49  * 1218.13  *
* Q Total (cfs)           *166000.00  * Flow (cfs)           * 5673.65  *155764.30  * 4562.04  *
* Top Width (ft)          * 2015.00  * Top Width (ft)       *   25.40  * 1710.10  *  279.50  *
* Vel Total (ft/s)        *    5.92  * Avg. Vel. (ft/s)     *    9.46  *    5.94  *    3.75  *
* Max Chl Dpth (ft)       *   23.62  * Hydr. Depth (ft)     *   23.62  *   15.34  *    4.36  *
* Conv. Total (cfs)       *6926312.0  * Conv. (cfs)         *236731.9  *6499230.0  *190349.9  *
* Length Wtd. (ft)        *  494.86  * Wetted Per. (ft)     *   49.02  * 1713.11  *  285.75  *
* Min Ch El (ft)          * 1009.00  * Shear (lb/sq ft)     *    0.44  *    0.55  *    0.15  *
* Alpha                   *    1.04  * Stream Power (lb/ft s) *    4.15  *    3.26  *    0.57  *
* Frctn Loss (ft)         *    0.19  * Cum Volume (acre-ft)   * 1199.70  *28136.29  * 1251.64  *
* C & E Loss (ft)         *    0.04  * Cum SA (acres)         *  201.76  * 2706.21  *  153.76  *
*********************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 209.98

INPUT
Description: 209.98
Station Elevation Data    num=      98
    Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
*********************************************************************************
 18668.5  1036.618697.08  1036.418734.38 1036.7718827.89 1037.1718891.14 1036.77
18984.54 1033.9819015.54    103519019.11 1036.0719039.74 1037.8819063.96 1036.69
19080.08 1034.7119102.37  1034.8 19117.4 1036.2919128.81 1038.3719161.01  1038.7
19178.98 1037.1419223.54 1037.1519252.87 1037.2419262.16 1038.1619316.53 1037.12
19320.05 1035.9519346.13  1017.919404.18  999.3319419.58 1000.0419454.66  1000.8
19509.56 1001.6919648.56 1006.2919693.86 1007.9819730.85 1009.0719783.08  1010.1
19870.73  1011.219935.51 1009.78   19954 1007.5419988.72 1014.2820002.24 1019.63
20016.49  1022.820034.93 1023.4720061.33 1023.5220103.67 1021.5120115.62 1017.75
20160.94  1015.420177.85 1012.4120193.89 1011.1520245.68 1011.4220291.47  1013.6
20306.68    101720338.83    101820381.79 1019.5320395.72 1020.8720434.04 1022.84
20504.16 1024.1620538.37 1026.0220546.29 1027.5920556.23 1033.0920611.04    1034
20650.54 1033.8220666.54 1023.78 20679.7 1019.86 20720.9 1017.8420734.97  1017.5
20785.73 1017.7120811.04 1018.9120884.31 1020.0320910.52 1019.3820949.25 1017.17
21078.22  1017.521129.65  1017.821152.66 1017.8221174.06 1019.2421200.18 1019.51
21229.85 1019.9121245.64 1019.4921252.12  1018.421270.29 1017.9921289.12 1018.16
21307.13 1020.2121315.98 1023.3321341.38 1040.8121348.39 1043.3821377.38 1043.15
 21386.5 1042.4621406.32    103621416.82 1035.2821428.25 1036.3321450.49 1039.82
 21469.3 1035.78 21483.2 1034.6521522.63  1034.221567.64  1035.521599.88 1035.51
21661.06 1034.7621726.66 1034.4221811.43 1034.72 21853.4 1035.6921940.91 1035.84
21952.68  1035.421966.07 1033.85 21992.8 1034.48

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************************
 18668.5    .03719316.53    .03220611.04    .03521348.39    .037

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
     19316.5320556.23             519  492.54     497            .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
21348.39 21992.8    1050       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)          * 1032.95  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.40  * Wt. n-Val.            *          *   0.032  *   0.035  *
* W.S. Elev (ft)          * 1032.54  * Reach Len. (ft)       *  519.00  *  492.54  *  497.00  *
* Crit W.S. (ft)          * 1020.16  * Flow Area (sq ft)     *          *24273.19  * 9254.27  *
* E.G. Slope (ft/ft)      *0.000255  * Area (sq ft)          *          *24273.19  * 9254.27  *
* Q Total (cfs)           *166000.00  * Flow (cfs)           *          *130397.60  *35602.38  *
* Top Width (ft)          * 1907.07  * Top Width (ft)       *          * 1230.27  *  676.80  *
* Vel Total (ft/s)        *    4.95  * Avg. Vel. (ft/s)     *          *    5.37  *    3.85  *
* Max Chl Dpth (ft)       *   33.21  * Hydr. Depth (ft)     *          *   19.73  *   13.67  *
* Conv. Total (cfs)       *10404160.0  * Conv. (cfs)        *          *8172758.0  *2231403.0  *
* Length Wtd. (ft)        *  493.45  * Wetted Per. (ft)     *          * 1243.18  *  683.72  *
* Min Ch El (ft)          *  999.33  * Shear (lb/sq ft)     *          *    0.31  *    0.22  *
* Alpha                   *    1.05  * Stream Power (lb/ft s) *          *    1.67  *    0.83  *
* Frctn Loss (ft)         *    0.13  * Cum Volume (acre-ft)   * 6851.13  *26926.23  * 2804.06  *
* C & E Loss (ft)         *    0.01  * Cum SA (acres)         * 1894.72  * 2685.41  *  885.94  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)          * 1032.96  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.42  * Wt. n-Val.            *          *   0.032  *   0.035  *
* W.S. Elev (ft)          * 1032.54  * Reach Len. (ft)       *  519.00  *  492.54  *  497.00  *
```

```
                                                                    Post-Project
* Crit W.S. (ft)         * 1019.84  * Flow Area (sq ft)      *          *24262.38  * 8374.08  *
* E.G. Slope (ft/ft)     *0.000266  * Area (sq ft)          *          *24262.38  * 8374.08  *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *          *133162.20  *32837.81  *
* Top Width (ft)         * 1833.72  * Top Width (ft)        *          * 1230.24  *  603.47  *
* Vel Total (ft/s)       *    5.09  * Avg. Vel. (ft/s)     *          *    5.49  *    3.92  *
* Max Chl Dpth (ft)      *   33.21  * Hydr. Depth (ft)     *          *   19.72  *   13.88  *
* Conv. Total (cfs)      *10180790.0  * Conv. (cfs)        *          *8166844.0  *2013944.0  *
* Length Wtd. (ft)       *  493.41  * Wetted Per. (ft)     *          * 1243.14  *  621.10  *
* Min Ch El (ft)         *  999.33  * Shear (lb/sq ft)     *          *    0.32  *    0.22  *
* Alpha                  *    1.05  * Stream Power (lb/ft s) *        *    1.78  *    0.88  *
* Frctn Loss (ft)        *    0.14  * Cum Volume (acre-ft)  * 1196.18  *27849.92  * 1196.70  *
* C & E Loss (ft)        *    0.01  * Cum SA (acres)        *  201.61  * 2689.54  *  148.70  *
*****************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                RS: 209.88

INPUT
Description: 209.88
Station Elevation Data    num=      86
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
*************************************************************************************
 18681.6  1038.618731.14  1039.218763.46 1039.3418856.45 1038.79 18905.9  1038.3
18972.22 1038.2419086.42 1038.3619133.19 1038.6419247.38  1040.419312.42  1039.2
19370.23 1038.8619431.06 1038.94 19464.1  1038.519478.74 1036.9519516.39 1036.33
19524.73 1029.9319566.56 1008.1219598.63  999.5119640.57  997.7919691.39  997.69
19769.93  999.1719800.24 1000.6319830.26 1001.6519848.56 1003.4919859.91 1005.96
19910.09 1007.3819960.95 1006.4419998.92 1008.33 20019.7 1012.7920028.16  1015.5
20036.86 1016.6420060.08 1015.9420081.03 1011.7120128.18 1008.5820166.29 1012.01
20170.17 1013.9920191.29 1014.7620234.45  1014.920257.49 1014.2520347.95  1015.5
20367.77 1016.1920385.95 1016.3620409.64  1018.120423.54 1022.3220456.01 1034.43
20483.89 1034.6720565.05    103320635.49 1032.8420681.89 1031.6520696.22 1030.98
20726.21 1029.2420755.18 1027.1320770.71  1023.620820.79  1021.320895.81 1016.98
20909.35 1016.3220995.87 1013.3921052.42 1013.4521060.47 1014.0221069.18 1016.28
21082.94 1016.8821108.18 1017.3421171.62    101821195.56 1018.0421256.03    1018
21284.76 1017.3721304.47    102021317.07 1026.0321331.64  1035.821333.55 1039.79
21343.21 1043.6321377.98 1042.6221388.21 1041.8121404.25  1035.521425.05 1035.73
21434.81 1040.0221446.16  1041.121487.63 1038.1921660.18 1036.9721711.89 1036.75
21854.56  1036.721882.84  1033.221940.17 1033.1622030.34 1033.8822065.08 1034.17
 22079.6 1033.84

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************************
 18681.6    .03719516.39    .03220409.64    .03521343.21    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      19516.3920456.01             504  500.82     498            .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
21343.21 22079.6    1050       F

CROSS SECTION OUTPUT  Profile #PF#1
*****************************************************************************************
* E.G. Elev (ft)         * 1032.80  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.53  * Wt. n-Val.            *          *   0.032  *   0.035  *
* W.S. Elev (ft)         * 1032.27  * Reach Len. (ft)       *  504.00  *  500.82  *  498.00  *
* Crit W.S. (ft)         * 1018.95  * Flow Area (sq ft)     *          *21426.51  * 8430.51  *
* E.G. Slope (ft/ft)     *0.000282  * Area (sq ft)          *          *21426.51  * 8430.51  *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *          *133597.40  *32402.60  *
* Top Width (ft)         * 1597.17  * Top Width (ft)        *          *  928.54  *  668.64  *
* Vel Total (ft/s)       *    5.56  * Avg. Vel. (ft/s)     *          *    6.24  *    3.84  *
* Max Chl Dpth (ft)      *   34.58  * Hydr. Depth (ft)     *          *   23.08  *   12.61  *
* Conv. Total (cfs)      *9888117.0  * Conv. (cfs)         *          *7957992.0  *1930125.0  *
* Length Wtd. (ft)       *  500.06  * Wetted Per. (ft)     *          *  941.01  *  673.20  *
* Min Ch El (ft)         *  997.69  * Shear (lb/sq ft)     *          *    0.40  *    0.22  *
* Alpha                  *    1.11  * Stream Power (lb/ft s) *        *    2.50  *    0.85  *
* Frctn Loss (ft)        *    0.14  * Cum Volume (acre-ft)  * 6851.13  *26667.86  * 2703.18  *
* C & E Loss (ft)        *    0.03  * Cum SA (acres)        * 1894.72  * 2673.21  *  878.27  *
*****************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Manning's n values were composited to a single value in the main channel.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*****************************************************************************************
* E.G. Elev (ft)         * 1032.81  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.54  * Wt. n-Val.            *          *   0.032  *   0.035  *
* W.S. Elev (ft)         * 1032.27  * Reach Len. (ft)       *  504.00  *  500.82  *  498.00  *
* Crit W.S. (ft)         * 1018.95  * Flow Area (sq ft)     *          *21430.37  * 8229.42  *
* E.G. Slope (ft/ft)     *0.000284  * Area (sq ft)          *          *21430.37  * 8229.42  *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *          *134210.80  *31789.22  *
* Top Width (ft)         * 1570.83  * Top Width (ft)        *          *  928.55  *  642.27  *
* Vel Total (ft/s)       *    5.60  * Avg. Vel. (ft/s)     *          *    6.26  *    3.86  *
* Max Chl Dpth (ft)      *   34.58  * Hydr. Depth (ft)     *          *   23.08  *   12.81  *
* Conv. Total (cfs)      *9845730.0  * Conv. (cfs)         *          *7960260.0  *1885470.0  *
* Length Wtd. (ft)       *  500.07  * Wetted Per. (ft)     *          *  941.03  *  656.42  *
* Min Ch El (ft)         *  997.69  * Shear (lb/sq ft)     *          *    0.40  *    0.22  *
* Alpha                  *    1.10  * Stream Power (lb/ft s) *        *    2.53  *    0.86  *
* Frctn Loss (ft)        *    0.14  * Cum Volume (acre-ft)  * 1196.18  *27591.60  * 1101.98  *
* C & E Loss (ft)        *    0.03  * Cum SA (acres)        *  201.61  * 2677.33  *  141.59  *
*****************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Manning's n values were composited to a single value in the main channel.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.
```

CROSS SECTION

RIVER: 1
REACH: 1 RS: 209.79

INPUT
Description: 209.79
Station Elevation Data num= 88

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18478	1039.118	547.32		103918	680.54	1038.718	735.84	1038.471	8778.47
1038.2									
18867.63	1037.581	8904.62	1036.931	8958.14	1036.251	8987.49	1036.191	9073.08	1036.32
19236.66	1036.941	9329.91	1037.219	382.24	1037.781	9444.07	1038.191	9498.52	1036.22
19513.54	1031.431	9553.99	1022.1	19571.5	1020.341	9590.34	1017.261	9645.32	1016.75
19753.15	1014.361	9823.32	1013.32	19865.9	1012.512	0020.52	1008.82	0043.28	1006.98
20061.01	1005.192	0070.25	1004.72	0120.93	1003.652	0155.77	1002.932	0174.93	1004.69
20213.95	1006.75	20261.7	1007.512	0277.78	1007.852	0407.18	1011.422	0429.11	1012.6
20436.72	1013.72	0443.56	1015.972	0461.81	1023.52	0483.82	1034.23	20498.1	1034.58
20504.71	1032.112	0512.34	1031.32	0519.12	1028.42	0524.31	1027.492	0534.91	1023.1
20549.48	1022.87	20586	1022.842	0614.75	1024.672	0638.75	1025.12	0684.87	1023.81
20707.6	1023.6	20720.8	1024.092	0733.07	1027.382	0758.04	1028.232	0764.93	1024.95
20778.48	1019.722	0808.83	1015.972	0831.65	1014.982	0846.84	1012.852	0881.12	1010.1
20897.1	1009.12	0912.85	1008.782	0959.43	1008.162	0989.08	1008.262	1049.83	1008.81
21103.7	1009.312	1134.95	1010.272	1154.91	1011.442	1200.09	1013.86	21269.9	1014.57
21288.19	1015.092	1300.85	1016.832	1308.56	1020.92	1327.41	1033.542	1334.24	1037.02
21338.6	1038.062	1361.76	1037.222	1390.51	1032.682	1458.96	1029.462	1474.45	1028.08
21483.78	1027.99	21534.4	1030.152	1640.51	1029.92	1698.99	1031.172	1796.88	1033.95
21828.55	1033.72	1867.29	1033.042	1943.58	1033.24				

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
18478	.037	19444.07	.032	20498.1	.035	21338.6	.025

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19444.07 20483.82 497 500.22 505 .1 .3
Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
21338.62	1943.58	1045	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1032.63	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.42	Wt. n-Val.		0.032	0.035
W.S. Elev (ft)	1032.21	Reach Len. (ft)	497.00	500.22	505.00
Crit W.S. (ft)	1018.56	Flow Area (sq ft)		19542.32	13059.71
E.G. Slope (ft/ft)	0.000266	Area (sq ft)		19542.32	13740.23
Q Total (cfs)	166000.00	Flow (cfs)		109228.10	56771.91
Top Width (ft)	2124.70	Top Width (ft)		968.59	1156.12
Vel Total (ft/s)	5.09	Avg. Vel. (ft/s)		5.59	4.35
Max Chl Dpth (ft)	29.28	Hydr. Depth (ft)		20.18	15.91
Conv. Total (cfs)	10179000.0	Conv. (cfs)		6697790.0	3481214.0
Length Wtd. (ft)	502.29	Wetted Per. (ft)		974.56	830.10
Min Ch El (ft)	1002.93	Shear (lb/sq ft)		0.33	0.26
Alpha	1.04	Stream Power (lb/ft s)		1.86	1.14
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	6851.13	26432.35	2576.44
C & E Loss (ft)	0.04	Cum SA (acres)	1894.72	2662.30	867.84

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1032.64	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.42	Wt. n-Val.		0.032	0.035
W.S. Elev (ft)	1032.21	Reach Len. (ft)	497.00	500.22	505.00
Crit W.S. (ft)	1018.56	Flow Area (sq ft)		19545.75	12849.43
E.G. Slope (ft/ft)	0.000269	Area (sq ft)		19545.75	12849.43
Q Total (cfs)	166000.00	Flow (cfs)		109809.80	56190.23
Top Width (ft)	1764.06	Top Width (ft)		968.60	795.46
Vel Total (ft/s)	5.12	Avg. Vel. (ft/s)		5.62	4.37
Max Chl Dpth (ft)	29.28	Hydr. Depth (ft)		20.18	16.15
Conv. Total (cfs)	10127920.0	Conv. (cfs)		6699665.0	3428254.0
Length Wtd. (ft)	502.29	Wetted Per. (ft)		974.58	815.63
Min Ch El (ft)	1002.93	Shear (lb/sq ft)		0.34	0.26
Alpha	1.04	Stream Power (lb/ft s)		1.89	1.16
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	1196.18	27356.04	981.49
C & E Loss (ft)	0.04	Cum SA (acres)	201.61	2666.43	133.37

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 209.69

INPUT
Description: 209.69 - FEMA Section W
Cross Section updated per TranSystems Corporation Mapping (2004)
Station Elevation Data num= 79

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18475.3	1036.61	8501.27	1037.01	18555.73	1037.11	8604.16	1037.94	18693.61	1037.91

```
18713.08 1036.4218856.56 1035.7218924.19  1035.419013.81 1034.4219062.29 1034.42
19100.44 1035.66 19147.2 1036.5619175.29  1037.619244.67 1036.2819338.84 1035.73
19385.14  1036.219430.61 1036.2719492.43  1036.219500.27 1032.79 19507.8 1027.51
 19516.1 1022.71 19518.8    102019525.43 1018.8219559.45 1018.4119579.01  1020.7
19621.14 1023.7319647.77 1025.9119673.24 1024.8619715.23 1027.0919785.34 1030.41
19832.97  1032.119857.65 1032.3420024.37 1032.0320044.93  1031.820057.41 1025.71
20124.81 1017.2620165.14 1016.7620174.99 1015.7520227.11  1009.820264.95 1007.86
20292.56 1005.59 20344.4 1004.3120389.19 1005.67 20433.3  1007.520470.15 1013.38
20529.15 1027.9420538.92 1033.7520544.22  1035.720556.02 1035.8420597.43 1035.25
20618.65 1034.6320650.09 1033.9320675.14 1032.8920717.21 1028.8520759.34 1012.69
20783.68 1011.2320826.54 1010.7920883.72    101020927.19    1010 20970.1  1010.8
21003.47 1012.1821026.39  1012.221067.57 1011.8321088.59 1011.0421156.18 1011.13
21184.27 1012.4221260.74  1013.421277.81 1014.2321288.47 1017.7721318.41  1032.5
21333.74 1037.4721358.95 1037.3821378.51 1036.7921388.27 1032.1321400.68 1029.23
21526.41 1028.1621751.75 1029.4921809.86 1031.0421871.59    1032

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************************
 18475.3    .03719492.43    .03220544.22    .03521333.74    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      19492.4320544.22             540   544.5     549             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
21357.9221871.59    1050       F

CROSS SECTION OUTPUT  Profile #PF#1
*****************************************************************************************************
* E.G. Elev (ft)         * 1032.38  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.86  * Wt. n-Val.           *          *    0.032  *    0.035  *
* W.S. Elev (ft)         * 1031.52  * Reach Len. (ft)      *  540.00  *  544.50  *  549.00  *
* Crit W.S. (ft)         * 1021.24  * Flow Area (sq ft)    *          *11072.81  *11247.08  *
* E.G. Slope (ft/ft)     *0.000722  * Area (sq ft)         *          *11072.81  *12298.70  *
* Q Total (cfs)          *166000.00  * Flow (cfs)          *          *78727.38  *87272.63  *
* Top Width (ft)         * 1880.46  * Top Width (ft)       *          *  804.03  * 1076.42  *
* Vel Total (ft/s)       *    7.44  * Avg. Vel. (ft/s)     *          *    7.11  *    7.76  *
* Max Chl Dpth (ft)      *   27.20  * Hydr. Depth (ft)     *          *   13.77  *   17.94  *
* Conv. Total (cfs)      *6177772.0  * Conv. (cfs)         *          *2929878.0  *3247894.0  *
* Length Wtd. (ft)       *  545.76  * Wetted Per. (ft)     *          *  814.03  *  634.00  *
* Min Ch El (ft)         * 1004.31  * Shear (lb/sq ft)     *          *    0.61  *    0.80  *
* Alpha                  *    1.01  * Stream Power (lb/ft s) *        *    4.36  *    6.20  *
* Frctn Loss (ft)        *    0.55  * Cum Volume (acre-ft)  * 6851.13  *26256.56  * 2425.50  *
* C & E Loss (ft)        *    0.05  * Cum SA (acres)        * 1894.72  * 2652.12  *  854.89  *
*****************************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*****************************************************************************************************
* E.G. Elev (ft)         * 1032.39  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.86  * Wt. n-Val.           *          *    0.032  *    0.035  *
* W.S. Elev (ft)         * 1031.52  * Reach Len. (ft)      *  540.00  *  544.50  *  549.00  *
* Crit W.S. (ft)         * 1021.24  * Flow Area (sq ft)    *          *11080.17  *11252.82  *
* E.G. Slope (ft/ft)     *0.000721  * Area (sq ft)         *          *11080.17  *11252.82  *
* Q Total (cfs)          *166000.00  * Flow (cfs)          *          *78732.59  *87267.41  *
* Top Width (ft)         * 1431.39  * Top Width (ft)       *          *  804.33  *  627.06  *
* Vel Total (ft/s)       *    7.43  * Avg. Vel. (ft/s)     *          *    7.11  *    7.76  *
* Max Chl Dpth (ft)      *   27.21  * Hydr. Depth (ft)     *          *   13.78  *   17.95  *
* Conv. Total (cfs)      *6182646.0  * Conv. (cfs)         *          *2932384.0  *3250262.0  *
* Length Wtd. (ft)       *  545.75  * Wetted Per. (ft)     *          *  814.33  *  634.11  *
* Min Ch El (ft)         * 1004.31  * Shear (lb/sq ft)     *          *    0.61  *    0.80  *
* Alpha                  *    1.01  * Stream Power (lb/ft s) *        *    4.35  *    6.19  *
* Frctn Loss (ft)        *    0.55  * Cum Volume (acre-ft)  * 1196.18  *27180.19  *  841.78  *
* C & E Loss (ft)        *    0.05  * Cum SA (acres)        *  201.61  * 2656.25  *  125.13  *
*****************************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 209.60

INPUT
Description: 209.60
Station Elevation Data    num=     103
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
*************************************************************************************
 18469.5  1035.118499.81 1035.4518559.67 1037.3418591.52 1038.2418643.68  1038.5
18795.86 1037.0418875.18 1036.7119045.39 1035.2919104.09  1034.619184.46 1034.61
19241.49    103619320.94 1036.4219351.39  1036.419388.64 1035.9819416.69 1035.11
19429.98 1033.1319471.58 1028.0619506.16 1024.95 19531.1 1030.1819540.55 1031.27
 19554.2 1031.0219576.25  1027.219593.08  1024.619610.96 1023.5919664.92 1025.06
19722.19 1026.7419812.88  1027.319864.15 1024.68 19888.8 1025.72 19905.8 1024.69
19924.74 1023.4519973.61 1018.8519986.32 1017.8420020.82  1019.4 20032.5 1019.33
20060.41 1017.1920081.88 1017.2420092.63  1018.120119.51 1018.37 20136.7 1017.34
20181.06    101320241.08  1008.820254.81 1008.0320302.31 1005.6920331.32 1004.82
20426.49 1004.1520474.77 1004.7320497.48  1007.2 20528.8  1010.620578.52 1015.51
20631.21    102220647.07 1025.2720688.78 1026.3620707.93 1024.4220716.24 1020.28
20760.34 1021.4420782.28  1022.720841.16 1022.3420849.67 1020.3920863.94 1020.61
20877.59  1022.220887.46 1024.32 20902.3 1026.58 20925.4 1027.9120969.67 1029.89
20982.58 1026.8121001.53 1023.5821047.39  1015.521064.47 1014.4421160.64 1016.23
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21172.28 1016.821181.95 1020.3821191.77 1025.0321226.86 1023.8621235.74 1027.53
21241.41 1032.1121251.88 1033.1421283.45 1031.0521310.96 1033.7321325.88 1035.7
21333.44 1037.35 21354.6 1037.421364.61 1038.03 21378.8 1033.6621390.24 1030.9
21401.57 1030.0221435.67 1030.121498.83 1030.5421556.27 1030.4421581.41 1030.24
21625.21 1029.2621637.41 1029.521660.06 1030.9121675.31 1031.3121692.85 1031
21703.66 1030.2421734.86 1028.1821744.79 1028.221781.34 1029.8421995.82 1030.48
22010.96 1031.1822022.88 1035.26 22038 1035.6

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
18469.5	.03719388.64		.03220254.81		.03220969.67		.03521364.61		.025

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19540.5520969.67 243 288.7 318 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
18469.519104.09		1040	F
21064.47	22038	1040	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1031.78	Element	Left OB	Channel / Right OB
Vel Head (ft)	1.38	Wt. n-Val.	0.032	0.032 / 0.035
W.S. Elev (ft)	1030.41	Reach Len. (ft)	243.00	288.70 / 318.00
Crit W.S. (ft)	1024.57	Flow Area (sq ft)	228.51	16694.69 / 887.22
E.G. Slope (ft/ft)	0.001473	Area (sq ft)	228.51	16694.69 / 3176.90
Q Total (cfs)	166000.00	Flow (cfs)	809.39	158831.80 / 6358.77
Top Width (ft)	2206.11	Top Width (ft)	80.72	1411.92 / 713.47
Vel Total (ft/s)	9.32	Avg. Vel. (ft/s)	3.54	9.51 / 7.17
Max Chl Dpth (ft)	26.26	Hydr. Depth (ft)	2.83	11.82 / 9.36
Conv. Total (cfs)	4325159.0	Conv. (cfs)	21088.8	4138392.0 / 165679.0
Length Wtd. (ft)	289.15	Wetted Per. (ft)	81.56	1416.76 / 96.18
Min Ch El (ft)	1004.15	Shear (lb/sq ft)	0.26	1.08 / 0.85
Alpha	1.02	Stream Power (lb/ft s)	0.91	10.31 / 6.08
Frctn Loss (ft)	0.32	Cum Volume (acre-ft)	6849.72	26083.02 / 2327.98
C & E Loss (ft)	0.04	Cum SA (acres)	1894.22	2638.27 / 843.62

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1031.79	Element	Left OB	Channel / Right OB
Vel Head (ft)	1.38	Wt. n-Val.	0.032	0.032 / 0.035
W.S. Elev (ft)	1030.41	Reach Len. (ft)	243.00	288.70 / 318.00
Crit W.S. (ft)	1024.59	Flow Area (sq ft)	226.93	16693.31 / 887.13
E.G. Slope (ft/ft)	0.001484	Area (sq ft)	226.93	16693.31 / 887.13
Q Total (cfs)	166000.00	Flow (cfs)	833.41	159406.10 / 5760.47
Top Width (ft)	1582.46	Top Width (ft)	75.74	1411.92 / 94.80
Vel Total (ft/s)	9.32	Avg. Vel. (ft/s)	3.67	9.55 / 6.49
Max Chl Dpth (ft)	26.25	Hydr. Depth (ft)	3.00	11.82 / 9.36
Conv. Total (cfs)	4309013.0	Conv. (cfs)	21633.6	4137850.0 / 149529.8
Length Wtd. (ft)	289.09	Wetted Per. (ft)	77.14	1416.75 / 112.14
Min Ch El (ft)	1004.15	Shear (lb/sq ft)	0.27	1.09 / 0.73
Alpha	1.03	Stream Power (lb/ft s)	1.00	10.42 / 4.76
Frctn Loss (ft)	0.32	Cum Volume (acre-ft)	1194.77	27006.61 / 765.28
C & E Loss (ft)	0.04	Cum SA (acres)	201.14	2642.40 / 120.58

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 209.54

INPUT
Description: 209.54
Station Elevation Data num= 64

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18830.2	1036.718846.47	1036.66	18879.5	1036.8318897.96	1036.85	18920.8	1036.7		
18981.04	1035.9519020.45	1035.78	19054.3	1035.919066.48	1036.519079.96	1037.02			
19096.25	1037.719128.81	1038.6219162.01	1039.2619189.37	1039.6919223.34	1040.15				
19254.25	1040.5919299.11	1040.9219330.55	1041.319351.87	1041.619380.04	1041.8				
19400.92	1041.8919471.75	1042.04	19476	1029.5819484.73	1025.6319493.22	1022.25			
19499.21	1020.619527.23	1020.1619563.46	1020.0419837.52	1019.7619907.24	1019.3				
19944.91	1019.1119959.55	1018.2319976.64	1017.119988.84	1016.1320005.93	1014.76				
20023.01	1013.7120054.74	1007.6620127.96	1004.5220206.07	1004.4420252.44	1004.27				
20334.23	1004.47 20435.5	1004.5220486.75	1004.9220506.28	1009.3520520.92	1013.31				
20520.92	1014.7620528.24	1016.6120549.63	1023.72 20554.8	1024.9520567.95	1029.34				
20571.66	1029.920587.11	1038.7120594.25	1042.1820699.28	1041.58 20806.1	1041.01				
20881.51	1040.31 20963.2	1039.4821070.02	1038.8421167.41	1037.6921220.83	1037.5				
21343.36	1036.8621409.34	1036.3521475.31	1036.121522.44	1035.78					

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
18830.2	.02519471.75		.03220594.25		.037

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19471.7520594.25 114 116.26 106 .3 .5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
18830.2	19471.8	1045	F
2059421522.44		1045	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1031.42	Element	Left OB	Channel / Right OB

```
                                                                    Post-Project
* Vel Head (ft)          *    1.25  * Wt. n-Val.              *          *    0.032  *          *
* W.S. Elev (ft)         * 1030.18  * Reach Len. (ft)        *   24.00   *   24.00  *   24.00  *
* Crit W.S. (ft)         * 1021.90  * Flow Area (sq ft)      *           *18531.54  *          *
* E.G. Slope (ft/ft)     *0.000866  * Area (sq ft)           *           *18531.54  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)            *           *166000.00  *          *
* Top Width (ft)         * 1096.35  * Top Width (ft)        *           * 1096.35  *          *
* Vel Total (ft/s)       *    8.96  * Avg. Vel. (ft/s)      *           *    8.96  *          *
* Max Chl Dpth (ft)      *   25.91  * Hydr. Depth (ft)      *           *   16.90  *          *
* Conv. Total (cfs)      *5640835.0  * Conv. (cfs)           *           *5640835.0  *          *
* Length Wtd. (ft)       *   24.00  * Wetted Per. (ft)      *           * 1104.16  *          *
* Min Ch El (ft)         * 1004.27  * Shear (lb/sq ft)      *           *    0.91  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    8.13  *          *
* Frctn Loss (ft)        *          * Cum Volume (acre-ft)   * 6849.08  *25966.28  * 2316.39  *
* C & E Loss (ft)        *          * Cum SA (acres)         * 1893.99  * 2629.96  *  841.01  *
*****************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

CROSS SECTION OUTPUT  Profile #PF#2
*****************************************************************************************
* E.G. Elev (ft)         * 1031.43  * Element              *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.25  * Wt. n-Val.           *          *    0.032  *          *
* W.S. Elev (ft)         * 1030.18  * Reach Len. (ft)      *   24.00   *   24.00  *   24.00  *
* Crit W.S. (ft)         * 1021.90  * Flow Area (sq ft)    *           *18535.29  *          *
* E.G. Slope (ft/ft)     *0.000865  * Area (sq ft)         *           *18535.29  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)          *           *166000.00  *          *
* Top Width (ft)         * 1096.36  * Top Width (ft)      *           * 1096.36  *          *
* Vel Total (ft/s)       *    8.96  * Avg. Vel. (ft/s)    *           *    8.96  *          *
* Max Chl Dpth (ft)      *   25.91  * Hydr. Depth (ft)    *           *   16.91  *          *
* Conv. Total (cfs)      *5642701.0  * Conv. (cfs)         *           *5642701.0  *          *
* Length Wtd. (ft)       *   24.00  * Wetted Per. (ft)    *           * 1104.17  *          *
* Min Ch El (ft)         * 1004.27  * Shear (lb/sq ft)    *           *    0.91  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *         *    8.12  *          *
* Frctn Loss (ft)        *          * Cum Volume (acre-ft)   * 1194.14  *26889.87  *  762.04  *
* C & E Loss (ft)        *          * Cum SA (acres)         *  200.93  * 2634.08  *  120.23  *
*****************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

BRIDGE


RIVER: 1
REACH: 1                RS: 209.535

INPUT
Description: 35th Ave - modified bridge per TranSystems plans;
Used Interim
             Finished grade per plans; the pier widths were doubled (plans=5ft;
             model=10ft) in order to model the debris accumulation.
Distance from Upstream XS =       24
Deck/Roadway Width        =       91
Weir Coefficient          =      2.6
Upstream  Deck/Roadway Coordinates
    num=        12
     Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord
*************************************************************************
19471.75 1042.04     103519496.41 1043.19     103519615.66 1044.42     1035
19737.91 1045.34     103519860.16 1045.94     103519982.41 1046.22     1035
20104.66 1046.19     103520226.91 1045.85     103520349.16 1045.19     1035
20471.41 1044.21     103520590.29 1042.87     103520703.53 1040.09     1035

Upstream Bridge Cross Section Data
Station Elevation Data    num=       64
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
*********************************************************************************
 18830.2  1036.718846.47 1036.66 18879.5 1036.8318897.96 1036.85 18920.8  1036.7
18981.04 1035.9519020.45 1035.78 19054.3  1035.919066.48  1036.519079.96 1037.02
19096.25  1037.719128.81 1038.6219162.01 1039.2619189.37 1039.6919223.34 1040.15
19254.25 1040.5919299.11 1040.9219330.55  1041.319351.87  1041.619380.04  1041.8
19400.92 1041.8919471.75 1042.04   19476 1029.5819484.73 1025.6319493.22 1022.25
19499.21  1020.619527.23 1020.1619563.46 1020.0419837.52 1019.7619907.24  1019.3
19944.91 1019.1119959.55 1018.2319976.64  1017.119988.84 1016.1320005.93 1014.76
20023.01 1013.7120054.74 1007.6620127.96 1004.5220206.07 1004.4420252.44 1004.27
20334.23 1004.47 20435.5 1004.5220486.75 1004.9220506.28 1009.3520520.92 1013.31
20520.92 1014.7620528.24 1016.6120549.63 1023.72 20554.8 1024.9520567.95 1029.34
20571.66  1029.920587.11 1038.7120594.25 1042.1820699.28 1041.58 20806.1 1041.01
20881.51 1040.31 20963.2 1039.4821070.02 1038.8421167.41 1037.6921220.83  1037.5
21343.36 1036.8621409.34 1036.3521475.31  1036.121522.44 1035.78

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
 18830.2    .02519471.75    .03220594.25    .037

Bank Sta: Left   Right    Coeff Contr.   Expan.
      19471.7520594.25            .3        .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 18830.2 19471.8    1045        F
   2059421522.44    1045        F

Downstream  Deck/Roadway Coordinates
    num=        12
     Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord
*************************************************************************
19471.75 1042.04     103519496.41 1043.19     103519615.66 1044.42     1035
19737.91 1045.34     103519860.16 1045.94     103519982.41 1046.22     1035
20104.66 1046.19     103520226.91 1045.85     103520349.16 1045.19     1035
20471.41 1044.21     103520590.29 1042.87     103520703.53 1040.09     1035

Downstream Bridge Cross Section Data
Station Elevation Data    num=       64
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
```

```
*******************************************************************************
 18830.2  1036.718846.47 1036.66 18879.5 1036.8318897.96 1036.85 18920.8  1036.7
18981.04 1035.9519020.45 1035.78 19054.3  1035.919066.48  1036.519079.96 1037.02
19096.25  1037.719128.81 1038.6219162.01 1039.2619189.37 1039.6919223.34 1040.15
19254.25 1040.5919299.11 1040.9219330.55  1041.319351.87  1041.619380.04  1041.8
19400.92 1041.8919471.75 1042.04   19476 1029.5819484.73 1025.6319493.22 1022.25
19499.21  1020.619527.23 1020.1619563.46 1020.0419837.52 1019.7619907.24  1019.3
19944.91 1019.1119959.55 1018.2319976.64  1017.119988.84 1016.1320005.93 1014.76
20023.01 1013.7120054.74 1007.6620127.96 1004.5220206.07 1004.4420252.44 1004.27
20334.23 1004.47 20435.5 1004.5220486.75 1004.9220506.28 1009.3520520.92 1013.31
20520.92 1014.7620528.24 1016.6120549.63 1023.72 20554.8 1024.9520567.95 1029.34
20571.66  1029.920587.11 1038.7120594.25 1042.1820699.28 1041.58 20806.1 1041.01
20881.51 1040.31 20963.2 1039.4821070.02 1038.8421167.41 1037.6921220.83  1037.5
21343.36 1036.8621409.34 1036.3521475.31  1036.121522.44 1035.78

Manning's n Values         num=       3
     Sta    n Val      Sta    n Val     Sta    n Val
*************************************************
 18830.2     .02519471.75     .03220594.25     .037

Bank Sta: Left   Right    Coeff Contr.   Expan.
      19471.7520594.25             .3        .5
Ineffective Flow      num=        2
   Sta L   Sta R    Elev  Permanent
 18830.2 19471.8    1045        F
   2059421522.44    1045        F

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Piers =  8

Pier Data
Pier Station     Upstream=19615.66    Downstream=19615.66
Upstream      num=        2
    Width   Elev    Width   Elev
*********************************
      10     990       10    1040
Downstream      num=        2
    Width   Elev    Width   Elev
*********************************
      10     990       10    1040

Pier Data
Pier Station     Upstream=19737.91    Downstream=19737.91
Upstream      num=        2
    Width   Elev    Width   Elev
*********************************
      10     990       10    1040
Downstream      num=        2
    Width   Elev    Width   Elev
*********************************
      10     990       10    1040

Pier Data
Pier Station     Upstream=19860.16    Downstream=19860.16
Upstream      num=        2
    Width   Elev    Width   Elev
*********************************
      10     990       10    1040
Downstream      num=        2
    Width   Elev    Width   Elev
*********************************
      10     990       10    1040

Pier Data
Pier Station     Upstream=19982.41    Downstream=19982.41
Upstream      num=        2
    Width   Elev    Width   Elev
*********************************
      10     990       10    1040
Downstream      num=        2
    Width   Elev    Width   Elev
*********************************
      10     990       10    1040

Pier Data
Pier Station     Upstream=20104.66    Downstream=20104.66
Upstream      num=        2
    Width   Elev    Width   Elev
*********************************
      10     990       10    1040
Downstream      num=        2
    Width   Elev    Width   Elev
*********************************
      10     990       10    1040

Pier Data
Pier Station     Upstream=20226.91    Downstream=20226.91
Upstream      num=        2
    Width   Elev    Width   Elev
*********************************
      10     990       10    1040
Downstream      num=        2
    Width   Elev    Width   Elev
*********************************
      10     990       10    1040

Pier Data
Pier Station     Upstream=20349.16    Downstream=20349.16
Upstream      num=        2
```

```
    Width   Elev    Width   Elev
*********************************
      10     990      10    1040
Downstream     num=       2
    Width   Elev    Width   Elev
*********************************
      10     990      10    1040

Pier Data
Pier Station     Upstream=20471.41    Downstream=20471.41
Upstream     num=       2
    Width   Elev    Width   Elev
*********************************
      10     990      10    1040
Downstream     num=       2
    Width   Elev    Width   Elev
*********************************
      10     990      10    1040

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
       Momentum               Cd   =     1.2
Selected Low Flow Methods = Momentum

High Flow Method
       Pressure and Weir flow
           Submerged Inlet Cd          =
           Submerged Inlet + Outlet Cd =      .8
           Max Low Cord                =    1035

Additional Bridge Parameters
       Add Friction component to Momentum
       Do not add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT  Profile #PF#1
*************************************************************************************************
* E.G. US. (ft)          *    1031.42  * Element               *Inside BR US *Inside BR DS *
* W.S. US. (ft)          *    1030.18  * E.G. Elev (ft)        *    1031.29  *    1031.14  *
* Q Total (cfs)          *  166000.00  * W.S. Elev (ft)        *    1029.74  *    1029.56  *
* Q Bridge (cfs)         *  166000.00  * Crit W.S. (ft)        *    1022.50  *    1022.50  *
* Q Weir (cfs)           *             * Max Chl Dpth (ft)     *      25.47  *      25.29  *
* Weir Sta Lft (ft)      *             * Vel Total (ft/s)      *       9.98  *      10.09  *
* Weir Sta Rgt (ft)      *             * Flow Area (sq ft)     *   16628.72  *   16447.25  *
* Weir Submerg           *             * Froude # Chl          *       0.43  *       0.44  *
* Weir Max Depth (ft)    *             * Specif Force (cu ft)  *  216166.50  *  213774.70  *
* Min El Weir Flow (ft)  *    1042.05  * Hydr Depth (ft)       *      16.39  *      16.23  *
* Min El Prs (ft)        *    1035.00  * W.P. Total (ft)       *    1307.38  *    1303.10  *
* Delta EG (ft)          *       0.29  * Conv. Total (cfs)     *  4207355.0  *  4140138.0  *
* Delta WS (ft)          *       0.34  * Top Width (ft)        *    1014.66  *    1013.39  *
* BR Open Area (sq ft)   *   21997.33  * Frctn Loss (ft)       *             *             *
* BR Open Vel (ft/s)     *      10.09  * C & E Loss (ft)       *             *             *
* Coef of Q              *             * Shear Total (lb/sq ft) *       1.24  *       1.27  *
* Br Sel Method          *   Momentum  * Power Total (lb/ft s)  *      12.34  *      12.79  *
*************************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

BRIDGE OUTPUT  Profile #PF#2
*************************************************************************************************
* E.G. US. (ft)          *    1031.43  * Element               *Inside BR US *Inside BR DS *
* W.S. US. (ft)          *    1030.18  * E.G. Elev (ft)        *    1031.29  *    1031.15  *
* Q Total (cfs)          *  166000.00  * W.S. Elev (ft)        *    1029.75  *    1029.57  *
* Q Bridge (cfs)         *  166000.00  * Crit W.S. (ft)        *    1022.50  *    1022.50  *
* Q Weir (cfs)           *             * Max Chl Dpth (ft)     *      25.48  *      25.30  *
* Weir Sta Lft (ft)      *             * Vel Total (ft/s)      *       9.98  *      10.09  *
* Weir Sta Rgt (ft)      *             * Flow Area (sq ft)     *   16632.43  *   16451.21  *
* Weir Submerg           *             * Froude # Chl          *       0.43  *       0.44  *
* Weir Max Depth (ft)    *             * Specif Force (cu ft)  *  216215.90  *  213826.50  *
* Min El Weir Flow (ft)  *    1042.05  * Hydr Depth (ft)       *      16.39  *      16.23  *
* Min El Prs (ft)        *    1035.00  * W.P. Total (ft)       *    1307.47  *    1303.20  *
* Delta EG (ft)          *       0.29  * Conv. Total (cfs)     *  4208735.0  *  4141590.0  *
* Delta WS (ft)          *       0.34  * Top Width (ft)        *    1014.69  *    1013.42  *
* BR Open Area (sq ft)   *   21997.33  * Frctn Loss (ft)       *             *             *
* BR Open Vel (ft/s)     *      10.09  * C & E Loss (ft)       *             *             *
* Coef of Q              *             * Shear Total (lb/sq ft) *       1.24  *       1.27  *
* Br Sel Method          *   Momentum  * Power Total (lb/ft s)  *      12.33  *      12.78  *
*************************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 209.53

INPUT
Description: 209.53
Station Elevation Data    num=      64
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
*************************************************************************************
 18830.2  1036.718846.47 1036.66 18879.5 1036.8318897.96 1036.85 18920.8  1036.7
18981.04 1035.9519020.45 1035.78 19054.3  1035.919066.48  1036.519079.96 1037.02
19096.25  1037.719128.81 1038.6219162.01 1039.2619189.37 1039.6919223.34 1040.15
19254.25 1040.5919299.11 1040.9219330.55  1041.319351.87  1041.619380.04  1041.8
```

```
19400.92 1041.8919471.75 1042.04   19476 1029.5819484.73 1025.6319493.22 1022.25
19499.21  1020.619527.23 1020.1619563.46 1020.0419837.52 1019.7619907.24  1019.3
19944.91 1019.1119959.55 1018.2319976.64  1017.119988.84 1016.1320005.93 1014.76
20023.01 1013.7120054.74 1007.6620127.96 1004.5220206.07 1004.4420252.44 1004.27
20334.23 1004.47 20435.5 1004.5220486.75 1004.9220506.28 1009.3520520.92 1013.31
20520.92 1014.7620528.24 1016.6120549.63 1023.72 20554.8 1024.9520567.95 1029.34
20571.66  1029.920587.11 1038.7120594.25 1042.1820699.28 1041.58 20806.1 1041.01
20881.51 1040.31 20963.2 1039.4821070.02 1038.8421167.41 1037.6921220.83  1037.5
21343.36 1036.8621409.34 1036.3521475.31  1036.121522.44 1035.78

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
**********************************************
 18830.2    .02519471.75    .03220594.25    .037

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
     19471.7520594.25           615   589.4     627             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 18830.2 19471.8    1045        F
   2059421522.44    1045        F

CROSS SECTION OUTPUT  Profile #PF#1
*****************************************************************************************************
* E.G. Elev (ft)         * 1031.13  * Element                * Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.30  * Wt. n-Val.            *         *    0.032  *          *
* W.S. Elev (ft)         * 1029.83  * Reach Len. (ft)       *  615.00 *  589.40  *  627.00  *
* Crit W.S. (ft)         * 1021.90  * Flow Area (sq ft)     *         *18155.34  *          *
* E.G. Slope (ft/ft)     *0.000926  * Area (sq ft)          *         *18155.34  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *         *166000.00  *          *
* Top Width (ft)         * 1095.30  * Top Width (ft)       *         * 1095.30  *          *
* Vel Total (ft/s)       *    9.14  * Avg. Vel. (ft/s)     *         *    9.14  *          *
* Max Chl Dpth (ft)      *   25.56  * Hydr. Depth (ft)     *         *   16.58  *          *
* Conv. Total (cfs)      *5455800.0  * Conv. (cfs)         *         *5455800.0  *          *
* Length Wtd. (ft)       *  589.40  * Wetted Per. (ft)     *         * 1102.79  *          *
* Min Ch El (ft)         * 1004.27  * Shear (lb/sq ft)     *         *    0.95  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *       *    8.70  *          *
* Frctn Loss (ft)        *    0.67  * Cum Volume (acre-ft)  * 6849.08 *25921.55  * 2316.39  *
* C & E Loss (ft)        *    0.06  * Cum SA (acres)        * 1893.99 * 2627.23  *  841.01  *
*****************************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

CROSS SECTION OUTPUT  Profile #PF#2
*****************************************************************************************************
* E.G. Elev (ft)         * 1031.13  * Element                * Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.30  * Wt. n-Val.            *         *    0.032  *          *
* W.S. Elev (ft)         * 1029.84  * Reach Len. (ft)       *  615.00 *  589.40  *  627.00  *
* Crit W.S. (ft)         * 1021.90  * Flow Area (sq ft)     *         *18159.63  *          *
* E.G. Slope (ft/ft)     *0.000925  * Area (sq ft)          *         *18159.63  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *         *166000.00  *          *
* Top Width (ft)         * 1095.33  * Top Width (ft)       *         * 1095.33  *          *
* Vel Total (ft/s)       *    9.14  * Avg. Vel. (ft/s)     *         *    9.14  *          *
* Max Chl Dpth (ft)      *   25.57  * Hydr. Depth (ft)     *         *   16.58  *          *
* Conv. Total (cfs)      *5457836.0  * Conv. (cfs)         *         *5457836.0  *          *
* Length Wtd. (ft)       *  589.40  * Wetted Per. (ft)     *         * 1102.82  *          *
* Min Ch El (ft)         * 1004.27  * Shear (lb/sq ft)     *         *    0.95  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *       *    8.69  *          *
* Frctn Loss (ft)        *    0.67  * Cum Volume (acre-ft)  * 1194.14 *26845.12  *  762.04  *
* C & E Loss (ft)        *    0.06  * Cum SA (acres)        *  200.93 * 2631.35  *  120.23  *
*****************************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

CROSS SECTION


RIVER: 1
REACH: 1                  RS: 209.42

INPUT
Description: 209.42
Station Elevation Data    num=     120
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 18066.3  1035.2 18092.5  1034.718174.13  1034.618232.22 1034.7518374.28 1034.76
18519.36    1035   18609 1034.6718638.91 1035.1318640.91 1034.6318688.94 1035.68
18736.66 1034.6318738.66 1035.1318744.74 1035.3318757.05 1035.3618816.34 1035.62
18857.04 1035.6919001.96 1035.2819017.56 1034.5919031.34 1033.4219044.82    1030
19075.88  1027.319098.95 1024.1519123.26 1035.2119142.22  1034.819153.41 1033.66
19175.69 1033.0419229.76 1032.9219270.26 1032.9619318.56 1033.2219344.15 1031.88
19356.56 1026.1619373.86 1022.6419393.04    102219428.02  1022.119463.74 1022.27
19519.23 1021.07 19565.1  1021.719573.94 1022.3519613.08 1022.7919626.02  1021.9
19630.14 1022.4119670.75 1023.0719686.66 1022.6719771.52  1022.619783.71 1024.72
19795.37 1024.6119808.15 1021.7219887.54    102319978.34 1021.89   20024 1019.66
20043.24 1015.9520079.12  1012.220127.13 1009.8520197.83  1007.6 20239.6 1006.78
20318.19  998.9120334.72  998.4420358.65  999.1820442.82  1004.220493.17 1007.27
20559.67 1012.3920578.47 1015.2620600.01 1023.2320610.47 1029.5820635.94 1031.17
20643.41 1036.7820653.39    104320663.79  1044.420706.16 1043.36 20730.5 1041.37
 20742.8 1040.7820782.21 1041.6920812.94 1042.1820850.74  1041.2 20869.7 1042.66
20877.68 1041.04 20890.4  1033.520897.41 1030.5220907.67 1029.5420917.26  1029.5
20920.08 1031.4520940.19  1031.920959.31 1031.6421075.63 1032.0921217.55  1032.3
21336.33  1032.721395.05 1032.3721464.28 1030.8921504.38  1030.421565.16 1030.23
21615.46 1029.79 21661.1 1028.9521714.94  1029.221753.32  1028.621780.93 1030.96
 21834.5 1029.8321868.92 1030.5821937.71 1032.3221987.07 1032.1822098.03  1030.8
22124.72  1030.722241.07 1032.7922289.03 1032.7522341.52 1030.9522372.56 1030.47
 22400.6 1030.4722442.55 1031.0522532.24 1030.5822582.04  1030.522661.25 1030.71
22731.42 1032.1822738.15 1031.5922744.66 1028.33 22751.2 1028.3322764.51 1032.18
22773.18  1033.922782.89  1034.722830.05 1035.8722909.02 1035.7122931.75 1036.02

Manning's n Values        num=       6
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************************************************
 18066.3    .037   18609    .01518744.74    .03719318.56    .03220663.79    .032
```

```
 20869.7    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.    Expan.
     19318.5620610.47              501  486.04     526             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 18066.319123.26    1050       F
20663.7922931.75    1050       F

CROSS SECTION OUTPUT  Profile #PF#1
**********************************************************************************************
* E.G. Elev (ft)         * 1030.40  * Element                * Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.51  * Wt. n-Val.            *         *   0.032  *          *
* W.S. Elev (ft)         * 1028.89  * Reach Len. (ft)       *  501.00 *  486.04  *  526.00  *
* Crit W.S. (ft)         * 1023.49  * Flow Area (sq ft)     *         *16826.90  *          *
* E.G. Slope (ft/ft)     *0.001432  * Area (sq ft)          *  111.97 *16826.90  *    7.54  *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *         *166000.00  *          *
* Top Width (ft)         * 1341.50  * Top Width (ft)        *   51.71 * 1258.68  *   31.12  *
* Vel Total (ft/s)       *    9.87  * Avg. Vel. (ft/s)      *         *    9.87  *          *
* Max Chl Dpth (ft)      *   30.44  * Hydr. Depth (ft)      *         *   13.37  *          *
* Conv. Total (cfs)      *4386420.0  * Conv. (cfs)          *         *4386420.0  *          *
* Length Wtd. (ft)       *  486.04  * Wetted Per. (ft)      *         * 1265.06  *          *
* Min Ch El (ft)         *  998.44  * Shear (lb/sq ft)      *         *    1.19  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *         *   11.73  *          *
* Frctn Loss (ft)        *    0.54  * Cum Volume (acre-ft)  * 6848.29 *25684.88  * 2316.33  *
* C & E Loss (ft)        *    0.17  * Cum SA (acres)        * 1893.63 * 2611.31  *  840.79  *
**********************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
**********************************************************************************************
* E.G. Elev (ft)         * 1030.40  * Element                * Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.51  * Wt. n-Val.            *         *   0.032  *          *
* W.S. Elev (ft)         * 1028.89  * Reach Len. (ft)       *  501.00 *  486.04  *  526.00  *
* Crit W.S. (ft)         * 1023.49  * Flow Area (sq ft)     *         *16833.66  *          *
* E.G. Slope (ft/ft)     *0.001430  * Area (sq ft)          *         *16833.66  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *         *166000.00  *          *
* Top Width (ft)         * 1258.70  * Top Width (ft)        *         * 1258.70  *          *
* Vel Total (ft/s)       *    9.86  * Avg. Vel. (ft/s)      *         *    9.86  *          *
* Max Chl Dpth (ft)      *   30.45  * Hydr. Depth (ft)      *         *   13.37  *          *
* Conv. Total (cfs)      *4389308.0  * Conv. (cfs)          *         *4389308.0  *          *
* Length Wtd. (ft)       *  486.04  * Wetted Per. (ft)      *         * 1265.09  *          *
* Min Ch El (ft)         *  998.44  * Shear (lb/sq ft)      *         *    1.19  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *         *   11.72  *          *
* Frctn Loss (ft)        *    0.54  * Cum Volume (acre-ft)  * 1194.14 *26608.38  *  762.04  *
* C & E Loss (ft)        *    0.17  * Cum SA (acres)        *  200.93 * 2615.43  *  120.23  *
**********************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 209.33

INPUT
Description: 209.33 - FEMA Section V
Cross Section updated per TranSystems
             Corporation Mapping (2004)
Station Elevation Data    num=     137
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
**********************************************************************************
 17896.2  1033.517958.97  1033.417986.14 1033.7518112.66 1034.2418188.57 1033.75
18270.44 1033.7918305.44 1034.5118345.72 1034.6718423.99 1033.7918435.53 1034.26
18503.15 1034.2518553.69 1033.8418565.35 1034.23 18681.1 1034.1318683.99 1034.04
18721.33 1034.1818723.33 1033.6818769.56 1034.7418815.79 1033.6818817.19 1034.18
18823.88 1034.3818832.57  1034.518965.64 1034.9219086.19 1034.6519114.67     1032
19134.93 1026.84 19181.5 1024.9719197.05 1026.4319203.85 1024.4119223.43  1024.1
19250.18  1022.719253.79  1023.219282.68 1020.5519307.62  1017.419325.01  1017.3
 19355.8 1018.86 19365.9 1018.62 19378.8  1021.919409.32  1019.519428.42 1019.88
19441.87  1021.319481.76 1021.1719517.59 1021.6219549.59  1021.319597.25  1020.3
 19627.7 1020.0919656.16 1020.5419662.21 1021.32 19697.4  1023.119726.12  1023.8
19844.27 1023.2419849.98  1026.219855.05 1023.4119879.93 1022.2319888.16 1023.45
19913.86 1022.8219926.21  1024.919931.49 1022.4219941.55 1025.1219955.92 1021.41
19963.16  1022.120001.12 1016.37 20032.8 1013.8620059.79 1013.3320098.45 1013.73
20128.52 1013.0120166.76  1011.120221.81 1011.2620263.13  1010.720270.95 1012.01
20280.71 1010.1220297.89 1008.4820309.88 1001.6920317.32  999.2420329.38  997.95
20387.71   995.120406.58  993.7120444.15  994.9120450.21  996.3120481.01  997.63
20509.49  1000.220517.12    100420538.38 1005.7920573.28 1007.8720610.33 1010.95
 20679.1 1011.3520688.91 1012.2320695.14 1015.3520715.31 1028.8820723.94  1029.8
20732.61 1027.4620742.95  1028.8 20757.3 1027.7120801.95  1030.620907.29 1031.09
 20920.3 1036.87 20934.7 1034.9620949.59  1031.220960.05  1027.220990.79 1028.05
21001.98 1030.6421022.93 1029.6821027.18 1030.8421082.45 1030.7221158.66 1031.24
21353.12 1031.48 21455.4  1031.621531.07  1030.621626.53 1030.1121653.83 1030.53
21823.49  1030.421871.63 1029.8821878.34 1031.2721890.58  1028.921942.99 1028.61
 21959.1 1027.6421991.93 1030.86 22030.2    103222122.88  1032.622142.26 1031.53
22167.18 1031.9522193.03 1031.3722250.67 1031.7322268.19  1031.122397.32 1031.21
22414.21  1030.722431.33  1027.222441.79  1026.422491.98 1026.6922530.86 1027.33
22550.52 1031.1922572.62  1031.322581.69 1028.3322592.78 1028.3322605.98  1035.8
22633.72 1034.8522651.94 1034.85

Manning's n Values        num=       5
     Sta    n Val      Sta    n Val      Sta    n Val      Sta    n Val      Sta    n Val
**************************************************************************************
 17896.2     .03718683.99     .01518823.88     .03719086.19     .032 20920.3     .037

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.    Expan.
```

19086.1920715.31 563 490.4 583 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17896.218965.64		1040	F
20920.322651.94		1040	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1029.68	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.95	Wt. n-Val.		0.032	0.032
W.S. Elev (ft)	1028.74	Reach Len. (ft)	563.00	490.40	583.00
Crit W.S. (ft)	1019.27	Flow Area (sq ft)		21262.22	24.36
E.G. Slope (ft/ft)	0.000900	Area (sq ft)		21262.22	293.04
Q Total (cfs)	166000.00	Flow (cfs)		165977.10	22.91
Top Width (ft)	1846.56	Top Width (ft)		1587.61	258.95
Vel Total (ft/s)	7.80	Avg. Vel. (ft/s)		7.81	0.94
Max Chl Dpth (ft)	35.03	Hydr. Depth (ft)		13.39	0.55
Conv. Total (cfs)	5534856.0	Conv. (cfs)		5534092.0	763.8
Length Wtd. (ft)	514.29	Wetted Per. (ft)		1602.21	44.26
Min Ch El (ft)	993.71	Shear (lb/sq ft)		0.75	0.03
Alpha	1.00	Stream Power (lb/ft s)		5.82	0.03
Frctn Loss (ft)	0.62	Cum Volume (acre-ft)	6847.64	25472.38	2314.52
C & E Loss (ft)	0.04	Cum SA (acres)	1893.33	2595.43	839.04

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1029.69	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.95	Wt. n-Val.		0.032	
W.S. Elev (ft)	1028.74	Reach Len. (ft)	563.00	490.40	583.00
Crit W.S. (ft)	1019.27	Flow Area (sq ft)		21270.94	
E.G. Slope (ft/ft)	0.000899	Area (sq ft)		21270.94	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	1587.64	Top Width (ft)		1587.64	
Vel Total (ft/s)	7.80	Avg. Vel. (ft/s)		7.80	
Max Chl Dpth (ft)	35.03	Hydr. Depth (ft)		13.40	
Conv. Total (cfs)	5537801.0	Conv. (cfs)		5537801.0	
Length Wtd. (ft)	514.25	Wetted Per. (ft)		1602.24	
Min Ch El (ft)	993.71	Shear (lb/sq ft)		0.74	
Alpha	1.00	Stream Power (lb/ft s)		5.81	
Frctn Loss (ft)	0.62	Cum Volume (acre-ft)	1194.14	26395.80	762.04
C & E Loss (ft)	0.04	Cum SA (acres)	200.93	2599.55	120.23

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 209.24

INPUT
Description: 209.24
Station Elevation Data num= 98

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18093.1	103318111.19	1032.6618170.55		1033.11 18249.7		1032.5618290.75		1033.5	
18331.25	1033.0118346.32	1033.518358.33		1032.9818369.13		1033.5418393.42		1033.13	
18469.39	1033.0718512.08	1033.0718637.39		1032.7 18752.3		1032.6518769.95		1032.77	
18804.48	1033.1718806.48	1032.67 18852.7		1033.7618898.92		1032.6718900.92		1033.17	
18915.11	1033.3718942.52	1030.2119012.72		1021.3219049.33		1021.2119102.51		1025.9	
19144.88	1026.16 19179.4	1027.2819192.91		1028.5119221.01		1027.4819251.07		1028.34	
19265.36	1027.519301.53	1020.3219329.15		1019.3519360.39		1018.9919370.19		1018.1	
19394.97	1017.4219404.33	1016.3219424.98		1015.6919456.86		1016.7719466.18		1018.36	
19497.21	1020.3619524.86	1021.0119549.47		1021.0119582.15		1021.419600.78		1021	
19641.86	1023.0919653.99	1021.23 19681.4		1021.6919697.48		1020.819743.39		1020.7	
19822.79	1021.8619837.12	1021.4319857.39		1019.5319867.11		1020.419912.92		1020.55	
19923.39	1019.9719969.32	1019.1520004.86		1017.6120026.23		1016.2120141.25		1015.24	
20152.29	1010.620175.79	1010.3220193.09		1015.77 20204.3		1016.5620231.05		1007.37	
20243.67	100320287.34	1018.5 20308.5		1018.3720324.96		101020735.49		1010	
20735.59	1025 21770.2	102521803.67		1033.0921811.84		1029.2 21825.3		1034.7	
21842.65	1025.5 21881.3	1026.4421899.12		1026.8921924.24		1025.621976.69		1026.67	
21982.73	1025.6921999.87	1025.35 22090.2		1025.3922155.13		1025.322244.29		1025.35	
22289.44	1025.522316.75	1025.8822341.35		1028.822353.64		1028.9322368.41		1032.3	
22376.5	1028 22384.1	1026.3522390.56		1028.6122396.37		1032.3722437.65		1032.09	
22468.97	1032.2122560.84	1032.122647.85		1032.88					

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
18093.1	.03718769.95		.01518942.52		.03220141.25		.03720287.34		.032
21825.3	.025								

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
18942.5220287.34 514 515.61 523 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
18093.118914.46		1034.8	F
20907.5322647.85		1034.8	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1029.02	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.35	Wt. n-Val.		0.034	0.032
W.S. Elev (ft)	1027.66	Reach Len. (ft)	514.00	515.61	523.00
Crit W.S. (ft)	1023.98	Flow Area (sq ft)		10217.70	8127.09
E.G. Slope (ft/ft)	0.001727	Area (sq ft)		10217.70	11428.76
Q Total (cfs)	166000.00	Flow (cfs)		80384.48	85615.52
Top Width (ft)	3253.98	Top Width (ft)		1257.10	1996.88
Vel Total (ft/s)	9.05	Avg. Vel. (ft/s)		7.87	10.53

Post-Project

* Max Chl Dpth (ft)	* 24.66	* Hydr. Depth (ft)	*	* 8.13	* 13.10	*
* Conv. Total (cfs)	*3994750.0	* Conv. (cfs)	*	*1934433.0	*2060317.0	*
* Length Wtd. (ft)	* 519.56	* Wetted Per. (ft)	*	* 1266.05	* 637.10	*
* Min Ch El (ft)	* 1003.00	* Shear (lb/sq ft)	*	* 0.87	* 1.38	*
* Alpha	* 1.07	* Stream Power (lb/ft s)	*	* 6.84	* 14.49	*
* Frctn Loss (ft)	* 0.98	* Cum Volume (acre-ft)	* 6847.64	*25295.18	* 2236.08	*
* C & E Loss (ft)	* 0.01	* Cum SA (acres)	* 1893.33	* 2579.41	* 823.94	*

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 1029.02	* Element	* Left OB	* Channel	* Right OB	*
* Vel Head (ft)	* 1.36	* Wt. n-Val.	*	* 0.034	* 0.032	*
* W.S. Elev (ft)	* 1027.66	* Reach Len. (ft)	* 514.00	* 515.61	* 523.00	*
* Crit W.S. (ft)	* 1023.92	* Flow Area (sq ft)	*	*10115.17	* 8123.99	*
* E.G. Slope (ft/ft)	*0.001734	* Area (sq ft)	*	*10115.17	* 8123.99	*
* Q Total (cfs)	*166000.00	* Flow (cfs)	*	*80501.82	*85498.18	*
* Top Width (ft)	* 1837.81	* Top Width (ft)	*	* 1217.63	* 620.19	*
* Vel Total (ft/s)	* 9.10	* Avg. Vel. (ft/s)	*	* 7.96	* 10.52	*
* Max Chl Dpth (ft)	* 24.66	* Hydr. Depth (ft)	*	* 8.31	* 13.10	*
* Conv. Total (cfs)	*3986606.0	* Conv. (cfs)	*	*1933308.0	*2053299.0	*
* Length Wtd. (ft)	* 519.55	* Wetted Per. (ft)	*	* 1231.20	* 639.75	*
* Min Ch El (ft)	* 1003.00	* Shear (lb/sq ft)	*	* 0.89	* 1.37	*
* Alpha	* 1.06	* Stream Power (lb/ft s)	*	* 7.08	* 14.47	*
* Frctn Loss (ft)	* 0.99	* Cum Volume (acre-ft)	* 1194.14	*26219.12	* 707.67	*
* C & E Loss (ft)	* 0.01	* Cum SA (acres)	* 200.93	* 2583.76	* 116.08	*

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 209.14

INPUT
Description: 209.14
Station Elevation Data num= 169

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17712.7	1032.217733.81	1032.317755.05		103217769.95	1031.3817807.73	1031.5			
17918.31	1031.0617920.82	1031.35	17943.8	1031.417971.64	1032.03	17993.6	1031.59		
18020.99	1031.4418029.62	1030.7518045.75		1030.9618061.27	1030.718068.04	1031.06			
18093.7	1031.5318113.91	1031.618141.03		1031.518161.73	1031.6918203.99	1031.2			
18219.59	1031.4118257.52	1031.318268.17		1031.118314.57	1031.1718419.42	1030.9			
18497.7	103118540.47	1031.4918580.28		1031.5618590.93	1031.1518633.39	1030.95			
18650.39	1031.36	18680.6	1031.33	18720.2	1030.3418737.94	1030.4318755.98	1030.74		
18761.99	1030.5718784.42	1030.818801.05		1030.8118813.66	1030.3218833.88	1030.8			
18845.19	1030.618852.07	103118864.66		1029.5818867.52	1028.9818874.62	1029.5			
18888.79	1029.318890.79	1028.818936.87		1030.4518982.93	1032.0418984.93	1032.54			
18999.04	1032.7419019.38	102719044.02		1027.119074.49	1027.0619081.18	1026.8			
19115.16	1023.8219127.21	1022.1519152.59		1019.9119166.14	1019.9919191.51	1021.36			
19196.09	1021.919199.73	1020.9819206.42		1021.0719214.89	1022.7619231.49	1024.53			
19245.82	1024.819263.22	1025.519289.61		1025.8219298.62	1025.6219324.23	1026			
19336.29	1025.2619345.92	1024.1819353.34		1023.919359.53	1022.6219371.81	1019.21			
19387.21	1016.4719396.66	1015.6519407.14		1015.2719424.22	1015.38	19446	1014.9		
19468.59	1015.0719478.96	1015.419488.13		1016.419514.03	1016.1619544.56	1016.81			
19553.79	1017.6519576.59	1018.419585.23		1018.3419597.29	1017.119625.64	1017.23			
19633.67	1016.9619662.81	1017.5319679.21		1017.3919691.15	1018.0719718.55	1018.6			
19739.96	1018.419768.73	1018.89	19781	1019.719808.31	1019.8519822.58	1020.95			
19830.13	1020.7719859.66	1021.0119900.07		1020.82	19905.4	1020.9519942.86	1020.61		
19958.76	1020.920016.03	1020.2420040.17		1020.1220076.36	101920087.02	1018.89			
20107.15	1018.3320126.03	1017.1820145.24		1017.120160.85	1022.1220168.39	1023.67			
20173.07	1022.7220184.98	1017.120190.01		1016.0320200.85	1010.7720209.55	1005.1			
20215.2	1003.2620224.09	1002.8720233.55		1003.1920239.27	1004.74	20248.4	1008.35		
20267.4	1018.520271.19	1019.8720278.27		1019.8620294.18	1014.2320299.82	1013.19			
20314.27	1012.420327.64	1012.7720348.37		1015.5620359.78	1014.9120385.64	1014.7			
20398.56	101020748.72	101020748.82		102221863.55	102221871.58	1022.5			
21877.08	1022.621882.23	1022.721906.95		1034.8521913.42	1030.9121918.47	1032.54			
21926.44	1033.7121935.64	1030.3421940.87		1026.3	21945.9	1025.72	21972.1	1025.78	
21989.84	1026.3122013.87	1026.5522052.95		1026.722065.97	1027.0422126.27	1028.24			
22168.73	1029.24	22206.6	1029.6622274.49		1030.8822316.41	1031.222330.02	1031.52		
22355.73	1031.6822369.85	1031.622394.81		1031.7422463.25	1031.6522479.79	1031.88			
22509.72	1031.722546.93	1031.7422588.34		1032.222649.92	1032.1				

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
17712.7	.03	718874.62	.01	518999.04	.03	220160.85	.03	720385.64	.032
21926.44	.025								

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19074.4920271.19 515 499.52 517 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17712.718998.45	1034	F	
21140.1822649.92	1034	F	

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 1028.02	* Element	* Left OB	* Channel	* Right OB	*
* Vel Head (ft)	* 1.32	* Wt. n-Val.	*	* 0.033	* 0.033	*
* W.S. Elev (ft)	* 1026.71	* Reach Len. (ft)	* 515.00	* 499.52	* 517.00	*
* Crit W.S. (ft)	* 1023.36	* Flow Area (sq ft)	*	* 9048.73	* 9241.35	*
* E.G. Slope (ft/ft)	*0.002090	* Area (sq ft)	*	* 9048.73	*12790.98	*
* Q Total (cfs)	*166000.00	* Flow (cfs)	*	*74048.59	*91951.41	*
* Top Width (ft)	* 2920.93	* Top Width (ft)	*	* 1188.93	* 1732.00	*

Post-Project

* Vel Total (ft/s)	*	9.08	* Avg. Vel. (ft/s)	*		*	8.18	*	9.95	*	
* Max Chl Dpth (ft)	*	23.84	* Hydr. Depth (ft)	*		*	7.61	*	10.63	*	
* Conv. Total (cfs)	*3631464.0		* Conv. (cfs)	*		*	1619908.0	*	2011556.0	*	
* Length Wtd. (ft)	*	509.13	* Wetted Per. (ft)	*		*	1200.37	*	883.01	*	
* Min Ch El (ft)	*	1002.87	* Shear (lb/sq ft)	*		*	0.98	*	1.37	*	
* Alpha	*	1.03	* Stream Power (lb/ft s)	*		*	8.05	*	13.58	*	
* Frctn Loss (ft)	*	0.89	* Cum Volume (acre-ft)	*	6847.64	*	25181.15	*	2090.68	*	
* C & E Loss (ft)	*	0.13	* Cum SA (acres)	*	1893.33	*	2564.94	*	801.55	*	

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	*	1028.02	* Element	*	Left OB	*	Channel	*	Right OB	*	
* Vel Head (ft)	*	1.31	* Wt. n-Val.	*		*	0.033	*	0.033	*	
* W.S. Elev (ft)	*	1026.71	* Reach Len. (ft)	*	515.00	*	499.52	*	517.00	*	
* Crit W.S. (ft)	*	1023.40	* Flow Area (sq ft)	*		*	9036.08	*	9242.20	*	
* E.G. Slope (ft/ft)	*0.002087		* Area (sq ft)	*		*	9036.08	*	9242.20	*	
* Q Total (cfs)	*166000.00		* Flow (cfs)	*		*	74414.10	*	91585.90	*	
* Top Width (ft)	*	2040.18	* Top Width (ft)	*		*	1171.19	*	868.99	*	
* Vel Total (ft/s)	*	9.08	* Avg. Vel. (ft/s)	*		*	8.24	*	9.91	*	
* Max Chl Dpth (ft)	*	23.84	* Hydr. Depth (ft)	*		*	7.72	*	10.64	*	
* Conv. Total (cfs)	*3633771.0		* Conv. (cfs)	*		*	1628939.0	*	2004833.0	*	
* Length Wtd. (ft)	*	509.08	* Wetted Per. (ft)	*		*	1184.11	*	887.72	*	
* Min Ch El (ft)	*	1002.87	* Shear (lb/sq ft)	*		*	0.99	*	1.36	*	
* Alpha	*	1.03	* Stream Power (lb/ft s)	*		*	8.19	*	13.44	*	
* Frctn Loss (ft)	*	0.89	* Cum Volume (acre-ft)	*	1194.14	*	26105.78	*	603.42	*	
* C & E Loss (ft)	*	0.13	* Cum SA (acres)	*	200.93	*	2569.62	*	107.14	*	

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 209.04

INPUT
Description: 209.04
Station Elevation Data num= 162

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17436.1	1032.817481.92	1033.1217492.97		103417523.41	1033.35	17553.8	1033.63		
17567.41	1031.5517593.91	1032.5517629.24		1031.9	17655.8	1031.7	17689.7	1032.45	
17695.46	1033.5817714.36	1033.28	17733.5	1033.7817748.64		1032.3417764.76		1032.1	
17771.89	1030.7217780.47	1032.0617790.76		1030.917801.38		1027.8717816.77		1028.68	
17830.26	1028.417903.58	1029	17910.5	1028.7318018.61		1029.2118054.11		1029.58	
18068.41	1029.4618116.27	1029.618176.67		1029.55	18188.3	1029.2418231.03		1029.42	
18257.65	1029.1818293.37	1030.4418300.67		1031.4218303.42		1030.2118325.88		1029.58	
18349.35	1029.818368.26	1029.318405.02		1029.918413.03		1029.418422.64		1029.8	
18438.88	1029.5318477.77	1029.3918506.45		1028.2818520.92		1028.6118558.78		1028.72	
18600.38	1028.3418620.89	1028.7418645.84		1028.7418668.28		1029.12	18676.4	1032.1	
18682.1	1030.818687.17	1031.0418693.62		1029.83	18704	1029.6918712.79		1032.9	
18719.4	1029.3618729.67	1031.0618732.96		103018744.07		1031.1318756.77		1030.5	
18763.23	1032.3118770.67	1032.118787.85		1029.1618817.09		1029.318848.11		1029.01	
18855.89	1029.418897.57	1028.618900.35		1027.4418914.37		1027.2418916.37		1026.74	
18961.99	1028.419007.61	1029.9719009.61		1030.4719023.62		1030.6719047.62		1027.39	
19092.73	1026.5319103.69	1025.6719138.37		1024.6619177.83		1021.9319196.79		1019	
19225.46	1018.5119249.34	1018.619280.44		1022.4	19302	1026.1719327.89		1025.79	
19336.16	1025.11	19356.9	1021.7919371.16		1017.5319374.44		1015.519384.22		1014.77
19399.04	1011.7819405.42	1011.4819417.16		1012.719427.75		1014.7619437.29		1013.39	
19456.39	101419462.67	1013.6419470.92		1014.8419487.88		1013.3619517.22		1012.66	
19535.61	101419553.79	1016.3919571.83		1017.1219585.34		1017.0819616.81		1017.58	
19660.08	1017.9519677.15	1017.919689.47		1018.5619734.18		1018.119789.91		1017.11	
19808.47	1017.1819838.18	1016.5519869.54		1017.7219955.17		1018.1619985.34		1017.05	
19993.46	1016.120033.72	1013.3	20059.3	1012.720088.98		1012.3120095.15		1012.84	
20110.54	1010.4620127.24	1007.0720143.74		1007.02	20165.7	101120181.04		1014.3	
20198.46	1016.7720207.15	1016.420231.68		1012.0620261.67		1011.2120295.29		1011.5	
20349.03	1012.5820373.43	1012.5720411.55		101020761.17		101020761.27		1020	
21949.73	102021962.03	1020	21974.3	1023.2921988.69		1033.421992.14		1031.11	
21999.39	1032.8822011.93	1033.7322024.53		1026.122043.74		1026.2822072.39		1027	
22075.88	1027.8422101.16	1028.3922112.98		1029.0322158.53		1029.59	22192.5	1030.4	
22243.49	1031.222251.38	1030.6222255.34		1028.53	22266	1027.9622271.88		1030.57	
22302.67	1030.1322353.28	1030.1	22435.9	1030.822527.91		1030.9122594.31		1031.75	
22629.46	1031.622666.72	1032.11							

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
17436.1	.03718900.35		.01519023.62		.03219993.46		.03721949.73		.032
22011.93	.025								

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19092.7320198.46 495 493.13 531 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17436.119047.62		1035	F
21356.7222666.72		1035	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	*	1027.00	* Element	*	Left OB	*	Channel	*	Right OB	*	
* Vel Head (ft)	*	0.87	* Wt. n-Val.	*		*	0.034	*	0.037	*	
* W.S. Elev (ft)	*	1026.13	* Reach Len. (ft)	*	495.00	*	493.13	*	531.00	*	
* Crit W.S. (ft)	*	1021.52	* Flow Area (sq ft)	*		*	9915.89	*	12247.88	*	
* E.G. Slope (ft/ft)	*0.001479		* Area (sq ft)	*		*	9915.89	*	16017.73	*	
* Q Total (cfs)	*166000.00		* Flow (cfs)	*		*	75403.84	*	90596.16	*	

```
                                                                    Post-Project
* Top Width (ft)          * 2880.33  * Top Width (ft)          *          * 1097.47  * 1782.87  *
* Vel Total (ft/s)        *    7.49  * Avg. Vel. (ft/s)       *          *    7.60  *    7.40  *
* Max Chl Dpth (ft)       *   19.11  * Hydr. Depth (ft)       *          *    9.04  *   10.57  *
* Conv. Total (cfs)       *4316197.0  * Conv. (cfs)            *          *1960590.0  *2355608.0  *
* Length Wtd. (ft)        *  503.55  * Wetted Per. (ft)       *          * 1102.64  * 1168.66  *
* Min Ch El (ft)          * 1007.02  * Shear (lb/sq ft)       *          *    0.83  *    0.97  *
* Alpha                   *    1.00  * Stream Power (lb/ft s) *          *    6.31  *    7.16  *
* Frctn Loss (ft)         *    0.55  * Cum Volume (acre-ft)   * 6847.64  *25072.42  * 1919.72  *
* C & E Loss (ft)         *    0.00  * Cum SA (acres)         * 1893.33  * 2551.83  *  780.70  *
*****************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*****************************************************************************************
* E.G. Elev (ft)          * 1027.00  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.87  * Wt. n-Val.            *          *   0.034  *   0.037  *
* W.S. Elev (ft)          * 1026.13  * Reach Len. (ft)       *  495.00  *  493.13  *  531.00  *
* Crit W.S. (ft)          * 1021.52  * Flow Area (sq ft)     *          * 9901.05  *12249.86  *
* E.G. Slope (ft/ft)      *0.001471  * Area (sq ft)          *          * 9901.05  *12249.86  *
* Q Total (cfs)           *166000.00  * Flow (cfs)            *          *75954.49  *90045.50  *
* Top Width (ft)          * 2229.68  * Top Width (ft)        *          * 1071.42  * 1158.26  *
* Vel Total (ft/s)        *    7.49  * Avg. Vel. (ft/s)       *          *    7.67  *    7.35  *
* Max Chl Dpth (ft)       *   19.11  * Hydr. Depth (ft)       *          *    9.24  *   10.58  *
* Conv. Total (cfs)       *4328640.0  * Conv. (cfs)            *          *1980600.0  *2348040.0  *
* Length Wtd. (ft)        *  503.49  * Wetted Per. (ft)       *          * 1077.62  * 1174.79  *
* Min Ch El (ft)          * 1007.02  * Shear (lb/sq ft)       *          *    0.84  *    0.96  *
* Alpha                   *    1.00  * Stream Power (lb/ft s) *          *    6.47  *    7.04  *
* Frctn Loss (ft)         *    0.55  * Cum Volume (acre-ft)   * 1194.14  *25997.20  *  475.88  *
* C & E Loss (ft)         *    0.00  * Cum SA (acres)         *  200.93  * 2556.76  *   95.11  *
*****************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                RS: 208.95

INPUT
Description: 208.95
Station Elevation Data    num=     184
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
*****************************************************************************
 17602.6  1030.717651.71 1029.7817678.28 1030.4417702.53 1029.58 17709.4  1030.1
17716.28 1027.7417726.85 1027.2417754.92  1027.117785.11 1027.4717835.06  1026.8
17871.62 1027.4917953.86 1027.3617970.21 1026.5318023.39 1026.3518038.68  1027.3
18091.11  1027.718094.77 1029.1818100.61 1027.4618198.47  1027.318220.25 1027.92
18246.36  1027.718309.26 1028.2918344.29 1028.4518407.59 1027.4418451.06 1027.54
18478.84 1027.87 18531.8  1027.918579.44  1028.618682.24  1028.418703.67  1027.9
18808.65 1028.1418830.35 1027.9418837.04 1025.7918851.37 1025.5918853.37 1025.59
18899.98 1027.2418946.57 1028.8418948.57 1028.8418962.88 1029.0418992.56 1025.85
 19030.7 1025.6219046.62 1025.0619082.99 1025.4919104.79  1024.619112.99 1025.03
19124.51 1030.6519140.48  1025.319157.35 1026.0919168.11 1024.5519173.85  1025.4
19195.16 1023.8219207.08 1021.8719270.39 1018.9419282.25 1014.0419305.81  1013.5
19323.91  1009.5 19355.8 1008.9319366.92  1009.419397.25 1014.53 19409.8 1013.58
19425.91 1014.79 19456.9 1015.7219460.95 1014.0219470.72 1012.9419481.47 1013.92
19495.24 1008.88 19506.5  1007.819522.51 1007.4919548.22 1008.1719566.69  1005.6
19598.49  1005.219607.34 1006.8619629.96 1013.5719636.47 1011.6219653.72 1010.05
19696.34 1010.0919777.25 1013.0119819.13 1016.0219864.73 1015.5219888.04 1016.45
19903.55 1017.6219939.71 1017.39 19944.9 1016.8619961.63 1017.3519968.78  1016.6
19989.37 1017.9320035.86  1019.220080.09  1021.820099.08 1019.9320121.36  1018.6
20137.49  1018.6 20148.8  1020.120184.87 1019.7120189.78 1018.0720196.27 1018.47
20209.65 1016.1720285.35  1015.620305.76 1015.0520324.48  1013.520343.75 1009.77
20358.33 1008.95 20370.4 1011.3820394.52  1012.4 20413.5 1014.1920426.89  1014.5
 20439.5 1014.0320455.51 1012.3320465.37 1012.8320483.75 1012.3120489.18  1010.9
20510.98  1009.520519.28 1007.7620531.47 1011.0620546.03 1006.2720573.29 1004.38
20576.36  1003.120604.86 1000.7820634.63  1000.420646.76 1000.7220658.11  1002.9
20679.97 1002.5620696.64 1001.4520747.49  997.3320778.46  997.4520790.93   997.9
20799.87 1002.98 20826.7 1022.0920836.45 1026.1820841.68 1023.2520885.15  1023.4
 20920.7 1022.7820959.96 1023.2220968.83  1023.620987.66  1032.921003.77    1031
21026.87 1031.8921043.74  1031.8 21076.8  1032.521096.37  1031.421112.48 1032.38
21141.57 1032.0521164.67 1033.3921189.39 1032.8521193.31 1033.5521219.82 1023.28
21269.17 1023.4221286.95 1033.0221310.01  1029.221351.05  1032.121360.77 1031.64
21387.79 1031.6321396.55 1030.7921410.37 1030.7921421.06 1033.8621429.05  1034.1
21456.59 1024.1821491.57 1024.0121589.23 1024.0621735.97 1024.24 21832.1 1024.74
21894.74 1024.8321931.61 1025.1721980.52 1026.1622127.26 1027.6222173.37  1028.9
22176.23 1035.5222183.06 1039.7122188.16  1038.9 22201.8 1039.9222208.53 1033.98
22216.16 1030.1322224.26 1030.7422231.11  1027.122236.95 1026.2822242.59  1026.7
22251.03  1030.522265.51 1030.4222289.51 1031.1422297.99 1030.3422321.91  1029.9
22425.63 1030.0322527.54 1030.6122572.36 1030.3722612.01 1030.81

Manning's n Values        num=       7
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*****************************************************************************
 17602.6     .03718837.04     .01518962.88     .03719173.85     .03220836.45     .032
20987.66     .03722188.16     .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      19173.8520836.45            458  514.75     603             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 17602.619157.35    1038       F
20987.6622612.01    1038       F

CROSS SECTION OUTPUT  Profile #PF#1
*****************************************************************************************
* E.G. Elev (ft)          * 1026.45  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.86  * Wt. n-Val.            *  0.037   *   0.032  *   0.032  *
* W.S. Elev (ft)          * 1025.59  * Reach Len. (ft)       *  458.00  *  514.75  *  603.00  *
* Crit W.S. (ft)          * 1018.20  * Flow Area (sq ft)     *    7.25  *22109.05  *  316.60  *
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                                                                    Post-Project
* E.G. Slope (ft/ft)     *0.000833  * Area (sq ft)           *   41.85  *22109.05  * 1036.21  *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *    5.66  *165250.50  *  743.90  *
* Top Width (ft)         * 2457.62  * Top Width (ft)        *  102.36  * 1661.18  *  694.08  *
* Vel Total (ft/s)       *    7.40  * Avg. Vel. (ft/s)      *    0.78  *    7.47  *    2.35  *
* Max Chl Dpth (ft)      *   28.26  * Hydr. Depth (ft)      *    0.56  *   13.31  *    2.34  *
* Conv. Total (cfs)      *5750383.0  * Conv. (cfs)          *  196.0  *5724418.0  * 25769.2  *
* Length Wtd. (ft)       *  515.30  * Wetted Per. (ft)      *   13.11  * 1679.17  *  136.43  *
* Min Ch El (ft)         *  997.33  * Shear (lb/sq ft)      *    0.03  *    0.68  *    0.12  *
* Alpha                  *    1.02  * Stream Power (lb/ft s) *    0.02  *    5.12  *    0.28  *
* Frctn Loss (ft)        *    0.57  * Cum Volume (acre-ft)  * 6847.41  *24891.14  * 1815.77  *
* C & E Loss (ft)        *    0.03  * Cum SA (acres)        * 1892.75  * 2536.21  *  765.60  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)         * 1026.45  * Element              *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.86  * Wt. n-Val.           *          *    0.032  *    0.032  *
* W.S. Elev (ft)         * 1025.59  * Reach Len. (ft)      *  458.00  *  514.75  *  603.00  *
* Crit W.S. (ft)         * 1018.20  * Flow Area (sq ft)    *          *22116.34  *  317.20  *
* E.G. Slope (ft/ft)     *0.000833  * Area (sq ft)         *          *22116.34  *  317.20  *
* Q Total (cfs)          *166000.00  * Flow (cfs)          *          *165254.10  *  745.89  *
* Top Width (ft)         * 1796.52  * Top Width (ft)       *          * 1661.19  *  135.33  *
* Vel Total (ft/s)       *    7.40  * Avg. Vel. (ft/s)     *          *    7.47  *    2.35  *
* Max Chl Dpth (ft)      *   28.26  * Hydr. Depth (ft)     *          *   13.31  *    2.34  *
* Conv. Total (cfs)      *5752962.0  * Conv. (cfs)         *          *5727112.0  * 25849.7  *
* Length Wtd. (ft)       *  515.31  * Wetted Per. (ft)     *          * 1679.38  *  136.43  *
* Min Ch El (ft)         *  997.33  * Shear (lb/sq ft)     *          *    0.68  *    0.12  *
* Alpha                  *    1.02  * Stream Power (lb/ft s) *          *    5.11  *    0.28  *
* Frctn Loss (ft)        *    0.57  * Cum Volume (acre-ft)  * 1194.14  *25815.97  *  399.28  *
* C & E Loss (ft)        *    0.03  * Cum SA (acres)        *  200.93  * 2541.29  *   87.23  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                RS: 208.85

INPUT
Description: 208.85
Station Elevation Data    num=      99
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
*********************************************************************************
 17686.5  1031.317694.85 1029.1417749.61 1029.8317758.78 1029.2417984.78    1029
18200.56 1027.33 18280.2 1027.4818328.38 1026.7418441.61  1027.218481.04 1029.88
18510.33 1030.4718682.91 1029.6618724.46 1028.7718728.71 1027.7818742.91 1027.58
18744.91 1027.0818791.14 1028.0918837.38 1027.0818839.38 1027.5818853.58 1027.78
 18859.9 1029.4218874.45  1029.918981.82 1029.1619065.57 1029.1719153.39 1028.46
19206.02  1028.819223.16  1016.919235.47  1012.619256.34 1009.9419276.84  1008.4
19321.83 1007.7919338.38 1008.5419346.72 1011.7719362.51  1004.319405.36 1008.25
19423.93  1009.2 19438.9 1012.4519455.14 1010.47 19490.9 1010.8219519.66 1014.86
19526.32 1012.1319549.87  1011.819568.97 1014.59 19634.7 1016.3719646.89 1017.27
19710.87 1016.62 19760.5 1017.0919801.77 1016.0619827.94 1016.3419863.39 1018.72
19910.52 1019.5620029.52 1020.0320086.67 1019.9920123.45 1020.8520133.93  1019.7
20161.37 1020.5920247.21 1020.8920314.65  1017.220322.23 1017.9420368.81 1017.46
20450.41 1017.56 20502.8 1016.2520508.13 1017.1120550.98 1012.0220589.54  1010.1
20610.51 1006.6920658.34  1002.720671.28 1001.7520700.39 1007.5220728.31  1009.8
20767.63  1007.720799.68  1004.620828.74    100020843.88  998.88 20892.5  999.97
20902.76  1003.520934.99 1026.0120948.22 1022.1321019.79 1022.2521070.81  1021.7
21121.72  1022.221135.41 1028.06 21144.4 1029.4921161.18 1022.3121191.38 1023.06
21314.23 1023.5621380.26 1024.1621412.34 1023.3121460.67  1023.321510.92 1022.62
21535.21 1023.2821562.07  1022.621581.65 1023.8321609.58 1023.4221953.16 1026.38
22103.46 1028.5222197.52  1029.322301.84 1029.8222339.32  1029.6

Manning's n Values        num=       6
     Sta    n Val     Sta    n Val     Sta    n Val     Sta    n Val     Sta    n Val
*********************************************************************************
 17686.5     .03718728.71     .01518853.58     .03719206.02     .03220029.52     .032
20934.99     .037

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      19206.0220934.99              511  479.03     452             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 17686.519206.02    1035       F
 21144.422339.32    1035       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         * 1025.85  * Element              *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.21  * Wt. n-Val.           *          *    0.032  *    0.037  *
* W.S. Elev (ft)         * 1024.64  * Reach Len. (ft)      *  511.00  *  479.03  *  452.00  *
* Crit W.S. (ft)         * 1020.18  * Flow Area (sq ft)    *          *18618.96  *  466.05  *
* E.G. Slope (ft/ft)     *0.001531  * Area (sq ft)         *          *18618.96  * 1153.95  *
* Q Total (cfs)          *166000.00  * Flow (cfs)          *          *164661.60  * 1338.36  *
* Top Width (ft)         * 2504.30  * Top Width (ft)       *          * 1721.02  *  783.28  *
* Vel Total (ft/s)       *    8.70  * Avg. Vel. (ft/s)     *          *    8.84  *    2.87  *
* Max Chl Dpth (ft)      *   25.76  * Hydr. Depth (ft)     *          *   10.82  *    2.48  *
* Conv. Total (cfs)      *4242758.0  * Conv. (cfs)         *          *4208551.0  * 34206.8  *
* Length Wtd. (ft)       *  478.92  * Wetted Per. (ft)     *          * 1738.23  *  188.63  *
* Min Ch El (ft)         *  998.88  * Shear (lb/sq ft)     *          *    1.02  *    0.24  *
* Alpha                  *    1.03  * Stream Power (lb/ft s) *          *    9.05  *    0.68  *
* Frctn Loss (ft)        *    0.62  * Cum Volume (acre-ft)  * 6847.19  *24650.50  * 1800.62  *
* C & E Loss (ft)        *    0.05  * Cum SA (acres)        * 1892.21  * 2516.23  *  755.37  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
```

water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1025.85	Element	Left OB	Channel	Right OB	
Vel Head (ft)	1.20	Wt. n-Val.		0.032	0.037	
W.S. Elev (ft)	1024.65	Reach Len. (ft)	511.00	479.03	452.00	
Crit W.S. (ft)	1020.18	Flow Area (sq ft)		18629.67	467.22	
E.G. Slope (ft/ft)	0.001528	Area (sq ft)		18629.67	467.22	
Q Total (cfs)	166000.00	Flow (cfs)		164657.50	1342.48	
Top Width (ft)	1908.89	Top Width (ft)		1721.04	187.85	
Vel Total (ft/s)	8.69	Avg. Vel. (ft/s)		8.84	2.87	
Max Chl Dpth (ft)	25.77	Hydr. Depth (ft)		10.82	2.49	
Conv. Total (cfs)	4246887.0	Conv. (cfs)		4212541.0	34345.5	
Length Wtd. (ft)	478.92	Wetted Per. (ft)		1738.25	188.67	
Min Ch El (ft)	998.88	Shear (lb/sq ft)		1.02	0.24	
Alpha	1.03	Stream Power (lb/ft s)		9.04	0.68	
Frctn Loss (ft)	0.62	Cum Volume (acre-ft)	1194.14	25575.22	393.85	
C & E Loss (ft)	0.05	Cum SA (acres)	200.93	2521.31	84.99	

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 208.75

INPUT
Description: 208.75 - FEMA Section U
Station Elevation Data num= 124

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18173.6	1027.11	8257.35	1026.61	8340.04	102618	367.17	1025.85	18472.3	1025.33
18563.9	1028.41	8584.53	1028.65	18593.87	1028.32	18600.82	1027.67	18615.09	1027.47
18617.09	1026.97	18663.56	1027.98	18710.04	1026.97	18712.04	1027.47	18726.31	1027.67
18738.43	1029.82	18764.48	1030.73	18832.51	1030.95	18900.38	1030.43	18954.98	1029.6
18984.44	1028.47	18996.07	1026.71	19017.06	1026.71	9056.46	1027.48	19103.99	1027.71
19153.26	1027.52	19204.89	1026.74	19212.98	1026.28	19226.43	1021.15	19249.91	1010.16
19266.81	1008.81	9299.44	1007.51	9308.35	1007.88	19324.64	1009.65	19332.09	1012.65
19339.05	100919	344.99	1006.47	19362.61	1005.61	9374.08	1006.41	9427.89	1008.77
19452.89	1009.85	19478.06	1011.52	19505.81	1012.26	19526.98	1013.15	19535.38	1014.53
19541.92	1015.39	19562.58	1013.91	19580.22	1014.51	9611.04	1016.44	19649.5	1015.55
19676.7	1015.71	9706.53	1017.58	19723.84	1018.09	19752.75	1018.69	19793.14	1018.45
19817.64	1018.74	19868.41	1019.56	19904.45	1019.58	20006.67	1019.78	20053.74	1019.67
20110.37	1019.63	20147.15	1019.22	20205.32	1018.18	20213.52	1017.62	20230.83	1016.56
20246.24	1016.21	20258.43	1015.62	20282.65	1013.13	20304.16	1013.25	20325.33	1013.88
20360.87	1013.02	20399.39	1010.93	20443.45	1008.83	20509.67	1006.65	20530.45	1005.3
20549.36	1002.94	20624.04	1001.58	20641.4	1000.63	20653.89	1001.22	20674.36	1001.4
20691.66	1000.44	20708.01	1002.62	20717.29	1003.82	20733.99	1004.85	20745.04	1006.3
20762.48	1008.27	20775.95	1009.32	20782.78	1010.28	20788.76	1010.74	20801.71	1012.52
20813.85	1010.78	20838.24	1010.59	20846.26	1013.65	20860.81	1005.65	20869.16	1002.57
20881.6	1002.65	20888.55	1005.28	20898.48	1008.27	20908.17	1004.93	20915.98	1003.9
20930.47	1011.04	20936.86	1016.29	20940.05	1018.52	20952.96	1025.18	21004.85	1025.68
21010.02	1025.22	21017.42	1023.32	21098.69	1024.08	21136.04	1023.95	21181.34	1023.41
21212.16	1022.92	21283.95	1024.27	21300.57	1033.42	21323.99	1023.8	21329.9	1023.31
21360.2	1022.84	21410.93	1022.32	21471.63	1021.92	21516.43	1021.92	21910.17	1026.78
22038.72	1028.06	22133.23	1028.92	2205.11	1029.52	2228.96	1029.66		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
18173.6	.03	718600.82	.01	518726.31	.03	719212.98	.03	220205.32	.032

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19212.9820952.96 565 559.49 569 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
18173.619204.89		1038	F
21098.6922228.96		1038	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1025.18	Element	Left OB	Channel	Right OB	
Vel Head (ft)	1.05	Wt. n-Val.		0.032	0.032	
W.S. Elev (ft)	1024.13	Reach Len. (ft)	565.00	559.49	569.00	
Crit W.S. (ft)	1017.95	Flow Area (sq ft)		20136.04	37.08	
E.G. Slope (ft/ft)	0.001097	Area (sq ft)		20136.04	669.69	
Q Total (cfs)	166000.00	Flow (cfs)		165967.10	32.91	
Top Width (ft)	2367.88	Top Width (ft)		1732.31	635.56	
Vel Total (ft/s)	8.23	Avg. Vel. (ft/s)		8.24	0.89	
Max Chl Dpth (ft)	23.69	Hydr. Depth (ft)		11.62	0.44	
Conv. Total (cfs)	5011211.0	Conv. (cfs)		5010217.0	993.5	
Length Wtd. (ft)	559.61	Wetted Per. (ft)		1749.88	84.61	
Min Ch El (ft)	1000.44	Shear (lb/sq ft)		0.79	0.03	
Alpha	1.00	Stream Power (lb/ft s)		6.50	0.03	
Frctn Loss (ft)	0.80	Cum Volume (acre-ft)	6847.19	24437.41	1791.15	
C & E Loss (ft)	0.05	Cum SA (acres)	1892.21	2497.24	748.01	

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1025.19	Element	Left OB	Channel	Right OB	
Vel Head (ft)	1.05	Wt. n-Val.		0.032		
W.S. Elev (ft)	1024.14	Reach Len. (ft)	565.00	559.49	569.00	
Crit W.S. (ft)	1017.95	Flow Area (sq ft)		20147.45		
E.G. Slope (ft/ft)	0.001096	Area (sq ft)		20147.45		

```
                                                                  Post-Project
* Q Total (cfs)          *166000.00  * Flow (cfs)              *          *166000.00  *          *
* Top Width (ft)         * 1732.34  * Top Width (ft)          *          * 1732.34  *          *
* Vel Total (ft/s)       *    8.24  * Avg. Vel. (ft/s)        *          *    8.24  *          *
* Max Chl Dpth (ft)      *   23.70  * Hydr. Depth (ft)        *          *   11.63  *          *
* Conv. Total (cfs)      *5014610.0  * Conv. (cfs)            *          *5014610.0  *          *
* Length Wtd. (ft)       *  559.61  * Wetted Per. (ft)        *          * 1749.91  *          *
* Min Ch El (ft)         * 1000.44  * Shear (lb/sq ft)        *          *    0.79  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s)  *          *    6.49  *          *
* Frctn Loss (ft)        *    0.80  * Cum Volume (acre-ft)    * 1194.14  *25362.00  *  391.43  *
* C & E Loss (ft)        *    0.05  * Cum SA (acres)          *  200.93  * 2502.32  *   84.02  *
*****************************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                RS: 208.67

INPUT
Description: 208.67

Left and Right Channel Bank Stations Interpolated
Station Elevation Data    num=     105
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*************************************************************************************
 17889.8  1026.317940.06 1028.0117946.89  1024.717953.87 1026.9318019.22 1025.66
18296.94 1025.4718455.93  1024.9 18459.5  1024.818473.77  1024.618475.77  1024.1
18522.23 1025.11 18568.7  1024.1 18570.7  1024.618584.97  1024.818585.84 1024.44
18645.36  1024.918707.02 1024.4318845.34    102618932.39  1026.418963.79  1026.2
19024.26 1027.15 19046.1  1027.9 19164.5 1028.1519199.93  1027.619317.69 1028.73
19328.09  1021.519347.56  1010.419383.55 1009.6619393.77 1014.4919409.65 1006.16
19420.84 1005.5519487.27  1008.419553.76 1009.5619580.27 1011.2219681.59 1014.56
19704.28 1016.4119768.18 1016.7919807.68 1017.7819886.33 1018.3119914.74  1017.1
19970.68 1017.7520001.36  1016.320060.25 1014.5920091.06 1012.2120139.57 1010.12
20167.85  1006.520204.43 1005.9920234.48 1008.5220294.94  1005.520308.87 1003.36
20326.14  1003.1 20341.6 1005.8820376.14 1007.4520397.29  1007.120450.21  1009.5
20461.96 1008.6920485.33 1004.5920503.57 1003.0320523.73  1004.220581.55  1010.1
20626.86 1012.8320637.02 1014.0120678.94 1013.25 20690.1 1017.0720712.53 1017.81
20729.15  1021.420758.54  1022.720769.24 1019.5220782.73 1020.1520807.03  1019.2
20820.96    1017   20831 1018.2720844.49  1016.4 20871.7 1016.7620886.74 1015.51
 20895.7 1017.4320915.38 1015.9220935.23 1020.22 20944.4 1025.8420956.53 1026.07
20966.88 1019.1721108.47  1019.921183.53 1020.5621311.57 1022.3821340.58 1022.08
21398.61  1023.121427.63    102321512.69  1024.121608.59 1023.8421651.56 1022.85
   21715  1023.221786.17  1023.121820.67  1022.621854.56  1023.721920.87 1024.77
21941.67  1025.7 22014.6 1025.7422033.05    1025 22130.7  1025.822157.61 1025.44
22270.31 1026.1122293.23 1025.8922355.71  1026.422387.92  1026.122440.81 1026.52

Manning's n Values        num=       6
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************************************************
 17889.8    .037 18459.5    .01518584.97    .03719317.69    .03220167.85    .032
20758.54    .037

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
     19317.6920758.54             456  449.63     359             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 17889.8 19164.5    1033       F
20956.5322440.81    1033       F

CROSS SECTION OUTPUT  Profile #PF#1
*************************************************************************************************
* E.G. Elev (ft)         * 1024.33  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.60  * Wt. n-Val.             *          *   0.032  *   0.037  *
* W.S. Elev (ft)         * 1022.73  * Reach Len. (ft)        *  456.00  *  449.63  *  359.00  *
* Crit W.S. (ft)         * 1019.08  * Flow Area (sq ft)      *          *15778.71  *  858.83  *
* E.G. Slope (ft/ft)     *0.001929  * Area (sq ft)           *          *15778.71  * 1697.89  *
* Q Total (cfs)          *166000.00  * Flow (cfs)            *          *161756.20  * 4243.81  *
* Top Width (ft)         * 2042.32  * Top Width (ft)        *          * 1432.22  *  610.10  *
* Vel Total (ft/s)       *    9.98  * Avg. Vel. (ft/s)      *          *   10.25  *    4.94  *
* Max Chl Dpth (ft)      *   19.70  * Hydr. Depth (ft)      *          *   11.02  *    4.75  *
* Conv. Total (cfs)      *3779618.0  * Conv. (cfs)          *          *3682992.0  * 96626.3  *
* Length Wtd. (ft)       *  448.44  * Wetted Per. (ft)      *          * 1442.13  *  183.15  *
* Min Ch El (ft)         * 1003.03  * Shear (lb/sq ft)      *          *    1.32  *    0.56  *
* Alpha                  *    1.03  * Stream Power (lb/ft s) *          *   13.51  *    2.79  *
* Frctn Loss (ft)        *    1.20  * Cum Volume (acre-ft)  * 6847.19  *24206.76  * 1775.69  *
* C & E Loss (ft)        *    0.11  * Cum SA (acres)        * 1892.21  * 2476.92  *  739.88  *
*************************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*************************************************************************************************
* E.G. Elev (ft)         * 1024.34  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.60  * Wt. n-Val.             *          *   0.032  *   0.037  *
* W.S. Elev (ft)         * 1022.74  * Reach Len. (ft)        *  456.00  *  449.63  *  359.00  *
* Crit W.S. (ft)         * 1019.08  * Flow Area (sq ft)      *          *15795.76  *  860.86  *
* E.G. Slope (ft/ft)     *0.001922  * Area (sq ft)           *          *15795.76  *  860.86  *
* Q Total (cfs)          *166000.00  * Flow (cfs)            *          *161742.20  * 4257.84  *
* Top Width (ft)         * 1612.42  * Top Width (ft)        *          * 1432.24  *  180.18  *
* Vel Total (ft/s)       *    9.97  * Avg. Vel. (ft/s)      *          *   10.24  *    4.95  *
* Max Chl Dpth (ft)      *   19.71  * Hydr. Depth (ft)      *          *   11.03  *    4.78  *
* Conv. Total (cfs)      *3786569.0  * Conv. (cfs)          *          *3689445.0  * 97124.1  *
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					Post-Project		
* Length Wtd. (ft)	* 448.47	* Wetted Per. (ft)	*	* 1442.15	* 182.82	*	
* Min Ch El (ft)	* 1003.03	* Shear (lb/sq ft)	*	* 1.31	* 0.56	*	
* Alpha	* 1.03	* Stream Power (lb/ft s)	*	* 13.46	* 2.79	*	
* Frctn Loss (ft)	* 1.19	* Cum Volume (acre-ft)	* 1194.14	*25131.17	* 385.81	*	
* C & E Loss (ft)	* 0.11	* Cum SA (acres)	* 200.93	* 2482.00	* 82.84	*	

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 208.57

INPUT
Description: 208.57
Left and Right Channel Bank Stations Interpolated
Station Elevation Data num= 203

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18043.1	1026.618105.91	1025.6118144.21	1025.5418188.08	1025.0718211.89	1024.98				
18258.69	1024.3218280.09	1024.3 18310.7	1023.8218325.77	1024.0618329.48	1023.7				
18333.22	1023.9418344.36	1026.1718358.63	1025.9718360.63	1025.4718407.09	1024.04				
18453.59	1022.5718455.59	1023.0718469.87	1023.27 18473.4	1023.0118481.95	1023				
18501.82	1023.7818512.77	1023.6118543.96	1023.8318582.81	1024.4118612.91	1024.4				
18624.01	1024.8218690.73	1025.19 18713.9	1025.518798.55	1026.0618839.05	1026.11				
18890.3	1026.5118911.31	1026.2118937.47	1026.1918997.38	1026.7 19007.7	1026.45				
19032.19	1026.3919066.17	1026.72 19069.2	1026.0719101.45	1026.419105.39	1026.74				
19174.29	1026.4 19242.2	1026.819276.95	1027.4519311.47	1027.5119330.99	1027.8				
19362.95	1027.4519382.56	102719394.18	1019.4519399.31	1013.8219402.99	1010.99				
19419.31	1008.7819431.17	1007.7619447.66	1007.37 19476.1	1007.2219494.43	1007.44				
19505.11	1007.9819510.11	1009.419533.51	1010.6219563.13	1011.7319586.72	1012.06				
19609.82	1012.6819648.13	1013.3219717.79	1013.7219732.39	1014.0619760.19	1015.5				
19773.2	1015.9719779.57	1015.2219796.53	1016.4719809.96	1016.9519834.29	1016.91				
19874.35	1016.1319906.36	101519908.98	1013.8319930.84	1013.5519941.27	1011.6				
19955.11	1010.4519974.65	1009.3319991.51	1007.7 20021.3	1006.5220034.23	1006.2				
20042.76	1004.9120051.06	1004.6620058.22	1003.6820078.97	1002.820093.45	1002.61				
20125.82	1002.720159.52	1004.1120184.03	1003.6120208.06	1004.1120215.97	1005.2				
20237.26	1005.220259.55	1006.4520277.02	1006.220316.96	1006.2320344.15	1005.1				
20360.59	1005.3820364.27	1005.7720377.87	1009.0520383.24	1011.1320397.61	1009.8				
20408.18	1009.8720417.33	1010.83 20424.9	1012.3320438.51	1013.0120456.81	1013.23				
20474.11	1013.9220492.85	1014.2120507.45	1014.1420526.79	1013.4920539.37	1013.4				
20565.14	1014.420590.58	1015.3220605.65	1016.320611.83	1015.6220620.49	1016.2				
20641.35	1016.620645.26	101820655.94	1018.2920677.36	1018.3420685.83	1017.87				
20717.99	1018.1720731.12	1019.220755.71	1019.220769.35	1019.6820773.24	1020.74				
20777.09	1024.4 20779.8	1021.920783.92	1020.63 20809.6	1020.8420827.39	1021.37				
20830.05	1021.0920847.21	1021.3220873.66	1022.7 20879.2	1024.1620895.09	1023.95				
20904.95	1021.9920937.19	1022.0320945.09	1021.36 20954.6	1018.920958.81	1017.21				
20967.22	1017.3620976.54	1019.2520988.26	1023.3220994.42	1026.720999.24	1026.39				
21015.31	1026.721019.76	1024.6121033.44	1024.7421076.95	1023.7521088.41	1023.33				
21103.62	1023.2921111.64	1023.7321169.95	1024.0821191.87	1024.521229.35	1024.13				
21285.49	102421310.35	1024.17 21337.9	1023.921376.71	1024.3921419.04	1024.35				
21462.54	1023.8721499.93	1023.9821527.74	1024.2421537.93	1024.89 21609.1	1025.43				
21620.99	1025.821627.53	1024.921654.54	1025.321683.04	1025.121782.17	1025.01				
21829.35	1024.8521865.87	1025.721871.34	1025.3621941.71	1025.421967.65	1025.83				
21968.32	1026.1621988.33	1025.9 21991.2	1025.4922008.95	1025.8322099.68	1025.8				
22160.09	1026.36 22189.9	1026.4322199.11	1026.2622228.89	1026.54 22250.8	1026.2				
22285.77	1026.522286.17	1026.32 22317.8	1026.3522334.22	1026.9822335.38	1026.6				
22386.13	1027.09 22430.6	1027.2322470.47	1027.8622500.57	1028.0222520.45	1027.74				
22540.45	1028.2422544.52	1030.622547.07	1030.6322553.13	1027.8822560.23	1025.56				
22566.7	1025.5622575.37	1028.3822590.86	1028.15						

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
18043.1	.03718344.36	.01518469.87	.03719362.95	.03220360.59	.032				
21015.31	.037								

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
19382.5620731.12		685 539.75	467	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
18043.119330.99		1028	F
20777.0922590.86		1028	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 1023.02	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 2.74	* Wt. n-Val.	*	* 0.032	* 0.032 *
* W.S. Elev (ft)	* 1020.28	* Reach Len. (ft)	* 685.00	* 539.75	* 467.00 *
* Crit W.S. (ft)	* 1018.75	* Flow Area (sq ft)	*	*12483.18	* 38.59 *
* E.G. Slope (ft/ft)	*0.003954	* Area (sq ft)	*	*12483.18	* 96.70 *
* Q Total (cfs)	*166000.00	* Flow (cfs)	*	*165890.90	* 109.08 *
* Top Width (ft)	* 1408.87	* Top Width (ft)	*	* 1338.21	* 70.65 *
* Vel Total (ft/s)	* 13.26	* Avg. Vel. (ft/s)	*	* 13.29	* 2.83 *
* Max Chl Dpth (ft)	* 17.67	* Hydr. Depth (ft)	*	* 9.33	* 0.95 *
* Conv. Total (cfs)	*2639931.0	* Conv. (cfs)	*	*2638196.0	* 1734.8 *
* Length Wtd. (ft)	* 539.73	* Wetted Per. (ft)	*	* 1345.08	* 40.51 *
* Min Ch El (ft)	* 1002.61	* Shear (lb/sq ft)	*	* 2.29	* 0.24 *
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 30.44	* 0.66 *
* Frctn Loss (ft)	* 1.53	* Cum Volume (acre-ft)	* 6847.19	*24060.90	* 1768.30 *
* C & E Loss (ft)	* 0.45	* Cum SA (acres)	* 1892.21	* 2462.62	* 737.07 *

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross

section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1023.03	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.73	Wt. n-Val.		0.032	
W.S. Elev (ft)	1020.30	Reach Len. (ft)	685.00	539.75	467.00
Crit W.S. (ft)	1018.75	Flow Area (sq ft)		12508.58	
E.G. Slope (ft/ft)	0.003935	Area (sq ft)		12508.58	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	1338.24	Top Width (ft)		1338.24	
Vel Total (ft/s)	13.27	Avg. Vel. (ft/s)		13.27	
Max Chl Dpth (ft)	17.69	Hydr. Depth (ft)		9.35	
Conv. Total (cfs)	2646130.0	Conv. (cfs)		2646130.0	
Length Wtd. (ft)	539.75	Wetted Per. (ft)		1346.21	
Min Ch El (ft)	1002.61	Shear (lb/sq ft)		2.28	
Alpha	1.00	Stream Power (lb/ft s)		30.30	
Frctn Loss (ft)	1.52	Cum Volume (acre-ft)	1194.14	24985.09	382.26
C & E Loss (ft)	0.45	Cum SA (acres)	200.93	2467.70	82.10

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 208.48

INPUT
Description: 208.48

Left and Right Channel Bank Stations Interpolated
Station Elevation Data num= 188

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17996.8	1025.3	18087.88	1025.75	18135.7	1025.5	18174.14	1025.6	18234.42	1025.1
18242.22	1024.9	418272.05	1024.8	118301.32	1025.1	218316.33	1024.9	218318.33	1024.42
18363.9	1022.82	18409.5	1021.19	18411.5	1021.6	918425.26	1021.8	918436.46	1022.74
18438.55	1022.8	18443.72	1023.7	18452.1	1028.3	718456.36	1029.4	18473.79	1028.64
18483.21	1028.8	18490.75	1028.2	118501.92	1020.6	318510.88	1016.57	18517.2	1015.8
18532.92	101	518548.71	1013.6	18563.89	1013.2	918601.46	1013.7	18615.03	1013.1
18626.88	1012.9	718673.46	1011.9	918685.14	1011.3	18709.42	1012.4	418732.62	1012.55
18746.16	1012.9	618776.92	1014.9	518793.29	1015.5	18825.78	1016.0	518831.87	1015.7
18838.1	1016.0	518871.38	1016.6	518899.17	1016.4	18924.17	1015.8	618946.43	1015.05
18974.62	1014.32	19000.9	1013.23	19021.6	1013.6	719029.98	1013.5	319042.98	1011.74
19052.81	1010.9	319074.74	1010.0	219087.23	1010.4	19108.55	1010.7	119125.56	1010.7
19132.98	1009.3	19144.31	1007.9	19158.27	1007.7	119179.57	1007.87	19196.9	1007.6
19203.86	1007.8	19229.67	1007.68	19252.4	1008.2	419273.39	1008.2	519295.63	1010.13
19335.75	1011.8	19373.54	1013.9	419397.84	1014.5	219417.49	1014.5	19491.91	1015.5
19523.5	1015.5	919555.18	1016.2	19600.72	1016.1	319617.17	1014.71	19629.3	1014.06
19663.03	1014.0	919690.04	1014.6	19692.52	1014.2	419735.34	1014.4	219792.79	1013.85
19809.79	1014.0	119821.12	1013.7	19839.66	1014.1	219864.65	1013.7	319874.48	1012.69
19887.08	1010.1	19906.28	1008.0	919917.38	1005.8	419926.24	1003.6	19942.51	1001.55
19951.73	1000.05	19964.2	998.7	19978.79	998.8	919981.77	999.3	319993.04	999.21
20006.45	999.8	920018.92	999.6	320043.06	1000.0	520060.21	999.8	420074.55	1000.4
20083.95	1001.12	20102.1	1001.99	20121.5	1003.3	420125.67	100	420158.75	1005.7
20162.52	1006.4	920179.29	1006.6	420200.95	1007.8	520236.77	1009.0	320265.78	1010.73
20279.71	1010.7	20298.68	1012.2	620305.31	1012.1	520311.54	1012.8	520329.99	1013.4
20344.23	1013.5	320362.96	1013.2	20374.51	1012.5	120389.85	1012.1	320395.57	1011.6
20416.51	1011.7	220428.19	1009.7	820434.35	1008.3	20442.45	1007.1	20448.8	1006.99
20458.78	1007.7	20466.63	1006.4	720478.96	1006.8	320496.57	1005.8	720507.33	1006.24
20513.16	1007.2	420520.27	1007.7	20530.35	1007.7	20539.28	1009.5	220546.34	1013.1
20551.79	1018.3	120557.74	1017.2	320572.86	1013.4	620578.59	1013.6	420588.38	1012.23
20601.35	1012.5	220613.84	1012.4	20624.34	1013.0	120633.27	1012.6	20656.88	1013.18
20660.09	1013.7	820664.57	1013.2	620672.63	1013.6	20680.59	1017.2	220691.24	1024.02
20693.58	1023.5	420707.17	1023.3	20714.21	1023.5	20723.64	1027.9	20730.75	1029.2
20739.88	1029.3	820746.13	1027.9	20750.4	1025.4	20770.94	1025.2	820793.11	1025.38
20828.04	102	620878.66	1026.4	820916.71	1027.1	320973.15	1027.8	520988.41	1028.38
21010.17	1028.5	621041.21	1029.3	21075.03	1029.6	21086.4	1029.5	21107.07	1029.9
21134.05	1028.9	221135.79	1028.1	21140.85	1022.9	621143.56	1020.9	921952.21	1020.99
21968.53	1029.3	421977.18	1026.7	21993.27	1026.1	622006.53	1026.0	722025.31	1025.1
22046.26	1024.8	522082.66	1025.4	122119.24	1025.3	22140.38	1025.5	122146.37	1025.11
22150.45	1026.4	822168.72	1026.3	522187.16	1026.47				

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
17996.8	.043	18301.32	.015	18425.26	.043	18601.46	.032	20162.52	.032
20551.79	.037								

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
18501.9 220691.24 521 435.12 469 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17996.8	18456.36	1038	F
20730.75	22187.16	1038	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1021.03	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.24	Wt. n-Val.		0.032	
W.S. Elev (ft)	1019.79	Reach Len. (ft)	521.00	435.12	469.00
Crit W.S. (ft)	1016.90	Flow Area (sq ft)		18579.98	
E.G. Slope (ft/ft)	0.002142	Area (sq ft)		18579.98	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	2180.85	Top Width (ft)		2180.85	
Vel Total (ft/s)	8.93	Avg. Vel. (ft/s)		8.93	
Max Chl Dpth (ft)	21.09	Hydr. Depth (ft)		8.52	

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                                                                    Post-Project
* Conv. Total (cfs)       *3586753.0  * Conv. (cfs)            *          *3586753.0  *          *
* Length Wtd. (ft)        *   435.12  * Wetted Per. (ft)       *          * 2190.67  *          *
* Min Ch El (ft)          *   998.70  * Shear (lb/sq ft)       *          *    1.13  *          *
* Alpha                   *     1.00  * Stream Power (lb/ft s) *          *   10.13  *          *
* Frctn Loss (ft)         *     0.90  * Cum Volume (acre-ft)   * 6847.19  *23868.45  * 1767.78  *
* C & E Loss (ft)         *     0.01  * Cum SA (acres)         * 1892.21  * 2440.82  *  736.69  *
*********************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)          * 1021.06  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    1.23  * Wt. n-Val.            *          *   0.032  *          *
* W.S. Elev (ft)          * 1019.83  * Reach Len. (ft)       *  521.00  *  435.12  *  469.00  *
* Crit W.S. (ft)          * 1016.90  * Flow Area (sq ft)     *          *18664.64  *          *
* E.G. Slope (ft/ft)      *0.002110  * Area (sq ft)          *          *18664.64  *          *
* Q Total (cfs)           *166000.00  * Flow (cfs)           *          *166000.00  *          *
* Top Width (ft)          * 2181.00  * Top Width (ft)       *          * 2181.00  *          *
* Vel Total (ft/s)        *    8.89  * Avg. Vel. (ft/s)      *          *    8.89  *          *
* Max Chl Dpth (ft)       *   21.13  * Hydr. Depth (ft)      *          *    8.56  *          *
* Conv. Total (cfs)       *3613509.0  * Conv. (cfs)          *          *3613509.0  *          *
* Length Wtd. (ft)        *   435.12  * Wetted Per. (ft)     *          * 2190.83  *          *
* Min Ch El (ft)          *   998.70  * Shear (lb/sq ft)     *          *    1.12  *          *
* Alpha                   *     1.00  * Stream Power (lb/ft s) *          *    9.98  *          *
* Frctn Loss (ft)         *     0.88  * Cum Volume (acre-ft)   * 1194.14  *24791.96  *  382.26  *
* C & E Loss (ft)         *     0.02  * Cum SA (acres)         *  200.93  * 2445.90  *   82.10  *
*********************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 208.39

INPUT
Description: 208.39 - FEMA Section T

Left and Right Channel Bank Stations
            Interpolated
Station Elevation Data    num=     155
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
*********************************************************************************
 17994.5  1023.618007.86 1023.3718031.73 1023.3618062.84 1023.7418090.42 1023.67
18114.62  1023.318143.17  1023.7 18160.8  1023.818214.18  1022.818251.67  1022.9
18257.49    102518261.64 1023.0718284.65 1023.5818312.07  1023.318333.31 1022.84
18354.73 1023.1818358.68 1024.0518373.79 1023.8518375.79 1023.3518421.67 1021.75
18467.69 1020.1518469.69 1020.6518484.81 1020.8518527.95 1010.1718559.86 1009.83
18596.86 1010.5218612.43 1012.1818626.02 1012.3218667.62 1011.2718684.66 1012.92
 18695.4  1013.518704.94 1013.5318739.77  1014.318782.19  1014.318825.93 1013.26
18838.43  1012.818847.91 1012.8418885.02 1012.3418935.29  1011.818943.22 1011.83
18961.27 1011.0818972.93 1008.9618990.89 1008.29 19016.5 1008.26 19040.7  1007.6
 19060.3 1007.3519084.42 1007.4719120.66  1007.319138.38 1006.8519166.34 1007.06
19181.66  1008.919188.11 1010.08 19204.6 1011.7919214.81 1012.4619242.99 1013.46
19276.36 1013.9219313.19 1014.9519348.93 1015.0719366.19 1015.3619421.96  1015.2
19452.11 1015.5319470.77 1015.4519487.54 1015.7419545.02 1015.8319551.46  1015.7
19604.21 1016.0919619.85 1016.4619639.62 1016.2219680.93 1016.3419688.83  1015.4
19726.01  1015.119770.98  1014.319784.11 1013.8819799.23 1013.0619816.81 1012.79
 19826.9  1012.919842.07  1014.119865.81  1014.519881.86  1014.219894.64  1012.6
19902.68 1009.36 19909.6 1005.8819917.47    100319924.78  1000.919935.61  999.49
19959.92  998.7719979.97  998.7120012.27  999.3720018.31  999.73 20046.6  1000.5
20100.86 1003.2520137.31  1005.220171.78 1006.2820210.78 1008.29 20248.1 1009.71
20277.51  1010.320300.59 1010.5920331.57 1010.5920368.25  1011.1 20389.4 1011.17
20436.67 1010.5120445.36 1010.65 20453.1 1009.8820458.48 1009.5820465.68 1007.74
20482.62 1004.8220500.75 1003.7520533.42 1003.5820538.13 1003.1920548.27  1003.3
20555.54  1004.220568.26 1008.8920580.93 1007.7120590.06 1008.2120595.17 1009.21
   20613 1008.4420620.51 1009.0820630.22  1008.920636.21 1007.4320644.82 1006.55
20668.74 1005.8920698.78 1005.8120709.21 1007.6420714.18  1009.720724.42    1020
21260.32 1020.0121266.13 1023.0621274.82 1025.2421279.02 1023.9921283.14 1020.03
22038.34 1020.0722041.46 1022.0522045.28 1027.5922047.66  1028.122065.98  1025.6
22089.56  1025.622092.59  1026.522103.19  1025.322115.74 1024.9622132.19 1025.64
22134.15 1024.81 22141.7 1024.75 22147.3  1026.222154.11 1024.7822173.98 1024.35
22198.56 1024.0722234.19 1025.0822282.49 1025.6222311.63  1025.722357.18 1026.04
22371.46    102622384.45  1026.422397.87 1026.4722411.27 1026.9922454.87    1027

Manning's n Values        num=       7
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************************************************
 17994.5    .04318358.68    .01518484.81    .03218782.19    .032 20453.1    .032
20724.42    .03722047.66    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
     18484.8120724.42             509  512.43     494             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 17994.518472.03    1030       F
20721.8722454.87    1030       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)          * 1020.12  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    1.19  * Wt. n-Val.            *          *   0.032  *          *
* W.S. Elev (ft)          * 1018.93  * Reach Len. (ft)       *  509.00  *  512.43  *  494.00  *
* Crit W.S. (ft)          * 1015.86  * Flow Area (sq ft)     *          *18953.92  *          *
* E.G. Slope (ft/ft)      *0.001995  * Area (sq ft)          *          *18955.03  *          *
* Q Total (cfs)           *166000.00  * Flow (cfs)           *          *166000.00  *          *
* Top Width (ft)          * 2230.78  * Top Width (ft)       *          * 2230.78  *          *
* Vel Total (ft/s)        *    8.76  * Avg. Vel. (ft/s)      *          *    8.76  *          *
* Max Chl Dpth (ft)       *   20.22  * Hydr. Depth (ft)      *          *    8.50  *          *
* Conv. Total (cfs)       *3716312.0  * Conv. (cfs)          *          *3716312.0  *          *
* Length Wtd. (ft)        *   512.43  * Wetted Per. (ft)     *          * 2239.79  *          *
* Min Ch El (ft)          *   998.71  * Shear (lb/sq ft)     *          *    1.05  *          *
```

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                                                                                    Post-Project
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    9.23  *          *
* Frctn Loss (ft)        *    1.09  * Cum Volume (acre-ft)   * 6847.19  *23680.98  * 1767.78  *
* C & E Loss (ft)        *    0.01  * Cum SA (acres)         * 1892.21  * 2418.78  *  736.69  *
*********************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)         * 1020.16  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.17  * Wt. n-Val.            *          *   0.032  *          *
* W.S. Elev (ft)         * 1018.99  * Reach Len. (ft)       *  509.00  *  512.43  *  494.00  *
* Crit W.S. (ft)         * 1015.86  * Flow Area (sq ft)     *          *19085.91  *          *
* E.G. Slope (ft/ft)     *0.001951  * Area (sq ft)          *          *19087.11  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *          *166000.00  *          *
* Top Width (ft)         * 2231.08  * Top Width (ft)       *          * 2231.08  *          *
* Vel Total (ft/s)       *    8.70  * Avg. Vel. (ft/s)     *          *    8.70  *          *
* Max Chl Dpth (ft)      *   20.28  * Hydr. Depth (ft)     *          *    8.56  *          *
* Conv. Total (cfs)      *3758501.0  * Conv. (cfs)         *          *3758501.0  *          *
* Length Wtd. (ft)       *  512.43  * Wetted Per. (ft)     *          * 2240.04  *          *
* Min Ch El (ft)         *  998.71  * Shear (lb/sq ft)     *          *    1.04  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    9.02  *          *
* Frctn Loss (ft)        *    1.05  * Cum Volume (acre-ft)   * 1194.14  *24603.41  *  382.26  *
* C & E Loss (ft)        *    0.00  * Cum SA (acres)         *  200.93  * 2423.86  *   82.10  *
*********************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                RS: 208.29

INPUT
Description: 208.29

Left and Right Channel Bank Stations Interpolated
Station Elevation Data    num=     132
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 16935.4  1021.816972.48 1022.0516991.55  1022.517024.32  1021.717120.62  1023.2
17155.59 1022.6617192.85 1022.0617285.39  1021.817353.34 1022.0917365.71 1022.74
17425.62 1022.4517477.86  1022.117592.61 1022.28 17700.8 1021.9817799.59 1021.43
17903.68  1020.717956.41 1019.8118005.57 1017.7618011.18  1020.3 18035.1  1018.9
18042.76 1021.8618050.62 1019.9918090.91 1023.1618147.03 1024.4418210.46  1025.4
18249.72 1025.2318271.71 1024.8518313.27 1023.2818362.38    102318385.21 1023.51
18396.18 1025.41 18402.2 1027.3518445.01 1025.2918475.18 1024.4818489.79 1020.58
18505.03 1020.3818507.03 1019.8818553.45 1020.8218599.72 1019.8818601.72 1020.38
18616.97 1020.5818656.97 1009.6718708.42  1009.218737.24 1009.6518755.56 1010.47
18800.06 1011.63 18835.5 1012.2318875.15  1012.118949.06 1011.6419019.42  1011.1
19055.94 1009.1119108.87 1007.3719148.55  1006.719191.76  1006.919238.46  1008.2
19283.47 1009.8619311.57 1011.1519324.96 1014.4119351.55  1013.919395.76 1012.17
19433.43  1011.719500.33 1014.7619596.42 1015.6219629.34 1015.5719669.13 1015.41
19682.11 1013.2819693.86 1014.2919756.49 1012.9419768.98  1010.119798.49 1008.72
19819.74  1009.5 19836.3 1013.6119870.91 1013.9419876.64  1013.619889.61 1010.51
19904.18  1008.219928.74 1005.1419950.84 1004.2719997.62 1003.3220036.38    1003
20095.78 1002.8520117.53 1003.1820153.59 1004.19 20318.8  1010.120343.18 1010.71
20377.38  1010.320428.47 1010.2720469.42  1010.620509.53 1010.6320564.09 1010.13
20581.39 1009.3420605.08    101020617.03 1007.58 20645.5  1005.9 20716.8 1004.61
20731.17 1005.02 20758.6 1006.6920777.07  1006.720814.86 1005.9420852.55 1007.02
20869.68  1008.120883.72  1012.820899.05  1021.820909.13 1025.8820910.68 1020.05
21403.95 1020.0321404.24 1021.1221413.92 1024.5921416.52    102021705.57 1019.95
 21721.4 1021.3621744.23  1033.121778.65 1032.3921810.99 1036.2321866.31  1032.7
21906.79 1030.9121931.28 1030.1421987.27 1029.1522047.93  1027.422086.31 1026.79
22185.43  1026.322216.41 1025.2922240.41 1025.5822262.45  1026.722288.71 1027.25
22334.14  1026.322365.77  1026.3   22395 1026.7322437.63  1025.322484.18 1025.63
 22519.5 1025.0222563.78 1026.31

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************************************************
 16935.4    .025 17700.8    .04318489.79    .01518616.97    .03220909.13    .037

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      18616.9720909.13             577  525.37     560             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 16935.418582.96    1032       F
20899.0522563.78    1032       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         * 1019.02  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.25  * Wt. n-Val.            *          *   0.032  *          *
* W.S. Elev (ft)         * 1017.77  * Reach Len. (ft)       *  577.00  *  525.37  *  560.00  *
* Crit W.S. (ft)         * 1014.93  * Flow Area (sq ft)     *          *18505.57  *          *
* E.G. Slope (ft/ft)     *0.002276  * Area (sq ft)          *    0.00  *18505.57  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *          *166000.00  *          *
* Top Width (ft)         * 2265.26  * Top Width (ft)       *    0.33  * 2264.93  *          *
* Vel Total (ft/s)       *    8.97  * Avg. Vel. (ft/s)     *          *    8.97  *          *
* Max Chl Dpth (ft)      *   14.92  * Hydr. Depth (ft)     *          *    8.17  *          *
* Conv. Total (cfs)      *3479355.0  * Conv. (cfs)         *          *3479355.0  *          *
* Length Wtd. (ft)       *  525.37  * Wetted Per. (ft)     *          * 2271.31  *          *
* Min Ch El (ft)         * 1002.85  * Shear (lb/sq ft)     *          *    1.16  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   10.39  *          *
* Frctn Loss (ft)        *    1.11  * Cum Volume (acre-ft)   * 6847.19  *23460.64  * 1767.78  *
* C & E Loss (ft)        *    0.05  * Cum SA (acres)         * 1892.21  * 2392.34  *  736.69  *
*********************************************************************************************
```

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1019.10	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.21	Wt. n-Val.		0.032	
W.S. Elev (ft)	1017.89	Reach Len. (ft)	577.00	525.37	560.00
Crit W.S. (ft)	1014.93	Flow Area (sq ft)		18768.40	
E.G. Slope (ft/ft)	0.002173	Area (sq ft)		18768.40	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	2265.55	Top Width (ft)		2265.55	
Vel Total (ft/s)	8.84	Avg. Vel. (ft/s)		8.84	
Max Chl Dpth (ft)	15.04	Hydr. Depth (ft)		8.28	
Conv. Total (cfs)	3561403.0	Conv. (cfs)		3561403.0	
Length Wtd. (ft)	525.37	Wetted Per. (ft)		2271.98	
Min Ch El (ft)	1002.85	Shear (lb/sq ft)		1.12	
Alpha	1.00	Stream Power (lb/ft s)		9.91	
Frctn Loss (ft)	1.05	Cum Volume (acre-ft)	1194.14	24380.75	382.26
C & E Loss (ft)	0.06	Cum SA (acres)	200.93	2397.41	82.10

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 208.19

INPUT
Description: 208.19

Left and Right Channel Bank Stations Interpolated
Station Elevation Data num= 158

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16730.1	1022.91	6753.12	1023.55	16785.44	1023.6	16819.4	102316845.13		1023.28
16850.24	1021.41	6853.31	1023.42	16886.56	1021.63	16909.64	1019.79	16911.45	1017.37
16918.57	1019.13	16953.51	1019.68	16978.39	1019.47	17023.7	1020.17	17062.04	1020.06
17111.18	1020.64	17219.52	1020.61	17267.34	1020.05	17293.42	1020.71	7369.92	1021.12
17397.42	1020.62	17471.85	1021.04	17511.52	1020.41	7566.36	1020.41	7569.38	1020.93
17598.82	1020.41	7672.95	1020.71	7738.43	1019.59	17795.84	1019.41	7821.76	1019.88
17911.17	1019.45	18010.94	1019.9	18054.7	1019.14	18110.66	1019.45	18120.16	1019.83
18153.28	1019.45	18171.52	1019.79	18181.75	1024.37	18190.83	1026.11	8197.36	1025.06
18237.15	1025.34	18249.53	1026.31	8307.15	1024.79	18350.15	1024.86	18400.95	1024
18460.32	1022.53	18489.32	1022.72	18530.98	1023.72	18535.79	1025.71	8539.61	1023.66
18565	1023.66	18602.13	1022.37	18624.47	1022.64	18637.84	1019.54	18653.01	1019.34
18655.01	1018.84	18701.04	1019.78	18747.05	1018.84	18749.05	1019.34	18764.22	1019.54
18804.32	1008.78	18851.13	1008.32	18883.28	1008.79	18924.65	1010.71	8964.64	1011.03
18979.98	1010.41	19014.36	1012.25	19052.42	1010.81	9129.94	1010.23	19240.15	1011.59
19275.61	1011.4	19288.7	1010.04	19301.43	1007.48	19314.13	1006.8	19366.6	1005.7
19475.49	1004.56	19485.33	1003.81	9509.19	1005.01	19534.81	1015.38	19544.85	1016.49
19600.74	1017.41	9656.77	1015.25	19677.18	1016.12	19692.65	1012.86	19745.9	1011.45
19808.87	1011.21	9828.37	1010.54	19899.37	1011.11	9929.77	1010.41	9978.61	1005.3
19993.64	1001.52	0008.63	1001.01	20109.3	1001.21	20138.23	1002.42	20152.68	1003.85
20211.69	1004.92	0276.37	1004.82	0317.78	1005.72	0367.67	1007.91	20413.06	1008.79
20429.71	1009.49	20435.42	1008.25	20447.29	1008.55	20484.38	1009.39	20503.03	1008.94
20508.06	1005.99	20520.43	1003.81	20535.39	1002.81	20566.18	1003.62	0607.12	1002.9
20626.59	1004.92	0695.02	1008.51	20734.91	1010.22	0770.97	1011.13	20817.48	1011.23
20904.94	101020982.62		1008.72	1008.43	1010.12	1043.19	1009.23	21068.97	1009.53
21081.6	1011.64	21090.53	1011.32	21098.2	1008.55	21110.25	1008.29	21134.97	1009.53
21146.26	1012.81	21169.22	1013.83	21195.79	1011.59	21207.45	1009.12	21220.24	1009
21248	1010.29	21263.85	1012.95	21285.83	1013.22	21297.24	1017.48	21306.02	1022.62
21318.96	1022.42	21337.97	1020.02	22088.87	102022106.28		1024.94	22120	1019.31
22160.73	1020.18	22197.34	1023.52	22231.32	1023.93	22246.27	1023.25	22291.76	1023.6
22316.75	1023.23	22428.91	1023.22	2463.35	1022.63	22535.02	1022.57	22586.05	1023.3
22592.95	1026.67	22605.13	1029.52	22628.84	1029.26	22647.68	1032.3	22666.8	1032.3
22683.99	1034.73	22703.8	1034.19	22714.61	1034.83				

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16730.1	.025	18181.75	.043	18637.84	.015	18764.22	.032	20447.29	.032
21297.24	.037								

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
18764.2221297.24 537 505.13 617 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
16730.1	18695.75	1030	F
21306.02	22714.61	1030	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1017.86	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.07	Wt. n-Val.		0.032	
W.S. Elev (ft)	1016.78	Reach Len. (ft)	537.00	505.13	617.00
Crit W.S. (ft)	1013.70	Flow Area (sq ft)		19979.46	
E.G. Slope (ft/ft)	0.001975	Area (sq ft)		19979.46	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	2467.04	Top Width (ft)		2467.04	
Vel Total (ft/s)	8.31	Avg. Vel. (ft/s)		8.31	
Max Chl Dpth (ft)	15.77	Hydr. Depth (ft)		8.10	
Conv. Total (cfs)	3734871.0	Conv. (cfs)		3734871.0	
Length Wtd. (ft)	512.21	Wetted Per. (ft)		2476.06	
Min Ch El (ft)	1001.01	Shear (lb/sq ft)		1.00	
Alpha	1.00	Stream Power (lb/ft s)		8.27	
Frctn Loss (ft)	0.98	Cum Volume (acre-ft)	6847.19	23228.56	1767.78
C & E Loss (ft)	0.01	Cum SA (acres)	1892.21	2363.80	736.69

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1018.00	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.02	Wt. n-Val.		0.032	
W.S. Elev (ft)	1016.97	Reach Len. (ft)	537.00	505.13	617.00
Crit W.S. (ft)	1013.70	Flow Area (sq ft)		20442.17	
E.G. Slope (ft/ft)	0.001848	Area (sq ft)		20442.17	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	2484.58	Top Width (ft)		2484.58	
Vel Total (ft/s)	8.12	Avg. Vel. (ft/s)		8.12	
Max Chl Dpth (ft)	15.96	Hydr. Depth (ft)		8.23	
Conv. Total (cfs)	3861107.0	Conv. (cfs)		3861107.0	
Length Wtd. (ft)	512.53	Wetted Per. (ft)		2493.67	
Min Ch El (ft)	1001.01	Shear (lb/sq ft)		0.95	
Alpha	1.00	Stream Power (lb/ft s)		7.68	
Frctn Loss (ft)	0.89	Cum Volume (acre-ft)	1194.14	24144.29	382.26
C & E Loss (ft)	0.02	Cum SA (acres)	200.93	2368.77	82.10

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 208.10

INPUT
Description: 208.10

Left and Right Channel Bank Stations Interpolated
Station Elevation Data num= 131

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16849	1021.716914.49	1022.52 16925.9	1023.4316996.09	1020.8317006.05	1019.92				
17027.87	1020.3117098.78	1019.0717322.52	1019.0617694.41	1019.55 17793.4	1018.1				
17811.32	102317826.28	1036.6217856.27	1022.217868.24	1018.317961.78	1017.95				
17970.02	1021.5617992.67	1025.3618008.84	1023.9618047.58	1025.05 18099.5	1028.37				
18140.76	103018245.37	103018252.56	1026.418262.34	1029.718292.78	1049.38				
18302.82	1053.7 18317.1	1055.81 18333.4	1055.618356.26	1046.1618389.95	1023.6				
18399.27	1019.618416.54	1019.1718557.41	1019.618572.13	1026.7918608.43	1047.96				
18623.04	1051.2718634.23	1044.7318668.11	1020.9918732.88	1019.718754.42	1019.58				
18765.27	1018.6 18780.4	1018.4 18782.4	1017.918829.82	1018.83 18875.8	1017.9				
18877.8	1018.418892.93	1018.6 18945.9	1008.918956.06	1007.6619027.93	1008.33				
19043.05	1007.519068.13	1008.5919095.06	1007.8919182.71	1009.819229.38	1009.4				
19260.25	1008.0519310.05	1007.2119358.35	1007.2519407.38	100919467.85	1008.54				
19529	1006.2419563.13	1001.1819586.76	999.9119617.21	1000.6819649.86	1008.3				
19685.47	1010.4119707.28	1013.3919729.45	1010.2219757.65	1010.3 19778.4	1008.16				
19852.01	1007.4919894.95	1009.0419925.84	1011.1419965.18	101519989.66	1013.88				
20041.83	1014.7120048.67	1006.9220061.49	1001.920106.89	999.3420143.17	999.65				
20207.73	1002.3220285.89	100220401.54	1002.6220509.22	1004.29 20528.1	1003.74				
20583.67	1004.720623.44	1003.0820651.87	1000.820671.68	1001.4420688.98	1007.14				
20705.6	1015.4520809.23	1015.220856.97	1015.8320946.74	1014.8921019.47	1010.9				
21075.66	1009.9321150.61	1009.4 21204.6	1009.7321295.02	1011.2921520.61	1010.3				
21545.89	1011.8121615.11	1009.4421650.89	1011.7721687.56	1010.5421709.32	1023.6				
21722.41	1017.3221736.88	1017.5521745.37	1013.3821780.34	1012.5121796.93	1016.4				
21806.75	1022.3621824.91	1020.8821887.06	1021.421909.05	1024.0221919.75	1022.1				
21932.01	1024.09 21952.2	1020.02 22200.4	1020.0222216.67	1027.5122230.47	1022.72				
22230.5	1020.04 22568	1019.9822568.37	1022.26 22583.7	1026.622591.93	1021.78				
22647.09	1021.7422656.37	1025.1722670.28	1026.3922686.39	1022.3722716.17	1021.75				
22791.32	1021.66								

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16849	.02517826.28	.04318765.27	.01518892.93	.03220623.44	.032				
21709.32	.032								

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
18892.9320856.97 582 483.64 477 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
1684918796.92	1030	F	
21709.3222791.32	1030	F	

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1016.87	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.05	Wt. n-Val.		0.032	0.032
W.S. Elev (ft)	1015.82	Reach Len. (ft)	582.00	483.64	477.00
Crit W.S. (ft)	1012.76	Flow Area (sq ft)		16926.24	3830.67
E.G. Slope (ft/ft)	0.001845	Area (sq ft)		16926.24	3960.58
Q Total (cfs)	166000.00	Flow (cfs)		144989.30	21010.75
Top Width (ft)	2840.42	Top Width (ft)		1948.03	892.39
Vel Total (ft/s)	8.00	Avg. Vel. (ft/s)		8.57	5.48
Max Chl Dpth (ft)	16.48	Hydr. Depth (ft)		8.69	4.57
Conv. Total (cfs)	3864311.0	Conv. (cfs)		3375202.0	489108.7
Length Wtd. (ft)	483.23	Wetted Per. (ft)		1958.79	840.13
Min Ch El (ft)	999.34	Shear (lb/sq ft)		1.00	0.53
Alpha	1.06	Stream Power (lb/ft s)		8.53	2.88
Frctn Loss (ft)	0.98	Cum Volume (acre-ft)	6847.19	23014.58	1739.73
C & E Loss (ft)	0.03	Cum SA (acres)	1892.21	2338.21	730.37

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid,

water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1017.09	Element	Left OB	Channel	Right OB	
Vel Head (ft)	0.97	Wt. n-Val.		0.032	0.032	
W.S. Elev (ft)	1016.12	Reach Len. (ft)	582.00	483.64	477.00	
Crit W.S. (ft)	1012.76	Flow Area (sq ft)		17509.68	4081.93	
E.G. Slope (ft/ft)	0.001634	Area (sq ft)		17509.68	4081.93	
Q Total (cfs)	166000.00	Flow (cfs)		144052.00	21947.95	
Top Width (ft)	2790.37	Top Width (ft)		1950.49	839.88	
Vel Total (ft/s)	7.69	Avg. Vel. (ft/s)		8.23	5.38	
Max Chl Dpth (ft)	16.78	Hydr. Depth (ft)		8.98	4.86	
Conv. Total (cfs)	4107186.0	Conv. (cfs)		3564148.0	543038.0	
Length Wtd. (ft)	482.76	Wetted Per. (ft)		1961.28	841.75	
Min Ch El (ft)	999.34	Shear (lb/sq ft)		0.91	0.49	
Alpha	1.06	Stream Power (lb/ft s)		7.49	2.66	
Frctn Loss (ft)	0.85	Cum Volume (acre-ft)	1194.14	23924.24	353.35	
C & E Loss (ft)	0.03	Cum SA (acres)	200.93	2343.05	76.15	

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 207.99

INPUT
Description: 207.99

Left and Right Channel Bank Stations Interpolated
Station Elevation Data num= 149

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16875.4	1020.416977.53	1020.317079.65	1019.7917154.55	1020.117179.37	1019.8				
17210.01	1023.417244.75	1026.617267.55	1025.6317306.41	1027.617349.36	1028.51				
17355.92	1026.917369.61	1019.3917391.72	1019.2917409.24	1025.1117426.47	1027.04				
17451.06	1026.417464.15	1023.9517469.46	1024.8217487.85	1023.717495.78	1021.77				
17512.14	1020.717590.41	1021.2717781.42	1020.717841.75	1019.2617866.96	1019.66				
17883.94	1023.117895.04	1022.0517908.22	1018.7417922.06	1018.6417964.38	1020.31				
18006.33	1021.4918046.72	1021.918082.14	1021.518110.76	1020.4818160.74	1020.46				
18172.03	1025.1418182.63	1024.0318194.68	1019.8918254.92	102018344.22	1019.8				
18361.2	1020.518393.48	1020.5618451.15	1019.3118513.04	1017.5418553.55	1017.97				
18671.62	1017.918689.62	1017.418726.09	1017.9818764.94	1017.3918792.07	1017.57				
18810.24	1017.3218825.27	1017.1218827.27	1016.6218872.93	1017.818918.59	1016.86				
18920.59	1017.3618935.62	1017.5618939.46	1016.7119029.29	1016.719035.76	1018.43				
19044.22	1016.3219067.34	1015.719077.06	1016.63 19084.9	1020 19104.1	1014.8				
19128.89	1010.8919148.44	1009.619155.94	1010.3119184.36	1010.1919264.79	1007.18				
19286.08	1005.219355.36	1004.5819391.83	1006.2319415.23	1004.719426.94	1005.04				
19478.75	1002.6119527.05	1001.119569.99	1001.7919584.17	1001.3719607.99	1003.74				
19654.67	1005.3519679.49	1006.97 19726	1008.2419729.58	1006.519756.21	1006.66				
19785.55	1007.7719812.51	1009.9919843.15	1010.4219882.31	1008.1119905.55	1007.97				
19946.07	1008.720009.37	1009.2920064.03	1010.3220073.82	1009.9320140.66	1009.69				
20197.34	1005.920233.66	1004.97 20259.6	100120291.07	999.9520342.68	1000.3				
20370.63	1002.29 20412.8	1001.6420462.43	998.420486.63	997.99 20545.4	997.85				
20589.68	996.9820650.71	1001.2920665.28	1004.9920685.76	1014.37 20716.6	1013.94				
20733.22	1012.8220743.49	1009.820787.79	1013.4820857.42	1014.4320933.98	1014.8				
20990.89	101521043.51	1014.821055.56	1015.2621090.28	1014.4821181.08	1014.2				
21237.07	1012.69 21253.4	1008.7221328.64	1004.8221423.21	1006.3621502.67	1010.84				
21536.23	1011.5721568.91	1011.23 21597.2	1011.6221641.23	1011.5121715.89	1010.6				
21737.64	1009.1121786.71	1008.521795.52	1009.1921820.53	1008.7521849.91	1014.3				
21861.63	1015.621897.57	1028.3621904.18	1023.2421912.53	1022.8321936.68	1017.41				
21986.37	1017.12 22007.9	1025.2 22025.2	1023.8522120.03	1018.722137.71	1020.74				
22149.54	1026.4322164.63	1022.3922225.39	1022.5322268.37	1021.66					

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16875.4	.04318810.24	.01518935.62	.03220933.98	.032			

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19184.3620685.76 483 482.81 544 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
16875.4	19084.9	1025	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1015.86	Element	Left OB	Channel	Right OB	
Vel Head (ft)	1.40	Wt. n-Val.	0.032	0.032	0.032	
W.S. Elev (ft)	1014.47	Reach Len. (ft)	483.00	482.81	544.00	
Crit W.S. (ft)	1012.00	Flow Area (sq ft)	276.72	14534.63	3565.34	
E.G. Slope (ft/ft)	0.002225	Area (sq ft)	276.72	14534.63	3565.34	
Q Total (cfs)	166000.00	Flow (cfs)	1404.00	144333.30	20262.72	
Top Width (ft)	2515.31	Top Width (ft)	78.14	1501.40	935.77	
Vel Total (ft/s)	9.03	Avg. Vel. (ft/s)	5.07	9.93	5.68	
Max Chl Dpth (ft)	17.49	Hydr. Depth (ft)	3.54	9.68	3.81	
Conv. Total (cfs)	3518848.0	Conv. (cfs)	29761.9	3059559.0	429526.8	
Length Wtd. (ft)	493.74	Wetted Per. (ft)	78.50	1505.88	937.77	
Min Ch El (ft)	996.98	Shear (lb/sq ft)	0.49	1.34	0.53	
Alpha	1.10	Stream Power (lb/ft s)	2.48	13.32	3.00	
Frctn Loss (ft)	0.96	Cum Volume (acre-ft)	6845.34	22839.93	1698.52	
C & E Loss (ft)	0.13	Cum SA (acres)	1891.68	2319.06	720.36	

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

				Post-Project		
* E.G. Elev (ft)	* 1016.21	* Element	*	Left OB *	Channel *	Right OB *
* Vel Head (ft)	* 1.26	* Wt. n-Val.	*	* 0.032 *	0.032 *	
* W.S. Elev (ft)	* 1014.96	* Reach Len. (ft)	*	483.00 *	482.81 *	544.00 *
* Crit W.S. (ft)	* 1011.99	* Flow Area (sq ft)	*	*	15268.19 *	4059.89 *
* E.G. Slope (ft/ft)	*0.001889	* Area (sq ft)	*	*	15268.19 *	4059.89 *
* Q Total (cfs)	*166000.00	* Flow (cfs)	*	*	144043.00 *	21957.02 *
* Top Width (ft)	* 2625.07	* Top Width (ft)	*	*	1501.40 *	1123.67 *
* Vel Total (ft/s)	* 8.59	* Avg. Vel. (ft/s)	*	*	9.43 *	5.41 *
* Max Chl Dpth (ft)	* 17.97	* Hydr. Depth (ft)	*	*	10.17 *	3.61 *
* Conv. Total (cfs)	*3819440.0	* Conv. (cfs)	*	*	3314238.0 *	505201.8 *
* Length Wtd. (ft)	* 494.45	* Wetted Per. (ft)	*	*	1510.64 *	1125.71 *
* Min Ch El (ft)	* 996.98	* Shear (lb/sq ft)	*	*	1.19 *	0.43 *
* Alpha	* 1.10	* Stream Power (lb/ft s)	*	*	11.24 *	2.30 *
* Frctn Loss (ft)	* 0.77	* Cum Volume (acre-ft)	* 1194.14	*	23742.28 *	308.77 *
* C & E Loss (ft)	* 0.13	* Cum SA (acres)	* 200.93	*	2323.89 *	65.40 *

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 207.90

INPUT
Description: 207.90 - FEMA Section S

Right Channel Bank Station Interpolated
Station Elevation Data num= 144

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16668.2	1021.11	16697.07	1021.22	16715.13	1026.91	16727.84	1033.62	16745.17	1028.8
16753.49	1031.84	16764.39	1028.79	16810.7	1028.83	16818.7	1032.69	16841.3	1032.95
16853.11	1030.01	16873.1	1020.47	16891.99	1017.12	16943.6	1015.97	17050.54	1015.79
17101.54	1016.61	17263.36	1016.93	17270.78	1021.49	17278.85	1016.11	17302.32	1032.54
17320.25	1032.61	17332.89	1029.11	17338.19	1031.53	17355.36	1019.44	17363.77	1016.13
17467.61	1016.35	17507.5	1017.26	17575.75	1017.93	17637.97	1017.37	17736.67	1015.57
17817.34	1016.41	17833.13	1018.85	17839.54	1023.42	17846.61	1020.02	17858.61	1020.63
17873.28	1025.28	17882.53	1020.86	17935.87	1020.24	17980.62	1018.46	17993.47	1018.74
18011.06	1030.36	18027.82	1029.17	18046.04	1016.81	18080.62	101618086.75		1019.05
18101.91	1021.05	18111.27	1016.11	18119.63	1023.07	18136.92	1022.93	18141.3	1020.1
18162.57	1020.27	18173.65	1016.11	18212.38	1016.04	18265.52	1017.63	18323.62	1017.25
18359.43	1018.55	18367.46	1016.81	18464.77	1017.11	18591.55	1016.56	18660.05	1016.62
18702.95	1017.45	18780.18	101718803.01		1017.12	18846.22	1016.71	18861.25	1016.5
18863.25	101618908.91		1016.94	18954.57	101618956.57		1016.5	18971.6	1016.7
18992.53	1016.51	19031.56	1016.21	19060.06	101619067.42		1015.88	19103.92	1016.45
19119.3	1009.41	19128.18	1007.51	9182.35	1007.48	19212.17	1010.91	19293.27	1010.38
19393.17	1010.99	19421.17	1007.97	19428.14	1005.99	19480.51	1004.81	9526.08	1005.76
19582.83	1004.26	19635.98	1001.9	19655.3	1001.73	19680.9	998.16	19752.44	1000.19
19780	1000.46	19816.99	998.66	19843.97	1004.07	19874.71	1006.34	19914.15	1007.17
19969.33	1007.14	20056.68	1008.48	20200.39	1008.66	20232.26	1007.55	20288.85	1004.31
20377.34	1005.26	20417.85	1003.42	20427.57	1000.11	20504.31	1000.82	0558.52	999.21
20604.85	993.19	20644.76	991.51	20687.55	994.55	20711.17	1000.06	20732.09	1012.78
20763.47	1010.01	20800.67	1011.87	20847.15	1012.02	20898.47	1010.45	20949.89	1010.88
20990.46	1006.83	21018.72	1007.49	21057.36	101321092.93		1013.78	21176.86	1014
21245.63	1012.79	21264.52	1005.93	21280.37	1007.65	21314.43	1009.14	21399.59	1011.1
21431.25	1011.36	21491.56	1010.56	21568.39	1006.16	21663.65	1007.22	21700.62	1003.4
21731.26	100521804.84		1005.97	21831.2	1003.66	21868.05	1003.76	21890.34	1007.1
21922.07	1006.68	21935.02	1009.19	21998.72	1009.75	22038.53	1008.47	22049.04	1006.8
22117.71	1007.29	22129.13	1009.95	22139.94	1015.35	22157.75	1019.77		

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16668.2	.043	18846.22	.015	18971.6	.032	21431.25	.032

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19103.9 220732.09 539 522.44 631 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
16668.2	19060.06	1020	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 1014.78	* Element	*	Left OB *	Channel *	Right OB *
* Vel Head (ft)	* 0.98	* Wt. n-Val.	*	*	0.032 *	0.032 *
* W.S. Elev (ft)	* 1013.80	* Reach Len. (ft)	*	539.00 *	522.44 *	631.00 *
* Crit W.S. (ft)	* 1010.85	* Flow Area (sq ft)	*	*	15028.59 *	6544.07 *
* E.G. Slope (ft/ft)	*0.001713	* Area (sq ft)	*	*	15028.59 *	6544.07 *
* Q Total (cfs)	*166000.00	* Flow (cfs)	*	*	126963.50 *	39036.46 *
* Top Width (ft)	* 2938.81	* Top Width (ft)	*	*	1622.39 *	1316.42 *
* Vel Total (ft/s)	* 7.69	* Avg. Vel. (ft/s)	*	*	8.45 *	5.97 *
* Max Chl Dpth (ft)	* 22.29	* Hydr. Depth (ft)	*	*	9.26 *	4.97 *
* Conv. Total (cfs)	*4010707.0	* Conv. (cfs)	*	*	3067551.0 *	943155.3 *
* Length Wtd. (ft)	* 543.37	* Wetted Per. (ft)	*	*	1630.71 *	1320.94 *
* Min Ch El (ft)	* 991.51	* Shear (lb/sq ft)	*	*	0.99 *	0.53 *
* Alpha	* 1.06	* Stream Power (lb/ft s)	*	*	8.33 *	3.16 *
* Frctn Loss (ft)	* 1.00	* Cum Volume (acre-ft)	* 6843.80	*	22676.09 *	1635.40 *
* C & E Loss (ft)	* 0.05	* Cum SA (acres)	* 1891.25	*	2301.74 *	706.30 *

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 1015.31	* Element	*	Left OB *	Channel *	Right OB *
* Vel Head (ft)	* 0.81	* Wt. n-Val.	*	*	0.032 *	0.032 *

				Post-Project		
* W.S. Elev (ft)	* 1014.50	* Reach Len. (ft)	* 539.00	* 522.44	* 631.00	*
* Crit W.S. (ft)	* 1010.85	* Flow Area (sq ft)	*	*16167.59	* 7519.19	*
* E.G. Slope (ft/ft)	*0.001299	* Area (sq ft)	*	*16167.59	* 7519.19	*
* Q Total (cfs)	*166000.00	* Flow (cfs)	*	*124775.10	*41224.88	*
* Top Width (ft)	* 3027.09	* Top Width (ft)	*	* 1623.92	* 1403.17	*
* Vel Total (ft/s)	* 7.01	* Avg. Vel. (ft/s)	*	* 7.72	* 5.48	*
* Max Chl Dpth (ft)	* 22.99	* Hydr. Depth (ft)	*	* 9.96	* 5.36	*
* Conv. Total (cfs)	*4606292.0	* Conv. (cfs)	*	*3462353.0	*1143939.0	*
* Length Wtd. (ft)	* 544.66	* Wetted Per. (ft)	*	* 1632.39	* 1408.99	*
* Min Ch El (ft)	* 991.51	* Shear (lb/sq ft)	*	* 0.80	* 0.43	*
* Alpha	* 1.06	* Stream Power (lb/ft s)	*	* 6.20	* 2.37	*
* Frctn Loss (ft)	* 0.83	* Cum Volume (acre-ft)	* 1194.14	*23568.06	* 236.47	*
* C & E Loss (ft)	* 0.07	* Cum SA (acres)	* 200.93	* 2306.57	* 49.62	*

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 207.80

INPUT
Description: 207.80

Right Channel Bank Station Interpolated
Station Elevation Data num= 113

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16847	1020.81	16881.43	1020.88	16889.14	1014.06	17423.25	1014.02	17437.36	1019.81
17449.69	1016.35	17514.99	1016.18	17522.38	1019.86	17533.21	101418	745.96	1014
18747.14	1015.23	18785.25	1015.47	18803.65	1019.41	18812.8	1019.13	18818.08	1016.15
18830.38	1016.33	18839.64	1018.47	18851.42	1015.85	18863.81	1015.58	18875.55	1015.83
18883.83	1015.77	18898.87	1015.57	18900.87	1015.07	18946.56	1016.01	18992.25	1015.07
18994.25	1015.57	19009.29	1015.77	19013.87	1014.74	19054.94	1014.93	19084.72	1014.4
19171.92	1014.71	19211.05	1014.27	19263.17	1014.61	9283.23	1009.81	9298.12	1008.7
19345.79	1009.77	19361.86	1008.84	19406.08	1009.24	19437.98	1008.25	19477.47	1008.2
19503.55	1007.08	19568.66	1006.27	19658.16	1006.21	19675.69	1005.82	19698.72	996.33
19730.48	998.08	19733.28	995.91	9773.43	994.59	19855.8	998.48	19877.01	1000.17
19883.54	1002.11	9925.83	1003.24	19975.91	1003.71	9997.48	1004.42	0076.29	1004.97
20174.45	1003.87	20255.28	1003.61	20282.72	1003.08	20338.27	999.85	20406.22	998.64
20460.89	998.77	20510.16	997.26	20581.42	994.46	20603.25	994.47	20632.96	992.54
20648.95	992.47	20666.06	995.24	20681.5	1001.12	0693.48	1010.52	0716.41	1012.08
20800.22	1012.52	0841.99	1013.54	20884.1	1013.82	20920.76	1014.82	0945.15	1011.31
20989.05	1010.39	21010.79	1010.87	21036.94	1010.27	21077.32	1010.23	21109.98	1010.87
21133	1012.31	21160.79	1011.56	21177.26	1008.91	21246.33	1008.17	21282.66	1007.08
21290.52	1006.11	21329.18	1005.14	21342.09	1005.71	21352.76	1008.72	1369.79	1010.16
21414.07	1008.82	1425.78	1009.72	1474.56	1010.29	21505.1	1009.45	21545.57	1009.56
21554.18	1007.92	1571.78	1007.68	21615.22	1008.91	21647.74	1007.98	21719.77	1003.9
21783.84	1002.69	21812.84	999.05	21842.79	998.53	21853.07	1004.22	1864.13	1008.1
21873.45	1014.52	21884.47	1018.22	1905.86	1018.69	21919.82	1017.75	21925.45	1019.1
21949.45	1017.73	21993.49	1017.89	22027.6	1014.4				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16847	.04	18883.83	.01	519009.29	.03	219437.98	.03	220920.76	.032

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19658.1620716.41 562 495.85 534 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
1684719258.08		1020.02	F
21887.79	22027.6	1020	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 1013.72	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 1.52	* Wt. n-Val.	* 0.032	* 0.032	* 0.032 *
* W.S. Elev (ft)	* 1012.20	* Reach Len. (ft)	* 562.00	* 495.85	* 534.00 *
* Crit W.S. (ft)	* 1009.50	* Flow Area (sq ft)	* 1661.32	*12457.74	* 4012.60 *
* E.G. Slope (ft/ft)	*0.001994	* Area (sq ft)	* 1661.32	*12457.74	* 4012.60 *
* Q Total (cfs)	*166000.00	* Flow (cfs)	* 9487.78	*132996.90	*23515.29 *
* Top Width (ft)	* 2391.44	* Top Width (ft)	* 384.94	* 1058.25	* 948.24 *
* Vel Total (ft/s)	* 9.16	* Avg. Vel. (ft/s)	* 5.71	* 10.68	* 5.86 *
* Max Chl Dpth (ft)	* 19.73	* Hydr. Depth (ft)	* 4.32	* 11.77	* 4.23 *
* Conv. Total (cfs)	*3717606.0	* Conv. (cfs)	*212480.8	*2978495.0	*526630.1 *
* Length Wtd. (ft)	* 503.56	* Wetted Per. (ft)	* 385.35	* 1066.28	* 953.20 *
* Min Ch El (ft)	* 992.47	* Shear (lb/sq ft)	* 0.54	* 1.45	* 0.52 *
* Alpha	* 1.17	* Stream Power (lb/ft s)	* 3.06	* 15.53	* 3.07 *
* Frctn Loss (ft)	* 1.05	* Cum Volume (acre-ft)	* 6833.52	*22511.26	* 1558.94 *
* C & E Loss (ft)	* 0.03	* Cum SA (acres)	* 1888.87	* 2285.67	* 689.90 *

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 1014.40	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 1.54	* Wt. n-Val.	*	* 0.032	* 0.032 *
* W.S. Elev (ft)	* 1012.87	* Reach Len. (ft)	* 562.00	* 495.85	* 534.00 *
* Crit W.S. (ft)	* 1009.36	* Flow Area (sq ft)	*	*13165.52	* 4686.42 *
* E.G. Slope (ft/ft)	*0.001834	* Area (sq ft)	*	*13165.52	* 4686.42 *
* Q Total (cfs)	*166000.00	* Flow (cfs)	*	*139267.70	*26732.33 *
* Top Width (ft)	* 2093.48	* Top Width (ft)	*	* 1058.25	* 1035.23 *
* Vel Total (ft/s)	* 9.30	* Avg. Vel. (ft/s)	*	* 10.58	* 5.70 *
* Max Chl Dpth (ft)	* 20.39	* Hydr. Depth (ft)	*	* 12.44	* 4.53 *
* Conv. Total (cfs)	*3876604.0	* Conv. (cfs)	*	*3252323.0	*624281.0 *

				Post-Project		
* Length Wtd. (ft)	* 500.83	* Wetted Per. (ft)	*	* 1072.93	* 1040.45	*
* Min Ch El (ft)	* 992.47	* Shear (lb/sq ft)	*	* 1.40	* 0.52	*
* Alpha	* 1.15	* Stream Power (lb/ft s)	*	* 14.86	* 2.94	*
* Frctn Loss (ft)	* 1.00	* Cum Volume (acre-ft)	* 1194.14	*23392.16	* 148.07	*
* C & E Loss (ft)	* 0.05	* Cum SA (acres)	* 200.93	* 2290.48	* 31.96	*

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 207.71

INPUT
Description: 207.71

Right Channel Bank Station Interpolated
Station Elevation Data num= 111

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16765.5	1018.816864.05	1018.516883.96	1018.83 16946.6	1018.2517019.42	1018.3				
17136.18	1017.2 17170.8	1017.1517303.76	1015.8717335.63	1014.0917372.94	1013.88				
17409.16	1014.4917422.74	1016.8817433.43	1013.7717448.63	1013.2317483.11	1012.47				
17506.89	1012.81 17513.1	1013.66 18774.7	1013.2118809.24	1013.4118831.09	1014.19				
18843.56	1016.8418853.86	1013.2118868.79	1014.4318872.21	1013.4318903.56	1014.3				
18914.58	1013.8418918.88	1014.8818933.92	1014.6818935.92	1014.1818981.62	1015.12				
19027.32	1014.1819029.32	1014.6819044.36	1014.8819051.83	1013.0419085.22	1013.8				
19094.95	1013.1319248.09	1012.619285.22	1013.2519305.86	1013.1519314.35	1013.7				
19368.82	1012.7819413.68	1010.6419464.11	1012.0319523.67	1010.9519527.65	1011.52				
19551.29	1010.4419572.96	101119597.58	1008.5619605.18	1007.0219627.97	1005.85				
19657.47	994.0619666.38	992.7919688.57	995.0419715.06	995.3319759.55	994.34				
19793.67	992.5119803.39	996.1319830.72	1000.6919855.42	1002.7619881.16	1003.1				
19938.64	1001.7819969.09	1000.2420003.96	1000.7120050.72	1000.4320115.93	999.08				
20215.92	998.3420303.55	995.6120375.22	994.7920428.32	995.2420454.42	995.07				
20512.14	995.9920522.85	996.96 20533.3	999.6420547.49	1008.39 20648.7	1006.17				
20687.38	1005.920713.47	1004.6720731.93	1005.320741.19	1009.7320746.73	1010.35				
20772.5	1010.2820808.32	1011.220830.19	1010.9620873.06	1009.2920906.05	1010.71				
20965.5	1010.5521012.29	1010.1121072.81	1007.621108.59	1006.9921119.39	1007.8				
21160.93	1007.7421204.29	1007.1621242.82	1004.9121266.21	1005.2121275.47	1004.3				
21333.41	1003.3121362.56	1004.221374.32	1005.621395.86	1006.5621424.84	1006.46				
21486.44	1004.2221508.72	1002.7 21543.4	1002.42 21570.4	1001.6321638.89	1001.96				
21653.18	1004.721664.01	1003.7221715.77	101421757.66	1015.821817.54	1016.31				
21829.8	1017.09								

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16765.5	.025	18774.7	.03218918.88	.01519044.36		.03219572.96		.032	
20808.32	.032								

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
19527.6520547.49		493 488.78	530	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
16765.519317.77	1018.01		F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 1012.64	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 1.81	* Wt. n-Val.	* 0.032	* 0.032	* 0.032 *
* W.S. Elev (ft)	* 1010.84	* Reach Len. (ft)	* 493.00	* 488.78	* 530.00 *
* Crit W.S. (ft)	* 1008.26	* Flow Area (sq ft)	* 1.11	*12064.14	* 4747.70 *
* E.G. Slope (ft/ft)	*0.002165	* Area (sq ft)	* 1.11	*12064.14	* 4747.70 *
* Q Total (cfs)	*166000.00	* Flow (cfs)	* 0.51	*138904.90	*27094.59 *
* Top Width (ft)	* 2121.42	* Top Width (ft)	* 11.28	* 996.94	* 1113.20 *
* Vel Total (ft/s)	* 9.87	* Avg. Vel. (ft/s)	* 0.46	* 11.51	* 5.71 *
* Max Chl Dpth (ft)	* 18.33	* Hydr. Depth (ft)	* 0.10	* 12.10	* 4.26 *
* Conv. Total (cfs)	*3567418.0	* Conv. (cfs)	* 11.0	*2985131.0	*582275.4 *
* Length Wtd. (ft)	* 497.23	* Wetted Per. (ft)	* 11.29	* 1003.90	* 1115.81 *
* Min Ch El (ft)	* 992.51	* Shear (lb/sq ft)	* 0.01	* 1.62	* 0.58 *
* Alpha	* 1.19	* Stream Power (lb/ft s)	* 0.01	* 18.70	* 3.28 *
* Frctn Loss (ft)	* 0.92	* Cum Volume (acre-ft)	* 6822.80	*22371.69	* 1505.24 *
* C & E Loss (ft)	* 0.06	* Cum SA (acres)	* 1886.31	* 2273.97	* 677.26 *

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 1013.35	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 2.01	* Wt. n-Val.	*	* 0.032	* 0.032 *
* W.S. Elev (ft)	* 1011.34	* Reach Len. (ft)	* 493.00	* 488.78	* 530.00 *
* Crit W.S. (ft)	* 1008.53	* Flow Area (sq ft)	*	*12568.62	* 3224.43 *
* E.G. Slope (ft/ft)	*0.002198	* Area (sq ft)	*	*12568.62	* 3224.43 *
* Q Total (cfs)	*166000.00	* Flow (cfs)	*	*149360.50	*16639.51 *
* Top Width (ft)	* 1893.18	* Top Width (ft)	*	* 1015.83	* 877.35 *
* Vel Total (ft/s)	* 10.51	* Avg. Vel. (ft/s)	*	* 11.88	* 5.16 *
* Max Chl Dpth (ft)	* 18.83	* Hydr. Depth (ft)	*	* 12.37	* 3.68 *
* Conv. Total (cfs)	*3540702.0	* Conv. (cfs)	*	*3185789.0	*354913.0 *
* Length Wtd. (ft)	* 493.98	* Wetted Per. (ft)	*	* 1022.82	* 883.74 *
* Min Ch El (ft)	* 992.51	* Shear (lb/sq ft)	*	* 1.69	* 0.50 *
* Alpha	* 1.17	* Stream Power (lb/ft s)	*	* 20.04	* 2.58 *
* Frctn Loss (ft)	* 1.05	* Cum Volume (acre-ft)	* 1194.14	*23245.69	* 99.58 *
* C & E Loss (ft)	* 0.02	* Cum SA (acres)	* 200.93	* 2278.68	* 20.24 *

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 207.62

INPUT
Description: 207.62

Right Channel Bank Station Interpolated
Station Elevation Data num= 102

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16509	1017.41	16645.43	1017.21	16919.74	1016.51	17013.42	1016.69	17027.9	1017.45
17034.42	1016.41	17053.64	1016.56	17076.88	1013.98	17126.62	1012.81	17186.46	1012.21
18763.02	1012.23	18778.97	1015.47	18793.91	1011.47	18833.77	1010.93	18943.03	1011.57
18953.35	1013.97	18968.37	1013.77	18970.37	1013.27	19016.48	1014.24	19062.69	1013.27
19064.69	1013.77	19079.75	1013.97	19089.94	1011.55	19129.43	1011.5	19154.7	1010.91
19196.96	1009.91	9235.08	1009.81	9251.28	1010.83	19302.98	1011.51	19321.01	1010.95
19350.49	1012.41	9384.05	1010.28	19428.49	1012.44	19454.54	1011.42	19474.75	1012.3
19484.7	1011.14	19499.5	1012.22	19519.63	1010.83	19532.75	1005.05	19547.04	1005.84
19555.44	1004.68	19564.36	1006.11	9577.92	1010.91	9585.31	1009.88	19611.56	1002.61
19642	996.43	19669.61	993.68	19693.6	992.11	9750.51	993.08	19768.07	995.02
19790.48	996.11	19803.19	998.03	19812.49	997.61	9849.07	999.02	19907.7	998.62
20004.83	995.78	20047.36	993.69	20089.64	990.98	20168.2	990.12	20182.51	990.48
20197.59	992.77	20247.65	994.57	20301.38	994.96	20330.75	997.22	20342.9	1000.78
20350.67	1006.12	20375.47	1006.22	20436.16	1005.62	20488.63	1004.22	20513.76	1004.8
20525.92	1010.31	20543.71	1010.63	20602.97	1010.13	20636.54	100920	672.41	1007.05
20682.77	1004.82	20708.62	100420	776.14	100320	790.62	1004.92	20843.22	1005.38
20847.96	1004.39	20874.88	1004.36	20880.15	1003.52	20902.51	1005	20923.7	1003.21
20972.78	1002.28	21067.88	1002.34	21078.21	1001.87	21154.43	1001.57	21159.77	1002.6
21224.84	1001.79	21269.33	1001.92	21347.54	1003.13	21393	1003.33	21397.93	1003.97
21430.66	1003.72	21461.46	1005.68	21482.81	1017.62	21529.57	1016.62	1545.67	1016.95
21681.55	1017.23	21786.85	1016.58						

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16509	.025	17186.46	.043	18778.97	.032	18953.35	.015	19079.75	.032
19577.92	.032	20843.22	.032						

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19577.9 220350.67 493 471.11 510 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
16509	19113.11	1017.59	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1011.65	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.59	Wt. n-Val.	0.032	0.032	0.032
W.S. Elev (ft)	1010.06	Reach Len. (ft)	493.00	471.11	510.00
Crit W.S. (ft)	1007.03	Flow Area (sq ft)	208.08	11200.79	6381.37
E.G. Slope (ft/ft)	0.001612	Area (sq ft)	208.08	11200.79	6381.37
Q Total (cfs)	166000.00	Flow (cfs)	866.68	124268.40	40864.95
Top Width (ft)	1909.13	Top Width (ft)	103.35	766.70	1039.09
Vel Total (ft/s)	9.33	Avg. Vel. (ft/s)	4.17	11.09	6.40
Max Chl Dpth (ft)	19.94	Hydr. Depth (ft)	2.01	14.61	6.14
Conv. Total (cfs)	4134863.0	Conv. (cfs)	21587.9	3095377.0	1017897.0
Length Wtd. (ft)	475.96	Wetted Per. (ft)	105.31	771.47	1042.39
Min Ch El (ft)	990.12	Shear (lb/sq ft)	0.20	1.46	0.62
Alpha	1.18	Stream Power (lb/ft s)	0.83	16.21	3.94
Frctn Loss (ft)	0.77	Cum Volume (acre-ft)	6821.62	22241.17	1437.54
C & E Loss (ft)	0.07	Cum SA (acres)	1885.66	2264.08	664.17

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1012.29	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.17	Wt. n-Val.		0.032	0.032
W.S. Elev (ft)	1010.12	Reach Len. (ft)	493.00	471.11	510.00
Crit W.S. (ft)	1007.20	Flow Area (sq ft)		11242.12	3769.11
E.G. Slope (ft/ft)	0.002044	Area (sq ft)		11242.12	3769.11
Q Total (cfs)	166000.00	Flow (cfs)		140760.50	25239.49
Top Width (ft)	1444.32	Top Width (ft)		767.09	677.24
Vel Total (ft/s)	11.06	Avg. Vel. (ft/s)		12.52	6.70
Max Chl Dpth (ft)	20.00	Hydr. Depth (ft)		14.66	5.57
Conv. Total (cfs)	3671629.0	Conv. (cfs)		3113376.0	558253.3
Length Wtd. (ft)	474.07	Wetted Per. (ft)		771.86	687.55
Min Ch El (ft)	990.12	Shear (lb/sq ft)		1.86	0.70
Alpha	1.14	Stream Power (lb/ft s)		23.27	4.68
Frctn Loss (ft)	0.80	Cum Volume (acre-ft)	1194.14	23112.11	57.03
C & E Loss (ft)	0.28	Cum SA (acres)	200.93	2268.68	10.78

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 207.49

```
INPUT
Description: 207.49 - FEMA Section R
Station Elevation Data    num=     140
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
*********************************************************************************
 16428.7  1015.8 16495.7 1015.9716562.86 1015.7616564.59 1016.2616598.27 1015.57
16649.77 1014.8716697.75  1015.1 16736.1 1014.9216785.22 1015.1916790.29 1014.82
16831.41  1014.816991.24     101417150.66 1013.5817195.01 1013.2617294.72 1012.89
17334.41 1013.0117462.54 1013.0117546.67 1012.7517562.88  1012.917614.19  1012.3
17650.74 1012.8817736.69 1012.5217773.31 1012.7717836.83 1013.8617929.25 1014.08
17986.02  1013.117990.65 1013.5218016.47 1013.3718049.96  1013.718127.06 1013.11
18166.95 1013.26 18225.6  1013.118282.06 1013.2418307.52 1010.9218331.41 1010.93
18355.11  1011.818412.86 1011.7618437.92 1012.22 18500.6 1012.0318512.42 1012.32
18580.58 1011.7618667.35  1012.318723.55 1012.2218776.25 1011.8618824.39  1011.2
 18908.1  1010.818952.92 1010.5518981.19 1017.1618993.87 1016.9618995.87 1016.46
19051.81  1017.619102.46 1017.6419104.46 1018.1419119.48 1018.3419162.06 1008.42
19452.06 1007.6419475.46  995.95 19490.7   986.619495.57  985.0919506.62  984.35
19525.63  984.6819542.24    985.619551.29  988.0219625.61  990.8219661.41  989.57
19674.45  987.0619684.82  986.7919735.07  987.2919753.75  993.2119767.32  994.35
19804.67  995.2619824.05  995.1919850.05  996.0319857.63  997.2419885.03  998.53
19936.77  998.7919984.18   999.419991.14  999.8620041.57 1001.3220082.06 1001.89
20173.24 1001.7120208.46 1001.3720224.73 1001.5120281.74 1000.8820306.63    1001
20333.88  1001.620354.98 1001.64   20399 1002.2820426.44 1003.2520511.22 1002.51
20559.96 1001.0320588.83 1000.5820601.27  999.9120628.36 1000.5120679.26  1000.5
20736.27    100020758.91  999.5520809.15  999.5120871.65   999.8 20880.9  999.02
20888.29   999.820914.65 1000.5220919.87 1000.2420993.76  1000.421007.95 1001.06
21032.55 1006.89 21053.5 1010.7621074.81    101421109.99 1016.3721132.01 1017.93
21150.62  1018.421187.24  1017.421208.87 1017.6721243.49 1017.1921276.95 1017.08
21299.03 1016.6621316.72 1017.5621345.51 1017.9321373.46 1017.0121379.02  1016.4
21407.52 1015.6221458.26 1015.3421541.47 1015.4721552.48 1014.9821661.71  1014.7
21700.36 1014.8621734.65  1014.621816.76 1014.7321837.28  1015.121887.67 1015.18
21897.57 1015.8421938.37 1016.0421994.52 1015.6322023.41 1014.6222062.71 1014.75
22101.76 1014.3622119.41  1014.922218.68 1014.7322317.91 1014.9522327.82 1014.86

Manning's n Values        num=       4
     Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val
*************************************************************
 16428.7    .03218981.19    .01519119.48    .03221109.99    .037

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.    Expan.
      19452.0621132.01              244  246.48     308            .3       .5
Ineffective Flow     num=       2
   Sta L    Sta R     Elev  Permanent
 16428.7 19445.4  1019.5         F
21096.5122327.82  1019.5         F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         * 1010.81  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.36  * Wt. n-Val.            *   0.032  *   0.032  *          *
* W.S. Elev (ft)         * 1009.45  * Reach Len. (ft)       *   88.00  *   88.00  *   88.00  *
* Crit W.S. (ft)         * 1005.21  * Flow Area (sq ft)     *   12.01  *17748.43  *          *
* E.G. Slope (ft/ft)     *0.001643  * Area (sq ft)          *  414.79  *17748.43  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *   33.50  *165966.50  *          *
* Top Width (ft)         * 1888.79  * Top Width (ft)       *  294.43  * 1594.36  *          *
* Vel Total (ft/s)       *    9.35  * Avg. Vel. (ft/s)     *    2.79  *    9.35  *          *
* Max Chl Dpth (ft)      *   25.10  * Hydr. Depth (ft)     *    1.80  *   11.13  *          *
* Conv. Total (cfs)      *4094978.0  * Conv. (cfs)         *   826.3  *4094152.0  *          *
* Length Wtd. (ft)       *   88.00  * Wetted Per. (ft)     *    6.66  * 1602.96  *          *
* Min Ch El (ft)         *  984.35  * Shear (lb/sq ft)     *    0.19  *    1.14  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *    0.52  *   10.62  *          *
* Frctn Loss (ft)        *    0.18  * Cum Volume (acre-ft)  * 6818.09  *22084.62  * 1400.18  *
* C & E Loss (ft)        *    0.07  * Cum SA (acres)        * 1883.41  * 2251.31  *  658.09  *
*********************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)         * 1011.21  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.24  * Wt. n-Val.            *   0.032  *   0.032  *          *
* W.S. Elev (ft)         * 1009.97  * Reach Len. (ft)       *   88.00  *   88.00  *   88.00  *
* Crit W.S. (ft)         * 1005.21  * Flow Area (sq ft)     *   15.46  *18573.59  *          *
* E.G. Slope (ft/ft)     *0.001415  * Area (sq ft)          *  145.26  *18573.59  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *   47.32  *165952.70  *          *
* Top Width (ft)         * 1661.94  * Top Width (ft)       *   64.78  * 1597.16  *          *
* Vel Total (ft/s)       *    8.93  * Avg. Vel. (ft/s)     *    3.06  *    8.93  *          *
* Max Chl Dpth (ft)      *   25.62  * Hydr. Depth (ft)     *    2.32  *   11.63  *          *
* Conv. Total (cfs)      *4412321.0  * Conv. (cfs)         *  1257.9  *4411063.0  *          *
* Length Wtd. (ft)       *   88.00  * Wetted Per. (ft)     *    6.66  * 1605.80  *          *
* Min Ch El (ft)         *  984.35  * Shear (lb/sq ft)     *    0.21  *    1.02  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *    0.63  *    9.13  *          *
* Frctn Loss (ft)        *    0.15  * Cum Volume (acre-ft)  * 1193.32  *22950.88  *   34.97  *
* C & E Loss (ft)        *    0.06  * Cum SA (acres)        *  200.56  * 2255.89  *    6.81  *
*********************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         energy was used.

BRIDGE


RIVER: 1
REACH: 1                 RS: 207.485

INPUT
Description: 51st Avenue Bridge
Distance from Upstream XS =      88
Deck/Roadway Width        =      95
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=      30
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
*************************************************************************
 17338.3 1010.47 1005.47 18388.3 1010.34 1005.34 18888.3 1010.64 1005.64
```

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 18938.3    1011    1006 18988.3  1011.5  1006.5 19038.3  1012.3  1007.3
 19088.3  1013.2  1007.2 19138.3  1014.3  1008.3 19188.3  1015.6  1010.6
 19288.3  1018.2  1013.2 19388.3 1020.56 1015.56   19445 1022.05  1015.2
 19560.3  1023.4 1017.77 19660.3 1025.18 1019.47 19760.3 1026.58 1020.87
 19860.3 1027.68    1022 19960.3 1028.58 1022.87 20060.3 1029.28 1023.59
 20160.3 1029.68 1023.99 20260.3 1029.78 1024.09 20360.3 1029.68    1024
 20460.3 1029.28 1023.59 20560.3 1028.68 1023.01 20660.3 1027.88 1022.21
 20760.3 1026.68    1021 20860.3 1025.41 1019.67 20960.3 1023.68 1018.03
 21059.4  1020.6 1014.92 21074.8  1020.3  1014.5 21150.6    1019    1012

Upstream Bridge Cross Section Data
Station Elevation Data    num=     140
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 16428.7  1015.8 16495.7 1015.9716562.86 1015.7616564.59 1016.2616598.27 1015.57
16649.77 1014.8716697.75  1015.1 16736.1 1014.9216785.22 1015.1916790.29 1014.82
16831.41  1014.816991.24    101417150.66 1013.5817195.01 1013.2617294.72 1012.89
17334.41 1013.0117462.54 1013.0117546.67 1012.7517562.88  1012.917614.19  1012.3
17650.74 1012.8817736.69 1012.5217773.31 1012.7717836.83 1013.8617929.25 1014.08
17986.02  1013.117990.65 1013.5218016.47 1013.3718049.96  1013.718127.06 1013.11
18166.95 1013.26 18225.6  1013.118282.06 1013.2418307.52 1010.9218331.41 1010.93
18355.11  1011.818412.86 1011.7618437.92 1012.22 18500.6 1012.0318512.42 1012.32
18580.58 1011.7618667.35  1012.318723.55 1012.2218776.25 1011.8618824.39  1011.2
 18908.1  1010.818952.92 1010.5518981.19 1017.1618993.87 1016.9618995.87 1016.46
19051.81  1017.619102.46 1017.6419104.46 1018.1419119.48 1018.3419162.06 1008.42
19452.06 1007.6419475.46  995.95 19490.7   986.619495.57  985.0919506.62  984.35
19525.63  984.6819542.24   985.619551.29  988.0219625.61  990.8219661.41  989.57
19674.45  987.0619684.82  986.7919735.07  987.2919753.75  993.2119767.32  994.35
19804.67  995.2619824.05  995.1919850.05  996.0319857.63  997.2419885.03  998.53
19936.77  998.7919984.18   999.419991.14  999.8620041.57 1001.3220082.06 1001.89
20173.24 1001.7120208.46 1001.3720224.73 1001.5120281.74 1000.8820306.63    1001
20333.88  1001.620354.98 1001.64   20399 1002.2820426.44 1003.2520511.22 1002.51
20559.96 1001.0320588.83 1000.5820601.27  999.9120628.36 1000.5120679.26  1000.5
20736.27    100020758.91  999.5520809.15  999.5120871.65   999.8 20880.9  999.02
20888.29   999.820914.65 1000.5220919.87 1000.2420993.76  1000.421007.95 1001.06
21032.55 1006.89 21053.5 1010.7621074.81    101421109.99 1016.3721132.01 1017.93
21150.62  1018.421187.24  1017.421208.87 1017.6721243.49 1017.1921276.95 1017.08
21299.03 1016.6621316.72 1017.5621345.51 1017.9321373.46 1017.0121379.02  1016.4
21407.52 1015.6221458.26 1015.3421541.47 1015.4721552.48 1014.9821661.71  1014.7
21700.36 1014.8621734.65  1014.621816.76 1014.7321837.28  1015.121887.67 1015.18
21897.57 1015.8421938.37 1016.0421994.52 1015.6322023.41 1014.6222062.71 1014.75
22101.76 1014.3622119.41  1014.922218.68 1014.7322317.91 1014.9522327.82 1014.86

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************************************
 16428.7    .03218981.19    .01519119.48    .03221109.99    .037

Bank Sta: Left   Right    Coeff Contr.   Expan.
     19452.0621132.01          .3         .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 16428.7 19445.4  1019.5        F
21096.5122327.82  1019.5        F

Downstream  Deck/Roadway Coordinates
    num=      30
     Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord
*********************************************************************************
 17338.3 1010.47 1005.47 18388.3 1010.34 1005.34 18888.3 1010.64 1005.64
 18938.3    1011    1006 18988.3  1011.5  1006.5 19038.3  1012.3  1007.3
 19088.3  1013.2  1007.2 19138.3  1014.3  1008.3 19188.3  1015.6  1010.6
 19288.3  1018.2  1013.2 19388.3 1020.56 1015.56   19445 1022.05  1015.2
 19560.3  1023.4 1017.77 19660.3 1025.18 1019.47 19760.3 1026.58 1020.87
 19860.3 1027.68    1022 19960.3 1028.58 1022.87 20060.3 1029.28 1023.59
 20160.3 1029.68 1023.99 20260.3 1029.78 1024.09 20360.3 1029.68    1024
 20460.3 1029.28 1023.59 20560.3 1028.68 1023.01 20660.3 1027.88 1022.21
 20760.3 1026.68    1021 20860.3 1025.41 1019.67 20960.3 1023.68 1018.03
 21059.4  1020.6 1014.92 21074.8  1020.3  1014.5 21150.6    1019    1012

Downstream Bridge Cross Section Data
Station Elevation Data    num=     150
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 16428.7  1015.8 16495.7 1015.9716562.86 1015.7616564.59 1016.2616598.27 1015.57
16649.77 1014.8716697.75  1015.1 16736.1 1014.9216785.22 1015.1916790.29 1014.82
16831.41  1014.816991.24    101417150.66 1013.5817195.01 1013.2617294.72 1012.89
17334.41 1013.0117462.54 1013.0117546.67 1012.7517562.88  1012.917614.19  1012.3
17650.74 1012.8817736.69 1012.5217773.31 1012.7717836.83 1013.8617929.25 1014.08
17986.02  1013.117990.65 1013.5218016.47 1013.3718049.96  1013.718127.06 1013.11
18166.95 1013.26 18225.6  1013.118282.06 1013.2418307.52 1010.9218331.41 1010.93
18355.11  1011.818412.86 1011.7618437.92 1012.22 18500.6 1012.0318512.42 1012.32
18580.58 1011.7618667.35  1012.318723.55 1012.2218776.25 1011.8618816.04  1011.8
18887.02  1012.118935.21 1011.9719030.23 1011.14 19061.7  1011.619092.68 1011.73
19121.65  1012.619162.06 1011.4319172.56 1011.5319175.75 1013.1119179.28 1011.17
19228.02 1011.4719243.11 1012.16 19304.2  1013.5 19325.9 1014.3319353.08  1014.6
19375.05  1016.719387.28 1017.3619405.46 1017.36 19416.8 1016.12 19445.4 1011.67
19452.06 1007.6419475.46  995.95 19490.7   986.619495.57  985.0919506.62  984.35
19525.63  984.6819542.24   985.619551.29  988.0219625.61  990.8219661.41  989.57
19674.45  987.0619684.82  986.7919735.07  987.2919753.75  993.2119767.32  994.35
19804.67  995.2619824.05  995.1919850.05  996.0319857.63  997.2419885.03  998.53
19936.77  998.7919984.18   999.419991.14  999.8620041.57 1001.3220082.06 1001.89
20173.24 1001.7120208.46 1001.3720224.73 1001.5120281.74 1000.8820306.63    1001
20333.88  1001.620354.98 1001.64   20399 1002.2820426.44 1003.2520511.22 1002.51
20559.96 1001.0320588.83 1000.5820601.27  999.9120628.36 1000.5120679.26  1000.5
20736.27    100020758.91  999.5520809.15  999.5120871.65   999.8 20880.9  999.02
20888.29   999.820914.65 1000.5220919.87 1000.2420993.76  1000.421007.95 1001.06
21032.55 1006.89 21053.5 1010.7621074.81    101421109.99 1016.3721132.01 1017.93
21150.62  1018.421187.24  1017.421208.87 1017.6721243.49 1017.1921276.95 1017.08
21299.03 1016.6621316.72 1017.5621345.51 1017.9321373.46 1017.0121379.02  1016.4
21407.52 1015.6221458.26 1015.3421541.47 1015.4721552.48 1014.9821661.71  1014.7
21700.36 1014.8621734.65  1014.621816.76 1014.7321837.28  1015.121887.67 1015.18
21897.57 1015.8421938.37 1016.0421994.52 1015.6322023.41 1014.6222062.71 1014.75
22101.76 1014.3622119.41  1014.922218.68 1014.7322317.91 1014.9522327.82 1014.86

Manning's n Values        num=       2
```

```
     Sta   n Val     Sta   n Val
*********************************
 16428.7    .03221109.99    .037

Bank Sta: Left   Right    Coeff Contr.   Expan.
      19387.2821132.01            .3        .5
Ineffective Flow      num=        2
   Sta L    Sta R     Elev  Permanent
 16428.7 19445.4  1019.5        F
21096.5122327.82  1019.5        F

Upstream Embankment side slope              =         horiz. to 1.0 vertical
Downstream Embankment side slope            =         horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =      .95
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Piers =  15

Pier Data
Pier Station     Upstream= 19562.3    Downstream= 19562.3
Upstream      num=        2
    Width   Elev    Width   Elev
*********************************
       4   997.3        4  1017.8
Downstream      num=        2
    Width   Elev    Width   Elev
*********************************
       4   997.3        4  1017.8

Pier Data
Pier Station     Upstream= 19662.3    Downstream= 19662.3
Upstream      num=        2
    Width   Elev    Width   Elev
*********************************
       4     997        4 1019.54
Downstream      num=        2
    Width   Elev    Width   Elev
*********************************
       4     997        4 1019.54

Pier Data
Pier Station     Upstream= 19762.3    Downstream= 19762.3
Upstream      num=        2
    Width   Elev    Width   Elev
*********************************
       4   996.4        4 1020.94
Downstream      num=        2
    Width   Elev    Width   Elev
*********************************
       4   996.4        4 1020.94

Pier Data
Pier Station     Upstream= 19862.3    Downstream= 19862.3
Upstream      num=        2
    Width   Elev    Width   Elev
*********************************
       4   999.5        4    1022
Downstream      num=        2
    Width   Elev    Width   Elev
*********************************
       4   999.5        4    1022

Pier Data
Pier Station     Upstream= 19962.3    Downstream= 19962.3
Upstream      num=        2
    Width   Elev    Width   Elev
*********************************
       4   997.4        4  1022.9
Downstream      num=        2
    Width   Elev    Width   Elev
*********************************
       4   997.4        4  1022.9

Pier Data
Pier Station     Upstream= 20062.3    Downstream= 20062.3
Upstream      num=        2
    Width   Elev    Width   Elev
*********************************
       4   994.6        4  1023.6
Downstream      num=        2
    Width   Elev    Width   Elev
*********************************
       4   994.6        4  1023.6

Pier Data
Pier Station     Upstream= 20162.3    Downstream= 20162.3
Upstream      num=        2
    Width   Elev    Width   Elev
*********************************
       4   995.5        4    1024
Downstream      num=        2
    Width   Elev    Width   Elev
*********************************
       4   995.5        4    1024

Pier Data
Pier Station     Upstream= 20262.3    Downstream= 20262.3
Upstream      num=        2
    Width   Elev    Width   Elev
*********************************
       4   999.6        4  1024.1
Downstream      num=        2
    Width   Elev    Width   Elev
```

```
*********************************
       4   999.6       4  1024.1

Pier Data
Pier Station     Upstream= 20362.3    Downstream= 20362.3
Upstream     num=        2
    Width   Elev    Width   Elev
*********************************
       4   998.5       4    1024
Downstream     num=        2
    Width   Elev    Width   Elev
*********************************
       4   998.5       4    1024

Pier Data
Pier Station     Upstream= 20462.3    Downstream= 20462.3
Upstream     num=        2
    Width   Elev    Width   Elev
*********************************
       4   998.9       4  1023.6
Downstream     num=        2
    Width   Elev    Width   Elev
*********************************
       4   998.9       4  1023.6

Pier Data
Pier Station     Upstream= 20562.3    Downstream= 20562.3
Upstream     num=        2
    Width   Elev    Width   Elev
*********************************
       4   996.7       4    1023
Downstream     num=        2
    Width   Elev    Width   Elev
*********************************
       4   996.7       4    1023

Pier Data
Pier Station     Upstream= 20662.3    Downstream= 20662.3
Upstream     num=        2
    Width   Elev    Width   Elev
*********************************
       4   997.9       4  1022.2
Downstream     num=        2
    Width   Elev    Width   Elev
*********************************
       4   997.9       4  1022.2

Pier Data
Pier Station     Upstream= 20762.3    Downstream= 20762.3
Upstream     num=        2
    Width   Elev    Width   Elev
*********************************
       4     998       4    1021
Downstream     num=        2
    Width   Elev    Width   Elev
*********************************
       4     998       4    1021

Pier Data
Pier Station     Upstream= 20862.3    Downstream= 20862.3
Upstream     num=        2
    Width   Elev    Width   Elev
*********************************
       4   999.9       4  1019.7
Downstream     num=        2
    Width   Elev    Width   Elev
*********************************
       4   999.9       4  1019.7

Pier Data
Pier Station     Upstream= 20962.3    Downstream= 20962.3
Upstream     num=        2
    Width   Elev    Width   Elev
*********************************
       4     998       4    1018
Downstream     num=        2
    Width   Elev    Width   Elev
*********************************
       4     998       4    1018

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
       Momentum              Cd   =     1.2
       Yarnell               KVal =    1.05
Selected Low Flow Methods = Highest Energy Answer

High Flow Method
       Pressure and Weir flow
           Submerged Inlet Cd          =
           Submerged Inlet + Outlet Cd =      .8
           Max Low Cord                =

Additional Bridge Parameters
       Add Friction component to Momentum
       Add Weight component to Momentum
       Class B flow critical depth computations use critical depth
          inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line

BRIDGE OUTPUT  Profile #PF#1
*******************************************************************************************
* E.G. US. (ft)          *    1010.81  * Element               *Inside BR US *Inside BR DS *
* W.S. US. (ft)          *    1009.45  * E.G. Elev (ft)        *    1010.56  *    1010.24  *
* Q Total (cfs)          *  166000.00  * W.S. Elev (ft)        *    1008.95  *    1008.49  *
```

				Post-Project	
* Q Bridge (cfs)	* 166000.00	* Crit W.S. (ft)	* 1005.38	* 1005.39	*
* Q Weir (cfs)	*	* Max Chl Dpth (ft)	* 24.60	* 24.14	*
* Weir Sta Lft (ft)	*	* Vel Total (ft/s)	* 10.16	* 10.63	*
* Weir Sta Rgt (ft)	*	* Flow Area (sq ft)	* 16334.32	* 15619.62	*
* Weir Submerg	*	* Froude # Chl	* 0.55	* 0.59	*
* Weir Max Depth (ft)	*	* Specif Force (cu ft)	* 159912.10	* 154914.60	*
* Min El Weir Flow (ft)	* 1019.51	* Hydr Depth (ft)	* 10.62	* 10.21	*
* Min El Prs (ft)	* 1024.09	* W.P. Total (ft)	* 1858.26	* 1836.85	*
* Delta EG (ft)	* 0.78	* Conv. Total (cfs)	* 3235902.0	* 3021671.0	*
* Delta WS (ft)	* 1.09	* Top Width (ft)	* 1823.92	* 1530.55	*
* BR Open Area (sq ft)	* 35514.66	* Frctn Loss (ft)	* 0.27	* 0.17	*
* BR Open Vel (ft/s)	* 10.63	* C & E Loss (ft)	* 0.04	* 0.04	*
* Coef of Q	*	* Shear Total (lb/sq ft)	* 1.44	* 1.60	*
* Br Sel Method	*Energy only	* Power Total (lb/ft s)	* 14.68	* 17.03	*

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

BRIDGE OUTPUT Profile #PF#2

			*Inside BR US	*Inside BR DS	
* E.G. US. (ft)	* 1011.21	* Element	1011.00	* 1010.75	*
* W.S. US. (ft)	* 1009.97	* E.G. Elev (ft)	* 1009.56	* 1009.22	*
* Q Total (cfs)	* 166000.00	* W.S. Elev (ft)	* 1005.38	* 1005.39	*
* Q Bridge (cfs)	* 166000.00	* Crit W.S. (ft)	* 25.21	* 24.87	*
* Q Weir (cfs)	*	* Max Chl Dpth (ft)	* 9.61	* 9.91	*
* Weir Sta Lft (ft)	*	* Vel Total (ft/s)	* 17275.08	* 16742.43	*
* Weir Sta Rgt (ft)	*	* Flow Area (sq ft)	* 0.51	* 0.53	*
* Weir Submerg	*	* Froude # Chl	* 167325.90	* 163090.40	*
* Weir Max Depth (ft)	*	* Specif Force (cu ft)	* 11.21	* 10.90	*
* Min El Weir Flow (ft)	* 1019.51	* Hydr Depth (ft)	* 1879.95	* 1864.27	*
* Min El Prs (ft)	* 1024.09	* W.P. Total (ft)	* 3524142.0	* 3358953.0	*
* Delta EG (ft)	* 0.64	* Conv. Total (cfs)	* 1599.73	* 1535.72	*
* Delta WS (ft)	* 0.84	* Top Width (ft)	* 0.22	* 0.13	*
* BR Open Area (sq ft)	* 35511.13	* Frctn Loss (ft)	* 0.03	* 0.04	*
* BR Open Vel (ft/s)	* 9.91	* C & E Loss (ft)	* 1.27	* 1.37	*
* Coef of Q	*	* Shear Total (lb/sq ft)	* 12.23	* 13.58	*
* Br Sel Method	*Energy only	* Power Total (lb/ft s)			

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 207.48

INPUT
Description: 207.48
Station Elevation Data num= 150

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16428.7	1015.8	16495.7	1015.97	16562.86	1015.76	16564.59	1016.26	16598.27	1015.57
16649.77	1014.87	16697.75	1015.1	16736.1	1014.92	16785.22	1015.19	16790.29	1014.82
16831.41	1014.81	16991.24	1014	17150.66	1013.58	17195.01	1013.26	17294.72	1012.89
17334.41	1013.01	17462.54	1013.01	17546.67	1012.75	17562.88	1012.91	17614.19	1012.3
17650.74	1012.88	17736.69	1012.52	17773.31	1012.77	17836.83	1013.86	17929.25	1014.08
17986.02	1013.11	17990.65	1013.52	18016.47	1013.37	18049.96	1013.71	18127.06	1013.11
18166.95	1013.26	18225.6	1013.11	18282.06	1013.24	18307.52	1010.92	18331.41	1010.93
18355.11	1011.81	18412.86	1011.76	18437.92	1012.22	18500.6	1012.03	18512.42	1012.32
18580.58	1011.76	18667.35	1012.31	18723.55	1012.22	18776.25	1011.86	18816.04	1011.8
18887.02	1012.11	18935.21	1011.97	19030.23	1011.14	19061.7	1011.61	19092.68	1011.73
19121.65	1012.61	19162.06	1011.43	19172.56	1011.53	19175.75	1013.11	19179.28	1011.17
19228.02	1011.47	19243.11	1012.16	19304.2	1013.5	19325.9	1014.33	19353.08	1014.6
19375.05	1016.71	19387.28	1017.36	19405.46	1017.36	19416.8	1016.12	19445.4	1011.67
19452.06	1007.64	19475.46	995.95	19490.7	986.61	19495.57	985.09	19506.62	984.35
19525.63	984.68	19542.24	985.61	9551.29	988.02	19625.61	990.82	19661.41	989.57
19674.45	987.06	19684.82	986.79	19735.07	987.29	19753.75	993.21	19767.32	994.35
19804.67	995.26	19824.05	995.19	19850.05	996.03	19857.63	997.24	19885.03	998.53
19936.77	998.79	19984.18	999.41	9991.14	999.86	20041.57	1001.32	20082.06	1001.89
20173.24	1001.71	20208.46	1001.37	20224.73	1001.51	20281.74	1000.88	20306.63	1001
20333.88	1001.62	20354.98	1001.64	20399	1002.28	20426.44	1003.25	20511.22	1002.51
20559.96	1001.03	20588.83	1000.58	20601.27	999.91	20628.36	1000.51	20679.26	1000.5
20736.27	1000	20758.91	999.55	20809.15	999.51	20871.65	999.8	20880.9	999.02
20888.29	999.82	0914.65	1000.52	20919.87	1000.24	20993.76	1000.42	1007.95	1001.06
21032.55	1006.89	21053.5	1010.76	21074.81	1014	21109.99	1016.37	21132.01	1017.93
21150.62	1018.42	1187.24	1017.42	1208.87	1017.67	21243.49	1017.19	21276.95	1017.08
21299.03	1016.66	21316.72	1017.56	21345.51	1017.93	21373.46	1017.01	21379.02	1016.4
21407.52	1015.62	21458.26	1015.34	21541.47	1015.47	21552.48	1014.98	21661.71	1014.7
21700.36	1014.86	21734.65	1014.62	1816.76	1014.73	21837.28	1015.12	1887.67	1015.18
21897.57	1015.84	21938.37	1016.04	21994.52	1015.63	22023.41	1014.62	22062.71	1014.75
22101.76	1014.36	22119.41	1014.92	22218.68	1014.73	22317.91	1014.95	22327.82	1014.86

Manning's n Values num= 2

Sta	n Val	Sta	n Val
16428.7	.032	21109.99	.037

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19387.2 21132.01 236 236.83 302 .3 .5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
16428.7	19445.4	1019.5	F
21096.5	22327.82	1019.5	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 1010.03	* Element	* Left OB	* Channel	* Right OB	*
* Vel Head (ft)	* 1.67	* Wt. n-Val.	*	* 0.032	*	*
* W.S. Elev (ft)	* 1008.36	* Reach Len. (ft)	* 236.00	* 236.83	* 302.00	*

			Post-Project	
* Crit W.S. (ft)	* 1005.21	* Flow Area (sq ft)	*16016.13	*
* E.G. Slope (ft/ft)	*0.002306	* Area (sq ft)	*16016.13	*
* Q Total (cfs)	*166000.00	* Flow (cfs)	*166000.00	*
* Top Width (ft)	* 1589.66	* Top Width (ft)	* 1589.66	*
* Vel Total (ft/s)	* 10.36	* Avg. Vel. (ft/s)	* 10.36	*
* Max Chl Dpth (ft)	* 24.01	* Hydr. Depth (ft)	* 10.08	*
* Conv. Total (cfs)	*3456670.0	* Conv. (cfs)	*3456670.0	*
* Length Wtd. (ft)	* 236.83	* Wetted Per. (ft)	* 1598.36	*
* Min Ch El (ft)	* 984.35	* Shear (lb/sq ft)	* 1.44	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	* 14.95	*
* Frctn Loss (ft)	* 0.54	* Cum Volume (acre-ft)	* 6817.11	*21992.32 * 1400.18 *
* C & E Loss (ft)	* 0.01	* Cum SA (acres)	* 1882.50	* 2242.54 * 658.09 *

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 1010.57	* Element	* Left OB *	Channel *	Right OB *
* Vel Head (ft)	* 1.44	* Wt. n-Val.	*	* 0.032 *	*
* W.S. Elev (ft)	* 1009.13	* Reach Len. (ft)	* 236.00	* 236.83 *	302.00 *
* Crit W.S. (ft)	* 1005.21	* Flow Area (sq ft)	*	*17236.84 *	*
* E.G. Slope (ft/ft)	*0.001814	* Area (sq ft)	*	*17236.84 *	*
* Q Total (cfs)	*166000.00	* Flow (cfs)	*	*166000.00 *	*
* Top Width (ft)	* 1595.08	* Top Width (ft)	*	* 1595.08 *	*
* Vel Total (ft/s)	* 9.63	* Avg. Vel. (ft/s)	*	* 9.63 *	*
* Max Chl Dpth (ft)	* 24.78	* Hydr. Depth (ft)	*	* 10.81 *	*
* Conv. Total (cfs)	*3897568.0	* Conv. (cfs)	*	*3897568.0 *	*
* Length Wtd. (ft)	* 236.83	* Wetted Per. (ft)	*	* 1604.06 *	*
* Min Ch El (ft)	* 984.35	* Shear (lb/sq ft)	*	* 1.22 *	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 11.72 *	*
* Frctn Loss (ft)	* 0.42	* Cum Volume (acre-ft)	* 1192.92	*22852.84 *	34.97 *
* C & E Loss (ft)	* 0.02	* Cum SA (acres)	* 200.36	* 2247.10 *	6.81 *

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 207.43

INPUT
Description: 207.43

Left and Right Channel Bank Stations Interpolated
Station Elevation Data num= 143

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16400.1	1015.916427.13	1015.8616467.13	1017.416546.13	1017.6416548.16	1016.9				
16612.58	1016.616636.85	1015.716681.02	1015.216776.74	1015.0816803.54	1015.6				
16881.54	1015.616924.76	1016.0416991.64	1015.5517051.39	1015.8717090.21	1015.5				
17114.15	1014.317125.61	1014.7617179.55	1014.117205.34	1014.7617275.25	1014.41				
17356.43	1014.5817445.28	1014.1517482.13	1015.5617579.53	1015.5817599.94	1014.11				
17631.22	1014.3917655.16	1013.5217708.41	1013.5717845.76	1014.72 18003.6	1014.39				
18171.98	1014.9218233.95	1014.8418336.95	1015.3718380.76	1015.2618388.01	1012.07				
18524.22	1010.9318531.31	1014.1718535.46	1010.9618836.05	1011.1518846.66	1014				
18854.03	1018.9218861.73	1019.9218871.85	1025.6618877.54	1023.6118892.35	1013.59				
18924.33	1015.0318937.21	1021.3118940.84	1024.9718946.13	1021.818961.89	1022.23				
18966.25	1028.0618989.42	1042.1519002.36	1042.2519017.12	1045.2919042.34	1047.78				
19062.2	1047.7419090.47	1050.6619115.96	1032.8419146.43	1014.6119184.73	1012.98				
19195.72	1014.6219211.64	1012.0519228.35	1015.1319246.11	1008.4119307.43	1006.73				
19363.86	1007.32 19382.3	1006.92 19385.9	993.0419404.18	986.87 19439.6	983.56				
19483.69	985.3219489.64	986.9819511.17	985.9519521.59	988.1919580.14	989.79				
19667.17	989.2319682.41	989.819702.21	996.0119748.59	997.3719805.76	996.17				
19845.03	997.1619865.87	996.219910.31	998.36 19967.1	998.42 20014.9	999.47				
20029.21	1000.5420117.14	1001.5220160.39	1001.5220237.95	1000.920255.99	999.99				
20286.6	996.9120299.66	997.8620325.13	997.7620329.59	999.1920351.58	999.75				
20372.56	1001.820404.32	1001.5820462.17	1002.120481.31	1002.9420514.37	999.73				
20536.37	999.7320593.55	1002.7620649.48	999.4320722.23	997.720767.76	997.66				
20797.59	1001.3720868.09	1000.8620883.15	1002.9520908.05	1004.6920936.25	1009.27				
20950.15	1010.620968.54	1014.9620983.24	1015.0921012.76	1013.2421049.68	1012.01				
21112.56	1011.2721229.86	1011.121309.34	1013.9821354.05	1014.4421369.82	1020.2				
21378.58	1013.6721394.32	1012.721435.95	1012.8721609.23	1011.921625.61	1019.1				
21640.8	1029.7821650.64	1034.1921655.56	1033.921672.55	1026.0321689.59	1033.27				
21696.49	1031.3221725.79	1012.3921801.22	1012.8 21841.9	1013.421900.68	1013.3				
21928.32	1012.5821976.61	1013.15 21992.6	1013.9822009.96	1021.3622026.88	1013.5				
22092.72	1014.4622153.94	1012.9822325.55	1013.89						

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16400.1	.02518531.31	.04319363.86	.03220968.54	.037			

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19363.8620968.54 493 507.55 548 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
16400.119236.09		1025	F
20997.7222325.55		1025	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 1009.49	* Element	* Left OB *	Channel *	Right OB *
* Vel Head (ft)	* 1.65	* Wt. n-Val.	* 0.043 *	0.032 *	*
* W.S. Elev (ft)	* 1007.83	* Reach Len. (ft)	* 493.00 *	507.55 *	548.00 *
* Crit W.S. (ft)	* 1004.49	* Flow Area (sq ft)	* 67.86 *	*16081.04 *	*
* E.G. Slope (ft/ft)	*0.002236	* Area (sq ft)	* 67.86 *	*16081.04 *	*
* Q Total (cfs)	*166000.00	* Flow (cfs)	* 87.54 *	*165912.50 *	*
* Top Width (ft)	* 1660.26	* Top Width (ft)	* 96.71 *	* 1563.55 *	*
* Vel Total (ft/s)	* 10.28	* Avg. Vel. (ft/s)	* 1.29 *	10.32 *	*
* Max Chl Dpth (ft)	* 24.27	* Hydr. Depth (ft)	* 0.70 *	10.28 *	*
* Conv. Total (cfs)	*3510649.0	* Conv. (cfs)	* 1851.4 *	*3508798.0 *	*

```
                                                                    Post-Project
* Length Wtd. (ft)       *  507.48  * Wetted Per. (ft)       *   96.73  * 1578.76  *          *
* Min Ch El (ft)         *  983.56  * Shear (lb/sq ft)       *    0.10  *    1.42  *          *
* Alpha                  *    1.01  * Stream Power (lb/ft s) *    0.13  *   14.67  *          *
* Frctn Loss (ft)        *    0.71  * Cum Volume (acre-ft)   * 6816.93  *21905.06  * 1400.18  *
* C & E Loss (ft)        *    0.18  * Cum SA (acres)         * 1882.24  * 2233.97  *  658.09  *
*********************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)         * 1010.13  * Element                * Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.40  * Wt. n-Val.             *         *    0.032  *          *
* W.S. Elev (ft)         * 1008.74  * Reach Len. (ft)       *  493.00  *  507.55  *  548.00  *
* Crit W.S. (ft)         * 1004.49  * Flow Area (sq ft)     *          *17493.35  *          *
* E.G. Slope (ft/ft)     *0.001701  * Area (sq ft)          *          *17493.35  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *          *166000.00  *          *
* Top Width (ft)         * 1569.10  * Top Width (ft)        *          * 1569.10  *          *
* Vel Total (ft/s)       *    9.49  * Avg. Vel. (ft/s)      *          *    9.49  *          *
* Max Chl Dpth (ft)      *   25.18  * Hydr. Depth (ft)      *          *   11.15  *          *
* Conv. Total (cfs)      *4025333.0  * Conv. (cfs)          *          *4025333.0  *          *
* Length Wtd. (ft)       *  507.55  * Wetted Per. (ft)      *          * 1585.80  *          *
* Min Ch El (ft)         *  983.56  * Shear (lb/sq ft)      *          *    1.17  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   11.11  *          *
* Frctn Loss (ft)        *    0.57  * Cum Volume (acre-ft)   * 1192.92  *22758.43  *   34.97  *
* C & E Loss (ft)        *    0.13  * Cum SA (acres)         *  200.36  * 2238.50  *    6.81  *
*********************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                RS: 207.34

INPUT
Description: 207.34

Left and Right Channel Bank Stations Interpolated
Station Elevation Data    num=     116
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
*********************************************************************************
   16390  1014.116451.04 1012.9616482.56 1014.1616558.25 1014.4616655.51  1013.6
16695.35 1012.2816731.16 1012.6516750.26 1014.0516827.83 1014.4316856.22 1013.55
16929.16 1013.0616968.52 1010.9117052.73    101117057.91 1013.1717117.28 1013.98
 17234.8 1014.6617348.67  1012.717385.85 1014.4717500.69  1015.417503.76 1013.82
17533.18  1012.717584.34    101317616.71 1008.0217651.81 1008.0217674.24 1012.87
17705.69 1012.3917898.66 1012.1717949.85 1012.6718043.68  1011.818070.29 1012.58
18154.63 1012.6218193.52  1013.918287.14  1014.818378.12 1014.6918421.32 1014.16
18432.79 1017.3218444.91  1009.818465.12 1009.5818473.11  1011.418485.37 1008.18
18780.52 1008.3418786.65 1009.7218802.51 1008.2318868.49 1008.2318885.79 1021.27
18907.71 1024.4818915.88    101518939.87 1007.1919006.62 1007.9819023.93    1007
19059.35  1007.919094.18  1007.519110.18  1016.219141.52 1019.0719173.29 1017.11
19186.74 1009.0919205.41 1009.1119216.48 1016.0419241.39 1000.1519247.38  999.56
19328.88  999.6919345.58  990.4119358.21  987.98   19413  983.6919462.18  983.49
19562.66  985.5919578.81  988.2219606.64  987.8819631.71  989.8319673.73   989.7
19767.19  993.3119825.99  993.7619849.88  993.1519895.22  993.5119911.96  992.95
19935.76  994.5419987.22  995.9520035.82  995.9120059.81  995.1820093.54  997.88
20142.45  995.9920188.72  996.4120195.76  997.7420234.48  999.13 20268.8  994.11
20301.96   995.320463.57  993.7620481.07  994.0120515.37  998.2920535.47  998.11
20643.38  999.2320673.27  997.3120743.93 1004.8620759.51  1012.620778.22  1014.7
20821.48 1014.5520907.13 1011.1720944.55 1010.4420947.79 1013.5521057.05  1014.4
21158.18 1013.0621217.14 1011.51 21229.7 1015.9421234.29 1010.0122016.61 1010.04
22023.58  1017.922031.01 1012.7722044.31 1015.2722060.16 1013.7122109.89  1012.5
 22140.1 1013.3622172.49  1012.622190.62 1013.3522218.57 1010.3822236.62 1014.38
22258.02  1014.2

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************************
   16390    .02517500.69    .04319328.88    .032 21229.7    .037

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      19328.8820778.22              478  511.15     584             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
   1639019283.77    1025       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         * 1008.60  * Element                * Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.06  * Wt. n-Val.             *   0.043  *   0.032  *          *
* W.S. Elev (ft)         * 1007.54  * Reach Len. (ft)       *  478.00  *  511.15  *  584.00  *
* Crit W.S. (ft)         * 1000.99  * Flow Area (sq ft)     *  355.61  *19819.36  *          *
* E.G. Slope (ft/ft)     *0.000956  * Area (sq ft)          *  747.16  *19819.36  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)           * 1504.82  *164495.20  *          *
* Top Width (ft)         * 1583.79  * Top Width (ft)        *  163.35  * 1420.44  *          *
* Vel Total (ft/s)       *    8.23  * Avg. Vel. (ft/s)      *    4.23  *    8.30  *          *
* Max Chl Dpth (ft)      *   24.05  * Hydr. Depth (ft)      *    7.88  *   13.95  *          *
* Conv. Total (cfs)      *5369246.0  * Conv. (cfs)          * 48673.1  *5320573.0  *          *
* Length Wtd. (ft)       *  511.15  * Wetted Per. (ft)      *   45.11  * 1425.79  *          *
* Min Ch El (ft)         *  983.49  * Shear (lb/sq ft)      *    0.47  *    0.83  *          *
* Alpha                  *    1.01  * Stream Power (lb/ft s) *    1.99  *    6.88  *          *
* Frctn Loss (ft)        *    0.41  * Cum Volume (acre-ft)   * 6812.32  *21695.91  * 1400.18  *
* C & E Loss (ft)        *    0.00  * Cum SA (acres)         * 1880.77  * 2216.58  *  658.09  *
*********************************************************************************************
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Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1009.43	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.96	Wt. n-Val.		0.032	
W.S. Elev (ft)	1008.48	Reach Len. (ft)	478.00	511.15	584.00
Crit W.S. (ft)	1000.97	Flow Area (sq ft)		21155.80	
E.G. Slope (ft/ft)	0.000791	Area (sq ft)		21155.80	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	1422.33	Top Width (ft)		1422.33	
Vel Total (ft/s)	7.85	Avg. Vel. (ft/s)		7.85	
Max Chl Dpth (ft)	24.99	Hydr. Depth (ft)		14.87	
Conv. Total (cfs)	5901829.0	Conv. (cfs)		5901829.0	
Length Wtd. (ft)	511.15	Wetted Per. (ft)		1436.69	
Min Ch El (ft)	983.49	Shear (lb/sq ft)		0.73	
Alpha	1.00	Stream Power (lb/ft s)		5.71	
Frctn Loss (ft)	0.35	Cum Volume (acre-ft)	1192.92	22533.26	34.97
C & E Loss (ft)	0.01	Cum SA (acres)	200.36	2221.07	6.81

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 207.27

INPUT
Description: 207.27
Station Elevation Data num= 143

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16338.2	1012.81	16403.51	1012.43	16463.73	1011.31	16514.39	1012.33	16700	1012.61
16741.69	1010.82	16772.67	1011.61	16799.26	1009.75	16839.67	1009.71	16867.76	1010.76
16922.76	1010.33	17010.45	1010.74	17086.24	1010.67	17157.3	1012.27	17197.79	1012.42
17222.11	1011.21	17252.76	1011.37	17284.7	1012.91	17353.36	1013.03	17419.07	1012.22
17463.35	1012.22	17497.28	1013.29	17537.66	1013.42	17557.02	1012.56	17611.11	1013.93
17637.43	1012.98	17712.33	1014.11	17733.37	1011.51	17786.06	1011.9	17849.2	1011.4
18020.19	1011.07	18101.36	1011.25	18112.58	1008.39	18148.83	1007.07	18192.15	1007.7
18278.76	1007.84	18288.02	1012.51	18299.18	1008.15	18328.14	1008.85	18334.94	1011.14
18342.37	1007.61	18368.55	1007.96	18401.13	1006.75	18469.26	1007.81	18481.64	1008.82
18502.64	1019.41	18523.54	1010.77	18566.42	1010.71	18638.14	1011.61	18671.96	1014.7
18703.3	1016.08	18708.83	1017.77	18752.24	1019.05	18771.42	1026.24	18789.76	1028.7
18818.49	1028.06	18826.99	1023.08	18872.32	102318	886.44	1024.88	18901.1	1016.13
18914.73	1012.65	18931.1	1011.73	19175.81	1008.71	9235.12	1009.21	9238.65	1011.07
19247.16	1016.32	19276.61	1003.41	9292.88	1003.01	19349.31	1004.11	9441.55	1004.12
19447.75	996.5	19463.65	987.38	19483.81	983.97	19526.52	982.68	19603.75	984.77
19659.72	985.25	19761.91	982.75	19777.21	987.69	19864.21	989.61	9948.08	990.08
20034.07	988.78	20050.88	987.42	20079.13	988.24	20090.21	985.94	20115.59	985.74
20138.99	991.99	20185.99	992.67	20234.27	991.81	20249.79	992.59	20288.9	992.32
20297.7	986.55	20307.85	985.16	20337.94	985.92	0356.26	984.16	20362.31	991.4
20416.85	991.86	20464.21	993.06	20490.43	1008.64	20502.64	1001.52	0530.06	1003.03
20614.7	1005.36	20654.56	1005.42	0666.72	1009.62	0677.91	1009.48	20682.81	1005.72
20695.73	1006.34	20701.57	1009.7	20718.3	1006.92	0776.63	1008.73	20795.72	1019.26
20806.32	1020.26	20817.13	1011.71	20859.6	1012.33	20902.24	1012.09	20920.17	1010.74
20971.04	1010.22	1003.47	1011.02	21012.12	1013.23	21032.96	1011.53	21059.4	1013.24
21164.91	1011.13	21179.37	1011.52	1197.44	1016.02	21206.33	1020.86	21224.74	1020.8
21249.48	1011.12	1362.87	1010.65	21437.58	1011.95	21550.02	1011.07	21803.99	1011.9
21818.54	1010.29	21842.19	1027.12	1846.14	1022.81	21868.81	1019.75	21887.76	1019.33
21891.68	1022.04	21904.6	1013.37	21935.71	1013.95	21973.98	1011.41	22021.45	1012.75
22054.81	1011.64	22075.41	1014.51	22135.35	1013.96				

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16338.2	.025	18101.36	.043	19441.55	.052	20490.43	.032

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19441.55 20490.43 413 467.91 513 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
16338.2	19136.61	1030	F
20883.03	22135.35	1030	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1008.19	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.07	Wt. n-Val.	0.043	0.032	0.032
W.S. Elev (ft)	1007.12	Reach Len. (ft)	413.00	467.91	513.00
Crit W.S. (ft)	997.48	Flow Area (sq ft)	558.31	19572.41	498.17
E.G. Slope (ft/ft)	0.000668	Area (sq ft)	564.72	19572.41	498.17
Q Total (cfs)	166000.00	Flow (cfs)	1084.11	163733.50	1182.44
Top Width (ft)	1449.48	Top Width (ft)	212.22	1046.32	190.94
Vel Total (ft/s)	8.05	Avg. Vel. (ft/s)	1.94	8.37	2.37
Max Chl Dpth (ft)	24.44	Hydr. Depth (ft)	3.22	18.71	2.61
Conv. Total (cfs)	6421410.0	Conv. (cfs)	41936.8	6333732.0	45740.7
Length Wtd. (ft)	466.71	Wetted Per. (ft)	174.22	1063.87	193.55
Min Ch El (ft)	982.68	Shear (lb/sq ft)	0.13	0.77	0.11
Alpha	1.07	Stream Power (lb/ft s)	0.26	6.42	0.25
Frctn Loss (ft)	0.11	Cum Volume (acre-ft)	6805.12	21464.79	1396.84
C & E Loss (ft)	0.21	Cum SA (acres)	1878.71	2202.11	656.81

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1009.08	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.01	Wt. n-Val.		0.032	
W.S. Elev (ft)	1008.07	Reach Len. (ft)	413.00	467.91	513.00
Crit W.S. (ft)	997.48	Flow Area (sq ft)		20566.80	
E.G. Slope (ft/ft)	0.000587	Area (sq ft)		20566.80	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	1047.92	Top Width (ft)		1047.92	
Vel Total (ft/s)	8.07	Avg. Vel. (ft/s)		8.07	
Max Chl Dpth (ft)	25.39	Hydr. Depth (ft)		19.63	
Conv. Total (cfs)	6854151.0	Conv. (cfs)		6854151.0	
Length Wtd. (ft)	467.91	Wetted Per. (ft)		1069.68	
Min Ch El (ft)	982.68	Shear (lb/sq ft)		0.70	
Alpha	1.00	Stream Power (lb/ft s)		5.68	
Frctn Loss (ft)	0.11	Cum Volume (acre-ft)	1192.92	22288.47	34.97
C & E Loss (ft)	0.19	Cum SA (acres)	200.36	2206.58	6.81

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 207.16

INPUT
Description: 207.16 - FEMA Section Q
Downstream limits of updated sections
New topography by Kenney Aerial - Sept. 2010
Station Elevation Data num= 150

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16343.5	1012.616436.28	1011.8316462.44		1010.916497.16	1011.0716513.02	1008.42			
16536.33	1011.5316613.93	1011.43 16639.9		1010.9916663.54	1012.1916778.32	1011.46			
16822.69	1011.4916914.67	1009.416954.33		1009.3416980.24	1010.117076.42	1010.38			
17106.55	1008.7917121.67	1004.9417155.96		1004.2317170.59	1005.117207.53	1012.41			
17311.23	101217373.52	1010.9417423.47		1012.9217478.62	1012.5417560.28	1013.23			
17657.23	1011.7517689.19	1012.9117788.46		1012.9817809.89	1009.0617825.58	1008.08			
17876.67	1010.1 17912	1006.9617961.12		1006.1118037.75	1005.7418144.43	1006.26			
18178.23	1005.6618203.48	1011.2418234.84		1011.418285.17	1002.8318327.92	1002.11			
18375.51	999.9418431.91	993.518457.64		993.5618492.03	995.5418509.49	999.6			
18531.96	1002.418562.35	997.9218570.17		1002.218589.88	1001.8718600.77	1006.26			
18608.8	1003.8218642.04	1004.0918678.06		1000.6518683.19	998.5318706.79	1000.15			
18714.26	998.9118801.36	1000.7118855.38		999.8418890.96	1000.218965.92	998.7			
19058.76	999.3419082.21	998.7819118.59		1000.7619124.46	1002.0519154.47	1001.6			
19187.25	1002.1819218.05	1001.619229.95		1002.6119256.06	1001.5719305.75	1002.4			
19351.62	1001.7219361.74	1005.5119371.46		1003.2119377.86	995.419395.47	986.39			
19423.79	983.7119441.27	980.1519495.82		978.25 19507.5	981.7719542.54	982.41			
19587.75	981.6719670.68	982.0419722.07		980.4719771.21	980.919826.09	979.5			
19873.01	976.8419913.92	976.37 20016.3		978.1320038.45	977.5420088.37	978.33			
20131.27	978.0420142.84	972.8320158.41		969.8920342.73	969.6620360.02	971.8			
20410.6	971.7320430.37	982.5620448.85		989.1620479.77	1009.220489.77	1004.79			
20499.12	1006.0120517.88	1018.4820534.96		1015.8720541.47	1017.920568.83	1018.62			
20601.82	1017.4220623.36	1005.9920653.12		1005.720674.35	1015.8920694.61	1021.65			
20708.69	1021.9820723.02	1017.8 20737		1019.7320759.03	1019.1620798.34	1008.24			
20863.13	1008.9 20876	1015.1320893.82		1014.1820906.14	1008.51 20920.1	1008.03			
20970.13	1008.720975.19	1009.421118.29		1010.421133.42	1014.621149.49	1010.82			
21179.7	1010.5421244.66	1011.8 21318.5		1010.821332.07	1014.0521340.69	1011.58			
21351.88	1018.6821361.88	1013.4921375.26		1012.4121531.56	1012.8621568.57	1011.87			
21614.86	1011.4821621.15	1010.3421662.98		1011.2521669.39	1013.221692.52	1011.7			
21771.67	1010.3221783.96	1011.4221823.49		1011.921881.29	1011.2521897.89	1007.92			
21937.26	1007.821954.95	1011.4322012.49		1012.4822019.41	1014.5922087.37	1014.74			

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16343.5	.02517788.46	.04319371.46		.03220479.77	.037		

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19371.4620479.77 586 585.23 607 .1 .3
Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
16343.518601.44		1020.18	F
20568.2222087.37		1020.45	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1007.86	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.36	Wt. n-Val.	0.043	0.032	0.037
W.S. Elev (ft)	1007.50	Reach Len. (ft)	586.00	585.23	607.00
Crit W.S. (ft)	986.51	Flow Area (sq ft)	5174.97	32347.25	29.70
E.G. Slope (ft/ft)	0.000127	Area (sq ft)	8482.80	32347.25	84.63
Q Total (cfs)	166000.00	Flow (cfs)	7154.56	158827.30	18.18
Top Width (ft)	2625.39	Top Width (ft)	1465.57	1105.69	54.12
Vel Total (ft/s)	4.42	Avg. Vel. (ft/s)	1.38	4.91	0.61
Max Chl Dpth (ft)	37.84	Hydr. Depth (ft)	6.72	29.26	1.67
Conv. Total (cfs)	14746040.0	Conv. (cfs)	635550.8	14108870.0	1615.0
Length Wtd. (ft)	585.32	Wetted Per. (ft)	772.39	1123.63	18.85
Min Ch El (ft)	969.66	Shear (lb/sq ft)	0.05	0.23	0.01
Alpha	1.18	Stream Power (lb/ft s)	0.07	1.12	0.01
Frctn Loss (ft)	0.22	Cum Volume (acre-ft)	6762.23	21185.94	1393.41
C & E Loss (ft)	0.27	Cum SA (acres)	1870.75	2190.55	655.36

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than

0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1008.78	Element	Left OB	Channel / Right OB
Vel Head (ft)	0.39	Wt. n-Val.		0.032 /
W.S. Elev (ft)	1008.40	Reach Len. (ft)	586.00	585.23 / 607.00
Crit W.S. (ft)	986.51	Flow Area (sq ft)		33336.06 /
E.G. Slope (ft/ft)	0.000126	Area (sq ft)		33336.06 /
Q Total (cfs)	166000.00	Flow (cfs)		166000.00 /
Top Width (ft)	1107.07	Top Width (ft)		1107.07 /
Vel Total (ft/s)	4.98	Avg. Vel. (ft/s)		4.98 /
Max Chl Dpth (ft)	38.74	Hydr. Depth (ft)		30.11 /
Conv. Total (cfs)	14775160.0	Conv. (cfs)		14775160.0 /
Length Wtd. (ft)	585.27	Wetted Per. (ft)		1130.46 /
Min Ch El (ft)	969.66	Shear (lb/sq ft)		0.23 /
Alpha	1.00	Stream Power (lb/ft s)		1.16 /
Frctn Loss (ft)	0.22	Cum Volume (acre-ft)	1192.92	21998.96 / 34.97
C & E Loss (ft)	0.31	Cum SA (acres)	200.36	2195.00 / 6.81

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 207.07

INPUT
Description: 207.07

Right Channel Bank Station Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16445.4	1010.8	16477.5	1010.8	16492.9	1010.8	16495.3	1012.4	16612.3	1012.1
16706.3	1012.4	16731.4	1011.4	16754.5	1011.7	16775.6	1010.8	16823.5	1006
16897.1	1007.2	16996.9	1007.2	17084.4	1008.1	17118	1007.2	17130.1	1007.9
17215.3	1007.5	17296.8	1005.9	17391.8	1005.8	17473.1	1006.2	17581.5	1006.7
17688.2	1006.9	17793.8	1007.5	17860.3	1007.8	17918.6	1006.5	17937.7	1009.2
17950.5	1008.4	18054.6	1008.5	18145.7	1009.4	18249.2	1008.8	18339.2	1006.2
18409	1004.8	18416.3	1003.9	18490.8	1003.4	18511.6	998.8	18578.1	997.6
18602.7	998.8	18624	998.9	18705.2	1001.4	18768.4	1001.7	18825	999.3
18843.9	997.7	18938	998.1	19029.9	1000.3	19121	1004.5	19134.1	1007.4
19200.4	1009.2	19224.9	1008.7	19244.6	1006.5	19312.8	1004.4	19414.2	1003.2
19443.8	1001.8	19521.9	1001.9	19538.7	1003.4	19547.9	1003.2	19557.9	1004.4
19673.5	1001.7	19761.8	1001.1	19774.6	1001.9	19789.4	1004.7	19852.9	995.2
19935.8	993.4	19939.1	993.8	19945.4	992.8	19998	992.8	20099	992.9
20181.6	993	20237.1	993	20335	993.1	20381.8	993.2	20403	998.8
20417.1	996.1	20529.1	995.5	20635.3	995.9	20719.4	996.3	20720.5	998.7
20734.9	1003.5	20748.22	1004.3	20786.5	1006.6	20840.1	1007	20851.3	1007.9
20926.4	1009.4	21006.6	1009.9	21089.4	1010	21172.8	1009.7	21301.4	1008.9
21383.6	1008.7	21497.8	1007.9	21578.8	1007.1	21613.2	1007.3	21673.3	1011.2
21705.2	1010.3	21732.7	1013.7	21818.2	1013	21896.1	1014.4	21908.3	1013.5
21967.3	1014.4	21999.5	1014.1						

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16445.4	.043	18490.8	.032	19789.4	.032	20926.4	.032

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19789.4 20748.22 510 514.11 520 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
16445.4	18145.7	1013	F
20926.4	21999.5	1013	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1007.37	Element	Left OB	Channel / Right OB
Vel Head (ft)	3.07	Wt. n-Val.	0.032	0.032 /
W.S. Elev (ft)	1004.30	Reach Len. (ft)	510.00	514.11 / 520.00
Crit W.S. (ft)	1004.30	Flow Area (sq ft)	3660.52	9048.91 /
E.G. Slope (ft/ft)	0.005272	Area (sq ft)	3660.52	9048.91 / 0.00
Q Total (cfs)	166000.00	Flow (cfs)	29886.06	136113.90 /
Top Width (ft)	2121.27	Top Width (ft)	1165.05	956.17 / 0.05
Vel Total (ft/s)	13.06	Avg. Vel. (ft/s)	8.16	15.04 /
Max Chl Dpth (ft)	11.50	Hydr. Depth (ft)	3.14	9.46 /
Conv. Total (cfs)	2286164.0	Conv. (cfs)	411592.9	1874571.0 /
Length Wtd. (ft)	513.60	Wetted Per. (ft)	1166.36	960.30 /
Min Ch El (ft)	992.80	Shear (lb/sq ft)	1.03	3.10 /
Alpha	1.16	Stream Power (lb/ft s)	8.43	46.65 /
Frctn Loss (ft)	0.83	Cum Volume (acre-ft)	6680.55	20907.86 / 1392.82
C & E Loss (ft)	0.60	Cum SA (acres)	1853.06	2176.70 / 654.98

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there

is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1008.25	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.51	Wt. n-Val.	0.032	0.032	
W.S. Elev (ft)	1004.74	Reach Len. (ft)	510.00	514.11	520.00
Crit W.S. (ft)	1004.74	Flow Area (sq ft)	2266.36	9462.29	
E.G. Slope (ft/ft)	*0.005422	Area (sq ft)	2266.36	9462.29	
Q Total (cfs)	*166000.00	Flow (cfs)	*17617.19	*148382.80	
Top Width (ft)	1710.74	Top Width (ft)	751.96	958.78	
Vel Total (ft/s)	14.15	Avg. Vel. (ft/s)	7.77	15.68	
Max Chl Dpth (ft)	11.93	Hydr. Depth (ft)	3.01	9.87	
Conv. Total (cfs)	*2254410.0	Conv. (cfs)	*239255.3	*2015155.0	
Length Wtd. (ft)	513.87	Wetted Per. (ft)	759.60	963.38	
Min Ch El (ft)	992.80	Shear (lb/sq ft)	1.01	3.32	
Alpha	1.13	Stream Power (lb/ft s)	7.85	52.14	
Frctn Loss (ft)	0.83	Cum Volume (acre-ft)	1177.68	*21711.46	34.97
C & E Loss (ft)	0.71	Cum SA (acres)	195.31	2181.12	6.81

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 206.97

INPUT
Description: 206.97

Right Channel Bank Station Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16303.3	1009.9	16422	1010.3	16524.8	1010.6	16626.6	1010.6	16719.6	1011.3
16794.5	1009.6	16836.4	1004.7	16959	1004.6	17073.2	1004.7	17198.7	1004.8
17241.8	1005.5	17390.7	1004.8	17512.3	1005.1	17603.3	1005.3	17704.7	1005.3
17836.9	1005.5	17965	1005.2	18085.7	1005.8	18094.8	1005.9	18105	1008
18196	1007.4	18235.2	1007.2	18260.5	1005.9	18283.2	1007.6	18372.2	1006.3
18390.1	1005.1	18407.6	999.1	18518.7	997.7	18623.3	996.9	18669.1	995.6
18742.3	996.3	18834	1000.5	18925.1	1002.3	19025.7	1004.4	19072.3	1003.7
19086.7	1001.2	19181.7	1005.8	19197	1005.7	19217.7	1002.3	19234.5	1008.4
19316.9	1001.8	19405.1	1002.1	19456.4	1006.1	19566.5	1005.4	19666.3	1005.2
19736.5	1004.4	19776.5	998.7	19783.2	1000.5	19808.3	994.1	19822.1	992.8
19919.1	992.9	20108.8	993.1	20124.9	999	20128.8	998.6	20159.3	982.1
20170.6	981.8	20265.5	981.8	20360.8	981.8	20399.3	981.8	20400.1	981.8
20443.8	981.8	20457.3	981.8	20522.8	981.8	20543.7	981.8	20552.2	981.8
20558.1	981.8	20559.2	981.8	20645	981.8	20661.9	981.7	20684.6	981.8
20778.2	981.8	20792.8	981.8	20800984.2432		20814.9	989.3	20826.8	991.9
20829.6	993.6	20832.1	993.2	20841.1	988	20882.9	981.8	20888	981.8
20995.1	981.8	21051.7	981.8	21053.6	981.8	21086.6	1009	21114.5	1010.4
21124.9	1008.4	21145.7	1009.1	21151.2	1011.2	21171.8	1014.5	21174	1009.3
21270.2	1009.8	21364.9	1009.2	21463.9	1009.1	21469.9	1008.9	21475.8	1010.8
21486.9	1008.5	21498	1009.8						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16303.3	.025	16719.6	.043	18407.6	.032	19736.5	.032	21086.6	.032

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19736.5 20800 480 491.78 480 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
20800	21498	1010	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1004.80	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.07	Wt. n-Val.	0.032	0.032	
W.S. Elev (ft)	1003.73	Reach Len. (ft)	480.00	491.78	480.00
Crit W.S. (ft)	995.22	Flow Area (sq ft)	3249.01	*18103.59	
E.G. Slope (ft/ft)	*0.000773	Area (sq ft)	3249.01	*18103.59	5405.96
Q Total (cfs)	*166000.00	Flow (cfs)	*11555.59	*154444.40	
Top Width (ft)	2153.01	Top Width (ft)	814.01	1058.80	280.21
Vel Total (ft/s)	7.77	Avg. Vel. (ft/s)	3.56	8.53	
Max Chl Dpth (ft)	22.03	Hydr. Depth (ft)	3.99	17.10	
Conv. Total (cfs)	*5970014.0	Conv. (cfs)	*415584.7	*5554430.0	
Length Wtd. (ft)	490.90	Wetted Per. (ft)	815.73	1065.91	
Min Ch El (ft)	981.70	Shear (lb/sq ft)	0.19	0.82	
Alpha	1.13	Stream Power (lb/ft s)	0.68	6.99	
Frctn Loss (ft)	0.31	Cum Volume (acre-ft)	6640.10	*20747.63	1360.55
C & E Loss (ft)	0.07	Cum SA (acres)	1841.47	2164.81	653.31

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1005.77	Element	Left OB	Channel / Right OB
Vel Head (ft)	1.14	Wt. n-Val.	0.032	0.032 /
W.S. Elev (ft)	1004.63	Reach Len. (ft)	480.00	491.78 / 480.00
Crit W.S. (ft)	995.22	Flow Area (sq ft)	892.56	19057.96 /
E.G. Slope (ft/ft)	0.000760	Area (sq ft)	892.56	19057.96 /
Q Total (cfs)	166000.00	Flow (cfs)	1714.70	164285.30 /
Top Width (ft)	1567.64	Top Width (ft)	504.14	1063.50 /
Vel Total (ft/s)	8.32	Avg. Vel. (ft/s)	1.92	8.62 /
Max Chl Dpth (ft)	22.93	Hydr. Depth (ft)	1.77	17.92 /
Conv. Total (cfs)	6019868.0	Conv. (cfs)	62182.5	5957686.0 /
Length Wtd. (ft)	491.63	Wetted Per. (ft)	509.11	1091.04 /
Min Ch El (ft)	981.70	Shear (lb/sq ft)	0.08	0.83 /
Alpha	1.06	Stream Power (lb/ft s)	0.16	7.15 /
Frctn Loss (ft)	0.31	Cum Volume (acre-ft)	1159.19	21543.16 / 34.97
C & E Loss (ft)	0.07	Cum SA (acres)	187.95	2169.19 / 6.81

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 206.88

INPUT
Description: 206.88

Right Channel Bank Station Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16205.8	1008.1	16348.5	1008.4	16441.8	1008.4	16531.3	1008.2	16598.3	1009.2
16605	1008.5	16606.3	1010.2	16696.6	1005.4	16819.2	1004.3	16908.4	1004.4
17006	1004.7	17092.4	1003.2	17182	1004	17323.7	1003.7	17415.5	1003.8
17503.8	1003.9	17603.8	1003.9	17703.9	1004.6	17815.8	1005.9	17930.5	1006.3
18057.4	1006.3	18152.5	1006	18216	1005.3	18267.1	1005.9	18292.7	1007.3
18373.6	999.7	18386.3	996.3	18470	995.7	18533.8	995.1	18593.4	996.7
18657.8	996.4	18748.4	998	18835.7	998.9	18932.3	1000.4	18993.2	1000.9
19018.7	1003.6	19101.5	1004	19119.7	1002.9	19166.7	1006	19168.3	1006.9
19251.9	1004.5	19258.4	1005	19341.6	1001.3	19360.8	1001.1	19415.8	1004.9
19507.2	1001.3	19566.3	1004.7	19645.5	1003.4	19728.8	1003.5	19781.8	993.3
19833	992.7	19942.2	993	19947.1	996.6	19996.5	982.3	20008.3	981.8
20016.1	981.8	20105.7	981.8	20143	981.8	20146.6	981.8	20221.6	981.8
20334.4	981.8	20459.7	981.8	20546.8	981.8	20641.2	981.8	20760.8	981.8
20800	981.8	20820.9	981.8	20832	984	20842.1	983.1	20850.4	981.8
20851.4	981.8	20928.6	981.8	20948.4	981.8	21002.4	999.3	21012.9	997
21041.1	997	21047.1	998.2	21081.4	998.4	21113.7	986.4	21142	981.7
21162.6	990	21181.8	991.8	21199.6	1001.3	21208.2	1003.8	21233.9	1006.9
21251.5	1012.2	21270.1	1006.2	21313.5	1006.5	21327.6	1009.1	21361.8	1011.6
21394.4	1008.9	21440.9	1009.7	21454	1011.6	21546.5	1009	21569.8	1012.6
21605	1009.6	21674.6	1010.5						

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16205.8	.025	16696.6	.043	18386.3	.032	19728.8	.032	21251.5	.032
21605	.025								

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19728.8 20800 480 487.71 505 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
16205.8	18292.7	1007.3	F
20800	21674.6	1012	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1004.41	Element	Left OB	Channel / Right OB
Vel Head (ft)	0.83	Wt. n-Val.	0.032	0.032 /
W.S. Elev (ft)	1003.59	Reach Len. (ft)	480.00	487.71 / 505.00
Crit W.S. (ft)	993.27	Flow Area (sq ft)	4121.21	20233.29 /
E.G. Slope (ft/ft)	0.000528	Area (sq ft)	4133.88	20233.29 / 6019.31
Q Total (cfs)	166000.00	Flow (cfs)	13323.00	152677.00 /
Top Width (ft)	2551.40	Top Width (ft)	1072.74	1071.20 / 407.46
Vel Total (ft/s)	6.82	Avg. Vel. (ft/s)	3.23	7.55 /
Max Chl Dpth (ft)	21.89	Hydr. Depth (ft)	4.09	18.89 /
Conv. Total (cfs)	7226234.0	Conv. (cfs)	579970.7	6646263.0 /
Length Wtd. (ft)	487.04	Wetted Per. (ft)	1008.30	1075.40 /
Min Ch El (ft)	981.80	Shear (lb/sq ft)	0.13	0.62 /
Alpha	1.15	Stream Power (lb/ft s)	0.44	4.68 /
Frctn Loss (ft)	0.25	Cum Volume (acre-ft)	6599.42	20531.22 / 1297.60
C & E Loss (ft)	0.04	Cum SA (acres)	1831.08	2152.79 / 649.52

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1005.39	Element	Left OB	Channel / Right OB
Vel Head (ft)	0.91	Wt. n-Val.	0.032	0.032 /
W.S. Elev (ft)	1004.48	Reach Len. (ft)	480.00	487.71 / 505.00
Crit W.S. (ft)	993.27	Flow Area (sq ft)	1430.58	21191.71 /
E.G. Slope (ft/ft)	0.000533	Area (sq ft)	1430.58	21191.71 /
Q Total (cfs)	166000.00	Flow (cfs)	2573.67	163426.30 /
Top Width (ft)	1800.86	Top Width (ft)	729.66	1071.20 /
Vel Total (ft/s)	7.34	Avg. Vel. (ft/s)	1.80	7.71 /
Max Chl Dpth (ft)	22.68	Hydr. Depth (ft)	1.96	19.78 /
Conv. Total (cfs)	7191503.0	Conv. (cfs)	111497.2	7080006.0 /
Length Wtd. (ft)	487.55	Wetted Per. (ft)	735.78	1098.08 /

				Post-Project		
* Min Ch El (ft)	* 981.80	* Shear (lb/sq ft)	* 0.06	* 0.64	*	*
* Alpha	* 1.09	* Stream Power (lb/ft s)	* 0.12	* 4.95	*	*
* Frctn Loss (ft)	* 0.25	* Cum Volume (acre-ft)	* 1146.39	*21315.96	* 34.97	*
* C & E Loss (ft)	* 0.05	* Cum SA (acres)	* 181.15	* 2157.14	* 6.81	*

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 206.79

INPUT
Description: 206.79

Right Channel Bank Station Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16211.1	1006.9	16286.9	1006.9	16364.1	1007.5	16379.7	1007.6	16449.9	1007.6
16525.2	1007.8	16538.6	1008.9	16619.3	1008.5	16666.4	1006.2	16699.6	1001.9
16769.7	1002.3	16840	1002.4	16905.7	1002.4	16989.2	1002.5	17055.4	1002.7
17133	1002.7	17230.9	1002.5	17245.4	1002.4	17322.6	1003	17404	1003.7
17419.6	1003.8	17484.7	1004.3	17553	1004.8	17588.7	1004.8	17631.2	1003
17670.6	1002.9	17748.9	1006.3	17834.7	1006.5	17871.1	1006.6	17919.1	1005.8
17921.7	1005.2	17948.4	1004.4	18036.8	1004.9	18106	1004.9	18182.5	1004.5
18301.7	1004.4	18337	1004.5	18378.4	997.7	18439.7	995.6	18517.1	995.3
18604.7	996.5	18674.2	996.8	18740.3	995.7	18770.1	994.8	18841.6	996.3
18882	997.5	18920.6	1006.8	19010.4	1005.9	19096.2	1003.2	19138.3	1000.6
19186.5	1000.9	19206.9	1002.3	19281.9	1002	19360.7	1002.6	19391.1	1000
19450.2	1002.2	19485	1002.5	19519.3	1004	19570	1004.1	19626.2	1001.8
19645.2	1001.4	19653.2	1002.5	19663.1	1005.3	19671.5	1001	19690.4	994.6
19711.8	993	19766	993.3	19929.9	994	19943.3	996.8	19952.4	996.3
19962.3	992.6	19991	990.7	20007.7	991.1	20032.9	987.2	20042.3	985
20082.5	982.2	20100.2	981.8	20136.1	981.8	20140	981.8	20180.6	981.8
20309.2	981.8	20331	981.8	20390.5	981.8	20420.7	981.8	20422.7	981.8
20425	981.8	20501.8	981.8	20576.6	981.8	20625.3	981.8	20832.1	981.8
20847	981.8	20851.9	981.8	20865.4	988.82	0895.15	1003.436	20902.8	1007.2
20935.6	1019.6	20986	1019.6						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16211.1	.025	16525.2	.043	18378.4	.032	19663.1	.032	20935.6	.032

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
19663.12	0895.15	495 489.96	520	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
16211.1	17871.1	1015	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 1004.13	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 0.69	* Wt. n-Val.	* 0.032	* 0.032	* *
* W.S. Elev (ft)	* 1003.43	* Reach Len. (ft)	* 495.00	* 489.96	* 520.00 *
* Crit W.S. (ft)	* 992.85	* Flow Area (sq ft)	* 4633.73	*21710.05	* *
* E.G. Slope (ft/ft)	*0.000488	* Area (sq ft)	* 5262.60	*21710.05	* *
* Q Total (cfs)	*166000.00	* Flow (cfs)	*15594.29	*150405.70	* *
* Top Width (ft)	* 3026.51	* Top Width (ft)	* 1798.11	* 1228.40	* *
* Vel Total (ft/s)	* 6.30	* Avg. Vel. (ft/s)	* 3.37	* 6.93	* *
* Max Chl Dpth (ft)	* 21.63	* Hydr. Depth (ft)	* 4.41	* 17.67	* *
* Conv. Total (cfs)	*7514464.0	* Conv. (cfs)	*705920.1	*6808544.0	* *
* Length Wtd. (ft)	* 490.43	* Wetted Per. (ft)	* 1052.75	* 1236.91	* *
* Min Ch El (ft)	* 981.80	* Shear (lb/sq ft)	* 0.13	* 0.53	* *
* Alpha	* 1.12	* Stream Power (lb/ft s)	* 0.45	* 3.70	* *
* Frctn Loss (ft)	* 0.23	* Cum Volume (acre-ft)	* 6547.65	*20296.42	* 1262.71 *
* C & E Loss (ft)	* 0.05	* Cum SA (acres)	* 1815.26	* 2139.91	* 647.16 *

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 1005.10	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 0.76	* Wt. n-Val.	* 0.032	* 0.032	* *
* W.S. Elev (ft)	* 1004.34	* Reach Len. (ft)	* 495.00	* 489.96	* 520.00 *
* Crit W.S. (ft)	* 992.85	* Flow Area (sq ft)	* 1935.26	*22824.84	* *
* E.G. Slope (ft/ft)	*0.000478	* Area (sq ft)	* 1935.26	*22824.84	* *
* Q Total (cfs)	*166000.00	* Flow (cfs)	* 4403.95	*161596.00	* *
* Top Width (ft)	* 1934.31	* Top Width (ft)	* 704.13	* 1230.18	* *
* Vel Total (ft/s)	* 6.70	* Avg. Vel. (ft/s)	* 2.28	* 7.08	* *
* Max Chl Dpth (ft)	* 22.54	* Hydr. Depth (ft)	* 2.75	* 18.55	* *
* Conv. Total (cfs)	*7590998.0	* Conv. (cfs)	*201387.9	*7389610.0	* *
* Length Wtd. (ft)	* 490.08	* Wetted Per. (ft)	* 714.47	* 1239.81	* *
* Min Ch El (ft)	* 981.80	* Shear (lb/sq ft)	* 0.08	* 0.55	* *
* Alpha	* 1.09	* Stream Power (lb/ft s)	* 0.18	* 3.89	* *
* Frctn Loss (ft)	* 0.22	* Cum Volume (acre-ft)	* 1127.84	*21069.55	* 34.97 *
* C & E Loss (ft)	* 0.06	* Cum SA (acres)	* 173.25	* 2144.26	* 6.81 *

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 206.7

```
INPUT
Description: 206.7 - FEMA Section P
Station Elevation Data    num=      96
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 16235.4  1006.6 16247.5  1006.6 16320.8  1007.1 16332.7    1007 16402.3  1007.2
 16479.2    1008 16505.8  1007.5 16527.3    1008 16552.4    1002 16640.8  1001.4
 16727.5  1001.8 16815.4  1001.7 16889.1  1001.5 16902.1  1001.5 16968.1  1001.2
 17043.4  1001.3   17155  1000.9 17251.1  1001.1 17317.4  1002.1 17335.4  1002.3
 17401.1  1002.9 17430.7  1003.1 17519.9  1003.5 17616.5  1003.3 17699.9    1004
 17823.5  1005.8 17891.6  1004.8 17962.7  1005.6 18043.4  1006.2 18125.2  1006.2
 18207.9  1005.3 18257.6    1003 18280.3   995.2 18285.8   995.2 18301.4   997.1
 18329.6   998.9 18423.4   998.8 18488.5     996 18559.6   995.2 18629.1   994.8
 18690.8   994.6 18728.6   993.3 18746.4   994.2 18779.5   994.4 18815.2   996.6
 18848.2  1004.6 18945.8    1005 19021.2  1004.8 19092.1  1004.4 19150.1  1003.8
 19192.4  1001.5 19285.5  1002.1 19293.9  1002.1 19370.4   999.7 19431.5   999.7
 19468.9  1000.2 19510.1  1003.7 19543.9  1002.8 19624.5   994.6 19647.2   992.9
 19711.3   993.2 19814.1   993.4 19871.2   993.4 19882.5   995.3 19901.9   992.6
 19941.1   991.3 20015.4   991.6 20098.2   993.9 20143.5     994 20167.9   992.9
 20185.2  1000.4 20197.8   994.4 20212.7   993.7 20259.6   993.7 20275.9   991.3
 20314.8   981.8 20318.5   981.8 20393.8   981.8 20691.8   981.8 20713.3   981.8
 20963.1   981.8 21002.8   981.8 21076.8   981.8 21102.7   981.8   21120   988.8
   21131   999.6 21138.8  1004.7 21146.9  1002.8   21207  1004.5 21234.3  1006.1
 21262.4  1006.4   21329  1008.1 21422.5  1007.5 21452.5  1018.4 21484.3  1017.2
   21488  1018.6

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************************************************
 16235.4    .025 16640.8    .043 18329.6    .032 19510.1    .032 21138.8    .032

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       19510.1 21138.8              500  500.23     500             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
 16235.4   18110    1015        F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         * 1003.85  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.53  * Wt. n-Val.            *   0.033  *   0.032  *   0.032  *
* W.S. Elev (ft)         * 1003.32  * Reach Len. (ft)       *  500.00  *  500.23  *  500.00  *
* Crit W.S. (ft)         *  994.04  * Flow Area (sq ft)     * 4836.21  *24990.17  *    5.40  *
* E.G. Slope (ft/ft)     *0.000441  * Area (sq ft)          * 6375.55  *24990.17  *    5.40  *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *15339.89  *150658.00  *    2.14  *
* Top Width (ft)         * 3518.68  * Top Width (ft)       * 1885.60  * 1612.40  *   20.68  *
* Vel Total (ft/s)       *    5.56  * Avg. Vel. (ft/s)     *    3.17  *    6.03  *    0.40  *
* Max Chl Dpth (ft)      *   21.52  * Hydr. Depth (ft)     *    5.15  *   15.50  *    0.26  *
* Conv. Total (cfs)      *7908733.0  * Conv. (cfs)         *730837.9  *7177793.0  *   102.1  *
* Length Wtd. (ft)       *  500.20  * Wetted Per. (ft)     *  941.74  * 1624.44  *   20.75  *
* Min Ch El (ft)         *  981.80  * Shear (lb/sq ft)     *    0.14  *    0.42  *    0.01  *
* Alpha                  *    1.10  * Stream Power (lb/ft s) *    0.45  *    2.55  *    0.00  *
* Frctn Loss (ft)        *    0.28  * Cum Volume (acre-ft)  * 6481.52  *20033.78  * 1262.68  *
* C & E Loss (ft)        *    0.01  * Cum SA (acres)        * 1794.33  * 2123.94  *  647.04  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)         * 1004.82  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.58  * Wt. n-Val.            *   0.032  *   0.032  *          *
* W.S. Elev (ft)         * 1004.25  * Reach Len. (ft)       *  500.00  *  500.23  *  500.00  *
* Crit W.S. (ft)         *  994.04  * Flow Area (sq ft)     * 1493.50  *26493.02  *          *
* E.G. Slope (ft/ft)     *0.000429  * Area (sq ft)          * 1493.50  *26493.02  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)           * 3212.54  *162787.50  *          *
* Top Width (ft)         * 2093.13  * Top Width (ft)       *  465.13  * 1628.01  *          *
* Vel Total (ft/s)       *    5.93  * Avg. Vel. (ft/s)     *    2.15  *    6.14  *          *
* Max Chl Dpth (ft)      *   22.45  * Hydr. Depth (ft)     *    3.21  *   16.27  *          *
* Conv. Total (cfs)      *8015485.0  * Conv. (cfs)         *155121.0  *7860364.0  *          *
* Length Wtd. (ft)       *  500.22  * Wetted Per. (ft)     *  475.87  * 1640.33  *          *
* Min Ch El (ft)         *  981.80  * Shear (lb/sq ft)     *    0.08  *    0.43  *          *
* Alpha                  *    1.05  * Stream Power (lb/ft s) *    0.18  *    2.66  *          *
* Frctn Loss (ft)        *    0.27  * Cum Volume (acre-ft)  * 1108.36  *20792.19  *   34.97  *
* C & E Loss (ft)        *    0.02  * Cum SA (acres)        *  166.61  * 2128.18  *    6.81  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 206.6

INPUT
Description: 206.6

Right Channel Bank Station Interpolated
Station Elevation Data    num=      97
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 15752.8  1005.9   15777  1004.9 15795.8    1006   15801  1003.8 15809.3  1007.3
 15819.9  1006.1 15842.8  1009.5 15850.1    1008 15855.5  1009.8 15868.1  1009.5
 15879.9  1006.9 15895.6  1008.4 15904.2  1005.4 15941.1  1007.3 16035.3  1006.2
 16155.5  1005.7 16243.9  1005.6 16347.4  1004.9 16444.6  1004.9 16555.6  1004.8
   16645  1004.4 16756.4  1003.6 16845.8  1003.1 16944.2  1003.4 17049.2  1002.3
 17143.6  1001.7 17249.3  1001.2 17366.6    1001 17501.5  1003.7 17624.2  1003.7
 17723.3  1004.1 17790.8    1004   17818   998.9 17847.9  1003.1 17937.7  1002.9
 17956.2  1002.7 17971.4   998.8 17988.6  1001.2 18083.6  1001.7 18173.1  1001.7
 18217.2  1001.9 18242.2   997.1 18334.4   996.5 18436.5     995 18542.1   993.8
```

18633.3	993.9	18742.2	997.5	18817.7	997.8	18852.6	1003.9	18965.8	1004.2
19055.2	1003.8	19184.3	1003.1	19243.2	1000	19325.9	998.4	19358	993.4
19395.9	993.2	19452.5	996.6	19546.1	997.7	19580.1	996.6	19611.2	993.1
19679	993.4	19778	993.3	19846.4	993.3	19854.8	995.6	19874.7	992.9
19953.8	992.1	20043.5	994.5	20146.1	995.4	20262.3	995.5	20371.5	995.1
20435.5	995.1	20475.7	981.8	20489.7	981.8	20608.9	981.8	20609	981.8
20738.4	981.8	20854.4	981.8	20866.2	981.8	20903.7	981.8	20931.2	981.8
20996	981.8	21003.4	981.8	21042	988.8	21050.2	99521066.251002.898		
21069.1	1004.3	21182.2	1006.4	21270.7	1006.8	21401.9	1007.6	21495.5	1008
21503.1	1008	21594.4	1008.1	21688	1008.4	21840.4	1008.8	21940.4	1009.3
21957.8	1009.5	21998	1007.2						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
15752.8	.025	16944.2	.043	18334.4	.032	19546.1	.032	21069.1	.032

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

19546.121066.25 515 504.63 520 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
15752.8	17847.9	1009	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1003.56	Element	Left OB	Channel / Right OB
Vel Head (ft)	0.66	Wt. n-Val.	0.033	0.032
W.S. Elev (ft)	1002.90	Reach Len. (ft)	515.00	504.63 / 520.00
Crit W.S. (ft)	996.86	Flow Area (sq ft)	6694.45	*20182.76
E.G. Slope (ft/ft)	*0.000710	Area (sq ft)	7349.03	*20182.76
Q Total (cfs)	*166000.00	Flow (cfs)	*26458.02	*139542.00
Top Width (ft)	3305.80	Top Width (ft)	1785.65	1520.15
Vel Total (ft/s)	6.18	Avg. Vel. (ft/s)	3.95	6.91
Max Chl Dpth (ft)	21.10	Hydr. Depth (ft)	5.28	13.28
Conv. Total (cfs)	*6230824.0	Conv. (cfs)	*993104.0	*5237720.0
Length Wtd. (ft)	507.00	Wetted Per. (ft)	1269.01	1527.59
Min Ch El (ft)	981.80	Shear (lb/sq ft)	0.23	0.59
Alpha	1.12	Stream Power (lb/ft s)	0.92	4.05
Frctn Loss (ft)	0.48	Cum Volume (acre-ft)	6402.76	*19774.40 / 1262.65
C & E Loss (ft)	0.04	Cum SA (acres)	1773.26	2105.95 / 646.92

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1004.54	Element	Left OB	Channel / Right OB
Vel Head (ft)	0.75	Wt. n-Val.	0.032	0.032
W.S. Elev (ft)	1003.79	Reach Len. (ft)	515.00	504.63 / 520.00
Crit W.S. (ft)	996.68	Flow Area (sq ft)	3388.69	*21538.87
E.G. Slope (ft/ft)	*0.000695	Area (sq ft)	3388.69	*21538.87
Q Total (cfs)	*166000.00	Flow (cfs)	*12208.77	*153791.20
Top Width (ft)	2185.35	Top Width (ft)	665.20	1520.15
Vel Total (ft/s)	6.66	Avg. Vel. (ft/s)	3.60	7.14
Max Chl Dpth (ft)	21.99	Hydr. Depth (ft)	5.09	14.17
Conv. Total (cfs)	*6298256.0	Conv. (cfs)	*463216.7	*5835039.0
Length Wtd. (ft)	506.14	Wetted Per. (ft)	674.84	1528.48
Min Ch El (ft)	981.80	Shear (lb/sq ft)	0.22	0.61
Alpha	1.09	Stream Power (lb/ft s)	0.78	4.36
Frctn Loss (ft)	0.48	Cum Volume (acre-ft)	1080.34	*20516.39 / 34.97
C & E Loss (ft)	0.04	Cum SA (acres)	160.12	2110.11 / 6.81

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 206.51

INPUT
Description: 206.51
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
15913.8	1005.6	15956.7	1007.2	15960.5	1006.2	15969.2	1008	16053.6	1008.2
16067.4	1005.5	16150.9	1004.8	16244	1004.8	16317.6	1004.8	16358.5	1004.6
16454.2	1004.5	16463	1004.5	16544	1004.3	16655.6	1003.2	16728.4	1002.6
16756.4	1002.5	16830	1001.9	16942.4	1001.6	16965.9	1001.5	17053.8	1001.7
17131.5	1001.6	17218.7	1001.1	17306.1	1000.9	17382.1	1001.5	17467	1001.9
17537	1002.2	17549.6	1001.2	17642.5	1001.4	17732.1	999	17805.5	999.3
17867.7	1000	17906.8	1001.8	17982.4	1001.1	18024.8	1000	18113.4	1001
18197.5	1001.3	18210.2	1000.8	18235.8	995.8	18284.9	994.8	18353.6	996.2
18430.7	989.4	18472.3	992.6	18563.8	993.1	18633.6	994.5	18690.9	995.9
18720.1	998	18725.5	999	18780.9	997.9	18793	996.9	18839.1	995.7
18912.5	997.1	18936.6	997.3	18950.4	998.8	18982	1000.3	19017.4	998.8
19041	995.2	19046.4	993.8	19117.4	994.6	19184.9	992.6	19190.6	992.6
19209.6	996.5	19283.6	998.8	19380.8	997	19450	996.8	19458	996.8
19546.2	997.4	19586.4	996.5	19645.9	993.2	19653.5	993.3	19813.4	992.5
19869.8	992.3	19881.5	997.9	19911.8	995.3	19937.5	994.2	19964.8	991.9
19978.6	992.1	20019.7	990.5	20038.1	988.7	20070.3	987.9	20113.5	982.4
20192.5	982	20272.4	981.8	20353.1	981.8	20395.6	982.6	20485.4	993.1
20530.4	997	20546.7	997.4	20554.3	995.6	20599.9	998.6	20622.1	999.3
20634.8	998.6	20716.6	1000	20819.1	1001.3	20897.8	1001.5	20989.4	1002.8
21021	1008								

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
15913.8	.025	17218.7	.043	18235.8	.032	19546.2	.032	20622.1	.032

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19546.2 20622.1 495 496.45 500 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
15913.8	17700	1008	F
20615	21021	1008	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1003.04	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.02	Wt. n-Val.	0.032	0.032	
W.S. Elev (ft)	1002.02	Reach Len. (ft)	495.00	496.45	500.00
Crit W.S. (ft)	998.52	Flow Area (sq ft)	9128.32	12982.93	
E.G. Slope (ft/ft)	0.001348	Area (sq ft)	9628.89	13003.06	461.29
Q Total (cfs)	166000.00	Flow (cfs)	49265.64	116734.40	
Top Width (ft)	4076.37	Top Width (ft)	2687.89	1075.90	312.58
Vel Total (ft/s)	7.51	Avg. Vel. (ft/s)	5.40	8.99	
Max Chl Dpth (ft)	20.22	Hydr. Depth (ft)	4.94	12.15	
Conv. Total (cfs)	4521128.0	Conv. (cfs)	1341785.0	3179343.0	
Length Wtd. (ft)	495.96	Wetted Per. (ft)	1848.59	1072.00	
Min Ch El (ft)	981.80	Shear (lb/sq ft)	0.42	1.02	
Alpha	1.16	Stream Power (lb/ft s)	2.24	9.16	
Frctn Loss (ft)	0.69	Cum Volume (acre-ft)	6302.39	19582.18	1259.89
C & E Loss (ft)	0.03	Cum SA (acres)	1746.82	2090.91	645.05

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1004.02	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.18	Wt. n-Val.	0.032	0.032	
W.S. Elev (ft)	1002.84	Reach Len. (ft)	495.00	496.45	500.00
Crit W.S. (ft)	999.19	Flow Area (sq ft)	6259.99	13856.29	
E.G. Slope (ft/ft)	0.001341	Area (sq ft)	6259.99	13882.22	
Q Total (cfs)	166000.00	Flow (cfs)	36248.43	129751.60	
Top Width (ft)	2060.75	Top Width (ft)	984.85	1075.90	
Vel Total (ft/s)	8.25	Avg. Vel. (ft/s)	5.79	9.36	
Max Chl Dpth (ft)	21.04	Hydr. Depth (ft)	6.36	12.96	
Conv. Total (cfs)	4533739.0	Conv. (cfs)	990005.6	3543734.0	
Length Wtd. (ft)	496.07	Wetted Per. (ft)	995.97	1072.00	
Min Ch El (ft)	981.80	Shear (lb/sq ft)	0.53	1.08	
Alpha	1.11	Stream Power (lb/ft s)	3.05	10.13	
Frctn Loss (ft)	0.69	Cum Volume (acre-ft)	1023.30	20311.22	34.97
C & E Loss (ft)	0.03	Cum SA (acres)	150.37	2095.07	6.81

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 206.41

INPUT
Description: 206.41

Right Channel Bank Station Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16072.3	1004.6	16106.4	1006.4	16110	1005.1	16145.4	1008.7	16171	1008.7
16201.9	1005.9	16207.2	1004	16245.8	1004.3	16311.3	1003.5	16339	1003.3
16410.7	1003.1	16479.2	1003.2	16504.4	1003.2	16587.4	1003	16660.5	1002.5
16723.1	1001.7	16801.8	1001.5	16828.5	1001.3	16901.2	1001.1	16957.6	1001.1
17046.4	1001	17111	1001.2	17185.4	1001	17248.3	1000.1	17325.6	999.8
17339.6	999.7	17404.5	999.4	17486.4	999.7	17508.2	999.5	17572.4	999.3
17623.9	997.5	17651.1	1000.3	17677.5	1000.2	17744.8	1000	17841.4	1000
17924.2	1000	17975.5	1001.6	18054.4	997.3	18144.7	995.9	18247.4	997.4
18279.8	997.6	18300.2	993.9	18302.9	992.5	18313.4	993.5	18405.6	991.3
18469.8	989.6	18495.7	988.3	18533.5	989.6	18556.8	987.7	18575.5	988.9
18582.4	987.8	18584.3	989.6	18620.5	992.5	18634.5	992.5	18697.7	996.9
18786	998.9	18861.4	999.4	18929.1	999.3	18999.1	996.6	19037	995.4
19069.4	992.6	19082.5	992.4	19169.3	990.8	19285.4	995	19369.2	996.5
19395.7	996.5	19466.6	996.5	19539.8	996.4	19622.9	997.3	19694.4	996.7
19720.5	996.5	19730.2	994.5	19748.7	992.6	19835.1	990.8	19895.8	991.8
19904.5	990.4	19996.1	990.2	20002.5	990.4	20015.5	997.7	20035	990
20091.8	991.6	20171.9	991.2	20269.1	991.6	20343.1	990.4	20356.9	990
20360	988.9	20373.3	988	20379.2	986.7	20421	985.4	20490.4	985.8
20544.3	985.8	20576.7	983.8	20636.9	982.52	0685.22	1001.416	20690.8	1003.6
20719.8	1001.5	20729	1007.4						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16072.3	.025	17185.4	.043	18300.2	.032	19622.9	.032	20690.8	.032

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19622.9 20685.22 495 494.64 490 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
16072.3	17111	1008	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1002.32	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.91	Wt. n-Val.	0.033	0.032	
W.S. Elev (ft)	1001.41	Reach Len. (ft)	495.00	494.64	490.00
Crit W.S. (ft)	997.88	Flow Area (sq ft)	11582.17	11788.77	
E.G. Slope (ft/ft)	0.001436	Area (sq ft)	11668.10	11788.77	
Q Total (cfs)	166000.00	Flow (cfs)	63303.79	102696.20	
Top Width (ft)	3862.05	Top Width (ft)	2799.74	1062.31	

				Post-Project		
* Vel Total (ft/s)	* 7.10	* Avg. Vel. (ft/s)	* 5.47	* 8.71	*	*
* Max Chl Dpth (ft)	* 18.91	* Hydr. Depth (ft)	* 4.63	* 11.10	*	*
* Conv. Total (cfs)	*4380634.0	* Conv. (cfs)	*1670546.0	*2710087.0	*	*
* Length Wtd. (ft)	* 494.78	* Wetted Per. (ft)	* 2505.07	* 1070.20	*	*
* Min Ch El (ft)	* 982.50	* Shear (lb/sq ft)	* 0.41	* 0.99	*	*
* Alpha	* 1.16	* Stream Power (lb/ft s)	* 2.27	* 8.60	*	*
* Frctn Loss (ft)	* 0.72	* Cum Volume (acre-ft)	* 6181.39	*19440.90	* 1257.25	*
* C & E Loss (ft)	* 0.03	* Cum SA (acres)	* 1715.64	* 2078.73	* 643.26	*

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 1003.30	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 1.09	* Wt. n-Val.	* 0.032	* 0.032	* *
* W.S. Elev (ft)	* 1002.21	* Reach Len. (ft)	* 495.00	* 494.64	* 490.00 *
* Crit W.S. (ft)	* 998.36	* Flow Area (sq ft)	* 7928.85	*12640.94	* *
* E.G. Slope (ft/ft)	*0.001435	* Area (sq ft)	* 7928.85	*12640.94	* *
* Q Total (cfs)	*166000.00	* Flow (cfs)	*50717.68	*115282.30	* *
* Top Width (ft)	* 2190.50	* Top Width (ft)	* 1128.19	* 1062.31	* *
* Vel Total (ft/s)	* 8.07	* Avg. Vel. (ft/s)	* 6.40	* 9.12	* *
* Max Chl Dpth (ft)	* 19.71	* Hydr. Depth (ft)	* 7.03	* 11.90	* *
* Conv. Total (cfs)	*4381569.0	* Conv. (cfs)	*1338693.0	*3042876.0	* *
* Length Wtd. (ft)	* 494.75	* Wetted Per. (ft)	* 1143.59	* 1071.00	* *
* Min Ch El (ft)	* 982.50	* Shear (lb/sq ft)	* 0.62	* 1.06	* *
* Alpha	* 1.08	* Stream Power (lb/ft s)	* 3.97	* 9.65	* *
* Frctn Loss (ft)	* 0.73	* Cum Volume (acre-ft)	* 942.69	*20160.08	* 34.97 *
* C & E Loss (ft)	* 0.03	* Cum SA (acres)	* 138.36	* 2082.88	* 6.81 *

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 206.32

INPUT
Description: 206.32 - FEMA Section O

Right Channel Bank Station Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16817.7	1002.2	16831.7	1004.4	16847.7	1000.1	16903	997.6	16998.5	999.5
17015.9	999.8	17073.2	995.7	17113.2	998.3	17193.6	998.2	17277.8	999.4
17336.8	998.4	17343.9	998.8	17416.7	997.2	17461	999.1	17530.2	1000
17612	1000.6	17634.8	999.5	17703.3	1001.3	17735.8	1000.4	17761.4	998.4
17843.7	998.5	17853.7	998	17875.9	994.2	17903.4	993.9	17962.9	996.3
18028.7	995.2	18096.2	993.6	18102.6	993.3	18134.8	1001.1	18154.4	1000.2
18192.6	1000.1	18243.3	992.5	18301.4	992.6	18329.8	993.4	18404.3	989.6
18429.4	987.7	18495.6	987.8	18512.7	986.5	18544.6	986.5	18577	989.5
18647	992.5	18707.1	997.1	18782.1	996.8	18869.6	997.5	18885	997.8
18895.7	996.8	18922.1	996.8	18939.9	995.3	18961.5	991.6	18990.7	990
19055.1	991.9	19120.2	992.7	19199.6	995.3	19288	998.1	19351.7	998.3
19433.6	998.5	19488.7	998.2	19527.8	996.5	19535	995.3	19546.5	994.9
19619.6	996.5	19696.3	996.5	19801.3	996.5	19818	996	19830.1	994.5
19917.7	993.3	19992.8	991.2	20076.4	989.2	20107.3	989	20181.4	989.5
20194.5	994.9	20217.3	987.2	20265.3	989.9	20314.9	990.8	20362.4	989.9
20372.9	988.8	20409.1	988.6	20435	986.4	20447.1	986.7	20565.6	989.2
20589.2	986.1	20647.7	982.8	20703.3	983.2	20732.7	988.7	20805.2	991
20816.2	997.6	20847.3	998.3	20854.91	000.773	20855.6	1001	20889.3	1002
20959.7	1001.8	20988.9	1002.7	21076.4	1002.8	21150.5	1002.8	21226.3	1002.8
21295.2	1002.7	21368	1003.3						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16817.7	.043	18404.3	.032	19488.7	.032	20889.3	.032	20988.9	.025

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19488.7 20854.9 515 513.83 520 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
16817.7	17150	1004	F
20899.3	21368	1004	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 1001.56	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 0.80	* Wt. n-Val.	* 0.035	* 0.032	* *
* W.S. Elev (ft)	* 1000.76	* Reach Len. (ft)	* 515.00	* 513.83	* 520.00 *
* Crit W.S. (ft)	* 997.04	* Flow Area (sq ft)	*11528.58	*13024.99	* *
* E.G. Slope (ft/ft)	*0.001495	* Area (sq ft)	*12280.60	*13024.99	* *
* Q Total (cfs)	*166000.00	* Flow (cfs)	*61169.30	*104830.70	* *
* Top Width (ft)	* 3961.10	* Top Width (ft)	* 2594.93	* 1366.17	* *
* Vel Total (ft/s)	* 6.76	* Avg. Vel. (ft/s)	* 5.31	* 8.05	* *
* Max Chl Dpth (ft)	* 17.96	* Hydr. Depth (ft)	* 5.03	* 9.53	* *
* Conv. Total (cfs)	*4293590.0	* Conv. (cfs)	*1582144.0	*2711446.0	* *
* Length Wtd. (ft)	* 514.23	* Wetted Per. (ft)	* 2293.48	* 1372.18	* *
* Min Ch El (ft)	* 982.80	* Shear (lb/sq ft)	* 0.47	* 0.89	* *
* Alpha	* 1.12	* Stream Power (lb/ft s)	* 2.49	* 7.13	* *
* Frctn Loss (ft)	* 0.85	* Cum Volume (acre-ft)	* 6045.31	*19300.02	* 1257.25 *
* C & E Loss (ft)	* 0.01	* Cum SA (acres)	* 1684.99	* 2064.94	* 643.26 *

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

Post-Project

E.G. Elev (ft)	1002.55	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.99	Wt. n-Val.	0.032	0.032	
W.S. Elev (ft)	1001.56	Reach Len. (ft)	515.00	513.83	520.00
Crit W.S. (ft)	997.90	Flow Area (sq ft)	7081.88	14109.49	
E.G. Slope (ft/ft)	0.001498	Area (sq ft)	7081.88	14109.49	
Q Total (cfs)	166000.00	Flow (cfs)	46127.79	119872.20	
Top Width (ft)	2377.93	Top Width (ft)	1011.76	1366.17	
Vel Total (ft/s)	7.83	Avg. Vel. (ft/s)	6.51	8.50	
Max Chl Dpth (ft)	18.76	Hydr. Depth (ft)	7.00	10.33	
Conv. Total (cfs)	4288577.0	Conv. (cfs)	1191702.0	3096875.0	
Length Wtd. (ft)	514.13	Wetted Per. (ft)	1026.57	1372.97	
Min Ch El (ft)	982.80	Shear (lb/sq ft)	0.65	0.96	
Alpha	1.04	Stream Power (lb/ft s)	4.20	8.17	
Frctn Loss (ft)	0.83	Cum Volume (acre-ft)	857.40	20008.20	34.97
C & E Loss (ft)	0.00	Cum SA (acres)	126.21	2069.10	6.81

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 206.22

INPUT
Description: 206.22

Right Channel Bank Station Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16557.5	1004.3	16639.4	1004	16713.7	1003.6	16806.6	1001.8	16878.4	999
16892.3	998.9	16946.1	1002.9	16955.9	1004.8	16975.7	997.5	16981.9	999.4
16987.4	998.1	17046.8	996.8	17159.7	997	17260.1	998.5	17320.1	997.5
17343.9	994.5	17380.4	994.5	17400.6	996.8	17408	996.8	17477.4	998.9
17541.1	999.5	17596.5	998.4	17631.6	996.8	17724.8	998.9	17740.4	998.5
17771.5	991.4	17846.4	992.8	17904.5	993.5	17940	995.6	18004.2	995.6
18016.1	997.5	18035.4	995.9	18079.4	996.3	18103.6	997.7	18147.1	997.6
18161.3	993.8	18238.9	993.7	18321.5	992.4	18333.6	991.4	18443.6	991.4
18455.9	991.4	18507.4	994.4	18550.2	989.5	18634.4	989.6	18723.2	987.6
18759.4	986.3	18833.1	991.5	18933.1	991.9	18987.8	992.5	19058	994.5
19110.4	996.4	19138.8	999.5	19223.6	1000.6	19278.4	1001.5	19361.2	1000.2
19370.9	998.6	19381.6	1000.1	19456.3	999.5	19512.1	996.4	19583	994.5
19660.7	994.4	19691.9	994.4	19781.3	994.4	19826.6	994.4	19870	992.6
19877.4	990.6	19912.2	990	20004.6	991.9	20079	991.3	20117.2	990.7
20188.2	986.9	20282	986.7	20306.6	994.7	20332.7	985.9	20338.2	985.9
20423.1	985.1	20525.8	983	20611.1	984.7	20700.7	989.7	20755.5	992.3
20766.6	995.9	20807.8	996.5	20844.2	994.9	20887.6	996.6	20898.1	998.3
20968.3	999	20974.6	999.1	20977.3	5999.8	423	20990.9	1003.5	21017.9	1001.7
21148.3	1002.6	21222.8	1003.1	21294.4	1003.3	21307.8	1003.3	21385.2	1003.5
21467.9	1003.9	21480	1004						

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16557.5	.043	19278.4	.043	19583	.032	20990.9	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
19278.4	20977.35	500	502.44	460	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
16557.5	16955.9	1004	F
21480	21480	1004	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	1000.70	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.87	Wt. n-Val.	0.043	0.032	
W.S. Elev (ft)	999.83	Reach Len. (ft)	500.00	502.44	460.00
Crit W.S. (ft)	996.54	Flow Area (sq ft)	11715.22	13207.08	
E.G. Slope (ft/ft)	0.001855	Area (sq ft)	11741.90	13207.08	
Q Total (cfs)	166000.00	Flow (cfs)	53201.89	112798.10	
Top Width (ft)	3819.75	Top Width (ft)	2242.04	1577.71	
Vel Total (ft/s)	6.66	Avg. Vel. (ft/s)	4.54	8.54	
Max Chl Dpth (ft)	16.83	Hydr. Depth (ft)	5.34	8.37	
Conv. Total (cfs)	3853835.0	Conv. (cfs)	1235128.0	2618707.0	
Length Wtd. (ft)	501.63	Wetted Per. (ft)	2198.36	1582.28	
Min Ch El (ft)	983.00	Shear (lb/sq ft)	0.62	0.97	
Alpha	1.27	Stream Power (lb/ft s)	2.80	8.26	
Frctn Loss (ft)	0.99	Cum Volume (acre-ft)	5903.31	19145.30	1257.25
C & E Loss (ft)	0.00	Cum SA (acres)	1656.39	2047.58	643.26

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	1001.72	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.03	Wt. n-Val.	0.043	0.032	
W.S. Elev (ft)	1000.69	Reach Len. (ft)	500.00	502.44	460.00
Crit W.S. (ft)	996.71	Flow Area (sq ft)	6624.84	14611.29	
E.G. Slope (ft/ft)	0.001734	Area (sq ft)	6624.84	14611.29	
Q Total (cfs)	166000.00	Flow (cfs)	38880.52	127119.50	
Top Width (ft)	2441.77	Top Width (ft)	794.27	1647.50	
Vel Total (ft/s)	7.82	Avg. Vel. (ft/s)	5.87	8.70	
Max Chl Dpth (ft)	17.69	Hydr. Depth (ft)	8.34	8.87	
Conv. Total (cfs)	3986076.0	Conv. (cfs)	933618.8	3052457.0	
Length Wtd. (ft)	501.89	Wetted Per. (ft)	804.40	1652.99	
Min Ch El (ft)	983.00	Shear (lb/sq ft)	0.89	0.96	
Alpha	1.08	Stream Power (lb/ft s)	5.23	8.33	
Frctn Loss (ft)	1.04	Cum Volume (acre-ft)	776.37	19838.81	34.97

```
                                                                    Post-Project
* C & E Loss (ft)        *    0.02  * Cum SA (acres)          *  115.53  * 2051.32  *    6.81  *
*****************************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 206.13

INPUT
Description: 206.13

Right Channel Bank Station Interpolated
Station Elevation Data    num=      97
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
 16722.1  1002.8 16785.1  1002.2 16877.3  1002.1 16908.3  1000.9 16979.6  1000.9
 17014.5  1000.3 17057.5   998.5 17070.3   997.5 17183.2   997.5 17222.6   994.5
 17342.3   992.1 17417.8   994.4 17490.8   994.6   17494   994.7 17613.2   996.3
 17668.4   995.8 17699.1   991.3 17790.1   992.3 17861.7   993.7 17934.2   993.6
 17996.1   993.2 18017.5   997.2 18080.8   996.1 18121.2   996.9 18147.1   992.3
 18166.8   991.3 18235.4   991.3 18302.6   991.3   18386   991.3 18421.8   989.5
   18432   988.4 18469.5   988.4 18475.1   989.5 18500.2   989.3 18504.2   988.4
 18568.5   987.1 18688.1   988.4 18765.4   989.5 18782.8   992.5 18860.9   996.5
   18915   999.2 18980.4   995.4 19020.4   994.5 19089.1   997.3 19153.9  1000.5
   19162  1001.6   19203  1003.8 19205.7  1003.2 19223.2    1003 19263.9  1000.5
   19294   999.3 19352.5   999.3 19369.3   998.5 19381.9   996.4 19450.5   995.7
 19547.3   995.6 19615.3   994.4 19675.1   990.6 19753.3   990.5 19774.8   990.4
 19852.5   988.3 19926.3   986.6 19938.1   987.1 19943.1   987.8   19956   986.6
   19959   986.7 20036.9   986.5 20105.4   986.3 20129.5   986.8 20164.8   990.8
 20183.5   987.1 20270.6   987.9 20276.8   988.6 20297.8   988.6 20342.4   987.5
 20366.8   987.4 20431.3   985.5 20458.7   984.6 20505.9   984.6 20523.1   985.6
 20557.7   986.6 20563.2   987.2   20637   987.5   20656   988.4 20660.4     988
   20685   996.6 20699.6     998 20710.6   997.6 20766.4   997.9 20788.2     997
 20848.3   996.7 20868.5     996 20903.4   995.720914.99998.8712 20934.1  1004.1
 20964.8  1000.3 20989.1  1000.6

Manning's n Values        num=       3
     Sta    n Val     Sta    n Val     Sta    n Val
*************************************************
 16722.1     .043    19203     .033 20934.1     .032

Bank Sta: Left    Right     Lengths: Left Channel    Right      Coeff Contr.    Expan.
          1920320914.99                490  483.44     540              .1       .3

CROSS SECTION OUTPUT  Profile #PF#1
*****************************************************************************************************
* E.G. Elev (ft)         *  999.71  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.86  * Wt. n-Val.             *   0.043  *   0.033  *          *
* W.S. Elev (ft)         *  998.84  * Reach Len. (ft)        *  490.00  *  483.44  *  540.00  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)      *11343.04  *12898.46  *          *
* E.G. Slope (ft/ft)     *0.002097  * Area (sq ft)           *11343.04  *12898.46  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)            *57077.14  *108922.90  *          *
* Top Width (ft)         * 3610.69  * Top Width (ft)        * 2057.86  * 1552.83  *          *
* Vel Total (ft/s)       *    6.85  * Avg. Vel. (ft/s)      *    5.03  *    8.44  *          *
* Max Chl Dpth (ft)      *   14.24  * Hydr. Depth (ft)      *    5.51  *    8.31  *          *
* Conv. Total (cfs)      *3625268.0  * Conv. (cfs)          *1246506.0  *2378763.0  *          *
* Length Wtd. (ft)       *  485.81  * Wetted Per. (ft)      * 2060.23  * 1556.11  *          *
* Min Ch El (ft)         *  984.60  * Shear (lb/sq ft)      *    0.72  *    1.08  *          *
* Alpha                  *    1.18  * Stream Power (lb/ft s) *    3.63  *    9.16  *          *
* Frctn Loss (ft)        *    1.19  * Cum Volume (acre-ft)  * 5770.82  *18994.74  * 1257.25  *
* C & E Loss (ft)        *    0.04  * Cum SA (acres)        * 1631.71  * 2029.52  *  643.26  *
*****************************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT  Profile #PF#2
*****************************************************************************************************
* E.G. Elev (ft)         * 1000.66  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.23  * Wt. n-Val.             *   0.043  *   0.033  *          *
* W.S. Elev (ft)         *  999.43  * Reach Len. (ft)        *  490.00  *  483.44  *  540.00  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)      * 5507.57  *13816.21  *          *
* E.G. Slope (ft/ft)     *0.002539  * Area (sq ft)           * 5507.57  *13816.21  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)            *35563.61  *130436.40  *          *
* Top Width (ft)         * 2386.31  * Top Width (ft)        *  762.20  * 1624.11  *          *
* Vel Total (ft/s)       *    8.59  * Avg. Vel. (ft/s)      *    6.46  *    9.44  *          *
* Max Chl Dpth (ft)      *   14.83  * Hydr. Depth (ft)      *    7.23  *    8.51  *          *
* Conv. Total (cfs)      *3294110.0  * Conv. (cfs)          *705725.5  *2588384.0  *          *
* Length Wtd. (ft)       *  484.60  * Wetted Per. (ft)      *  771.32  * 1627.99  *          *
* Min Ch El (ft)         *  984.60  * Shear (lb/sq ft)      *    1.13  *    1.35  *          *
* Alpha                  *    1.07  * Stream Power (lb/ft s) *    7.31  *   12.70  *          *
* Frctn Loss (ft)        *    1.44  * Cum Volume (acre-ft)  *  706.74  *19674.86  *   34.97  *
* C & E Loss (ft)        *    0.06  * Cum SA (acres)        *  106.60  * 2032.45  *    6.81  *
*****************************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 206.03

INPUT
```

Description: 206.03
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16802.9	1002.4	16810.4	1002	16813.6	1000.9	16824	1002.4	16844.6	1000.6
16890.3	1000.8	16957.6	998.6	16974.2	996.3	17051	996.3	17118.7	996
17158.8	996.3	17238.1	994.4	17268.4	993.9	17337.7	992.2	17429.7	992.2
17531.5	992.2	17538.3	993.5	17547.2	994.4	17602.5	996.5	17662	996.6
17711.8	998.8	17753.6	997.9	17811.8	999.7	17868.4	998.8	17876	996.8
17888.6	992.2	17921.7	991.3	17955.9	991.3	18046.3	991.3	18129	992.2
18208.5	993.4	18309.7	993.6	18420.9	993.3	18447.9	989.4	18457.8	986.4
18517.5	985.1	18549.4	986.9	18588	984	18644.4	992.4	18712.4	995.4
18774.2	998.9	18830	995.4	18904.6	994.2	18908.3	994.2	18995.9	996.3
19086.5	1000.5	19177	1002.9	19201.9	1004.4	19226.8	1002.9	19249.6	1003.2
19274.5	1000.5	19281.8	998.5	19300.1	995.7	19315.7	994.3	19390.1	994.3
19400.5	994.3	19413.5	991.2	19424.9	989.1	19482.5	986.8	19510.1	986.8
19554.4	985.8	19658.8	985.8	19753.3	985.9	19822.1	985.9	19854.2	986.9
19870.5	986.6	19902.2	987.2	19919.6	986.6	19994.1	987.8	20078.9	988.1
20133.4	987.5	20176.6	991.9	20201.4	992.1	20216.4	992.9	20292.1	994.2
20354	993	20378.4	992	20392	989.3	20410.4	989.1	20427.7	986.6
20479.5	986.9	20548	985.1	20601.3	984.5	20610.2	984.8	20660.5	989.4
20711.9	992.7	20772.6	995.4	20851.6	995.1	20876.8	995	20972.6	994.7
21099.7	995.7	21122.5	995.9	21132.1	998.6	21160.4	1005.3	21175.8	999.9
21184.2	999.9								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
16802.9	.043	19201.9	.033	20772.6	.032

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19201.9 20772.6 590 513.6 510 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
16802.9	16900	1003	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	998.47	Element	Left OB	Channel / Right OB
Vel Head (ft)	1.28	Wt. n-Val.	0.043	0.033 / 0.032
W.S. Elev (ft)	997.19	Reach Len. (ft)	590.00	513.60 / 510.00
Crit W.S. (ft)	995.40	Flow Area (sq ft)	7301.57	*12448.57 / 718.57
E.G. Slope (ft/ft)	*0.002920	Area (sq ft)	7301.57	*12448.57 / 718.57
Q Total (cfs)	*166000.00	Flow (cfs)	*38067.28	*125045.60 / * 2887.13 *
Top Width (ft)	* 3627.33	Top Width (ft)	1790.61	* 1482.23 / 354.48
Vel Total (ft/s)	8.11	Avg. Vel. (ft/s)	5.21	10.04 / 4.02
Max Chl Dpth (ft)	13.19	Hydr. Depth (ft)	4.08	8.40 / 2.03
Conv. Total (cfs)	*3071777.0	Conv. (cfs)	*704422.8	*2313929.0 / * 53425.3 *
Length Wtd. (ft)	528.46	Wetted Per. (ft)	1793.59	* 1484.21 / 354.67
Min Ch El (ft)	984.50	Shear (lb/sq ft)	0.74	1.53 / 0.37
Alpha	1.25	Stream Power (lb/ft s)	3.87	15.36 / 1.48
Frctn Loss (ft)	1.19	Cum Volume (acre-ft)	5665.95	*18854.09 / * 1252.79
C & E Loss (ft)	0.12	Cum SA (acres)	1610.07	* 2012.68 / 641.06

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	999.15	Element	Left OB	Channel / Right OB
Vel Head (ft)	1.78	Wt. n-Val.	0.043	0.033 /
W.S. Elev (ft)	997.37	Reach Len. (ft)	590.00	513.60 / 510.00
Crit W.S. (ft)	995.41	Flow Area (sq ft)	3391.07	*12720.36 /
E.G. Slope (ft/ft)	*0.003548	Area (sq ft)	3391.07	*12720.36 /
Q Total (cfs)	*166000.00	Flow (cfs)	*23329.40	*142670.60 / *
Top Width (ft)	* 2131.13	Top Width (ft)	647.70	* 1483.43 /
Vel Total (ft/s)	10.30	Avg. Vel. (ft/s)	6.88	11.22 /
Max Chl Dpth (ft)	13.37	Hydr. Depth (ft)	5.24	8.57 /
Conv. Total (cfs)	*2786996.0	Conv. (cfs)	*391680.3	*2395315.0 / *
Length Wtd. (ft)	524.67	Wetted Per. (ft)	653.26	* 1487.40 /
Min Ch El (ft)	984.50	Shear (lb/sq ft)	1.15	1.89 /
Alpha	1.08	Stream Power (lb/ft s)	7.91	21.24 /
Frctn Loss (ft)	1.16	Cum Volume (acre-ft)	656.69	*19527.61 / 34.97
C & E Loss (ft)	0.28	Cum SA (acres)	98.67	* 2015.21 / 6.81

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 205.94

INPUT
Description: 205.94
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16903.8	1000.5	16909.4	1000	16920.9	1001.6	16972.5	1001.2	16975.5	1000.3
16985.1	1001.6	17007.6	998.7	17082.9	996.3	17151.6	996.3	17234	996.3
17267.9	996.3	17336.5	996.2	17426	996.4	17508.2	996.2	17592.3	996.3
17688.9	994.4	17733.4	994	17754.7	991.9	17830.3	991.2	17928	993.4
17928.3	993.4	18000.5	993.2	18041.8	993.1	18116.7	993.3	18216.4	993.4
18279.7	991.1	18294.7	987.3	18302.5	986.7	18362.5	986.9	18376.8	985.1
18407.6	986.2	18496.1	984.1	18565.5	985.4	18614.9	987.2	18629.5	988.4

18642.1	988.5	18669.8	994.1	18756.5	994.7	18817.1	995.6	18869.8	993.4
18916.1	992.8	18941.2	994.2	19004.1	991	19053.5	981.9	19123.4	981.8
19199.3	982	19250	981.9	19337.5	981.5	19354.9	982.2	19448.6	985
19535.3	985	19613.6	984.8	19703.6	985.4	19775.9	989.5	19831.1	990.2
19926.3	989.4	19994.7	989.1	20082.6	988.9	20106.6	989.1	20111.2	988.5
20149.5	990.4	20183.7	994.3	20237	990.7	20262.2	991.4	20291.7	989.3
20345	989.3	20445.6	986.5	20507.2	982.5	20519.9	982.9	20520.2	982.1
20569.1	981	20589.6	984	20612	989.6	20643	991.1	20662.1	992.9
20686.6	992.8	20704.4	994.4	20767	996.6	20871.9	997.4	20903.2	996.9
20938.8	991.7	20969.6	993.5	21038.9	995.4	21103	995.9	21150.3	993.9
21195.3	994.9	21265.8	994.7	21288.8	994	21309.9	995.5	21385.6	995.9
21402.4	995.6	21473.1	995.1	21527.7	994.8	21551	998.8	21641.3	999.1
21683	1001.6								

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16903.8	.043	18817.1	.033	20767	.032	20938.8	.037

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

Left	Right	Left	Channel	Right	Coeff Contr.	Expan.
18817.1	20767	505	506.69	510	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
21215	21683	999	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	997.17	Element	Left OB / Channel / Right OB
Vel Head (ft)	0.89	Wt. n-Val.	0.043 / 0.033 / 0.036
W.S. Elev (ft)	996.28	Reach Len. (ft)	505.00 / 506.69 / 510.00
Crit W.S. (ft)	992.36	Flow Area (sq ft)	6215.99 / 17060.13 / 528.54
E.G. Slope (ft/ft)	0.001782	Area (sq ft)	6215.99 / 17060.13 / 877.89
Q Total (cfs)	166000.00	Flow (cfs)	26725.95 / 137949.00 / 1325.10
Top Width (ft)	3972.87	Top Width (ft)	1403.39 / 1940.66 / 628.82
Vel Total (ft/s)	6.97	Avg. Vel. (ft/s)	4.30 / 8.09 / 2.51
Max Chl Dpth (ft)	15.28	Hydr. Depth (ft)	4.43 / 8.79 / 1.72
Conv. Total (cfs)	3932557.0	Conv. (cfs)	633140.5 / 3268024.0 / 31391.7
Length Wtd. (ft)	506.47	Wetted Per. (ft)	1404.90 / 1944.24 / 307.99
Min Ch El (ft)	981.00	Shear (lb/sq ft)	0.49 / 0.98 / 0.19
Alpha	1.18	Stream Power (lb/ft s)	2.12 / 7.89 / 0.48
Frctn Loss (ft)	0.66	Cum Volume (acre-ft)	5574.41 / 18680.13 / 1243.45
C & E Loss (ft)	0.07	Cum SA (acres)	1588.44 / 1992.50 / 635.31

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	997.71	Element	Left OB / Channel / Right OB
Vel Head (ft)	0.86	Wt. n-Val.	0.043 / 0.033 /
W.S. Elev (ft)	996.85	Reach Len. (ft)	505.00 / 506.69 / 510.00
Crit W.S. (ft)	992.30	Flow Area (sq ft)	4747.93 / 18184.85 /
E.G. Slope (ft/ft)	0.001519	Area (sq ft)	4747.93 / 18184.85 /
Q Total (cfs)	166000.00	Flow (cfs)	24792.00 / 141208.00 /
Top Width (ft)	2567.00	Top Width (ft)	617.10 / 1949.90 /
Vel Total (ft/s)	7.24	Avg. Vel. (ft/s)	5.22 / 7.77 /
Max Chl Dpth (ft)	15.85	Hydr. Depth (ft)	7.69 / 9.33 /
Conv. Total (cfs)	4259277.0	Conv. (cfs)	636120.4 / 3623156.0 /
Length Wtd. (ft)	506.48	Wetted Per. (ft)	621.93 / 1953.74 /
Min Ch El (ft)	981.00	Shear (lb/sq ft)	0.72 / 0.88 /
Alpha	1.06	Stream Power (lb/ft s)	3.78 / 6.85 /
Frctn Loss (ft)	0.59	Cum Volume (acre-ft)	601.57 / 19345.41 / 34.97
C & E Loss (ft)	0.06	Cum SA (acres)	90.10 / 1994.97 / 6.81

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 205.84

INPUT
Description: 205.84
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17154.7	999.5	17167.6	998.3	17173.7	999	17242.7	999.3	17319.2	999.3
17395.4	998.8	17445.8	998.6	17482.3	997.2	17534.1	997.5	17544.3	997.1
17572.5	997.3	17612.4	996.5	17644.3	993.7	17719.4	994.2	17735.7	993.6
17775	993.6	17842.8	992.3	17862.2	987.5	17958.9	987.6	17969.5	989.4
18029.4	989.1	18042.3	990.1	18085.3	986.5	18121.7	984.6	18194.4	985
18242.1	986.4	18267.7	987.9	18304.8	988.6	18343.6	988.3	18423.5	987.9
18487.6	987.3	18519.2	980.3	18575.4	985.3	18594.1	984.3	18599.2	983
18611.3	981.7	18624.5	979.5	18698.1	979.6	18782.8	980.6	18852.2	980.4
18868.5	982.8	18970.3	982.9	19086.6	984.3	19137.9	986	19161.5	987.5
19244.2	986.1	19262.6	985.8	19339.3	985.7	19420.2	986.1	19521.7	987.3
19606.4	989.5	19664.7	990.4	19734.4	992	19762.4	991.1	19876.6	990.8
19965.5	989.4	20028.7	988.2	20132.7	984.3	20147.5	983.5	20176	983
20199.7	984.8	20287.6	984.2	20364.3	982.3	20417.7	981.2	20446.2	981.5
20481.4	989.8	20508	994.7	20535.7	996	20575.3	996.4	20613.9	995.2
20691.5	994.7	20737.2	994.6	20809.8	995.7	20816.4	996	20875	995.1
20909.1	992.8	20953.5	994.7	21021.3	995.7	21074.7	995.5	21087.2	993.8
21126.7	992.2	21139.8	993.2	21222.1	993.7	21281.4	994.3	21334.2	993
21367.3	994.1	21398.1	992.4	21450.5	994.8	21460	991.6	21508.8	993.1
21563.2	993.7	21607.4	993.3	21622.3	993.7	21634.1	995.7	21671.2	996.7
21696	999.5								

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
17154.7	.043	18487.6	.043	18575.4	.032	20535.7	.032	20875	.037

```
Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.    Expan.
       18487.6 20535.7             495     496     480             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
   21450   21696     999       F

CROSS SECTION OUTPUT  Profile #PF#1
**************************************************************************************************
* E.G. Elev (ft)         *  996.43  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.64  * Wt. n-Val.            *   0.043  *   0.033  *   0.036  *
* W.S. Elev (ft)         *  995.78  * Reach Len. (ft)       *  495.00  *  496.00  *  480.00  *
* Crit W.S. (ft)         *  991.10  * Flow Area (sq ft)     * 5827.68  *20747.91  * 1226.92  *
* E.G. Slope (ft/ft)     *0.001006  * Area (sq ft)          * 5827.68  *20747.91  * 1697.20  *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *22730.35  *141072.70  * 2196.97  *
* Top Width (ft)         * 3933.88  * Top Width (ft)       *  867.04  * 2043.50  * 1023.33  *
* Vel Total (ft/s)       *    5.97  * Avg. Vel. (ft/s)     *    3.90  *    6.80  *    1.79  *
* Max Chl Dpth (ft)      *   16.28  * Hydr. Depth (ft)     *    6.72  *   10.15  *    1.47  *
* Conv. Total (cfs)      *5233237.0  * Conv. (cfs)         *716586.3  *4447390.0  * 69260.5  *
* Length Wtd. (ft)       *  495.56  * Wetted Per. (ft)     *  868.21  * 2046.96  *  836.58  *
* Min Ch El (ft)         *  979.50  * Shear (lb/sq ft)     *    0.42  *    0.64  *    0.09  *
* Alpha                  *    1.16  * Stream Power (lb/ft s) *  1.64  *    4.33  *    0.16  *
* Frctn Loss (ft)        *    0.65  * Cum Volume (acre-ft)  * 5504.60  *18460.23  * 1228.37  *
* C & E Loss (ft)        *    0.00  * Cum SA (acres)        * 1575.28  * 1969.33  *  625.63  *
**************************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
**************************************************************************************************
* E.G. Elev (ft)         *  997.06  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.67  * Wt. n-Val.            *   0.043  *   0.033  *          *
* W.S. Elev (ft)         *  996.39  * Reach Len. (ft)       *  495.00  *  496.00  *  480.00  *
* Crit W.S. (ft)         *  991.10  * Flow Area (sq ft)     * 3668.58  *21988.48  *          *
* E.G. Slope (ft/ft)     *0.000928  * Area (sq ft)          * 3668.58  *21988.48  *          *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *16967.54  *149032.50  *          *
* Top Width (ft)         * 2435.70  * Top Width (ft)       *  387.60  * 2048.10  *          *
* Vel Total (ft/s)       *    6.47  * Avg. Vel. (ft/s)     *    4.63  *    6.78  *          *
* Max Chl Dpth (ft)      *   16.89  * Hydr. Depth (ft)     *    9.46  *   10.74  *          *
* Conv. Total (cfs)      *5449105.0  * Conv. (cfs)         *556975.2  *4892130.0  *          *
* Length Wtd. (ft)       *  495.95  * Wetted Per. (ft)     *  398.36  * 2051.95  *          *
* Min Ch El (ft)         *  979.50  * Shear (lb/sq ft)     *    0.53  *    0.62  *          *
* Alpha                  *    1.04  * Stream Power (lb/ft s) *  2.47  *    4.21  *          *
* Frctn Loss (ft)        *    0.58  * Cum Volume (acre-ft)  *  552.78  *19111.76  *   34.97  *
* C & E Loss (ft)        *    0.01  * Cum SA (acres)        *   84.28  * 1971.72  *    6.81  *
**************************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 205.75

INPUT
Description: 205.75
Station Elevation Data    num=      96
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 17305.3   998.9 17323.7   996.7 17395.5   996.8 17486.9   996.4 17509.8   996.4
 17581.1   996.2 17666.5   995.9 17680.3     996 17753.1   996.5 17853.4   996.5
 17864.9   996.5 17966.3     996   18048   994.8 18136.2   989.8 18199.9   985.9
 18204.5   985.7 18238.3   975.2   18303   975.1 18340.9   977.7 18362.6   983.3
 18414.2   984.2 18425.5   978.9 18465.2   978.9   18482   983.4 18487.5   980.6
 18502.7   981.5 18551.9   977.5 18634.1   978.7 18705.8   979.9 18783.7   983.6
 18852.2   983.7 18938.1   983.3 19031.5   983.4 19132.6   984.5   19156   984.8
 19231.1   986.4 19292.3   989.2 19362.3   991.3 19410.6   989.7 19510.1   990.4
   19547   990.4 19564.3   991.1 19608.3   991.1 19685.9   990.7 19759.4   989.7
 19806.7   989.9 19819.8   990.5 19830.2   990.2 19906.7   988.4 19984.6   988.8
 20051.4   988.1 20065.4   987.5 20101.2   975.7 20131.5   973.9 20148.4   974.7
 20183.3     981 20265.9   982.2 20296.1   983.6 20320.1   985.5 20338.8   985.9
 20373.3   988.6 20450.3     990 20500.5   990.7 20583.6   992.4 20674.8   995.6
 20691.1   996.1 20754.7   995.2 20833.9   994.8 20900.7   994.8 20927.8   993.3
 20929.3   994.1 20943.9   991.9 20951.5   991.7   20989     994 21037.1   991.6
 21060.1   993.2 21120.9   992.7 21131.3   991.3 21198.6   991.5 21306.4   993.9
   21377   994.4 21386.2   994.7 21449.8     995 21502.3   995.3 21567.5   995.7
 21648.1   996.3   21682   996.5   21789   996.8 21807.7   996.8 21902.8   997.4
   21921   997.6   22001   997.7 22076.6   997.7 22142.9   997.7 22143.7     999
   22145   998.9

Manning's n Values        num=       4
     Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val
*************************************************************
 17305.3    .043    18048    .043 20583.6    .043 21131.3    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.    Expan.
       18048 20450.3             825     642     490             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
   21400   22145     999       F

CROSS SECTION OUTPUT  Profile #PF#1
**************************************************************************************************
* E.G. Elev (ft)         *  995.78  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.68  * Wt. n-Val.            *   0.043  *   0.043  *   0.035  *
* W.S. Elev (ft)         *  995.10  * Reach Len. (ft)       *  825.00  *  642.00  *  490.00  *
* Crit W.S. (ft)         *  989.59  * Flow Area (sq ft)     *    2.98  *23920.56  * 1754.13  *
* E.G. Slope (ft/ft)     *0.001766  * Area (sq ft)          *    2.98  *23920.56  * 1765.56  *
* Q Total (cfs)          *166000.00  * Flow (cfs)           *    1.21  *160405.70  * 5593.08  *
* Top Width (ft)         * 3323.85  * Top Width (ft)       *   20.14  * 2402.30  *  901.40  *
* Vel Total (ft/s)       *    6.46  * Avg. Vel. (ft/s)     *    0.41  *    6.71  *    3.19  *
* Max Chl Dpth (ft)      *   21.20  * Hydr. Depth (ft)     *    0.15  *    9.96  *    2.10  *
```

```
                                                                    Post-Project
* Conv. Total (cfs)       *3950065.0  * Conv. (cfs)            *     28.8  *3816946.0  *133090.7  *
* Length Wtd. (ft)        *  634.92   * Wetted Per. (ft)       *    20.15  * 2410.71  *  835.61  *
* Min Ch El (ft)          *  973.90   * Shear (lb/sq ft)       *     0.02  *    1.09  *    0.23  *
* Alpha                   *    1.05   * Stream Power (lb/ft s) *     0.01  *    7.34  *    0.74  *
* Frctn Loss (ft)         *    0.66   * Cum Volume (acre-ft)   * 5471.47  *18205.92  * 1209.29  *
* C & E Loss (ft)         *    0.05   * Cum SA (acres)         * 1570.24  * 1944.02  *  615.03  *
*****************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*****************************************************************************************
* E.G. Elev (ft)          *  996.48   * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.65   * Wt. n-Val.             *          *    0.043  *          *
* W.S. Elev (ft)          *  995.83   * Reach Len. (ft)        *  825.00  *  642.00  *  490.00  *
* Crit W.S. (ft)          *  989.59   * Flow Area (sq ft)      *          *25689.44  *          *
* E.G. Slope (ft/ft)      *0.001497   * Area (sq ft)           *          *25689.44  *          *
* Q Total (cfs)           *166000.00  * Flow (cfs)            *          *166000.00  *          *
* Top Width (ft)          * 2402.30   * Top Width (ft)        *          * 2402.30  *          *
* Vel Total (ft/s)        *    6.46   * Avg. Vel. (ft/s)      *          *    6.46  *          *
* Max Chl Dpth (ft)       *   21.93   * Hydr. Depth (ft)      *          *   10.69  *          *
* Conv. Total (cfs)       *4290733.0  * Conv. (cfs)           *          *4290733.0  *          *
* Length Wtd. (ft)        *  642.00   * Wetted Per. (ft)      *          * 2417.57  *          *
* Min Ch El (ft)          *  973.90   * Shear (lb/sq ft)      *          *    0.99  *          *
* Alpha                   *    1.00   * Stream Power (lb/ft s) *          *    6.42  *          *
* Frctn Loss (ft)         *    0.62   * Cum Volume (acre-ft)   *  531.94  *18840.32  *   34.97  *
* C & E Loss (ft)         *    0.02   * Cum SA (acres)         *   82.07  * 1946.38  *    6.81  *
*****************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                RS: 205.62

INPUT
Description: 205.62
Station Elevation Data    num=      96
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
 16987.1   998.1 17010.8     998   17131   997.7 17220.3   997.9 17312.3   997.2
 17337.5   997.1 17349.7   993.8 17415.9   993.4 17452.1   994.5   17456   993.6
 17462.6   995.4 17470.7   993.9 17481.8   995.3 17536.8   995.9 17541.4     995
 17548.6   996.6 17570.5   992.9 17606.9   994.3 17705.6   994.3 17778.6     994
 17854.3   993.6 17935.8   992.6 18000.5   991.8 18066.9   989.1 18154.7   990.1
 18182.6   989.5   18216   991.5 18272.9   988.7 18345.5     987 18362.3   985.3
 18364.3   986.4 18412.4   980.4 18471.7   977.8 18582.6   976.6 18682.4   977.6
 18758.9   978.6 18831.8     982   18915   981.6 18928.4   981.8 18994.8   981.7
 19088.8   983.1 19188.8   983.9 19260.2   983.8 19272.1   983.6 19307.3   987.6
 19315.9   987.5 19391.2   986.5 19461.1   986.8 19526.5   987.3 19591.7   987.7
 19623.7   987.9 19690.2   986.9 19701.7   986.9 19732.4   983.9 19808.3   985.5
 19928.6   988.8 19968.4   987.6 20009.8     976 20075.5   976.6 20117.2     979
 20204.9   979.7 20242.3   978.4 20253.8   980.5 20285.7     981 20339.5   984.7
 20409.9   988.4 20450.1   989.3 20468.3     987 20504.3   986.9 20542.3     986
 20605.7   986.7 20698.9   989.9 20708.2   990.1 20715.6     995 20780.9   994.9
   20847   991.9 20932.4     991 21003.2   991.1 21102.3   991.6 21194.4     992
 21286.6   992.7 21318.6   992.9   21388   993.6 21473.6   994.3 21596.5   994.7
 21668.5     995 21758.9   995.6   21817   996.1 21920.7   996.9 21963.3   997.1
 22043.7   997.1 22107.3   997.1 22215.9   997.1   22261   998.1 22277.9   997.6
 22288.5   999.4

Manning's n Values        num=       6
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*****************************************************************************
 16987.1    .025 17481.8    .043   18216    .043 18471.7    .032 20715.6    .032
   20847    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         18216 20450.1              560     523     510             .1       .3
Ineffective Flow     num=       2
   Sta L    Sta R     Elev  Permanent
 16987.1 17548.6   999.4       F
   21480 22288.5   999.4       F

CROSS SECTION OUTPUT  Profile #PF#1
*****************************************************************************************
* E.G. Elev (ft)          *  995.07   * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.52   * Wt. n-Val.             *   0.043  *   0.033  *   0.030  *
* W.S. Elev (ft)          *  994.55   * Reach Len. (ft)        *  560.00  *  523.00  *  510.00  *
* Crit W.S. (ft)          *  988.70   * Flow Area (sq ft)      * 1396.51  *25301.81  * 3417.37  *
* E.G. Slope (ft/ft)      *0.000680   * Area (sq ft)           * 1488.28  *25301.81  * 3425.27  *
* Q Total (cfs)           *166000.00  * Flow (cfs)            * 2083.18  *151545.10  *12371.75  *
* Top Width (ft)          * 4036.31   * Top Width (ft)        *  776.42  * 2234.10  * 1025.79  *
* Vel Total (ft/s)        *    5.51   * Avg. Vel. (ft/s)      *    1.49  *    5.99  *    3.62  *
* Max Chl Dpth (ft)       *   18.55   * Hydr. Depth (ft)      *    2.13  *   11.33  *    3.57  *
* Conv. Total (cfs)       *6366636.0  * Conv. (cfs)           * 79896.5  *5812243.0  *474496.4  *
* Length Wtd. (ft)        *  523.01   * Wetted Per. (ft)      *  655.56  * 2237.69  *  957.78  *
* Min Ch El (ft)          *  976.00   * Shear (lb/sq ft)      *    0.09  *    0.48  *    0.15  *
* Alpha                   *    1.11   * Stream Power (lb/ft s) *    0.13  *    2.87  *    0.55  *
* Frctn Loss (ft)         *    0.30   * Cum Volume (acre-ft)   * 5457.35  *17843.20  * 1180.10  *
* C & E Loss (ft)         *    0.02   * Cum SA (acres)         * 1562.69  * 1909.85  *  604.19  *
*****************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.
```

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	995.85	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.59	Wt. n-Val.		0.033	
W.S. Elev (ft)	995.25	Reach Len. (ft)	560.00	523.00	510.00
Crit W.S. (ft)	988.65	Flow Area (sq ft)		26878.39	
E.G. Slope (ft/ft)	0.000671	Area (sq ft)		26878.39	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	2234.10	Top Width (ft)		2234.10	
Vel Total (ft/s)	6.18	Avg. Vel. (ft/s)		6.18	
Max Chl Dpth (ft)	19.25	Hydr. Depth (ft)		12.03	
Conv. Total (cfs)	6407340.0	Conv. (cfs)		6407340.0	
Length Wtd. (ft)	523.00	Wetted Per. (ft)		2247.40	
Min Ch El (ft)	976.00	Shear (lb/sq ft)		0.50	
Alpha	1.00	Stream Power (lb/ft s)		3.10	
Frctn Loss (ft)	0.31	Cum Volume (acre-ft)	531.94	18452.94	34.97
C & E Loss (ft)	0.00	Cum SA (acres)	82.07	1912.21	6.81

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 205.52

INPUT
Description: 205.52
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17458.9	998.2	17496.2	998.1	17528.6	993.9	17537	994	17538.2	993.3
17605.2	993.8	17611.5	994.9	17615.9	993.3	17622.8	995	17635.1	992.9
17665.3	993	17698.1	994.2	17701.5	993.5	17707.3	995.3	17718.9	995
17731.8	991.3	17820.7	991.9	17894	991.4	17966.9	990.6	18049.9	988.1
18115.3	988.8	18176.3	990.1	18241.5	990	18289.2	989.7	18376.9	989.8
18458.3	990.2	18560.9	990.7	18591.6	991.1	18628.8	988.9	18702.3	978.1
18778	976.8	18843.9	975.9	18919.8	976.6	19003.3	977.9	19078	982
19149.6	982.2	19216.6	981.8	19294.8	981.6	19381.8	980.6	19438.9	979.8
19513.6	979.7	19597.1	981.3	19627.4	982.2	19649.8	981.4	19768.3	982.9
19791.5	982.7	19851.9	983.6	19974.7	981.4	20083.4	978.3	20118	977.6
20126.6	978.1	20161.7	976.5	20215.1	976.5	20237.4	983.2	20307.8	986.1
20375.9	986.4	20411.3	986.8	20436.2	983.2	20454.8	985.7	20472.6	986.8
20567.5	986.1	20573.3	986	20590.7	989.7	20611.5	992.8	20623.9	992.6
20656.5	990.1	20672.2	990.7	20688.3	988.5	20695.2	989.1	20701.5	986.9
20769.2	978.7	20789.2	977.6	20827.6	986.2	20844.7	988.1	20936.4	989.8
21007.2	990.9	21024.7	991.2	21032.1	992.9	21046.7	990.6	21139.1	991.6
21236.4	992	21330.9	992.2	21420.6	992.8	21530.8	993.2	21637.9	993.3
21722.2	993.8	21801	994.3	21909.2	994.5	22026.9	995.2	22127.5	995.8
22175.4	995.9	22246.4	996.2	22303.2	996.7	22383	996.1	22389.5	996.1
22400	997.5								

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
17458.9	.043	18591.6	.043	18628.8	.032	20611.5	.032	21032.1	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
18591.6	20611.5	430	470	400	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17458.9	17650	998.2	F
21400	22400	998.2	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	994.75	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.46	Wt. n-Val.	0.043	0.032	0.031
W.S. Elev (ft)	994.29	Reach Len. (ft)	430.00	470.00	400.00
Crit W.S. (ft)	987.07	Flow Area (sq ft)	3557.10	25803.02	3782.11
E.G. Slope (ft/ft)	0.000496	Area (sq ft)	3641.27	25803.02	4150.32
Q Total (cfs)	166000.00	Flow (cfs)	6878.15	146272.50	12849.30
Top Width (ft)	4244.89	Top Width (ft)	1036.57	2019.90	1188.42
Vel Total (ft/s)	5.01	Avg. Vel. (ft/s)	1.93	5.67	3.40
Max Chl Dpth (ft)	18.39	Hydr. Depth (ft)	3.85	12.77	4.80
Conv. Total (cfs)	7454148.0	Conv. (cfs)	308860.0	6568297.0	576991.5
Length Wtd. (ft)	462.67	Wetted Per. (ft)	924.99	2023.22	791.15
Min Ch El (ft)	975.90	Shear (lb/sq ft)	0.12	0.39	0.15
Alpha	1.17	Stream Power (lb/ft s)	0.23	2.24	0.50
Frctn Loss (ft)	0.24	Cum Volume (acre-ft)	5424.37	17536.40	1135.75
C & E Loss (ft)	0.01	Cum SA (acres)	1551.04	1884.32	591.23

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	995.53	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.58	Wt. n-Val.		0.032	
W.S. Elev (ft)	994.95	Reach Len. (ft)	430.00	470.00	400.00
Crit W.S. (ft)	987.28	Flow Area (sq ft)		27121.18	
E.G. Slope (ft/ft)	0.000543	Area (sq ft)		27121.18	
Q Total (cfs)	166000.00	Flow (cfs)		166000.00	
Top Width (ft)	2019.90	Top Width (ft)		2019.90	
Vel Total (ft/s)	6.12	Avg. Vel. (ft/s)		6.12	
Max Chl Dpth (ft)	19.05	Hydr. Depth (ft)		13.43	
Conv. Total (cfs)	7126233.0	Conv. (cfs)		7126233.0	
Length Wtd. (ft)	470.00	Wetted Per. (ft)		2029.21	
Min Ch El (ft)	975.90	Shear (lb/sq ft)		0.45	
Alpha	1.00	Stream Power (lb/ft s)		2.77	
Frctn Loss (ft)	0.28	Cum Volume (acre-ft)	531.94	18128.76	34.97
C & E Loss (ft)	0.01	Cum SA (acres)	82.07	1886.68	6.81

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 205.43

INPUT
Description: 205.43
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17577.6	999	17651.4	999	17676.6	993.3	17745.1	993.5	17753.8	994.9
17756.2	993	17761.9	994.1	17779.1	992.9	17827.8	993.4	17837	994.7
17842	993.6	17850.1	995.1	17856.3	994.6	17874.1	989.8	17945.8	990.5
18015.5	989.2	18089	988.6	18171.5	988.1	18272	989	18345.2	989.6
18417.8	988.9	18513.1	989.6	18555.5	988.8	18590.9	983.9	18653.7	980.2
18675.6	981.9	18718.1	992.1	18755	996.2	18831.5	994	18917.5	994.6
18981	993.6	18995.7	991.7	19013.2	983.5	19029.3	979.6	19078	977.3
19159.1	977.1	19235.8	977	19329.8	976.7	19401.3	976.1	19408.1	977.1
19408.2	976.1	19472.5	977.8	19481.8	976.1	19482.8	979.9	19504.5	976.3
19572.1	976.7	19685.1	976.7	19752	976.5	19776.2	976.6	19871.8	985.4
19922.1	984.5	19948.6	982.8	19969.8	979	19994.4	976.5	20009.7	976.5
20115.4	976.5	20173.1	982	20198.5	982.2	20281.7	985.3	20371.1	985.5
20444.6	985.5	20542.7	985.9	20552.8	986	20628.8	985.9	20672.4	986.4
20739.7	988.8	20745.5	988.9	20770.4	996.3	20821.2	987.3	20830.8	986.4
20857.3	988.8	20888.7	988.5	20910.3	984	20959.4	986.1	21024	983.6
21078.8	987.2	21088.9	990.3	21171.4	991.7	21190.4	992.1	21193.4	991.5
21282.9	992	21368	992.7	21454.5	993.1	21528.9	993.3	21613.1	993.6
21695.1	993.6	21768.9	993.9	21849.3	994.3	21923.6	994.4	21927.2	994.4
21997.3	994.6	22016.9	994.6	22089.4	994.6	22155	995.4	22231.3	997.7
22285	998.6								

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
17577.6	.043	18917.5	.043	18981	.032	20770.4	.032	21088.9	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
18917.5	20770.4	175 171.89	125	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17577.6	17800	999	F
21400	22285	999	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	994.50	Element	Left OB	Channel / Right OB
Vel Head (ft)	0.51	Wt. n-Val.	0.043	0.032 / 0.031
W.S. Elev (ft)	994.00	Reach Len. (ft)	175.00	171.89 / 125.00
Crit W.S. (ft)	986.93	Flow Area (sq ft)	4969.00	23600.69 / 2927.41
E.G. Slope (ft/ft)	0.000544	Area (sq ft)	5044.07	23600.69 / 3139.66
Q Total (cfs)	166000.00	Flow (cfs)	12628.18	142595.00 / 10776.84
Top Width (ft)	3841.68	Top Width (ft)	1030.23	1806.76 / 1004.68
Vel Total (ft/s)	5.27	Avg. Vel. (ft/s)	2.54	6.04 / 3.68
Max Chl Dpth (ft)	17.90	Hydr. Depth (ft)	5.45	13.06 / 4.75
Conv. Total (cfs)	7116273.0	Conv. (cfs)	541359.1	6112920.0 / 461993.6
Length Wtd. (ft)	169.60	Wetted Per. (ft)	915.10	1815.66 / 618.55
Min Ch El (ft)	976.10	Shear (lb/sq ft)	0.18	0.44 / 0.16
Alpha	1.18	Stream Power (lb/ft s)	0.47	2.67 / 0.59
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)	5381.51	17269.88 / 1102.28
C & E Loss (ft)	0.03	Cum SA (acres)	1540.84	1863.67 / 581.16

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	995.24	Element	Left OB	Channel / Right OB
Vel Head (ft)	0.71	Wt. n-Val.		0.032
W.S. Elev (ft)	994.53	Reach Len. (ft)	175.00	171.89 / 125.00
Crit W.S. (ft)	986.96	Flow Area (sq ft)		24572.45
E.G. Slope (ft/ft)	0.000647	Area (sq ft)		24572.45
Q Total (cfs)	166000.00	Flow (cfs)		166000.00
Top Width (ft)	1842.37	Top Width (ft)		1842.37
Vel Total (ft/s)	6.76	Avg. Vel. (ft/s)		6.76
Max Chl Dpth (ft)	18.43	Hydr. Depth (ft)		13.34
Conv. Total (cfs)	6524281.0	Conv. (cfs)		6524281.0
Length Wtd. (ft)	171.89	Wetted Per. (ft)		1851.35
Min Ch El (ft)	976.10	Shear (lb/sq ft)		0.54
Alpha	1.00	Stream Power (lb/ft s)		3.62
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)	531.94	17849.88 / 34.97
C & E Loss (ft)	0.05	Cum SA (acres)	82.07	1865.84 / 6.81

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 205.4

INPUT
Description: 205.4
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17511.1	996.9	17519.9	996.9	17605.2	997.3	17609	997.3	17712.9	997.8

17756.7	992.2	17854.3	993.8	17914.6	991.3	17916.5	991.2	17968.9	990.2
18031	989.2	18084.1	988.8	18154.5	988.3	18213.4	988.3	18281.7	988.2
18304.7	988.2	18362.5	988.2	18388.7	988.6	18461.3	988.1	18529.4	988.4
18564.6	988.5	18633.4	988.7	18712.8	988.5	18774.2	988.2	18787.4	988.1
18843.8	987.9	18915.9	985.1	18943.3	984.3	19013.3	982.5	19020	982.2985
19079.8	980.5	19133	979.1	19154.8	978.5	19196.1	978.7	19231.1	977.1
19260.1	977.2	19291.7	976.5	19304.1	976.8	19364.1	975.5	19377.1	975.5
19436	975.7	19498.9	975.9	19564	975.7	19635.3	976.2	19694.9	976.3
19718.4	976.2	19774.1	976.1	19840.5	976	19902.9	976	19988.4	976
20047.6	976.1	20060.4	976.2	20120.1	976.4	20173.6	976.9	20230.4	977.5
20290.1	977.8	20348.4	979	20391.6	980.6	20448.9	982.1	20522.8	983.7
20592.3	985.3	20647.3	986.7	20692.4	987.2	20767.8	987.4	20829.1	987.4
20894.3	987.9	20922.5	988.1	20978.2	988.9	21055.7	989.4	21057.2	989.4
21142	989.4	21212	990.9	21270.2	991	21321.8	991.1	21338.9	991.2
21394.1	991.7	21407.6	991.9	21469.8	992.7	21547.3	993.5	21598.6	992.6
21619.5	993.7	21690.3	993.7	21721.2	993.7	21811.7	993.8	21872.4	994.2
21923.6	995.3	21941	995.5	22005.1	996.1	22017	996.2	22078.7	996.7
22181.1	997.7	22194.2	997.8	22249.3	998.6	22318.8	999	22386.3	999.2
22404.4	998.5	22455.6	999.3						

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
17511.1	.043	18843.8	.043	19079.8	.032	20767.8	.032

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

19020	20767.8		305	315	370	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17511.1	17800	999.3	F
21450	22455.6	999.3	F

Blocked Obstructions num= 1

Sta L	Sta R	Elev
17511.1	19020	988

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	994.40	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.41	Wt. n-Val.	0.043	0.032	0.032
W.S. Elev (ft)	993.99	Reach Len. (ft)	305.00	315.00	370.00
Crit W.S. (ft)	984.67	Flow Area (sq ft)	6163.18	26799.69	2955.52
E.G. Slope (ft/ft)	0.000362	Area (sq ft)	6237.80	26799.69	3171.98
Q Total (cfs)	164000.00	Flow (cfs)	11964.37	145098.40	6937.21
Top Width (ft)	4097.71	Top Width (ft)	1277.30	1747.80	1072.61
Vel Total (ft/s)	4.57	Avg. Vel. (ft/s)	1.94	5.41	2.35
Max Chl Dpth (ft)	18.49	Hydr. Depth (ft)	5.05	15.33	4.33
Conv. Total (cfs)	8621961.0	Conv. (cfs)	629002.0	7628250.0	364709.5
Length Wtd. (ft)	317.46	Wetted Per. (ft)	1220.09	1753.75	682.23
Min Ch El (ft)	975.50	Shear (lb/sq ft)	0.11	0.35	0.10
Alpha	1.27	Stream Power (lb/ft s)	0.22	1.87	0.23
Frctn Loss (ft)	0.18	Cum Volume (acre-ft)	5358.84	17170.44	1093.22
C & E Loss (ft)	0.02	Cum SA (acres)	1536.20	1856.66	578.18

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	995.10	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.54	Wt. n-Val.		0.032	
W.S. Elev (ft)	994.56	Reach Len. (ft)	305.00	315.00	370.00
Crit W.S. (ft)	984.67	Flow Area (sq ft)		27793.38	
E.G. Slope (ft/ft)	0.000413	Area (sq ft)		27793.38	
Q Total (cfs)	164000.00	Flow (cfs)		164000.00	
Top Width (ft)	1747.80	Top Width (ft)		1747.80	
Vel Total (ft/s)	5.90	Avg. Vel. (ft/s)		5.90	
Max Chl Dpth (ft)	19.06	Hydr. Depth (ft)		15.90	
Conv. Total (cfs)	8073093.0	Conv. (cfs)		8073093.0	
Length Wtd. (ft)	314.90	Wetted Per. (ft)		1767.46	
Min Ch El (ft)	975.50	Shear (lb/sq ft)		0.41	
Alpha	1.00	Stream Power (lb/ft s)		2.39	
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	531.94	17746.57	34.97
C & E Loss (ft)	0.03	Cum SA (acres)	82.07	1858.76	6.81

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 205.34

INPUT
Description: 205.34 - FEMA Cross Section M
Station Elevation Data num= 268

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
13687.27	990.71	3918.08	990.68	13941.26	990.71	4074.31	990.74	14097.95	990.77
14379.8	991.21	4502.02	991.27	14504.17	991.32	14654.78	991.45	14667.42	991.12
14692.66	99	314709.75	992.96	14715.8	991.19	14721	993.28	14723.16	993.14
14738.13	990.91	4750.87	991.89	14755.59	992.51	4795.12	991.61	4806.23	991.16
14847.09	991.61	5017.82	991.67	15028.83	991.05	15074.2	990.91	5389.93	990.38
15426.63	990.41	5457.08	991.76	15497.69	991.91	15548.79	991.74	15599.83	990.06
15624.82	992.51	5632.81	992.18	15645.65	991.27	15655.09	992.74	15660.02	991.59
15665.1	993.61	5682.98	994.84	15701.37	993.32	15707.96	993.32	15720.14	993.51
15863.53	993.41	5962.36	993.78	16143.17	993.71	6302.48	993.53	16434.69	994
16540.11	994.5	16630.9	994.03	16710.83	993.42	16732.11	994.29	16741.14	994.53
16755.65	994.81	6763.06	993.99	16780.42	993.76	16789.57	993.41	6811.41	992.38

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                                                                                Post-Project
 16945.01   992.917037.42  993.3817118.17   992.917138.04  992.7817279.36  992.27
 17420.37   992.117527.98  992.75 17560.1  992.78 17728.5  991.3317729.54  991.26
 17753.81   988.517789.02   988.817833.72   989.117845.57  991.9517853.64   990.8
 17860.73     99217869.58     99217881.45  991.8417895.69  992.1317897.64  994.57
 17904.21   994.517909.94  991.8217920.11  988.7917940.57  989.6117986.35  989.54
 18002.56   989.718065.95  989.1618080.07  988.8318116.41  988.3818122.12  987.76
 18187.93   987.418195.48  987.3618246.02  987.5818264.37  987.6418314.54  986.65
 18327.91   986.818350.36  988.1118365.79  988.5818392.98  988.6518415.65  990.57
    18418     99118432.37  990.8218481.36  991.38 18548.7  990.7218596.12  990.95
  18645.9     99518660.36  994.9818676.98  995.0618724.18  991.4718772.07  990.61
 18787.28   990.318822.48  988.85 18833.8  988.7918853.31  988.4818883.89  988.52
  18895.6   987.7 18912.2  992.1218970.58  990.1619022.37  991.3519035.55  989.07
 19043.96   988.619066.14  988.56 19076.9  991.3319096.79  993.0719099.41  993.11
 19116.55   988.419170.12   987.719232.28   987.219252.59  986.66 19258.9  986.61
 19276.73   986.119284.34  985.9919293.57  985.3919297.05  984.9419318.57  978.71
  19328.6   976.919337.34    97619422.11  976.1819470.05  976.22 19524.9  976.33
 19562.89   976.719632.66  976.0919705.72  976.4319754.05  976.6319843.53  976.95
 19853.47     97719865.48   976.519880.46  976.3619890.89  975.8119912.96  977.83
  19933.5   976.919947.42   976.619979.26  976.26 20010.7  976.0820051.63  975.84
 20062.33   975.720073.85  975.5720119.54  976.87 20199.2  978.2920212.26  978.81
 20258.32   980.920264.39  980.66 20329.9  980.6420332.62  980.4120369.18  979.74
    20375   980.1 20380.1  980.6320381.06  981.0320388.75  983.0320395.38  983.51
 20436.76   985.120502.38  985.6120525.59   985.520561.61  985.7420587.94  985.95
 20626.14   985.820644.89  985.7420678.28  985.5520707.29  986.1820742.96     987
 20746.96   986.620752.64  985.5420762.54  985.0520787.99  983.0120822.69  985.52
 20836.01   987.120844.69  986.9620890.92  987.1920931.14  987.6220978.97  988.36
  21006.5   988.721057.23  989.3821083.41   989.721100.77  990.25 21161.6  990.89
 21172.71     99121247.07  990.97 21252.7  990.9921266.22  990.7621277.98  990.73
 21290.76   992.8   21299  991.1421333.63  991.1321435.22   991.221524.43  991.65
 21554.31   991.6 21567.7  991.7221625.82   992.321657.32  992.4221684.03  992.58
 21782.19   993.421851.31  993.7221863.14   993.921872.38  994.1621891.44  994.52
 21949.81   994.621975.44  994.9221995.48  994.9122007.76  995.2522037.54  996.24
 22051.44   996.622075.07  997.6322125.13  998.6122139.54  998.9522159.57  998.78
 22179.58   998.822264.13   998.322280.55  998.0322353.16  997.9122369.37  997.91
 22404.01     99822463.45  998.2722491.06   998.822531.57  998.5222560.64  998.76
 22593.64   998.8 22617.2  999.0722646.25  999.1222676.56  998.9422686.88  999.19
 22731.76  1000.522770.23 1000.7922779.44 1001.3422789.67 1000.9722824.65 1001.12
 22886.17  1001.722901.04 1001.6722978.01 1002.0623003.78 1002.23 23080.5 1002.51
 23154.45  1002.823270.34 1003.4323291.75 1003.5623364.66 1004.1223410.89 1004.31
 23481.28  1004.623504.95 1004.7623548.34 1004.8523582.71 1004.8423645.08 1005.05
  23678.1  1005.223738.97 1005.2323762.47 1005.11 23813.7 1005.1223872.53 1005.28
 23908.97  1005.423920.45 1005.5423934.72 1004.9423951.14 1004.4623976.71 1005.57
 23998.12  1003.624004.04 1002.9424049.64 1002.74

Manning's n Values         num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
***********************************************
13687.27    .04318481.36    .04320931.14    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
     19284.3420742.96              485     492     450             .1       .3
Ineffective Flow      num=       2
   Sta L   Sta R    Elev  Permanent
13687.27   17900    1000       F
   2140024049.64    1000       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         *  994.20  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.57  * Wt. n-Val.             *   0.043  *   0.043  *   0.033  *
* W.S. Elev (ft)         *  993.64  * Reach Len. (ft)        *  485.00  *  492.00  *  450.00  *
* Crit W.S. (ft)         *  986.68  * Flow Area (sq ft)      * 5631.66  *20854.99  * 3037.04  *
* E.G. Slope (ft/ft)     *0.001005  * Area (sq ft)           *12323.51  *20854.99  * 3643.00  *
* Q Total (cfs)          *164000.00  * Flow (cfs)           *16574.24  *134496.80  *12928.94  *
* Top Width (ft)         * 7348.85  * Top Width (ft)        * 4799.29  * 1458.62  * 1090.94  *
* Vel Total (ft/s)       *    5.55  * Avg. Vel. (ft/s)      *    2.94  *    6.45  *    4.26  *
* Max Chl Dpth (ft)      *   18.07  * Hydr. Depth (ft)      *    4.29  *   14.30  *    4.62  *
* Conv. Total (cfs)      *5172262.0  * Conv. (cfs)          *522721.4  *4241786.0  *407755.4  *
* Length Wtd. (ft)       *  488.72  * Wetted Per. (ft)      * 1315.08  * 1460.47  *  657.80  *
* Min Ch El (ft)         *  975.57  * Shear (lb/sq ft)      *    0.27  *    0.90  *    0.29  *
* Alpha                  *    1.18  * Stream Power (lb/ft s) *    0.79  *    5.78  *    1.23  *
* Frctn Loss (ft)        *    0.38  * Cum Volume (acre-ft)  * 5293.86  *16998.13  * 1064.28  *
* C & E Loss (ft)        *    0.00  * Cum SA (acres)        * 1514.93  * 1845.07  *  568.99  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)         *  994.85  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.87  * Wt. n-Val.             *   0.043  *   0.043  *          *
* W.S. Elev (ft)         *  993.98  * Reach Len. (ft)        *  485.00  *  492.00  *  450.00  *
* Crit W.S. (ft)         *  986.65  * Flow Area (sq ft)      *  729.56  *21354.97  *          *
* E.G. Slope (ft/ft)     *0.001336  * Area (sq ft)           *  729.56  *21354.97  *          *
* Q Total (cfs)          *164000.00  * Flow (cfs)           * 3238.55  *160761.50  *          *
* Top Width (ft)         * 1562.96  * Top Width (ft)        *  104.34  * 1458.62  *          *
* Vel Total (ft/s)       *    7.43  * Avg. Vel. (ft/s)      *    4.44  *    7.53  *          *
* Max Chl Dpth (ft)      *   18.41  * Hydr. Depth (ft)      *    6.99  *   14.64  *          *
* Conv. Total (cfs)      *4487226.0  * Conv. (cfs)          * 88610.4  *4398616.0  *          *
* Length Wtd. (ft)       *  491.57  * Wetted Per. (ft)      *  110.72  * 1467.45  *          *
* Min Ch El (ft)         *  975.57  * Shear (lb/sq ft)      *    0.55  *    1.21  *          *
* Alpha                  *    1.01  * Stream Power (lb/ft s) *    2.44  *    9.14  *          *
* Frctn Loss (ft)        *    0.51  * Cum Volume (acre-ft)  *  529.39  *17568.86  *   34.97  *
* C & E Loss (ft)        *    0.00  * Cum SA (acres)        *   81.71  * 1847.16  *    6.81  *
*********************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
```

REACH: 1 RS: 205.25

INPUT
Description: 205.25
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16580.4	994	16657.1	994	16708.3	993.9	16776.5	993.6	16819.1	994.5
16845.8	992.8	16892.9	992.2	16971.6	992.3	17154.1	993.1	17172.8	993.1
17289.2	992.5	17431.5	991.8	17455.8	991.6	17644.6	992.5	17718.9	992.3
17808.9	991.8	17842.7	989.1	17907.9	989.9	17920.6	992.1	17926.4	990.6
17933.2	992.4	17964.3	990.4	17989.2	990.3	17999.1	987.6	18061	989.2
18108.7	990.1	18179	988.3	18216.3	987	18244.2	987.5	18311.6	987.2
18329.2	987.8	18392.2	987.8	18457.1	988.6	18493.2	989.2	18509.7	988.5
18583.8	989	18614.2	989.1	18647.4	988	18708.8	987.6	18775.5	989.5
18807.1	990	18886.3	989.2	18946.4	989	18990.4	988.1	19012.5	989.2
19101	990.2	19156.3	989.9	19179.1	987.1	19186.7	985.4	19228.7	983.3
19242.4	982	19306.5	983.4	19368.3	983.9	19442.9	983.5	19503.3	984.6
19563	981.8	19581.1	985.9	19632.5	986.1	19671.9	987.3	19726.2	975.8
19815.7	975.6	19878.1	976.2	19957	975.9	20042	975.5	20112.8	975.3
20121.8	975.7	20160.5	973.8	20242	973.4	20260.5	974.6	20329.5	975
20404.8	975.5	20471.4	978.3	20486.8	979.5	20522.9	977.9	20526	975.8
20552.9	975.9	20584.6	974.1	20632.4	973.9	20697	975.7	20712	975.7
20738.9	981.7	20741.5	980.7	20782.3	986.4	20848.1	987.4	20923.8	989.9
21014.3	990.6	21121.3	991.6	21201.7	992.1	21283.6	992.1	21338.5	993.1
21347.9	993.8	21358.2	992.2	21370.3	995.6	21409.5	995.7	21424	994.5
21499.5	993.3								

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16580.4	.025	18108.7	.037	19671.9	.037	20782.3	.025

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19671.9 20782.3 505 506 485 .1 .3
Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
16580.4	17950	995.7	F
21347.9	21499.5	995.7	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	993.82	Element	Left OB	Channel / Right OB
Vel Head (ft)	0.57	Wt. n-Val.	0.036	0.037 / 0.025
W.S. Elev (ft)	993.26	Reach Len. (ft)	505.00	506.00 / 485.00
Crit W.S. (ft)	985.26	Flow Area (sq ft)	10028.25	18998.26 / 1514.65
E.G. Slope (ft/ft)	0.000623	Area (sq ft)	11314.22	18998.26 / 1520.24
Q Total (cfs)	164000.00	Flow (cfs)	33461.27	126169.00 / 4369.76
Top Width (ft)	4512.59	Top Width (ft)	2833.29	1110.40 / 568.90
Vel Total (ft/s)	5.37	Avg. Vel. (ft/s)	3.34	6.64 / 2.89
Max Chl Dpth (ft)	19.86	Hydr. Depth (ft)	5.82	17.11 / 2.71
Conv. Total (cfs)	6571525.0	Conv. (cfs)	1340802.0	5055625.0 / 175097.6
Length Wtd. (ft)	505.35	Wetted Per. (ft)	1723.55	1113.81 / 558.39
Min Ch El (ft)	973.40	Shear (lb/sq ft)	0.23	0.66 / 0.11
Alpha	1.26	Stream Power (lb/ft s)	0.75	4.40 / 0.30
Frctn Loss (ft)	0.52	Cum Volume (acre-ft)	5162.27	16773.07 / 1037.61
C & E Loss (ft)	0.09	Cum SA (acres)	1472.44	1830.56 / 560.42

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	994.34	Element	Left OB	Channel / Right OB
Vel Head (ft)	0.85	Wt. n-Val.	0.037	0.037 /
W.S. Elev (ft)	993.49	Reach Len. (ft)	505.00	506.00 / 485.00
Crit W.S. (ft)	985.16	Flow Area (sq ft)	3415.04	19253.09 /
E.G. Slope (ft/ft)	0.000817	Area (sq ft)	3415.04	19253.09 /
Q Total (cfs)	164000.00	Flow (cfs)	16866.33	147133.70 /
Top Width (ft)	1482.30	Top Width (ft)	371.90	1110.40 /
Vel Total (ft/s)	7.23	Avg. Vel. (ft/s)	4.94	7.64 /
Max Chl Dpth (ft)	20.09	Hydr. Depth (ft)	9.18	17.34 /
Conv. Total (cfs)	5737392.0	Conv. (cfs)	590053.3	5147338.0 /
Length Wtd. (ft)	505.72	Wetted Per. (ft)	382.69	1120.90 /
Min Ch El (ft)	973.40	Shear (lb/sq ft)	0.46	0.88 /
Alpha	1.05	Stream Power (lb/ft s)	2.25	6.70 /
Frctn Loss (ft)	0.59	Cum Volume (acre-ft)	506.31	17339.53 / 34.97
C & E Loss (ft)	0.06	Cum SA (acres)	79.06	1832.65 / 6.81

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 205.15

INPUT
Description: 205.15
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18001.2	994	18008.5	992.8	18015.6	994.9	18038.3	990.9	18047.4	991.8
18061.5	992.1	18077.6	991.6	18146.4	988.8	18170.1	988.9	18200.6	988.3

18243	988.8	18269.7	988.5	18292.3	988.8	18341.7	989.8	18374.9	990.2
18415.6	990.6	18438.3	991.1	18547.3	991	18558.8	991.1	18618.4	991.8
18625.4	991.9	18687.7	991.3	18696.2	991.3	18745.4	991.4	18794.1	991.1
18810	991.2	18866.4	991	18894.1	991.2	18920.9	990.7	18973.2	990.3
19018.9	989.8	19055.8	989.7	19109.2	989.4	19141.8	988.8	19181.8	988.8
19228.5	988.7	19285.2	989.2	19335.5	988.1	19346.3	987.8	19386.8	986.1
19394.2	985.9	19440.1	984.4	19443.6	984.3	19490	983.7	19506.7	983.8
19532.2	982.8	19587.2	983.3	19612.4	983.6	19619.1	984.1	19660.7	983.9
19705.1	983.1	19747.1	983.7	19787.1	984.9	19805.2	976.8	19822.3	973.4
19827.6	974.7	19829.5	974.2	19853	974.2	19880.4	973.6	19881.2	973.1
19908.4	980	19918.9	982.2	19934	984.3	19978.1	984.9	20006.4	984.1
20054.3	983.8	20064.2	983.5	20106.6	982	20110.7	981.8	20166.7	979
20196.8	978.1	20246.3	976.6	20250.4	976.4	20298.9	975.4	20340.8	975.5
20371.6	975.7	20436.2	974	20495	974.1	20608.2	975.2	20651	975.7
20691.5	977.2	20705.2	979.5	20746.3	987.3	20793.1	987.9	20838	988.7
20896.6	989.6	20910.7	990.1	20968.3	990.3	20999	990.6	21039.8	990.8
21107	991.7	21127.2	991.3	21170.3	994.1	21206.9	995.7	21258.6	996.3
21293	996.4								

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
18001.2	.025	18146.4	.037	19787.1	.037	20746.3	.025

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19787.1 20746.3 495 495.39 495 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
18001.2	18061.5	995	F
21293	21293	996.4	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	993.21	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.46	Wt. n-Val.	0.037	0.037	0.025
W.S. Elev (ft)	991.76	Reach Len. (ft)	495.00	495.39	495.00
Crit W.S. (ft)	987.66	Flow Area (sq ft)	5457.16	13249.56	742.57
E.G. Slope (ft/ft)	0.002039	Area (sq ft)	5462.93	13249.56	742.57
Q Total (cfs)	164000.00	Flow (cfs)	23077.22	137850.70	3072.08
Top Width (ft)	3049.28	Top Width (ft)	1702.17	959.20	387.91
Vel Total (ft/s)	8.43	Avg. Vel. (ft/s)	4.23	10.40	4.14
Max Chl Dpth (ft)	18.66	Hydr. Depth (ft)	3.23	13.81	1.91
Conv. Total (cfs)	3632205.0	Conv. (cfs)	511104.8	3053061.0	68039.3
Length Wtd. (ft)	495.35	Wetted Per. (ft)	1688.95	964.03	387.96
Min Ch El (ft)	973.10	Shear (lb/sq ft)	0.41	1.75	0.24
Alpha	1.32	Stream Power (lb/ft s)	1.74	18.20	1.01
Frctn Loss (ft)	0.97	Cum Volume (acre-ft)	5065.02	16585.77	1025.01
C & E Loss (ft)	0.02	Cum SA (acres)	1446.15	1818.54	555.09

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	993.69	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.44	Wt. n-Val.	0.037	0.037	0.025
W.S. Elev (ft)	992.25	Reach Len. (ft)	495.00	495.39	495.00
Crit W.S. (ft)	987.65	Flow Area (sq ft)	3367.91	13720.96	365.73
E.G. Slope (ft/ft)	0.001819	Area (sq ft)	3367.91	13720.96	365.73
Q Total (cfs)	164000.00	Flow (cfs)	23553.24	138039.00	2407.76
Top Width (ft)	1445.00	Top Width (ft)	402.10	959.20	83.70
Vel Total (ft/s)	9.40	Avg. Vel. (ft/s)	6.99	10.06	6.58
Max Chl Dpth (ft)	19.15	Hydr. Depth (ft)	8.38	14.30	4.37
Conv. Total (cfs)	3844879.0	Conv. (cfs)	552191.1	3236240.0	56448.5
Length Wtd. (ft)	495.36	Wetted Per. (ft)	408.28	964.03	87.40
Min Ch El (ft)	973.10	Shear (lb/sq ft)	0.94	1.62	0.48
Alpha	1.05	Stream Power (lb/ft s)	6.55	16.26	3.13
Frctn Loss (ft)	0.90	Cum Volume (acre-ft)	466.99	17148.02	32.93
C & E Loss (ft)	0.00	Cum SA (acres)	74.57	1820.63	6.35

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 205.06

INPUT
Description: 205.06
Station Elevation Data num= 129

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17971	990.9	18065.3	988.6	18104.6	990.4	18115.6	988.2	18128.9	991.2
18143.2	991.5	18167.1	990.4	18222.4	988.9	18239	988.9	18268	988.1
18295.2	989	18314.3	988.5	18358.9	987.5	18410.5	986.7	18435.8	988.1
18478.4	994.2	18515	994	18541.2	993.6	18567.7	993	18668.2	993.4
18694.6	996.3	18716.8	994.1	18733	990.9	18773.1	991.2	18799	993.8
18844	996.4	18879.8	994	18912.8	991.3	18929.6	990.6	18948.8	990.9
18974.6	992.4	18989	991.8	18996.9	990.8	19026.5	996.8	19033.3	997.5
19038.3	998.5	19071.8	995.8	19078.5	994.1	19097.2	986.1	19133.8	987
19136.4	990.2	19142.8	992.6	19151.6	994.3	19202.7	994.1	19217.4	994.9
19226.3	988.3	19230.3	986.5	19252.3	985.8	19287.1	985.9	19329.2	986.2
19380.3	987.3	19388.1	987.3	19434.5	987.8	19445.1	987.8	19500.6	988.4
19538.9	988.7	19598.7	988.7	19648.7	990	19669.4	989.9	19722.7	988.3
19771.5	986.5	19803.6	986.4	19827.5	985.6	19841.3	984.7	19887	983.6
19904.2	973.1	19931.3	971.2	19981.6	971.1	19982.8	971.1	20027.4	970.5
20053.2	971.3	20073.5	976.1	20120.4	976.2	20137.3	976.4	20147.5	981
20155.4	983.6	20196	987.3	20208.9	986.1	20221.7	985.3	20253.8	981
20275.4	981	20301.5	975.4	20306.9	975.1	20315.2	975.1	20365	974.5
20425.5	974.6	20470.1	974.5	20497.9	974.4	20563.5	973.5	20601.9	973.2
20671.9	974	20850.2	976	20856.8	977.9	20880.3	977.7	20892.4	984.3

20905.3	990.8	20927.2	991.2	20971.3	992	21020.6	993	21062.7	993.2
21101.6	993.3	21146	993.7	21204.6	993.9	21256.1	994.5	21300.3	994.8
21336.3	994.9	21378.2	995	21414.7	995.2	21457.8	995.2	21484.8	995.4
21512.4	994.7	21514.5	995.9	21516.2	996.3	21518.9	995.5	21525.9	994.3
21532.1	994.6	21537.4	995.2	21546	995	21560.5	995.3	21575	995
21602.5	996.4	21628.8	996.3	21672.8	996.3	21709.9	996.5	21754.4	996.4
21826.9	996.1	21895.5	996.5	21951.4	996.6	21997.9	996.4		

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
17971	.037	19026.5	.037	19669.4	.037	20905.3	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
19669.4	20905.3	505	505	530 .1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17971	18080	998.5	F
21997.9	21997.9	998.5	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	992.22	Element	Left OB	Channel / Right OB
Vel Head (ft)	1.37	Wt. n-Val.	0.037	0.037 / 0.025
W.S. Elev (ft)	990.85	Reach Len. (ft)	505.00	505.00 / 530.00
Crit W.S. (ft)	984.95	Flow Area (sq ft)	2335.51	16204.32 / 0.06
E.G. Slope (ft/ft)	0.001875	Area (sq ft)	2466.89	16204.32 / 0.06
Q Total (cfs)	164000.00	Flow (cfs)	8135.07	155864.90 / 0.01
Top Width (ft)	2210.68	Top Width (ft)	972.31	1235.90 / 2.47
Vel Total (ft/s)	8.85	Avg. Vel. (ft/s)	3.48	9.62 / 0.21
Max Chl Dpth (ft)	20.35	Hydr. Depth (ft)	2.70	13.11 / 0.02
Conv. Total (cfs)	3787357.0	Conv. (cfs)	187868.3	3599489.0 / 0.3
Length Wtd. (ft)	505.01	Wetted Per. (ft)	870.33	1245.68 / 2.47
Min Ch El (ft)	970.50	Shear (lb/sq ft)	0.31	1.52 / 0.00
Alpha	1.13	Stream Power (lb/ft s)	1.09	14.65 / 0.00
Frctn Loss (ft)	0.72	Cum Volume (acre-ft)	5019.96	16418.28 / 1020.79
C & E Loss (ft)	0.19	Cum SA (acres)	1430.95	1806.05 / 552.87

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	992.79	Element	Left OB	Channel / Right OB
Vel Head (ft)	1.43	Wt. n-Val.	0.037	0.037 /
W.S. Elev (ft)	991.36	Reach Len. (ft)	505.00	505.00 / 530.00
Crit W.S. (ft)	984.95	Flow Area (sq ft)	491.43	16837.05 /
E.G. Slope (ft/ft)	0.001795	Area (sq ft)	491.43	16837.05 /
Q Total (cfs)	164000.00	Flow (cfs)	1508.81	162491.20 /
Top Width (ft)	1435.30	Top Width (ft)	199.40	1235.90 /
Vel Total (ft/s)	9.46	Avg. Vel. (ft/s)	3.07	9.65 /
Max Chl Dpth (ft)	20.86	Hydr. Depth (ft)	2.46	13.62 /
Conv. Total (cfs)	3871248.0	Conv. (cfs)	35615.7	3835632.0 /
Length Wtd. (ft)	505.00	Wetted Per. (ft)	202.71	1246.24 /
Min Ch El (ft)	970.50	Shear (lb/sq ft)	0.27	1.51 /
Alpha	1.03	Stream Power (lb/ft s)	0.83	14.61 /
Frctn Loss (ft)	0.82	Cum Volume (acre-ft)	445.07	16974.25 / 30.85
C & E Loss (ft)	0.10	Cum SA (acres)	71.15	1808.15 / 5.87

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 204.97

INPUT
Description: 204.97

Left Channel Bank Station Interpolated
Station Elevation Data num= 86

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16000	993.3	16025.7	992.1	16060.7	991.7	16273.1	992.3	16303.1	992.4
16597.7	992.1	16613.7	992	16818.7	992	16912.8	992.3	17061.4	992.3
17169.3	991.7	17232.9	991.8	17259.7	989	17316.4	990.2	17470.6	990.2
17483.4	990.2	17700.5	989.9	17786.2	989.2	17832.4	989	17894.5	988.9
17924.8	989.2	17933.3	990.5	17979.7	992.1	17985.3	991.5	17994.8	988.7
18008.6	988.7	18105.1	987.6	18137.2	986.9	18189.2	987.8	18201.2	986.8
18216.4	989.2	18243.6	989.2	18301.9	989	18377.5	989.6	18462.9	990.2
18523.7	988.6	18573.9	986	18643	986.6	18672	985.8	18672.9	984.9
18697.7	984.3	18729.6	988.3	18807.2	987.9	18833	984	18865.3	987.3
18888.3	985.4	18917	987.8	18955.4	987.9	18987.3	984.9	19046.8	987.1
19093.5	986.8	19152.6	983.5	19285.8	983.8	19317.6	981.5	19332.9	979.1
19418.6	978	19438.3	978.8	19545	978.843	19934.7	979	19938.2	981.1
19945.9	981.9	20008.7	980.8	20068.2	980.2	20091.8	979.6	20151.8	979.3
20225.8	978.1	20300.7	979	20367.2	979.3	20442.3	978.7	20509.6	977.2
20568	974.8	20659.1	973.3	20662.9	973.3	20925.5	975.4	20961.3	988.6
20999.4	990.2	21056.8	990.8	21126.2	991.7	21187	992.8	21200.2	992.9
21265.2	993	21340.5	993	21356.1	993	21427.5	993.4	21492.8	993.1
21496	993.1								

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16000	.025	18301.9	.037	19046.8	.037	20961.3	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
19545	20961.3	510	503	550 .1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
16000	18200	993.4	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	991.30	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.74	Wt. n-Val.	0.037	0.037	0.025
W.S. Elev (ft)	990.56	Reach Len. (ft)	510.00	503.00	550.00
Crit W.S. (ft)	984.97	Flow Area (sq ft)	6790.54	*17977.87	50.64
E.G. Slope (ft/ft)	*0.001134	Area (sq ft)	7908.25	*17977.87	50.64
Q Total (cfs)	*164000.00	Flow (cfs)	*31810.39	*132110.10	79.50
Top Width (ft)	3736.09	Top Width (ft)	2246.92	1416.30	72.86
Vel Total (ft/s)	6.61	Avg. Vel. (ft/s)	4.68	7.35	1.57
Max Chl Dpth (ft)	17.26	Hydr. Depth (ft)	5.05	12.69	0.70
Conv. Total (cfs)	*4869981.0	Conv. (cfs)	*944609.8	*3923010.0	2360.8
Length Wtd. (ft)	504.14	Wetted Per. (ft)	1347.14	1419.41	72.90
Min Ch El (ft)	973.30	Shear (lb/sq ft)	0.36	0.90	0.05
Alpha	1.09	Stream Power (lb/ft s)	1.67	6.59	0.08
Frctn Loss (ft)	0.47	Cum Volume (acre-ft)	4959.82	*16220.14	1020.49
C & E Loss (ft)	0.04	Cum SA (acres)	1412.29	1790.68	552.41

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	991.87	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.11	Wt. n-Val.	0.037	0.037	
W.S. Elev (ft)	990.76	Reach Len. (ft)	510.00	503.00	550.00
Crit W.S. (ft)	985.05	Flow Area (sq ft)	1194.17	*18262.88	
E.G. Slope (ft/ft)	*0.001485	Area (sq ft)	1194.17	*18262.88	
Q Total (cfs)	*164000.00	Flow (cfs)	8955.43	*155044.60	
Top Width (ft)	1516.30	Top Width (ft)	100.00	1416.30	
Vel Total (ft/s)	8.43	Avg. Vel. (ft/s)	7.50	8.49	
Max Chl Dpth (ft)	17.46	Hydr. Depth (ft)	11.94	12.89	
Conv. Total (cfs)	*4255498.0	Conv. (cfs)	*232376.8	*4023121.0	
Length Wtd. (ft)	503.24	Wetted Per. (ft)	111.96	1421.57	
Min Ch El (ft)	973.30	Shear (lb/sq ft)	0.99	1.19	
Alpha	1.00	Stream Power (lb/ft s)	7.42	10.11	
Frctn Loss (ft)	0.59	Cum Volume (acre-ft)	435.30	*16770.79	30.85
C & E Loss (ft)	0.08	Cum SA (acres)	69.42	1792.78	5.87

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 204.87

INPUT
Description: 204.87

Right Channel Bank Station Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17067.4	991.5	17111.3	991.5	17255	990.6	17291.2	991.6	17298.2	992.1
17315.9	991	17328.2	990.9	17345.3	988.6	17426.3	988	17520.6	988.2
17594.7	988.5	17781.4	988.6	17822.3	988.5	17925.1	988.2	18001	987.2
18108.5	987.1	18221.3	987.3	18261.7	986.3	18269.2	986.9	18279.6	985.4
18296.9	986.8	18325.5	986.8	18352.2	985.5	18429.1	985.3	18501.3	985.6
18553	984.4	18559.8	986.3	18565.9	988.9	18578.6	987.7	18604.1	983.9
18645.9	981.4	18657.3	984	18678.8	986.2	18730	987.6	18832.5	987.5
18855.2	985.7	18859.7	984.6	18874.5	986.6	18920.1	984.6	18942.9	980.4
18960	980.8	18970.7	982.4	19015.9	985.9	19104.6	986.7	19209.9	985.7
19234.9	985	19264.2	982.7	19275.4	983.5	19297.4	981	19382.3	981.4
19462.8	981	19532.8	979	19555.4	979.1	19566	978.5	19579.4	978.5
19588.4	976.2	19598.7	976.3	19623.4	978.5	19628	979.5	19642.3	981
19714.7	981	19730.8	981	19759.9	975.9	19765	976.4	19772.7	975.9
19854.5	975.9	19859.5	975.9	19861.3	977.3	19877.6	980.8	19890	975.9
19903.3	969.9	19909.9	970	19919.2	968.1	20001	968.1	20022.9	968.1
20059.2	975.3	20126.4	976.2	20213.9	975.3	20298.1	974.9	20351	974.8
20377.2	977.3	20393.3	977.5	20505.4	975.8	20559.1	974.3	20612	976.5
20624.2	974.6	20654.3	973.2	20826.7	974.3	20919.3	974.9	20939.9	984.7
20954.3	4991.1	405 20961.2	994.2	20981.5	994.3	21037.9	989.4	21047	990.3
21137.3	991.2	21197.6	991.4						

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
17067.4	.025	18221.3	.037	19462.8	.037	20961.2	.025

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19462.8 20954.3 495 499 505 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17067.4	18300	994.3	F
20961.2	21197.6	994.3	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	990.80	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.61	Wt. n-Val.	0.037	0.037	
W.S. Elev (ft)	990.19	Reach Len. (ft)	495.00	499.00	505.00
Crit W.S. (ft)	982.94	Flow Area (sq ft)	6202.87	*21657.82	
E.G. Slope (ft/ft)	*0.000767	Area (sq ft)	8399.19	*21657.82	6.71
Q Total (cfs)	*164000.00	Flow (cfs)	*21030.64	*142969.40	
Top Width (ft)	3635.74	Top Width (ft)	2129.31	1489.40	17.03
Vel Total (ft/s)	5.89	Avg. Vel. (ft/s)	3.39	6.60	
Max Chl Dpth (ft)	22.09	Hydr. Depth (ft)	5.33	14.54	

* Conv. Total (cfs)	*5920537.0	* Conv. (cfs)	*759223.6	*5161313.0	* *
* Length Wtd. (ft)	* 498.39	* Wetted Per. (ft)	* 1165.78	* 1498.26	* *
* Min Ch El (ft)	* 968.10	* Shear (lb/sq ft)	* 0.25	* 0.69	* *
* Alpha	* 1.14	* Stream Power (lb/ft s)	* 0.86	* 4.57	* *
* Frctn Loss (ft)	* 0.30	* Cum Volume (acre-ft)	* 4864.36	*15991.30	* 1020.12 *
* C & E Loss (ft)	* 0.05	* Cum SA (acres)	* 1386.67	* 1773.90	* 551.85 *

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 991.20	* Element	* Left OB *	Channel *	Right OB *
* Vel Head (ft)	* 0.84	* Wt. n-Val.	* 0.037 *	0.037 *	*
* W.S. Elev (ft)	* 990.37	* Reach Len. (ft)	* 495.00 *	499.00 *	505.00 *
* Crit W.S. (ft)	* 982.85	* Flow Area (sq ft)	* 487.55	*21921.99 *	*
* E.G. Slope (ft/ft)	*0.000942	* Area (sq ft)	* 487.55	*21921.99 *	*
* Q Total (cfs)	*164000.00	* Flow (cfs)	* 2378.75	*161621.30 *	* *
* Top Width (ft)	* 1542.20	* Top Width (ft)	* 52.80	* 1489.40 *	*
* Vel Total (ft/s)	* 7.32	* Avg. Vel. (ft/s)	* 4.88	* 7.37 *	*
* Max Chl Dpth (ft)	* 22.27	* Hydr. Depth (ft)	* 9.23	* 14.72 *	*
* Conv. Total (cfs)	*5343764.0	* Conv. (cfs)	* 77509.1	*5266255.0 *	* *
* Length Wtd. (ft)	* 498.86	* Wetted Per. (ft)	* 61.90	* 1498.43 *	*
* Min Ch El (ft)	* 968.10	* Shear (lb/sq ft)	* 0.46	* 0.86 *	*
* Alpha	* 1.01	* Stream Power (lb/ft s)	* 2.26	* 6.34 *	*
* Frctn Loss (ft)	* 0.37	* Cum Volume (acre-ft)	* 425.45	*16538.78 *	30.85 *
* C & E Loss (ft)	* 0.06	* Cum SA (acres)	* 68.52	* 1776.00 *	5.87 *

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 204.78

INPUT
Description: 204.78

Right Channel Bank Station Interpolated
Station Elevation Data num= 87

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16026.1	987.6	16094.8	987.3	16113.5	986.9	16143.6	989.2	16147.7	990.2
16176.4	990.8	16200.6	988.8	16231.8	988.4	16338.9	988.8	16416.1	988.9
16579.2	988.9	16686	989.1	16786.7	989.1	16866.8	989.3	17093.1	989.3
17192.6	989.3	17283.5	988	17369.3	988	17407.5	989.7	17420.2	988
17479.3	987	17521.2	986.9	17670.9	988	17754.2	987.8	17912.8	987.4
17952.6	987.1	18028.5	987	18174.7	986.5	18221.6	986.3	18279.6	986.1
18350.4	984.9	18361.8	983	18373.6	985.9	18402.3	985.9	18413.2	983.6
18427.5	987.2	18487.5	986.4	18504	984.4	18585.3	983.7	18598.2	984.9
18667.6	983.9	18753.3	984.6	18756.1	984.9	18767.8	981.3	18836.7	981
19173.1	979.8	19219.1	979.8	19295.8	977.2	19323.7	977.5	19337.5	981
19356.4	981	19398.6	983	19409.2	982.4	19419.8	979.2	19429.6	977.4
19432.3	975.9	19489.4	975.9	19561.1	974.8	19621.6	973	19660.7	972.1
19667.7	970.8	19677.1	967.6	19767.4	968.8	19768	968.8	19935.5	968
19986.5	968	20033.8	975.7	20056.9	977.8	20073.7	975.3	20160.4	975
20170.8	975.3	20229.5	975	20246.7	975	20324.8	974.9	20340	975
20452	975.9	20510.9	973	20530.9	973.1	20662.3	973.7	20706.1	973.8
20782.6	974.9	20801.8	975.1	20832.3	3990.9	976 20840.4	995.2	20866.6	994.5
20921.2	988.9	20982.7	988.3						

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16026.1	.025	18427.5	.037	19398.6	.037	20840.4	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
19398.6	20832.3	505	515	550 .1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
16026.1	18400	995.2	F
20840.4	20982.7	995.2	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 990.45	* Element	* Left OB *	Channel *	Right OB *
* Vel Head (ft)	* 0.45	* Wt. n-Val.	* 0.037 *	0.037 *	*
* W.S. Elev (ft)	* 990.01	* Reach Len. (ft)	* 505.00 *	515.00 *	550.00 *
* Crit W.S. (ft)	* 980.93	* Flow Area (sq ft)	* 8139.91	*23734.97 *	*
* E.G. Slope (ft/ft)	*0.000477	* Area (sq ft)	*12728.28	*23734.97 *	92.43 *
* Q Total (cfs)	*164000.00	* Flow (cfs)	* 29111.40	*134888.60 *	* *
* Top Width (ft)	* 4837.51	* Top Width (ft)	* 3333.40	* 1431.83 *	72.28 *
* Vel Total (ft/s)	* 5.15	* Avg. Vel. (ft/s)	* 3.58	* 5.68 *	*
* Max Chl Dpth (ft)	* 22.41	* Hydr. Depth (ft)	* 8.15	* 16.58 *	*
* Conv. Total (cfs)	*7512086.0	* Conv. (cfs)	*1333460.0	*6178626.0 *	* *
* Length Wtd. (ft)	* 513.16	* Wetted Per. (ft)	* 1000.57	* 1438.22 *	*
* Min Ch El (ft)	* 967.60	* Shear (lb/sq ft)	* 0.24	* 0.49 *	*
* Alpha	* 1.09	* Stream Power (lb/ft s)	* 0.87	* 2.79 *	*
* Frctn Loss (ft)	* 0.33	* Cum Volume (acre-ft)	* 4744.32	*15731.30 *	1019.55 *
* C & E Loss (ft)	* 0.03	* Cum SA (acres)	* 1355.64	* 1757.17 *	551.33 *

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 990.77	* Element	* Left OB *	Channel *	Right OB *
* Vel Head (ft)	* 0.63	* Wt. n-Val.	* 0.037 *	0.037 *	*

```
                                                                    Post-Project
* W.S. Elev (ft)          *  990.13  * Reach Len. (ft)          *  505.00  *  515.00  *  550.00  *
* Crit W.S. (ft)          *  980.78  * Flow Area (sq ft)        * 2009.30  *23919.55  *          *
* E.G. Slope (ft/ft)      *0.000611  * Area (sq ft)            * 2009.30  *23919.55  *          *
* Q Total (cfs)           *164000.00  * Flow (cfs)             * 9303.23  *154696.80  *          *
* Top Width (ft)          * 1620.43  * Top Width (ft)         *  188.60  * 1431.83  *          *
* Vel Total (ft/s)        *    6.33  * Avg. Vel. (ft/s)       *    4.63  *    6.47  *          *
* Max Chl Dpth (ft)       *   22.53  * Hydr. Depth (ft)       *   10.65  *   16.71  *          *
* Conv. Total (cfs)       *6634912.0  * Conv. (cfs)           *376378.6  *6258533.0  *          *
* Length Wtd. (ft)        *  514.26  * Wetted Per. (ft)       *  199.46  * 1438.35  *          *
* Min Ch El (ft)          *  967.60  * Shear (lb/sq ft)       *    0.38  *    0.63  *          *
* Alpha                   *    1.02  * Stream Power (lb/ft s) *    1.78  *    4.10  *          *
* Frctn Loss (ft)         *    0.42  * Cum Volume (acre-ft)   *  411.26  *16276.21  *   30.85  *
* C & E Loss (ft)         *    0.04  * Cum SA (acres)         *   67.15  * 1759.27  *    5.87  *
*****************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 204.68

INPUT
Description: 204.68

Right Channel Bank Station Interpolated
Station Elevation Data    num=      97
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
 17501.1   986.1 17554.2   985.7 17607.9   985.5 17645.5   987.6   17657   986.8
 17668.8   987.1 17674.9   990.2 17682.2   987.8   17691   985.7 17742.4   986.2
 17748.2   986.3   17778   988.7 17792.2   990.8 17806.1   988.7 17807.3   988.9
 17839.5   987.8 17848.5   986.9 17867.4   986.8 17881.2   986.2 17970.4   985.8
 18016.4   985.9 18087.9   985.4 18189.8     985 18231.2   984.8 18295.5   984.9
 18354.5   984.6 18412.6   984.3 18437.1   982.9 18472.2     984 18491.1   983.4
 18518.9   981.6 18530.8   984.6 18531.9   985.1 18550.1   982.9 18601.2   983.1
 18621.4   983.6 18662.6   982.9 18685.1     983 18736.6   981.7 18767.6   980.4
 18849.4   980.3 18886.2   980.2 18950.6     980 19029.6   979.9 19057.5     983
 19071.2   980.7 19099.7   980.9   19114   981.6 19143.3   981.3 19197.1   981.7
 19249.9   983.3 19284.9   981.9 19308.1   982.1 19314.7   984.6 19321.8     985
 19357.4     981 19361.7   979.6 19368.2   980.1 19394.4   978.2 19398.6   975.9
 19415.9   975.9 19458.6   973.3 19479.3   973.1 19513.5   971.9 19564.9   971.9
 19621.8   972.2 19668.2   973.2 19691.4   975.5   19719   976.9 19734.6   976.2
 19779.1   971.8 19814.3   971.4 19869.4   971.6   19901   972.5 19927.9   972.8
 19942.8   973.9 20011.2   975.3 20053.7   976.3 20121.8   976.1 20137.2   975.6
 20206.4   975.5 20256.1   973.7 20273.3   974.7   20295     973 20348.3   973.2
 20369.6   973.3 20516.3   974.120548.61990.5028 20548.8   990.6 20582.8   991.5
   20647   987.5 20715.7   987.8 20786.9     988   20814     988 20872.4   988.2
 20904.2   988.1   20971   988.4

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*****************************************************************************
 17501.1    .025 18472.2    .037 19321.8    .037 20548.8    .037 20582.8    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       19321.820548.61              325     407     570             .1      .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 17501.1   18455   991.5       F
 20582.8   20971   991.5       F

CROSS SECTION OUTPUT  Profile #PF#1
*****************************************************************************************
* E.G. Elev (ft)          *  990.10  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.73  * Wt. n-Val.              *   0.037  *   0.037  *          *
* W.S. Elev (ft)          *  989.36  * Reach Len. (ft)         *  325.00  *  407.00  *  570.00  *
* Crit W.S. (ft)          *  982.91  * Flow Area (sq ft)       * 6628.41  *18234.16  *          *
* E.G. Slope (ft/ft)      *0.000903  * Area (sq ft)           *10032.96  *18234.16  *  473.96  *
* Q Total (cfs)           *164000.00  * Flow (cfs)            *31211.30  *132788.70  *          *
* Top Width (ft)          * 3375.81  * Top Width (ft)        * 1797.31  * 1224.57  *  353.93  *
* Vel Total (ft/s)        *    6.60  * Avg. Vel. (ft/s)      *    4.71  *    7.28  *          *
* Max Chl Dpth (ft)       *   17.96  * Hydr. Depth (ft)      *    7.65  *   14.89  *          *
* Conv. Total (cfs)       *5457597.0  * Conv. (cfs)          *1038650.0  *4418946.0  *          *
* Length Wtd. (ft)        *  390.47  * Wetted Per. (ft)      *  868.45  * 1230.06  *          *
* Min Ch El (ft)          *  971.40  * Shear (lb/sq ft)      *    0.43  *    0.84  *          *
* Alpha                   *    1.08  * Stream Power (lb/ft s) *    2.03  *    6.09  *          *
* Frctn Loss (ft)         *    0.43  * Cum Volume (acre-ft)  * 4612.38  *15483.21  * 1015.97  *
* C & E Loss (ft)         *    0.03  * Cum SA (acres)        * 1325.89  * 1741.47  *  548.64  *
*****************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*****************************************************************************************
* E.G. Elev (ft)          *  990.31  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.99  * Wt. n-Val.              *   0.037  *   0.037  *          *
* W.S. Elev (ft)          *  989.32  * Reach Len. (ft)         *  325.00  *  407.00  *  570.00  *
* Crit W.S. (ft)          *  982.81  * Flow Area (sq ft)       * 2820.76  *18179.75  *          *
* E.G. Slope (ft/ft)      *0.001151  * Area (sq ft)           * 2820.76  *18179.75  *          *
* Q Total (cfs)           *164000.00  * Flow (cfs)            *14831.20  *149168.80  *          *
* Top Width (ft)          * 1586.28  * Top Width (ft)        *  361.80  * 1224.48  *          *
* Vel Total (ft/s)        *    7.81  * Avg. Vel. (ft/s)      *    5.26  *    8.21  *          *
* Max Chl Dpth (ft)       *   17.92  * Hydr. Depth (ft)      *    7.80  *   14.85  *          *
* Conv. Total (cfs)       *4834418.0  * Conv. (cfs)          *437196.3  *4397221.0  *          *
* Length Wtd. (ft)        *  395.87  * Wetted Per. (ft)      *  372.04  * 1229.96  *          *
* Min Ch El (ft)          *  971.40  * Shear (lb/sq ft)      *    0.54  *    1.06  *          *
* Alpha                   *    1.05  * Stream Power (lb/ft s) *    2.86  *    8.71  *          *
* Frctn Loss (ft)         *    0.51  * Cum Volume (acre-ft)  *  383.27  *16027.35  *   30.85  *
* C & E Loss (ft)         *    0.02  * Cum SA (acres)        *   63.96  * 1743.57  *    5.87  *
*****************************************************************************************
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Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 204.61

INPUT
Description: 204.61
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
14501.4	987.8	14573.3	990	14582.2	987.6	14618.2	988.2	14777.3	988.3
14862.5	988	15060	988.1	15169	988.1	15293.6	988.1	15349.5	988
15354.3	989.1	15407.2	987.7	15581	987.7	15683.1	987.7	15895.1	987.7
15973.3	987.8	16138.5	987.8	16253	987.3	16305.2	988.9	16356.5	986.6
16502.7	987	16642.3	986.6	16753.7	986.8	16913.6	986.7	17015.2	986.4
17201.6	986.5	17292.3	986.1	17385	986.2	17492.5	986.6	17525.7	986
17544.8	987	17555.9	984.9	17607.1	987.6	17733.4	988	17760.1	988.2
17907	986.4	17945.4	985.9	18071.1	985.8	18171.7	984.9	18250.5	986.1
18300.1	984.4	18402.9	984.9	18466.2	984.6	18493.6	983.5	18498.9	981.8
18563.6	983.3	18578.3	983	18591.3	980.7	18665.2	981.8	18677.5	983.2
18687.3	985.4	18775.1	988.2	18821.3	988.9	18834.2	979.9	18973.9	980.4
19090.8	980.1	19180.1	979.7	19288	980.1	19386.4	980.8	19428.1	982.7
19471.3	983.1	19479.7	979.4	19500.4	973.3	19642.8	973.3	19760.9	972.7
19781	972.7	19928.9	973.4	20022	973.4	20085.3	975.2	20097.7	972.6
20188.3	973	20275.9	973.4	20374.8	973.9	20426.1	974.2	20456.1	987.8
20482.9	988.5	20507	986.5	20620.9	986.8	20726.9	987	20849.8	987.1
20944.2	987.1	21033.3	987.2	21060.5	987.3	21176.6	986.9	21261.7	986.8
21362.3	986.7	21489.6	987	21584.7	987.7	21599.3	987.7	21697.6	987.5
21835.5	987.5	21887.1	988.6	21890.1	987.2	21897.8	989.2	21930.6	990.8
21963.1	990.8								

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
14501.4	.025	18498.9	.037	19471.3	.037	20482.9	.025

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
19471.3 20482.9 395 449 545 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
14501.4	18570	990.8	F
20482.9	21963.1	990.8	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	989.64	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.05	Wt. n-Val.	0.037	0.037	
W.S. Elev (ft)	988.59	Reach Len. (ft)	395.00	449.00	545.00
Crit W.S. (ft)	983.53	Flow Area (sq ft)	6207.90	14692.94	
E.G. Slope (ft/ft)	0.001360	Area (sq ft)	12682.15	14692.94	2059.67
Q Total (cfs)	164000.00	Flow (cfs)	34891.40	129108.60	
Top Width (ft)	7282.60	Top Width (ft)	4858.98	1011.60	1412.02
Vel Total (ft/s)	7.85	Avg. Vel. (ft/s)	5.62	8.79	
Max Chl Dpth (ft)	15.99	Hydr. Depth (ft)	7.05	14.52	
Conv. Total (cfs)	4447568.0	Conv. (cfs)	946230.9	3501337.0	
Length Wtd. (ft)	441.21	Wetted Per. (ft)	883.70	1016.51	
Min Ch El (ft)	972.60	Shear (lb/sq ft)	0.60	1.23	
Alpha	1.10	Stream Power (lb/ft s)	3.35	10.78	
Frctn Loss (ft)	0.69	Cum Volume (acre-ft)	4527.64	15329.38	999.40
C & E Loss (ft)	0.02	Cum SA (acres)	1301.06	1731.02	537.08

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	989.78	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.16	Wt. n-Val.	0.037	0.037	
W.S. Elev (ft)	988.62	Reach Len. (ft)	395.00	449.00	545.00
Crit W.S. (ft)	983.47	Flow Area (sq ft)	4821.31	14720.97	
E.G. Slope (ft/ft)	0.001462	Area (sq ft)	4821.31	14720.97	
Q Total (cfs)	164000.00	Flow (cfs)	29704.86	134295.10	
Top Width (ft)	1602.90	Top Width (ft)	591.30	1011.60	
Vel Total (ft/s)	8.39	Avg. Vel. (ft/s)	6.16	9.12	
Max Chl Dpth (ft)	16.02	Hydr. Depth (ft)	8.15	14.55	
Conv. Total (cfs)	4289077.0	Conv. (cfs)	776868.4	3512208.0	
Length Wtd. (ft)	442.77	Wetted Per. (ft)	599.90	1016.63	
Min Ch El (ft)	972.60	Shear (lb/sq ft)	0.73	1.32	
Alpha	1.07	Stream Power (lb/ft s)	4.52	12.06	
Frctn Loss (ft)	0.74	Cum Volume (acre-ft)	354.76	15873.64	30.85
C & E Loss (ft)	0.02	Cum SA (acres)	60.41	1733.12	5.87

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 204.53

INPUT
Description: 204.53
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17504.9	987.8	17516.3	987.9	17522.8	987.1	17597	987.9	17615.7	987.3

17634.6	987.5	17637.7	988.1	17645.9	986.3	17657.9	988	17704.2	989.7
17740.1	1006.3	17784.7	1004.7	17850.8	1006.5	17875.5	988.5	17970.4	986.9
18011.9	987.2	18027.9	986.1	18091.1	986.1	18155.5	985.2	18204.4	984.7
18283.5	984.5	18320.2	984.4	18443	984.3	18501.9	983.9	18579.8	983.6
18647	982.6	18678.7	980.4	18706.4	982.9	18747	982.6	18757	983.3
18815.9	983.6	18827.1	980.6	18916.2	981.2	18927.3	982	19007.2	982.5
19073.9	982.8	19175.3	983.2	19185.4	983.5	19240.3	981	19276	975.9
19293	975	19359.2	979.5	19386	976	19409.2	976.4	19468.7	973.1
19520.6	973	19547.6	973.9	19571.2	975.5	19585.1	972.9	19610.7	972.7
19729.3	972.9	19787.3	973	19805.5	973.5	19860.6	976.1	19930.7	975.8
19979.8	973.4	19994.9	973.6	20150.7	974	20174.8	974	20434.3	974.4
20443.5	974.5	20465.7	985.2	20495.9	987.1	20550.8	986.4	20566	984.8
20629.6	984.7	20701.1	984.8	20780.4	985	20872.2	985	20943	985.1
21022.1	985.1	21052.3	985	21118.4	984.9	21183.9	984.8	21260.2	985
21337.7	986.1	21351.7	986.3	21381.4	984.7	21472.3	984.9	21564.8	985.3
21626.7	986.2	21653.6	986.5	21678.1	985.5	21716.4	985.3	21781	984.7
21817.6	987.6	21875.1	987.3	21880.1	988.5	21884.2	988.1	21885	988.9
21887.9	987.2	21894.1	988.4	21914.7	989.1	21935.1	988.6	21999.2	989.8
22011	990.1								

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
17504.9	.025	18647	.037	19185.4	.037	20495.9	.037	20566	.025

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

19185.4	20495.9	570	552	525	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17504.9	18730	1000	F
20495.9	22011	1000	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	988.93	Element	Left OB	Channel / Right OB
Vel Head (ft)	1.25	Wt. n-Val.	0.037	0.037 /
W.S. Elev (ft)	987.68	Reach Len. (ft)	570.00	552.00 / 525.00
Crit W.S. (ft)	982.99	Flow Area (sq ft)	2401.60	*16442.59 /
E.G. Slope (ft/ft)	*0.001814	Area (sq ft)	4931.95	*16442.59 / 3265.12
Q Total (cfs)	*164000.00	Flow (cfs)	*12437.51	*151562.50 /
Top Width (ft)	4061.16	Top Width (ft)	1366.62	1310.50 / 1384.04
Vel Total (ft/s)	8.70	Avg. Vel. (ft/s)	5.18	9.22 /
Max Chl Dpth (ft)	14.98	Hydr. Depth (ft)	5.27	12.55 /
Conv. Total (cfs)	*3850514.0	Conv. (cfs)	*292017.1	*3558497.0 /
Length Wtd. (ft)	552.82	Wetted Per. (ft)	455.86	1314.36 /
Min Ch El (ft)	972.70	Shear (lb/sq ft)	0.60	1.42 /
Alpha	1.06	Stream Power (lb/ft s)	3.09	13.06 /
Frctn Loss (ft)	1.15	Cum Volume (acre-ft)	4447.78	*15168.91 / 966.09
C & E Loss (ft)	0.01	Cum SA (acres)	1272.84	1719.05 / 519.59

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	989.03	Element	Left OB	Channel / Right OB
Vel Head (ft)	1.35	Wt. n-Val.	0.037	0.037 /
W.S. Elev (ft)	987.68	Reach Len. (ft)	570.00	552.00 / 525.00
Crit W.S. (ft)	982.94	Flow Area (sq ft)	1560.11	*16445.87 /
E.G. Slope (ft/ft)	*0.001919	Area (sq ft)	1560.11	*16445.87 /
Q Total (cfs)	*164000.00	Flow (cfs)	8110.36	*155889.60 /
Top Width (ft)	1610.90	Top Width (ft)	300.40	1310.50 /
Vel Total (ft/s)	9.11	Avg. Vel. (ft/s)	5.20	9.48 /
Max Chl Dpth (ft)	14.98	Hydr. Depth (ft)	5.19	12.55 /
Conv. Total (cfs)	*3743779.0	Conv. (cfs)	*185142.7	*3558637.0 /
Length Wtd. (ft)	552.45	Wetted Per. (ft)	307.13	1314.94 /
Min Ch El (ft)	972.70	Shear (lb/sq ft)	0.61	1.50 /
Alpha	1.05	Stream Power (lb/ft s)	3.16	14.20 /
Frctn Loss (ft)	1.21	Cum Volume (acre-ft)	325.82	*15713.02 / 30.85
C & E Loss (ft)	0.01	Cum SA (acres)	56.36	1721.15 / 5.87

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 204.42

INPUT
Description: 204.42

Right Channel Bank Station Interpolated
Station Elevation Data num= 90

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17576	985.4	17608.5	985.2	17708	984.7	17783.2	985.9	17832.4	987.2
17853.5	986.1	17871.5	986.6	17926.9	986	17956.8	985.7	18023.8	985.6
18149.3	988.2	18169.7	988.1	18191.3	988.5	18226.7	987.2	18239	992.9
18240.3	993.2	18241.4	992.8	18249.3	987	18255.2	986.8	18279.8	990.2
18308.3	987.7	18322.1	985.5	18347.4	985.3	18488.4	983.7	18517.8	983
18560.8	983.8	18635.1	982.4	18650.1	983	18667.7	983	18723.8	982.5
18733.2	982.4	18795.2	981.7	18839.1	981.2	18874.1	983.2	18899.1	981.9
18955.6	982.5	18998.6	983.3	19025.4	984.6	19040.4	981.3	19045	980.6
19052.9	980.4	19095.4	981.9	19166.1	982.1	19255.9	982	19280.2	982
19341.8	981.8	19381.9	981.6	19437	981.1	19475.3	981	19500.2	980.6
19543.1	978.9	19552.9	979.1	19561.9	978.3	19576.9	979.5	19599.7	980.5
19616.5	980.7	19649.2	979.5	19653	978.6	19672.9	972.5	19732	972.5

19781.3	972.6	19794.7	975.8	19805.4	972.9	19824.4	972.6	19905.9	971.4		
19930	972.8	19954.4	972.4	19966.8	973.5	19992	972.4	20006.4	972.1		
20057.7	972.3	20101.5	973	20150.5	972	20162.2	972.1	20303.9	972.1		
20322.7	972.1	20397.5	972.3	20434.6	971.9	20454.2	972.5	20468.3	973.3		
20548.4	973.9	20577.1	973.9	20609.6	973.2	20616.9	972.5	20646	972.8		
20682.09	987.6	656 20689.7	990.8	20701.7	992.2	20714.4	988.5	20967	988.5		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
17576	.025	18839.1	.037	19025.4	.037	20689.7	.037	20701.7	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
19025.42	0682.09	430	453	500	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17576	18874.1	993.2	F
20689.7	20967	993.2	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	987.76	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.36	Wt. n-Val.	0.037	0.037	
W.S. Elev (ft)	986.40	Reach Len. (ft)	430.00	453.00	500.00
Crit W.S. (ft)	982.76	Flow Area (sq ft)	550.34	17165.11	
E.G. Slope (ft/ft)	0.002432	Area (sq ft)	2664.73	17165.11	
Q Total (cfs)	164000.00	Flow (cfs)	2577.06	161422.90	
Top Width (ft)	2778.70	Top Width (ft)	1125.08	1653.63	
Vel Total (ft/s)	9.26	Avg. Vel. (ft/s)	4.68	9.40	
Max Chl Dpth (ft)	15.00	Hydr. Depth (ft)	3.64	10.38	
Conv. Total (cfs)	3325542.0	Conv. (cfs)	52256.9	3273285.0	
Length Wtd. (ft)	452.82	Wetted Per. (ft)	151.38	1658.94	
Min Ch El (ft)	971.40	Shear (lb/sq ft)	0.55	1.57	
Alpha	1.02	Stream Power (lb/ft s)	2.58	14.77	
Frctn Loss (ft)	1.11	Cum Volume (acre-ft)	4398.08	14955.97	946.41
C & E Loss (ft)	0.00	Cum SA (acres)	1256.53	1700.27	511.25

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	987.81	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.42	Wt. n-Val.		0.037	
W.S. Elev (ft)	986.38	Reach Len. (ft)	430.00	453.00	500.00
Crit W.S. (ft)	982.73	Flow Area (sq ft)		17129.48	
E.G. Slope (ft/ft)	0.002531	Area (sq ft)		17129.48	
Q Total (cfs)	164000.00	Flow (cfs)		164000.00	
Top Width (ft)	1653.57	Top Width (ft)		1653.57	
Vel Total (ft/s)	9.57	Avg. Vel. (ft/s)		9.57	
Max Chl Dpth (ft)	14.98	Hydr. Depth (ft)		10.36	
Conv. Total (cfs)	3259710.0	Conv. (cfs)		3259710.0	
Length Wtd. (ft)	453.00	Wetted Per. (ft)		1660.67	
Min Ch El (ft)	971.40	Shear (lb/sq ft)		1.63	
Alpha	1.00	Stream Power (lb/ft s)		15.61	
Frctn Loss (ft)	1.13	Cum Volume (acre-ft)	315.62	15500.28	30.85
C & E Loss (ft)	0.02	Cum SA (acres)	54.40	1702.37	5.87

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 204.34

INPUT
Description: 204.34

Left and Right Channel Bank Stations Interpolated
Station Elevation Data num= 74

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18066.2	985.2	18081.3	985	18158.1	983.7	18200	983.2	18226	984
18228.2	983.4	18283.2	983.4	18339.1	987.8	18395.4	986.8	18498.7	986.6
18514.4	986.2	18516	986.7	18586.8	985.6	18638.2	981.3	18678.3	981
18721.9	979.9	18774.5	984.6	18806.4	982.8	18806.6	981.1	18864.9	982.2
18888.3	975.4	18906.9	980.7	18919.1	979.8	18932.5	981.8	18936.3	983.3
18988.6	982.9	19004.9	982.1	19086.4	981.7	19100	981.6	723 19184.5	981.5
19245.5	981	19310.8	980.7	19329.3	980.7	19389.4	980.3	19453.4	979.8
19487.9	979.5	19552	979.2	19615.6	978.7	19689.1	978.5	19736.5	978.7
19757.1	988.9	19782.1	971.2	19783.9	970.6	19819.5	969.3	19835.1	971.8
19891	971	19954.9	970.8	20009.4	971.2	20054.1	972.9	20100.5	973.1
20107.5	972.7	20175.2	972.5	20253	971.7	20324.6	971.9	20395.6	971.7
20465.2	971.4	20539.7	971.3	20603.2	971.5	20661.9	971.9	20671.8	972
20743.2	970.2	20773.2	970	20795.3	976.9	20816.2	3986.0	935 20827.4	991
20878.6	990.5	20887.2	987	22239.1	987.1	22248.4	987.2	22254.3	988.2
22259.5	985.8	22266.1	987.7	22287.1	988.3	22317.8	988		

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
18066.2	.025	18774.5	.037	20827.4	.037	20878.6	.025

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
19100	20816.23	495	488	480	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
18066.2	19100	991	F
20827.4	22317.8	991	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	986.65	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.37	Wt. n-Val.		0.037	
W.S. Elev (ft)	985.28	Reach Len. (ft)	495.00	488.00	480.00
Crit W.S. (ft)	981.45	Flow Area (sq ft)		17462.96	
E.G. Slope (ft/ft)	0.002470	Area (sq ft)	2117.99	17462.96	
Q Total (cfs)	164000.00	Flow (cfs)		164000.00	
Top Width (ft)	2452.20	Top Width (ft)	750.25	1701.95	
Vel Total (ft/s)	9.39	Avg. Vel. (ft/s)		9.39	
Max Chl Dpth (ft)	15.98	Hydr. Depth (ft)		10.26	
Conv. Total (cfs)	3299565.0	Conv. (cfs)		3299565.0	
Length Wtd. (ft)	488.00	Wetted Per. (ft)		1711.20	
Min Ch El (ft)	969.30	Shear (lb/sq ft)		1.57	
Alpha	1.00	Stream Power (lb/ft s)		14.78	
Frctn Loss (ft)	1.97	Cum Volume (acre-ft)	4374.47	14775.92	946.41
C & E Loss (ft)	0.22	Cum SA (acres)	1247.28	1682.83	511.25

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	986.66	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.37	Wt. n-Val.		0.037	
W.S. Elev (ft)	985.29	Reach Len. (ft)	495.00	488.00	480.00
Crit W.S. (ft)	981.45	Flow Area (sq ft)		17480.30	
E.G. Slope (ft/ft)	0.002469	Area (sq ft)		17480.30	
Q Total (cfs)	164000.00	Flow (cfs)		164000.00	
Top Width (ft)	1701.99	Top Width (ft)		1701.99	
Vel Total (ft/s)	9.38	Avg. Vel. (ft/s)		9.38	
Max Chl Dpth (ft)	15.99	Hydr. Depth (ft)		10.27	
Conv. Total (cfs)	3300310.0	Conv. (cfs)		3300310.0	
Length Wtd. (ft)	488.00	Wetted Per. (ft)		1714.87	
Min Ch El (ft)	969.30	Shear (lb/sq ft)		1.57	
Alpha	1.00	Stream Power (lb/ft s)		14.74	
Frctn Loss (ft)	1.97	Cum Volume (acre-ft)	315.62	15320.32	30.85
C & E Loss (ft)	0.22	Cum SA (acres)	54.40	1684.92	5.87

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 204.25

INPUT
Description: 204.25

Left and Right Channel Bank Stations Interpolated
Station Elevation Data num= 202

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
13993.51	986.91	4130.56	987.41	14486.44	987.43	14755.8	987.03	14937.72	987.04
15050.6	988.11	5090.94	987.57	15102.07	987.57	15109.44	988.64	15116.98	989.38
15128.77	988.11	5132.01	987.97	15140	988.47	15148.98	986.93	15153.86	985.73
15173.36	986.21	5690.75	986.18	15878.25	985.18	15889.67	986.28	15904.51	988.05
15907.38	988.11	5919.42	987.92	15924.1	987.47	15931.02	985.83	15970.22	986.25
16049	986.11	6175.22	986.02	16450.56	986.16	16463.91	986.29	16480.31	987.87
16486.56	987.41	6495.93	987.11	16504.19	987.79	16511.66	987.91	16518.49	987.78
16535.99	985.81	6542.09	985.62	16555	985.55	16564.89	984.28	16584.86	984.26
16687.99	984.81	6810.65	985.29	16823.94	985.32	16873.9	984.73	16893.09	984.53
16922.74	984.6	16941.4	984.26	16960.75	984.66	16990.05	984.33	17020.18	984.79
17048.94	986.61	7091.64	985.28	17177.92	98517	208.14	985.11	7249.69	984.95
17398.31	984.31	7414.87	984.49	17522.6	984.39	17556.82	984.21	17600.03	984.35
17721.19	984.21	7812.48	984.25	17851.5	984.81	17861.89	984.59	17867.1	984.93
17880.92	98517	892.56	984.35	17898.26	983.92	17932.23	986.49	17944.09	986.98
17988.7	986.71	8005.49	986.89	18050.6	987.57	18083.28	987.62	18106.23	986.76
18158.97	986.81	8174.45	987.11	8185.88	987.12	18240.34	986.92	18277.05	986.27
18300.85	986.11	8323.52	985.55	18372.65	985.14	18410.49	985.08	18449.87	985.08
18490.27	985.5	18520.4	985.15	18569.61	985.8	18587.9	985.76	18609.93	985.4
18633.73	984.81	8652.28	984.25	18660.4	983.85	18672.96	983.41	18703.66	978.51
18719.46	976.21	8724.94	975.71	8730.59	976.28	18765.73	981.38	18788.83	981.86
18812.39	98218	851.86	982.67	18856.84	982.02	18876.79	980.93	18917.58	980.72
18958.37	980.81	8990.64	980.15	19005.3	981.3	19038	982.55	19054.34	981.71
19061.47	981.91	9088.33	981.03	19097.24	980.61	19117.27	982.08	19126.5	981.33
19134.63	980.81	9139.73	980.79	19178.34	980.99	19189.92	980.91	19237.27	980.78
19263.33	980.21	9297.08	979.95	19300	979.93	19332.52	979.78	19361.32	979.52
19438.75	979.41	19458.3	979.51	9506.35	978.71	9519.13	978.85	19527.66	978.72
19542.19	978.73	19623.64	978.61	9631.41	978.61	9649.23	978.63	19696.73	978.82
19703.53	975.71	19717.53	970.2	19739	971.31	9747.27	974.51	19771.1	974.27
20035.47	970.88	20227.56	972.42	20273.64	972.36	20297.51	972.19	20307.7	971.98
20309.92	971.74	20357.54	969.8	20436.7	969.44	20448.29	969.45	20499.51	969.22

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20526.05  969.29 20588.3   969.720612.99  970.1420643.57  971.0820655.61  971.37
20680.85  971.2420705.02   971.520710.67  971.3720740.01  974.1420776.89  977.31
20818.53981.025320830.46  982.09 20922.2   989.620964.06  989.9520995.89  990.41
21004.86  987.3921018.73  981.0821052.72   981.121087.73  980.7921108.33  980.92
21157.66   981.421178.54  981.5221210.73   981.221262.99  982.6321279.42  982.45
21290.06  979.4521361.92  980.42 21408.6   981.221446.51   981.421456.08  981.58
21481.84  981.6121499.03  981.7121649.19   981.921681.55  982.0721787.28  982.66
21862.63   982.921876.61  982.9521939.71   983.421983.01  983.3822043.39  983.78
22083.67  984.1722130.05  984.4322172.04   984.422225.83  984.5822265.02  984.87
22339.34  986.3522389.33  985.4622416.26   985.922438.79  986.0322474.98  986.32
22486.29  987.5222500.35  987.24

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
13993.51    .03518812.39    .03221290.06    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         1930020818.53              510     508     500             .1      .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
13993.51   19300     990       F
 20922.222500.35     990       F

CROSS SECTION OUTPUT  Profile #PF#1
*************************************************************************************************
* E.G. Elev (ft)         *  984.46  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    3.56  * Wt. n-Val.             *          *   0.032  *          *
* W.S. Elev (ft)         *  980.90  * Reach Len. (ft)        *  510.00  *  508.00  *  500.00  *
* Crit W.S. (ft)         *  980.90  * Flow Area (sq ft)      *          *10836.44  *          *
* E.G. Slope (ft/ft)     *0.007742  * Area (sq ft)           *  277.23  *10836.44  *   82.25  *
* Q Total (cfs)          *164000.00  * Flow (cfs)            *          *164000.00  *          *
* Top Width (ft)         * 1993.93  * Top Width (ft)        *  339.61  * 1517.18  *  137.15  *
* Vel Total (ft/s)       *   15.13  * Avg. Vel. (ft/s)      *          *   15.13  *          *
* Max Chl Dpth (ft)      *   11.68  * Hydr. Depth (ft)      *          *    7.14  *          *
* Conv. Total (cfs)      *1863855.0  * Conv. (cfs)          *          *1863855.0  *          *
* Length Wtd. (ft)       *  508.00  * Wetted Per. (ft)      *          * 1520.08  *          *
* Min Ch El (ft)         *  969.22  * Shear (lb/sq ft)      *          *    3.45  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   52.15  *          *
* Frctn Loss (ft)        *    1.15  * Cum Volume (acre-ft)  * 4360.86  *14617.40  *  945.96  *
* C & E Loss (ft)        *    0.79  * Cum SA (acres)        * 1241.09  * 1664.79  *  510.50  *
*************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*************************************************************************************************
* E.G. Elev (ft)         *  984.46  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    3.57  * Wt. n-Val.             *          *   0.032  *          *
* W.S. Elev (ft)         *  980.89  * Reach Len. (ft)        *  510.00  *  508.00  *  500.00  *
* Crit W.S. (ft)         *  980.89  * Flow Area (sq ft)      *          *10810.89  *          *
* E.G. Slope (ft/ft)     *0.007809  * Area (sq ft)           *          *10810.89  *          *
* Q Total (cfs)          *164000.00  * Flow (cfs)            *          *164000.00  *          *
* Top Width (ft)         * 1516.99  * Top Width (ft)        *          * 1516.99  *          *
* Vel Total (ft/s)       *   15.17  * Avg. Vel. (ft/s)      *          *   15.17  *          *
* Max Chl Dpth (ft)      *   11.67  * Hydr. Depth (ft)      *          *    7.13  *          *
* Conv. Total (cfs)      *1855915.0  * Conv. (cfs)          *          *1855915.0  *          *
* Length Wtd. (ft)       *  508.00  * Wetted Per. (ft)      *          * 1520.84  *          *
* Min Ch El (ft)         *  969.22  * Shear (lb/sq ft)      *          *    3.47  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   52.57  *          *
* Frctn Loss (ft)        *    1.15  * Cum Volume (acre-ft)  *  315.62  *15161.85  *   30.85  *
* C & E Loss (ft)        *    0.80  * Cum SA (acres)        *   54.40  * 1666.89  *    5.87  *
*************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                  RS: 204.15

INPUT
Description: 204.15

Left and Right Channel Bank Stations Interpolated
Station Elevation Data    num=      80
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
*************************************************************************************
 16507.2   984.4   16600      985 16650.2   986.1 16657.8   983.8 16666.8     986
 16708.7   983.2 16800.2   983.6 16895.3   983.8 16963.7   983.3 17111.7   982.5
```

17141.8	982.4	17289.1	982.7	17397	983.7	17427.8	983.8	17571.9	983.4
17609.8	983.3	17719.7	983.5	17833.6	983	17949.9	982.8	18031.8	984.3
18081.2	983.6	18087	981.9	18093.6	985.1	18094.5	983.7	18130.3	986
18214.6	985.6	18280.4	986.6	18357.2	984.7	18446.1	985.5	18578.2	984.4
18725.8	984.7	18824.1	985.3	18862.3	983.1	18888.3	980.6	18907	981.1
18955.1	980	19045.1	979.6	19065.5	979.9	19074.1	976.8	19104	969
19192.6	971.7	19200	971.7	19310.3	971.7	19331.3	970.9	19446.3	971.9
19486.8	971.6	19501.3	966.1	19595	966	19644.2	966.2	19661	973.6
19681	970.2	19769.8	971.6	19860.6	972.7	19968.4	974.8	20027.5	972.3
20066.1	967.9	20074.7	967.9	20209.5	968	20337.2	968.2	20441.7	967.7
20540.9	966.7	20554.5	966.5	20580.4	968.8	20679.7	967.8	20753.2	967.1
20790.2	968.9	20795.8	969.9	20814.5	969.5	20911.6	969.2	20940	967.1
20986.5	968.3	21033.3	8981.5	872	21042.6	984.2	21131.4	985.3	21379.2	985.3
22652.4	985.2	22684.9	986.3	22693	983.9	22700.1	985.5	22708.9	985.4

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16507.2	.035	18824.1	.032	21131.4	.025	21379.2	.025

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

19200	21033.38		510	509	510	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
16507.2	19200	986.6	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	982.09	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.93	Wt. n-Val.		0.032	
W.S. Elev (ft)	981.17	Reach Len. (ft)	510.00	509.00	510.00
Crit W.S. (ft)	975.82	Flow Area (sq ft)		*21240.76	
E.G. Slope (ft/ft)	*0.001058	Area (sq ft)	1488.78	*21240.76	
Q Total (cfs)	*164000.00	Flow (cfs)		*164000.00	
Top Width (ft)	2149.48	Top Width (ft)	317.59	1831.90	
Vel Total (ft/s)	7.72	Avg. Vel. (ft/s)		7.72	
Max Chl Dpth (ft)	15.17	Hydr. Depth (ft)		11.59	
Conv. Total (cfs)	*5042939.0	Conv. (cfs)		*5042939.0	
Length Wtd. (ft)	509.00	Wetted Per. (ft)		1837.25	
Min Ch El (ft)	966.00	Shear (lb/sq ft)		0.76	
Alpha	1.00	Stream Power (lb/ft s)		5.89	
Frctn Loss (ft)	0.68	Cum Volume (acre-ft)	4350.52	*14430.35	945.48
C & E Loss (ft)	0.02	Cum SA (acres)	1237.24	1645.27	509.71

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	982.11	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.92	Wt. n-Val.		0.032	
W.S. Elev (ft)	981.18	Reach Len. (ft)	510.00	509.00	510.00
Crit W.S. (ft)	975.82	Flow Area (sq ft)		*21274.63	
E.G. Slope (ft/ft)	*0.001059	Area (sq ft)		*21274.63	
Q Total (cfs)	*164000.00	Flow (cfs)		*164000.00	
Top Width (ft)	1831.89	Top Width (ft)		1831.89	
Vel Total (ft/s)	7.71	Avg. Vel. (ft/s)		7.71	
Max Chl Dpth (ft)	15.18	Hydr. Depth (ft)		11.61	
Conv. Total (cfs)	*5038994.0	Conv. (cfs)		*5038994.0	
Length Wtd. (ft)	509.00	Wetted Per. (ft)		1846.75	
Min Ch El (ft)	966.00	Shear (lb/sq ft)		0.76	
Alpha	1.00	Stream Power (lb/ft s)		5.87	
Frctn Loss (ft)	0.68	Cum Volume (acre-ft)	315.62	*14974.75	30.85
C & E Loss (ft)	0.02	Cum SA (acres)	54.40	1647.37	5.87

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 204.05

INPUT
Description: 204.05

Left and Right Channel Bank Stations Interpolated
Station Elevation Data num= 73

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18304.1	982.1	18322.9	981.3	18412.7	981.2	18490.1	981.1	18499.9	981.4
18523	980.8	18527.4	981.7	18530.5	980.8	18552.5	980.6	18585.3	987.2
18649.8	986.5	18710.4	987.1	18782.2	985.8	18858.9	986.9	18882.3	985.9
18903.8	986.2	18952	984.5	18962.59	980.697	18970.1	978	18992.5	968.5
19020.9	971.4	19097.5	973.6	19099.9	973.6	19168.9	971.6	19234.1	970.7
19315.1	973.1	19401.3	974.1	19432.4	974.2	19453	972.9	19510.9	971.5
19570.9	965.6	19644.7	967.7	19662	968.9	19741.3	971.7	19784.3	975.1
19860.9	975.2	19946.2	976.1	20026.3	975.5	20061.6	973.5	20142.4	974.9
20200.7	974.3	20222.7	972.5	20272.6	972.8	20286.9	973.4	20327.7	971.7
20354.5	969.2	20434.3	970.9	20491.6	971.4	20536	969.7	20605	969.1
20618.5	968.7	20679.5	965	20701.3	965.4	20715.6	967	20746.4	966
20828.1	965.9	20914.2	966.5	20930	968.1	20994	968.4	21024.5	966.7
21045.1	967	21067.8	975.8	21081.76	980.698	1 21090.6	983.8	21160.1	983.8
22668.7	984.2	22676.7	984.2	22773.1	984.3	22829	984.6	22836.3	985.6
22843	983.5	22852.2	986	22860.7	985.9				

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
18304.1	.05	18552.5	.035	18858.9	.032	21090.6	.025

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

18962.59	21081.76		510	505	520	.1	.3

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Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
 18304.1   18750   987.2       F

CROSS SECTION OUTPUT  Profile #PF#1
*************************************************************************************************
* E.G. Elev (ft)         *  981.39  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.12  * Wt. n-Val.            *          *    0.032 *          *
* W.S. Elev (ft)         *  980.27  * Reach Len. (ft)       *  510.00  *  505.00  *  520.00  *
* Crit W.S. (ft)         *  976.80  * Flow Area (sq ft)     *          * 19320.37 *          *
* E.G. Slope (ft/ft)     *0.001759  * Area (sq ft)          *          * 19320.37 *          *
* Q Total (cfs)          *164000.00  * Flow (cfs)          *          * 164000.00 *          *
* Top Width (ft)         * 2116.76  * Top Width (ft)       *          * 2116.76  *          *
* Vel Total (ft/s)       *    8.49  * Avg. Vel. (ft/s)     *          *    8.49  *          *
* Max Chl Dpth (ft)      *   15.27  * Hydr. Depth (ft)     *          *    9.13  *          *
* Conv. Total (cfs)      *3910438.0  * Conv. (cfs)         *          * 3910438.0 *          *
* Length Wtd. (ft)       *  505.00  * Wetted Per. (ft)     *          * 2123.09  *          *
* Min Ch El (ft)         *  965.00  * Shear (lb/sq ft)     *          *    1.00  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *        *    8.48  *          *
* Frctn Loss (ft)        *    1.42  * Cum Volume (acre-ft)  * 4341.81  *14193.37  *  945.48  *
* C & E Loss (ft)        *    0.10  * Cum SA (acres)        * 1235.38  * 1622.20  *  509.71  *
*************************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*************************************************************************************************
* E.G. Elev (ft)         *  981.41  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.11  * Wt. n-Val.            *          *    0.032 *          *
* W.S. Elev (ft)         *  980.29  * Reach Len. (ft)       *  510.00  *  505.00  *  520.00  *
* Crit W.S. (ft)         *  976.80  * Flow Area (sq ft)     *          * 19370.37 *          *
* E.G. Slope (ft/ft)     *0.001744  * Area (sq ft)          *          * 19370.37 *          *
* Q Total (cfs)          *164000.00  * Flow (cfs)          *          * 164000.00 *          *
* Top Width (ft)         * 2116.76  * Top Width (ft)       *          * 2116.76  *          *
* Vel Total (ft/s)       *    8.47  * Avg. Vel. (ft/s)     *          *    8.47  *          *
* Max Chl Dpth (ft)      *   15.29  * Hydr. Depth (ft)     *          *    9.15  *          *
* Conv. Total (cfs)      *3927263.0  * Conv. (cfs)         *          * 3927263.0 *          *
* Length Wtd. (ft)       *  505.00  * Wetted Per. (ft)     *          * 2123.13  *          *
* Min Ch El (ft)         *  965.00  * Shear (lb/sq ft)     *          *    0.99  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *        *    8.41  *          *
* Frctn Loss (ft)        *    1.35  * Cum Volume (acre-ft)  *  315.62  *14737.29  *   30.85  *
* C & E Loss (ft)        *    0.09  * Cum SA (acres)        *   54.40  * 1624.30  *    5.87  *
*************************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                RS: 203.96

INPUT
Description: 203.96

Right Channel Bank Staion Interpolated
Station Elevation Data    num=      91
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
*************************************************************************************
  16511.6    983.5 16713.4    983.8 16774.3    983.9 16908.7    984.4 16963.5    986.3
  16968.1    982.5 16973.8    984.3 17039.3    980.6 17126.9      980 17138.9      980
  17175.8    974.9 17222.8    980.2 17277.4    983.2 17284.8    982.3   17330    982.5
  17366.5    984.4 17465.6    982.2 17576.8    981.2 17680.4    980.6 17774.7    979.6
  17869.9    981.4 17958.4    981.2 18010.3    980.8 18015.8    982.2 18024.6    982.8
  18047.1    980.2 18070.6    981.5 18128.1    982.9 18242.5    983.3 18284.4    984.3
    18384    982.4 18469.6    983.6 18481.1    980.9 18496.2    979.1 18583.4      978
  18607.3    975.5 18626.7    976.9 18657.9      976   18690    978.1 18723.2    976.2
  18730.8    978.5   18760    974.5 18783.2    969.3 18801.2    968.9 18811.7    967.4
  18891.8    971.9 18902.5    971.8 18997.2    971.4 19057.4      972 19069.5    973.6
  19145.7    973.5 19201.5    971.8 19284.9    973.5   19375    977.1 19427.1      976
  19471.7    976.7 19531.2    976.1 19556.4    976.8 19606.4    965.6 19696.9    968.3
  19784.2    968.9 19847.3    971.5 19965.6    970.7 19998.5    972.3 20089.8    973.2
  20179.8    972.3 20254.9    970.6   20367    970.8 20411.5    970.7 20421.4    969.4
  20435.9    965.4 20451.7    964.7 20529.6      965 20554.9      967 20642.7    965.7
  20735.2    964.2 20738.9    964.1 20767.7 971.220790.38978.7393 20803.5    983.1
  20835.5    994.9 20850.3    995.2 20872.5    997.5 20910.1    984.2 20997.3    981.9
  21108.2    981.9 21539.6      982   21552    986.1 21559.4    984.2 21657.7    986.4
    21694    988.5

Manning's n Values        num=       5
     Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val
*************************************************************************************
  16511.6     .025 17175.8     .043 18469.6     .043 18902.5     .032 20835.5     .037

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       18730.820790.38             495     502     505             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 16511.6 18730.8   997.5       F
 20835.5   21694   997.5       F

CROSS SECTION OUTPUT  Profile #PF#1
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E.G. Elev (ft)	979.86	Element	Left OB	Channel	Right OB	
Vel Head (ft)	2.15	Wt. n-Val.		0.033		
W.S. Elev (ft)	977.71	Reach Len. (ft)	495.00	502.00	505.00	
Crit W.S. (ft)	976.71	Flow Area (sq ft)		13938.65		
E.G. Slope (ft/ft)	0.005220	Area (sq ft)	202.34	13938.65		
Q Total (cfs)	164000.00	Flow (cfs)		164000.00		
Top Width (ft)	2225.53	Top Width (ft)	174.77	2050.76		
Vel Total (ft/s)	11.77	Avg. Vel. (ft/s)		11.77		
Max Chl Dpth (ft)	13.61	Hydr. Depth (ft)		6.80		
Conv. Total (cfs)	2269861.0	Conv. (cfs)		2269861.0		
Length Wtd. (ft)	502.00	Wetted Per. (ft)		2056.12		
Min Ch El (ft)	964.10	Shear (lb/sq ft)		2.21		
Alpha	1.00	Stream Power (lb/ft s)		25.99		
Frctn Loss (ft)	0.90	Cum Volume (acre-ft)	4340.62	14000.58	945.48	
C & E Loss (ft)	0.43	Cum SA (acres)	1234.36	1598.04	509.71	

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	979.97	Element	Left OB	Channel	Right OB	
Vel Head (ft)	1.99	Wt. n-Val.		0.033		
W.S. Elev (ft)	977.98	Reach Len. (ft)	495.00	502.00	505.00	
Crit W.S. (ft)	976.71	Flow Area (sq ft)		14478.25		
E.G. Slope (ft/ft)	0.004601	Area (sq ft)		14478.25		
Q Total (cfs)	164000.00	Flow (cfs)		164000.00		
Top Width (ft)	2050.76	Top Width (ft)		2050.76		
Vel Total (ft/s)	11.33	Avg. Vel. (ft/s)		11.33		
Max Chl Dpth (ft)	13.88	Hydr. Depth (ft)		7.06		
Conv. Total (cfs)	2417852.0	Conv. (cfs)		2417852.0		
Length Wtd. (ft)	502.00	Wetted Per. (ft)		2056.64		
Min Ch El (ft)	964.10	Shear (lb/sq ft)		2.02		
Alpha	1.00	Stream Power (lb/ft s)		22.90		
Frctn Loss (ft)	0.83	Cum Volume (acre-ft)	315.62	14541.08	30.85	
C & E Loss (ft)	0.39	Cum SA (acres)	54.40	1600.14	5.87	

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 203.86

INPUT
Description: 203.86

Right Channel Bank Staion Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17504.9	979.4	17555	980.7	17589.4	982.1	17613.5	980.8	17620.6	979.8
17657.6	978.3	17694.3	979.8	17718.4	978.9	17729	980.8	17762.1	977.4
17780.7	978.7	17821.9	984.3	17861.6	984.2	17888.2	982.4	17897.5	983.2
17930.6	983.2	17969.6	984.1	17989.1	983.6	18013.3	984	18044.9	981.7
18064.4	979.2	18096.7	981.5	18136.8	979.8	18171.7	980	18207.5	982
18243.1	982.7	18290.8	981.3	18353.7	982	18421.5	981.7	18458.6	982.1
18488.1	978.2	18540.3	978.5	18564	971	18599.5	968.8	18660.4	971
18700.2	971.8	18760.2	970	18806.7	971.3	18853.4	969.4	18891.2	969
18974.3	973.5	19064.8	976.5	19077.3	975.8	19161.8	973.4	19223.1	970.5
19246.5	967.4	19268.5	965.8	19288.8	962.4	19365.2	962.6	19365.7	962.6
19450.7	962.8	19451.6	962.8	19539.2	963.1	19611.5	963	19690.6	962.4
19743.6	962.3	19811.2	962.7	19858.2	963.1	19928.9	963.6	19992.8	963.8
20013.5	963.8	20076.4	964	20099.2	964	20196.1	964.2	20254.4	964.2
20298.4	964.5	20318.1	968.2	20429.2	967.6	20486.9	967.6	20543.1	968.6
20555	966.5	20576	964.2	20634.3	964.2	20650.7	964.2	20663.3	965.7
20676.9	965.8	20697.7	967.2	20730.9	976.1	20735.9	978.6	20761.9	991.8
20803.3	981	20878.5	982.5	20946.4	982.5	20965.7	981.1	21031.2	980.5
21099.9	980.6	21167.6	980.7	21198.2	981	21258.8	981.1	21324.9	981
21359.8	980.5	21368.4	981	21395.8	980.4	21405.9	982.4	21411.7	980.4
21482.6	980.2	21488.8	980.2						

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
17504.9	.043	18243.1	.043	18891.2	.032	20761.9	.037

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
18488.1 20735.9 505 498 480 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17504.9	18243.1	991.8	F
20761.9	21488.8	991.8	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	978.53	Element	Left OB	Channel	Right OB	
Vel Head (ft)	0.72	Wt. n-Val.		0.033		

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                                                                    Post-Project
* W.S. Elev (ft)         *  977.81  * Reach Len. (ft)        *  505.00  *  498.00  *  480.00  *
* Crit W.S. (ft)         *  971.84  * Flow Area (sq ft)      *          *24032.73  *          *
* E.G. Slope (ft/ft)     *0.000902  * Area (sq ft)           *    2.00  *24032.73  *          *
* Q Total (cfs)          *164000.00  * Flow (cfs)           *          *164000.00  *          *
* Top Width (ft)         * 2201.58  * Top Width (ft)        *    9.80  * 2191.78  *          *
* Vel Total (ft/s)       *    6.82  * Avg. Vel. (ft/s)      *          *    6.82  *          *
* Max Chl Dpth (ft)      *   15.51  * Hydr. Depth (ft)      *          *   10.96  *          *
* Conv. Total (cfs)      *5460451.0  * Conv. (cfs)          *          *5460451.0  *          *
* Length Wtd. (ft)       *  498.00  * Wetted Per. (ft)      *          * 2196.27  *          *
* Min Ch El (ft)         *  962.30  * Shear (lb/sq ft)      *          *    0.62  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    4.21  *          *
* Frctn Loss (ft)        *    0.44  * Cum Volume (acre-ft)   * 4339.46  *13781.79  *  945.48  *
* C & E Loss (ft)        *    0.03  * Cum SA (acres)         * 1233.31  * 1573.59  *  509.71  *
*****************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*****************************************************************************************
* E.G. Elev (ft)         *  978.75  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.69  * Wt. n-Val.            *          *    0.033  *          *
* W.S. Elev (ft)         *  978.06  * Reach Len. (ft)       *  505.00  *  498.00  *  480.00  *
* Crit W.S. (ft)         *  971.84  * Flow Area (sq ft)     *          *24588.83  *          *
* E.G. Slope (ft/ft)     *0.000838  * Area (sq ft)          *          *24588.83  *          *
* Q Total (cfs)          *164000.00  * Flow (cfs)          *          *164000.00  *          *
* Top Width (ft)         * 2191.78  * Top Width (ft)       *          * 2191.78  *          *
* Vel Total (ft/s)       *    6.67  * Avg. Vel. (ft/s)     *          *    6.67  *          *
* Max Chl Dpth (ft)      *   15.76  * Hydr. Depth (ft)     *          *   11.22  *          *
* Conv. Total (cfs)      *5666380.0  * Conv. (cfs)         *          *5666380.0  *          *
* Length Wtd. (ft)       *  498.00  * Wetted Per. (ft)     *          * 2196.77  *          *
* Min Ch El (ft)         *  962.30  * Shear (lb/sq ft)     *          *    0.59  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    3.90  *          *
* Frctn Loss (ft)        *    0.41  * Cum Volume (acre-ft)  *  315.62  *14315.97  *   30.85  *
* C & E Loss (ft)        *    0.03  * Cum SA (acres)        *   54.40  * 1575.69  *    5.87  *
*****************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                RS: 203.77

INPUT
Description: 203.77

Left and Right Channel Bank Staions Interpolated
Station Elevation Data    num=      98
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
 15516.5   980.4 15611.3   979.8 15668.7   980.9 15700.1   979.6 15734.7   982.9
 15797.9   987.2   15835     986 15865.2   981.2   15920   981.4 15937.6   976.9
 15947.6   978.2 15969.6   982.9 15985.2   984.3 16056.9   984.3 16076.8   983.7
 16103.9   981.6 16184.4   981.2 16265.9   982.1 16312.5   981.7 16348.3   982.1
 16366.7   978.9 16400.4   980.3 16452.6   980.5 16569.1   980.4 16622.2   980.5
 16857.6   980.3 17032.7   979.9 17052.5   979.9 17220.4   979.9 17326.1   979.2
 17424.8     979   17450   979.3 17461.6   980.3 17495.9   980.1 17515.6   978.2
 17558.9   979.2 17678.1   978.7 17709.3   979.1 17747.1   977.4 17826.8   982.9
 17879.9   983.7 17902.1   982.1 17924.4   981.6 18003.9   982.8 18091.9   980.7
 18117.2   979.8   18191   981.8 18222.6 1978.2686 18227.7   977.7 18281.9   974.6
 18343.8   974.4 18371.2   970.5 18451.7   968.1 18515.7   969.6 18591.7   968.7
 18603.5   969.7 18721.8   967.3 18770.9   970.5 18803.6   971.5 18834.8   974.6
 18888.2   976.1 18941.5   973.8 18956.3   972.3 18974.2   976.6 18983.5   976.3
 19032.5   965.6 19113.9   965.1   19224   964.8 19282.2   964.6 19290.6   969.7
 19307.6   974.2 19313.1   973.7 19322.8   969.5 19338.6   967.2 19345.7   964.7
 19426.8   964.5 19492.9   964.4 19606.6   964.2 19685.9   964.3 19717.5   964.1
 19865.4   964.1   19957   963.3 20019.3   964.3 20221.9   964.3 20253.9   964.3
 20282.3   966.5 20325.8   965.1 20328.7   964.2 20338.6   965.4   20430   966.2
 20524.9   966.2 20609.1   966.4 20684.8   966.7 20728.9 97120745.61978.2692
 20746.6   978.7 20820.8   981.2   20854   997.6

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*****************************************************************************
 15516.5    .025 17495.9    .043   18191    .043 18803.6    .032 20820.8    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      18222.6120745.61              490     498     480             .1      .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 15516.5   18191   997.6          F
 20820.8   20854   997.6          F

CROSS SECTION OUTPUT  Profile #PF#1
*****************************************************************************************
* E.G. Elev (ft)         *  978.06  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.63  * Wt. n-Val.            *          *    0.033  *          *
* W.S. Elev (ft)         *  977.43  * Reach Len. (ft)       *  490.00  *  498.00  *  480.00  *
* Crit W.S. (ft)         *  971.58  * Flow Area (sq ft)     *          *25746.39  *          *
* E.G. Slope (ft/ft)     *0.000873  * Area (sq ft)          *    1.65  *25746.39  *          *
* Q Total (cfs)          *164000.00  * Flow (cfs)          *          *164000.00  *          *
* Top Width (ft)         * 2518.56  * Top Width (ft)       *    7.28  * 2511.27  *          *
* Vel Total (ft/s)       *    6.37  * Avg. Vel. (ft/s)     *          *    6.37  *          *
* Max Chl Dpth (ft)      *   14.13  * Hydr. Depth (ft)     *          *   10.25  *          *
* Conv. Total (cfs)      *5549798.0  * Conv. (cfs)         *          *5549798.0  *          *
* Length Wtd. (ft)       *  497.87  * Wetted Per. (ft)     *          * 2519.23  *          *
* Min Ch El (ft)         *  963.30  * Shear (lb/sq ft)     *          *    0.56  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    3.55  *          *
* Frctn Loss (ft)        *    0.45  * Cum Volume (acre-ft)  * 4339.44  *13497.24  *  945.48  *
* C & E Loss (ft)        *    0.00  * Cum SA (acres)        * 1233.21  * 1546.71  *  509.71  *
*****************************************************************************************
```

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	978.32	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.60	Wt. n-Val.		0.033	
W.S. Elev (ft)	977.72	Reach Len. (ft)	490.00	498.00	480.00
Crit W.S. (ft)	971.58	Flow Area (sq ft)		26473.99	
E.G. Slope (ft/ft)	0.000799	Area (sq ft)		26473.99	
Q Total (cfs)	164000.00	Flow (cfs)		164000.00	
Top Width (ft)	2511.27	Top Width (ft)		2511.27	
Vel Total (ft/s)	6.19	Avg. Vel. (ft/s)		6.19	
Max Chl Dpth (ft)	14.42	Hydr. Depth (ft)		10.54	
Conv. Total (cfs)	5803637.0	Conv. (cfs)		5803637.0	
Length Wtd. (ft)	497.94	Wetted Per. (ft)		2519.80	
Min Ch El (ft)	963.30	Shear (lb/sq ft)		0.52	
Alpha	1.00	Stream Power (lb/ft s)		3.24	
Frctn Loss (ft)	0.42	Cum Volume (acre-ft)	315.62	14024.08	30.85
C & E Loss (ft)	0.01	Cum SA (acres)	54.40	1548.81	5.87

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 203.67

INPUT
Description: 203.67

Right Channel Bank Staion Interpolated
Station Elevation Data num= 74

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
15401.1	982.5	15424.7	984.1	15508.1	982.3	15591.4	979.1	15681.8	979.9
15787.8	979.3	15920	979.3	16055.7	978.9	16157.5	979.1	16260.6	979.3
16282.2	979.2	16477	979.1	16627.1	979.9	16750.8	980.1	16865.7	979.3
16957.3	981.3	16980.5	980.6	17002.4	977.7	17014.1	979.2	17103.7	973.3
17179.5	973.2	17215.7	975.7	17267.4	969.7	17366.5	975.6	17541.8	974.3
17694.8	973.7	17837.2	974.1	17962.6	973.8	17982.5	973.7	18104.5	972.8
18289.3	972.9	18348.9	975.3	18350.2	973.2	18394.8	968.7	18516.9	971.1
18627.3	969.9	18690.1	970.4	18740.2	966.8	18787.4	966.3	18802.9	968.2
18941.9	973.8	19049	974.1	19155.9	972.4	19180.7	975.8	19211.3	962.3
19411.4	963.8	19519	963.9	19654.3	964.2	19798.6	964.3	19832.9	964.3
20036.1	964.3	20137.2	965.3	20302.2	963	20432.8	965.2	20537.5	965.2
20656.2	965.3	20661.5	965.6	20693.5	975.1	20699.3	977.8	097 20708.7	982.2
20796	983.8	20827.7	980.1	20837	982.9	20858.2	981.6	21858.6	983.5
21904.3	982.5	23520.4	980	23527.3	982.8	23545.1	983.5	23556.1	980.2
23584.2	981.5	23593	977.2	23603.5	980.1	23621	979.7		

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
15401.1	.025	16957.3	.037	18348.9	.037	18941.9	.032	20708.7	.032
20796	.025								

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
18348.9 20699.3 470 490 505 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
15401.1	17837.2	984.1	F
20708.7	23621	984.1	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	977.61	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.67	Wt. n-Val.	0.037	0.033	
W.S. Elev (ft)	976.93	Reach Len. (ft)	470.00	490.00	505.00
Crit W.S. (ft)	971.58	Flow Area (sq ft)	1810.56	23835.66	
E.G. Slope (ft/ft)	0.000940	Area (sq ft)	4152.06	23835.66	
Q Total (cfs)	164000.00	Flow (cfs)	5176.53	158823.50	
Top Width (ft)	3648.91	Top Width (ft)	1300.39	2348.53	
Vel Total (ft/s)	6.39	Avg. Vel. (ft/s)	2.86	6.66	
Max Chl Dpth (ft)	14.63	Hydr. Depth (ft)	3.54	10.15	
Conv. Total (cfs)	5348655.0	Conv. (cfs)	168825.9	5179829.0	
Length Wtd. (ft)	489.59	Wetted Per. (ft)	511.75	2355.25	
Min Ch El (ft)	962.30	Shear (lb/sq ft)	0.21	0.59	
Alpha	1.06	Stream Power (lb/ft s)	0.59	3.96	
Frctn Loss (ft)	0.46	Cum Volume (acre-ft)	4316.08	13213.81	945.48
C & E Loss (ft)	0.00	Cum SA (acres)	1225.85	1518.93	509.71

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	977.89	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.66	Wt. n-Val.	0.037	0.033	
W.S. Elev (ft)	977.23	Reach Len. (ft)	470.00	490.00	505.00
Crit W.S. (ft)	971.58	Flow Area (sq ft)	882.63	24525.28	
E.G. Slope (ft/ft)	0.000885	Area (sq ft)	882.63	24525.28	
Q Total (cfs)	164000.00	Flow (cfs)	2635.92	161364.10	
Top Width (ft)	2567.43	Top Width (ft)	218.90	2348.53	
Vel Total (ft/s)	6.45	Avg. Vel. (ft/s)	2.99	6.58	
Max Chl Dpth (ft)	14.93	Hydr. Depth (ft)	4.03	10.44	
Conv. Total (cfs)	5512272.0	Conv. (cfs)	88597.1	5423675.0	
Length Wtd. (ft)	489.82	Wetted Per. (ft)	223.36	2355.54	
Min Ch El (ft)	962.30	Shear (lb/sq ft)	0.22	0.58	
Alpha	1.03	Stream Power (lb/ft s)	0.65	3.79	
Frctn Loss (ft)	0.43	Cum Volume (acre-ft)	310.65	13732.55	30.85

* C & E Loss (ft)	* 0.01	* Cum SA (acres)	* 53.17	* 1521.03	* 5.87	*

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 203.58

INPUT
Description: 203.58

Right Channel Bank Staion Interpolated
Station Elevation Data num= 75

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
15526.8	983.1	15573.8	984.7	15577.9	981.7	15586.4	984.8	15648.9	982.8
15684.7	983.7	15735.5	978.7	15806.7	977.9	15925.6	978.3	15954.8	978.2
16031.7	974.4	16204.9	973.9	16321.4	974.3	16490.9	975.4	16570	975.3
16706.6	974.9	16819.9	975.7	16971.3	975.7	17120	975.1	17136.9	976.6
17168.4	976.1	17202.6	978.2	17251.4	973.9	17388.1	976	17458.2	974.6
17489	971.8	17596.3	976.7	17707.8	975.2	17790.7	972.4	17873.7	975.6
17978	974.3	18064.9	975.2	18204	975.9	18355.4	971.3	18433.8	971.3
18553.6	967.4	18636	970.5	18664.8	967.3	18681	970.8	18724	969.1
18765.5	971	18876.6	970.7	18988.9	970	19101.4	968.2	19228.7	965.4
19261.3	964.2	19337.3	967.8	19426.3	965.2	19456.9	967.4	19474	963.9
19482.9	963.9	19725.9	963.6	19842.5	963.6	19929.1	963.8	20222.2	963.5
20355.7	963.9	20380	963.9	20543.8	963.6	20636	963.9	20645.5	962.1
20704.98	977.3	868	20706.2	977.7	20767.4	979.5	20782.3	981.3	20788.1	979.3
20818.3	979.5	20825.7	982.3	20859.8	981.5	22062.2	983.3	22098	982.2
23711.2	980	23724.5	982.4	23738.8	982.8	23750.9	979.2	23783	979.2

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
15526.8	.025	17202.6	.037	18204	.037	18681	.032	20782.3	.025

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
1820420704.98 560 513 495 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
15526.8	17707.8	984.8	F
20782.3	23783	984.8	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 977.14	* Element	* Left OB	* Channel	* Right OB	*
* Vel Head (ft)	* 0.68	* Wt. n-Val.	* 0.037	* 0.032	*	*
* W.S. Elev (ft)	* 976.47	* Reach Len. (ft)	* 560.00	* 513.00	* 495.00	*
* Crit W.S. (ft)	* 971.52	* Flow Area (sq ft)	* 859.98	*24480.33	*	*
* E.G. Slope (ft/ft)	*0.000945	* Area (sq ft)	* 3274.81	*24480.33	*	*
* Q Total (cfs)	*164000.00	* Flow (cfs)	* 1532.00	*162468.00	*	*
* Top Width (ft)	* 4630.96	* Top Width (ft)	* 2133.56	* 2497.40	*	*
* Vel Total (ft/s)	* 6.47	* Avg. Vel. (ft/s)	* 1.78	* 6.64	*	*
* Max Chl Dpth (ft)	* 14.37	* Hydr. Depth (ft)	* 1.73	* 9.80	*	*
* Conv. Total (cfs)	*5333542.0	* Conv. (cfs)	* 49822.9	*5283719.0	*	*
* Length Wtd. (ft)	* 514.20	* Wetted Per. (ft)	* 496.32	* 2500.83	*	*
* Min Ch El (ft)	* 962.10	* Shear (lb/sq ft)	* 0.10	* 0.58	*	*
* Alpha	* 1.04	* Stream Power (lb/ft s)	* 0.18	* 3.83	*	*
* Frctn Loss (ft)	* 0.56	* Cum Volume (acre-ft)	* 4276.01	*12942.06	* 945.48	*
* C & E Loss (ft)	* 0.00	* Cum SA (acres)	* 1207.33	* 1491.67	* 509.71	*

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 977.46	* Element	* Left OB	* Channel	* Right OB	*
* Vel Head (ft)	* 0.65	* Wt. n-Val.	* 0.037	* 0.032	*	*
* W.S. Elev (ft)	* 976.81	* Reach Len. (ft)	* 560.00	* 513.00	* 495.00	*
* Crit W.S. (ft)	* 971.52	* Flow Area (sq ft)	* 248.33	*25349.32	*	*
* E.G. Slope (ft/ft)	*0.000858	* Area (sq ft)	* 248.33	*25349.32	*	*
* Q Total (cfs)	*164000.00	* Flow (cfs)	* 360.60	*163639.40	*	*
* Top Width (ft)	* 2676.39	* Top Width (ft)	* 179.00	* 2497.39	*	*
* Vel Total (ft/s)	* 6.41	* Avg. Vel. (ft/s)	* 1.45	* 6.46	*	*
* Max Chl Dpth (ft)	* 14.71	* Hydr. Depth (ft)	* 1.39	* 10.15	*	*
* Conv. Total (cfs)	*5599491.0	* Conv. (cfs)	* 12312.0	*5587179.0	*	*
* Length Wtd. (ft)	* 513.05	* Wetted Per. (ft)	* 181.03	* 2501.17	*	*
* Min Ch El (ft)	* 962.10	* Shear (lb/sq ft)	* 0.07	* 0.54	*	*
* Alpha	* 1.01	* Stream Power (lb/ft s)	* 0.11	* 3.50	*	*
* Frctn Loss (ft)	* 0.52	* Cum Volume (acre-ft)	* 304.55	*13452.04	* 30.85	*
* C & E Loss (ft)	* 0.00	* Cum SA (acres)	* 51.02	* 1493.77	* 5.87	*

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 203.48

INPUT
Description: 203.48

Right Channel Bank Staion Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
15578.8	977.1	15693.5	976.9	15717.9	977	15814.4	976.9	15880.9	978.5

Post-Project

15900.7	978.2	15967.5	973.1	16013.9	973.9	16068.7	973.5	16168.1	973.8		
16324.7	974	16419.6	974.1	16584.4	974.1	16657.7	974.3	16810.8	974.5		
16932.4	974.5	17066.5	974.6	17177.1	974.2	17201.7	974.2	17312.2	975.1		
17331.6	976	17341.7	975.7	17369.6	978.2	17434.9	970.7	17473.9	969.3		
17535.6	971.3	17609.4	970.9	17714.8	972.8	17721.6	972.8	17841.5	973.7		
17932.6	974	18016.7	972.4	18039.3	972.1	18120.3	973.5	18171.8	968		
18184	969.1	18267.5	973.4	18353.5	970.9	18380.1	969.8	18439	969.7		
18521.1	965.52	18538.6	965.3	18561.3	969.6	18571.7	970	18619.2	968.6		
18635.6	969.2	18675.5	973.1	18730.7	972.2	18817.1	970.9	18956	969.1		
18991.1	970.6	19035.5	973.7	19082.7	974.1	19116.8	968.9	19177.6	972.2		
19217.3	970.5	19332.9	970.5	19399.6	962.9	19491.7	962.7	19584.5	965.1		
19624.3	962.2	19645.8	962.3	19669.3	965	19679.4	965.3	19794.5	963.4		
19884.7	963.3	19987.2	964.5	20013.9	964.4	20199.2	964	20220.6	964.7		
20227.4	967.6	20231.3	963.9	20325.6	963.9	20342.5	963.9	20345.7	965.5		
20353.5	967.3	20358.6	964.3	20404	963.2	20433.1	965.2	20458.7	965		
20480	963.1	20588.9	964.7	20638.4	966.8	20725.1	968.7	20785.1	971.2		
20856.76	976.9083	20866.7	977.7	20886.7	979.4	20901.8	978.6	20909.2	979.5		
20915.7	978.5	20925.9	979.4	20953.9	979.4	20960.7	978.7	20985.4	978.7		
20989.2	980.3	20999	981.2								

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
15578.8	.025	17369.6	.037	17932.6	.037	18619.2	.032	20886.7	.025

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

17932.62	20856.76	500	505.82	515	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
15578.8	17369.6	981.2	F
20999	20999	981.2	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	976.58	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.67	Wt. n-Val.	0.037	0.032	
W.S. Elev (ft)	975.92	Reach Len. (ft)	500.00	505.82	515.00
Crit W.S. (ft)	972.02	Flow Area (sq ft)	2009.24	23608.84	
E.G. Slope (ft/ft)	0.001248	Area (sq ft)	4384.68	23608.84	
Q Total (cfs)	164000.00	Flow (cfs)	6815.32	157184.70	
Top Width (ft)	4863.77	Top Width (ft)	1952.06	2911.72	
Vel Total (ft/s)	6.40	Avg. Vel. (ft/s)	3.39	6.66	
Max Chl Dpth (ft)	13.72	Hydr. Depth (ft)	3.70	8.11	
Conv. Total (cfs)	4642347.0	Conv. (cfs)	192921.2	4449426.0	
Length Wtd. (ft)	505.61	Wetted Per. (ft)	543.50	2918.40	
Min Ch El (ft)	962.20	Shear (lb/sq ft)	0.29	0.63	
Alpha	1.05	Stream Power (lb/ft s)	0.98	4.20	
Frctn Loss (ft)	0.65	Cum Volume (acre-ft)	4226.78	12658.89	945.48
C & E Loss (ft)	0.00	Cum SA (acres)	1181.07	1459.82	509.71

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	976.94	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.69	Wt. n-Val.		0.033	
W.S. Elev (ft)	976.25	Reach Len. (ft)	500.00	505.82	515.00
Crit W.S. (ft)	971.97	Flow Area (sq ft)		24567.80	
E.G. Slope (ft/ft)	0.001196	Area (sq ft)		24567.80	
Q Total (cfs)	164000.00	Flow (cfs)		164000.00	
Top Width (ft)	2911.71	Top Width (ft)		2911.71	
Vel Total (ft/s)	6.68	Avg. Vel. (ft/s)		6.68	
Max Chl Dpth (ft)	14.05	Hydr. Depth (ft)		8.44	
Conv. Total (cfs)	4742364.0	Conv. (cfs)		4742364.0	
Length Wtd. (ft)	505.82	Wetted Per. (ft)		2920.97	
Min Ch El (ft)	962.20	Shear (lb/sq ft)		0.63	
Alpha	1.00	Stream Power (lb/ft s)		4.19	
Frctn Loss (ft)	0.62	Cum Volume (acre-ft)	302.96	13158.11	30.85
C & E Loss (ft)	0.00	Cum SA (acres)	49.87	1461.92	5.87

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 203.39

INPUT
Description: 203.39
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
15500	974.4	15548.5	978.1	15604.9	974.8	15609.8	975.3	15717.3	976.3
15722.2	976.3	15836.5	975.1	15864.7	976.6	15875.6	973	15888.1	975.4
15914.3	976.1	16076.8	976.1	16271.9	976.2	16290.8	976.1	16376.9	976.2
16390.2	976.2	16520.6	976	16549.4	977.1	16694.9	973.2	16751.5	970.2
16832.2	968.6	16901	973.2	17053.7	971.4	17105.6	971.5	17120	974.9
17136.1	970.9	17147.5	974.3	17212	975.5	17260.9	972.8	17296.2	974.2
17353	971.2	17382.3	974.9	17417.1	974.8	17453.9	976.4	17519.2	968.1
17602.4	973.1	17694.4	971.8	17733.8	970.7	17815.5	973	17901.2	972.3
17947.7	972.1	17970.8	973	18042	972.8	18114	969.5	18199.7	969.1
18207.5	968.6	18224.3	964.4	18259.9	963.8	18330.5	967.6	18418.7	967.4
18507.8	969.8	18601.7	972.8	18629.1	974.7	18686.7	980.9	18738	974.3
18773.9	975.9	18902.4	975	19023.2	970.3	19056.6	971.7	19105.2	965.4
19218.1	968.3	19268.2	972	19346.8	971.4	19370.8	969.4	19397.9	965.7
19418.4	960.4	19479.4	959.9	19491.4	962	19633	960.6	19736.1	965
19770.9	965.7	19800.9	963.8	19816.1	965.5	19916.4	965	20010.4	963.8
20159.5	964.6	20260.9	963.8	20303.7	964.2	20330.3	963.1	20346	964.4
20389.8	962.9	20483.7	964.2	20485.1	964.9	20576.8	964.7	20682.1	965.3
20789.2	969.4	20834.2	971.9	20922.2	969.5	20993.5	968.3	21038.8	975.6

```
 21082.9   975.6 21098.5   976.5 21138.2   977.4 21143.6   978.2 21153.1   976.5
   21223   978.3

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************************************************
   15500    .025 16832.2    .037 17970.8    .037 18601.7    .032 21038.8    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       17970.8 21038.8             500     505     500             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
   15500 17519.2   980.9       F
 21223.3   21223   980.9       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         *  975.93  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.70  * Wt. n-Val.            *   0.037  *   0.033  *          *
* W.S. Elev (ft)         *  975.23  * Reach Len. (ft)       *  500.00  *  505.00  *  500.00  *
* Crit W.S. (ft)         *  971.15  * Flow Area (sq ft)     * 1495.78  *23366.65  *          *
* E.G. Slope (ft/ft)     *0.001331  * Area (sq ft)          * 3866.15  *23366.65  *          *
* Q Total (cfs)          *164000.00  * Flow (cfs)          * 4867.25  *159132.80  *          *
* Top Width (ft)         * 4207.76  * Top Width (ft)       * 1350.37  * 2857.40  *          *
* Vel Total (ft/s)       *    6.60  * Avg. Vel. (ft/s)     *    3.25  *    6.81  *          *
* Max Chl Dpth (ft)      *   15.33  * Hydr. Depth (ft)     *    3.31  *    8.18  *          *
* Conv. Total (cfs)      *4495896.0  * Conv. (cfs)         *133430.7  *4362466.0  *          *
* Length Wtd. (ft)       *  504.81  * Wetted Per. (ft)     *  451.83  * 2861.57  *          *
* Min Ch El (ft)         *  959.90  * Shear (lb/sq ft)     *    0.28  *    0.68  *          *
* Alpha                  *    1.04  * Stream Power (lb/ft s) *    0.89  *    4.62  *          *
* Frctn Loss (ft)        *    0.73  * Cum Volume (acre-ft)  * 4179.42  *12386.15  *  945.48  *
* C & E Loss (ft)        *    0.00  * Cum SA (acres)        * 1162.11  * 1426.33  *  509.71  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)         *  976.32  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.69  * Wt. n-Val.            *          *   0.033  *          *
* W.S. Elev (ft)         *  975.62  * Reach Len. (ft)       *  500.00  *  505.00  *  500.00  *
* Crit W.S. (ft)         *  971.10  * Flow Area (sq ft)     *          *24520.14  *          *
* E.G. Slope (ft/ft)     *0.001254  * Area (sq ft)          *          *24520.14  *          *
* Q Total (cfs)          *164000.00  * Flow (cfs)          *          *164000.00  *          *
* Top Width (ft)         * 2930.05  * Top Width (ft)       *          * 2930.05  *          *
* Vel Total (ft/s)       *    6.69  * Avg. Vel. (ft/s)     *          *    6.69  *          *
* Max Chl Dpth (ft)      *   15.72  * Hydr. Depth (ft)     *          *    8.37  *          *
* Conv. Total (cfs)      *4631119.0  * Conv. (cfs)         *          *4631119.0  *          *
* Length Wtd. (ft)       *  505.00  * Wetted Per. (ft)     *          * 2937.30  *          *
* Min Ch El (ft)         *  959.90  * Shear (lb/sq ft)     *          *    0.65  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    4.37  *          *
* Frctn Loss (ft)        *    0.69  * Cum Volume (acre-ft)  *  302.96  *12873.10  *   30.85  *
* C & E Loss (ft)        *    0.01  * Cum SA (acres)        *   49.87  * 1428.00  *    5.87  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 203.29

INPUT
Description: 203.29

Right Channel Bank Staion Interpolated
Station Elevation Data    num=      97
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 14306.7   975.2 14398.4   975.7 14462.6   975.2   14487   977.9 14491.6   976.6
 14498.9   977.7 14515.3   976.7   14528     974 14553.9   972.7 14670.7   972.7
 14687.5   972.7 14856.4   972.7 14867.5   972.7 15002.5   972.7 15006.1   972.7
 15100.1   972.9 15122.5   975.2 15172.8   972.4 15364.8   972.7 15484.5     974
 15649.2   973.6 15701.1   973.4   15710   975.9 15724.5   974.3 15776.8   976.4
 15815.8     974 15918.9   974.9 15999.4   974.9 16112.9   975.4 16114.8   975.5
 16293.6   975.5   16301   975.5 16411.1     976 16465.5     976 16664.1     976
 16733.3   975.8 16808.3   976.1 16968.8   976.1 17062.2   976.1   17153   976.2
 17251.7   975.1 17286.9   974.6 17327.4   969.3 17410.1   970.5 17467.7   974.5
 17469.8   973.6   17539   974.4   17590   968.4 17649.5   971.4 17775.2   971.1
 17888.5   970.4 17987.9   968.4 18065.6   972.5 18117.7   969.6 18146.3   971.6
 18204.1   968.8 18247.3   971.6 18266.5   967.8 18378.2   963.9   18464   968.2
 18535.2   966.5 18593.9   967.2 18627.7   974.8 18719.2   971.5 18838.7   974.7
   18920   973.9 18947.9   969.3 19046.6   972.7 19166.7   971.8   19269   971.6
 19295.1   965.4 19325.9   960.7 19447.7   960.9 19552.4   961.6 19655.6   961.1
 19756.7   962.1 19849.6   963.4 19945.3     963   20028   965.9 20124.9   965.7
   20226   965.2 20297.8   963.6 20378.8   964.4 20396.1   961.9 20494.8   962.8
   20586   966.7 20676.2   969.1 20796.8     969 20894.8   969.2 20935.1   968.4
 20981.6   969.2 21027.6   966.621082.58975.7482 21088.3   976.7   21155   977.1
 21257.1   975.6   21295   976.3

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************************************************
 14306.7    .025 16968.8    .037 18065.6    .037 18535.2    .032 21088.3    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       18065.621082.58             620     535     420             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 14306.7   17590   977.9       F
```

21088.3 21295 977.9 F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	975.20	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.73	Wt. n-Val.	0.037	0.033	
W.S. Elev (ft)	974.46	Reach Len. (ft)	620.00	535.00	420.00
Crit W.S. (ft)	970.77	Flow Area (sq ft)	1911.74	*22390.42	
E.G. Slope (ft/ft)	*0.001572	Area (sq ft)	4404.29	*22390.42	
Q Total (cfs)	*164000.00	Flow (cfs)	7692.92	*156307.10	
Top Width (ft)	4967.77	Top Width (ft)	2002.07	2965.71	
Vel Total (ft/s)	6.75	Avg. Vel. (ft/s)	4.02	6.98	
Max Chl Dpth (ft)	13.76	Hydr. Depth (ft)	4.02	7.55	
Conv. Total (cfs)	*4136567.0	Conv. (cfs)	*194038.3	*3942529.0	
Length Wtd. (ft)	540.60	Wetted Per. (ft)	475.81	2970.14	
Min Ch El (ft)	960.70	Shear (lb/sq ft)	0.39	0.74	
Alpha	1.04	Stream Power (lb/ft s)	1.59	5.16	
Frctn Loss (ft)	0.91	Cum Volume (acre-ft)	4131.96	*12120.92	945.48
C & E Loss (ft)	0.01	Cum SA (acres)	1142.87	1392.57	509.71

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	975.63	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.75	Wt. n-Val.		0.033	
W.S. Elev (ft)	974.88	Reach Len. (ft)	620.00	535.00	420.00
Crit W.S. (ft)	970.71	Flow Area (sq ft)		*23633.34	
E.G. Slope (ft/ft)	*0.001478	Area (sq ft)		*23633.34	
Q Total (cfs)	*164000.00	Flow (cfs)		*164000.00	
Top Width (ft)	3009.26	Top Width (ft)		3009.26	
Vel Total (ft/s)	6.94	Avg. Vel. (ft/s)		6.94	
Max Chl Dpth (ft)	14.18	Hydr. Depth (ft)		7.85	
Conv. Total (cfs)	*4265774.0	Conv. (cfs)		*4265774.0	
Length Wtd. (ft)	535.03	Wetted Per. (ft)		3016.54	
Min Ch El (ft)	960.70	Shear (lb/sq ft)		0.72	
Alpha	1.00	Stream Power (lb/ft s)		5.02	
Frctn Loss (ft)	0.88	Cum Volume (acre-ft)	302.96	*12593.97	30.85
C & E Loss (ft)	0.00	Cum SA (acres)	49.87	1393.58	5.87

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 203.19

INPUT
Description: 203.19

Right Channel Bank Staion Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16639.2	974.6	16696.5	974.6	16879.5	976.3	16960.6	976.7	16982.2	976.1
16987.1	975.2	16999.5	976.6	17045.2	975.2	17145.4	975	17180.8	974.8
17306.9	974	17389.7	974.5	17513.2	972.9	17539	972.7	17596.6	969.7
17650.2	971	17690.3	968.3	17762.5	967.5	17781.9	968.4	17812.7	966.2
17893.5	967.8	17945.6	971.7	18023.5	971.3	18058.7	964.6	18099.2	971.6
18139.8	972.1	18185.8	967.2	18251.5	970.8	18282.1	971.9	18338.2	971.3
18384.4	969	18406.2	969.7	18445.9	965.2	18495.1	966.4	18521	969
18558.4	964.7	18605.8	963.2	18623.9	961.2	18659	961.4	18701.5	965.4
18712.2	964.5	18734.5	964.5	18797.4	970	18848.7	968.9	18911.7	969.9
18983.1	969.7	19009.9	968.7	19025	967.1	19031	968.2	19080.8	968.8
19095.4	970.3	19159	970.9	19191.3	967.9	19256	967.2	19294.3	960.1
19346.5	959	19442.2	956.7	19471.8	962.7	19542.3	963	19643.7	963.4
19644.6	963.4	19721.9	962.3	19788.7	962.7	19870	964.6	19925.6	962.6
19971.9	966.8	20041.3	966	20111.2	965.3	20142.5	963.8	20233.9	963.3
20336.2	963.2	20384.6	963.4	20398.2	962.6	20462.1	962.2	20541.1	965.2
20570.6	966.9	20635.2	967.1	20669.2	965.5	20696.2	966.5	20752.9	964.7
20795.4	967.4	20825.2	966.9	20848.9	967.5	20865.3	966.7	20898.7	966.8
20928.5	970.1	20952.6	973.8	20965.3	9974.9	827 20981.8	976.5	20999	975.6
21013	977.9	21075.8	975.9	21096.9	975.8	21174.9	976.1	21273.9	975.8
21344.5	975.8	21380	975.6						

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16639.2	.025	17762.5	.043	18282.1	.043	18734.5	.037	20981.8	.025
21013	.025								

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
18282.1	20965.39	535	520	485 .1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
16639.2	17587	978	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	974.28	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.69	Wt. n-Val.	0.036	0.038	
W.S. Elev (ft)	973.59	Reach Len. (ft)	535.00	520.00	485.00
Crit W.S. (ft)	970.04	Flow Area (sq ft)	3019.47	*22027.15	
E.G. Slope (ft/ft)	*0.001787	Area (sq ft)	3161.07	*22027.15	
Q Total (cfs)	*164000.00	Flow (cfs)	*13926.43	*150073.60	
Top Width (ft)	3491.38	Top Width (ft)	822.24	2669.14	
Vel Total (ft/s)	6.55	Avg. Vel. (ft/s)	4.61	6.81	
Max Chl Dpth (ft)	16.89	Hydr. Depth (ft)	4.34	8.25	
Conv. Total (cfs)	*3879641.0	Conv. (cfs)	*329448.5	*3550193.0	
Length Wtd. (ft)	521.19	Wetted Per. (ft)	697.10	2673.29	

```
                                                                    Post-Project
* Min Ch El (ft)          *  956.70  * Shear (lb/sq ft)        *    0.48  *    0.92  *          *
* Alpha                   *    1.03  * Stream Power (lb/ft s) *    2.23  *    6.26  *          *
* Frctn Loss (ft)         *    1.01  * Cum Volume (acre-ft)   * 4078.12  *11848.15  *  945.48  *
* C & E Loss (ft)         *    0.01  * Cum SA (acres)         * 1122.77  * 1357.97  *  509.71  *
*********************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)          *  974.74  * Element              *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.79  * Wt. n-Val.           *   0.043  *   0.038  *          *
* W.S. Elev (ft)          *  973.95  * Reach Len. (ft)      *  535.00  *  520.00  *  485.00  *
* Crit W.S. (ft)          *  970.04  * Flow Area (sq ft)    *   48.25  *22993.21  *          *
* E.G. Slope (ft/ft)      *0.001849  * Area (sq ft)         *   48.25  *22993.21  *          *
* Q Total (cfs)           *164000.00  * Flow (cfs)          *  118.21  *163881.80  *          *
* Top Width (ft)          * 2689.14  * Top Width (ft)      *   20.00  * 2669.14  *          *
* Vel Total (ft/s)        *    7.12  * Avg. Vel. (ft/s)    *    2.45  *    7.13  *          *
* Max Chl Dpth (ft)       *   17.25  * Hydr. Depth (ft)    *    2.41  *    8.61  *          *
* Conv. Total (cfs)       *3814345.0  * Conv. (cfs)        *  2749.4  *3811596.0  *          *
* Length Wtd. (ft)        *  520.03  * Wetted Per. (ft)    *   22.78  * 2673.65  *          *
* Min Ch El (ft)          *  956.70  * Shear (lb/sq ft)    *    0.24  *    0.99  *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s) *    0.60  *    7.07  *          *
* Frctn Loss (ft)         *    1.04  * Cum Volume (acre-ft)   *  302.61  *12307.64  *   30.85  *
* C & E Loss (ft)         *    0.02  * Cum SA (acres)         *   49.73  * 1358.71  *    5.87  *
*********************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 203.09

INPUT
Description: 203.09

Right Channel Bank Staion Interpolated
Station Elevation Data    num=      97
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 16077.3   972.6 16108.8   973.2 16114.5   973.9 16141.2   974.9   16147   976.1
 16177.1   975.5 16186.3   974.5 16217.9   974.3 16296.3   973.5 16396.3   973.6
 16495.1   973.6 16619.4   973.4 16649.6   973.4 16802.2   973.6 16847.8   974.3
 16927.3   974.4 16967.8   974.4 17063.1   975.3 17138.5   975.2 17150.2   974.9
 17158.9   972.7 17171.5     974 17175.5   975.3 17183.4   974.2   17268   973.7
   17382   973.8 17583.9   974.5 17588.1   974.4 17656.3     973 17724.5   971.9
 17787.2     966   17835   968.2 17878.2   968.6 17889.9   967.6 17960.8     969
 18034.5   970.7 18151.5   966.1 18178.5   966.8 18202.2   966.1 18277.6     970
 18313.5   969.4 18321.1   969.7 18364.1   965.2   18437   969.5   18507   971.4
 18541.2   970.5 18605.3   962.2 18681.6     963 18770.4   960.8 18814.5     971
 18875.7     969 18992.4   969.2 19035.2   968.4 19104.8   968.6 19136.4     968
 19190.2   961.9 19211.5   961.8 19247.1     964 19266.9   960.3 19282.4   958.7
 19461.8   959.9 19573.5   959.6 19585.9   960.2 19653.1   960.1 19682.3   962.4
 19752.6   963.1   19757   963.1 19865.5   961.3 19934.1   962.2 20005.1   964.6
 20113.7   965.7 20184.3   965.7 20264.8     966 20287.7   966.2 20364.7   966.6
 20397.2   966.4 20469.2   966.1 20498.9   964.4 20517.6   961.6 20546.5   960.5
 20610.5   960.6 20636.9   964.4 20681.6   965.4 20709.6   964.4 20742.1   962.1
 20765.3   962.2   20780   963.2 20812.8   959.6 20837.9   961.320914.82973.8939
 20917.3   974.3 20926.9   975.4 20942.8   974.2 20972.4   973.4 21023.3   975.3
 21111.6   973.6   21171   974.1

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************************************************
 16077.3    .025 17588.1    .043   18507    .043 18814.5    .037 20917.3    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        1850720914.82               520     518     500             .1      .3
Ineffective Flow     num=       2
   Sta L    Sta R     Elev  Permanent
 16077.3 17583.9   976.1       F
 20917.3   21171   976.1       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)          *  973.25  * Element              *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.83  * Wt. n-Val.           *   0.043  *   0.038  *          *
* W.S. Elev (ft)          *  972.42  * Reach Len. (ft)      *  520.00  *  518.00  *  500.00  *
* Crit W.S. (ft)          *  969.19  * Flow Area (sq ft)    * 3133.13  *20204.47  *          *
* E.G. Slope (ft/ft)      *0.002112  * Area (sq ft)         * 3133.13  *20204.47  *          *
* Q Total (cfs)           *164000.00  * Flow (cfs)          *12200.67  *151799.30  *          *
* Top Width (ft)          * 3213.89  * Top Width (ft)      *  815.04  * 2398.85  *          *
* Vel Total (ft/s)        *    7.03  * Avg. Vel. (ft/s)    *    3.89  *    7.51  *          *
* Max Chl Dpth (ft)       *   13.72  * Hydr. Depth (ft)    *    3.84  *    8.42  *          *
* Conv. Total (cfs)       *3568365.0  * Conv. (cfs)        *265466.2  *3302899.0  *          *
* Length Wtd. (ft)        *  518.12  * Wetted Per. (ft)    *  816.06  * 2403.51  *          *
* Min Ch El (ft)          *  958.70  * Shear (lb/sq ft)    *    0.51  *    1.11  *          *
* Alpha                   *    1.08  * Stream Power (lb/ft s) *    1.97  *    8.33  *          *
* Frctn Loss (ft)         *    0.99  * Cum Volume (acre-ft)   * 4039.47  *11596.08  *  945.48  *
* C & E Loss (ft)         *    0.02  * Cum SA (acres)         * 1112.72  * 1327.72  *  509.71  *
*********************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
```

Post-Project

E.G. Elev (ft)	973.69	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.94	Wt. n-Val.	0.043	0.038	
W.S. Elev (ft)	972.75	Reach Len. (ft)	520.00	518.00	500.00
Crit W.S. (ft)	968.97	Flow Area (sq ft)	185.01	20978.55	
E.G. Slope (ft/ft)	0.002162	Area (sq ft)	185.01	20978.55	
Q Total (cfs)	164000.00	Flow (cfs)	516.86	163483.10	
Top Width (ft)	2475.85	Top Width (ft)	77.00	2398.85	
Vel Total (ft/s)	7.75	Avg. Vel. (ft/s)	2.79	7.79	
Max Chl Dpth (ft)	14.05	Hydr. Depth (ft)	2.40	8.75	
Conv. Total (cfs)	3526911.0	Conv. (cfs)	11115.5	3515796.0	
Length Wtd. (ft)	518.00	Wetted Per. (ft)	80.70	2403.84	
Min Ch El (ft)	958.70	Shear (lb/sq ft)	0.31	1.18	
Alpha	1.01	Stream Power (lb/ft s)	0.86	9.18	
Frctn Loss (ft)	0.98	Cum Volume (acre-ft)	301.18	12045.18	30.85
C & E Loss (ft)	0.04	Cum SA (acres)	49.13	1328.46	5.87

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 202.99

INPUT
Description: 202.99
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17058.5	973.2	17114.3	973.5	17267.7	973.8	17289	973.9	17305.6	974.4
17316.7	973.3	17329.5	974.7	17397.2	973.4	17508.3	973.5	17530.6	972.5
17571.7	973.2	17646.3	973.1	17659.9	972.5	17696.1	969.8	17713.5	970
17723.9	969.1	17781.1	967.5	17850.9	965.7	17864.6	967.2	17879.9	968
17893	968.2	17922	965.3	17941	964	17984.7	968.4	18035.6	970
18091.7	969.9	18126.6	969.7	18186.5	969.9	18238.3	970	18288.7	964.3
18293.1	963.9	18346.5	968.2	18360.3	967.9	18420.8	969.3	18469.4	969.3
18497.6	968.2	18580.4	968.7	18586.2	968.9	18608.3	967.1	18619.4	964.4
18650.8	965	18666.5	962.2	18686.7	961.6	18748.1	962.5	18789.2	962.8
18875	962.8	18906.3	963.4	18945.7	961.5	18988.8	963.5	19005.4	963.6
19058	964.4	19119.4	964.2	19128.8	964.3	19182	965.3	19208.5	964.3
19269.4	961.7	19318.8	960.3	19334.7	959.8	19391.3	959.8	19415.3	959.6
19435.9	960	19527.6	959.5	19609.2	959.5	19725.7	959.2	19759.9	960.9
19828.4	961.4	19945.2	960.7	19948	960.7	20028.5	959.3	20090	960.7
20131.7	963.1	20172.8	964.1	20227.9	965.4	20241.1	965.3	20304	965
20364.7	965.9	20422.1	964.9	20460.6	964.9	20528.6	963.3	20552.5	959.7
20558.2	959.8	20619.9	962.6	20665.6	962	20682.4	960.6	20692.5	959.3
20713.5	960.1	20748.9	960	20773.8	959.3	20789	960.3	20808	960.6
20818.5	963.8	20841.7	963.9	20894.5	963.1	20926.9	970.2	20960.7	976.4
20976	975.9								

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
17058.5	.025	17646.3	.043	18469.4	.043	19058	.037	20926.9	.043

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
18469.4 20926.9 480 456 424 .1 .3
Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
17058.5	17646.3	976	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	972.24	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.75	Wt. n-Val.	0.043	0.038	0.043
W.S. Elev (ft)	971.50	Reach Len. (ft)	480.00	456.00	424.00
Crit W.S. (ft)	967.56	Flow Area (sq ft)	2580.34	22030.56	4.58
E.G. Slope (ft/ft)	0.001726	Area (sq ft)	2580.34	22030.56	4.58
Q Total (cfs)	164000.00	Flow (cfs)	8104.63	155890.50	4.86
Top Width (ft)	3260.60	Top Width (ft)	796.04	2457.50	7.06
Vel Total (ft/s)	6.66	Avg. Vel. (ft/s)	3.14	7.08	1.06
Max Chl Dpth (ft)	12.30	Hydr. Depth (ft)	3.24	8.96	0.65
Conv. Total (cfs)	3947903.0	Conv. (cfs)	195099.2	3752686.0	117.1
Length Wtd. (ft)	457.42	Wetted Per. (ft)	797.26	2460.41	7.18
Min Ch El (ft)	959.20	Shear (lb/sq ft)	0.35	0.96	0.07
Alpha	1.08	Stream Power (lb/ft s)	1.10	6.83	0.07
Frctn Loss (ft)	0.68	Cum Volume (acre-ft)	4005.36	11344.96	945.46
C & E Loss (ft)	0.04	Cum SA (acres)	1103.10	1298.84	509.67

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	972.66	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.79	Wt. n-Val.		0.038	
W.S. Elev (ft)	971.87	Reach Len. (ft)	480.00	456.00	424.00
Crit W.S. (ft)	967.53	Flow Area (sq ft)		22949.27	
E.G. Slope (ft/ft)	0.001673	Area (sq ft)		22949.27	
Q Total (cfs)	164000.00	Flow (cfs)		164000.00	
Top Width (ft)	2457.50	Top Width (ft)		2457.50	
Vel Total (ft/s)	7.15	Avg. Vel. (ft/s)		7.15	
Max Chl Dpth (ft)	12.67	Hydr. Depth (ft)		9.34	
Conv. Total (cfs)	4009597.0	Conv. (cfs)		4009597.0	
Length Wtd. (ft)	456.00	Wetted Per. (ft)		2464.65	
Min Ch El (ft)	959.20	Shear (lb/sq ft)		0.97	
Alpha	1.00	Stream Power (lb/ft s)		6.95	
Frctn Loss (ft)	0.67	Cum Volume (acre-ft)	300.08	11784.00	30.85
C & E Loss (ft)	0.04	Cum SA (acres)	48.67	1299.58	5.87

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 202.9

INPUT
Description: 202.9

Right Channel Bank Staion Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16149.3	972.1	16219	972.6	16381.4	973.3	16446.1	973.3	16495.7	974.5
16526.4	971.9	16579.2	972.6	16597.9	974.5	16618	973.6	16631.4	972.3
16699.5	972.9	16755	974.1	16804	971.3	16823.8	973.1	16887.1	972.5
16957.5	972.2	16968.8	972.6	17046.9	971.4	17089.7	971.9	17151.8	972
17172.3	972.1	17235.7	971.8	17304.6	971.3	17369.1	970.9	17440.5	971.3
17504.7	971	17572.9	970.6	17644	970	17676.2	972.2	17699.3	970.6
17772.5	968.5	17815	965.7	17875.4	965.2	17896.7	963.8	17966.8	965.8
18000.2	967.5	18046.2	967	18087.7	964.4	18148.3	968.4	18203.5	967.3
18258.7	965	18308.6	967.1	18383	966.5	18433.6	966.6	18455.6	968.2
18517.5	967.7	18563	962.4	18611.6	961.8	18646	958.2	18714	961.6
18808.1	961.6	18872.7	961.1	18917	963.4	18971.7	963.8	19054.2	965.2
19121.2	965.8	19211.2	964.4	19215.4	966	19303.3	961.5	19368.9	960.3
19378.2	959.7	19431.8	961.6	19460.5	960.1	19592.2	957.9	19666.6	958.3
19722.9	960.9	19833.6	959	19903.1	959.5	19944.9	961	20063.7	959.6
20145.5	959.8	20206.7	960.4	20250.7	959.4	20318.7	958.5	20412.7	962.7
20460.7	961.4	20488.5	963.8	20502.9	964	20545	960.1	20596	959.7
20624.3	960.6	20694.4	959	20754.9	958.5	20806.5	956.5	20831.6	957.9
20858.2	961.1	20861.7	962.3	20936.5	969.5	20988.5	971.9	20993.5	972.3
21011	973.7	21025.1	975.7	21027.9	980.1	21042.4	977	21052.5	978.4
21066.1	978.5	21080	974.2						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16149.3	.025	17815	.043	18455.6	.043	18872.7	.037	21011	.043

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
18455.6 20993.5 575 538 460 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
16149.3	17500	980.1	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	971.52	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.60	Wt. n-Val.	0.041	0.038	
W.S. Elev (ft)	970.92	Reach Len. (ft)	575.00	538.00	460.00
Crit W.S. (ft)	966.33	Flow Area (sq ft)	3303.01	23985.46	
E.G. Slope (ft/ft)	0.001285	Area (sq ft)	3303.09	23985.46	
Q Total (cfs)	164000.00	Flow (cfs)	11302.34	152697.70	
Top Width (ft)	3419.52	Top Width (ft)	907.81	2511.71	
Vel Total (ft/s)	6.01	Avg. Vel. (ft/s)	3.42	6.37	
Max Chl Dpth (ft)	14.42	Hydr. Depth (ft)	3.67	9.55	
Conv. Total (cfs)	4574160.0	Conv. (cfs)	315236.0	4258924.0	
Length Wtd. (ft)	540.74	Wetted Per. (ft)	901.08	2514.33	
Min Ch El (ft)	956.50	Shear (lb/sq ft)	0.29	0.77	
Alpha	1.07	Stream Power (lb/ft s)	1.01	4.87	
Frctn Loss (ft)	0.66	Cum Volume (acre-ft)	3972.95	11104.10	945.44
C & E Loss (ft)	0.02	Cum SA (acres)	1093.71	1272.83	509.63

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	971.95	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.67	Wt. n-Val.		0.038	
W.S. Elev (ft)	971.28	Reach Len. (ft)	575.00	538.00	460.00
Crit W.S. (ft)	966.26	Flow Area (sq ft)		24881.66	
E.G. Slope (ft/ft)	0.001315	Area (sq ft)		24881.66	
Q Total (cfs)	164000.00	Flow (cfs)		164000.00	
Top Width (ft)	2511.71	Top Width (ft)		2511.71	
Vel Total (ft/s)	6.59	Avg. Vel. (ft/s)		6.59	
Max Chl Dpth (ft)	14.78	Hydr. Depth (ft)		9.91	
Conv. Total (cfs)	4523109.0	Conv. (cfs)		4523109.0	
Length Wtd. (ft)	538.00	Wetted Per. (ft)		2517.77	
Min Ch El (ft)	956.50	Shear (lb/sq ft)		0.81	
Alpha	1.00	Stream Power (lb/ft s)		5.35	
Frctn Loss (ft)	0.68	Cum Volume (acre-ft)	300.08	11533.64	30.85
C & E Loss (ft)	0.02	Cum SA (acres)	48.67	1273.57	5.87

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 202.8

INPUT
Description: 202.8

Right Channel Bank Staion Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

16524.8	970.3	16556.4	971.5	16586.6	971.3	16591.4	972.2	16622.9	972.3
16660.4	974.1	16671.5	973.8	16699.8	970.7	16750	971.8	16768.2	970.7
16810	971.7	16908.3	970.6	16968.5	970.2	16997.3	973.4	17058.9	971.8
17081	970.9	17148.9	971	17188.6	970.2	17279.5	971.1	17348.6	971
17423	970.4	17488.6	969.6	17496.3	969.7	17556.3	970.2	17607.5	969.3
17662.7	971.7	17678.2	969.4	17755.1	968.2	17771.4	968.3	17836.1	965.5
17897.9	964.9	17974.2	962.8	18017.4	962.7	18037.3	963.4	18039.7	964
18135.1	964.3	18137.8	964.2	18205	963.3	18273.4	965.1	18313.6	965.5
18348.1	967.5	18390.8	968.8	18406.9	966.2	18434.5	959.9	18478	958.9
18492.5	956.4	18526.7	958.4	18618	960.3	18696.7	962.9	18716.3	963.1
18761.6	962.1	18858.8	963.6	18897.8	963.7	18966.5	960.9	18996.3	959.9
19072.2	959.5	19083	959.6	19151.4	960.5	19243.7	960.1	19333.5	960.5
19396.1	960.6	19435.5	960.4	19525.6	959.5	19621.8	960.4	19685.6	961.9
19750.9	962.5	19813.5	963.5	19828.2	963.6	19893.3	963.5	19985.3	961.5
20027.7	961	20127.3	961.5	20220.9	962	20261.5	962.8	20325.2	962.5
20339.8	963.1	20397.5	960.8	20461	959.3	20525.1	958.4	20576.6	957.1
20634.6	957.7	20682.6	958.4	20759.8	957.1	20823.5	956.8	20855.2	957.6
20859.5	958.4	20873	957.9	20906.1	958.3	20955.4	956.8	20983.8	959.2
20987.6	962.6	21013.7	971	21014.9	971	6307 21019.3	973.8	21057.4	987.6
21082.8	986	21093	986.3						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
16524.8	.025	17771.4	.043	18390.8	.043	19243.7	.037	21019.3	.043

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
18390.82	21014.96	600	555.5	450	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
16524.8	17279.5	987.6	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	970.84	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.52	Wt. n-Val.	0.042	0.039	
W.S. Elev (ft)	970.32	Reach Len. (ft)	600.00	555.50	450.00
Crit W.S. (ft)	965.61	Flow Area (sq ft)	3650.87	*25399.50	
E.G. Slope (ft/ft)	*0.001157	Area (sq ft)	3652.99	*25399.50	
Q Total (cfs)	*164000.00	Flow (cfs)	*13003.14	*150996.90	
Top Width (ft)	3577.40	Top Width (ft)	956.63	2620.78	
Vel Total (ft/s)	5.65	Avg. Vel. (ft/s)	3.56	5.94	
Max Chl Dpth (ft)	13.92	Hydr. Depth (ft)	3.97	9.69	
Conv. Total (cfs)	*4820928.0	Conv. (cfs)	*382239.1	*4438689.0	
Length Wtd. (ft)	558.84	Wetted Per. (ft)	920.28	2625.07	
Min Ch El (ft)	956.40	Shear (lb/sq ft)	0.29	0.70	
Alpha	1.05	Stream Power (lb/ft s)	1.02	4.16	
Frctn Loss (ft)	0.71	Cum Volume (acre-ft)	3927.04	*10799.13	945.44
C & E Loss (ft)	0.01	Cum SA (acres)	1081.41	1241.14	509.63

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	971.25	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.61	Wt. n-Val.		0.039	
W.S. Elev (ft)	970.64	Reach Len. (ft)	600.00	555.50	450.00
Crit W.S. (ft)	965.52	Flow Area (sq ft)		*26258.33	
E.G. Slope (ft/ft)	*0.001223	Area (sq ft)		*26258.33	
Q Total (cfs)	*164000.00	Flow (cfs)		*164000.00	
Top Width (ft)	2620.78	Top Width (ft)		2620.78	
Vel Total (ft/s)	6.25	Avg. Vel. (ft/s)		6.25	
Max Chl Dpth (ft)	14.24	Hydr. Depth (ft)		10.02	
Conv. Total (cfs)	*4688712.0	Conv. (cfs)		*4688712.0	
Length Wtd. (ft)	555.50	Wetted Per. (ft)		2627.25	
Min Ch El (ft)	956.40	Shear (lb/sq ft)		0.76	
Alpha	1.00	Stream Power (lb/ft s)		4.77	
Frctn Loss (ft)	0.75	Cum Volume (acre-ft)	300.08	*11217.83	30.85
C & E Loss (ft)	0.01	Cum SA (acres)	48.67	1241.88	5.87

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 202.69

INPUT
Description: 202.69

Right Channel Bank Staion Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17011.6	967.7	17023.5	967.7	17027.5	969.7	17103.8	970.9	17146.9	971.1
17176.2	972.4	17191.8	969.4	17194.6	968.5	17229	967.1	17294.2	968.5
17355.9	968.4	17445.9	967	17473.9	966.6	17539	968.1	17612.5	967.1
17670.9	967.5	17744.3	967.8	17814.2	967.3	17864	971	17864.9	969.3
17868	967.6	17892.1	965.9	17941.9	963.7	18000.1	961.6	18034.8	963.6
18086.5	962.2	18149.2	965.2	18155.1	964.6	18181.7	966.5	18238.5	967.5
18278.8	966.4	18296.3	967	18357.8	968.5	18371.8	972.9	18377.8	973.6
18394.4	971.5	18484.4	971	18522.7	971.5	18539.1	964.7	18552.9	960.1
18644.5	957.3	18707	953.7	18734.1	956.4	18813.8	956	18848.2	955.5
18893.1	956.3	18953	954.8	19004.8	957.3	19084.1	957.6	19157.7	958.3
19178.7	958.5	19240.7	959.5	19322.9	960.8	19365.9	962.7	19411.4	962.6
19474.6	962.5	19548.6	961.5	19628.5	961.4	19720.2	962.7	19779.3	961
19788.6	961.1	19848.4	962	19949.8	964.6	20005.6	961.1	20016.8	961.1
20083.2	961	20101.5	960.8	20164.7	959.6	20249.5	962.2	20340.4	963

20436.6	963.5	20463.4	963.4	20522.8	963.7	20592.1	963.4	20658.5	962.2		
20698.9	961.2	20768.7	958.6	20856.6	958.8	20890.1	958.6	21023.8	956.8		
21070.8	960.8	21077.4	967.1	21081.897	0.8403	21085.4	973.9	21098	980.8		
21103.6	981.6	21111.1	978.1	21139.5	981.1	21166.7	979.8	21198.8	976.9		
21211.8	978.5	21216.7	978.5	21220.2	977.8	21223.7	977.9	21225.4	978.5		
21238.2	975.1	21274	973.3								

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
17011.6	.025	17868	.043	18377.8	.043	19084.1	.037	21103.6	.043

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

18377.8	21081.8		585	566.1	510	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17011.6	17176.2	981.6	F
21274.4	21274	981.6	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	970.12	Element	Left OB	Channel / Right OB
Vel Head (ft)	0.61	Wt. n-Val.	0.037	0.039 /
W.S. Elev (ft)	969.50	Reach Len. (ft)	585.00	566.10 / 510.00
Crit W.S. (ft)	965.26	Flow Area (sq ft)	3370.61	23641.28 /
E.G. Slope (ft/ft)	0.001416	Area (sq ft)	3395.31	23641.28 /
Q Total (cfs)	164000.00	Flow (cfs)	11595.49	152404.50 /
Top Width (ft)	3716.99	Top Width (ft)	1164.28	2552.71 /
Vel Total (ft/s)	6.07	Avg. Vel. (ft/s)	3.44	6.45 /
Max Chl Dpth (ft)	15.80	Hydr. Depth (ft)	2.93	9.26 /
Conv. Total (cfs)	4357701.0	Conv. (cfs)	308107.7	4049594.0 /
Length Wtd. (ft)	567.45	Wetted Per. (ft)	1150.25	2558.76 /
Min Ch El (ft)	953.70	Shear (lb/sq ft)	0.26	0.82 /
Alpha	1.07	Stream Power (lb/ft s)	0.89	5.27 /
Frctn Loss (ft)	0.88	Cum Volume (acre-ft)	3878.50	10486.43 / 945.44
C & E Loss (ft)	0.01	Cum SA (acres)	1066.80	1208.15 / 509.63

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	970.49	Element	Left OB	Channel / Right OB
Vel Head (ft)	0.70	Wt. n-Val.		0.039 /
W.S. Elev (ft)	969.79	Reach Len. (ft)	585.00	566.10 / 510.00
Crit W.S. (ft)	965.27	Flow Area (sq ft)		24379.59 /
E.G. Slope (ft/ft)	0.001483	Area (sq ft)		24379.59 /
Q Total (cfs)	164000.00	Flow (cfs)		164000.00 /
Top Width (ft)	2553.41	Top Width (ft)		2553.41 /
Vel Total (ft/s)	6.73	Avg. Vel. (ft/s)		6.73 /
Max Chl Dpth (ft)	16.09	Hydr. Depth (ft)		9.55 /
Conv. Total (cfs)	4258962.0	Conv. (cfs)		4258962.0 /
Length Wtd. (ft)	566.10	Wetted Per. (ft)		2559.81 /
Min Ch El (ft)	953.70	Shear (lb/sq ft)		0.88 /
Alpha	1.00	Stream Power (lb/ft s)		5.93 /
Frctn Loss (ft)	0.93	Cum Volume (acre-ft)	300.08	10894.95 / 30.85
C & E Loss (ft)	0.01	Cum SA (acres)	48.67	1208.88 / 5.87

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 202.59

INPUT
Description: 202.59

Right Channel Bank Staion Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17002.6	972.3	17024.4	972.3	17044.5	970.3	17059.2	968	17094.8	969.6
17174.4	971.6	17206.5	971.5	17240	970.3	17269.6	966.5	17294.8	968.3
17332.9	969.6	17346.3	969	17365.3	965.5	17382.1	965.5	17399.6	966.6
17456.2	967.4	17523.1	966.7	17531.4	966.1	17557.2	966	17651.6	966.7
17719.5	967.2	17792.8	966.6	17824.5	966	17874.3	968.6	17886.2	967.6
17905.4	963.2	17965.1	963.4	18022.2	961.6	18100.5	965.1	18174.1	965.7
18210.5	964.5	18233.1	965.7	18298.3	968.6	18346.1	966.9	18416.7	969.6
18505.8	969.5	18556.9	967.5	18622.3	970	18641.7	970	18695.8	961.6
18704.2	959.5	18757.3	962	18789.4	959.6	18857.2	957.4	18891.5	955.7
18960	953.7	18984.2	957.3	19041.9	957.5	19094.7	960.1	19217.7	959.4
19264.1	960.3	19322.3	963.2	19396.6	964.3	19407.1	961.9	19425.6	960
19426	960.9	19488.2	960.7	19564.4	961.7	19640.1	961.8	19698.4	962.2
19757.8	961.8	19850.5	959.2	19935.3	960.1	19956.2	961	19994.3	961.1
20000.8	960.6	20005.1	959.6	20026.1	957.7	20112.1	958.6	20156.3	960.2
20218.5	960.8	20291.8	962.8	20371.5	961.1	20441.9	962	20501.9	959.5
20592.8	959.1	20699	957.2	20711	957	20803.1	957	20825.8	957.1
20901.9	957.5	20941	958.6	20978.1	956.7	21025	956.8	21152.1	957.5
21195.09	969.8993	21199.6	971.2	21234.1	969.1	21236.8	970.4	21264.7	967.7
21299.7	971.3	21305.5	967.6	21325.7	957.4	21362.7	958.8	21403.9	974
21429.1	977	21478	977.8						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
17002.6	.025	18022.2	.043	18416.7	.043	19217.7	.037	21403.9	.043

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

18416.7	21195.09		400	561.2	640	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17002.6	17332.9	977.8	F
21200	21478	977.8	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	969.23	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.68	Wt. n-Val.	0.030	0.038	
W.S. Elev (ft)	968.55	Reach Len. (ft)	400.00	561.20	640.00
Crit W.S. (ft)	964.73	Flow Area (sq ft)	2690.62	*22510.76	
E.G. Slope (ft/ft)	*0.001710	Area (sq ft)	2741.01	*22510.76	645.31
Q Total (cfs)	*164000.00	Flow (cfs)	*11762.68	*152237.30	
Top Width (ft)	3795.64	Top Width (ft)	1100.09	2593.47	102.09
Vel Total (ft/s)	6.51	Avg. Vel. (ft/s)	4.37	6.76	
Max Chl Dpth (ft)	14.85	Hydr. Depth (ft)	2.60	8.68	
Conv. Total (cfs)	*3966361.0	Conv. (cfs)	*284481.9	*3681879.0	
Length Wtd. (ft)	549.75	Wetted Per. (ft)	1037.30	2598.01	
Min Ch El (ft)	953.70	Shear (lb/sq ft)	0.28	0.92	
Alpha	1.03	Stream Power (lb/ft s)	1.21	6.25	
Frctn Loss (ft)	0.91	Cum Volume (acre-ft)	3837.29	*10186.54	941.66
C & E Loss (ft)	0.01	Cum SA (acres)	1051.60	1174.71	509.04

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	969.56	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.78	Wt. n-Val.		0.038	
W.S. Elev (ft)	968.77	Reach Len. (ft)	400.00	561.20	640.00
Crit W.S. (ft)	964.70	Flow Area (sq ft)		*23099.83	
E.G. Slope (ft/ft)	*0.001832	Area (sq ft)		*23099.83	
Q Total (cfs)	*164000.00	Flow (cfs)		*164000.00	
Top Width (ft)	2606.65	Top Width (ft)		2606.65	
Vel Total (ft/s)	7.10	Avg. Vel. (ft/s)		7.10	
Max Chl Dpth (ft)	15.07	Hydr. Depth (ft)		8.86	
Conv. Total (cfs)	*3831880.0	Conv. (cfs)		*3831880.0	
Length Wtd. (ft)	561.08	Wetted Per. (ft)		2611.44	
Min Ch El (ft)	953.70	Shear (lb/sq ft)		1.01	
Alpha	1.00	Stream Power (lb/ft s)		7.18	
Frctn Loss (ft)	1.02	Cum Volume (acre-ft)	300.08	*10586.43	30.85
C & E Loss (ft)	0.00	Cum SA (acres)	48.67	1175.35	5.87

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 202.48

INPUT
Description: 202.48

Right Channel Bank Staion Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17009.6	967.6	17022.6	967.5	17087.4	968.9	17103.6	970.4	17112.7	969.9
17147.3	972	17156.9	971.8	17158.2	972.3	17178.9	971	17194.4	968
17247.5	968.9	17346.9	969.1	17398.9	969.9	17439.3	968.6	17487.9	968.6
17510.1	966.5	17588.4	966.2	17656.6	965	17699.5	965.1	17766.7	963.2
17818.3	961.3	17890	963.8	17903.9	964.7	17928.8	961.3	17945.4	959.8
17990.2	960.1	18038.4	959.4	18049.4	960.1	18123	963.9	18190.8	965.8
18202.9	966.1	18268.8	964.1	18281.9	963.4	18373.9	966.8	18446.2	967.8
18518.9	965.4	18575.8	971.2	18611.2	970.9	18639.1	969.5	18713	961.6
18741.6	959.3	18784.7	961.7	18862.1	959	18930.8	954.4	19044.5	952.5
19074.6	956.5	19142.6	957.5	19190.4	959.1	19212.4	958.4	19300.6	961.8
19319.9	962.4	19391.1	961.2	19413.8	960.8	19449.5	958.2	19532.2	958.9
19643.4	959	19750	959.8	19755	959.8	19836.5	958.7	19940.1	961.4
20015	957.1	20042.9	956.5	20093.3	957.6	20148	959.8	20169.8	958.7
20238.1	957.7	20350.9	956.9	20382.1	955.8	20443.3	956.5	20518.7	957.1
20582.5	957.3	20605	956.3	20635.4	956.3	20720.3	959.3	20738.9	959.4
20761.4	962.7	20791.3	965.4	20855.9	962.6	20874.6	962	20962.4	963.2
21037.1	963.2	21067	962.7	21100.7	957.5	21141.9	956.9	21226.2	955.6
21274.2	959.7	21307.36	968.958	21309.3	969.5	21365.5	967.8	21385.7	965.3
21411.6	965.6	21424.5	960.8	21433.2	956.4	21477.4	957.2	21505.2	969
21532	978.5	21590.9	977.9						

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
17009.6	.043	18575.8	.043	19074.6	.037	21532	.043

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
18575.8	21307.36	700 576.2	385	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
17009.6	17398.9	978.5	F
21309.3	21590.9	978.5	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	968.30	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.65	Wt. n-Val.	0.043	0.038	
W.S. Elev (ft)	967.66	Reach Len. (ft)	700.00	576.20	385.00
Crit W.S. (ft)	963.72	Flow Area (sq ft)	3546.47	*22956.75	
E.G. Slope (ft/ft)	*0.001617	Area (sq ft)	3548.41	*22956.75	824.39

```
                                                                    Post-Project
* Q Total (cfs)          *164000.00  * Flow (cfs)              *11539.59  *152460.40  *          *
* Top Width (ft)         * 3830.22  * Top Width (ft)          * 1048.52  * 2646.34  *  135.36  *
* Vel Total (ft/s)       *    6.19  * Avg. Vel. (ft/s)        *    3.25  *    6.64  *          *
* Max Chl Dpth (ft)      *   15.16  * Hydr. Depth (ft)        *    3.45  *    8.67  *          *
* Conv. Total (cfs)      *4078760.0  * Conv. (cfs)            *286995.3  *3791765.0  *          *
* Length Wtd. (ft)       *  585.03  * Wetted Per. (ft)        * 1029.25  * 2650.03  *          *
* Min Ch El (ft)         *  952.50  * Shear (lb/sq ft)        *    0.35  *    0.87  *          *
* Alpha                  *    1.09  * Stream Power (lb/ft s) *    1.13  *    5.81  *          *
* Frctn Loss (ft)        *    0.91  * Cum Volume (acre-ft)   * 3808.41  * 9893.65  *  930.86  *
* C & E Loss (ft)        *    0.02  * Cum SA (acres)         * 1041.73  * 1140.96  *  507.29  *
*****************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*****************************************************************************************
* E.G. Elev (ft)          *  968.54  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.77  * Wt. n-Val.             *   0.043  *   0.038  *          *
* W.S. Elev (ft)          *  967.77  * Reach Len. (ft)        *  700.00  *  576.20  *  385.00  *
* Crit W.S. (ft)          *  963.79  * Flow Area (sq ft)      *  163.17  *23252.06  *          *
* E.G. Slope (ft/ft)      *0.001789  * Area (sq ft)           *  163.17  *23252.06  *          *
* Q Total (cfs)           *164000.00  * Flow (cfs)            *  236.09  *163763.90  *          *
* Top Width (ft)          * 2826.14  * Top Width (ft)        *  178.75  * 2647.39  *          *
* Vel Total (ft/s)        *    7.00  * Avg. Vel. (ft/s)      *    1.45  *    7.04  *          *
* Max Chl Dpth (ft)       *   15.27  * Hydr. Depth (ft)      *    0.91  *    8.78  *          *
* Conv. Total (cfs)       *3877911.0  * Conv. (cfs)          *  5582.5  *3872328.0  *          *
* Length Wtd. (ft)        *  576.90  * Wetted Per. (ft)      *  180.40  * 2651.19  *          *
* Min Ch El (ft)          *  952.50  * Shear (lb/sq ft)      *    0.10  *    0.98  *          *
* Alpha                   *    1.01  * Stream Power (lb/ft s) *    0.15  *    6.90  *          *
* Frctn Loss (ft)         *    1.00  * Cum Volume (acre-ft)  *  299.33  *10287.85  *   30.85  *
* C & E Loss (ft)         *    0.02  * Cum SA (acres)        *   47.85  * 1141.51  *    5.87  *
*****************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                RS: 202.37

INPUT
Description: 202.37

Right Channel Bank Staion Interpolated
Station Elevation Data    num=      97
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
 17046.5     966 17144.2   966.4 17159.7   966.4 17174.6   968.6 17199.8   968.8
 17234.1   972.8 17240.1   970.8 17243.5   970.9 17244.9   973.1 17262.2     972
 17288.2   966.3 17339.4   966.6 17390.7   968.1 17480.2   967.1 17572.6   967.5
 17609.6   965.2 17687.4   964.4   17729   964.2 17762.4   962.8 17818.6   964.2
 17908.4   962.3 17967.5   961.6 18000.2     964 18038.7   964.1 18072.2   959.7
 18099.8   957.9 18104.7   958.4 18151.6   958.4 18194.7   959.1 18243.6   962.8
 18315.7   961.8 18394.4   965.8 18412.7   966.2 18470.8   964.2 18481.7   964.7
 18501.3   969.1 18508.1     970 18598.8   969.5 18602.7   969.6 18648.3   963.8
 18679.8   963.2   18704   957.9 18743.6   960.5 18769.5   961.1 18842.5   955.2
 18917.4   955.9 18993.6   955.2 19026.1   956.5 19078.6   954.6 19116.4   956.7
 19134.5   956.6 19275.2   955.9 19317.5   959.5 19392.9   961.2 19411.7   961.2
 19457.9   957.5 19505.5   956.4 19577.4   956.1 19580.5   956.2 19670.2   956.8
 19746.9   961.5 19839.2   958.9 19936.5   957.1   20045   956.9 20086.7   957.3
 20169.3   956.2 20237.2   955.3 20328.5     958 20334.1   957.4 20399.8     957
 20463.4   959.2 20513.6     962 20602.6   959.9 20704.3   960.7 20742.9     961
 20844.4   960.5 20908.1   960.2 20950.1   961.7 21049.7   960.9 21054.1   960.9
 21135.1   960.3 21179.1   960.2 21212.7   956.8 21338.5   957.1 21366.3   957.1
 21382.6   961.2 21402.5   967.3 21411.9   966.7 21431.9   963.9 21452.4   962.7
   21480   964.4 21496.8     956 21544.1   956.621581.78968.0081 21601.9   974.1
 21642.4     975   21693   974.4

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*****************************************************************************
 17046.5    .025 17390.7    .043 18508.1    .043 18743.6    .037 21601.9    .043

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       18508.121581.78              430   400.7     360             .1       .3
Ineffective Flow     num=       1
   Sta L    Sta R    Elev  Permanent
 17046.5 17390.7     975       F

CROSS SECTION OUTPUT  Profile #PF#1
*****************************************************************************************
* E.G. Elev (ft)          *  967.38  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.58  * Wt. n-Val.             *   0.043  *   0.037  *          *
* W.S. Elev (ft)          *  966.79  * Reach Len. (ft)        *  430.00  *  400.70  *  360.00  *
* Crit W.S. (ft)          *  962.77  * Flow Area (sq ft)      * 3570.38  *24155.44  *          *
* E.G. Slope (ft/ft)      *0.001487  * Area (sq ft)           * 3653.85  *24155.44  *          *
* Q Total (cfs)           *164000.00  * Flow (cfs)            *11849.87  *152150.10  *          *
* Top Width (ft)          * 4026.46  * Top Width (ft)        * 1083.03  * 2943.43  *          *
* Vel Total (ft/s)        *    5.92  * Avg. Vel. (ft/s)      *    3.32  *    6.30  *          *
* Max Chl Dpth (ft)       *   12.19  * Hydr. Depth (ft)      *    3.94  *    8.21  *          *
* Conv. Total (cfs)       *4253334.0  * Conv. (cfs)          *307326.0  *3946008.0  *          *
* Length Wtd. (ft)        *  401.97  * Wetted Per. (ft)      *  908.19  * 2950.76  *          *
* Min Ch El (ft)          *  954.60  * Shear (lb/sq ft)      *    0.36  *    0.76  *          *
* Alpha                   *    1.07  * Stream Power (lb/ft s) *    1.21  *    4.79  *          *
* Frctn Loss (ft)         *    0.43  * Cum Volume (acre-ft)  * 3750.54  * 9582.06  *  927.22  *
* C & E Loss (ft)         *    0.06  * Cum SA (acres)        * 1024.61  * 1103.99  *  506.69  *
*****************************************************************************************
```

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	967.52	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.69	Wt. n-Val.	0.043	0.037	
W.S. Elev (ft)	966.82	Reach Len. (ft)	430.00	400.70	360.00
Crit W.S. (ft)	963.06	Flow Area (sq ft)	598.51	*24244.56	
E.G. Slope (ft/ft)	*0.001673	Area (sq ft)	598.51	*24244.56	
Q Total (cfs)	*164000.00	Flow (cfs)	1619.72	*162380.30	
Top Width (ft)	3165.40	Top Width (ft)	221.16	2944.24	
Vel Total (ft/s)	6.60	Avg. Vel. (ft/s)	2.71	6.70	
Max Chl Dpth (ft)	12.22	Hydr. Depth (ft)	2.71	8.23	
Conv. Total (cfs)	*4009107.0	Conv. (cfs)	39595.2	*3969512.0	
Length Wtd. (ft)	400.84	Wetted Per. (ft)	225.94	2951.60	
Min Ch El (ft)	954.60	Shear (lb/sq ft)	0.28	0.86	
Alpha	1.02	Stream Power (lb/ft s)	0.75	5.75	
Frctn Loss (ft)	0.45	Cum Volume (acre-ft)	293.21	9973.71	30.85
C & E Loss (ft)	0.09	Cum SA (acres)	44.64	1104.53	5.87

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 202.29

INPUT
Description: 202.29
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17300	969.4	17300.2	969.4	17310.5	971.8	17342.5	971.5	17346.7	971.3
17352.1	970.9	17359.3	970.4	17377.2	970.2	17388.5	970.1	17410.3	969.8
17443.6	969.4	17469.5	969.2	17494.3	969	17512.1	968.3	17537.2	968.2
17551.3	968.6	17580.1	968.2	17588.6	968.1	17610.9	968	17662.1	967.6
17695.1	967.2	17731.2	966.7	17756	966.3	17772.6	965.6	17783.7	965.5
17806	965.9	17845.1	965.4	17859.1	965.2	17870.8	965.1	17909	964.8
17939.7	964.2	17948.3	964	17978	963.3	17983.9	963.1	18035.9	962.8
18043.8	962.7	18050.9	962.7	18093.6	962.3	18093.8	962.8	18107.2	962.7
18151	961.8	18180	961.8	18197.4	961.8	18203.9	961.7	18212.7	961.5
18297.3	960.6	18444	959	18520.4	958	18577.3	957.8	18667.8	958.1
18744.1	957.7	18943.8	956.4	18989.6	956.6	19224.4	957.4	19228.7	957.4
19485.5	956.7	19523.1	956.9	19553.4	956.9	19827.7	956.8	19864.8	956.1
19898	956.1	20171.5	956.3	20383.2	955.7	20442.4	955.9	20499.8	957.2
20499.9	957.2	20696.8	957.3	20777.7	957.4	20879.1	956.5	20964	956.5
21129.5	956.9	21176.5	956.6	21222.8	956.1	21262.9	955.8	21273.6	955.5
21305.8	956.3	21343.7	957	21400.4	957.2	21410.8	957.3	21495.3	956.7
21550.9	957.9	21563.4	959.3	21703.1	961	21803	962.3	21973.7	964.9
22093.3	966.9	22138.1	968.1	22178	968.7	22302.7	970.7	22344.1	970.7
22388.8	970.9	22553.3	971.9	22676.5	971.2	22717.7	971.3	22766.5	972.1
22785.4	971.9								

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
17300	.025	17469.5	.043	18197.4	.043	18989.6	.037	21563.4	.043
21803	.043								

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
18197.4 21803 590 583.1 600 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
21803	22785.4	972.1	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	966.88	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.37	Wt. n-Val.	0.043	0.038	
W.S. Elev (ft)	966.51	Reach Len. (ft)	590.00	583.10	600.00
Crit W.S. (ft)	961.30	Flow Area (sq ft)	1223.63	*33003.69	
E.G. Slope (ft/ft)	*0.000809	Area (sq ft)	1223.63	*33003.69	575.33
Q Total (cfs)	*164000.00	Flow (cfs)	2326.17	*161673.80	
Top Width (ft)	4327.50	Top Width (ft)	454.68	3605.60	267.22
Vel Total (ft/s)	4.79	Avg. Vel. (ft/s)	1.90	4.90	
Max Chl Dpth (ft)	11.01	Hydr. Depth (ft)	2.69	9.15	
Conv. Total (cfs)	*5764473.0	Conv. (cfs)	81763.2	*5682710.0	
Length Wtd. (ft)	583.21	Wetted Per. (ft)	455.07	3605.80	
Min Ch El (ft)	955.50	Shear (lb/sq ft)	0.14	0.46	
Alpha	1.03	Stream Power (lb/ft s)	0.26	2.27	
Frctn Loss (ft)	0.64	Cum Volume (acre-ft)	3726.47	9319.16	924.84
C & E Loss (ft)	0.02	Cum SA (acres)	1017.02	1073.87	505.59

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	966.97	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.38	Wt. n-Val.		0.038	
W.S. Elev (ft)	966.59	Reach Len. (ft)	590.00	583.10	600.00
Crit W.S. (ft)	961.30	Flow Area (sq ft)		*33283.39	
E.G. Slope (ft/ft)	*0.000812	Area (sq ft)		*33283.39	
Q Total (cfs)	*164000.00	Flow (cfs)		*164000.00	
Top Width (ft)	3605.60	Top Width (ft)		3605.60	
Vel Total (ft/s)	4.93	Avg. Vel. (ft/s)		4.93	

```
                                                                    Post-Project
* Max Chl Dpth (ft)      *   11.09  * Hydr. Depth (ft)       *          *    9.23  *          *
* Conv. Total (cfs)      *5756355.0  * Conv. (cfs)           *          *5756355.0  *          *
* Length Wtd. (ft)       *  583.10  * Wetted Per. (ft)       *          * 3614.88  *          *
* Min Ch El (ft)         *  955.50  * Shear (lb/sq ft)       *          *    0.47  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    2.30  *          *
* Frctn Loss (ft)        *    0.64  * Cum Volume (acre-ft)   *  290.25  * 9709.12  *   30.85  *
* C & E Loss (ft)        *    0.02  * Cum SA (acres)         *   43.55  * 1074.40  *    5.87  *
*********************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 202.18

INPUT
Description: 202.18

Right Channel Bank Staion Interpolated
Station Elevation Data    num=      97
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 17052.9   966.6 17168.5     966 17288.7   965.2 17328.5   965.5 17342.3     968
   17346     967 17354.3     968 17364.1   966.7 17396.2   967.4 17415.4     969
 17507.1   967.7 17613.8   965.1 17631.5   964.7 17747.4   962.9 17748.5   962.9
 17865.9   962.4 17961.7   963.1 18017.5   963.4 18100.5   963.8 18139.7   964.7
 18194.4   960.2   18256   959.9 18292.6   958.2 18331.5   958.9 18344.2   960.8
   18389   961.7 18415.9   960.6 18473.5   964.7 18525.3   966.1 18612.9   966.4
 18643.2   962.4 18672.1   961.3 18707.1   957.3   18769   952.6 18804.3   955.4
 18910.2   957.1   18976   956.3 19019.3   958.4 19048.9   958.7 19085.4   956.1
 19142.3     957 19169.3   958.6 19183.3   960.5 19235.6   960.8 19285.1     963
 19369.7   960.1 19472.8   957.3 19559.8   955.6 19630.4   954.7 19686.5   951.8
 19727.7   955.4 19747.8   950.7 19844.5   951.9 19893.9     954   19954     950
   20009     954 20067.8     952 20110.4   954.4 20177.3   963.5 20231.5   963.4
 20240.9   962.3 20277.5   960.8 20351.6     962   20380   959.9 20405.9   959.3
 20492.4   961.5 20578.7   962.9 20684.9   962.3 20769.5   960.5 20826.3   963.1
 20876.8   962.2 20900.3   963.5 20997.2   958.5 21014.5   957.4 21075.2   957.9
 21127.2   959.8 21207.6   957.2   21255   956.2 21287.8   957.6 21353.8   957.8
 21374.8   961.6 21414.6   960.9 21415.3   960.1 21444.1   956.6 21527.2   959.6
 21591.2   960.1 21643.6   958.8 21685.6     954 21737.8   955.1 21787.2   954.7
 21808.8   955.3 21829.3   951.8 21869.4   951.7 21919.3   955.921938.41966.7695
 21957.1   977.4   21992   978.3

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************************************************
 17052.9    .025 17415.4    .043 18139.7    .043   18976    .037 21957.1    .043

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       18139.721938.41             525  511.84     500             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
 17052.9 17415.4   978.3       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         *  966.23  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.53  * Wt. n-Val.             *   0.043  *   0.038  *          *
* W.S. Elev (ft)         *  965.70  * Reach Len. (ft)        *  525.00  *  511.84  *  500.00  *
* Crit W.S. (ft)         *  961.75  * Flow Area (sq ft)      * 1254.37  *27384.83  *          *
* E.G. Slope (ft/ft)     *0.001545  * Area (sq ft)           * 1287.41  *27384.83  *          *
* Q Total (cfs)          *164000.00  * Flow (cfs)           * 2949.36  *161050.60  *          *
* Top Width (ft)         * 4356.13  * Top Width (ft)        *  666.91  * 3689.21  *          *
* Vel Total (ft/s)       *    5.73  * Avg. Vel. (ft/s)      *    2.35  *    5.88  *          *
* Max Chl Dpth (ft)      *   15.70  * Hydr. Depth (ft)      *    2.28  *    7.42  *          *
* Conv. Total (cfs)      *4172957.0  * Conv. (cfs)          * 75045.9  *4097911.0  *          *
* Length Wtd. (ft)       *  512.05  * Wetted Per. (ft)      *  550.64  * 3697.85  *          *
* Min Ch El (ft)         *  950.00  * Shear (lb/sq ft)      *    0.22  *    0.71  *          *
* Alpha                  *    1.04  * Stream Power (lb/ft s) *    0.52  *    4.20  *          *
* Frctn Loss (ft)        *    1.19  * Cum Volume (acre-ft)   * 3709.47  * 8914.98  *  920.88  *
* C & E Loss (ft)        *    0.04  * Cum SA (acres)         * 1009.42  * 1025.04  *  503.75  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)         *  966.31  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.55  * Wt. n-Val.             *          *   0.038  *          *
* W.S. Elev (ft)         *  965.77  * Reach Len. (ft)        *  525.00  *  511.84  *  500.00  *
* Crit W.S. (ft)         *  961.75  * Flow Area (sq ft)      *          *27619.54  *          *
* E.G. Slope (ft/ft)     *0.001559  * Area (sq ft)           *          *27619.54  *          *
* Q Total (cfs)          *164000.00  * Flow (cfs)           *          *164000.00  *          *
* Top Width (ft)         * 3692.06  * Top Width (ft)        *          * 3692.06  *          *
* Vel Total (ft/s)       *    5.94  * Avg. Vel. (ft/s)      *          *    5.94  *          *
* Max Chl Dpth (ft)      *   15.77  * Hydr. Depth (ft)      *          *    7.48  *          *
* Conv. Total (cfs)      *4154161.0  * Conv. (cfs)          *          *4154161.0  *          *
* Length Wtd. (ft)       *  511.84  * Wetted Per. (ft)      *          * 3701.82  *          *
* Min Ch El (ft)         *  950.00  * Shear (lb/sq ft)      *          *    0.73  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    4.31  *          *
* Frctn Loss (ft)        *    1.19  * Cum Volume (acre-ft)   *  290.25  * 9301.49  *   30.85  *
* C & E Loss (ft)        *    0.04  * Cum SA (acres)         *   43.55  * 1025.56  *    5.87  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
```

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 202.09

INPUT
Description: 202.09

Right Channel Bank Staion Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12423.7	965.6	17099.8	965.6	17186	965.4	17264.6	965.3	17349.3	965
17358.9	964.8	17418	967.1	17422.9	965.6	17428.2	966.9	17452	965.9
17476.4	966.1	17491.8	967.5	17574.4	967	17614.9	967.2	17693.5	967.2
17814.7	961.1	17920.2	960.8	17951.8	961.2	18050.9	963.8	18132.1	964.1
18212.9	964.4	18247.5	964.7	18306	959.3	18322.2	960.3	18340.5	958.1
18363.8	957.3	18389.5	962.4	18475.1	961.1	18485.9	960.9	18523.3	964.1
18558.3	962.3	18573.3	963.2	18621.2	963.3	18652.7	957.8	18708.8	958.1
18748.7	952.2	18769.9	955.2	18859.3	957.7	18962.1	957.3	18975.3	957.3
19086	957.5	19165.3	959.6	19217.9	961	19287.9	955.2	19344.8	963
19434.4	961.7	19513.8	958.9	19564.6	953.8	19623.2	957.6	19686.2	956.9
19738.7	957.5	19783.4	954.5	19908.5	952.6	19947.2	952	20093.1	950
20106.3	950	20143.3	952.6	20167.6	955.5	20187.3	956.2	20207.9	958
20254	956.6	20271.4	957.6	20297.7	960.4	20396.6	960.4	20472.8	959.6
20529.3	963.3	20613.6	962.6	20698	962.2	20720.5	961.5	20787.7	964.2
20816.2	959.4	20866.2	961.1	20916.3	960.7	20996.8	963.3	21047.5	963.6
21101.6	961.6	21155	960.7	21221.6	961.5	21280.8	956.9	21370.9	957.5
21444.4	956.7	21456.1	957.6	21466.3	959.4	21503.9	959	21516.7	956.6
21530.5	955.5	21561.3	958	21627.9	959.2	21709	959.7	21751.4	954.3
21825.3	953.8	21856.2	951.2	21912.9	951.7	21928.2	955.7	21938.26	965.332
21947	973.7	21985	973.7						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
12423.7	.025	17491.8	.043	18212.9	.043	19086	.037	21947	.043

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
18212.921938.26 510 509.32 500 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
12423.7	17491.8	973.7	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	965.01	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.92	Wt. n-Val.	0.043	0.038	
W.S. Elev (ft)	964.09	Reach Len. (ft)	510.00	509.32	500.00
Crit W.S. (ft)	961.98	Flow Area (sq ft)	685.44	20909.31	
E.G. Slope (ft/ft)	0.003848	Area (sq ft)	685.44	20909.31	
Q Total (cfs)	164000.00	Flow (cfs)	2203.35	161796.70	
Top Width (ft)	4052.05	Top Width (ft)	373.14	3678.91	
Vel Total (ft/s)	7.59	Avg. Vel. (ft/s)	3.21	7.74	
Max Chl Dpth (ft)	14.09	Hydr. Depth (ft)	1.84	5.68	
Conv. Total (cfs)	2643855.0	Conv. (cfs)	35520.3	2608335.0	
Length Wtd. (ft)	509.33	Wetted Per. (ft)	373.25	3688.94	
Min Ch El (ft)	950.00	Shear (lb/sq ft)	0.44	1.36	
Alpha	1.03	Stream Power (lb/ft s)	1.42	10.54	
Frctn Loss (ft)	1.03	Cum Volume (acre-ft)	3697.58	8631.24	920.88
C & E Loss (ft)	0.10	Cum SA (acres)	1003.15	981.75	503.75

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	965.09	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.93	Wt. n-Val.		0.038	
W.S. Elev (ft)	964.16	Reach Len. (ft)	510.00	509.32	500.00
Crit W.S. (ft)	961.95	Flow Area (sq ft)		21163.39	
E.G. Slope (ft/ft)	0.003803	Area (sq ft)		21163.39	
Q Total (cfs)	164000.00	Flow (cfs)		164000.00	
Top Width (ft)	3682.20	Top Width (ft)		3682.20	
Vel Total (ft/s)	7.75	Avg. Vel. (ft/s)		7.75	
Max Chl Dpth (ft)	14.16	Hydr. Depth (ft)		5.75	
Conv. Total (cfs)	2659472.0	Conv. (cfs)		2659472.0	
Length Wtd. (ft)	509.32	Wetted Per. (ft)		3692.31	
Min Ch El (ft)	950.00	Shear (lb/sq ft)		1.36	
Alpha	1.00	Stream Power (lb/ft s)		10.54	
Frctn Loss (ft)	1.02	Cum Volume (acre-ft)	290.25	9014.89	30.85
C & E Loss (ft)	0.11	Cum SA (acres)	43.55	982.23	5.87

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 201.99

INPUT
Description: 201.99

Right Channel Bank Staion Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12423.7	962.9	12792.3	963.8	13061.9	964.2	13286.8	963.1	13510.3	962
13746.9	961.3	13984	962.2	14217.9	962.9	14443.4	963.1	14690.7	964.7
14908.9	964.6	14956.9	968.1	14966.2	964.3	15216	964.5	15450.3	964.3
15717.5	963.6	15947.7	963	16170.3	962.3	16226.7	962.5	16243.5	964.4
16481.8	963.7	16706	964.8	16931.9	964.5	17163.9	965	17409.1	965.4
17507.7	965.1	17760.7	967.9	18000.5	959.7	18235.1	962.5	18353.1	960.5
18417.7	956.5	18440	960.5	18639.2	962	18674	954.8	18737.7	957.9
18818.4	957.6	18843.9	951.9	18894.5	956	19104.7	956.3	19162.4	959.4
19182	952.7	19244.4	958.4	19290	953.9	19357.8	953.9	19392.3	959.4
19476.2	956.3	19599.7	958.8	19757.3	956.9	19806.8	958.1	19854.1	952.5
20078.1	951.3	20095.8	953	20192.9	950.6	20250.9	959.6	20290.2	950.4
20347.4	962.9	20368.6	965.8	20433.1	963	20465.1	950.1	20577.2	949.5
20589	951.7	20619.5	951.7	20638.1	949.5	20700.3	949.5	20727.6	954.8
20735.3	964.1	20750.8	961.1	20862.1	965.2	20904	975.7	20956.4	975.3
20989.8	964.1	21038.3	963.3	21074.1	972.2	21105.1	970	21109	967.5
21138.5	968.2	21163.6	953.1	21180.4	949.1	21267.5	949.1	21538.3	949.1
21555.3	949.1	21578	958.4	21595.4	955.8	21617.3	955.7	21641.7	951.9
21676.1	954.4	21726.5	948.7	21821.2	953.2	21862.8	963.6	21892.7	1964.4166
21991	967.1	22006.5	964	22019.9	967.9	22243.3	966.9	22585.6	967
22917.2	966.9	23024.3	966.9						

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
12423.7	.025	17507.7	.043	17760.7	.043	19357.8	.032	20250.9	.037
21991	.037	22006.5	.025						

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
18235.121892.71 470 477.46 490 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
12423.7	17760.7	975.7	F
21990.9	23024.3	975.7	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	963.87	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.58	Wt. n-Val.	0.043	0.036	
W.S. Elev (ft)	963.29	Reach Len. (ft)	470.00	477.46	490.00
Crit W.S. (ft)	958.65	Flow Area (sq ft)	702.50	26531.65	
E.G. Slope (ft/ft)	0.001252	Area (sq ft)	2110.20	26531.65	
Q Total (cfs)	164000.00	Flow (cfs)	1394.28	162605.70	
Top Width (ft)	5331.46	Top Width (ft)	2122.37	3209.09	
Vel Total (ft/s)	6.02	Avg. Vel. (ft/s)	1.98	6.13	
Max Chl Dpth (ft)	14.59	Hydr. Depth (ft)	2.07	8.27	
Conv. Total (cfs)	4634981.0	Conv. (cfs)	39405.2	4595576.0	
Length Wtd. (ft)	477.43	Wetted Per. (ft)	339.69	3231.97	
Min Ch El (ft)	948.70	Shear (lb/sq ft)	0.16	0.64	
Alpha	1.03	Stream Power (lb/ft s)	0.32	3.93	
Frctn Loss (ft)	0.47	Cum Volume (acre-ft)	3681.21	8353.90	920.88
C & E Loss (ft)	0.05	Cum SA (acres)	988.54	941.48	503.75

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	963.96	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.58	Wt. n-Val.		0.036	
W.S. Elev (ft)	963.38	Reach Len. (ft)	470.00	477.46	490.00
Crit W.S. (ft)	958.65	Flow Area (sq ft)		26811.01	
E.G. Slope (ft/ft)	0.001241	Area (sq ft)		26811.01	
Q Total (cfs)	164000.00	Flow (cfs)		164000.00	
Top Width (ft)	3219.77	Top Width (ft)		3219.77	
Vel Total (ft/s)	6.12	Avg. Vel. (ft/s)		6.12	
Max Chl Dpth (ft)	14.68	Hydr. Depth (ft)		8.33	
Conv. Total (cfs)	4655852.0	Conv. (cfs)		4655852.0	
Length Wtd. (ft)	477.46	Wetted Per. (ft)		3243.71	
Min Ch El (ft)	948.70	Shear (lb/sq ft)		0.64	
Alpha	1.00	Stream Power (lb/ft s)		3.92	
Frctn Loss (ft)	0.46	Cum Volume (acre-ft)	290.25	8734.42	30.85
C & E Loss (ft)	0.05	Cum SA (acres)	43.55	941.88	5.87

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 201.9

INPUT
Description: 201.9

Right Channel Bank Staion Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12498	962.4	12680.7	963	12847.7	963.1	13015.1	963.3	13199.8	963.2

13361.7	963.7	13371.9	960.2	13574.5	962.7	13724.8	961.4	13908.8	961.8
14082.1	962.6	14282	963.2	14504.3	963.3	14674.9	963	14875.2	963.6
15026	967.2	15036.6	963.6	15225.9	964.3	15398.3	964.4	15600.8	964.2
15790.8	963.8	15996.8	963.9	16181.7	962.7	16294.9	962.8	16309.4	964.3
16331.6	962	16525.6	962.6	16699.1	963.6	16881.9	964.4	17117.4	963.7
17353.6	965.3	17563.8	966.2	17569	964.3	17769.9	966.6	17941.7	966
17954.3	963.8	18181.9	958.7	18226.6	955.3	18260.2	960.7	18291.8	960.5
18303.9	958.6	18480.2	961.7	18648.9	961.8	18745.5	962	18798.7	956.2
18820.8	957.2	18854.3	951.8	18909.2	955.3	19138.4	956.3	19200	953.3
19336.3	962.3	19389.1	958.9	19449.9	951.5	19624.1	955.9	19782.3	957.2
19911.4	951.6	20081.9	950.6	20221.5	952.6	20269.4	959.3	20331.6	955.1
20356	957.7	20398.9	948.7	20567.7	948.5	20744.7	949.1	20888.3	947.2
20954.4	949.9	21000.8	949	21037.1	957.5	21099.1	956	21139.7	949.7
21300.7	952.4	21411.2	949.7	21444.1	955.9	21487.9	956.1	21503.4	949
21546.8	949	21556.2	952.2	21567.4	960.5	21588	955.9	21628.6	952.2
21667.7	955.7	21698.6	949	21736.9	950	21748.7	952.4	21786.7	952.8
21827.41	963.9	21842	968	21955.2	963.2	21982.2	967.4	22181.8	966
22228.4	965.8	22400.7	965.8	22432.3	965.9	22634.3	966.5	22801.2	966.1
23008.7	966	23096	965.3						

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
12498	.025	17569	.043	17769.9	.043	19389.1	.032	20331.6	.037
21842	.037	21982.2	.025						

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

17954.32	1827.41	500	495.8	500	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
12498	17769.9	968	F
21842.1	23096	968	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	963.35	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.41	Wt. n-Val.		0.036	
W.S. Elev (ft)	962.94	Reach Len. (ft)	500.00	495.80	500.00
Crit W.S. (ft)	957.27	Flow Area (sq ft)		31873.70	
E.G. Slope (ft/ft)	0.000785	Area (sq ft)	1051.08	31873.70	
Q Total (cfs)	164000.00	Flow (cfs)		164000.00	
Top Width (ft)	5241.54	Top Width (ft)	1410.58	3830.97	
Vel Total (ft/s)	5.15	Avg. Vel. (ft/s)		5.15	
Max Chl Dpth (ft)	15.74	Hydr. Depth (ft)		8.32	
Conv. Total (cfs)	5852611.0	Conv. (cfs)		5852611.0	
Length Wtd. (ft)	495.80	Wetted Per. (ft)		3845.63	
Min Ch El (ft)	947.20	Shear (lb/sq ft)		0.41	
Alpha	1.00	Stream Power (lb/ft s)		2.09	
Frctn Loss (ft)	0.34	Cum Volume (acre-ft)	3664.16	8033.81	920.88
C & E Loss (ft)	0.02	Cum SA (acres)	969.48	902.90	503.75

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	963.45	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.40	Wt. n-Val.		0.036	
W.S. Elev (ft)	963.05	Reach Len. (ft)	500.00	495.80	500.00
Crit W.S. (ft)	957.27	Flow Area (sq ft)		32284.29	
E.G. Slope (ft/ft)	0.000756	Area (sq ft)		32284.29	
Q Total (cfs)	164000.00	Flow (cfs)		164000.00	
Top Width (ft)	3830.97	Top Width (ft)		3830.97	
Vel Total (ft/s)	5.08	Avg. Vel. (ft/s)		5.08	
Max Chl Dpth (ft)	15.85	Hydr. Depth (ft)		8.43	
Conv. Total (cfs)	5964132.0	Conv. (cfs)		5964132.0	
Length Wtd. (ft)	495.80	Wetted Per. (ft)		3845.85	
Min Ch El (ft)	947.20	Shear (lb/sq ft)		0.40	
Alpha	1.00	Stream Power (lb/ft s)		2.01	
Frctn Loss (ft)	0.33	Cum Volume (acre-ft)	290.25	8410.55	30.85
C & E Loss (ft)	0.02	Cum SA (acres)	43.55	903.24	5.87

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 201.81

INPUT
Description: 201.81

Left and Right Channel Bank Staions Interpolated
Station Elevation Data num= 98

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12574.1	961.8	12761.8	962	12923.9	962.6	13108.8	962.8	13276.3	963
13435.2	962.8	13461.6	960.9	13640.2	962.7	13758.3	961.2	13887.4	962.7
14049.5	962.4	14230.8	962.1	14408	962.7	14585.1	963.8	14774.2	962.7
14940.9	962.1	15056.2	964.1	15099	967.8	15104.2	963.1	15275.2	964.2
15444.5	964.1	15610.6	963.9	15771.8	963.8	15946.1	963.3	16142.1	962.7
16322.1	962	16382.5	963.6	16475.3	960.8	16709.7	962.1	16947.6	962.4
17136	963	17301	963.8	17538.6	963.1	17700.9	964.2	17890.2	965.6
17935.7	965.61	17946.89	963.6	227	17964	960.6	18130	958	18246.7	956.1
18277.1	959.5	18483.2	960.9	18556.4	960.8	18619.6	964.6	18716.1	963.4
18765	964.3	18860.5	957.6	18955	958.4	19006.4	951.6	19072.9	957.9
19139.8	953.9	19294.5	954.6	19378.9	957.7	19550.9	954.4	19605.4	951.1
19693.5	953.4	19720.4	950.1	19883.7	950.2	20049.4	953	20182.8	953.5
20285.8	953.2	20377.1	957.6	20392.1	962.6	20421.1	948.6	20597	946.8
20665	946.7	20832.3	946.1	20846.8	951.1	20855.6	956.4	20869.8	954.4

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 20881.2   950.3 20908.5   949.6   20924   952.5 20962.6   950.9 21000.7   946.6
 21169.8     946 21187.6   953.2 21244.2   956.3 21263.5   960.4 21295.1   951.3
 21322.9   946.6 21496.1   948.5 21522.9   951.7 21690.5   950.7   21775   950.9
21803.27963.6213   21811   967.1   21860   969.2 21904.1   961.6 21929.9     965
 21975.7   963.6 22175.4   965.3 22352.1     965   22654   963.5 22715.1   963.5
 22875.2   962.8 23093.9   964.4 23169.5   964.2

Manning's n Values        num=       7
     Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val
*********************************************************************************
 12574.1    .025 17700.9    .065 17935.7    .065 19378.9    .032 20392.1    .037
   21860    .025 21975.7    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      17946.8921803.27              535  511.61     515            .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 12574.1 17935.7   969.2       F
 21859.6 23169.5   969.2       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         *  962.99  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.36  * Wt. n-Val.            *          *    0.037 *          *
* W.S. Elev (ft)         *  962.64  * Reach Len. (ft)       *  535.00  *  511.61  *  515.00  *
* Crit W.S. (ft)         *  955.84  * Flow Area (sq ft)     *          * 34251.95 *          *
* E.G. Slope (ft/ft)     *0.000619  * Area (sq ft)          * 1201.75  *34251.95  *    7.18  *
* Q Total (cfs)          *164000.00  * Flow (cfs)          *          *164000.00  *          *
* Top Width (ft)         * 5916.44  * Top Width (ft)       * 2255.78  * 3646.80  *   13.87  *
* Vel Total (ft/s)       *    4.79  * Avg. Vel. (ft/s)     *          *    4.79  *          *
* Max Chl Dpth (ft)      *   16.64  * Hydr. Depth (ft)     *          *    9.39  *          *
* Conv. Total (cfs)      *6592084.0  * Conv. (cfs)         *          *6592084.0  *          *
* Length Wtd. (ft)       *  511.64  * Wetted Per. (ft)     *          * 3662.92  *          *
* Min Ch El (ft)         *  946.00  * Shear (lb/sq ft)     *          *    0.36  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *        *    1.73  *          *
* Frctn Loss (ft)        *    0.51  * Cum Volume (acre-ft)  * 3651.23  * 7657.48  *  920.84  *
* C & E Loss (ft)        *    0.02  * Cum SA (acres)        *  948.44  *  860.35  *  503.67  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)         *  963.10  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.35  * Wt. n-Val.            *          *    0.037 *          *
* W.S. Elev (ft)         *  962.75  * Reach Len. (ft)       *  535.00  *  511.61  *  515.00  *
* Crit W.S. (ft)         *  955.84  * Flow Area (sq ft)     *          * 34684.20 *          *
* E.G. Slope (ft/ft)     *0.000597  * Area (sq ft)          *          *34684.20  *          *
* Q Total (cfs)          *164000.00  * Flow (cfs)          *          *164000.00  *          *
* Top Width (ft)         * 3650.46  * Top Width (ft)       *          * 3650.46  *          *
* Vel Total (ft/s)       *    4.73  * Avg. Vel. (ft/s)     *          *    4.73  *          *
* Max Chl Dpth (ft)      *   16.75  * Hydr. Depth (ft)     *          *    9.50  *          *
* Conv. Total (cfs)      *6711267.0  * Conv. (cfs)         *          *6711267.0  *          *
* Length Wtd. (ft)       *  511.61  * Wetted Per. (ft)     *          * 3666.82  *          *
* Min Ch El (ft)         *  946.00  * Shear (lb/sq ft)     *          *    0.35  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *        *    1.67  *          *
* Frctn Loss (ft)        *    0.49  * Cum Volume (acre-ft)  *  290.25  * 8029.43  *   30.85  *
* C & E Loss (ft)        *    0.03  * Cum SA (acres)        *   43.55  *  860.66  *    5.87  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 201.71

INPUT
Description: 201.71

Left Channel Bank Staion Interpolated
Station Elevation Data    num=      97
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
*********************************************************************************
 12659.2   961.6 12855.6     961   13000     961 13129.9   960.8 13180.2   962.1
 13187.7   959.3 13371.2     960 13521.5   960.3 13689.3   960.5 13844.9   960.6
 13979.7   960.3 14193.8   960.9 14324.5   960.9   14461     961 14593.2   960.9
 14774.5   961.4 14909.4   960.6 15132.5   961.7 15192.9   963.1 15384.5   962.1
 15537.8   962.3 15716.6   961.2 15856.1   961.1 16082.6   960.9 16210.7   961.2
   16383     961 16543.7     961 16684.4   961.3 16813.5   961.2 16941.4   961.7
 17106.2   961.5 17255.2     962 17388.3   961.5 17585.2   961.5 17706.7   962.1
 17766.4   963.8 17769.2   962.5 17794.4   964.5 17957.8   964.3 18096.3   964.8
18107.05962.8899 18140.2     957 18197.6   953.2 18356.6   956.6 18441.5   961.3
 18556.1   957.7 18600.1   958.6 18651.3   956.4 18676.1   956.9   18707   951.3
   18764     957 18831.5   958.2 19007.5   955.3 19076.4     952 19279.5   954.1
 19409.2   953.7 19475.6   949.9 19555.7   955.6 19660.9     959 19739.3   954.2
 19763.1   949.4 19910.3     951 19978.4   951.1 20023.1   954.8   20199     956
 20304.5   951.4 20347.1   954.9 20447.3   951.1 20499.8   956.3 20554.9   954.5
 20692.6   956.1 20848.5   954.8 20899.8   950.2 20984.5   949.7 21011.3     946
 21148.8   948.4 21186.8   951.7 21268.1   954.5   21355   953.1 21433.7   954.9
 21490.6   959.4 21528.5   960.3 21661.1   959.7 21837.7   959.7 21975.8   962.2
   22098   963.6 22111.4   961.1 22160.6   964.1 22190.7   962.9 22353.1   963.4
 22385.7   963.3 22516.6   964.2 22615.8   964.3 22832.1   963.4 22981.6   963.4
 23127.8   962.8   23246     962

Manning's n Values        num=       7
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Post-Project

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
12659.2	.025	17706.7	.065	18096.3	.065	19660.9	.032	20554.9	.037
21355	.025	21528.5	.025						

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
18107.05 21528.5 505 489.63 495 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
12659.2	18096.3	966	F
22098	23246	966	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	962.46	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.59	Wt. n-Val.		0.040	0.025
W.S. Elev (ft)	961.87	Reach Len. (ft)	505.00	489.63	495.00
Crit W.S. (ft)	958.21	Flow Area (sq ft)		25898.28	759.85
E.G. Slope (ft/ft)	0.001826	Area (sq ft)	3860.96	25898.28	766.25
Q Total (cfs)	164000.00	Flow (cfs)		161174.80	2825.19
Top Width (ft)	8308.19	Top Width (ft)	4446.92	3415.69	445.58
Vel Total (ft/s)	6.15	Avg. Vel. (ft/s)		6.22	3.72
Max Chl Dpth (ft)	15.87	Hydr. Depth (ft)		7.58	1.77
Conv. Total (cfs)	3838417.0	Conv. (cfs)		3772294.0	66123.6
Length Wtd. (ft)	489.70	Wetted Per. (ft)		3420.11	428.91
Min Ch El (ft)	946.00	Shear (lb/sq ft)		0.86	0.20
Alpha	1.01	Stream Power (lb/ft s)		5.37	0.75
Frctn Loss (ft)	0.78	Cum Volume (acre-ft)	3620.14	7304.25	916.27
C & E Loss (ft)	0.02	Cum SA (acres)	907.28	818.87	500.95

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	962.58	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.60	Wt. n-Val.		0.040	
W.S. Elev (ft)	961.98	Reach Len. (ft)	505.00	489.63	495.00
Crit W.S. (ft)	958.21	Flow Area (sq ft)		26277.29	
E.G. Slope (ft/ft)	0.001807	Area (sq ft)		26277.29	
Q Total (cfs)	164000.00	Flow (cfs)		164000.00	
Top Width (ft)	3415.69	Top Width (ft)		3415.69	
Vel Total (ft/s)	6.24	Avg. Vel. (ft/s)		6.24	
Max Chl Dpth (ft)	15.98	Hydr. Depth (ft)		7.69	
Conv. Total (cfs)	3858296.0	Conv. (cfs)		3858296.0	
Length Wtd. (ft)	489.63	Wetted Per. (ft)		3421.90	
Min Ch El (ft)	946.00	Shear (lb/sq ft)		0.87	
Alpha	1.00	Stream Power (lb/ft s)		5.41	
Frctn Loss (ft)	0.76	Cum Volume (acre-ft)	290.25	7671.43	30.85
C & E Loss (ft)	0.03	Cum SA (acres)	43.55	819.17	5.87

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 201.62

INPUT
Description: 201.62

Left Channel Bank Station Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12723.6	960.1	12862.6	960.3	13017.9	960.4	13156.4	960.4	13253.3	961.5
13267.4	959	13436.1	959.9	13621.5	960.4	13766.2	960.5	13909.8	960.4
14075.1	960.4	14269.1	960.4	14410.3	960.9	14542.3	960.9	14677.4	961
14845.4	961.8	15072.7	961	15207.9	961.9	15344.9	961.6	15510.2	961.6
15676.2	961	15821	960.6	15995.5	960.4	16157.9	960.8	16296	961.1
16491.6	961.1	16630.4	960.7	16799.9	960.5	16987.6	960.1	17022.4	962
17197.5	958.5	17331.6	959.3	17350.4	962.3	17555	961.1	17693.7	961.5
17788.7	963.5	17792.9	962.2	17963.6	963.3	18107	962.8	18229.7	963.9
18233.5962	1533	18253.2	953.1	18417.5	953.4	18563.5	953.4	18723.5	952.3
18864.3	951.9	18956.1	956.6	19045.2	956.9	19129.4	952.1	19159.3	954.5
19237.7	952.1	19435.3	953.3	19483	951.6	19522	953.4	19577	948.8
19677.3	954.6	19737.2	953.8	19772.7	949.2	19918.1	949.3	20064.6	953.2
20213.3	953.8	20358.7	952.9	20472.9	952	20509.2	950	20584.5	955.3
20619.5	953.2	20653.6	948.7	20723.6	953.3	20794.2	955.3	20904.8	954.6
20962.2	949.9	20990.6	945.6	21150.5	945.9	21165.2	946.9	21199.1	955.3
21351	951.4	21457.3	955.6	21477.5	960.2	21514.2	959.4	21654.6	959.9
21824	959.8	21964.5	960.6	22074.2	961	22085	959.8	22090.5	961.3
22197.1	961.9	22233.4	963.7	22249.4	962.1	22301	963.2	22456.6	963.4
22491.4	963.3	22714.7	962.8	22775.6	962.8	22945.1	962.7	23131.5	962.5
23268.1	960.6	23318.4	961.5						

Manning's n Values num= 9

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
12723.6	.025	16799.9	.15	17197.5	.025	17792.9	.065	18229.7	.065
19577	.032	20509.2	.037	21351	.025	21477.5	.025		

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
18233.5 21477.5 485 486.48 510 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
12723.6	18229.7	965	F
22233.4	23318.4	963.9	F

CROSS SECTION OUTPUT Profile #PF#1

Post-Project

E.G. Elev (ft)	961.66	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.51	Wt. n-Val.		0.041	0.025
W.S. Elev (ft)	961.15	Reach Len. (ft)	485.00	486.48	510.00
Crit W.S. (ft)	956.72	Flow Area (sq ft)		28110.98	662.38
E.G. Slope (ft/ft)	0.001385	Area (sq ft)	2551.77	28110.98	681.56
Q Total (cfs)	164000.00	Flow (cfs)		162456.50	1543.48
Top Width (ft)	7614.80	Top Width (ft)	3690.53	3241.81	682.45
Vel Total (ft/s)	5.70	Avg. Vel. (ft/s)		5.78	2.33
Max Chl Dpth (ft)	15.55	Hydr. Depth (ft)		8.67	1.08
Conv. Total (cfs)	4406350.0	Conv. (cfs)		4364879.0	41470.3
Length Wtd. (ft)	486.98	Wetted Per. (ft)		3247.77	612.70
Min Ch El (ft)	945.60	Shear (lb/sq ft)		0.75	0.09
Alpha	1.02	Stream Power (lb/ft s)		4.33	0.22
Frctn Loss (ft)	0.78	Cum Volume (acre-ft)	3582.97	7000.71	908.04
C & E Loss (ft)	0.02	Cum SA (acres)	860.11	781.46	494.54

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	961.80	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.51	Wt. n-Val.		0.041	
W.S. Elev (ft)	961.28	Reach Len. (ft)	485.00	486.48	510.00
Crit W.S. (ft)	956.72	Flow Area (sq ft)		28552.62	
E.G. Slope (ft/ft)	0.001343	Area (sq ft)		28552.62	
Q Total (cfs)	164000.00	Flow (cfs)		164000.00	
Top Width (ft)	3241.81	Top Width (ft)		3241.81	
Vel Total (ft/s)	5.74	Avg. Vel. (ft/s)		5.74	
Max Chl Dpth (ft)	15.68	Hydr. Depth (ft)		8.81	
Conv. Total (cfs)	4475808.0	Conv. (cfs)		4475808.0	
Length Wtd. (ft)	486.48	Wetted Per. (ft)		3248.99	
Min Ch El (ft)	945.60	Shear (lb/sq ft)		0.74	
Alpha	1.00	Stream Power (lb/ft s)		4.23	
Frctn Loss (ft)	0.77	Cum Volume (acre-ft)	290.25	7363.28	30.85
C & E Loss (ft)	0.01	Cum SA (acres)	43.55	781.75	5.87

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 201.52

INPUT
Description: 201.52

Left Channel Bank Station Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12786.6	960.2	12939.6	960.1	13099	960.1	13244.9	960.2	13300.5	962.8
13357.3	959.7	13501.3	960.4	13678.7	959.8	13830.9	960	14035.1	959.9
14185.2	959.4	14386.6	959.8	14539	959.6	14722.7	959.3	14894.1	959.5
15114.2	959.2	15254.5	962.1	15427.2	959.8	15592.7	959.9	15779.1	959.7
15959.1	959.6	16138.8	959.3	16313.2	960.4	16492.7	958.5	16665.8	959
16834.1	958	17009.5	957.5	17081.3	959.5	17261.7	956	17408.3	957.9
17566	960	17731.1	959.6	17842.3	960.3	17845.2	962.9	17943.7	3961.3971
18009.1	960.4	18087.6	959.9	18104.5	954	18264.9	951.7	18427.6	949.5
18577.1	948.4	18651.6	946.4	18699.1	952.7	18753.8	949	18784.8	949.1
18848.6	953.1	18893.8	954	18925.3	958	19065.9	958.5	19153	954.3
19223.7	956.3	19377	949.7	19404.1	948.6	19480.7	949.5	19540.9	947.7
19607.6	951.7	19748	954.6	19781.1	954.1	19818.6	949.6	19876.6	948.4
19936	956.7	20100.5	954.2	20244	952.7	20403.3	950.4	20550.4	948.2
20608.4	948	20715.6	953.3	20891.6	948.2	20923.4	941.8	20972.4	940.9
20990.6	945.3	21048.3	948	21178	947.3	21216.5	954.8	21254.9	957
21391.4	958.4	21554.4	958	21596.8	958.1	21777.9	958.2	21934.4	958.6
21995.7	958.3	22004.2	960.1	22157.3	959.4	22212.5	961.1	22218.9	959.2
22225.8	961.6	22299.7	963.1	22311.3	960.4	22338.4	962.5	22478.8	962.4
22674.4	962.5	22848.1	961.1	22905.9	961.6	23058.8	963.2	23081.5	963.2
23263.4	961.3	23370	959.8						

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
12786.6	.025	17009.5	.15	17261.7	.025	17845.2	.15	19480.7	.032
20244	.037	21391.4	.025						

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
17943.73	21391.4	495 492.06	495	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
12786.6	17845.2	963.2	F
22212.5	23370	963.2	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	960.87	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.46	Wt. n-Val.		0.049	0.025
W.S. Elev (ft)	960.41	Reach Len. (ft)	495.00	492.06	495.00
Crit W.S. (ft)	955.39	Flow Area (sq ft)		28831.95	1431.09
E.G. Slope (ft/ft)	0.001854	Area (sq ft)	4789.06	28831.95	1448.82
Q Total (cfs)	164000.00	Flow (cfs)		158597.90	5402.08
Top Width (ft)	8984.51	Top Width (ft)	4752.04	3382.87	849.60
Vel Total (ft/s)	5.42	Avg. Vel. (ft/s)		5.50	3.77
Max Chl Dpth (ft)	19.51	Hydr. Depth (ft)		8.52	1.79
Conv. Total (cfs)	3808935.0	Conv. (cfs)		3683471.0	125464.6
Length Wtd. (ft)	492.14	Wetted Per. (ft)		3388.49	798.86
Min Ch El (ft)	940.90	Shear (lb/sq ft)		0.98	0.21

* Alpha	* 1.01	* Stream Power (lb/ft s)	*	* 5.42	* 0.78	*
* Frctn Loss (ft)	* 0.85	* Cum Volume (acre-ft)	* 3542.10	* 6682.74	* 895.57	*
* C & E Loss (ft)	* 0.01	* Cum SA (acres)	* 813.11	* 744.46	* 485.58	*

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 961.02	* Element	* Left OB	* Channel	* Right OB	*
* Vel Head (ft)	* 0.49	* Wt. n-Val.	*	* 0.049	*	*
* W.S. Elev (ft)	* 960.53	* Reach Len. (ft)	* 495.00	* 492.06	* 495.00	*
* Crit W.S. (ft)	* 955.39	* Flow Area (sq ft)	*	*29242.62	*	*
* E.G. Slope (ft/ft)	*0.001898	* Area (sq ft)	*	*29242.62	*	*
* Q Total (cfs)	*164000.00	* Flow (cfs)	*	*164000.00	*	*
* Top Width (ft)	* 3382.85	* Top Width (ft)	*	* 3382.85	*	*
* Vel Total (ft/s)	* 5.61	* Avg. Vel. (ft/s)	*	* 5.61	*	*
* Max Chl Dpth (ft)	* 19.63	* Hydr. Depth (ft)	*	* 8.64	*	*
* Conv. Total (cfs)	*3764143.0	* Conv. (cfs)	*	*3764143.0	*	*
* Length Wtd. (ft)	* 492.06	* Wetted Per. (ft)	*	* 3390.73	*	*
* Min Ch El (ft)	* 940.90	* Shear (lb/sq ft)	*	* 1.02	*	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 5.73	*	*
* Frctn Loss (ft)	* 0.86	* Cum Volume (acre-ft)	* 290.25	* 7040.55	* 30.85	*
* C & E Loss (ft)	* 0.01	* Cum SA (acres)	* 43.55	* 744.76	* 5.87	*

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 201.43

INPUT
Description: 201.43

Left Channel Bank Station Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12790.4	959.2	12931.7	959.4	13106.1	959.5	13261.9	959.6	13426.6	960.3
13574.8	960.1	13719.2	960	13863.6	960.3	14015.4	959.4	14162.1	960.1
14260	960.7	14418.2	961.9	14556.8	961.4	14697.8	960.6	14846.1	959.1
15008.5	959.1	15194.6	958.6	15331.7	959.1	15511.6	959.4	15657.5	959.5
15799.1	959.9	15827.9	961.5	15973.4	960.8	16110.8	960.5	16254.2	959.9
16478.5	958.1	16617.9	958	16780.3	959.8	16924.1	959.3	17061.9	956
17202.1	956.4	17374.3	959	17594.2	959.4	17734	959.4	17844.3	960.3
17853.5	961.9	17859.2	959.6	18001.4	960.7	18014.9960.4907		18053	959.9
18066.9	952.8	18179.7	952.8	18317	950.6	18459.7	949.9	18597.4	947.5
18738.8	948.8	18799.8	954.8	18924.3	958	19076.8	958.9	19195.5	956.6
19253.6	950.7	19403.4	947	19416.1	948.3	19450.8	947.6	19528.4	954.4
19671.9	955.8	19712.9	955.8	19744.1	948.3	19847.5	947.6	19851.7	953.1
19996.8	955.1	20141.7	954.2	20303.2	954.8	20474.6	951.5	20649	946.3
20689.8	947.9	20719.5	943.8	20747.5	947.5	20911.6	947	20951.8	947.8
20976.3	941.3	21080.6	942.7	21100.4	945.1	21136.4	946.2	21179.1	944.6
21271.5	950.5	21342.1	957.5	21353.3	959.8	21363.1	957.2	21516.4	957.7
21676.7	958.3	21814.1	958.7	21883	958.4	22035.4	957.9	22182.8	959.4
22322.3	960.9	22328.9	958.7	22340	962.3	22362.8	960.4	22606.3	961.2
22648.5	961.2	22787	960.2	22945.6	960.3	23094.6	961.1	23289.3	961
23341.9	960.2	23387.4	958.8						

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
12790.4	.043	15827.9	.065	17202.1	.025	17853.5	.15	19253.6	.032
20649	.037	21342.1	.025						

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
18014.9	21342.1	555	519.88	505	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
12790.4	18000	962.3	F
22322.3	23387.4	962.3	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 960.01	* Element	* Left OB	* Channel	* Right OB	*
* Vel Head (ft)	* 0.55	* Wt. n-Val.	*	* 0.042	* 0.025	*
* W.S. Elev (ft)	* 959.46	* Reach Len. (ft)	* 555.00	* 519.88	* 505.00	*
* Crit W.S. (ft)	* 954.87	* Flow Area (sq ft)	*	*26895.29	* 1076.51	*
* E.G. Slope (ft/ft)	*0.001619	* Area (sq ft)	* 1820.20	*26895.29	* 1085.40	*
* Q Total (cfs)	*164000.00	* Flow (cfs)	*	*160971.10	* 3028.85	*
* Top Width (ft)	* 6526.99	* Top Width (ft)	* 2369.07	* 3288.24	* 869.68	*
* Vel Total (ft/s)	* 5.86	* Avg. Vel. (ft/s)	*	* 5.99	* 2.81	*
* Max Chl Dpth (ft)	* 18.16	* Hydr. Depth (ft)	*	* 8.18	* 1.28	*
* Conv. Total (cfs)	*4076199.0	* Conv. (cfs)	*	*4000917.0	* 75281.8	*
* Length Wtd. (ft)	* 519.63	* Wetted Per. (ft)	*	* 3296.86	* 844.04	*
* Min Ch El (ft)	* 941.30	* Shear (lb/sq ft)	*	* 0.82	* 0.13	*
* Alpha	* 1.03	* Stream Power (lb/ft s)	*	* 4.93	* 0.36	*
* Frctn Loss (ft)	* 0.94	* Cum Volume (acre-ft)	* 3504.55	* 6367.99	* 881.17	*
* C & E Loss (ft)	* 0.01	* Cum SA (acres)	* 772.65	* 706.78	* 475.81	*

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 960.15	* Element	* Left OB	* Channel	* Right OB *

				Post-Project		
* Vel Head (ft)	* 0.56	* Wt. n-Val.	*	* 0.042	*	*
* W.S. Elev (ft)	* 959.60	* Reach Len. (ft)	* 555.00	* 519.88	* 505.00	*
* Crit W.S. (ft)	* 954.87	* Flow Area (sq ft)	*	*27334.01	*	*
* E.G. Slope (ft/ft)	*0.001604	* Area (sq ft)	*	*27334.01	*	*
* Q Total (cfs)	*164000.00	* Flow (cfs)	*	*164000.00	*	*
* Top Width (ft)	* 3288.24	* Top Width (ft)	*	* 3288.24	*	*
* Vel Total (ft/s)	* 6.00	* Avg. Vel. (ft/s)	*	* 6.00	*	*
* Max Chl Dpth (ft)	* 18.30	* Hydr. Depth (ft)	*	* 8.31	*	*
* Conv. Total (cfs)	*4094692.0	* Conv. (cfs)	*	*4094692.0	*	*
* Length Wtd. (ft)	* 519.88	* Wetted Per. (ft)	*	* 3299.09	*	*
* Min Ch El (ft)	* 941.30	* Shear (lb/sq ft)	*	* 0.83	*	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 4.98	*	*
* Frctn Loss (ft)	* 0.92	* Cum Volume (acre-ft)	* 290.25	* 6721.00	* 30.85	*
* C & E Loss (ft)	* 0.01	* Cum SA (acres)	* 43.55	* 707.08	* 5.87	*

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 201.33

INPUT
Description: 201.33

Left ChannelBank Station Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12785.7	957.8	12951.9	958.1	13134.4	958.1	13293.5	958.1	13493.4	958.4
13649.5	958.9	13744.1	960.9	13758.6	959.4	13925.5	959	14085.7	958.6
14255.8	961.3	14420.6	961.4	14593.6	961.2	14794.8	960.7	14992.6	959.3
15164	957.6	15345.7	958.5	15520.6	959.3	15694.3	959.9	15854.4	959.9
16014.9	960.3	16184.1	960.4	16362.7	960.3	16517.9	960.6	16680.1	958.6
16837.4	958.7	16937	956.7	17109.2	956.2	17266.3	958.7	17288.5	957.8
17465.9	959.2	17667.7	959	17831.2	959.5	17862	961.6	17929.5	961.8
17948.2	960.4	18049.52	959.5	026 18072.4	959.3	18086.6	953	18242.2	954.4
18398.7	954.5	18556.7	954.3	18607.2	952.5	18626.2	948.5	18634.2	950
18715.7	949.6	18791	954.8	18874.7	955.9	18937.2	954.7	18984.3	948
19116.8	949.1	19140.9	943	19269.7	945.9	19315	948.3	19489.9	950.7
19565.6	952.4	19588.8	955.2	19608.2	948.1	19752.9	948	19806.6	953
19969.5	952.2	20134.6	953.3	20171.4	952.2	20226.7	955.4	20293.9	954.2
20341.3	955.5	20424.9	951.7	20512.5	950.6	20548.8	944.7	20652.6	950
20769.7	946.7	20843.2	955	21006.1	948.3	21057.8	946.6	21076.8	943.6
21236.1	944.8	21304.1	946.3	21310.7	945	21357	957.5	21381.8	958.1
21545.7	957.7	21548.3	957.8	21799.8	956.8	21810.6	956.8	22056.9	957.1
22107.8	957.3	22115	958.6	22356.1	957.9	22513.8	959.5	22624.6	962.2
22794.7	960.7	22966.1	961	23037.1	962.1	23192.4	961.3	23366.6	961.5
23397.6	960.4	23444	960.7						

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
12785.7	.043	15854.4	.065	17266.3	.025	17929.5	.15	19116.8	.032
19315	.037	21381.8	.025						

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
18049.52 21381.8 515 514.62 515 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
12785.7	17929.5	962.2	F
22624.6	23444	962.2	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 959.06	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 0.63	* Wt. n-Val.	*	* 0.042	* 0.025 *
* W.S. Elev (ft)	* 958.44	* Reach Len. (ft)	* 515.00	* 514.62	* 515.00 *
* Crit W.S. (ft)	* 954.88	* Flow Area (sq ft)	*	*25245.53	* 889.59 *
* E.G. Slope (ft/ft)	*0.002024	* Area (sq ft)	* 944.14	*25245.53	* 889.59 *
* Q Total (cfs)	*164000.00	* Flow (cfs)	*	*161537.10	* 2462.93 *
* Top Width (ft)	* 5745.25	* Top Width (ft)	* 1467.85	* 3307.46	* 969.94 *
* Vel Total (ft/s)	* 6.28	* Avg. Vel. (ft/s)	*	* 6.40	* 2.77 *
* Max Chl Dpth (ft)	* 15.44	* Hydr. Depth (ft)	*	* 7.63	* 0.92 *
* Conv. Total (cfs)	*3645795.0	* Conv. (cfs)	*	*3591043.0	* 54752.0 *
* Length Wtd. (ft)	* 514.63	* Wetted Per. (ft)	*	* 3316.01	* 970.05 *
* Min Ch El (ft)	* 943.00	* Shear (lb/sq ft)	*	* 0.96	* 0.12 *
* Alpha	* 1.03	* Stream Power (lb/ft s)	*	* 6.15	* 0.32 *
* Frctn Loss (ft)	* 1.00	* Cum Volume (acre-ft)	* 3486.94	* 6056.85	* 869.72 *
* C & E Loss (ft)	* 0.01	* Cum SA (acres)	* 748.21	* 667.42	* 465.14 *

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 959.23	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 0.63	* Wt. n-Val.	*	* 0.042	*
* W.S. Elev (ft)	* 958.60	* Reach Len. (ft)	* 515.00	* 514.62	* 515.00 *
* Crit W.S. (ft)	* 954.88	* Flow Area (sq ft)	*	*25785.53	*
* E.G. Slope (ft/ft)	*0.001959	* Area (sq ft)	*	*25785.53	*
* Q Total (cfs)	*164000.00	* Flow (cfs)	*	*164000.00	*
* Top Width (ft)	* 3307.45	* Top Width (ft)	*	* 3307.45	*
* Vel Total (ft/s)	* 6.36	* Avg. Vel. (ft/s)	*	* 6.36	*
* Max Chl Dpth (ft)	* 15.60	* Hydr. Depth (ft)	*	* 7.80	*
* Conv. Total (cfs)	*3705386.0	* Conv. (cfs)	*	*3705386.0	*
* Length Wtd. (ft)	* 514.62	* Wetted Per. (ft)	*	* 3316.67	*
* Min Ch El (ft)	* 943.00	* Shear (lb/sq ft)	*	* 0.95	*

Post-Project

* Alpha	*	1.00	* Stream Power (lb/ft s)	*	*	6.05	*	*
* Frctn Loss (ft)	*	0.96	* Cum Volume (acre-ft)	*	290.25	*	6404.02	*	30.85	*
* C & E Loss (ft)	*	0.01	* Cum SA (acres)	*	43.55	*	667.72	*	5.87	*

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 201.24

INPUT
Description: 201.24

Left Channel Bank Station Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12806	955.8	12962.7	956.3	13145.6	957.3	13331.4	956.5	13517.2	956.2
13697.1	957.3	13855.5	957.4	14010.3	957	14164.7	956.7	14318.4	958.2
14482	958.5	14660	956.8	14688.4	957.7	14821.8	955.2	14989	957.8
15156	956.9	15324.8	957.6	15476.8	959	15632.7	959.6	15787	959.8
15939.5	959	16132.2	958.4	16296.2	957.9	16464.6	957.9	16632.1	958.1
16801.9	956.7	16986.8	954.6	17117.8	954.3	17180.2	958.7	17353.5	957.6
17566.1	957.4	17719.1	957.9	17947.6	957.8	18063.5	959.9	18067.36	958.4367
18084.6	951.9	18123.2	954.4	18273.7	954.7	18463.7	954.1	18640.4	954.1
18769.1	951.5	18834.7	946.6	18852.7	947.7	18957	944.8	19101.5	944.9
19190.4	949.6	19365.4	949.8	19479.4	950.7	19501.5	945.5	19659.5	947.2
19709.9	951	19861.9	951.5	20036.3	950.6	20116.5	953	20174.4	956.4
20272.4	956.3	20322.3	953.3	20397.8	952.3	20534.1	946.8	20728.3	949.3
20901.9	952.6	21060.4	953.1	21108.8	948.4	21143.3	943.1	21322.6	943
21477	945.1	21515.7	945.4	21547.4	956.4	21570	957.6	21573.6	955.3
21742.9	955.8	21840.8	955.8	22073.6	956.2	22315.2	956.6	22474.6	957.8
22660.5	959.5	22837.1	960.3	23006	960.7	23189	960.3	23372.7	959.3
23535.3	958.6	23693.7	960.2	23701.8	958.7	23728.6	959.3	23733.9	957.9
23745.1	960.6	23895.9	959.5	24055.3	959.7	24212	959	24364.3	958.6
24523.2	960	24683.9	959.1	24867.9	960.4	25044.2	960.6	25240.9	961.6
25449.6	962.7	25490	964.7						

Manning's n Values num= 9

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
12806	.043	16132.2	.065	17180.2	.025	17947.6	.15	18063.5	.15
18957	.037	19659.5	.032	20174.4	.037	21570	.025		

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
18067.36	21570	485 488.56	490	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
12806	18063.5	964.7	F
23006	25490	964.7	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	*	958.06	* Element	*	Left OB	*	Channel	*	Right OB	*	
* Vel Head (ft)	*	0.59	* Wt. n-Val.	*		*	0.040	*	0.025	*	
* W.S. Elev (ft)	*	957.46	* Reach Len. (ft)	*	485.00	*	488.56	*	490.00	*	
* Crit W.S. (ft)	*	953.61	* Flow Area (sq ft)	*		*	25746.25	*	1138.86	*	
* E.G. Slope (ft/ft)	*	0.001852	* Area (sq ft)	*	2208.10	*	25746.25	*	1138.86	*	
* Q Total (cfs)	*	164000.00	* Flow (cfs)	*		*	160488.90	*	3511.11	*	
* Top Width (ft)	*	6935.04	* Top Width (ft)	*	2577.63	*	3497.54	*	859.88	*	
* Vel Total (ft/s)	*	6.10	* Avg. Vel. (ft/s)	*		*	6.23	*	3.08	*	
* Max Chl Dpth (ft)	*	14.46	* Hydr. Depth (ft)	*		*	7.36	*	1.32	*	
* Conv. Total (cfs)	*	3811227.0	* Conv. (cfs)	*		*	3729632.0	*	81595.2	*	
* Length Wtd. (ft)	*	488.58	* Wetted Per. (ft)	*		*	3502.73	*	860.52	*	
* Min Ch El (ft)	*	943.00	* Shear (lb/sq ft)	*		*	0.85	*	0.15	*	
* Alpha	*	1.03	* Stream Power (lb/ft s)	*		*	5.30	*	0.47	*	
* Frctn Loss (ft)	*	0.68	* Cum Volume (acre-ft)	*	3468.30	*	5755.64	*	857.73	*	
* C & E Loss (ft)	*	0.05	* Cum SA (acres)	*	724.29	*	627.23	*	454.33	*	

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	*	958.26	* Element	*	Left OB	*	Channel	*	Right OB	*	
* Vel Head (ft)	*	0.60	* Wt. n-Val.	*		*	0.040	*		*	
* W.S. Elev (ft)	*	957.66	* Reach Len. (ft)	*	485.00	*	488.56	*	490.00	*	
* Crit W.S. (ft)	*	953.61	* Flow Area (sq ft)	*		*	26420.07	*		*	
* E.G. Slope (ft/ft)	*	0.001790	* Area (sq ft)	*		*	26420.07	*		*	
* Q Total (cfs)	*	164000.00	* Flow (cfs)	*		*	164000.00	*		*	
* Top Width (ft)	*	3500.08	* Top Width (ft)	*		*	3500.08	*		*	
* Vel Total (ft/s)	*	6.21	* Avg. Vel. (ft/s)	*		*	6.21	*		*	
* Max Chl Dpth (ft)	*	14.66	* Hydr. Depth (ft)	*		*	7.55	*		*	
* Conv. Total (cfs)	*	3876386.0	* Conv. (cfs)	*		*	3876386.0	*		*	
* Length Wtd. (ft)	*	488.56	* Wetted Per. (ft)	*		*	3505.53	*		*	
* Min Ch El (ft)	*	943.00	* Shear (lb/sq ft)	*		*	0.84	*		*	
* Alpha	*	1.00	* Stream Power (lb/ft s)	*		*	5.23	*		*	
* Frctn Loss (ft)	*	0.65	* Cum Volume (acre-ft)	*	290.25	*	6095.64	*	30.85	*	
* C & E Loss (ft)	*	0.06	* Cum SA (acres)	*	43.55	*	627.51	*	5.87	*	

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 201.14

INPUT
Description: 201.14

Left Channel Bank Station Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12823.9	955.7	12999.4	956.2	13212.7	955.6	13428.9	956	13645.2	955.7
13816.9	955.8	13992.2	956	14163.4	956.5	14335.2	955.8	14527.3	956.5
14708.6	956.3	14909.6	955.2	15093.8	955.5	15267	954.8	15439.6	956.4
15609.9	956.4	15791	956.8	15950.3	959	16129.2	957.7	16303.6	956
16475	953.7	16660.8	955	16839.9	953.5	17004.5	951.4	17082.5	958.8
17162.8	956.1	17184.4	958.7	17362.4	957.4	17598.4	957.1	17832.2	956.8
18017.1	960	18032	960.21	8037.86	957.9	083	18056.8	950.5	18241.1	949.4
18415.6	950.8	18585.7	951.8	18725.4	952.4	18733.1	949.9	18790.6	949.1
18818.8	941.6	18850.4	943.3	18986.4	943.9	19077.9	949.8	19149.1	948.9
19305.2	951	19389.8	945.3	19562.7	946.4	19610	949.5	19790.7	949.7
19961	950.3	20069.8	955.8	20203.6	953.6	20241.8	949.2	20445.4	947.5
20553.6	952	20738.9	949.5	20840.4	947.3	20887.4	943.5	20941.4	948.4
20992.7	949.8	21019.8	942	21063.4	942.9	21079.7	945.4	21128.6	946
21160	941.1	21202.5	940.4	21278.6	945.6	21455.1	945.3	21569.3	940.9
21644.4	944.5	21697.9	954.5	21721	955.2	21725.6	953.1	21741.2	955
22051.3	955.9	22155.8	956.1	22389.7	956.4	22512.4	956.8	22725.1	956.9
22832.8	959	22857.1	957	23030.8	959	23238.6	958.8	23414	958.9
23606.9	957.7	23803.1	958	24052.9	958.2	24291.1	958.1	24471.3	958.5
24625.1	958.9	24632.8	957.3	24637.8	958.9	24815.7	959.6	25013.4	960.6
25215.4	961.6	25365.2	962.4						

Manning's n Values num= 8

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
12823.9	.043	16303.6	.065	17184.4	.025	18032	.15	18850.4	.037
19610	.032	20553.6	.037	21721	.025				

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
18037.86 21721 480 481.53 485 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
12823.9	18032	962.4	F
22832.8	25365.2	962.4	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	957.32	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.42	Wt. n-Val.		0.040	0.025
W.S. Elev (ft)	956.91	Reach Len. (ft)	480.00	481.53	485.00
Crit W.S. (ft)	952.08	Flow Area (sq ft)		31262.79	806.56
E.G. Slope (ft/ft)	0.001090	Area (sq ft)	5150.77	31262.79	806.56
Q Total (cfs)	164000.00	Flow (cfs)		162632.90	1367.12
Top Width (ft)	8631.33	Top Width (ft)	3946.34	3680.58	1004.42
Vel Total (ft/s)	5.11	Avg. Vel. (ft/s)		5.20	1.70
Max Chl Dpth (ft)	16.51	Hydr. Depth (ft)		8.49	0.80
Conv. Total (cfs)	4966393.0	Conv. (cfs)		4924992.0	41400.3
Length Wtd. (ft)	481.58	Wetted Per. (ft)		3687.66	1004.99
Min Ch El (ft)	940.40	Shear (lb/sq ft)		0.58	0.05
Alpha	1.03	Stream Power (lb/ft s)		3.00	0.09
Frctn Loss (ft)	0.50	Cum Volume (acre-ft)	3427.33	5435.94	846.79
C & E Loss (ft)	0.03	Cum SA (acres)	687.97	586.97	443.84

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	957.55	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.40	Wt. n-Val.		0.040	
W.S. Elev (ft)	957.15	Reach Len. (ft)	480.00	481.53	485.00
Crit W.S. (ft)	952.08	Flow Area (sq ft)		32150.13	
E.G. Slope (ft/ft)	0.001017	Area (sq ft)		32150.13	
Q Total (cfs)	164000.00	Flow (cfs)		164000.00	
Top Width (ft)	3680.58	Top Width (ft)		3680.58	
Vel Total (ft/s)	5.10	Avg. Vel. (ft/s)		5.10	
Max Chl Dpth (ft)	16.75	Hydr. Depth (ft)		8.74	
Conv. Total (cfs)	5142934.0	Conv. (cfs)		5142934.0	
Length Wtd. (ft)	481.53	Wetted Per. (ft)		3689.85	
Min Ch El (ft)	940.40	Shear (lb/sq ft)		0.55	
Alpha	1.00	Stream Power (lb/ft s)		2.82	
Frctn Loss (ft)	0.47	Cum Volume (acre-ft)	290.25	5767.18	30.85
C & E Loss (ft)	0.03	Cum SA (acres)	43.55	587.24	5.87

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 201.05

INPUT
Description: 201.05

Left Channel Bank Station Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12848.3	954.5	13055.4	953.7	13276.2	955.4	13483.1	957.1	13684.3	954.7
13886.2	954.5	14079.9	955	14267.8	955.7	14489.3	955.5	14686	954.3
14893.9	954.8	15093.5	953.8	15286.8	955	15508	955.8	15694.8	955.4
15890.9	955.3	16093.3	955.3	16296.5	955.9	16489.7	956.3	16687.2	954.3
16876.1	953.1	17029.6	951.4	17090	955.6	17177.7	953.2	17211.7	959.1

17239.8	956.7	17474.3	956.9	17712.8	956.3	17920.1	957.3	17947.8	957.7		
17948.21	957.514	17963.9	950.4	18149.7	948.9	18366.7	949.3	18552.6	947.7		
18642	947.2	18662.5	941.8	18877.7	942.9	18965.7	942.8	19025.5	948.9		
19069.3	949.7	19115	948	19146.2	943.8	19305.4	944.7	19341.4	942.6		
19450.5	944.4	19486	951.1	19656.3	948.4	19742.2	949.2	19800.5	946.7		
19926.9	951	19979.4	950.2	20027.5	955.4	20105.3	953.3	20157.5	947.1		
20233.6	946.1	20272.3	948.2	20302.6	946.7	20402.5	950.2	20615.4	948.5		
20746.4	950.2	20793.3	949	20816.3	941.7	20964.1	941.5	20993.4	945.9		
21193.9	949.2	21384.8	948.9	21582.1	946	21750.2	942.4	21815.9	945.1		
21849	955.5	21881.2	953.7	21901.6	955.1	21907	953.3	21990.8	953.6		
22189.8	954.8	22244.5	955.2	22537.9	955.5	22570.5	955.5	22835	955.8		
22894.6	957.1	22905.9	959	22934.1	957.4	23165.2	957.6	23380	958		
23414	957	23451.8	959.3	23684.3	956.6	23933.2	957	24126.1	957.5		
24400	957.7	24595.1	958.4	24603.3	957.1	24622.7	959.8	24638.5	957.6		
24836.5	959.9	24997.1	961.2								

Manning's n Values num= 8

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
12848.3	.043	16687.2	.15	17177.7	.025	17947.8	.15	18965.7	.037
19486	.032	20402.5	.037	21849	.025				

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

17948.21	21849		520	512.89	510	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
12848.3	17947.8	961.2	F
22905.9	24997.1	961.2	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	956.80	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.31	Wt. n-Val.		0.045	0.025
W.S. Elev (ft)	956.49	Reach Len. (ft)	520.00	512.89	510.00
Crit W.S. (ft)	950.99	Flow Area (sq ft)		35607.62	1502.82
E.G. Slope (ft/ft)	0.000974	Area (sq ft)	6743.27	35607.62	1502.82
Q Total (cfs)	164000.00	Flow (cfs)		160385.10	3614.90
Top Width (ft)	9249.94	Top Width (ft)	4334.00	3898.52	1017.42
Vel Total (ft/s)	4.42	Avg. Vel. (ft/s)		4.50	2.41
Max Chl Dpth (ft)	14.99	Hydr. Depth (ft)		9.13	1.48
Conv. Total (cfs)	5254537.0	Conv. (cfs)		5138716.0	115820.9
Length Wtd. (ft)	512.83	Wetted Per. (ft)		3906.11	1017.82
Min Ch El (ft)	941.50	Shear (lb/sq ft)		0.55	0.09
Alpha	1.02	Stream Power (lb/ft s)		2.50	0.22
Frctn Loss (ft)	0.41	Cum Volume (acre-ft)	3361.80	5066.33	833.93
C & E Loss (ft)	0.01	Cum SA (acres)	642.35	545.08	432.59

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	957.06	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.31	Wt. n-Val.		0.045	
W.S. Elev (ft)	956.74	Reach Len. (ft)	520.00	512.89	510.00
Crit W.S. (ft)	950.99	Flow Area (sq ft)		36618.90	
E.G. Slope (ft/ft)	0.000928	Area (sq ft)		36618.90	
Q Total (cfs)	164000.00	Flow (cfs)		164000.00	
Top Width (ft)	3898.52	Top Width (ft)		3898.52	
Vel Total (ft/s)	4.48	Avg. Vel. (ft/s)		4.48	
Max Chl Dpth (ft)	15.24	Hydr. Depth (ft)		9.39	
Conv. Total (cfs)	5383665.0	Conv. (cfs)		5383665.0	
Length Wtd. (ft)	512.89	Wetted Per. (ft)		3907.62	
Min Ch El (ft)	941.50	Shear (lb/sq ft)		0.54	
Alpha	1.00	Stream Power (lb/ft s)		2.43	
Frctn Loss (ft)	0.39	Cum Volume (acre-ft)	290.25	5387.08	30.85
C & E Loss (ft)	0.01	Cum SA (acres)	43.55	545.35	5.87

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 200.95

INPUT
Description: 200.95

Left Channel Bank Station Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12874.8	952.5	13039.9	952	13212.3	952.3	13372.8	953.5	13537.8	953.7
13708.5	953.7	13872.8	954	14042.5	953.4	14205.3	953.3	14401.9	953.5
14603.1	953.1	14762	954.2	14934	952.2	15127.8	952.8	15312.6	953.8
15422.3	957.2	15583	954.7	15746.4	955	15906.8	956.3	15988.2	955.4
16164.6	957.4	16332.4	957.6	16504.4	956.6	16673	957.2	16861.4	956.7
17049	953.4	17207.8	951.7	17274	955.6	17440.2	954.4	17613.5	957.4
17631.7	953.8	17653.9	958.1	17824.4	958	17905.8	956.9	18917952.4	956.3
17964.6	951.3	18135.4	946.6	18219.9	947	18317.2	949.6	18410.9	946.7
18428.8	949	18651.9	947.8	18690.8	946.2	18729.3	940.1	18914	943.4
19040.9	943.9	19102.9	941.9	19126.2	943.3	19190.9	941.9	19216.4	943.8
19237.2	941.5	19420.9	944.3	19517.6	943.7	19555.3	947.7	19758.1	946.5
19818.9	950.2	19947.1	951.5	20006.8	955.9	20184.2	954.1	20323.1	951.3
20414.3	945.7	20527.8	944.2	20653.3	949.4	20684.2	940.5	20842.4	942.7
20989.1	947.8	21069.4	948.4	21262.3	947.7	21448.8	948.8	21631.4	946.7
21802	942.6	21869.1	939.8	21909.3	943.4	21954	953.2	22148.5	954.1
22306.3	954	22378	955.4	22594.8	954	22757.8	954.9	22935.8	954.8
23107.3	956.2	23275.4	955.9	23411.6	954.8	23573.4	957.7	23629.1	956.7
23796.3	955.8	23971.7	955.8	24129.8	956	24294.4	955.8	24466.5	955.4

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 24623.6   955.4   24630   955.3 24639.7   957.8 24648.4   954.6 24662.5   958.2
 24836.4   959.8 24988.3   960.7

Manning's n Values        num=       6
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************************************************
 12874.8    .043 17824.4     .15 18729.3    .037 19517.6    .032 20323.1    .037
   21954    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       17905.8   21954             475  474.38     480             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 12874.8 17824.4   960.7       F
   23100 24988.3   960.7       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         *  956.38  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.29  * Wt. n-Val.            *          *   0.041  *   0.035  *
* W.S. Elev (ft)         *  956.09  * Reach Len. (ft)       *  475.00  *  474.38  *  480.00  *
* Crit W.S. (ft)         *  949.86  * Flow Area (sq ft)     *          *37268.25  * 1788.89  *
* E.G. Slope (ft/ft)     *0.000668  * Area (sq ft)          * 8739.61  *37268.25  * 2273.76  *
* Q Total (cfs)          *164000.00  * Flow (cfs)           *          *161348.80  * 2651.20  *
* Top Width (ft)         *10045.22  * Top Width (ft)       * 3687.99  * 4001.09  * 2356.15  *
* Vel Total (ft/s)       *    4.20  * Avg. Vel. (ft/s)     *          *    4.33  *    1.48  *
* Max Chl Dpth (ft)      *   16.29  * Hydr. Depth (ft)     *          *    9.31  *    1.57  *
* Conv. Total (cfs)      *6344019.0  * Conv. (cfs)         *          *6241462.0  *102556.5  *
* Length Wtd. (ft)       *  474.50  * Wetted Per. (ft)     *          * 4006.72  * 1140.01  *
* Min Ch El (ft)         *  939.80  * Shear (lb/sq ft)     *          *    0.39  *    0.07  *
* Alpha                  *    1.05  * Stream Power (lb/ft s) *        *    1.68  *    0.10  *
* Frctn Loss (ft)        *    0.44  * Cum Volume (acre-ft)  * 3269.39  * 4637.30  *  811.82  *
* C & E Loss (ft)        *    0.00  * Cum SA (acres)        *  594.47  *  498.58  *  412.84  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)         *  956.66  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.28  * Wt. n-Val.            *          *   0.041  *          *
* W.S. Elev (ft)         *  956.38  * Reach Len. (ft)       *  475.00  *  474.38  *  480.00  *
* Crit W.S. (ft)         *  949.86  * Flow Area (sq ft)     *          *38407.73  *          *
* E.G. Slope (ft/ft)     *0.000629  * Area (sq ft)          *          *38407.73  *          *
* Q Total (cfs)          *164000.00  * Flow (cfs)           *          *164000.00  *          *
* Top Width (ft)         * 4001.09  * Top Width (ft)       *          * 4001.09  *          *
* Vel Total (ft/s)       *    4.27  * Avg. Vel. (ft/s)     *          *    4.27  *          *
* Max Chl Dpth (ft)      *   16.58  * Hydr. Depth (ft)     *          *    9.60  *          *
* Conv. Total (cfs)      *6536869.0  * Conv. (cfs)         *          *6536869.0  *          *
* Length Wtd. (ft)       *  474.38  * Wetted Per. (ft)     *          * 4010.18  *          *
* Min Ch El (ft)         *  939.80  * Shear (lb/sq ft)     *          *    0.38  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *        *    1.61  *          *
* Frctn Loss (ft)        *    0.41  * Cum Volume (acre-ft)  *  290.25  * 4945.39  *   30.85  *
* C & E Loss (ft)        *    0.00  * Cum SA (acres)        *   43.55  *  498.84  *    5.87  *
*********************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 200.86

INPUT
Description: 200.86

Left Channel Bank Station Interpolated
Station Elevation Data    num=      98
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
   12893   952.7 13071.4   952.1 13217.7   954.6 13366.3   951.7 13513.8   953.9
   13666   954.4 13820.1   953.4 13963.2   953.3   14149   953.3 14333.5   952.5
 14509.1   952.1 14688.3   953.1 14861.7   952.4 15054.1   951.6 15210.6   951.7
 15424.6     955 15571.3   952.8 15782.9   955.2 16020.2   955.6 16192.2   953.9
 16399.2   952.8 16559.9     953 16714.8   953.3 16760.5   954.7 16916.6   953.9
 17003.1   954.6 17168.1   950.1 17285.1   949.5 17360.5   954.6 17520.2     953
 17694.7     956 17869.8     957 17934.1   958.117992.44956.5698 17995.1   956.5
   17996956.3408 18052.8   946.3 18288.3   948.1 18449.5   947.1 18628.5   947.7
   18762   951.3 18912.7   950.4 19061.6   946.8   19092   945.3 19141.3   938.5
 19175.6   940.7 19336.6   941.9 19619.6   944.7 19730.8   944.7 19826.2   949.9
 19922.8   951.3 20011.5   955.4 20112.1   951.4 20184.7   943.1   20254   952.1
 20308.4   952.8 20438.4   949.3 20464.9   944.1 20568.6   943.9 20744.1   941.1
 20840.6   941.3 20896.7   945.9 20979.1   947.3   21100   946.2 21279.3   951.2
 21459.1   946.8 21602.1   945.3 21642.4   941.5 21792.5   940.9 21831.9   940.3
 21865.4   942.7   21898     952   22032   954.1 22187.6   953.7 22377.3   953.4
 22522.7   953.4 22725.4   952.8 22947.9   954.9 23137.5     955 23294.6   956.1
 23413.1   955.8   23420   954.5 23482.2   956.5 23641.6   956.7 23647.7   954.4
   23806   955.4 23951.6   954.9   24112   954.8 24269.9   954.6 24426.7   954.8
 24604.6   954.9 24656.8   954.3 24670.5   956.8 24680.8     954 24693.9   958.2
 24856.4   958.5 25029.7     959   25175   960.2

Manning's n Values        num=       6
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************************************************
   12893    .043 17934.1     .15 19619.6    .032 20308.4    .037   21898    .035
   22032    .035
```

Post-Project

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
17996 22032 525 523.32 525 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
12893	17750	960.2	F
23360	25175	960.2	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	955.94	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.31	Wt. n-Val.		0.053	0.035
W.S. Elev (ft)	955.63	Reach Len. (ft)	525.00	523.32	525.00
Crit W.S. (ft)	949.69	Flow Area (sq ft)	11394.54	35548.44	2898.59
E.G. Slope (ft/ft)	0.001346	Area (sq ft)			
Q Total (cfs)	164000.00	Flow (cfs)		159393.20	4606.83
Top Width (ft)	11080.59	Top Width (ft)	4780.42	4032.00	2268.17
Vel Total (ft/s)	4.36	Avg. Vel. (ft/s)		4.48	2.24
Max Chl Dpth (ft)	17.13	Hydr. Depth (ft)		8.82	1.72
Conv. Total (cfs)	4470468.0	Conv. (cfs)		4344891.0	125577.2
Length Wtd. (ft)	523.36	Wetted Per. (ft)		4037.40	1196.09
Min Ch El (ft)	938.50	Shear (lb/sq ft)		0.74	0.14
Alpha	1.03	Stream Power (lb/ft s)		3.32	0.32
Frctn Loss (ft)	0.59	Cum Volume (acre-ft)	3159.61	4240.80	783.33
C & E Loss (ft)	0.00	Cum SA (acres)	548.30	454.83	387.36

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	956.24	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.31	Wt. n-Val.		0.053	
W.S. Elev (ft)	955.94	Reach Len. (ft)	525.00	523.32	525.00
Crit W.S. (ft)	949.69	Flow Area (sq ft)		36762.91	
E.G. Slope (ft/ft)	0.001276	Area (sq ft)		36762.91	
Q Total (cfs)	164000.00	Flow (cfs)		164000.00	
Top Width (ft)	4032.00	Top Width (ft)		4032.00	
Vel Total (ft/s)	4.46	Avg. Vel. (ft/s)		4.46	
Max Chl Dpth (ft)	17.44	Hydr. Depth (ft)		9.12	
Conv. Total (cfs)	4591685.0	Conv. (cfs)		4591685.0	
Length Wtd. (ft)	523.32	Wetted Per. (ft)		4039.54	
Min Ch El (ft)	938.50	Shear (lb/sq ft)		0.72	
Alpha	1.00	Stream Power (lb/ft s)		3.23	
Frctn Loss (ft)	0.55	Cum Volume (acre-ft)	290.25	4536.07	30.85
C & E Loss (ft)	0.00	Cum SA (acres)	43.55	455.10	5.87

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 200.77

INPUT
Description: 200.77
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12925.1	950.1	13101.8	952.3	13250.4	951	13436.7	950.7	13651.1	951.4
13804.4	951.9	14027	953.4	14249.5	951.8	14401.1	950.7	14592.6	949.7
14752.3	950.6	14873.3	950.3	15006	952.1	15110.8	950.9	15249.1	953.3
15443.8	954.5	15631.2	955.3	15702.9	951.3	15936.9	951	16108.8	954.5
16172	955.8	16295.1	951.4	16462	950.7	16530.6	949.9	16652.3	952.8
16854.8	954	17022.2	952.1	17185.4	949.9	17349.4	948.1	17402.8	955.2
17473.6	951.6	17660.6	954.4	17828.8	955.3	17926.5	954	17969.3	948
18147.9	944.4	18302.9	946.4	18524.1	946.1	18650.9	949	18815.8	948.8
18902.5	949.8	18913.4	952	19097	950.8	19277	951.3	19280.8	951.9
19280.9	949.5	19321.8	951.3	19557.8	943.7	19720.4	945.1	19857.8	946.5
19911.9	942.9	19989.5	951.1	20140.5	950.2	20288.5	945.2	20339.4	948.6
20362.3	944.7	20388.7	942.6	20487.8	944	20788	936.9	20804.9	937.1
20829.2	942.4	20906.3	944.7	21056	944.4	21222.9	942.6	21375.1	940.2
21524.6	940.4	21559.7	941	21581	950.6	21785.8	951.3	21951	952.4
22102.3	952.1	22329.8	953.2	22461	953	22651.4	953.3	22824.9	954.7
23050.7	954.8	23217.5	954.9	23380.5	954.5	23421.7	954.3	23434.6	956
23439.7	954.3	23489.2	957.2	23506.4	952.5	23514.1	955.4	23706.9	954.3
23876.7	954.3	24057.8	954.4	24216.1	954.4	24385.4	954.2	24554.4	953.9
24685.3	953.1	24698.2	956.8	24704.7	952.7	24723.6	958.6	24886.7	958.9
24978	959.5								

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
12925.1	.043	17828.8	.15	19321.8	.032	19857.8	.037	21785.8	.025
21951	.035								

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
17828.8 21951 500 495.64 520 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
12925.1	17630	960	F
23630	24978	960	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	955.35	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.33	Wt. n-Val.	0.043	0.043	0.035
W.S. Elev (ft)	955.02	Reach Len. (ft)	500.00	495.64	520.00
Crit W.S. (ft)	949.21	Flow Area (sq ft)	62.55	34826.94	1951.25
E.G. Slope (ft/ft)	0.000950	Area (sq ft)	14814.58	34826.94	2840.32
Q Total (cfs)	164000.00	Flow (cfs)	37.64	160936.30	3026.04

			Post-Project		
* Top Width (ft)	*11449.90	* Top Width (ft)	* 4718.53	* 4101.49	* 2629.89 *
* Vel Total (ft/s)	* 4.45	* Avg. Vel. (ft/s)	* 0.60	* 4.62	* 1.55 *
* Max Chl Dpth (ft)	* 18.12	* Hydr. Depth (ft)	* 0.42	* 8.49	* 1.25 *
* Conv. Total (cfs)	*5320745.0	* Conv. (cfs)	* 1221.1	*5221349.0	* 98175.5 *
* Length Wtd. (ft)	* 496.09	* Wetted Per. (ft)	* 147.30	* 4108.72	* 1557.74 *
* Min Ch El (ft)	* 936.90	* Shear (lb/sq ft)	* 0.03	* 0.50	* 0.07 *
* Alpha	* 1.06	* Stream Power (lb/ft s)	* 0.02	* 2.32	* 0.12 *
* Frctn Loss (ft)	* 0.55	* Cum Volume (acre-ft)	* 3001.67	* 3818.06	* 748.74 *
* C & E Loss (ft)	* 0.01	* Cum SA (acres)	* 491.06	* 405.98	* 357.84 *

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

* E.G. Elev (ft)	* 955.70	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 0.32	* Wt. n-Val.	*	* 0.043	* *
* W.S. Elev (ft)	* 955.38	* Reach Len. (ft)	* 500.00	* 495.64	* 520.00 *
* Crit W.S. (ft)	* 949.21	* Flow Area (sq ft)	*	*36283.86	* *
* E.G. Slope (ft/ft)	*0.000875	* Area (sq ft)	*	*36283.86	* *
* Q Total (cfs)	*164000.00	* Flow (cfs)	*	*164000.00	* *
* Top Width (ft)	* 4122.20	* Top Width (ft)	*	* 4122.20	* *
* Vel Total (ft/s)	* 4.52	* Avg. Vel. (ft/s)	*	* 4.52	* *
* Max Chl Dpth (ft)	* 18.48	* Hydr. Depth (ft)	*	* 8.80	* *
* Conv. Total (cfs)	*5545445.0	* Conv. (cfs)	*	*5545445.0	* *
* Length Wtd. (ft)	* 495.65	* Wetted Per. (ft)	*	* 4132.49	* *
* Min Ch El (ft)	* 936.90	* Shear (lb/sq ft)	*	* 0.48	* *
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 2.17	* *
* Frctn Loss (ft)	* 0.50	* Cum Volume (acre-ft)	* 290.25	* 4097.29	* 30.85 *
* C & E Loss (ft)	* 0.00	* Cum SA (acres)	* 43.55	* 406.12	* 5.87 *

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 200.67

INPUT
Description: 200.67
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12952.7	947.8	13129.5	948.3	13308.2	948.8	13483.1	949.2	13641	952.6
13766	952	13870.6	949.3	14073.7	950.3	14282	951.5	14535.6	948.8
14746.4	948.7	14899.4	949.8	15045.4	950.6	15138.5	953.1	15312.3	952.8
15471.5	952.2	15651.1	951.4	15730.3	949.9	15964.5	954	16199.7	953.8
16438.6	948.9	16643.2	952.3	16796.2	954	17002.3	953.9	17133.8	952.2
17211.9	946.7	17315.9	947	17376.2	954.8	17384.7	952.3	17551.8	953.1
17732.2	954.1	17919.3	952.9	17950	943.8	18101.5	944.9	18330.6	947.4
18498.9	943.9	18565	943.8	18742.3	948.8	18888.2	952	18925.4	946.6
18962.8	948.9	19023.7	947.4	19040.9	949.6	19238.5	952.4	19366.3	948.8
19569.2	947.1	19719.3	940.8	19796.7	942.1	19832.7	943.8	19969	943
20047.1	949	20111	948.4	20263	939.8	20444.8	942.7	20609	942.6
20782.8	941.1	20963.8	942.2	20998.9	941.8	21090.6	944.3	21256.2	942.8
21298.3	943.3	21316	950.6	21367.7	945.7	21427.5	950.4	21604	951.9
21649.3	952.3	21939.5	952.7	21971.5	952.7	22194	953.4	22217.8	954.7
22233.1	953	22256.3	952.8	22476.8	953.9	22513.4	953.9	22711.5	955.1
22773.4	955.2	22873.4	959.1	23051.6	959.3	23158.6	956.6	23168.5	958.8
23393.6	957.5	23430	957.4	23431.7	955.9	23584.2	954.6	23749.1	953.9
23939.2	954	24125.4	954.8	24292.4	954.6	24492.9	954.3	24643.7	954.1
24725.3	954.1	24731.8	955.7	24741.4	953.7	24755.2	960.7	24923	959.7
24996.7	960								

Manning's n Values num= 8

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
12952.7	.043	17919.3	.15	18962.8	.032	19040.9	.15	19366.3	.032
20263	.043	21604	.025	21649.3	.025				

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
17919.3 21649.3 500 503.34 510 .1 .3

Ineffective Flow num= 3

Sta L	Sta R	Elev	Permanent
12952.7	17540	960	F
22230	23500	960	F
23915	24996.7	960	F

CROSS SECTION OUTPUT Profile #PF#1

* E.G. Elev (ft)	* 954.80	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 0.38	* Wt. n-Val.	* 0.043	* 0.047	* 0.025 *
* W.S. Elev (ft)	* 954.42	* Reach Len. (ft)	* 500.00	* 503.34	* 510.00 *
* Crit W.S. (ft)	* 948.98	* Flow Area (sq ft)	* 337.22	*32402.02	* 1045.48 *
* E.G. Slope (ft/ft)	*0.001288	* Area (sq ft)	*15971.37	*32402.02	* 1461.47 *
* Q Total (cfs)	*164000.00	* Flow (cfs)	* 386.70	*160716.40	* 2896.93 *
* Top Width (ft)	*10368.24	* Top Width (ft)	* 4962.41	* 3730.00	* 1675.83 *
* Vel Total (ft/s)	* 4.85	* Avg. Vel. (ft/s)	* 1.15	* 4.96	* 2.77 *
* Max Chl Dpth (ft)	* 14.62	* Hydr. Depth (ft)	* 0.89	* 8.69	* 1.21 *
* Conv. Total (cfs)	*4569344.0	* Conv. (cfs)	* 10774.2	*4477856.0	* 80713.9 *
* Length Wtd. (ft)	* 503.48	* Wetted Per. (ft)	* 379.31	* 3734.79	* 862.41 *
* Min Ch El (ft)	* 939.80	* Shear (lb/sq ft)	* 0.07	* 0.70	* 0.10 *
* Alpha	* 1.03	* Stream Power (lb/ft s)	* 0.08	* 3.46	* 0.27 *
* Frctn Loss (ft)	* 0.65	* Cum Volume (acre-ft)	* 2824.98	* 3435.59	* 723.07 *
* C & E Loss (ft)	* 0.00	* Cum SA (acres)	* 435.50	* 361.42	* 332.14 *

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid,

water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	955.20	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.36	Wt. n-Val.	0.043	0.047	
W.S. Elev (ft)	954.84	Reach Len. (ft)	500.00	503.34	510.00
Crit W.S. (ft)	948.98	Flow Area (sq ft)	341.27	33939.87	
E.G. Slope (ft/ft)	0.001158	Area (sq ft)	341.27	33939.87	
Q Total (cfs)	164000.00	Flow (cfs)	457.27	163542.70	
Top Width (ft)	4009.30	Top Width (ft)	279.30	3730.00	
Vel Total (ft/s)	4.78	Avg. Vel. (ft/s)	1.34	4.82	
Max Chl Dpth (ft)	15.04	Hydr. Depth (ft)	1.22	9.10	
Conv. Total (cfs)	4819677.0	Conv. (cfs)	13438.4	4806238.0	
Length Wtd. (ft)	503.33	Wetted Per. (ft)	280.55	3737.32	
Min Ch El (ft)	939.80	Shear (lb/sq ft)	0.09	0.66	
Alpha	1.01	Stream Power (lb/ft s)	0.12	3.16	
Frctn Loss (ft)	0.59	Cum Volume (acre-ft)	288.29	3697.77	30.85
C & E Loss (ft)	0.00	Cum SA (acres)	41.94	361.45	5.87

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 200.58

INPUT
Description: 200.58

Right Channel Bank Station Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
13004.2	946.1	13252.7	946	13406.6	945.2	13565.9	944.9	13774.2	944.6
13943.1	945.5	14116.9	945	14279.1	946.6	14438.8	947.7	14609	948.4
14768.3	947.1	14929	947.1	15050.5	947.2	15202.4	950.2	15286.6	950.1
15344.6	952	15501.3	950.2	15638.8	948.6	15758.4	951.1	15992.6	950.5
16109.8	952.6	16227.7	949.4	16451.3	948.4	16610.1	950.8	16708	953.4
16925.1	953.5	17149.3	953.1	17163.9	953.3	17234.2	944.5	17318.9	945.5
17387.8	953.1	17544.8	952.5	17768	953.3	17947	953.3	18120.4	944.7
18239.5	947	18479.6	944.5	18689.4	943	18899.8	947.1	18982.6	947.4
19060.5	950.5	19193.4	946.5	19239.2	951	19272	950.3	19281	947.8
19435	949.5	19481.5	950.8	19780.1	939.9	19839	939.1	20105.5	937.6
20341.3	941.2	20411.6	945.7	20456.8	943.9	20469.2	941.9	20590	941.2
20660	946.3	20712.1	943.5	20803.5	943.1	20830.7	941.2	21002.3	943.4
21117.8	946.3	21272	946.4	21425	950.4	21450	950.6	21452	950.7
21643	952.3	21667.2	952.4	21820.3	952	21847.8	952	22017.1	952.7
22213.8	952.2	22244.2	960.6	22257.8	957.2	22270.2	958.5	22289.1	952.8
22392.9	953.3	22566.6	953.5	22797.3	954.2	22998.5	955.3	23151	955.4
23322.6	954.9	23399.1	953.2	23498	953.6	23506	952.3	23516.9	955.5
23555.1	955.9	23578.4	953.2	23779.1	953.4	23989.5	954.5	24174.8	954.3
24351.4	954.1	24538.2	953.8	24699.8	953.7	24771.3	955.3	24776.5	952.9
24795.5	960.4	24969.5	959.5						

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
13004.2	.15	14609	.043	17947	.15	19481.5	.032	20105.5	.043
21425	.025	21643	.025						

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
17947	21450	475 479.55	530	.1	.3

Ineffective Flow num= 3

Sta L	Sta R	Elev	Permanent
13004.2	17460	960	F
22800	23380	960	F
24200	24969.5	960	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	954.14	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.39	Wt. n-Val.	0.043	0.048	0.025
W.S. Elev (ft)	953.76	Reach Len. (ft)	475.00	479.55	530.00
Crit W.S. (ft)	948.29	Flow Area (sq ft)	366.16	31612.27	1563.34
E.G. Slope (ft/ft)	0.001313	Area (sq ft)	23418.66	31612.27	1568.20
Q Total (cfs)	164000.00	Flow (cfs)	379.05	159405.60	4215.36
Top Width (ft)	10091.02	Top Width (ft)	4942.80	3503.00	1645.22
Vel Total (ft/s)	4.89	Avg. Vel. (ft/s)	1.04	5.04	2.70
Max Chl Dpth (ft)	16.16	Hydr. Depth (ft)	0.75	9.02	1.02
Conv. Total (cfs)	4526509.0	Conv. (cfs)	10462.2	4399700.0	116346.8
Length Wtd. (ft)	481.45	Wetted Per. (ft)	487.00	3505.02	1540.52
Min Ch El (ft)	937.60	Shear (lb/sq ft)	0.06	0.74	0.08
Alpha	1.04	Stream Power (lb/ft s)	0.06	3.73	0.22
Frctn Loss (ft)	0.53	Cum Volume (acre-ft)	2598.92	3065.74	705.33
C & E Loss (ft)	0.02	Cum SA (acres)	378.65	319.63	312.70

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	954.60	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.37	Wt. n-Val.	0.043	0.048	
W.S. Elev (ft)	954.23	Reach Len. (ft)	475.00	479.55	530.00
Crit W.S. (ft)	948.29	Flow Area (sq ft)	521.74	33271.84	
E.G. Slope (ft/ft)	0.001187	Area (sq ft)	521.74	33271.84	
Q Total (cfs)	164000.00	Flow (cfs)	697.49	163302.50	
Top Width (ft)	3940.00	Top Width (ft)	437.00	3503.00	
Vel Total (ft/s)	4.85	Avg. Vel. (ft/s)	1.34	4.91	

```
                                                                    Post-Project
* Max Chl Dpth (ft)      *   16.63  * Hydr. Depth (ft)       *    1.19  *    9.50  *          *
* Conv. Total (cfs)      *4759369.0  * Conv. (cfs)           * 20241.6  *4739127.0  *          *
* Length Wtd. (ft)       *  479.52  * Wetted Per. (ft)       *  438.60  * 3508.58  *          *
* Min Ch El (ft)         *  937.60  * Shear (lb/sq ft)       *    0.09  *    0.70  *          *
* Alpha                  *    1.02  * Stream Power (lb/ft s) *    0.12  *    3.45  *          *
* Frctn Loss (ft)        *    0.49  * Cum Volume (acre-ft)   *  283.34  * 3309.45  *   30.85  *
* C & E Loss (ft)        *    0.01  * Cum SA (acres)         *   37.83  *  319.66  *    5.87  *
*********************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                 RS: 200.49

INPUT
Description: 200.49
Station Elevation Data    num=      96
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
 13048.9   945.6 13261.8   944.9 13471.4   944.9 13640.6   945.6 13821.9   945.7
 13998.1   945.5 14204.4   944.8 14399.4   943.8 14586.6   943.4 14763.6     943
 14951.3   943.1 15156.1   943.2 15371.2   945.2 15548.1   948.1 15769.6   946.9
 15979.3   948.4 16200.3   947.6 16375.3   947.1 16493.4     953   16719   952.8
 16949.5     951 17106.4   951.7 17132.4   947.4   17168   952.5 17198.4   950.8
 17234.4   945.1 17404.6   947.6 17536.5   952.7 17719.3   953.3 17750.3   952.7
 17791.5   947.5 17816.7   949.6 17852.9     949 17862.5   950.8 18012.9   951.3
 18153.1   947.1 18273.7   941.6 18480.3   943.2 18739.9     945 18856.4   944.7
 19028.1   939.7   19085   944.7 19190.4   945.3 19261.7   948.1 19342.5   943.7
 19490.6   939.8   19542   943.5 19650.1   948.1 19854.1   940.8 19947.1   937.5
   20192   936.9 20201.4   940.9 20275.4   939.8 20324.1     944 20367.7   939.3
 20425.1   937.8   20452   941.7 20573.6   946.4 20608.5   941.9   20627   944.1
 20638.3   940.9 20706.1   939.4 20811.1   939.3 20837.1   942.5 20956.7   943.3
 20975.1   941.9 21136.8   944.8   21171   950.3 21342.1   950.2 21559.3   950.8
 21830.5   950.9 21861.8   951.1 21876.9   959.1 21891.8     959 21905.4   951.7
 22133.6   952.2   22336   952.4 22590.8   952.7 22633.1   952.7 22813.2   952.3
 23018.2   953.8 23185.8   954.6 23401.6   954.5   23519     954 23540.6   951.9
 23589.4   954.7 23609.6     952 23780.4   952.4 23946.1   952.4   24145   952.4
 24343.4   952.9 24514.6   953.3 24725.8   953.2 24810.9   953.5 24835.6     958
 24956.8   957.1

Manning's n Values        num=       7
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************************************************
 13048.9     .15 15548.1    .043 17719.3    .043 18273.7     .15 19342.5    .032
   20192    .043   21171    .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       17719.3   21171             510  497.59     510              .1       .3
Ineffective Flow     num=       4
   Sta L   Sta R    Elev  Permanent
 13048.9   17380     960       F
   21840   22160     960       F
   22950   23300     960       F
   24485 24956.8     960       F

CROSS SECTION OUTPUT  Profile #PF#1
*********************************************************************************************
* E.G. Elev (ft)         *  953.59  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.32  * Wt. n-Val.             *   0.043  *   0.047  *   0.025  *
* W.S. Elev (ft)         *  953.28  * Reach Len. (ft)        *  510.00  *  497.59  *  510.00  *
* Crit W.S. (ft)         *  946.97  * Flow Area (sq ft)      *  607.04  *33688.59  * 3074.81  *
* E.G. Slope (ft/ft)     *0.000940  * Area (sq ft)           *29543.49  *33688.59  * 3468.71  *
* Q Total (cfs)          *164000.00  * Flow (cfs)           *  961.51  *154777.40  * 8261.14  *
* Top Width (ft)         *10978.11  * Top Width (ft)        * 4663.19  * 3450.48  * 2864.45  *
* Vel Total (ft/s)       *    4.39  * Avg. Vel. (ft/s)      *    1.58  *    4.59  *    2.69  *
* Max Chl Dpth (ft)      *   16.38  * Hydr. Depth (ft)      *    1.83  *    9.76  *    1.29  *
* Conv. Total (cfs)      *5347928.0  * Conv. (cfs)          * 31354.1  *5047184.0  *269389.9  *
* Length Wtd. (ft)       *  498.40  * Wetted Per. (ft)      *  332.19  * 3455.46  * 2378.92  *
* Min Ch El (ft)         *  936.90  * Shear (lb/sq ft)      *    0.11  *    0.57  *    0.08  *
* Alpha                  *    1.05  * Stream Power (lb/ft s) *    0.17  *    2.63  *    0.20  *
* Frctn Loss (ft)        *    0.41  * Cum Volume (acre-ft)  * 2310.15  * 2706.29  *  674.69  *
* C & E Loss (ft)        *    0.01  * Cum SA (acres)        *  326.27  *  281.36  *  285.27  *
*********************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*********************************************************************************************
* E.G. Elev (ft)         *  954.10  * Element                *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.33  * Wt. n-Val.             *   0.043  *   0.047  *          *
* W.S. Elev (ft)         *  953.77  * Reach Len. (ft)        *  510.00  *  497.59  *  510.00  *
* Crit W.S. (ft)         *  946.97  * Flow Area (sq ft)      *  775.44  *35402.63  *          *
* E.G. Slope (ft/ft)     *0.000893  * Area (sq ft)           *  775.44  *35402.63  *          *
* Q Total (cfs)          *164000.00  * Flow (cfs)           * 1371.76  *162628.30  *          *
* Top Width (ft)         * 3791.00  * Top Width (ft)        *  339.30  * 3451.70  *          *
* Vel Total (ft/s)       *    4.53  * Avg. Vel. (ft/s)      *    1.77  *    4.59  *          *
* Max Chl Dpth (ft)      *   16.87  * Hydr. Depth (ft)      *    2.29  *   10.26  *          *
* Conv. Total (cfs)      *5487085.0  * Conv. (cfs)          * 45896.2  *5441189.0  *          *
* Length Wtd. (ft)       *  497.80  * Wetted Per. (ft)      *  345.94  * 3460.15  *          *
* Min Ch El (ft)         *  936.90  * Shear (lb/sq ft)      *    0.13  *    0.57  *          *
* Alpha                  *    1.02  * Stream Power (lb/ft s) *    0.22  *    2.62  *          *
* Frctn Loss (ft)        *    0.39  * Cum Volume (acre-ft)  *  276.27  * 2931.44  *   30.85  *
* C & E Loss (ft)        *    0.01  * Cum SA (acres)        *   33.60  *  281.38  *    5.87  *
*********************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION
```

RIVER: 1
REACH: 1 RS: 200.39

INPUT
Description: 200.39
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
13083.9	945.2	13254.6	945.3	13486.8	945.5	13742.8	945.8	14008.5	946
14273.9	945.9	14454.3	945.6	14637.7	945.4	14834.7	945.2	15022.8	944.7
15192.5	944.4	15417.5	944.4	15642.9	944.4	15819.7	943.9	16016.8	943.5
16254.5	943.6	16478.3	943.8	16652.7	943.9	16819.7	947.8	16875.2	949.8
16928.9	948.8	16992.7	951.1	17168.8	950.1	17242.1	945	17439	948.6
17484.9	949	17507.9	946.2	17527.7	949.5	17682.5	952.2	17714.9	945.6
17726.7	949.9	17781	947.5	17966.7	946.8	18026.8	945.7	18050.3	941.5
18183	941.3	18379.8	942.6	18534.2	941	18751.2	942.5	18800.2	941.7
18918.7	944.9	19025.6	941.5	19161.9	944.8	19220.8	943.5	19267.5	947.7
19444.5	940.9	19506.7	939	19763.7	940.6	19785	940.5	20110.3	939.9
20152.6	937	20199	940.6	20240.6	941.7	20272.3	938.7	20460.6	948.4
20515.5	946.8	20585.3	946.5	20659.8	939.5	20714.2	938.7	20742	943.3
20788.5	938.9	20812.7	939.9	20854.3	937.8	20978.7	940.9	21041	951.3
21062	949.6	21134.2	949.8	21326.6	949.6	21342.1	949.6	21606.3	951
21865.7	950.7	21893.4	950.9	21911.5	958	21918.5	956.7	21925.9	957.8
21937.7	950.6	22152.6	950.7	22336.4	951.5	22566.3	951.6	22807.6	951.9
23031.4	952.1	23203.3	953.2	23429.6	953.3	23573.8	952	23600	955.9
23653.9	951.2	23829	950.5	24004.5	950.7	24185.9	951.4	24362.4	951.7
24572.6	951.5	24742.1	951.6	24842.9	953.7	24848.9	951.1	24857.3	956.6
24952.5	957.6								

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
13083.9	.15	16875.2	.043	17682.5	.043	18751.2	.15	19506.7	.032
20199	.043	21041	.025						

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
17682.5 21041 550 506.5 480 .1 .3

Ineffective Flow num= 3

Sta L	Sta R	Elev	Permanent
13080	17300	960	F
21400	22680	960	F
24775	24952.5	960	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	953.17	Element	Left OB	Channel / Right OB
Vel Head (ft)	0.28	Wt. n-Val.	0.043	0.045 / 0.025
W.S. Elev (ft)	952.89	Reach Len. (ft)	550.00	506.50 / 480.00
Crit W.S. (ft)	946.26	Flow Area (sq ft)	1497.02	34887.88 / 3429.20
E.G. Slope (ft/ft)	0.000739	Area (sq ft)	33168.13	34887.88 / 5797.26
Q Total (cfs)	164000.00	Flow (cfs)	3488.42	151819.00 / 8692.53
Top Width (ft)	11315.74	Top Width (ft)	4598.60	3358.50 / 3358.64
Vel Total (ft/s)	4.12	Avg. Vel. (ft/s)	2.33	4.35 / 2.53
Max Chl Dpth (ft)	15.89	Hydr. Depth (ft)	3.91	10.39 / 1.65
Conv. Total (cfs)	6034760.0	Conv. (cfs)	128364.4	5586533.0 / 319861.9
Length Wtd. (ft)	507.09	Wetted Per. (ft)	382.99	3363.45 / 2078.59
Min Ch El (ft)	937.00	Shear (lb/sq ft)	0.18	0.48 / 0.08
Alpha	1.06	Stream Power (lb/ft s)	0.42	2.08 / 0.19
Frctn Loss (ft)	0.54	Cum Volume (acre-ft)	1943.04	2314.62 / 620.44
C & E Loss (ft)	0.02	Cum SA (acres)	272.06	242.47 / 248.84

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	953.70	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.29	Wt. n-Val.	0.043	0.045	
W.S. Elev (ft)	953.40	Reach Len. (ft)	550.00	506.50	480.00
Crit W.S. (ft)	946.26	Flow Area (sq ft)	1694.62	36622.89	
E.G. Slope (ft/ft)	0.000702	Area (sq ft)	1694.62	36622.89	
Q Total (cfs)	164000.00	Flow (cfs)	4130.06	159869.90	
Top Width (ft)	3741.00	Top Width (ft)	382.50	3358.50	
Vel Total (ft/s)	4.28	Avg. Vel. (ft/s)	2.44	4.37	
Max Chl Dpth (ft)	16.40	Hydr. Depth (ft)	4.43	10.90	
Conv. Total (cfs)	6188329.0	Conv. (cfs)	155842.5	6032486.0	
Length Wtd. (ft)	508.20	Wetted Per. (ft)	390.34	3365.56	
Min Ch El (ft)	937.00	Shear (lb/sq ft)	0.19	0.48	
Alpha	1.02	Stream Power (lb/ft s)	0.46	2.08	
Frctn Loss (ft)	0.49	Cum Volume (acre-ft)	261.81	2520.06	30.85
C & E Loss (ft)	0.02	Cum SA (acres)	29.37	242.48	5.87

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 200.3

INPUT
Description: 200.3
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
13125.5	945.5	13316	945.5	13495.7	945.7	13687.9	945.9	13882.5	945.7
14123.9	945.2	14361.2	945.8	14546.2	945.8	14737.5	945.3	14938.1	945.4
15122.2	945.1	15335	945.6	15433	945.6	15567.6	939.4	15743.1	943.1
15926.3	943.9	16194.5	945.4	16429.4	944.1	16628.2	944	16879.3	943.5

17113.8	942.4	17377.6	941.9	17498.6	943.3	17607.2	938.9	17628.8	936.3
17658.3	936.3	17675	944.5	17697.5	951.2	17780.4	950.6	17838.1	947
17867.7	942.5	17967.1	945	18084.3	942	18261.2	944.6	18437.1	945.1
18628.2	943.1	18829.4	943.7	19025	944.9	19214.9	946.9	19248.3	947.6
19276.7	941.7	19395.7	940.8	19474.4	946.5	19525.1	941.1	19863.4	942.3
20078.8	940.7	20263.9	939.9	20310.8	939.3	20322.1	942.6	20372.8	938
20488.5	939.3	20499.7	937.7	20594.1	938.9	20626.9	940.5	20657.3	939.8
20690.1	946.3	20711.8	945.7	20725.9	942.7	20819.1	942.7	20861.5	948.6
20879.4	947.5	20896	957	20906	955	20980	955.9	20990	954.6
21051.2	955.9	21071.8	953.9	21206.4	955	21247.3	956.9	21438.7	956
21607.6	952.1	21652.6	956.5	21832	957.6	22017.2	957.7	22136.9	954
22358.1	956.8	22480.5	957.8	22661.3	957.9	22684.8	957.8	22918.3	956.9
22985.5	956.5	23086.3	950.7	23165.3	950.8	23400.3	954	23576.8	954.1
23691	953.2	23717.5	950.5	23919.1	949.7	24108.8	949.5	24379.6	950.1
24590.3	950.3	24795.9	950.7	24878.3	952.9	24883.6	950.7	24903	957.1
24983.7	956.7								

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
13125.5	.15	17780.4	.15	18261.2	.065	19395.7	.032	20263.9	.043
20896	.043	21206.4	.053						

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
17780.4	20896	520 515.72	560	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
13125	17205	960	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	952.61	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.49	Wt. n-Val.	0.150	0.046	0.053
W.S. Elev (ft)	952.12	Reach Len. (ft)	520.00	515.72	560.00
Crit W.S. (ft)	947.18	Flow Area (sq ft)	5257.79	28732.01	2497.26
E.G. Slope (ft/ft)	0.001603	Area (sq ft)	35712.51	28732.01	2497.26
Q Total (cfs)	179750.00	Flow (cfs)	9082.61	166347.00	4320.39
Top Width (ft)	9118.91	Top Width (ft)	4654.90	3107.07	1356.93
Vel Total (ft/s)	4.93	Avg. Vel. (ft/s)	1.73	5.79	1.73
Max Chl Dpth (ft)	15.82	Hydr. Depth (ft)	9.14	9.25	1.84
Conv. Total (cfs)	4488975.0	Conv. (cfs)	226824.0	4154256.0	107895.0
Length Wtd. (ft)	517.47	Wetted Per. (ft)	578.54	3112.25	1357.60
Min Ch El (ft)	937.70	Shear (lb/sq ft)	0.91	0.92	0.18
Alpha	1.29	Stream Power (lb/ft s)	1.57	5.35	0.32
Frctn Loss (ft)	0.93	Cum Volume (acre-ft)	1508.19	1944.74	574.75
C & E Loss (ft)	0.01	Cum SA (acres)	213.64	204.88	222.85

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	953.18	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.46	Wt. n-Val.	0.150	0.046	
W.S. Elev (ft)	952.73	Reach Len. (ft)	520.00	515.72	560.00
Crit W.S. (ft)	947.17	Flow Area (sq ft)	5605.86	30611.86	
E.G. Slope (ft/ft)	0.001382	Area (sq ft)	5605.86	30611.86	
Q Total (cfs)	179750.00	Flow (cfs)	9271.11	170478.90	
Top Width (ft)	3683.53	Top Width (ft)	575.40	3108.13	
Vel Total (ft/s)	4.96	Avg. Vel. (ft/s)	1.65	5.57	
Max Chl Dpth (ft)	16.43	Hydr. Depth (ft)	9.74	9.85	
Conv. Total (cfs)	4835241.0	Conv. (cfs)	249391.0	4585850.0	
Length Wtd. (ft)	516.00	Wetted Per. (ft)	589.04	3113.47	
Min Ch El (ft)	937.70	Shear (lb/sq ft)	0.82	0.85	
Alpha	1.20	Stream Power (lb/ft s)	1.36	4.72	
Frctn Loss (ft)	0.80	Cum Volume (acre-ft)	215.72	2129.17	30.85
C & E Loss (ft)	0.01	Cum SA (acres)	23.33	204.89	5.87

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 200.2

INPUT
Description: 200.2

Left Channel Bank Station Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
13153.3	944.6	13349.8	941	13453.5	941.7	13506.2	944.4	13667.2	944.5
13896.4	944.4	14116.1	944.3	14330.9	944.2	14491.6	944.1	14677.3	943.8
14757.1	939.6	14939.8	944.1	15110.7	943.8	15278.6	943.3	15461.1	943.2
15632.4	943.3	15866.9	943.9	16084.9	943.3	16260.8	943.4	16458.2	942.6
16696.4	943.8	16928.4	942.2	17115942.0292		17146.9	942	17406.4	942.7
17643.4	942.6	17703.7	941.7	17728.1	936.2	17754.7	936.2	17774.2	941
17960.5	949.6	18052.3	948	18086.8	939.2	18113.1	940.7	18233.7	939.8
18402.1	943	18511.7	944.8	18531.7	941.8	18707.3	944.7	18794.8	941.3
19017.2	943.2	19081.1	945.2	19247.5	944.2	19313.2	945.7	19482.3	942.9
19591.6	942.6	20062.3	940.4	20235.8	940	20296.5	940.6	20329.2	937.6
20402.2	940.4	20578.4	937.9	20633	938.7	20676	937	20686.1	939.7
20744	948	20822.3	948	20949.1	954.9	21027.6	947.5	21215	947.3
21338.5	947.2	21527.5	948.5	21746	948.8	21841.7	948.3	22059	949.1
22185.4	949.1	22507.1	948.8	22551.2	949	22836.7	949.8	22992.3	949.2
23156.3	950.7	23327.5	950.2	23492.3	951.2	23633.4	950.7	23641.6	948.8
23667.9	953.3	23785.4	949.4	23980	949	24145.7	948.5	24326	947.5
24336.6	946.6	24353.9	949.4	24529.6	949.2	24626.1	949.5	24679.5	947.3
24861.6	949.3	24983.4	948.5	24990.2	949.6	24999.2	947	25138.6	950

25169.5	955.5	25202.4	950.9	25239.2	950	25434.2	953.6	25474.7	955.9		
25481.6	954.7	25498.7	958.4								

Manning's n Values num= 8

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
13153.3	.15	17960.5	.15	18233.7	.065	19482.3	.032	20235.8	.043
20744	.043	21215	.025	23667.9	.053				

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
17960.5	20744	535 525.73	515	.1	.3

Ineffective Flow num= 3

Sta L	Sta R	Elev	Permanent
13150	17115	960	F
20744	23100	960	F
25169.5	25498.7	960	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	951.67	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.56	Wt. n-Val.	0.150	0.046	0.051
W.S. Elev (ft)	951.10	Reach Len. (ft)	535.00	525.73	515.00
Crit W.S. (ft)	946.78	Flow Area (sq ft)	7123.41	24953.69	3542.48
E.G. Slope (ft/ft)	0.002027	Area (sq ft)	37700.66	24953.69	9020.27
Q Total (cfs)	179750.00	Flow (cfs)	13140.99	158890.60	7718.37
Top Width (ft)	11857.73	Top Width (ft)	4807.20	2783.50	4267.03
Vel Total (ft/s)	5.05	Avg. Vel. (ft/s)	1.84	6.37	2.18
Max Chl Dpth (ft)	14.90	Hydr. Depth (ft)	8.43	8.96	1.84
Conv. Total (cfs)	3992119.0	Conv. (cfs)	291851.9	3528848.0	171419.5
Length Wtd. (ft)	525.91	Wetted Per. (ft)	846.90	2786.31	1924.34
Min Ch El (ft)	937.00	Shear (lb/sq ft)	1.06	1.13	0.23
Alpha	1.43	Stream Power (lb/ft s)	1.96	7.22	0.51
Frctn Loss (ft)	0.98	Cum Volume (acre-ft)	1070.00	1626.94	500.71
C & E Loss (ft)	0.03	Cum SA (acres)	157.16	170.01	186.70

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	952.38	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.55	Wt. n-Val.	0.150	0.046	
W.S. Elev (ft)	951.83	Reach Len. (ft)	535.00	525.73	515.00
Crit W.S. (ft)	946.77	Flow Area (sq ft)	7740.51	26985.25	
E.G. Slope (ft/ft)	0.001732	Area (sq ft)	7740.51	26985.25	
Q Total (cfs)	179750.00	Flow (cfs)	13843.60	165906.40	
Top Width (ft)	3629.00	Top Width (ft)	845.50	2783.50	
Vel Total (ft/s)	5.18	Avg. Vel. (ft/s)	1.79	6.15	
Max Chl Dpth (ft)	15.63	Hydr. Depth (ft)	9.15	9.69	
Conv. Total (cfs)	4319022.0	Conv. (cfs)	332633.1	3986389.0	
Length Wtd. (ft)	526.30	Wetted Per. (ft)	856.71	2790.14	
Min Ch El (ft)	937.00	Shear (lb/sq ft)	0.98	1.05	
Alpha	1.31	Stream Power (lb/ft s)	1.75	6.43	
Frctn Loss (ft)	0.81	Cum Volume (acre-ft)	136.06	1788.21	30.85
C & E Loss (ft)	0.04	Cum SA (acres)	14.85	170.01	5.87

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 200.1

INPUT
Description: 200.1
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
13401.5	961.6	13404.9	959.9	13406.7	957.2	13436.1	949.3	13438.3	947.2
13608.9	944.8	13771.4	944.1	13861.6	946.2	14093.6	944.2	14363	943.5
14599.1	944	14804.9	943.5	14985.6	943.6	15188.8	942.7	15425.2	942.8
15650.8	942.8	15834.1	942.9	16015.4	942.8	16214.7	941.9	16467.4	941.6
16641.3	942.8	16821.1	944	17077.9	942.2	17313	941.7	17523.7	941.6
17672.5	940.7	17733.3	943.5	17903.5	943	18097	942	18197	940.9
18244	934.9	18278.2	934.7	18280	936.9	18289	936.2	18327.6	941.8
18505.3	941.8	18602	941.2	18752.8	944.8	18927.6	940.3	19044.3	938.9
19072.3	941.3	19130.7	943	19301.3	943.1	19402.1	944.8	19524.2	937.7
19631.9	945.9	19875.1	939.3	20104.9	934.9	20306.5	934.5	20329.5	935.2
20520.9	935.5	20604.1	936.7	20643	947.2	20857.2	946.5	21112.6	946.5
21165.6	945.5	21339.7	946.3	21499.9	947.4	21673.2	947.4	21692.7	947.4
21938.1	947.6	21976.2	947.6	22310	947.7	22366.6	947.7	22620.5	948
22748	948.7	23104.3	950.4	23323.4	950.8	23521	950.1	23671.5	950.7
23677.2	948.1	23730.1	951.6	23754.2	948.1	23760.8	950.1	23949.5	948.5
24132.7	948.8	24309.4	949	24354.9	949.5	24372.1	946.9	24561.3	948.7
24717.9	946.9	24773.6	949.1	24952.8	948.5	25016.6	946.2	25028.8	948.4
25039.1	944.7	25073.4	947.5	25256.1	949.3	25287.2	954.4	25301	949.1
25375.9	953.1	25528.9	956	25539.2	957.4	25551.8	955.4	25735.3	957.8
25963	960								

Manning's n Values num= 8

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
13401.5	.15	15425.2	.043	16821.1	.15	18752.8	.15	19524.2	.032
20643	.043	21165.6	.025	23730.1	.053				

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
17733.3	20643	490 491.65	495	.1	.3

Ineffective Flow num= 3

Sta L	Sta R	Elev	Permanent
13400	17030	960	F
20800	23000	960	F
25287.2	25965	960	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	950.66	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.47	Wt. n-Val.	0.150	0.050	0.050
W.S. Elev (ft)	950.19	Reach Len. (ft)	490.00	491.65	495.00
Crit W.S. (ft)	945.22	Flow Area (sq ft)	5946.08	28462.42	3251.01
E.G. Slope (ft/ft)	0.001730	Area (sq ft)	30238.28	28462.42	9247.00
Q Total (cfs)	179750.00	Flow (cfs)	10167.66	163284.20	6298.19
Top Width (ft)	11254.10	Top Width (ft)	4300.50	2909.70	4043.90
Vel Total (ft/s)	4.77	Avg. Vel. (ft/s)	1.71	5.74	1.94
Max Chl Dpth (ft)	15.69	Hydr. Depth (ft)	8.45	9.78	1.79
Conv. Total (cfs)	4321296.0	Conv. (cfs)	244436.5	3925447.0	151412.3
Length Wtd. (ft)	491.84	Wetted Per. (ft)	703.37	2913.88	1823.03
Min Ch El (ft)	934.50	Shear (lb/sq ft)	0.91	1.06	0.19
Alpha	1.33	Stream Power (lb/ft s)	1.56	6.05	0.37
Frctn Loss (ft)	0.58	Cum Volume (acre-ft)	652.79	1304.60	392.73
C & E Loss (ft)	0.06	Cum SA (acres)	101.23	135.65	137.58

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	951.53	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.42	Wt. n-Val.	0.150	0.051	0.043
W.S. Elev (ft)	951.11	Reach Len. (ft)	490.00	491.65	495.00
Crit W.S. (ft)	945.22	Flow Area (sq ft)	6594.26	31144.08	653.90
E.G. Slope (ft/ft)	0.001392	Area (sq ft)	6594.26	31144.08	653.90
Q Total (cfs)	179750.00	Flow (cfs)	10748.50	166859.30	2142.24
Top Width (ft)	3770.00	Top Width (ft)	703.30	2909.70	157.00
Vel Total (ft/s)	4.68	Avg. Vel. (ft/s)	1.63	5.36	3.28
Max Chl Dpth (ft)	16.61	Hydr. Depth (ft)	9.38	10.70	4.16
Conv. Total (cfs)	4818061.0	Conv. (cfs)	288105.3	4472535.0	57421.1
Length Wtd. (ft)	491.67	Wetted Per. (ft)	711.94	2913.88	161.42
Min Ch El (ft)	934.50	Shear (lb/sq ft)	0.80	0.93	0.35
Alpha	1.23	Stream Power (lb/ft s)	1.31	4.98	1.15
Frctn Loss (ft)	0.51	Cum Volume (acre-ft)	48.03	1437.43	26.99
C & E Loss (ft)	0.04	Cum SA (acres)	5.33	135.65	4.95

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 200

INPUT
Description: 200
Station Elevation Data num= 96

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
13751.9	957.5	13774.9	950.4	13899.2	945.3	14075.2	943.6	14247.4	943.4
14390.2	944.1	14410.8	941.9	14489.5	944.7	14707.6	944.7	14871.6	945
15032.5	944.4	15300.2	944.1	15460.8	944.8	15628	944.3	15784.9	944.2
15958.7	943.4	16114	943.3	16279	942.4	16452	942.3	16652.4	942.7
16843.9	942.3	17008.1	943.8	17197.2	943.5	17388.9	942.5	17552.5	941.8
17738.6	942.2	17904	942.1	18074.8	942.9	18250.5	943.4	18433.6	942.2
18601	942.2	18626	940.2	18638.8	934	18658.5	933.4	18693.5	940.2
18768.9	944.3	18874.7	940.2	19043.7	940.6	19233.3	941.2	19416.4	942.6
19566.9	941.6	19720.1	935.8	19796.8	938.8	19975	934.4	20272.3	934.1
20276.6	934.2	20626.2	936.3	20790.5	935.3	20829	944.5	21085.6	944
21172.7	942.8	21329.4	945.1	21406.2	952.7	21433.8	946.6	21513.2	947.1
21713.7	947	21747.4	947	21906.5	946.8	21920.3	946.8	22147.8	946
22206.3	945.8	22451.9	946.8	22701.3	947.9	22901.9	948.3	23151.7	949.3
23234.2	950.1	23323.5	948.7	23510.9	949.9	23672.1	949.6	23707.3	949.9
23712.7	946.9	23720.9	949.2	23769.1	950.4	23820.8	947.8	23989.1	947.8
24020.6	947.1	24029.2	945.6	24038	947.6	24198.6	947	24361	947.2
24513.5	945.6	24672.5	946.4	24863.2	946.6	25018.9	946.3	25064.3	946
25075.8	943.9	25087.5	947.1	25163.5	947.5	25181.3	953.2	25200.7	953.7
25211	947.8	25384.8	952.1	25573.3	956	25602.8	956.1	25616.3	960.7
25622.7	961.4								

Manning's n Values num= 9

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
13751.9	.15	15628	.043	17008.1	.15	18601	.15	19566.9	.032
20829	.032	21329.4	.043	21713.7	.025	23769.1	.053		

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
17008.1	20829	520	521.67	525	.1	.3

Ineffective Flow num= 3

Sta L	Sta R	Elev	Permanent
13751	16950	960	F
21350	23200	960	F
25200.7	25625	960	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	950.01	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.	0.043	0.049	0.039
W.S. Elev (ft)	949.74	Reach Len. (ft)	520.00	521.67	525.00
Crit W.S. (ft)	944.16	Flow Area (sq ft)	360.81	37062.06	7114.48
E.G. Slope (ft/ft)	0.000864	Area (sq ft)	18898.55	37062.06	11612.06
Q Total (cfs)	179750.00	Flow (cfs)	1238.45	158884.00	19627.52
Top Width (ft)	11193.60	Top Width (ft)	3217.23	3820.90	4155.47
Vel Total (ft/s)	4.04	Avg. Vel. (ft/s)	3.43	4.29	2.76

```
                                                                    Post-Project
* Max Chl Dpth (ft)      *   16.34  * Hydr. Depth (ft)       *    6.21  *    9.70  *    3.14  *
* Conv. Total (cfs)      *6113840.0  * Conv. (cfs)           * 42123.5  *5404126.0  *667591.3  *
* Length Wtd. (ft)       *  521.96  * Wetted Per. (ft)       *   58.10  * 3824.60  * 2271.73  *
* Min Ch El (ft)         *  933.40  * Shear (lb/sq ft)       *    0.34  *    0.52  *    0.17  *
* Alpha                  *    1.05  * Stream Power (lb/ft s) *    1.15  *    2.24  *    0.47  *
* Frctn Loss (ft)        *    0.40  * Cum Volume (acre-ft)   *  376.42  *  934.82  *  274.21  *
* C & E Loss (ft)        *    0.02  * Cum SA (acres)         *   58.95  *   97.67  *   90.99  *
*****************************************************************************************

Warning: Divided flow computed for this cross-section.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF#2
*****************************************************************************************
* E.G. Elev (ft)         *  950.98  * Element              *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.28  * Wt. n-Val.           *   0.043  *   0.050  *   0.032  *
* W.S. Elev (ft)         *  950.70  * Reach Len. (ft)      *  520.00  *  521.67  *  525.00  *
* Crit W.S. (ft)         *  944.16  * Flow Area (sq ft)    *  416.36  *40715.75  * 1418.00  *
* E.G. Slope (ft/ft)     *0.000792  * Area (sq ft)         *  416.36  *40715.75  * 1418.00  *
* Q Total (cfs)          *179750.00  * Flow (cfs)          * 1388.62  *172089.50  * 6271.86  *
* Top Width (ft)         * 4100.00  * Top Width (ft)      *   58.10  * 3820.90  *  221.00  *
* Vel Total (ft/s)       *    4.22  * Avg. Vel. (ft/s)    *    3.34  *    4.23  *    4.42  *
* Max Chl Dpth (ft)      *   17.30  * Hydr. Depth (ft)    *    7.17  *   10.66  *    6.42  *
* Conv. Total (cfs)      *6388853.0  * Conv. (cfs)        * 49355.8  *6116576.0  *222920.5  *
* Length Wtd. (ft)       *  521.71  * Wetted Per. (ft)    *   65.53  * 3824.60  *  227.63  *
* Min Ch El (ft)         *  933.40  * Shear (lb/sq ft)    *    0.31  *    0.53  *    0.31  *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *  1.05  *    2.22  *    1.36  *
* Frctn Loss (ft)        *    0.35  * Cum Volume (acre-ft)   *  8.60  * 1031.90  *   15.22  *
* C & E Loss (ft)        *    0.02  * Cum SA (acres)         *  1.05  *   97.67  *    2.80  *
*****************************************************************************************

Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: 1
REACH: 1                RS: 199.91

INPUT
Description: 199.91
Station Elevation Data    num=      96
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
*****************************************************************************
   14357     952 14390.5   944.3 14519.8   944.3 14639.2     944 14799.9   943.3
   14919   943.3 15064.9   943.3 15201.6   943.3 15338.6   943.4 15454.7   943.3
 15584.5   943.3 15701.7   943.3 15826.7     943 15946.8   942.7 16066.9   942.8
   16186   942.4 16318.5   941.2 16444.9   941.2   16595   941.2 16734.2   941.2
 16862.4   941.9 16985.5   941.6 17123.4   941.2 17256.1   940.2 17418.5   940.8
 17583.3   941.1 17747.3   940.1 17924.2   940.7 18048.2   942.2   18185   942.2
 18189.1   942.2 18396.1   942.1 18544.2   943.4 18752.1     941 18756.5   940.1
 18757.1   941.1 18776.4   938.5 18875.1   932.1 19009.5   940.1 19154.1   941.2
 19274.4   940.6 19412.9   940.1 19433.2   938.2   19665   944.1 19683.4   944.3
   20122   935.3   20357   935.3 20396.2   935.2 20513.6   938.9 20603.3   938.2
 20817.6   934.9 20841.2   934.9   21013   935.1 21078.3   935.1 21141.2   941.5
 21181.1   941.5 21315.9     945 21377.5   952.3 21405.6   945.7 21555.3   946.7
 21673.9   946.5 21886.3   946.2 22065.2   946.2 22189.8   945.7 22354.3   945.2
   22462   946.4 22675.7   948.1   22731   948.3 22992.2   947.3 23079.5   947.2
 23195.8   947.1 23332.1   947.2   23499   947.4 23628.6   947.3 23678.5   948.1
 23685.3   950.9 23692.1   948.2 23702.9   950.2 23747.7   949.7 23766.7   947.4
 23890.2   946.9   24000   946.9 24127.8   946.1 24323.2   945.3 24446.3   945.3
 24602.1   944.4 24749.8   944.2 24887.7   943.5 25018.7   945.8 25033.6   942.4
 25046.9   947.2 25137.9   947.1 25214.4   951.6 25285.5   947.1 25444.7   950.8
 25559.1   953.2

Manning's n Values        num=      10
     Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val
*****************************************************************************
   14357     .15 16318.5     .043 17747.3      .15 18544.2      .15 19433.2     .032
   21013    .043 21315.9     .043 21377.5     .025 23702.9     .053 25018.7     .025

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       16862.4 21315.9             465  466.41     465             .1       .3
Ineffective Flow     num=       3
   Sta L   Sta R    Elev  Permanent
   14357   16800     960        F
   21330   23050     960        F
   25200 25559.1     960        F

CROSS SECTION OUTPUT  Profile #PF#1
*****************************************************************************************
* E.G. Elev (ft)         *  949.60  * Element              *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.21  * Wt. n-Val.           *   0.043  *   0.046  *   0.044  *
* W.S. Elev (ft)         *  949.39  * Reach Len. (ft)      *  465.00  *  466.41  *  465.00  *
* Crit W.S. (ft)         *  943.36  * Flow Area (sq ft)    *  477.76  *43007.52  * 6769.67  *
* E.G. Slope (ft/ft)     *0.000668  * Area (sq ft)         *16319.12  *43007.52  *11526.39  *
* Q Total (cfs)          *179750.00  * Flow (cfs)          * 1657.71  *164523.10  *13569.20  *
* Top Width (ft)         *10846.61  * Top Width (ft)      * 2494.03  * 4453.50  * 3899.08  *
* Vel Total (ft/s)       *    3.58  * Avg. Vel. (ft/s)    *    3.47  *    3.83  *    2.00  *
* Max Chl Dpth (ft)      *   17.29  * Hydr. Depth (ft)    *    7.66  *    9.66  *    3.25  *
* Conv. Total (cfs)      *6954198.0  * Conv. (cfs)        * 64133.8  *6365097.0  *524967.6  *
* Length Wtd. (ft)       *  466.19  * Wetted Per. (ft)    *   62.40  * 4455.54  * 2083.72  *
* Min Ch El (ft)         *  932.10  * Shear (lb/sq ft)    *    0.32  *    0.40  *    0.14  *
* Alpha                  *    1.08  * Stream Power (lb/ft s) *  1.11  *    1.54  *    0.27  *
* Frctn Loss (ft)        *    0.50  * Cum Volume (acre-ft)   *  166.22  *  455.37  *  134.77  *
* C & E Loss (ft)        *    0.01  * Cum SA (acres)         *   24.86  *   48.12  *   42.45  *
*****************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.
```

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	950.61	Element	Left OB	Channel / Right OB
Vel Head (ft)	0.22	Wt. n-Val.	0.043	0.046 / 0.043
W.S. Elev (ft)	950.39	Reach Len. (ft)	465.00	466.41 / 465.00
Crit W.S. (ft)	943.36	Flow Area (sq ft)	540.67	*47497.17 / 64.28
E.G. Slope (ft/ft)	*0.000573	Area (sq ft)	540.67	*47497.17 / 64.28
Q Total (cfs)	*179750.00	Flow (cfs)	1727.02	*177898.40 / 124.56
Top Width (ft)	* 4530.00	Top Width (ft)	62.40	* 4453.50 / 14.10
Vel Total (ft/s)	3.74	Avg. Vel. (ft/s)	3.19	3.75 / 1.94
Max Chl Dpth (ft)	18.29	Hydr. Depth (ft)	8.66	10.67 / 4.56
Conv. Total (cfs)	*7510252.0	Conv. (cfs)	* 72157.5	*7432890.0 / 5204.4
Length Wtd. (ft)	466.37	Wetted Per. (ft)	71.24	* 4455.54 / 17.92
Min Ch El (ft)	932.10	Shear (lb/sq ft)	0.27	0.38 / 0.13
Alpha	1.00	Stream Power (lb/ft s)	0.87	1.43 / 0.25
Frctn Loss (ft)	0.47	Cum Volume (acre-ft)	2.89	* 503.68 / 6.28
C & E Loss (ft)	0.00	Cum SA (acres)	0.33	48.12 / 1.38

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: 1
REACH: 1 RS: 199.82

INPUT
Description: 199.82

Left Channel Bank Station Interpolated
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
14626.5	957.7	14665	955.3	14714.8	947.7	14731.9	943.6	14878.2	942.2
15038.4	942.1	15177.1	942.1	15312	942.9	15442.8	943.5	15572.5	942.6
15710.4	942.1	15843.3	942.2	15981.6	942	16111.7	941.9	16269.4	941.3
16337.7	941.1	16490	941.8	16647.8	941.2	16807.1	940.1	16870	940.1
16937.5	940.1	17070.8	940.1	17202.5	940.1	17339.2	940.1	17503.8	940.1
17635.5	940.1	17774.7	939.1	17955.5	939.8	18107	939.8	18236.3	940.2
18376.6	941.1	18554.9	941.8	18684.9	940.6	18768.3	940	18787.7	931.4
18818.1	931.2	18845.4	938.1	18894.5	940	19032.4	940.6	19165.1	939.3
19236.6	938.1	19354.5	941.6	19458.6	938.6	20124.2	939.3	20322.3	939.2
20533.6	938.6	20766.2	939.3	20910.7	936.7	20926	937.9	21009.9	936.6
21146.9	939.7	21241.8	942.2	21405.4	944.5	21551.8	945.7	21756.1	945.8
21937.2	945.7	22121.7	945.7	22347.1	945.6	22491.6	945.9	22657.2	946.2
22790.5	945.6	22925.1	946.5	23055.8	946.4	23218.3	946.1	23364.5	946.1
23514.8	945.8	23642	948.2	23655.7	947.2	23663.6	949.2	23669.7	947
23724.8	949.5	23780.9	946.5	23947	945	24077.1	944.4	24199.5	945.5
24210.3	943.6	24214.2	944.9	24354.9	943.6	24545.8	943	24742.9	943.3
24928.6	944	25002.7	943.7	25010.2	942.2	25023.6	945.4	25153.6	945.8
25304.8	946.9	25434.7	948.1	25588.5	950.5	25663.5	951.7	25798.3	956.3
25810.1	957.9	25834.3	954.9	25859.3	957.7	25991.9	960.7	26149.5	962.1
26241.6	962.1	26277	964.4						

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
14626.5	.15	18554.9	.15	19165.1	.065	21405.4	.025	23724.8	.053
25002.7	.025								

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
16870	21405.4	0	0	.1	.3

Ineffective Flow num= 3

Sta L	Sta R	Elev	Permanent
14626.5	16870	960	F
21650	22900	960	F
25350	26127	960	F

CROSS SECTION OUTPUT Profile #PF#1

E.G. Elev (ft)	949.09	Element	Left OB	Channel / Right OB
Vel Head (ft)	0.19	Wt. n-Val.		0.089 / 0.039
W.S. Elev (ft)	948.90	Reach Len. (ft)		
Crit W.S. (ft)	943.28	Flow Area (sq ft)		*42049.83 / 9729.14
E.G. Slope (ft/ft)	*0.002007	Area (sq ft)	*14822.50	*42049.83 / *13723.95
Q Total (cfs)	*179750.00	Flow (cfs)		*138919.60 / *40830.43
Top Width (ft)	*10752.57	Top Width (ft)	* 2163.06	* 4535.40 / 4054.11
Vel Total (ft/s)	3.47	Avg. Vel. (ft/s)		3.30 / 4.20
Max Chl Dpth (ft)	17.70	Hydr. Depth (ft)		9.27 / 3.65
Conv. Total (cfs)	*4012368.0	Conv. (cfs)		*3100954.0 / *911414.0
Length Wtd. (ft)		Wetted Per. (ft)		* 4538.42 / 2669.79
Min Ch El (ft)	931.20	Shear (lb/sq ft)		1.16 / 0.46
Alpha	1.03	Stream Power (lb/ft s)		3.84 / 1.92
Frctn Loss (ft)		Cum Volume (acre-ft)		
C & E Loss (ft)		Cum SA (acres)		

Warning: Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF#2

E.G. Elev (ft)	950.14	Element	Left OB	Channel / Right OB
Vel Head (ft)	0.24	Wt. n-Val.		0.089 / 0.025
W.S. Elev (ft)	949.90	Reach Len. (ft)		
Crit W.S. (ft)	943.25	Flow Area (sq ft)		*46585.23 / 1112.80
E.G. Slope (ft/ft)	*0.002185	Area (sq ft)		*46585.23 / 1112.80
Q Total (cfs)	*179750.00	Flow (cfs)		*171357.00 / 8392.96
Top Width (ft)	* 4780.00	Top Width (ft)		* 4535.40 / 244.60
Vel Total (ft/s)	3.77	Avg. Vel. (ft/s)		3.68 / 7.54
Max Chl Dpth (ft)	18.70	Hydr. Depth (ft)		10.27 / 4.55

Post-Project

Conv. Total (cfs)	3845833.0	Conv. (cfs)	3666262.0	179571.2
Length Wtd. (ft)		Wetted Per. (ft)	4548.22	248.76
Min Ch El (ft)	931.20	Shear (lb/sq ft)	1.40	0.61
Alpha	1.10	Stream Power (lb/ft s)	5.14	4.60
Frctn Loss (ft)		Cum Volume (acre-ft)		
C & E Loss (ft)		Cum SA (acres)		

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

SUMMARY OF MANNING'S N VALUES

River:1

Reach	River Sta.	n1	n2	n3	n4	n5	n6	n7	n8	n9	n10
1	214.14	.04	.035	.04							
1	214.04	.04	.035	.04							
1	213.95	.04	.035	.04							
1	213.85	.04	.035	.04							
1	213.75	.037	.032	.037							
1	213.745	Bridge									
1	213.74	.037	.032	.037							
1	213.66	.037	.032	.037							
1	213.57	.037	.032	.037							
1	213.47	.037	.032	.037							
1	213.38	.037	.032	.037							
1	213.33	.037	.032	.037							
1	213.26	.037	.032	.037							
1	213.255	Bridge									
1	213.25	.037	.032	.037							
1	213.21	.037	.032	.037							
1	213.11	.037	.032	.037							
1	213.03	.037	.032	.037							
1	212.93	.037	.032	.037							
1	212.84	.037	.032	.037							
1	212.74	.037	.032	.037							
1	212.68	.037	.032	.037							
1	212.675	Bridge									
1	212.67	.037	.032	.037							
1	212.56	.037	.032	.037							
1	212.46	.037	.032	.037							
1	212.37	.037	.032	.037							
1	212.27	.045	.033	.04							
1	212.18	.045	.033	.04							
1	212.08	.045	.033	.04							
1	211.99	.045	.033	.04							
1	211.89	.045	.033	.04							
1	211.79	.045	.033	.04							
1	211.71	.045	.033	.04							
1	211.64	.045	.033	.04							
1	211.54	.037	.032	.037							
1	211.525	Bridge									
1	211.51	.037	.032	.037							
1	211.41	.037	.032	.037							
1	211.31	.037	.032	.037							
1	211.21	.037	.032	.037							
1	211.12	.037	.032	.037							
1	211.02	.037	.032	.037							
1	210.93	.037	.032	.037							
1	210.83	.037	.032	.037							
1	210.74	.037	.032	.037							
1	210.64	.037	.032	.037							
1	210.55	.037	.032	.037							
1	210.46	.037	.032	.037	.037	.025					
1	210.36	.032	.037	.025	.025						
1	210.26	.037	.032	.037	.037	.025					
1	210.17	.037	.032	.037	.025						
1	210.07	.032	.037	.02	.037	.025					
1	209.98	.037	.032	.035	.037						
1	209.88	.037	.032	.035	.025						
1	209.79	.037	.032	.035	.025						
1	209.69	.037	.032	.035	.025						
1	209.60	.037	.032	.032	.035	.025					
1	209.54	.025	.032	.037							
1	209.535	Bridge									
1	209.53	.025	.032	.037							
1	209.42	.037	.015	.037	.032	.032	.025				
1	209.33	.037	.015	.037	.032	.037					
1	209.24	.037	.015	.032	.037	.032	.025				
1	209.14	.037	.015	.032	.037	.032	.025				
1	209.04	.037	.015	.032	.037	.032	.025				
1	208.95	.037	.015	.037	.032	.032	.037	.025			
1	208.85	.037	.015	.037	.032	.032	.037				
1	208.75	.037	.015	.037	.032	.032					
1	208.67	.037	.015	.037	.032	.032	.037				
1	208.57	.037	.015	.037	.032	.032	.037				
1	208.48	.043	.015	.043	.032	.032	.037				
1	208.39	.043	.015	.032	.032	.032	.037	.025			
1	208.29	.025	.043	.015	.032	.037					
1	208.19	.025	.043	.015	.032	.032	.037				
1	208.10	.025	.043	.015	.032	.032	.032				
1	207.99	.043	.015	.032	.032						
1	207.90	.043	.015	.032	.032						
1	207.80	.043	.015	.032	.032	.032					
1	207.71	.025	.032	.015	.032	.032	.032				
1	207.62	.025	.043	.032	.015	.032	.032	.032			
1	207.49	.032	.015	.032	.037						
1	207.485	Bridge									
1	207.48	.032	.037								
1	207.43	.025	.043	.032	.037						
1	207.34	.025	.043	.032	.037						
1	207.27	.025	.043	.032	.032						

Post-Project

*1	*	207.16	* .025*	.043*	.032*	.037*	*	*	*	*	*
*1	*	207.07	* .043*	.032*	.032*	.032*	*	*	*	*	*
*1	*	206.97	* .025*	.043*	.032*	.032*	.032*	*	*	*	*
*1	*	206.88	* .025*	.043*	.032*	.032*	.032*	.025*	*	*	*
*1	*	206.79	* .025*	.043*	.032*	.032*	.032*	*	*	*	*
*1	*	206.7	* .025*	.043*	.032*	.032*	.032*	*	*	*	*
*1	*	206.6	* .025*	.043*	.032*	.032*	.032*	*	*	*	*
*1	*	206.51	* .025*	.043*	.032*	.032*	.032*	*	*	*	*
*1	*	206.41	* .025*	.043*	.032*	.032*	.032*	*	*	*	*
*1	*	206.32	* .043*	.032*	.032*	.032*	.025*	*	*	*	*
*1	*	206.22	* .043*	.043*	.032*	.025*	*	*	*	*	*
*1	*	206.13	* .043*	.033*	.032*	*	*	*	*	*	*
*1	*	206.03	* .043*	.033*	.032*	*	*	*	*	*	*
*1	*	205.94	* .043*	.033*	.032*	.037*	*	*	*	*	*
*1	*	205.84	* .043*	.043*	.032*	.032*	.037*	*	*	*	*
*1	*	205.75	* .043*	.043*	.043*	.025*	*	*	*	*	*
*1	*	205.62	* .025*	.043*	.043*	.032*	.032*	.025*	*	*	*
*1	*	205.52	* .043*	.043*	.032*	.032*	.025*	*	*	*	*
*1	*	205.43	* .043*	.043*	.032*	.032*	.025*	*	*	*	*
*1	*	205.4	* .043*	.043*	.032*	.032*	*	*	*	*	*
*1	*	205.34	* .043*	.043*	.025*	*	*	*	*	*	*
*1	*	205.25	* .025*	.037*	.037*	.025*	*	*	*	*	*
*1	*	205.15	* .025*	.037*	.037*	.025*	*	*	*	*	*
*1	*	205.06	* .037*	.037*	.037*	.025*	*	*	*	*	*
*1	*	204.97	* .025*	.037*	.037*	.025*	*	*	*	*	*
*1	*	204.87	* .025*	.037*	.037*	.025*	*	*	*	*	*
*1	*	204.78	* .025*	.037*	.037*	.025*	*	*	*	*	*
*1	*	204.68	* .025*	.037*	.037*	.037*	.025*	*	*	*	*
*1	*	204.61	* .025*	.037*	.037*	.025*	*	*	*	*	*
*1	*	204.53	* .025*	.037*	.037*	.037*	.025*	*	*	*	*
*1	*	204.42	* .025*	.037*	.037*	.037*	.025*	*	*	*	*
*1	*	204.34	* .025*	.037*	.037*	.025*	*	*	*	*	*
*1	*	204.25	* .035*	.032*	.025*	*	*	*	*	*	*
*1	*	204.15	* .035*	.032*	.025*	.025*	*	*	*	*	*
*1	*	204.05	* .05*	.035*	.032*	.025*	*	*	*	*	*
*1	*	203.96	* .025*	.043*	.043*	.032*	.037*	*	*	*	*
*1	*	203.86	* .043*	.043*	.032*	.037*	*	*	*	*	*
*1	*	203.77	* .025*	.043*	.043*	.032*	.025*	*	*	*	*
*1	*	203.67	* .025*	.037*	.037*	.032*	.032*	.025*	*	*	*
*1	*	203.58	* .025*	.037*	.037*	.032*	.025*	*	*	*	*
*1	*	203.48	* .025*	.037*	.037*	.032*	.025*	*	*	*	*
*1	*	203.39	* .025*	.037*	.037*	.032*	.025*	*	*	*	*
*1	*	203.29	* .025*	.037*	.037*	.032*	.025*	*	*	*	*
*1	*	203.19	* .025*	.043*	.043*	.037*	.025*	.025*	*	*	*
*1	*	203.09	* .025*	.043*	.043*	.037*	.025*	*	*	*	*
*1	*	202.99	* .025*	.043*	.043*	.037*	.043*	*	*	*	*
*1	*	202.9	* .025*	.043*	.043*	.037*	.043*	*	*	*	*
*1	*	202.8	* .025*	.043*	.043*	.037*	.043*	*	*	*	*
*1	*	202.69	* .025*	.043*	.043*	.037*	.043*	*	*	*	*
*1	*	202.59	* .025*	.043*	.043*	.037*	.043*	*	*	*	*
*1	*	202.48	* .043*	.043*	.037*	.043*	*	*	*	*	*
*1	*	202.37	* .025*	.043*	.043*	.037*	.043*	*	*	*	*
*1	*	202.29	* .025*	.043*	.043*	.037*	.043*	.043*	*	*	*
*1	*	202.18	* .025*	.043*	.043*	.037*	.043*	*	*	*	*
*1	*	202.09	* .025*	.043*	.043*	.037*	.043*	*	*	*	*
*1	*	201.99	* .025*	.043*	.043*	.032*	.037*	.037*	.025*	*	*
*1	*	201.9	* .025*	.043*	.043*	.032*	.037*	.037*	.025*	*	*
*1	*	201.81	* .025*	.065*	.065*	.032*	.037*	.025*	.025*	*	*
*1	*	201.71	* .025*	.065*	.065*	.032*	.037*	.025*	.025*	*	*
*1	*	201.62	* .025*	.15*	.025*	.065*	.065*	.032*	.037*	.025*	.025*
*1	*	201.52	* .025*	.15*	.025*	.15*	.032*	.037*	.025*	*	*
*1	*	201.43	* .043*	.065*	.025*	.15*	.032*	.037*	.025*	*	*
*1	*	201.33	* .043*	.065*	.025*	.15*	.032*	.037*	.025*	*	*
*1	*	201.24	* .043*	.065*	.025*	.15*	.15*	.037*	.032*	.037*	.025*
*1	*	201.14	* .043*	.065*	.025*	.15*	.037*	.032*	.037*	.025*	*
*1	*	201.05	* .043*	.15*	.025*	.15*	.037*	.032*	.037*	.025*	*
*1	*	200.95	* .043*	.15*	.037*	.032*	.037*	.035*	*	*	*
*1	*	200.86	* .043*	.15*	.032*	.037*	.035*	.035*	*	*	*
*1	*	200.77	* .043*	.15*	.032*	.037*	.025*	.035*	*	*	*
*1	*	200.67	* .043*	.15*	.032*	.15*	.032*	.043*	.025*	.025*	*
*1	*	200.58	* .15*	.043*	.15*	.032*	.043*	.025*	.025*	*	*
*1	*	200.49	* .15*	.043*	.043*	.15*	.032*	.043*	.025*	*	*
*1	*	200.39	* .15*	.043*	.043*	.15*	.032*	.043*	.025*	*	*
*1	*	200.3	* .15*	.15*	.065*	.032*	.043*	.043*	.053*	*	*
*1	*	200.2	* .15*	.15*	.065*	.032*	.043*	.043*	.025*	.053*	*
*1	*	200.1	* .15*	.043*	.15*	.15*	.032*	.043*	.025*	.053*	*
*1	*	200	* .15*	.043*	.15*	.15*	.032*	.032*	.043*	.025*	.053*
*1	*	199.91	* .15*	.043*	.15*	.15*	.032*	.043*	.043*	.025*	.053*
*1	*	199.82	* .15*	.15*	.065*	.025*	.053*	.025*	*	*	*

SUMMARY OF REACH LENGTHS

River: 1

Reach	River Sta.	Left	Channel	Right
*1	* 214.14	* 475*	510.51*	570*
*1	* 214.04	* 495*	493.12*	480*
*1	* 213.95	* 500*	504.25*	500*
*1	* 213.85	* 521*	520.04*	541*
*1	* 213.75	* 125*	116.36*	120*
*1	* 213.745	*Bridge *	*	*
*1	* 213.74	* 391*	373.47*	361*
*1	* 213.66	* 490*	491.08*	495*
*1	* 213.57	* 650*	500.37*	390*
*1	* 213.47	* 500*	493.66*	485*
*1	* 213.38	* 210*	290.06*	395*
*1	* 213.33	* 266*	316.41*	426*
*1	* 213.26	* 155*	152.22*	155*
*1	* 213.255	*Bridge *	*	*
*1	* 213.25	* 121*	123.36*	121*
*1	* 213.21	* 450*	531.57*	745*
*1	* 213.11	* 425*	459.38*	565*

					Post-Project
*1	*	213.03	* 475*	495*	525*
*1	*	212.93	* 495*	501.9*	535*
*1	*	212.84	* 565*	538.19*	480*
*1	*	212.74	* 296*	242.17*	66*
*1	*	212.68	* 155*	154.01*	155*
*1	*	212.675	*Bridge *	*	*
*1	*	212.67	* 481*	557.08*	901*
*1	*	212.56	* 495*	502.71*	525*
*1	*	212.46	* 495*	497.81*	510*
*1	*	212.37	* 500*	495.84*	485*
*1	*	212.27	* 510*	495*	475*
*1	*	212.18	* 500*	502.53*	485*
*1	*	212.08	* 510*	519.85*	475*
*1	*	211.99	* 740*	489.19*	710*
*1	*	211.89	* 507*	527.46*	640*
*1	*	211.79	* 680*	450.74*	290*
*1	*	211.71	* 780*	392.06*	500*
*1	*	211.64	* 481*	521.13*	221*
*1	*	211.54	* 125*	125.49*	120*
*1	*	211.525	*Bridge *	*	*
*1	*	211.51	* 541*	562.88*	606*
*1	*	211.41	* 500*	501.53*	505*
*1	*	211.31	* 540*	523.28*	460*
*1	*	211.21	* 495*	493.11*	475*
*1	*	211.12	* 500*	505.73*	500*
*1	*	211.02	* 485*	493.19*	495*
*1	*	210.93	* 505*	505.14*	505*
*1	*	210.83	* 505*	505.61*	500*
*1	*	210.74	* 495*	503.39*	500*
*1	*	210.64	* 520*	515.29*	495*
*1	*	210.55	* 475*	473.19*	495*
*1	*	210.46	* 520*	522.28*	505*
*1	*	210.36	* 480*	487.62*	480*
*1	*	210.26	* 505*	512.65*	520*
*1	*	210.17	* 505*	497.78*	495*
*1	*	210.07	* 511*	494.01*	499*
*1	*	209.98	* 519*	492.54*	497*
*1	*	209.88	* 504*	500.82*	498*
*1	*	209.79	* 497*	500.22*	505*
*1	*	209.69	* 540*	544.5*	549*
*1	*	209.60	* 243*	288.7*	318*
*1	*	209.54	* 114*	116.26*	106*
*1	*	209.535	*Bridge *	*	*
*1	*	209.53	* 615*	589.4*	627*
*1	*	209.42	* 501*	486.04*	526*
*1	*	209.33	* 563*	490.4*	583*
*1	*	209.24	* 514*	515.61*	523*
*1	*	209.14	* 515*	499.52*	517*
*1	*	209.04	* 495*	493.13*	531*
*1	*	208.95	* 458*	514.75*	603*
*1	*	208.85	* 511*	479.03*	452*
*1	*	208.75	* 565*	559.49*	569*
*1	*	208.67	* 456*	449.63*	359*
*1	*	208.57	* 685*	539.75*	467*
*1	*	208.48	* 521*	435.12*	469*
*1	*	208.39	* 509*	512.43*	494*
*1	*	208.29	* 577*	525.37*	560*
*1	*	208.19	* 537*	505.13*	617*
*1	*	208.10	* 582*	483.64*	477*
*1	*	207.99	* 483*	482.81*	544*
*1	*	207.90	* 539*	522.44*	631*
*1	*	207.80	* 562*	495.85*	534*
*1	*	207.71	* 493*	488.78*	530*
*1	*	207.62	* 493*	471.11*	510*
*1	*	207.49	* 244*	246.48*	308*
*1	*	207.485	*Bridge *	*	*
*1	*	207.48	* 236*	236.83*	302*
*1	*	207.43	* 493*	507.55*	548*
*1	*	207.34	* 478*	511.15*	584*
*1	*	207.27	* 413*	467.91*	513*
*1	*	207.16	* 586*	585.23*	607*
*1	*	207.07	* 510*	514.11*	520*
*1	*	206.97	* 480*	491.78*	480*
*1	*	206.88	* 480*	487.71*	505*
*1	*	206.79	* 495*	489.96*	520*
*1	*	206.7	* 500*	500.23*	500*
*1	*	206.6	* 515*	504.63*	520*
*1	*	206.51	* 495*	496.45*	500*
*1	*	206.41	* 495*	494.64*	490*
*1	*	206.32	* 515*	513.83*	520*
*1	*	206.22	* 500*	502.44*	460*
*1	*	206.13	* 490*	483.44*	540*
*1	*	206.03	* 590*	513.6*	510*
*1	*	205.94	* 505*	506.69*	510*
*1	*	205.84	* 495*	496*	480*
*1	*	205.75	* 825*	642*	490*
*1	*	205.62	* 560*	523*	510*
*1	*	205.52	* 430*	470*	400*
*1	*	205.43	* 175*	171.89*	125*
*1	*	205.4	* 305*	315*	370*
*1	*	205.34	* 485*	492*	450*
*1	*	205.25	* 505*	506*	485*
*1	*	205.15	* 495*	495.39*	495*
*1	*	205.06	* 505*	505*	530*
*1	*	204.97	* 510*	503*	550*
*1	*	204.87	* 495*	499*	505*
*1	*	204.78	* 505*	515*	550*
*1	*	204.68	* 325*	407*	570*
*1	*	204.61	* 395*	449*	545*
*1	*	204.53	* 570*	552*	525*
*1	*	204.42	* 430*	453*	500*
*1	*	204.34	* 495*	488*	480*
*1	*	204.25	* 510*	508*	500*
*1	*	204.15	* 510*	509*	510*
*1	*	204.05	* 510*	505*	520*
*1	*	203.96	* 495*	502*	505*

*1	*	203.86	*	505*	498*	480*
*1	*	203.77	*	490*	498*	480*
*1	*	203.67	*	470*	490*	505*
*1	*	203.58	*	560*	513*	495*
*1	*	203.48	*	500*	505.82*	515*
*1	*	203.39	*	500*	505*	500*
*1	*	203.29	*	620*	535*	420*
*1	*	203.19	*	535*	520*	485*
*1	*	203.09	*	520*	518*	500*
*1	*	202.99	*	480*	456*	424*
*1	*	202.9	*	575*	538*	460*
*1	*	202.8	*	600*	555.5*	450*
*1	*	202.69	*	585*	566.1*	510*
*1	*	202.59	*	400*	561.2*	640*
*1	*	202.48	*	700*	576.2*	385*
*1	*	202.37	*	430*	400.7*	360*
*1	*	202.29	*	590*	583.1*	600*
*1	*	202.18	*	525*	511.84*	500*
*1	*	202.09	*	510*	509.32*	500*
*1	*	201.99	*	470*	477.46*	490*
*1	*	201.9	*	500*	495.8*	500*
*1	*	201.81	*	535*	511.61*	515*
*1	*	201.71	*	505*	489.63*	495*
*1	*	201.62	*	485*	486.48*	510*
*1	*	201.52	*	495*	492.06*	495*
*1	*	201.43	*	555*	519.88*	505*
*1	*	201.33	*	515*	514.62*	515*
*1	*	201.24	*	485*	488.56*	490*
*1	*	201.14	*	480*	481.53*	485*
*1	*	201.05	*	520*	512.89*	510*
*1	*	200.95	*	475*	474.38*	480*
*1	*	200.86	*	525*	523.32*	525*
*1	*	200.77	*	500*	495.64*	520*
*1	*	200.67	*	500*	503.34*	510*
*1	*	200.58	*	475*	479.55*	530*
*1	*	200.49	*	510*	497.59*	510*
*1	*	200.39	*	550*	506.5*	480*
*1	*	200.3	*	520*	515.72*	560*
*1	*	200.2	*	535*	525.73*	515*
*1	*	200.1	*	490*	491.65*	495*
*1	*	200	*	520*	521.67*	525*
*1	*	199.91	*	465*	466.41*	465*
*1	*	199.82	*	0*	0*	0*

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: 1

Reach	River Sta.	Contr.	Expan.
*1	* 214.14 *	.1*	.3*
*1	* 214.04 *	.1*	.3*
*1	* 213.95 *	.1*	.3*
*1	* 213.85 *	.1*	.3*
*1	* 213.75 *	.1*	.3*
*1	* 213.745 *Bridge	*	*
*1	* 213.74 *	.1*	.3*
*1	* 213.66 *	.1*	.3*
*1	* 213.57 *	.1*	.3*
*1	* 213.47 *	.1*	.3*
*1	* 213.38 *	.1*	.3*
*1	* 213.33 *	.1*	.3*
*1	* 213.26 *	.1*	.3*
*1	* 213.255 *Bridge	*	*
*1	* 213.25 *	.1*	.3*
*1	* 213.21 *	.1*	.3*
*1	* 213.11 *	.1*	.3*
*1	* 213.03 *	.1*	.3*
*1	* 212.93 *	.1*	.3*
*1	* 212.84 *	.1*	.3*
*1	* 212.74 *	.1*	.3*
*1	* 212.68 *	.1*	.3*
*1	* 212.675 *Bridge	*	*
*1	* 212.67 *	.1*	.3*
*1	* 212.56 *	.1*	.3*
*1	* 212.46 *	.1*	.3*
*1	* 212.37 *	.1*	.3*
*1	* 212.27 *	.1*	.3*
*1	* 212.18 *	.1*	.3*
*1	* 212.08 *	.1*	.3*
*1	* 211.99 *	.1*	.3*
*1	* 211.89 *	.1*	.3*
*1	* 211.79 *	.1*	.3*
*1	* 211.71 *	.1*	.3*
*1	* 211.64 *	.1*	.3*
*1	* 211.54 *	.1*	.3*
*1	* 211.525 *Bridge	*	*
*1	* 211.51 *	.1*	.3*
*1	* 211.41 *	.1*	.3*
*1	* 211.31 *	.1*	.3*
*1	* 211.21 *	.1*	.3*
*1	* 211.12 *	.1*	.3*
*1	* 211.02 *	.1*	.3*
*1	* 210.93 *	.1*	.3*
*1	* 210.83 *	.1*	.3*
*1	* 210.74 *	.1*	.3*
*1	* 210.64 *	.1*	.3*
*1	* 210.55 *	.1*	.3*
*1	* 210.46 *	.1*	.3*
*1	* 210.36 *	.1*	.3*
*1	* 210.26 *	.1*	.3*
*1	* 210.17 *	.1*	.3*
*1	* 210.07 *	.1*	.3*

*1	*	209.98	*	.1*	.3*
*1	*	209.88	*	.1*	.3*
*1	*	209.79	*	.1*	.3*
*1	*	209.69	*	.1*	.3*
*1	*	209.60	*	.1*	.3*
*1	*	209.54	*	.3*	.5*
*1	*	209.535	*Bridge	*	*
*1	*	209.53	*	.3*	.5*
*1	*	209.42	*	.1*	.3*
*1	*	209.33	*	.1*	.3*
*1	*	209.24	*	.1*	.3*
*1	*	209.14	*	.1*	.3*
*1	*	209.04	*	.1*	.3*
*1	*	208.95	*	.1*	.3*
*1	*	208.85	*	.1*	.3*
*1	*	208.75	*	.1*	.3*
*1	*	208.67	*	.1*	.3*
*1	*	208.57	*	.1*	.3*
*1	*	208.48	*	.1*	.3*
*1	*	208.39	*	.1*	.3*
*1	*	208.29	*	.1*	.3*
*1	*	208.19	*	.1*	.3*
*1	*	208.10	*	.1*	.3*
*1	*	207.99	*	.1*	.3*
*1	*	207.90	*	.1*	.3*
*1	*	207.80	*	.1*	.3*
*1	*	207.71	*	.1*	.3*
*1	*	207.62	*	.1*	.3*
*1	*	207.49	*	.3*	.5*
*1	*	207.485	*Bridge	*	*
*1	*	207.48	*	.3*	.5*
*1	*	207.43	*	.1*	.3*
*1	*	207.34	*	.1*	.3*
*1	*	207.27	*	.1*	.3*
*1	*	207.16	*	.1*	.3*
*1	*	207.07	*	.1*	.3*
*1	*	206.97	*	.1*	.3*
*1	*	206.88	*	.1*	.3*
*1	*	206.79	*	.1*	.3*
*1	*	206.7	*	.1*	.3*
*1	*	206.6	*	.1*	.3*
*1	*	206.51	*	.1*	.3*
*1	*	206.41	*	.1*	.3*
*1	*	206.32	*	.1*	.3*
*1	*	206.22	*	.1*	.3*
*1	*	206.13	*	.1*	.3*
*1	*	206.03	*	.1*	.3*
*1	*	205.94	*	.1*	.3*
*1	*	205.84	*	.1*	.3*
*1	*	205.75	*	.1*	.3*
*1	*	205.62	*	.1*	.3*
*1	*	205.52	*	.1*	.3*
*1	*	205.43	*	.1*	.3*
*1	*	205.4	*	.1*	.3*
*1	*	205.34	*	.1*	.3*
*1	*	205.25	*	.1*	.3*
*1	*	205.15	*	.1*	.3*
*1	*	205.06	*	.1*	.3*
*1	*	204.97	*	.1*	.3*
*1	*	204.87	*	.1*	.3*
*1	*	204.78	*	.1*	.3*
*1	*	204.68	*	.1*	.3*
*1	*	204.61	*	.1*	.3*
*1	*	204.53	*	.1*	.3*
*1	*	204.42	*	.1*	.3*
*1	*	204.34	*	.1*	.3*
*1	*	204.25	*	.1*	.3*
*1	*	204.15	*	.1*	.3*
*1	*	204.05	*	.1*	.3*
*1	*	203.96	*	.1*	.3*
*1	*	203.86	*	.1*	.3*
*1	*	203.77	*	.1*	.3*
*1	*	203.67	*	.1*	.3*
*1	*	203.58	*	.1*	.3*
*1	*	203.48	*	.1*	.3*
*1	*	203.39	*	.1*	.3*
*1	*	203.29	*	.1*	.3*
*1	*	203.19	*	.1*	.3*
*1	*	203.09	*	.1*	.3*
*1	*	202.99	*	.1*	.3*
*1	*	202.9	*	.1*	.3*
*1	*	202.8	*	.1*	.3*
*1	*	202.69	*	.1*	.3*
*1	*	202.59	*	.1*	.3*
*1	*	202.48	*	.1*	.3*
*1	*	202.37	*	.1*	.3*
*1	*	202.29	*	.1*	.3*
*1	*	202.18	*	.1*	.3*
*1	*	202.09	*	.1*	.3*
*1	*	201.99	*	.1*	.3*
*1	*	201.9	*	.1*	.3*
*1	*	201.81	*	.1*	.3*
*1	*	201.71	*	.1*	.3*
*1	*	201.62	*	.1*	.3*
*1	*	201.52	*	.1*	.3*
*1	*	201.43	*	.1*	.3*
*1	*	201.33	*	.1*	.3*
*1	*	201.24	*	.1*	.3*
*1	*	201.14	*	.1*	.3*
*1	*	201.05	*	.1*	.3*
*1	*	200.95	*	.1*	.3*
*1	*	200.86	*	.1*	.3*
*1	*	200.77	*	.1*	.3*
*1	*	200.67	*	.1*	.3*
*1	*	200.58	*	.1*	.3*
*1	*	200.49	*	.1*	.3*

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*1              *    200.39  *       .1*       .3*
*1              *    200.3   *       .1*       .3*
*1              *    200.2   *       .1*       .3*
*1              *    200.1   *       .1*       .3*
*1              *    200     *       .1*       .3*
*1              *    199.91  *       .1*       .3*
*1              *    199.82  *       .1*       .3*
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Profile Output Table - CHECKRAS

Reach	River Sta	Froude # Chl	Top Wdth Act (ft)	Conv. Total (cfs)	Prof Delta WS (ft)	Left Sta Eff (ft)	Enc Sta L (ft)	Center Station (ft)	Enc Sta R (ft)	Rght Sta Eff (ft)	Min Ch El (ft)	Left Stagn (ft)	Right Stagn (ft)
1	214.14	0.36	726.91	5961484.0		19654.95		20020.10	21089.67	1048.70			
1	214.14	0.36	726.86	5963943.0	0.01	19654.97	19654.97	20020.10	20381.83	20381.83	1048.70		
1	214.04	0.36	733.94	5809707.0		19637.86		20006.70	20922.39	1048.80			
1	214.04	0.36	733.89	5812338.0	0.01	19637.88	19637.88	20006.70	20371.77	20371.77	1048.80		
1	213.95	0.43	745.37	4843418.0		19586.39		19935.90	20814.54	1049.30			
1	213.95	0.43	745.19	4846870.0	0.01	19586.54	19586.54	19935.90	20331.73	20331.73	1049.30		
1	213.85	0.58	702.64	3578540.0		19618.33		20057.05	20320.97	1048.10			
1	213.85	0.58	702.59	3579632.0	0.01	19618.33	19618.33	20057.05	20320.92	20320.92	1048.10		
1	213.75	0.41	656.45	5575129.0		19640.95		19969.30	20297.39	1044.60			
1	213.75	0.41	656.35	5578780.0	0.01	19641.00	19641.00	19969.30	20297.35	20297.35	1044.60		
1	213.745 BR U	0.44	634.96	4375788.0		19641.74		19969.30	20296.71	1044.60			
1	213.745 BR U	0.44	635.01	4378146.0	0.01	19641.72	19641.00	19969.30	20297.35	20296.73	1044.60		
1	213.745 BR D	0.44	633.79	4316097.0		19642.37		19969.30	20296.16	1044.60			
1	213.745 BR D	0.44	633.84	4318510.0	0.01	19642.35	19641.87	19969.30	20296.60	20296.18	1044.60		
1	213.74	0.42	654.76	5459470.0		19641.85		19969.30	20296.61	1044.60			
1	213.74	0.42	654.73	5462967.0	0.01	19641.87	19641.87	19969.30	20296.60	20296.60	1044.60		
1	213.66	0.62	566.02	3604114.0		19599.41		19986.45	20253.57	1047.60			
1	213.66	0.62	565.99	3608339.0	0.01	19687.57	19687.57	19986.45	20253.56	20253.56	1047.60		
1	213.57	0.55	852.17	3949740.0		19095.13		19929.15	20336.67	1046.70			
1	213.57	0.55	852.16	3953934.0	0.02	19484.50	19484.50	19929.15	20336.66	20336.66	1046.70		
1	213.47	0.52	1023.14	4106424.0		18842.44		19758.75	20266.44	1045.80			
1	213.47	0.52	1023.12	4110138.0	0.02	19243.30	19243.30	19758.75	20266.42	20266.42	1045.80		
1	213.38	0.37	1101.78	5943323.0		19196.18		19909.55	20447.88	1045.40			
1	213.38	0.37	1101.75	5937578.0	0.02	19346.10	19346.10	19909.55	20447.85	20447.85	1045.40		
1	213.33	0.33	1185.64	6865352.0		19328.90		19921.90	20514.54	1045.40			
1	213.33	0.33	1185.62	6854778.0	0.01	19328.90	19328.90	19921.90	20514.52	20514.52	1045.40		
1	213.26	0.32	881.25	7091406.0		19497.16		19938.05	20378.41	1040.40			
1	213.26	0.32	881.21	7098895.0	0.01	19497.18	19497.18	19938.05	20378.39	20378.39	1040.40		
1	213.255 BR U	0.34	860.74	5381226.0		19497.36		19938.05	20378.10	1040.40			
1	213.255 BR U	0.34	860.81	5386143.0	0.01	19497.33	19497.18	19938.05	20378.39	20378.14	1040.40		

*	*	*	*	*	*	*	*	*	*	*	*
* 1	* 213.255 BR D	*	0.34	* 859.92	* 5322311.0	*	* 19497.68	*	* 19938.05	*	
*	20377.60 *	1040.40	*	*	*	*	*	*	*	*	
* 1	* 213.255 BR D	*	0.34	* 859.99	* 5327335.0	* 0.01	* 19497.65	* 19497.55	* 19938.05	*	
20377.79 *	20377.64 *	1040.40	*	*	*	*	*	*	*	*	
*	*	*	*	*	*	*	*	*	*	*	
*	*	*	*	*	*	*	*	*	*	*	
* 1	* 213.25	*	0.33	* 880.24	* 6986536.0	*	* 19497.55	*	* 19938.05	*	
*	20377.79 *	1040.40	*	*	*	*	*	*	*	*	
* 1	* 213.25	*	0.33	* 880.24	* 6994050.0	* 0.01	* 19497.55	* 19497.55	* 19938.05	*	
20377.79 *	20377.79 *	1040.40	*	*	*	*	*	*	*	*	
*	*	*	*	*	*	*	*	*	*	*	
*	*	*	*	*	*	*	*	*	*	*	
* 1	* 213.21	*	0.31	* 1010.19	* 7351368.0	*	* 19408.31	*	* 19954.40	*	
*	20418.50 *	1044.90	*	*	*	*	*	*	*	*	
* 1	* 213.21	*	0.31	* 928.20	* 7227547.0	* 0.01	* 19490.30	* 19490.30	* 19954.40	*	
20418.50 *	20418.50 *	1044.90	*	*	*	*	*	*	*	*	
*	*	*	*	*	*	*	*	*	*	*	
*	*	*	*	*	*	*	*	*	*	*	
* 1	* 213.11	*	0.40	* 927.80	* 5493675.0	*	* 19616.88	*	* 20102.60	*	
*	20544.67 *	1047.60	*	*	*	*	*	*	*	*	
* 1	* 213.11	*	0.40	* 927.79	* 5496745.0	* 0.01	* 19616.88	* 19616.88	* 20102.60	*	
20544.67 *	20544.67 *	1047.60	*	*	*	*	*	*	*	*	
*	*	*	*	*	*	*	*	*	*	*	
*	*	*	*	*	*	*	*	*	*	*	
* 1	* 213.03	*	0.42	* 965.60	* 5167811.0	*	* 19602.70	*	* 20131.96	*	
*	20591.83 *	1046.70	*	*	*	*	*	*	*	*	
* 1	* 213.03	*	0.42	* 919.76	* 5170676.0	* 0.01	* 19672.07	* 19672.00	* 20131.96	*	
20591.83 *	20591.83 *	1046.70	*	*	*	*	*	*	*	*	
*	*	*	*	*	*	*	*	*	*	*	
*	*	*	*	*	*	*	*	*	*	*	
* 1	* 212.93	*	0.48	* 798.99	* 4575514.0	*	* 19690.76	*	* 20090.25	*	
*	20754.14 *	1045.40	*	*	*	*	*	*	*	*	
* 1	* 212.93	*	0.48	* 798.99	* 4579008.0	* 0.01	* 19690.76	* 19690.76	* 20090.25	*	
20489.75 *	20489.75 *	1045.40	*	*	*	*	*	*	*	*	
*	*	*	*	*	*	*	*	*	*	*	
*	*	*	*	*	*	*	*	*	*	*	
* 1	* 212.84	*	0.58	* 635.75	* 3778154.0	*	* 19711.50	*	* 20029.38	*	
*	20347.25 *	1043.10	*	*	*	*	*	*	*	*	
* 1	* 212.84	*	0.58	* 635.75	* 3782263.0	* 0.01	* 19711.50	* 19711.50	* 20029.38	*	
20347.25 *	20347.25 *	1043.10	*	*	*	*	*	*	*	*	
*	*	*	*	*	*	*	*	*	*	*	
*	*	*	*	*	*	*	*	*	*	*	
* 1	* 212.74	*	0.51	* 676.59	* 4336312.0	*	* 19690.61	*	* 20028.90	*	
*	20367.19 *	1041.60	*	*	*	*	*	*	*	*	
* 1	* 212.74	*	0.51	* 676.59	* 4341428.0	* 0.01	* 19690.61	* 19690.61	* 20028.90	*	
20367.20 *	20367.20 *	1041.60	*	*	*	*	*	*	*	*	
*	*	*	*	*	*	*	*	*	*	*	
*	*	*	*	*	*	*	*	*	*	*	
* 1	* 212.68	*	0.44	* 629.02	* 5173110.0	*	* 19501.07	*	* 19815.59	*	
*	20130.09 *	1036.90	*	*	*	*	*	*	*	*	
* 1	* 212.68	*	0.44	* 629.03	* 5178274.0	* 0.01	* 19501.07	* 19501.07	* 19815.59	*	
20130.10 *	20130.10 *	1036.90	*	*	*	*	*	*	*	*	
*	*	*	*	*	*	*	*	*	*	*	
*	*	*	*	*	*	*	*	*	*	*	
* 1	* 212.675 BR U	*	0.46	* 603.60	* 3867106.0	*	* 19501.78	*	* 19815.59	*	
*	20129.38 *	1036.90	*	*	*	*	*	*	*	*	
* 1	* 212.675 BR U	*	0.47	* 603.16	* 3846322.0	* -0.09	* 19502.00	* 19501.07	* 19815.59	*	
20130.10 *	20129.17 *	1036.90	*	*	*	*	*	*	*	*	
*	*	*	*	*	*	*	*	*	*	*	
*	*	*	*	*	*	*	*	*	*	*	
* 1	* 212.675 BR D	*	0.48	* 601.64	* 3774164.0	*	* 19502.77	*	* 19815.59	*	
*	20128.41 *	1036.90	*	*	*	*	*	*	*	*	
* 1	* 212.675 BR D	*	0.48	* 601.23	* 3754689.0	* -0.08	* 19502.97	* 19502.33	* 19815.59	*	
20128.84 *	20128.20 *	1036.90	*	*	*	*	*	*	*	*	
*	*	*	*	*	*	*	*	*	*	*	
*	*	*	*	*	*	*	*	*	*	*	
* 1	* 212.67	*	0.45	* 626.50	* 4999902.0	*	* 19502.34	*	* 19815.59	*	
*	20128.83 *	1036.90	*	*	*	*	*	*	*	*	
* 1	* 212.67	*	0.45	* 626.51	* 5002046.0	* 0.01	* 19502.33	* 19502.33	* 19815.59	*	
20128.84 *	20128.84 *	1036.90	*	*	*	*	*	*	*	*	
*	*	*	*	*	*	*	*	*	*	*	
*	*	*	*	*	*	*	*	*	*	*	
* 1	* 212.56	*	0.90	* 520.87	* 2374592.0	*	* 19731.19	*	* 19991.60	*	
*	20452.05 *	1039.30	*	*	*	*	*	*	*	*	
* 1	* 212.56	*	0.89	* 521.09	* 2400862.0	* 0.11	* 19731.05	* 19731.05	* 19991.60	*	
20252.14 *	20252.14 *	1039.30	*	*	*	*	*	*	*	*	
*	*	*	*	*	*	*	*	*	*	*	
*	*	*	*	*	*	*	*	*	*	*	
* 1	* 212.46	*	0.72	* 557.52	* 3013623.0	*	* 19743.48	*	* 20022.17	*	
*	20301.00 *	1037.20	*	*	*	*	*	*	*	*	
* 1	* 212.46	*	0.72	* 557.66	* 2974820.0	* 0.06	* 19743.34	* 19743.34	* 20022.17	*	
20301.00 *	20301.00 *	1037.20	*	*	*	*	*	*	*	*	
*	*	*	*	*	*	*	*	*	*	*	
*	*	*	*	*	*	*	*	*	*	*	
* 1	* 212.37	*	0.87	* 573.56	* 2431159.0	*	* 19745.67	*	* 20032.38	*	
*	20319.24 *	1036.60	*	*	*	*	*	*	*	*	
* 1	* 212.37	*	0.87	* 573.59	* 2432618.0	* 0.01	* 19745.66	* 19744.06	* 20032.38	*	
20320.69 *	20319.25 *	1036.60	*	*	*	*	*	*	*	*	
*	*	*	*	*	*	*	*	*	*	*	
*	*	*	*	*	*	*	*	*	*	*	
* 1	* 212.27	*	0.89	* 605.48	* 2294057.0	*	* 19720.20	*	* 20022.80	*	
*	20325.67 *	1035.10	*	*	*	*	*	*	*	*	
* 1	* 212.27	*	0.89	* 605.47	* 2293842.0	* 0.00	* 19720.20	* 19715.25	* 20022.80	*	
20330.35 *	20325.67 *	1035.10	*	*	*	*	*	*	*	*	
*	*	*	*	*	*	*	*	*	*	*	
*	*	*	*	*	*	*	*	*	*	*	
* 1	* 212.18	*	0.66	* 627.49	* 3199385.0	*	* 19707.00	*	* 20020.71	*	
*	20334.49 *	1030.80	*	*	*	*	*	*	*	*	
* 1	* 212.18	*	0.66	* 627.48	* 3199239.0	* 0.00	* 19707.00	* 19706.85	* 20020.71	*	
20334.57 *	20334.49 *	1030.80	*	*	*	*	*	*	*	*	
*	*	*	*	*	*	*	*	*	*	*	
*	*	*	*	*	*	*	*	*	*	*	
* 1	* 212.08	*	0.49	* 589.61	* 4412668.0	*	* 19681.20	*	* 19975.99	*	
*	20270.81 *	1025.90	*	*	*	*	*	*	*	*	

1	212.08		0.49	589.61	4413183.0	0.00	19681.20	19681.09	19975.99	20270.90	20270.81	1025.90
1	211.99		0.55	549.09	3888612.0		18069.28		19974.71		20248.98	1025.39
1	211.99		0.55	549.11	3889154.0	0.00	19699.89	19699.77	19974.71	20249.64	20249.00	1025.39
1	211.89		0.52	564.71	4149297.0		19685.89		19968.25		20250.60	1024.19
1	211.89		0.52	564.72	4149889.0	0.00	19685.88	19685.75	19968.25	20250.74	20250.60	1024.19
1	211.79		0.52	567.50	4124562.0		18955.03		19933.79		20217.53	1023.84
1	211.79		0.52	567.51	4125269.0	0.00	19650.03	19649.87	19933.79	20217.70	20217.54	1023.84
1	211.71		0.52	569.01	4120759.0		19628.62		19913.13		20197.63	1023.19
1	211.71		0.52	569.02	4121579.0	0.00	19628.61	19628.43	19913.13	20197.84	20197.63	1023.19
1	211.64		0.55	561.64	3930828.0		19657.93		19938.75		20592.36	1022.58
1	211.64		0.55	561.65	3931813.0	0.00	19657.92	19657.70	19938.75	20219.80	20219.57	1022.58
1	211.54		0.63	525.33	3466441.0		19603.98		19830.70		20129.31	1021.90
1	211.54		0.63	525.34	3467896.0	0.01	19603.97	19603.65	19830.70	20129.64	20129.31	1021.90
1	211.525 BR U		0.72	493.41	2497570.0		19605.44		19830.70		20127.85	1021.90
1	211.525 BR U		0.72	493.43	2498846.0	0.01	19605.43	19603.65	19830.70	20129.64	20127.86	1021.90
1	211.525 BR D		0.78	494.83	2317593.0		19617.96		19876.38		20135.99	1021.80
1	211.525 BR D		0.78	494.84	2319789.0	0.01	19617.96	19615.19	19876.38	20137.39	20136.01	1021.80
1	211.51		0.71	520.99	3040748.0		19615.80		19876.38		20136.78	1021.80
1	211.51		0.71	521.01	3043452.0	0.01	19615.78	19615.19	19876.38	20137.39	20136.80	1021.80
1	211.41		0.59	565.09	3723381.0		19638.86		19922.07		20203.95	1018.30
1	211.41		0.59	565.16	3726792.0	0.01	19638.84	19638.10	19922.07	20206.06	20204.00	1018.30
1	211.31		0.73	819.02	2860350.0		19532.96		19943.65		20351.98	1020.80
1	211.31		0.72	819.22	2870373.0	0.03	19532.90	19531.21	19943.65	20356.09	20352.12	1020.80
1	211.21		0.64	987.73	3242182.0		19531.12		20025.00		20518.84	1021.10
1	211.21		0.63	987.91	3261022.0	0.05	19531.03	19528.75	20025.00	20521.25	20518.94	1021.10
1	211.12		0.35	1059.19	6313340.0		19500.14		20035.33		20559.33	1015.70
1	211.12		0.35	1059.33	6336533.0	0.04	19500.08	19498.47	20035.33	20610.00	20559.40	1015.70
1	211.02		0.52	1081.93	4130206.0		19489.44		19940.71		21286.03	1019.40
1	211.02		0.52	945.79	4101719.0	-0.01	19489.46	19487.12	19940.71	21150.00	21150.00	1019.40
1	210.93		0.52	2037.91	4008755.0		19482.32		19946.96		21576.00	1018.70
1	210.93		0.52	2037.02	4020630.0	0.02	19482.29	19479.13	19946.96	21575.00	21575.00	1018.70
1	210.83		0.56	2215.16	3754969.0		19454.77		19930.41		21718.95	1019.10
1	210.83		0.56	2196.24	3750854.0	0.01	19454.76	19450.42	19930.41	21700.00	21700.00	1019.10
1	210.74		0.45	1394.18	4703873.0		19430.23		19929.91		21787.04	1018.20
1	210.74		0.45	1394.30	4711988.0	0.01	19430.21	19426.13	19929.91	21800.00	21787.08	1018.20

* 1	* 210.64	*	0.45 *	2361.78 *	4654881.0 *	*	19401.51 *	*	19924.60 *	
*	21800.00 *	1017.70 *	*	*	*	*	*	*	*	
* 1	* 210.64	*	0.45 *	2361.98 *	4666447.0 *	0.02 *	19401.36 *	19388.60 *	19924.60 *	
21800.00 *	21800.00 *	1017.70 *	*	*	*	*	*	*	*	
* 1	* 210.55	*	0.50 *	1536.07 *	4151855.0 *	*	19333.44 *	*	19902.68 *	
*	21300.00 *	1018.00 *	*	*	*	*	*	*	*	
* 1	* 210.55	*	0.50 *	1370.58 *	4161094.0 *	0.02 *	19333.38 *	19322.17 *	19902.68 *	
21110.00 *	21110.00 *	1018.00 *	*	*	*	*	*	*	*	
* 1	* 210.46	*	0.25 *	1881.48 *	7863414.0 *	*	19377.00 *	*	20330.50 *	
*	21258.47 *	1016.30 *	*	*	*	*	*	*	*	
* 1	* 210.46	*	0.25 *	1881.51 *	7827722.0 *	0.02 *	19377.00 *	19377.00 *	20330.50 *	
21284.00 *	21258.51 *	1016.30 *	*	*	*	*	*	*	*	
* 1	* 210.36	*	0.37 *	1899.90 *	5532391.0 *	*	19381.22 *	*	20333.16 *	
*	21281.11 *	1017.40 *	*	*	*	*	*	*	*	
* 1	* 210.36	*	0.37 *	1899.97 *	5545466.0 *	0.02 *	19381.19 *	19375.17 *	20333.16 *	
21291.16 *	21281.16 *	1017.40 *	*	*	*	*	*	*	*	
* 1	* 210.26	*	0.33 *	1932.15 *	5957557.0 *	*	19384.51 *	*	20354.45 *	
*	21316.67 *	1016.90 *	*	*	*	*	*	*	*	
* 1	* 210.26	*	0.33 *	1932.26 *	5972355.0 *	0.02 *	19384.48 *	19377.08 *	20354.45 *	
21331.80 *	21316.74 *	1016.90 *	*	*	*	*	*	*	*	
* 1	* 210.17	*	0.42 *	1967.97 *	4740738.0 *	*	19354.60 *	*	20344.66 *	
*	21322.57 *	1014.70 *	*	*	*	*	*	*	*	
* 1	* 210.17	*	0.42 *	1968.03 *	4756407.0 *	0.02 *	19354.60 *	19354.60 *	20344.66 *	
21334.72 *	21322.63 *	1014.70 *	*	*	*	*	*	*	*	
* 1	* 210.07	*	0.26 *	2076.07 *	7064359.0 *	*	19210.00 *	*	20090.45 *	
*	21286.07 *	1009.00 *	*	*	*	*	*	*	*	
* 1	* 210.07	*	0.27 *	2015.00 *	6926312.0 *	0.07 *	19210.00 *	19210.00 *	20090.45 *	
21225.00 *	21225.00 *	1009.00 *	*	*	*	*	*	*	*	
* 1	* 209.98	*	0.21 *	1907.07 *	10404160.0 *	*	19324.97 *	*	19936.38 *	
*	21329.37 *	999.33 *	*	*	*	*	*	*	*	
* 1	* 209.98	*	0.22 *	1833.72 *	10180790.0 *	-0.01 *	19324.98 *	19316.53 *	19936.38 *	
21256.06 *	21256.06 *	999.33 *	*	*	*	*	*	*	*	
* 1	* 209.88	*	0.23 *	1597.17 *	9888117.0 *	*	19521.68 *	*	19986.20 *	
*	21326.38 *	997.69 *	*	*	*	*	*	*	*	
* 1	* 209.88	*	0.23 *	1570.83 *	9845730.0 *	0.00 *	19521.68 *	19516.39 *	19986.20 *	
21299.85 *	21299.85 *	997.69 *	*	*	*	*	*	*	*	
* 1	* 209.79	*	0.22 *	1789.57 *	10179000.0 *	*	19511.09 *	*	19963.95 *	
*	21325.43 *	1002.93 *	*	*	*	*	*	*	*	
* 1	* 209.79	*	0.22 *	1764.06 *	10127920.0 *	0.00 *	19511.08 *	19444.07 *	19963.95 *	
21299.89 *	21299.89 *	1002.93 *	*	*	*	*	*	*	*	
* 1	* 209.69	*	0.34 *	1430.98 *	6177772.0 *	*	19502.09 *	*	20018.32 *	
*	21316.41 *	1004.31 *	*	*	*	*	*	*	*	
* 1	* 209.69	*	0.34 *	1431.39 *	6182646.0 *	0.01 *	19502.08 *	19492.43 *	20018.32 *	
21350.00 *	21316.43 *	1004.31 *	*	*	*	*	*	*	*	
* 1	* 209.60	*	0.49 *	1587.44 *	4325159.0 *	*	19452.34 *	*	20255.11 *	
*	21064.47 *	1004.15 *	*	*	*	*	*	*	*	
* 1	* 209.60	*	0.49 *	1582.46 *	4309013.0 *	0.00 *	19457.31 *	19457.31 *	20255.11 *	
21064.47 *	21064.47 *	1004.15 *	*	*	*	*	*	*	*	
* 1	* 209.54	*	0.38 *	1096.35 *	5640835.0 *	*	19475.80 *	*	20033.00 *	
*	20572.14 *	1004.27 *	*	*	*	*	*	*	*	
* 1	* 209.54	*	0.38 *	1096.36 *	5642701.0 *	0.00 *	19475.79 *	19471.75 *	20033.00 *	
20594.25 *	20572.15 *	1004.27 *	*	*	*	*	*	*	*	
* 1	* 209.535 BR U *		0.43 *	1014.66 *	4207355.0 *	*	19475.95 *	*	20033.00 *	
*	20570.61 *	1004.27 *	*	*	*	*	*	*	*	
* 1	* 209.535 BR U *		0.43 *	1014.69 *	4208735.0 *	0.00 *	19475.94 *	19471.75 *	20033.00 *	
20594.25 *	20570.63 *	1004.27 *	*	*	*	*	*	*	*	
* 1	* 209.535 BR D *		0.44 *	1013.39 *	4140138.0 *	*	19476.04 *	*	20033.00 *	
*	20569.42 *	1004.27 *	*	*	*	*	*	*	*	
* 1	* 209.535 BR D *		0.44 *	1013.42 *	4141590.0 *	0.00 *	19476.03 *	19471.75 *	20033.00 *	
20594.25 *	20569.45 *	1004.27 *	*	*	*	*	*	*	*	
* 1	* 209.53	*	0.40 *	1095.30 *	5455800.0 *	*	19475.91 *	*	20033.00 *	
*	20571.21 *	1004.27 *	*	*	*	*	*	*	*	
* 1	* 209.53	*	0.40 *	1095.33 *	5457836.0 *	0.00 *	19475.91 *	19471.75 *	20033.00 *	
20594.25 *	20571.24 *	1004.27 *	*	*	*	*	*	*	*	
* 1	* 209.42	*	0.48 *	1258.68 *	4386420.0 *	*	19350.65 *	*	19964.52 *	
*	20609.33 *	998.44 *	*	*	*	*	*	*	*	
* 1	* 209.42	*	0.48 *	1258.70 *	4389308.0 *	0.01 *	19350.64 *	19318.56 *	19964.52 *	
20610.47 *	20609.33 *	998.44 *	*	*	*	*	*	*	*	
* 1	* 209.33	*	0.38 *	1631.54 *	5534856.0 *	*	19127.49 *	*	19900.75 *	
*	20773.15 *	993.71 *	*	*	*	*	*	*	*	
* 1	* 209.33	*	0.38 *	1587.64 *	5537801.0 *	0.01 *	19127.46 *	19086.19 *	19900.75 *	
20715.31 *	20715.10 *	993.71 *	*	*	*	*	*	*	*	

*	*	*	*	*	*	*	*	*	*	*
* 1	* 209.24	*	0.49	* 1877.29	* 3994750.0	*	* 18962.63	*	* 19614.93	*
*	20907.53	* 1003.00	*	*	*	*	*	*	*	*
* 1	* 209.24	*	0.49	* 1837.81	* 3986606.0	* -0.01	* 19001.66	* 19001.66	* 19614.93	*
20907.53	* 20907.53	* 1003.00	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*	*
* 1	* 209.14	*	0.52	* 2057.92	* 3631464.0	*	* 19082.26	*	* 19672.84	*
*	21140.18	* 1002.87	*	*	*	*	*	*	*	*
* 1	* 209.14	*	0.52	* 2040.18	* 3633771.0	* 0.00	* 19100.00	* 19100.00	* 19672.84	*
21140.18	* 21140.18	* 1002.87	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*	*
* 1	* 209.04	*	0.45	* 2255.73	* 4316197.0	*	* 19097.86	*	* 19645.60	*
*	21356.72	* 1007.02	*	*	*	*	*	*	*	*
* 1	* 209.04	*	0.44	* 2229.68	* 4328640.0	* 0.00	* 19124.03	* 19124.03	* 19645.60	*
21356.72	* 21356.72	* 1007.02	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*	*
* 1	* 208.95	*	0.36	* 1809.49	* 5750383.0	*	* 19160.88	*	* 20005.15	*
*	20972.85	* 997.33	*	*	*	*	*	*	*	*
* 1	* 208.95	*	0.36	* 1796.52	* 5752962.0	* 0.00	* 19173.85	* 19173.85	* 20005.15	*
20972.83	* 20972.83	* 997.33	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*	*
* 1	* 208.85	*	0.47	* 1908.78	* 4242758.0	*	* 19212.01	*	* 20070.50	*
*	21127.42	* 998.88	*	*	*	*	*	*	*	*
* 1	* 208.85	*	0.47	* 1908.83	* 4246887.0	* 0.01	* 19212.00	* 19206.02	* 20070.50	*
21155.77	* 21127.44	* 998.88	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*	*
* 1	* 208.75	*	0.43	* 1816.82	* 5011211.0	*	* 19218.62	*	* 20082.97	*
*	21098.69	* 1000.44	*	*	*	*	*	*	*	*
* 1	* 208.75	*	0.43	* 1732.34	* 5014610.0	* 0.01	* 19218.60	* 19212.98	* 20082.97	*
20952.96	* 20950.94	* 1000.44	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*	*
* 1	* 208.67	*	0.54	* 1613.01	* 3779618.0	*	* 19326.32	*	* 20038.11	*
*	20939.33	* 1003.03	*	*	*	*	*	*	*	*
* 1	* 208.67	*	0.54	* 1612.42	* 3786569.0	* 0.01	* 19326.30	* 19317.69	* 20038.11	*
20938.72	* 20938.72	* 1003.03	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*	*
* 1	* 208.57	*	0.77	* 1378.64	* 2639931.0	*	* 19392.91	*	* 20056.84	*
*	20771.54	* 1002.61	*	*	*	*	*	*	*	*
* 1	* 208.57	*	0.76	* 1338.24	* 2646130.0	* 0.02	* 19392.88	* 19382.56	* 20056.84	*
20731.12	* 20731.12	* 1002.61	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*	*
* 1	* 208.48	*	0.54	* 2180.85	* 3586753.0	*	* 18503.77	*	* 19596.58	*
*	20684.62	* 998.70	*	*	*	*	*	*	*	*
* 1	* 208.48	*	0.54	* 2181.00	* 3613509.0	* 0.04	* 18503.68	* 18501.92	* 19596.58	*
20691.24	* 20684.68	* 998.70	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*	*
* 1	* 208.39	*	0.53	* 2229.30	* 3716312.0	*	* 18492.57	*	* 19604.62	*
*	20721.87	* 998.71	*	*	*	*	*	*	*	*
* 1	* 208.39	*	0.52	* 2229.53	* 3758501.0	* 0.06	* 18492.34	* 18468.95	* 19604.62	*
20724.42	* 20721.87	* 998.71	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*	*
* 1	* 208.29	*	0.55	* 2264.93	* 3479355.0	*	* 18005.26	*	* 19763.05	*
*	20892.19	* 1002.85	*	*	*	*	*	*	*	*
* 1	* 208.29	*	0.54	* 2265.55	* 3561403.0	* 0.12	* 18626.84	* 18561.82	* 19763.05	*
20909.13	* 20892.39	* 1002.85	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*	*
* 1	* 208.19	*	0.51	* 2467.04	* 3734871.0	*	* 18774.49	*	* 20030.73	*
*	21295.38	* 1001.01	*	*	*	*	*	*	*	*
* 1	* 208.19	*	0.50	* 2484.58	* 3861107.0	* 0.19	* 18773.79	* 18679.18	* 20030.73	*
21343.20	* 21295.88	* 1001.01	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*	*
* 1	* 208.10	*	0.51	* 2786.37	* 3864311.0	*	* 18908.12	*	* 19874.95	*
*	21696.36	* 999.34	*	*	*	*	*	*	*	*
* 1	* 208.10	*	0.48	* 2790.37	* 4107186.0	* 0.30	* 18906.48	* 18822.37	* 19874.95	*
21737.69	* 21696.86	* 999.34	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*	*
* 1	* 207.99	*	0.56	* 2515.31	* 3518848.0	*	* 19106.22	*	* 19935.06	*
*	21851.41	* 996.98	*	*	*	*	*	*	*	*
* 1	* 207.99	*	0.52	* 2625.07	* 3819440.0	* 0.49	* 19184.36	* 19184.36	* 19935.06	*
21863.07	* 21855.81	* 996.98	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*	*
* 1	* 207.90	*	0.49	* 2938.81	* 4010707.0	*	* 19109.71	*	* 19918.00	*
*	22136.83	* 991.51	*	*	*	*	*	*	*	*
* 1	* 207.90	*	0.43	* 3027.09	* 4606292.0	* 0.70	* 19108.17	* 19103.92	* 19918.00	*
22135.26	* 22135.26	* 991.51	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*	*
* 1	* 207.80	*	0.55	* 2391.44	* 3717606.0	*	* 19273.22	*	* 20187.29	*
*	21870.08	* 992.47	*	*	*	*	*	*	*	*
* 1	* 207.80	*	0.53	* 2093.48	* 3876604.0	* 0.67	* 19658.16	* 19658.16	* 20187.29	*
21871.22	* 21871.05	* 992.47	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*	*
* 1	* 207.71	*	0.58	* 2121.42	* 3567418.0	*	* 19409.55	*	* 20037.57	*
*	21699.84	* 992.51	*	*	*	*	*	*	*	*
* 1	* 207.71	*	0.60	* 1893.18	* 3540702.0	* 0.50	* 19531.66	* 19527.65	* 20037.57	*
21424.84	* 21424.84	* 992.51	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*	*
* 1	* 207.62	*	0.51	* 1909.13	* 4134863.0	*	* 19190.08	*	* 19964.29	*
*	21469.30	* 990.12	*	*	*	*	*	*	*	*

1	207.62		0.58	1444.32	3671629.0	0.05	19583.58	19577.92	19964.29		
21105.73	21105.73	990.12									
	207.49		0.49	1601.02	4094978.0		19445.40		20292.04		
	21046.42	984.35									
1	207.49		0.46	1603.82	4412321.0	0.52	19445.40	19387.28	20292.04		
21132.01	21049.22	984.35									
	207.485 BR U		0.55	1538.30	3235902.0		19445.40		20292.04		
	21043.70	984.35									
1	207.485 BR U		0.51	1541.61	3524142.0	0.61	19445.40	19387.28	20292.04		
21132.01	21047.01	984.35									
1	207.485 BR D		0.59	1530.55	3021671.0		19450.66		20259.64		
	21041.20	984.35									
1	207.485 BR D		0.53	1535.72	3358953.0	0.73	19449.45	19387.28	20259.64		
21132.01	21045.17	984.35									
1	207.48		0.58	1589.66	3456670.0		19450.87		20259.64		
	21040.53	984.35									
1	207.48		0.52	1595.08	3897568.0	0.77	19449.60	19387.28	20259.64		
21132.01	21044.68	984.35									
1	207.43		0.57	1660.26	3510649.0		19267.15		20166.20		
	20927.41	983.56									
1	207.43		0.50	1569.10	4025333.0	0.90	19363.86	19363.86	20166.20		
20968.54	20932.96	983.56									
1	207.34		0.39	1465.55	5369246.0		19283.77		20053.55		
	20749.32	983.49									
1	207.34		0.36	1422.33	5901829.0	0.94	19328.88	19328.88	20053.55		
20778.22	20751.21	983.49									
1	207.27		0.34	1410.68	6421410.0		19268.13		19965.99		
	20725.32	982.68									
1	207.27		0.32	1047.92	6854151.0	0.95	19441.55	19441.55	19965.99		
20490.43	20489.47	982.68									
1	207.16		0.16	1893.47	14746040.0		18601.44		19925.62		
	20501.37	969.66									
1	207.16		0.16	1107.07	14775160.0	0.89	19371.46	19371.46	19925.62		
20479.77	20478.53	969.66									
1	207.07		0.86	2121.27	2286164.0		18413.03		20268.81		
	20748.27	992.80									
1	207.07		0.88	1710.74	2254410.0	0.43	18857.57	18857.57	20268.81		
20748.18	20748.18	992.80									
1	206.97		0.36	1872.81	5970014.0		18394.10		20268.25		
	20800.00	981.70									
1	206.97		0.36	1567.64	6019868.0	0.90	18850.00	18850.00	20268.25		
20800.00	20800.00	981.70									
1	206.88		0.31	2078.38	7226234.0		18332.23		20264.40		
	20800.00	981.80									
1	206.88		0.31	1800.86	7191503.0	0.89	18838.93	18838.93	20264.40		
20800.00	20800.00	981.80									
1	206.79		0.29	2279.32	7514464.0		18343.49		20279.13		
	20895.15	981.80									
1	206.79		0.29	1934.31	7590998.0	0.91	18806.01	18806.01	20279.13		
20895.15	20895.15	981.80									
1	206.7		0.27	2572.12	7908733.0		18250.64		20324.45		
	21165.35	981.80									
1	206.7		0.27	2093.13	8015485.0	0.93	18784.84	18784.84	20324.45		
21138.80	21138.11	981.80									
1	206.6		0.33	2786.93	6230824.0		17938.02		20306.18		
	21066.25	981.80									
1	206.6		0.33	2185.35	6298256.0	0.89	18675.58	18675.58	20306.18		
21066.25	21066.25	981.80									
1	206.51		0.45	2915.00	4521128.0		17700.00		20084.15		
	20615.00	981.80									
1	206.51		0.46	2053.65	4533739.0	0.82	18561.35	18561.35	20084.15		
20622.10	20615.00	981.80									
1	206.41		0.46	3564.70	4380634.0		17111.00		20154.06		
	20685.21	982.50									
1	206.41		0.47	2190.50	4381569.0	0.80	18494.71	18494.71	20154.06		
20685.21	20685.21	982.50									
1	206.32		0.46	3656.33	4293590.0		17150.00		20171.80		
	20854.87	982.80									
1	206.32		0.47	2377.93	4288577.0	0.79	18476.94	18476.94	20171.80		
20854.87	20854.87	982.80									

* 1	* 206.22	*	0.52 *	3772.23 *	3853835.0 *	*	16969.39 *	*	20127.88 *		
*	20977.29 *	983.00 *	*	*	*	*	*	*	*		
* 1	* 206.22	*	0.51 *	2441.77 *	3986076.0 *	0.87 *	18435.00 *	18435.00 *	20127.88 *		
20977.29 *	20977.29 *	983.00 *	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
* 1	* 206.13	*	0.52 *	3610.69 *	3625268.0 *	*	17049.27 *	*	20059.00 *		
*	20914.89 *	984.60 *	*	*	*	*	*	*	*		
* 1	* 206.13	*	0.57 *	2386.31 *	3294110.0 *	0.58 *	18370.00 *	18370.00 *	20059.00 *		
20914.89 *	20914.89 *	984.60 *	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
* 1	* 206.03	*	0.61 *	3627.33 *	3071777.0 *	*	16967.78 *	*	19987.25 *		
*	21127.08 *	984.50 *	*	*	*	*	*	*	*		
* 1	* 206.03	*	0.67 *	2131.13 *	2786996.0 *	0.18 *	18320.00 *	18320.00 *	19987.25 *		
20772.60 *	20772.60 *	984.50 *	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
* 1	* 205.94	*	0.48 *	3651.58 *	3932557.0 *	*	17284.78 *	*	19792.05 *		
*	21215.00 *	981.00 *	*	*	*	*	*	*	*		
* 1	* 205.94	*	0.45 *	2567.00 *	4259277.0 *	0.58 *	18200.00 *	18200.00 *	19792.05 *		
20767.00 *	20767.00 *	981.00 *	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
* 1	* 205.84	*	0.38 *	3746.65 *	5233237.0 *	*	17620.55 *	*	19511.65 *		
*	21450.00 *	979.50 *	*	*	*	*	*	*	*		
* 1	* 205.84	*	0.36 *	2435.70 *	5449105.0 *	0.61 *	18100.00 *	18100.00 *	19511.65 *		
20535.70 *	20535.70 *	979.50 *	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
* 1	* 205.75	*	0.37 *	3257.26 *	3950065.0 *	*	18027.86 *	*	19249.15 *		
*	21400.00 *	973.90 *	*	*	*	*	*	*	*		
* 1	* 205.75	*	0.35 *	2402.30 *	4290733.0 *	0.74 *	18048.00 *	18048.00 *	19249.15 *		
20450.30 *	20450.30 *	973.90 *	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
* 1	* 205.62	*	0.31 *	3845.50 *	6366636.0 *	*	17560.75 *	*	19333.05 *		
*	21480.00 *	976.00 *	*	*	*	*	*	*	*		
* 1	* 205.62	*	0.31 *	2234.10 *	6407340.0 *	0.71 *	18216.00 *	18216.00 *	19333.05 *		
20450.10 *	20450.10 *	976.00 *	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
* 1	* 205.52	*	0.28 *	3732.69 *	7454148.0 *	*	17650.00 *	*	19601.55 *		
*	21400.00 *	975.90 *	*	*	*	*	*	*	*		
* 1	* 205.52	*	0.29 *	2019.90 *	7126233.0 *	0.65 *	18591.60 *	18591.60 *	19601.55 *		
20611.50 *	20611.50 *	975.90 *	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
* 1	* 205.43	*	0.29 *	3335.92 *	7116273.0 *	*	17800.00 *	*	19843.95 *		
*	21400.00 *	976.10 *	*	*	*	*	*	*	*		
* 1	* 205.43	*	0.33 *	1842.37 *	6524281.0 *	0.53 *	18922.07 *	18917.50 *	19843.95 *		
20770.40 *	20764.44 *	976.10 *	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
* 1	* 205.4	*	0.24 *	3650.00 *	8621961.0 *	*	17800.00 *	*	19893.90 *		
*	21450.00 *	975.50 *	*	*	*	*	*	*	*		
* 1	* 205.4	*	0.26 *	1747.80 *	8073093.0 *	0.57 *	19020.00 *	19020.00 *	19893.90 *		
20767.80 *	20767.80 *	975.50 *	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
* 1	* 205.34	*	0.30 *	3427.47 *	5172262.0 *	*	17906.05 *	*	20013.65 *		
*	21400.00 *	975.57 *	*	*	*	*	*	*	*		
* 1	* 205.34	*	0.35 *	1562.96 *	4487226.0 *	0.34 *	19180.00 *	19180.00 *	20013.65 *		
20742.96 *	20742.96 *	975.57 *	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
* 1	* 205.25	*	0.28 *	3390.62 *	6571525.0 *	*	17950.00 *	*	20227.10 *		
*	21340.62 *	973.40 *	*	*	*	*	*	*	*		
* 1	* 205.25	*	0.32 *	1482.30 *	5737392.0 *	0.23 *	19300.00 *	19300.00 *	20227.10 *		
20782.30 *	20782.30 *	973.40 *	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
* 1	* 205.15	*	0.49 *	3035.78 *	3632205.0 *	*	18072.60 *	*	20266.70 *		
*	21134.21 *	973.10 *	*	*	*	*	*	*	*		
* 1	* 205.15	*	0.47 *	1445.00 *	3844879.0 *	0.49 *	19385.00 *	19385.00 *	20266.70 *		
20830.00 *	20830.00 *	973.10 *	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
* 1	* 205.06	*	0.47 *	2103.93 *	3787357.0 *	*	18080.00 *	*	20287.35 *		
*	20907.77 *	970.50 *	*	*	*	*	*	*	*		
* 1	* 205.06	*	0.46 *	1435.30 *	3871248.0 *	0.51 *	19470.00 *	19470.00 *	20287.35 *		
20905.30 *	20905.30 *	970.50 *	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
* 1	* 204.97	*	0.36 *	2834.16 *	4869981.0 *	*	18200.00 *	*	20253.15 *		
*	21034.16 *	973.30 *	*	*	*	*	*	*	*		
* 1	* 204.97	*	0.42 *	1516.30 *	4255498.0 *	0.20 *	19445.00 *	19445.00 *	20253.15 *		
20961.30 *	20961.30 *	973.30 *	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
* 1	* 204.87	*	0.31 *	2652.20 *	5920537.0 *	*	18300.00 *	*	20208.57 *		
*	20952.20 *	968.10 *	*	*	*	*	*	*	*		
* 1	* 204.87	*	0.34 *	1542.20 *	5343764.0 *	0.18 *	19410.00 *	19410.00 *	20208.57 *		
20952.20 *	20952.20 *	968.10 *	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
* 1	* 204.78	*	0.25 *	2430.43 *	7512086.0 *	*	18400.00 *	*	20115.46 *		
*	20830.43 *	967.60 *	*	*	*	*	*	*	*		
* 1	* 204.78	*	0.28 *	1620.43 *	6634912.0 *	0.13 *	19210.00 *	19210.00 *	20115.46 *		
20830.43 *	20830.43 *	967.60 *	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
* 1	* 204.68	*	0.33 *	2091.37 *	5457597.0 *	*	18455.00 *	*	19935.21 *		
*	20546.37 *	971.40 *	*	*	*	*	*	*	*		
* 1	* 204.68	*	0.38 *	1586.28 *	4834418.0 *	-0.04 *	18960.00 *	18960.00 *	19935.21 *		
20546.37 *	20546.28 *	971.40 *	*	*	*	*	*	*	*		

*	*	*	*	*	*	*	*	*	*	*	*
* 1	* 204.61	*	0.41	* 1891.94	* 4447568.0	*	*	18570.00	*	*	19977.10 *
*	20482.90 *	972.60	*	*	*	*	*	*	*	*	*
* 1	* 204.61	*	0.42	* 1602.90	* 4289077.0	*	0.03	* 18880.00	* 18880.00	*	19977.10 *
20482.90 *	20482.90 *	972.60	*	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*	*	*
* 1	* 204.53	*	0.46	* 1765.90	* 3850514.0	*	*	18730.00	*	*	19840.65 *
*	20495.90 *	972.70	*	*	*	*	*	*	*	*	*
* 1	* 204.53	*	0.47	* 1610.90	* 3743779.0	*	0.00	* 18885.00	* 18885.00	*	19840.65 *
20495.90 *	20495.90 *	972.70	*	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*	*	*
* 1	* 204.42	*	0.51	* 1804.93	* 3325542.0	*	*	18874.10	*	*	19853.75 *
*	20679.03 *	971.40	*	*	*	*	*	*	*	*	*
* 1	* 204.42	*	0.52	* 1653.57	* 3259710.0	*	-0.02	* 19025.40	* 19025.40	*	19853.75 *
20679.03 *	20678.97 *	971.40	*	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*	*	*
* 1	* 204.34	*	0.52	* 1701.95	* 3299565.0	*	*	19100.00	*	*	19958.12 *
*	20814.38 *	969.30	*	*	*	*	*	*	*	*	*
* 1	* 204.34	*	0.52	* 1701.99	* 3300310.0	*	0.01	* 19100.00	* 19100.00	*	19958.12 *
20814.38 *	20814.38 *	969.30	*	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*	*	*
* 1	* 204.25	*	1.00	* 1517.18	* 1863855.0	*	*	19300.00	*	*	20059.27 *
*	20817.18 *	969.22	*	*	*	*	*	*	*	*	*
* 1	* 204.25	*	1.00	* 1516.99	* 1855915.0	*	-0.02	* 19300.00	* 19300.00	*	20059.27 *
20817.18 *	20816.99 *	969.22	*	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*	*	*
* 1	* 204.15	*	0.40	* 1831.90	* 5042939.0	*	*	18882.41	*	*	20116.69 *
*	21031.89 *	966.00	*	*	*	*	*	*	*	*	*
* 1	* 204.15	*	0.40	* 1831.89	* 5038994.0	*	0.02	* 19200.00	* 19200.00	*	20116.69 *
21031.89 *	21031.89 *	966.00	*	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*	*	*
* 1	* 204.05	*	0.50	* 2116.76	* 3910438.0	*	*	18963.78	*	*	20022.18 *
*	21080.54 *	965.00	*	*	*	*	*	*	*	*	*
* 1	* 204.05	*	0.49	* 2116.76	* 3927263.0	*	0.02	* 18963.78	* 18963.78	*	20022.18 *
21080.54 *	21080.54 *	965.00	*	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*	*	*
* 1	* 203.96	*	0.80	* 2050.76	* 2269861.0	*	*	18736.54	*	*	19760.59 *
*	20787.30 *	964.10	*	*	*	*	*	*	*	*	*
* 1	* 203.96	*	0.75	* 2050.76	* 2417852.0	*	0.26	* 18736.54	* 18736.54	*	19760.59 *
20787.30 *	20787.30 *	964.10	*	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*	*	*
* 1	* 203.86	*	0.36	* 2191.78	* 5460451.0	*	*	18542.49	*	*	19612.00 *
*	20734.27 *	962.30	*	*	*	*	*	*	*	*	*
* 1	* 203.86	*	0.35	* 2191.78	* 5666380.0	*	0.25	* 18542.49	* 18542.49	*	19612.00 *
20734.27 *	20734.27 *	962.30	*	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*	*	*
* 1	* 203.77	*	0.35	* 2511.27	* 5549798.0	*	*	18232.41	*	*	19484.11 *
*	20743.68 *	963.30	*	*	*	*	*	*	*	*	*
* 1	* 203.77	*	0.34	* 2511.27	* 5803637.0	*	0.29	* 18232.41	* 18232.41	*	19484.11 *
20743.68 *	20743.68 *	963.30	*	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*	*	*
* 1	* 203.67	*	0.37	* 2860.23	* 5348655.0	*	*	17837.20	*	*	19524.10 *
*	20697.43 *	962.30	*	*	*	*	*	*	*	*	*
* 1	* 203.67	*	0.36	* 2567.43	* 5512272.0	*	0.29	* 18130.00	* 18130.00	*	19524.10 *
20697.43 *	20697.43 *	962.30	*	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*	*	*
* 1	* 203.58	*	0.37	* 2993.59	* 5333542.0	*	*	17707.80	*	*	19454.49 *
*	20701.39 *	962.10	*	*	*	*	*	*	*	*	*
* 1	* 203.58	*	0.36	* 2676.39	* 5599491.0	*	0.35	* 18025.00	* 18025.00	*	19454.49 *
20701.39 *	20701.39 *	962.10	*	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*	*	*
* 1	* 203.48	*	0.41	* 3454.84	* 4642347.0	*	*	17389.48	*	*	19394.68 *
*	20844.31 *	962.20	*	*	*	*	*	*	*	*	*
* 1	* 203.48	*	0.40	* 2911.71	* 4742364.0	*	0.33	* 17932.60	* 17932.60	*	19394.68 *
20844.31 *	20844.31 *	962.20	*	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*	*	*
* 1	* 203.39	*	0.42	* 3309.00	* 4495896.0	*	*	17519.20	*	*	19504.80 *
*	21036.48 *	959.90	*	*	*	*	*	*	*	*	*
* 1	* 203.39	*	0.41	* 2930.05	* 4631119.0	*	0.40	* 17970.80	* 17970.80	*	19504.80 *
21036.47 *	21036.47 *	959.90	*	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*	*	*
* 1	* 203.29	*	0.45	* 3441.31	* 4136567.0	*	*	17590.00	*	*	19574.09 *
*	21074.86 *	960.70	*	*	*	*	*	*	*	*	*
* 1	* 203.29	*	0.44	* 3009.26	* 4265774.0	*	0.41	* 18065.60	* 18065.60	*	19574.09 *
21074.86 *	21074.86 *	960.70	*	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*	*	*
* 1	* 203.19	*	0.42	* 3364.24	* 3879641.0	*	*	17587.00	*	*	19623.75 *
*	20951.24 *	956.70	*	*	*	*	*	*	*	*	*
* 1	* 203.19	*	0.43	* 2689.14	* 3814345.0	*	0.36	* 18262.10	* 18262.10	*	19623.75 *
20951.24 *	20951.24 *	956.70	*	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*	*	*
* 1	* 203.09	*	0.46	* 3213.89	* 3568365.0	*	*	17691.96	*	*	19710.91 *
*	20905.85 *	958.70	*	*	*	*	*	*	*	*	*
* 1	* 203.09	*	0.46	* 2475.85	* 3526911.0	*	0.32	* 18430.00	* 18430.00	*	19710.91 *
20905.85 *	20905.85 *	958.70	*	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*	*	*
* 1	* 202.99	*	0.42	* 3260.60	* 3947903.0	*	*	17673.37	*	*	19698.15 *
*	20933.96 *	959.20	*	*	*	*	*	*	*	*	*

1	202.99		0.41	2457.50	4009597.0	0.37	18469.40	18469.40	19698.15	20926.90	20926.90	959.20
1	202.9		0.36	3412.11	4574160.0		17518.03		19724.55		20967.30	956.50
1	202.9		0.37	2511.71	4523109.0	0.36	18455.60	18455.60	19724.55	20967.31	20967.31	956.50
1	202.8		0.34	3540.65	4820928.0		17429.80		19702.88		21011.58	956.40
1	202.8		0.35	2620.78	4688712.0	0.33	18390.80	18390.80	19702.88	21011.58	21011.58	956.40
1	202.69		0.37	3701.48	4357701.0		17191.27		19729.80		21080.23	953.70
1	202.69		0.38	2553.41	4258962.0	0.29	18526.82	18377.80	19729.80	21080.23	21080.23	953.70
1	202.59		0.40	3629.52	3966361.0		17348.76		19805.89		21190.40	953.70
1	202.59		0.42	2606.65	3831880.0	0.23	18524.37	18416.70	19805.89	21190.40	21190.40	953.70
1	202.48		0.40	3674.66	4078760.0		17497.88		19941.58		21302.69	952.50
1	202.48		0.42	2826.14	3877911.0	0.11	18360.00	18360.00	19941.58	21302.70	21302.70	952.50
1	202.37		0.39	3850.50	4253334.0		17583.96		20044.94		21577.77	954.60
1	202.37		0.41	3165.40	4009107.0	0.03	18270.00	18270.00	20044.94	21577.77	21577.77	954.60
1	202.29		0.29	4060.28	5764473.0		17742.72		20000.20		21803.00	955.50
1	202.29		0.29	3605.60	5756355.0	0.08	18197.40	18197.40	20000.20	21803.00	21803.00	955.50
1	202.18		0.38	4239.81	4172957.0		17589.10		20039.05		21936.53	950.00
1	202.18		0.38	3692.06	4154161.0	0.06	18139.70	18139.70	20039.05	21936.54	21936.54	950.00
1	202.09		0.57	4052.05	2643855.0		17755.36		20075.58		21936.96	950.00
1	202.09		0.57	3682.20	2659472.0	0.07	18253.40	18212.90	20075.58	21936.96	21936.96	950.00
1	201.99		0.38	3548.70	4634981.0		17895.49		20063.91		21861.56	948.70
1	201.99		0.37	3219.77	4655852.0	0.09	18235.10	18235.10	20063.91	21861.56	21861.56	948.70
1	201.9		0.31	3830.97	5852611.0		17992.63		19890.86		21823.60	947.20
1	201.9		0.31	3830.97	5964132.0	0.11	17992.63	17992.63	19890.86	21823.60	21823.60	947.20
1	201.81		0.28	3646.80	6592084.0		17952.48		19875.08		21801.08	946.00
1	201.81		0.27	3650.46	6711267.0	0.12	17952.48	17952.48	19875.08	21801.08	21801.08	946.00
1	201.71		0.40	3844.58	3838417.0		18112.81		19817.78		21957.39	946.00
1	201.71		0.40	3415.69	3858296.0	0.11	18112.81	18112.81	19817.78	21528.50	21528.50	946.00
1	201.62		0.35	3854.25	4406350.0		18235.69		19855.50		22089.94	945.60
1	201.62		0.34	3241.81	4475808.0	0.14	18235.69	18235.69	19855.50	21477.50	21477.50	945.60
1	201.52		0.33	4181.52	3808935.0		18008.54		19667.57		22190.05	940.90
1	201.52		0.34	3382.85	3764143.0	0.12	18008.55	18008.55	19667.57	21391.40	21391.40	940.90
1	201.43		0.37	4131.77	4076199.0		18053.86		19678.50		22188.55	941.30
1	201.43		0.37	3288.24	4094692.0	0.13	18053.86	18053.86	19678.50	21342.10	21342.10	941.30
1	201.33		0.41	4277.40	3645795.0		18074.35		19715.66		22408.97	943.00
1	201.33		0.40	3307.45	3705386.0	0.16	18074.35	18074.35	19715.66	21381.80	21381.80	943.00

* 1	* 201.24	*	0.40 *	4357.41 *	3811227.0 *	*	18069.92 *	*	19818.68 *		
*	22430.09 *	943.00 *	*	*	*	*	*	*	*		
* 1	* 201.24	*	0.40 *	3500.08 *	3876386.0 *	0.19 *	18069.92 *	18069.92 *	19818.68 *		
21570.00 *	21570.00 *	943.00 *	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
* 1	* 201.14	*	0.31 *	4685.00 *	4966393.0 *	*	18040.42 *	*	19879.43 *		
*	22725.42 *	940.40 *	*	*	*	*	*	*	*		
* 1	* 201.14	*	0.30 *	3680.58 *	5142934.0 *	0.24 *	18040.42 *	18040.42 *	19879.43 *		
21721.00 *	21721.00 *	940.40 *	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
* 1	* 201.05	*	0.26 *	4915.94 *	5254537.0 *	*	17950.48 *	*	19898.61 *		
*	22866.42 *	941.50 *	*	*	*	*	*	*	*		
* 1	* 201.05	*	0.26 *	3898.52 *	5383665.0 *	0.26 *	17950.48 *	17950.48 *	19898.61 *		
21849.00 *	21849.00 *	941.50 *	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
* 1	* 200.95	*	0.25 *	5141.07 *	6344019.0 *	*	17952.91 *	*	19929.90 *		
*	23093.98 *	939.80 *	*	*	*	*	*	*	*		
* 1	* 200.95	*	0.24 *	4001.09 *	6536869.0 *	0.28 *	17952.91 *	17952.91 *	19929.90 *		
21954.00 *	21954.00 *	939.80 *	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
* 1	* 200.86	*	0.27 *	5228.08 *	4470468.0 *	*	18000.00 *	*	20014.00 *		
*	23228.08 *	938.50 *	*	*	*	*	*	*	*		
* 1	* 200.86	*	0.26 *	4032.00 *	4591685.0 *	0.30 *	18000.00 *	18000.00 *	20014.00 *		
22032.00 *	22032.00 *	938.50 *	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
* 1	* 200.77	*	0.28 *	5805.53 *	5320745.0 *	*	17630.00 *	*	19889.90 *		
*	23630.00 *	936.90 *	*	*	*	*	*	*	*		
* 1	* 200.77	*	0.27 *	4122.20 *	5545445.0 *	0.35 *	17828.80 *	17828.80 *	19889.90 *		
21951.00 *	21951.00 *	936.90 *	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
* 1	* 200.67	*	0.30 *	4971.62 *	4569344.0 *	*	17540.00 *	*	19784.30 *		
*	23915.00 *	939.80 *	*	*	*	*	*	*	*		
* 1	* 200.67	*	0.28 *	4009.30 *	4819677.0 *	0.41 *	17640.00 *	17640.00 *	19784.30 *		
21649.30 *	21649.30 *	939.80 *	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
* 1	* 200.58	*	0.30 *	5529.80 *	4526509.0 *	*	17460.00 *	*	19698.50 *		
*	23847.47 *	937.60 *	*	*	*	*	*	*	*		
* 1	* 200.58	*	0.28 *	3940.00 *	4759369.0 *	0.47 *	17510.00 *	17510.00 *	19698.50 *		
21450.00 *	21450.00 *	937.60 *	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
* 1	* 200.49	*	0.26 *	6161.28 *	5347928.0 *	*	17380.00 *	*	19445.15 *		
*	24485.00 *	936.90 *	*	*	*	*	*	*	*		
* 1	* 200.49	*	0.25 *	3791.00 *	5487085.0 *	0.50 *	17380.00 *	17380.00 *	19445.15 *		
21171.00 *	21171.00 *	936.90 *	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
* 1	* 200.39	*	0.24 *	5819.36 *	6034760.0 *	*	17300.00 *	*	19361.75 *		
*	24775.00 *	937.00 *	*	*	*	*	*	*	*		
* 1	* 200.39	*	0.23 *	3741.00 *	6188329.0 *	0.52 *	17300.00 *	17300.00 *	19361.75 *		
21041.00 *	21041.00 *	937.00 *	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
* 1	* 200.3	*	0.34 *	5039.41 *	4488975.0 *	*	17205.00 *	*	19338.20 *		
*	24887.90 *	937.70 *	*	*	*	*	*	*	*		
* 1	* 200.3	*	0.31 *	3683.53 *	4835241.0 *	0.60 *	17205.00 *	17205.00 *	19338.20 *		
20896.00 *	20888.53 *	937.70 *	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
* 1	* 200.2	*	0.37 *	5551.98 *	3992119.0 *	*	17115.00 *	*	19352.25 *		
*	25144.80 *	937.00 *	*	*	*	*	*	*	*		
* 1	* 200.2	*	0.35 *	3629.00 *	4319022.0 *	0.73 *	17115.00 *	17115.00 *	19352.25 *		
20744.00 *	20744.00 *	937.00 *	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
* 1	* 200.1	*	0.32 *	5433.71 *	4321296.0 *	*	17030.00 *	*	19188.15 *		
*	25261.51 *	934.50 *	*	*	*	*	*	*	*		
* 1	* 200.1	*	0.29 *	3770.00 *	4818061.0 *	0.92 *	17030.00 *	17030.00 *	19188.15 *		
20800.00 *	20800.00 *	934.50 *	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
* 1	* 200	*	0.24 *	6148.14 *	6113840.0 *	*	16950.00 *	*	18918.55 *		
*	25170.51 *	933.40 *	*	*	*	*	*	*	*		
* 1	* 200	*	0.23 *	4100.00 *	6388853.0 *	0.96 *	16950.00 *	16950.00 *	18918.55 *		
21050.00 *	21050.00 *	933.40 *	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
* 1	* 199.91	*	0.22 *	6597.49 *	6954198.0 *	*	16800.00 *	*	19089.15 *		
*	25176.77 *	932.10 *	*	*	*	*	*	*	*		
* 1	* 199.91	*	0.20 *	4530.00 *	7510252.0 *	1.01 *	16800.00 *	16800.00 *	19089.15 *		
21330.00 *	21330.00 *	932.10 *	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
*	*	*	*	*	*	*	*	*	*		
* 1	* 199.82	*	0.19 *	7203.54 *	4012368.0 *	*	16870.00 *	*	19137.70 *		
*	25350.00 *	931.20 *	*	*	*	*	*	*	*		
* 1	* 199.82	*	0.20 *	4780.00 *	3845833.0 *	1.00 *	16870.00 *	16870.00 *	19137.70 *		
21650.00 *	21650.00 *	931.20 *	*	*	*	*	*	*	*		

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ERRORS WARNINGS AND NOTES
Errors Warnings and Notes for Plan : PostPrj

River: 1 Reach: 1 RS: 214.14 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 214.14 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 214.04 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 214.04 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 213.95 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 213.95 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 213.85 Profile: PF#1
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 213.85 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 213.75 Profile: PF#1
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 213.75 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 213.745 Profile: PF#1 Upstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 213.745 Profile: PF#1 Downstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 213.745 Profile: PF#2 Upstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 213.745 Profile: PF#2 Downstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 213.74 Profile: PF#1
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 213.74 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 213.66 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 213.66 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 213.57 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 213.57 Profile: PF#2
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 213.47 Profile: PF#1
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 213.47 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 213.38 Profile: PF#1
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 213.38 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 213.33 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 213.33 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 213.26 Profile: PF#1
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 213.26 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 213.255 Profile: PF#1 Upstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 213.255 Profile: PF#1 Downstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 213.255 Profile: PF#2 Upstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 213.255 Profile: PF#2 Downstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 213.25 Profile: PF#1
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 213.25 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 213.21 Profile: PF#1
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 213.21 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 213.11 Profile: PF#1
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 213.11 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 213.03 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 213.03 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 212.93 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 212.93 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 212.84 Profile: PF#1
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 212.84 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 212.74 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 212.74 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 212.68 Profile: PF#1
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 212.68 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 212.675 Profile: PF#1
Note: Momentum answer is not valid if the water surface is above the low chord or if there is weir flow. The momentum answer has been disregarded.
River: 1 Reach: 1 RS: 212.675 Profile: PF#1 Upstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 212.675 Profile: PF#1 Downstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 212.675 Profile: PF#2 Upstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 212.675 Profile: PF#2 Downstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 212.67 Profile: PF#1
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 212.67 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 212.56 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 212.56 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 212.46 Profile: PF#1

Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 212.46 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 212.37 Profile: PF#1
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 212.37 Profile: PF#2
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 212.27 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 212.27 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 212.18 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 212.18 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 212.08 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 212.08 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 211.99 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 211.99 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 211.89 Profile: PF#1
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 211.89 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 211.79 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 211.79 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 211.71 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 211.71 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 211.64 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 211.64 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 211.54 Profile: PF#1
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

River: 1 Reach: 1 RS: 211.54 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

River: 1 Reach: 1 RS: 211.525 Profile: PF#1 Upstream
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

River: 1 Reach: 1 RS: 211.525 Profile: PF#1 Downstream
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 211.525 Profile: PF#2 Upstream
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 211.525 Profile: PF#2 Downstream
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 211.51 Profile: PF#1
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 211.51 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 211.41 Profile: PF#1
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: 1 Reach: 1 RS: 211.41 Profile: PF#2
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: 1 Reach: 1 RS: 211.31 Profile: PF#1
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 211.31 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 211.21 Profile: PF#1
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 211.21 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 211.12 Profile: PF#1
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 211.12 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 211.02 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 211.02 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 210.93 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 210.93 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 210.83 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 210.83 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 210.74 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 210.74 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 210.64 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 210.64 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 210.55 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 210.55 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 210.46 Profile: PF#1
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 210.46 Profile: PF#2
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 210.36 Profile: PF#1
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 210.36 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 210.26 Profile: PF#1
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 210.26 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 210.17 Profile: PF#1
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 210.17 Profile: PF#2
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 210.07 Profile: PF#1
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 210.07 Profile: PF#2
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 209.98 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 209.98 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 209.88 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 209.88 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 209.79 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 209.79 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 209.69 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 209.69 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 209.60 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 209.60 Profile: PF#2
Warning:Divided flow computed for this cross-section.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 209.54 Profile: PF#1
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 209.54 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 209.535 Profile: PF#1 Upstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 209.535 Profile: PF#1 Downstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 209.535 Profile: PF#2 Upstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 209.535 Profile: PF#2 Downstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 209.53 Profile: PF#1
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 209.53 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 209.42 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 209.42 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 209.33 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 209.33 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 209.24 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 209.24 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 209.14 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 209.14 Profile: PF#2
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 209.04 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 209.04 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 208.95 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 208.95 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 208.85 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 208.85 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 208.75 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 208.75 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 208.67 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 208.67 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 208.57 Profile: PF#1

Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 208.57 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 208.48 Profile: PF#1
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 208.48 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 208.39 Profile: PF#1
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 208.39 Profile: PF#2
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 208.29 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 208.29 Profile: PF#2
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 208.19 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 208.19 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 208.10 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 208.10 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 207.99 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 207.99 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 207.90 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 207.90 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 207.80 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 207.80 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 207.71 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 207.71 Profile: PF#2
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 207.62 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 207.62 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate

the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 207.49 Profile: PF#1
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 207.49 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 207.485 Profile: PF#1 Upstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 207.485 Profile: PF#1 Downstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 207.485 Profile: PF#2 Upstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 207.485 Profile: PF#2 Downstream
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 207.48 Profile: PF#1
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 207.48 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: 1 Reach: 1 RS: 207.43 Profile: PF#1
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 207.43 Profile: PF#2
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 207.34 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 207.34 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 207.27 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 207.27 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 207.16 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 207.16 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 207.07 Profile: PF#1
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 207.07 Profile: PF#2
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 206.97 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 206.97 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 206.88 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 206.88 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was

used.
River: 1 Reach: 1 RS: 206.79 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 206.79 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 206.7 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 206.7 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 206.6 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 206.6 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 206.51 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 206.51 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 206.41 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 206.41 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 206.32 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 206.32 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 206.22 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 206.22 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 206.13 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: 1 Reach: 1 RS: 206.13 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: 1 Reach: 1 RS: 206.03 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: 1 Reach: 1 RS: 206.03 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 205.94 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 205.94 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 205.84 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 205.84 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 205.75 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 205.75 Profile: PF#2
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 205.62 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was

used.
River: 1 Reach: 1 RS: 205.62 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 205.52 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 205.52 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 205.43 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 205.43 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 205.4 Profile: PF#1
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 205.4 Profile: PF#2
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 205.34 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 205.34 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 205.25 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 205.25 Profile: PF#2
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 205.15 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 205.15 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 205.06 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 205.06 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 204.97 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 204.97 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 204.87 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 204.87 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 204.78 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 204.78 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 204.68 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 204.68 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 204.61 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 204.61 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 204.53 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 204.53 Profile: PF#2

Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 204.42 Profile: PF#1

Warning:Divided flow computed for this cross-section.

Warning:The cross-section end points had to be extended vertically for the computed water surface.

Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 204.42 Profile: PF#2

Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 204.34 Profile: PF#1

Warning:Divided flow computed for this cross-section.

Warning:The cross-section end points had to be extended vertically for the computed water surface.

Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 204.34 Profile: PF#2

Warning:Divided flow computed for this cross-section.

Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 204.25 Profile: PF#1

Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning:Divided flow computed for this cross-section.

Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 204.25 Profile: PF#2

Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 204.15 Profile: PF#1

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 204.15 Profile: PF#2

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 204.05 Profile: PF#1

Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 204.05 Profile: PF#2

Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 203.96 Profile: PF#1

Warning:Divided flow computed for this cross-section.

Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 203.96 Profile: PF#2

Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: 1 Reach: 1 RS: 203.86 Profile: PF#1

Warning:Divided flow computed for this cross-section.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 203.86 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 203.77 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 203.77 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 203.67 Profile: PF#1
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 203.67 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 203.58 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 203.58 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 203.48 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 203.48 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 203.39 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 203.39 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 203.29 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 203.29 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 203.19 Profile: PF#1
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 203.19 Profile: PF#2
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 203.09 Profile: PF#1
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 203.09 Profile: PF#2
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 202.99 Profile: PF#1
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 202.99 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 202.9 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 202.9 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 202.8 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 202.8 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 202.69 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 202.69 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 202.59 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 202.59 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was

used.
River: 1 Reach: 1 RS: 202.48 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 202.48 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 202.37 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 202.37 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 202.29 Profile: PF#1
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 202.29 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 202.18 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 202.18 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 202.09 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 202.09 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 201.99 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 201.99 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 201.9 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 201.9 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 201.81 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 201.81 Profile: PF#2
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 201.71 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 201.71 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 201.62 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 201.62 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was

used.
River: 1 Reach: 1 RS: 201.52 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 201.52 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 201.43 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 201.43 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 201.33 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 201.33 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 201.24 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 201.24 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 201.14 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 201.14 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 201.05 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 201.05 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 200.95 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 200.95 Profile: PF#2
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 200.86 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 200.86 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 200.77 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 200.77 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 200.67 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 200.67 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 200.58 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 200.58 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 200.49 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 200.49 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 200.39 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 200.39 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 200.3 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 200.3 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 200.2 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 200.2 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 200.1 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 200.1 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 200 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 200 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 199.91 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 199.91 Profile: PF#2
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 199.82 Profile: PF#1
Warning:Divided flow computed for this cross-section.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: 1 Reach: 1 RS: 199.82 Profile: PF#2
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

cHECk-RAS Report

HEC-RAS Project: *post-project.prj*
Plan File: *post-project.p01*
Geometry File: *post-project.g02*
Flow File: *post-project.f01*
Report Date: *9/25/2013*

Message ID	Message	Cross sections affected	Comments
BR LF 01	This is ($strucname$). The selected profile is $profilename$. Type of flow is low flow because, 1. EGEL 3 of $egel3$ is less than or equal to MinTopRd of $minelweirflow$. 2. EGEL 3 of $egel3$ is less than MxLoCdU of $mxlocdu$.	207.485(Bridge-UP); 209.535(Bridge-UP); 211.525(Bridge-UP); 213.255(Bridge-UP); 213.745(Bridge-UP)	
BR LW 02	This is a Bridge Section. The selected profile is $profilename$. EGEL of $egel3$ at Section 3 is higher than the MinTopRd of $minelweirflow$. However, weir flow is not computed at this structure. Please investigate the problem.	212.675(Bridge-UP)	
BR PW 02	This is a Bridge Section. The selected profile is $profilename$. Type of flow is submerged pressure and weir flow because, 1. EGEL 3 of $egel3$ is greater than MinTopRd of $minelweirflow$. 2. EGEL 3 of $egel3$ is equal to or greater than MxLoCdU of $mxlocdu$. 3. WSEL 2 of $wsel2$ is equal to or greater than MxLoCdD of $mxlocdd$.	212.675(Bridge-UP)	
BR PW 05	This is a Bridge Section. The selected profile is $profilename$. EGEL of $egel3$ at Section 3 is higher than the MinTopRd of $minelweirflow$. However, weir flow is not computed at this structure. Please investigate the problem.	212.675(Bridge-UP)	
FW FW 01L	The Left encroachment station is within the channel. The Left encroachment station $encrstal$ is more than left channel bank station $stalob$. The left encroachment station should be the same as the left channel bank station.	200.86; 200.95; 201.05; 201.14; 201.24; 201.33; 201.43; 201.52; 201.62; 201.71; 201.81; 201.9; 203.77; 203.86; 203.96; 204.05; 209.04; 209.14; 209.24; 210.26; 210.36; 210.55; 210.74; 210.83; 210.93; 211.12; 211.21; 211.31; 211.41; 213.11; 213.66; 213.95; 214.04; 214.14	
FW FW 01R	The Right encroachment station is within the channel. The Right encroachment station $encrstar$ is less than right channel bank station $starob$. The right encroachment station should be the same as the right channel bank station.	201.81; 201.9; 201.99; 202.09; 202.18; 202.37; 202.48; 202.59; 202.69; 202.8; 202.9; 203.09; 203.19; 203.29; 203.39; 203.48; 203.58; 203.67; 203.77; 203.86; 203.96; 204.05; 204.15; 204.25; 204.34; 204.42; 204.68; 204.78; 204.87; 206.13; 206.22; 206.32; 206.41; 207.07; 210.26; 210.36; 211.21; 211.31; 211.79; 211.99; 213.11; 213.33; 213.38; 213.47; 213.57; 213.66; 213.85; 213.95; 214.04; 214.14	

FW FW 03L	The left channel bank elevation of $lobelev$ is higher than the 1-percent-annual-chance WSEL of $wsel$. Relocate the left channel bank station at or below the 1-percent-annual-chance WSEL. Do not place the bank stations at the bottom of the channel. Do not place the bank stations at the low flow channel. Use the Horizontal Variation in "n" Values option in HEC-RAS to assign different "n" values to the left bank slope, low flow channel, and the right bank slope. Let HEC-RAS compute the composite "n" value based on the depth of flow.	200.49; 200.77; 201.05; 201.9; 202.09; 202.37; 202.48; 202.59; 202.69; 203.86; 203.96; 204.05; 205.43; 206.03; 206.13; 206.22; 206.7; 206.79; 206.97; 207.07; 207.62; 207.71; 207.9; 208.1; 208.19; 208.29; 208.39; 208.48; 208.57; 208.67; 208.75; 208.85; 209.04; 209.14; 209.24; 209.33; 209.42; 209.6; 209.69; 209.79; 209.88; 209.98; 210.64; 211.12; 211.41; 211.71; 213.11; 213.66; 213.95; 214.04; 214.14	
FW FW 03R	The right channel bank elevation of $robelev$ is higher than the 1-percent annual chance WSEL of $wsel$. Relocate the right channel bank station at or below the 1-percent annual chance WSEL. Do not place the bank stations at the bottom of the channel. Do not place the bank stations at the low flow channel. Use the Horizontal Variation in "n" Values option in HEC-RAS to assign different "n" values to the left bank slope, low flow channel, and the right bank slope. Let HEC-RAS compute the composite "n" value based on the depth of flow.	200.3; 201.24; 202.09; 202.48; 202.9; 203.39; 205.43; 205.84; 205.94; 206.7; 207.16; 207.27; 207.34; 207.43; 208.1; 208.19; 208.29; 208.39; 208.48; 208.75; 208.85; 208.95; 209.33; 209.42; 209.69; 209.79; 209.88; 209.98; 210.17; 210.46; 210.55; 210.64; 210.74; 210.83; 210.93; 211.02; 211.12; 211.71; 211.89; 212.08; 213.11; 213.33; 213.38; 213.47; 213.57; 213.66; 213.85; 213.95; 214.04; 214.14	
FW FW 04R	The 1-percent-annual-chance floodplain is outside of the channel. The right station effective of $ineffstar$ for the 1-percent-annual-chance floodplain is greater than the right channel bank station $starob$. However, the right encroachment station $encstar$ is outside of the 1-percent-annual-chance floodplain. Adjust the right encroachment station so that it will be within the floodplain.	207.8; 207.99; 208.1; 208.85; 209.69; 210.74	
FW FW 05L	The 1-percent annual chance flood is contained within the channel. The Left encroachment station $encstal$ is outside the channel. The Left channel bank station is $stalob$. Adjust the left encroachment station so that it is the same as the left channel bank station.	208.1; 208.19; 208.39	
FW FW 05R	The 1-percent annual chance flood is contained within the channel. The Right encroachment station $encstar$ is outside the channel. Right channel bank station is $starob$. Adjust the right encroachment station so that it is the same as the right channel bank station..	208.19; 211.12; 212.08	

FW FW 06L	The left side of the floodway boundary is within the channel. The left station effective of $ineffstal$ for the floodway profile is more than the left channel bank station of $stalob$. The left encroachment station of $encstal$ is less than the left channel bank station. Adjust the left encroachment station so that it is the same as the left channel bank station.	208.1; 208.19; 208.29; 208.39	
FW FW 06R	The right side of the floodway boundary is within the channel. The right station effective of $ineffstar$ for the floodway profile is less than the right channel bank station of $starob$. The right encroachment station of $encstar$ is more than the right channel bank station. Adjust the right encroachment station so that it is the same as the right channel bank station.	208.19; 211.12; 212.08	
FW SC 02	The surcharge value of $surcharge$ is greater than the maximum allowable value of $allowsurchrg$. Use the suggestions from the Help section to reduce the computed surcharge value to be no more than $allowsurchrg$.	199.91	
FW ST 04BDL	This is ($strucname$) downstream internal section. The left encroachment station is within the channel. The left encroachment station of $encstal$ is greater than the left bank station of $stalob$. The leftencroachment station should be the same as the left channel bank station.	213.255(Bridge-DN); 213.745(Bridge-DN)	
FW ST 04BUL	This is ($strucname$) upstream internal section. The left encroachment station is within the channel. The left encroachment station of $encstal$ is greater than the left bank station of $stalob$. The left encroachment station should be the same as the left channel bank station.	211.525(Bridge-UP); 213.255(Bridge-UP); 213.745(Bridge-UP)	
FW ST 04S2L	This is Section 2 of a hydraulic structure. The left encroachment station is within the channel. The left encroachment station of $encstal$ is greater than the left bank station of $stalob$. The left encroachment station should be the same as the left channel bank station.	211.51; 213.25; 213.74	
FW ST 04S2R	This is Section 2 of a hydraulic structure. The right encroachment station is within the channel. The right encroachment station of $encstar$ is less than the right bank station of $starob$. The right encroachment station should be the same as right channel bank station.	211.51; 213.25; 213.74	

FW ST 04S3L	This is Section 3 of a hydraulic structure. The Left Channel Bank station is outside the Left Abutment station. The left encroachment station is within the channel. The left encroachment station of $encstal$ is greater than the left bank station of $stalob$. The left encroachment station should be the same as the left channel bank station.	211.54; 213.26; 213.75	
FW ST 04S3R	This is Section 3 of a hydraulic structure. The right encroachment station is within the channel. The right encroachment station of $encstar$ is less than the right bank station of $starob$. The right encroachment station should be the same as the right channel bank station.	211.54; 213.26; 213.75	
FW ST 06BU	This is the Upstream Bridge Internal Section. Negative surcharge value of $negsurchrg$ occurs at this section. Use the suggestions from the Help section such that negative surcharge value will not be less than (-0.09) foot.	212.675(Bridge-UP)	
FW ST 08S3L	This is Section 3 of a hydraulic structure. The left encroachment station is outside the 1%-annual-chance floodplain. The left station effective of $ineffstal$ for the 1%-annual-chance profile is less than the left channel bank station of $stalob$. The 1%-annual-chance floodplain is outside the channel. The left encroachment station of $encstal$ is less than the left station effective of $ineffstal$ for the 1%-annual-chance profile. The Enc_Sta_L must be within the 1%-annual-chance floodplain.	207.49	
MP SW 01DK	The name of the stream is ($streamname$). The flow regime is subcritical or mixed flow. Starting water-surface elevations are computed from Known WSELs as the downstream boundary condition. Provide backup information on Known water-surface elevations or use same energy slope for all the profiles as the starting boundary condition and rerun the plan.		
NT RC 01L	All of the left overbank Manning's "n" values are less than 0.030. The "n" values for the overbank areas are usually larger than 0.030 (Chow, 1959, page 113). The "n" value(s) should be re-evaluated. Follow the procedure outlined to compute the overbank "n" value(s) for a natural floodplain (FHWA, 1984). Or follow the procedure outlined to compute the "n" values for urban development (USGS, 1977). Please submit supporting information on the evaluation of the "n" values.	207.485(Bridge-DN); 207.485(Bridge-UP); 207.49; 207.62; 207.71; 207.8; 207.9; 207.99; 208.1; 208.19; 208.29; 208.39; 208.48; 208.57; 208.67; 208.75; 208.85; 208.95; 209.04; 209.14; 209.24; 209.33; 209.42; 210.07	

NT RC 01R	All of the right overbank "n" values are less than 0.030. Manning's "n" values for the overbank areas are usually larger than 0.030 (Chow, 1959, page 113). The "n" value(s) should be re-evaluated. Follow the procedure on pages 17 and 54 of (FHWA, 1984) to compute the overbank "n" value for the natural floodplain. Or follow the procedure in (USGS, 1977) to compute the "n" value for urban development. Please submit supporting information on the evaluation of "n" value.	208.1	
NT RC 05	The left overbank n-value of $nlob$ and the right overbank n-value of $nrob$ are less than or equal to the channel n-value of nch. Follow the procedure in (FHWA, 1984) to compute the n-value for the natural floodplain and the channel. Or follow the procedure in (USGS, 1977) to compute the n-value for urban development. Please submit supporting information on the evaluation of n-values.	204.42; 204.53; 204.61; 204.68; 204.78; 204.87; 205.06; 205.15; 205.25; 205.75; 206.32; 206.41; 206.51; 206.6; 206.7; 206.79; 206.88; 206.97; 207.07; 207.62; 207.71; 208.1; 208.39; 209.04; 209.14; 209.24; 209.6; 210.07; 210.26; 210.46	
NT RS 02BDC	This is the Downstream Bridge Section (BRD). The channel n value of $chldn$ for the downstream internal bridge opening section is equal to or larger than the channel n value of $chl2$ at Section 2. Usually, the channel "n" value of the bridge opening section represents the area below the bridge deck and is less than the channel "n" value of Section 2. The "n" value for Section 2 represents the natural valley channel section roughness for the reach between Section 3 and Section 4. Please change the "n" value of the internal bridge opening section or provide supporting information for the use of the higher "n" value.	207.485(Bridge-DN); 209.535(Bridge-DN); 211.525(Bridge-DN); 213.255(Bridge-DN); 213.745(Bridge-DN)	
NT RS 02BUC	This is the Upstream Bridge Section (BRU). The channel n value of $chlup$ for the upstream internal bridge opening section is equal to or larger than the channel n value of $chl3$ at Section 3. Usually, the channel "n" value of the bridge opening section represents the area below the bridge deck and is less than the channel "n" value of Section 3. The "n" value for Section 3 represents the natural valley channel section roughness for the reach between Section 3 and Section 4. Please change the "n" value of the internal bridge opening section or provide supporting information for the use of a higher "n" value.	207.485(Bridge-UP); 209.535(Bridge-UP); 211.525(Bridge-UP); 212.675(Bridge-UP); 213.255(Bridge-UP); 213.745(Bridge-UP)	
NT TL 01S2	This is Section2 of a hydraulic structure. The contraction and expansion loss coefficients are cc and ce. They should be equal to 0.3 and 0.5, respectively, for typical structure sections according to page 5-8 of the HEC-RAS Hydraulic Reference Manual (HEC, 2010).	211.51; 212.67; 213.25; 213.74	

NT TL 01S3	This is Section3 of a hydraulic structure. The contraction and expansion loss coefficients are cc and ce. They should be equal to 0.3 and 0.5, respectively, for typical structure sections according to page 5-8 of the HEC-RAS Hydraulic Reference Manual (HEC, 2010).	211.54; 212.68; 213.26; 213.75	
NT TL 01S4	This is Section 4 of a hydraulic structure. The contraction and expansion loss coefficients are cc and ce. They should be equal to 0.3 and 0.5, respectively according to page 5-8 of the HEC-RAS Hydraulic Reference Manual (HEC, 2010)..	207.62; 209.6; 211.64; 212.74; 213.33; 213.85	
ST DT 01B	This is ($strucname$). 'Upstream Dist' of $distup$ in "Bridge Width Table" is less than the height of the bridge opening of $height$. This indicates that Section 3 may not be placed at the foot of the road embankment or wing walls and may not represent the natural valley cross section. Section 3 should be relocated or provide a statement that it represents the natural valley cross section. The HEC-RAS geometry file may need to be recreated using a GIS program. Lengths at Sections 4, 3 and 2 and 'Upstream Dist' should be adjusted.	209.535(Bridge-UP); 211.525(Bridge-UP); 213.255(Bridge-UP); 213.745(Bridge-UP)	
ST DT 02B	This is ($strucname$). 'Downstream Dist' of $distdn$ in 'Bridge Width Table' is less than the height of the bridge opening of $height$. This indicates that Section 2 may not be placed at the foot of the road embankment or wing walls and may not represent the natural valley cross section. Section 2 should be relocated or provide a statement that it represents the natural valley cross section. A HEC-RAS geometry file may need to be recreated using a GIS program. Lengths at Sections 3 and 2 should be adjusted.	209.535(Bridge-DN); 211.525(Bridge-DN); 213.255(Bridge-DN); 213.745(Bridge-DN)	
ST DT 03	This is ($Structure$) section. The Contraction Length is longer than the Expansion Length. Section 4 channel distance of $Length_Chnl4$ is longer than Section 2 channel distance of $Length_Chnl2$. Section 4 and Section 1 should be relocated. The HEC-RAS geometry file may need to be recreated using a GIS program.	207.485(Bridge-UP); 213.255(Bridge-UP); 213.745(Bridge-UP)	
ST GD 06	Left and/or right abutment station computed by the cHECk-RAS program is equal to zero. cHECk-RAS cannot evaluate this structure.	212.675(Bridge)	

ST IF 05S2L	This is Section 2 of a hydraulic structure. The left ineffective flow station is within the opening area of the structure. The left ineffective flow station of $ineffstal$ is greater than the downstream left abutment station of $abutstal$ at ($strucname$). The Left ineffective flow station should be adjusted.	207.48(Bridge); 211.51(Bridge); 212.67(Bridge)	
ST IF 05S2R	This is Section 2 of a hydraulic structure. The right ineffective flow station is within the opening area of the structure. The right ineffective flow station of $ineffstar$ is less than the upstream right abutment station of $abutstar$ at ($strucname$). The Right ineffective flow station should be adjusted.	211.51(Bridge)	
ST IF 05S3L	This is Section 3 of a hydraulic structure. The left ineffective flow station is within the opening area of the structure. The left ineffective flow station of $ineffstal$ is greater than the upstream left abutment station of $abutstal$ at ($strucname$). The Left ineffective flow station should be adjusted.	207.49(Bridge); 212.68(Bridge)	
ST IF 05S3R	This is Section 3 of a hydraulic structure. The right ineffective flow station is within the opening area of the structure. The right ineffective flow station of $ineffstar$ is less than the upstream right abutment station of $abutstar$ at ($strucname$). The Right ineffective flow station should be adjusted.	211.54(Bridge)	
ST IF 06S2L	This is Section 2. The selected profile is $profilename$. Low or pressure flow occurs at ($strucname$). The Dn_Dist of $dndist$ at the structure is less than the opening height of $openheight$ of the structure. The cHECk-RAS computed left ineffective flow station of $compineffstal$ is less than the input left ineffective flow station of $ineffstal$. The left ineffective flow station should be adjusted per the help instructions and the HEC-RAS manual.	209.53(Bridge); 211.51(Bridge); 213.25(Bridge); 213.74(Bridge)	

ST IF 06S2R	This is Section 2. The selected profile is $profilename$. Low or pressure flow occurs at ($strucname$). The Dn_Dist of $dndist$ at the structure is less than the opening height of $openheight$ of the structure. The cHECk-RAS computed right ineffective flow station of $compineffstar$ is greater than the input right ineffective flow station of $ineffstar$. The right ineffective flow station should be adjusted per the help instructions and the HEC-RAS manual.	209.53(Bridge); 211.51(Bridge); 213.25(Bridge); 213.74(Bridge)	
ST IF 06S3L	This is Section 3. The selected profile is $profilename$. Low or pressure flow occurs at ($strucname$). The Up_Dist of $updist$ at the structure is less than the opening height of $openheight$ of the structure. The cHECk-RAS computed left ineffective flow station of $compineffstal$ is less than the input left ineffective flow station of $ineffstal$. The left ineffective flow station should be adjusted per the help instructions and the HEC-RAS manual.	209.54(Bridge); 213.26(Bridge); 213.75(Bridge)	
ST IF 06S3R	This is Section 3. The selected profile is $profilename$. Low or pressure flow occurs at ($strucname$). The Up_Dist of $updist$ at the structure is less than the opening height of $openheight$ of the structure. The cHECk-RAS computed right ineffective flow station of $compineffstar$ is greater than the input right ineffective flow station of $ineffstar$. The right ineffective flow station should be adjusted per the help instructions and the HEC-RAS manual.	209.54(Bridge); 211.54(Bridge); 213.26(Bridge); 213.75(Bridge)	
ST IF 07S1L	This is Section 1. Left Ineffective flow option was considered at this section. However, it should be a fully expanded cross section. Ineffective flow stations and elevations should be cleared from this section, unless the areas beyond the ineffective flow stations are not within the flow path of the stream. This message should be ignored if this section is Section 3 of the downstream structure.	207.43(Bridge); 209.42(Bridge); 212.56(Bridge); 213.21(Bridge); 213.66(Bridge)	

ST IF 07S1R	This is Section 1. Right Ineffective flow option was considered at this section. However, it should be a fully expanded cross section. Ineffective flow stations and elevations should be cleared from this section, unless the areas beyond the ineffective flow stations are not within the flow path of the stream. This message should be ignored if this section is Section 3 of the downstream structure.	207.43(Bridge); 209.42(Bridge); 212.56(Bridge); 213.21(Bridge); 213.66(Bridge)	
ST IF 07S4L	This is Section 4. Left Ineffective flow option was considered at this section. However, it should be a fully expanded cross section. Ineffective flow stations and elevations should be cleared from this section, unless the areas beyond the ineffective flow stations are not within the flow path of the stream. This message should be ignored if this section is Section 2 of the upstream structure.	207.62(Bridge); 209.6(Bridge); 212.74(Bridge); 213.33(Bridge); 213.85(Bridge)	
ST IF 07S4R	This is Section 4. Right Ineffective flow option was considered at this section. However, it should be a fully expanded cross section. Ineffective flow stations and elevations should be cleared from this section, unless the areas beyond the ineffective flow stations are not within the flow path of the stream. This message should be ignored if this section is Section 2 of the upstream structure.	207.62(Bridge); 209.6(Bridge); 212.74(Bridge); 213.33(Bridge); 213.85(Bridge)	
XS CD 01	Critical Depth occurs at $assignedname$ flood. Flow Code will be "C". The Ineffective flow option is used. The Ineffective Flow elevation is equal to or higher than the Critical WSEL. Please investigate whether this selection is appropriate.	204.25; 207.07	
XS DC 01	Discharge decreases in the downstream direction for $assignedname$ flood. There are no lateral structures. Documentation of hydrologic analysis is required or provide explanation.	205.4; 213.21	
XS DT 01	Both the right overbank distance of rob and the left overbank distance of lob are longer than the channel distance of chl . Please review the creation of left overbank, channel and right overbank distances. The HEC-RAS geometry file may need to be recreated using a GIS program. Please resolve the differences among the distances.	207.8; 208.19; 208.29; 208.48; 209.33; 209.53; 211.71; 211.99	
XS IF 03L	The Left Ineffective Flow Station is within the channel. The Left Ineffective Flow Station of $ineffstal$ is greater than the LeftBankSta of $bankstal$. The Left Ineffective Flow Station or the LeftBankSta should be adjusted.	207.48; 209.53; 209.54	

XS IF 03R	The Right Ineffective Flow Station is within the channel. The Right Ineffective Flow Station of $ineffstar$ is less than the RightBankSta of $bankstar$. The Right Ineffective Flow Station or the RightBankSta should be adjusted.	206.51; 207.48; 207.49; 208.29; 208.39; 209.53; 209.54	
XS SW 01DK	The name of the stream is $streamname$. The flow regime is subcritical or mixed flow. Starting WSEL is computed from Known WSEL as the downstream boundary for $Assigned_Name$ flood. Provide backup information on Known WSEL or use energy slope as the downstream boundary.	199.82	

APPENDIX F

EXHIBITS

REVISION BY CITY OF PHOENIX			
NO.	DESCRIPTION	REV BY CKD BY	DATE

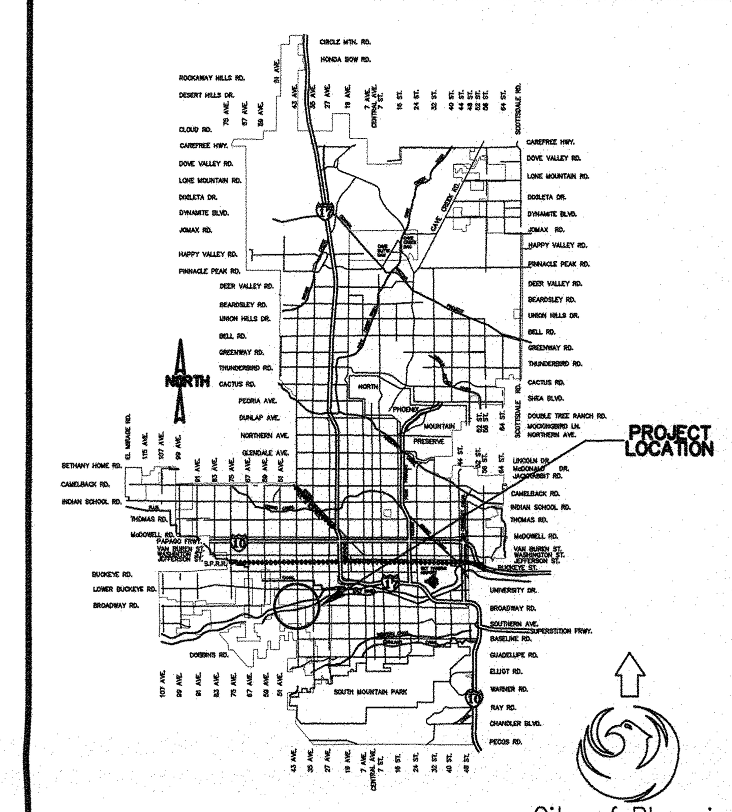
REVISION BY CITY OF PHOENIX			
NO.	DESCRIPTION	REV BY CKD BY	DATE

REVISION BY CITY OF PHOENIX			
NO.	DESCRIPTION	REV BY CKD BY	DATE

REVISION BY CITY OF PHOENIX			
NO.	DESCRIPTION	REV BY CKD BY	DATE

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
	ARIZ	—			

AZTEC



VICINITY MAP

THE COORDINATE GRID IS BASED ON THE NORTH AMERICAN DATUM OF 1983(NAD 83), CENTRAL ZONE OF ARIZONA STATE PLANE COORDINATE SYSTEM. ELEVATIONS ARE BASED UPON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29). THE CONVERSION FACTOR TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD) IS +1.87'.

LEGEND

- CROSS SECTION DESIGNATION
- 1474' Base Flood Elevation—Elevation in Feet
- PROPOSED FLOODPLAIN
- STA 200+00
- PROPOSED FLOODWAY
- FEMA PROFILE BASELINE
- EFFECTIVE FEMA FLOODPLAIN
- EFFECTIVE FEMA FLOODWAY

CALL TWO WORKING DAYS BEFORE YOU DIG
CALL FOR THE BLUE STAKES
602-263-1100
1-800-STAKE-IT
OUTSIDE MARICOPA COUNTY

"PER CITY OF PHOENIX CITY CODE CHAPTER 3, SECTION 2-28, THESE PLANS ARE FOR OFFICIAL USE ONLY AND MAY NOT BE SHARED WITH OTHERS EXCEPT AS REQUIRED TO FULFILL THE OBLIGATIONS OF THE CONTRACTOR'S CONTRACT WITH THE CITY OF PHOENIX."

FLOODPLAIN DELINEATION

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

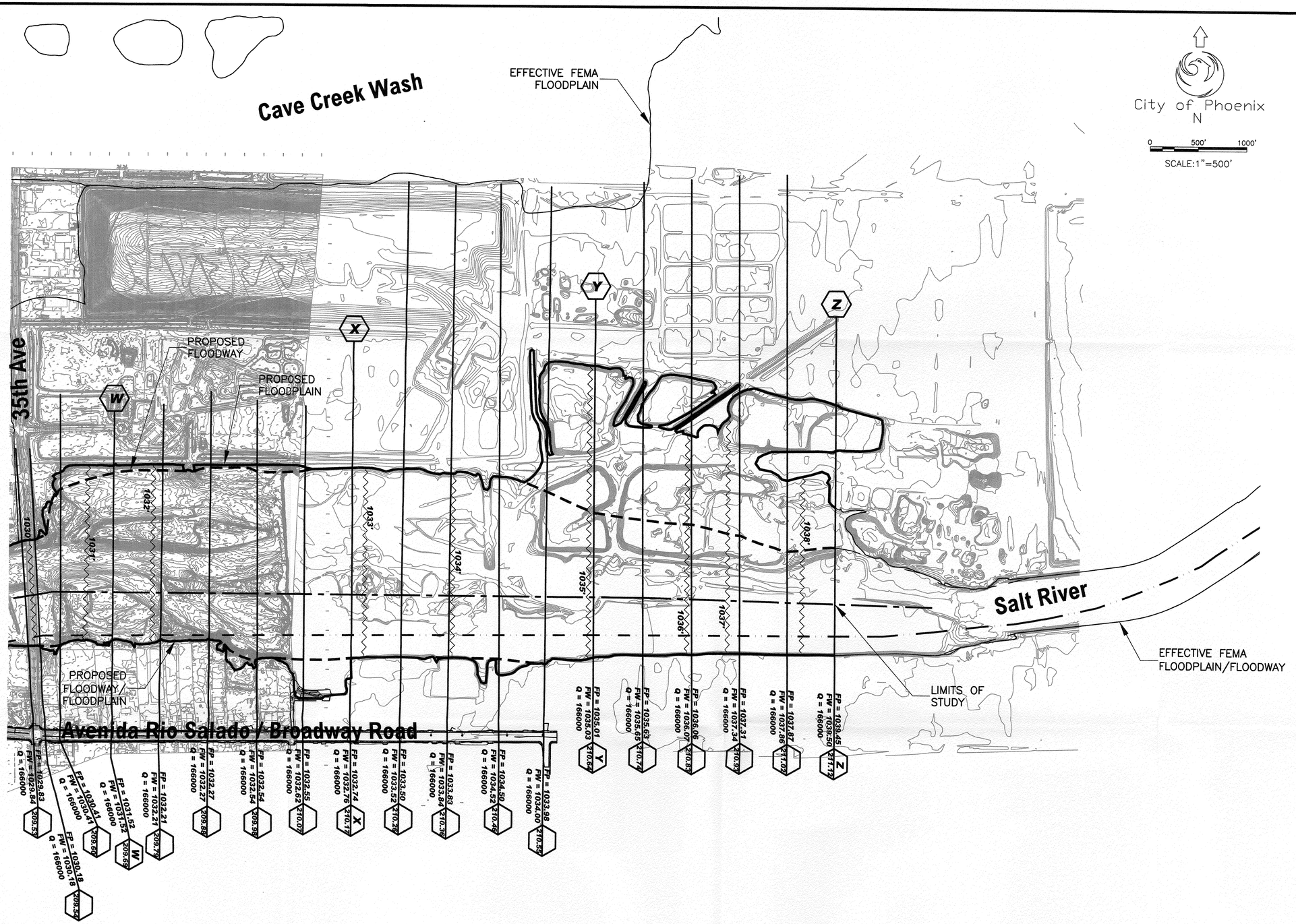
SALT RIVER
AVENIDA RIO SALADO/BROADWAY ROAD
PROPOSED WORK MAP
EXHIBIT 1

DR: SAH DATE: 09/13	DES: SAS DATE: 09/13	CK: MHM DATE: 09/13	SHEET NO.	TOTAL SHEETS	AS BUILT
SCALE: 1"=500' HORIZONTAL 1' CONTOUR INTERVALS			1	2	

REVISION BY CITY OF PHOENIX				
NO.	DESCRIPTION	REV BY	CKD BY	DATE

REVISION BY CITY OF PHOENIX				
NO.	DESCRIPTION	REV BY	CKD BY	DATE

REVISION BY CITY OF PHOENIX				
NO.	DESCRIPTION	REV BY	CKD BY	DATE



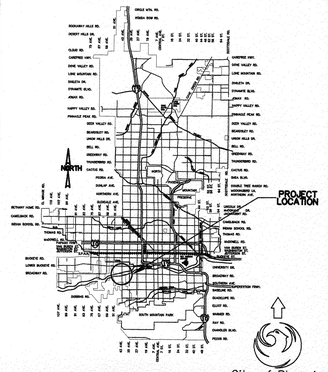
City of Phoenix
N

0 500' 1000'

SCALE:1"=500'

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
	ARIZ	AZ03007			

AZTEC



VICINITY MAP

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CITY OF PHOENIX, ARIZONA
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SALT RIVER
AVENIDA RIO SALADO/BROADWAY ROAD
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DR: SAH	DES: SAS	CK: MHM	SHEET NO.	TOTAL SHEETS	AS BUILT
DATE: 09/13	DATE: 09/13	DATE: 09/13			
SCALE: 1"=500' HORIZONTAL 1' CONTOUR INTERVALS			2	2	

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

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Coastal Base Flood Elevations shown on this map apply only landward of 0.0' National Geodetic Vertical Datum of 1929 (NGVD 29). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

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Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was *Arizona State Plane Zone 3176 (central Arizona)*. The **horizontal datum** was *NAD83, GRS80 spheroid*. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

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Spatial Reference System Division
National Geodetic Survey, NOAA
Silver Spring Metro Center
1315 East-West Highway
Silver Spring, Maryland 20910
(310) 713-3191

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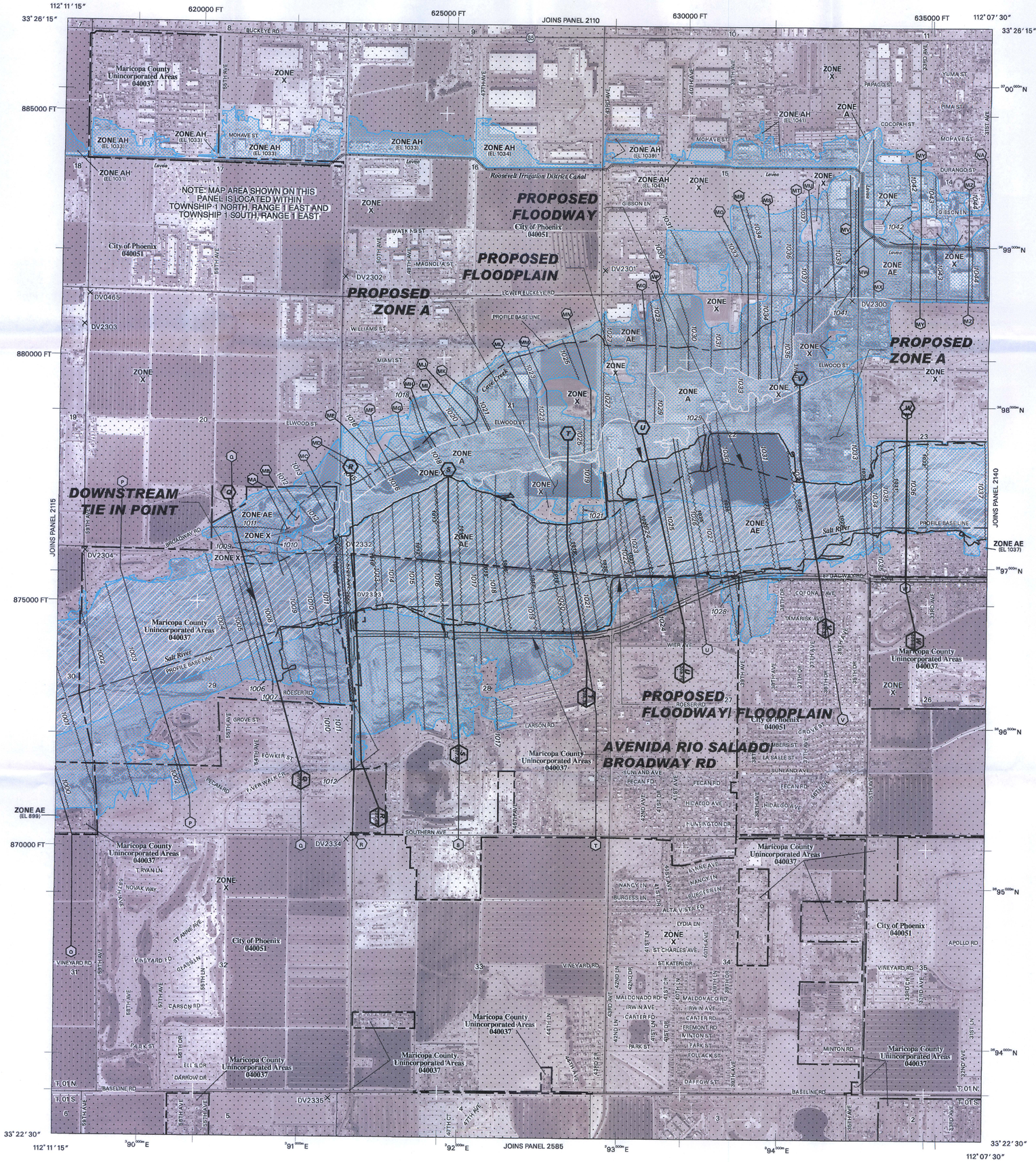
Contact the **FEMA Map Service Center** at 1-800-358-9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study report, and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and its website at http://www.msc.fema.gov/.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMAMAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/.

LEGEND

- CROSS SECTION DESIGNATION (24.309)
- 1474' Base Flood Elevation—Elevation in Feet
- PROPOSED FLOODPLAIN
- PROPOSED FLOODWAY

EXHIBIT 2
ANNOTATED FIRM PANEL



LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

- **ZONE A** No Base Flood Elevations determined.
- **ZONE AE** Base Flood Elevations determined.
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- **ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- **ZONE AR** Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
- **ZONE A99** Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
- **ZONE V** Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
- **ZONE VE** Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

- **ZONE X** Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

- **ZONE X** Areas determined to be outside the 0.2% annual chance floodplain.
- **ZONE D** Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- 1% annual chance floodplain boundary
- 0.2% annual chance floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Area Zones, and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths, or flood velocities.
- 513 Base Flood Elevation line and value; elevation in feet *
- (EL 987) Base Flood Elevation value where uniform within zone; elevation in feet *

* Referenced to the National Geodetic Vertical Datum of 1929

- (A)—(A) Cross section line
- (2)—(2) Transect line

112° 07′ 08″, 33° 25′ 41″ Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere.

"76 000m E 1000-meter Universal Transverse Mercator grid tick values zone 12.

875000 FT 5000-foot grid tick values: Arizona State Plane coordinate system, central zone (FIPSZONE 3176) NAD83 (Transverse Mercator)

X DV2313 Bench mark (see explanation in Notes to Users section of this FIRM panel)

* M1.5 River Mile

MAP REPOSITORY
Refer to Repositories Listing on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
April 15, 1988

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
September 4, 1991, July 19, 2001

September 30, 2005 - to update corporate limits, to change Base Flood Elevations, to add Base Flood Elevations, to add Special Flood Hazard Areas, to change Special Flood Hazard Areas, to change zone designations, to add roads and road names, to incorporate previously issued Letters of Map Revision, and to incorporate previously issued Letters of Map Amendment.

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 1000'
500 0 1000 2000 FEET
300 0 300 600 METERS

NFIP NATIONAL FLOOD INSURANCE PROGRAM

PANEL 2120G

FIRM
FLOOD INSURANCE RATE MAP
MARICOPA COUNTY, ARIZONA
AND INCORPORATED AREAS

PANEL 2120 OF 4350

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY	040037	2120	G
PHOENIX, CITY OF	040051	2120	G

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
04013C2120G
MAP REVISED
SEPTEMBER 30, 2005

Federal Emergency Management Agency

NOTES TO USERS

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LEGEND

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- PROPOSED FLOODPLAIN
- PROPOSED FLOODWAY

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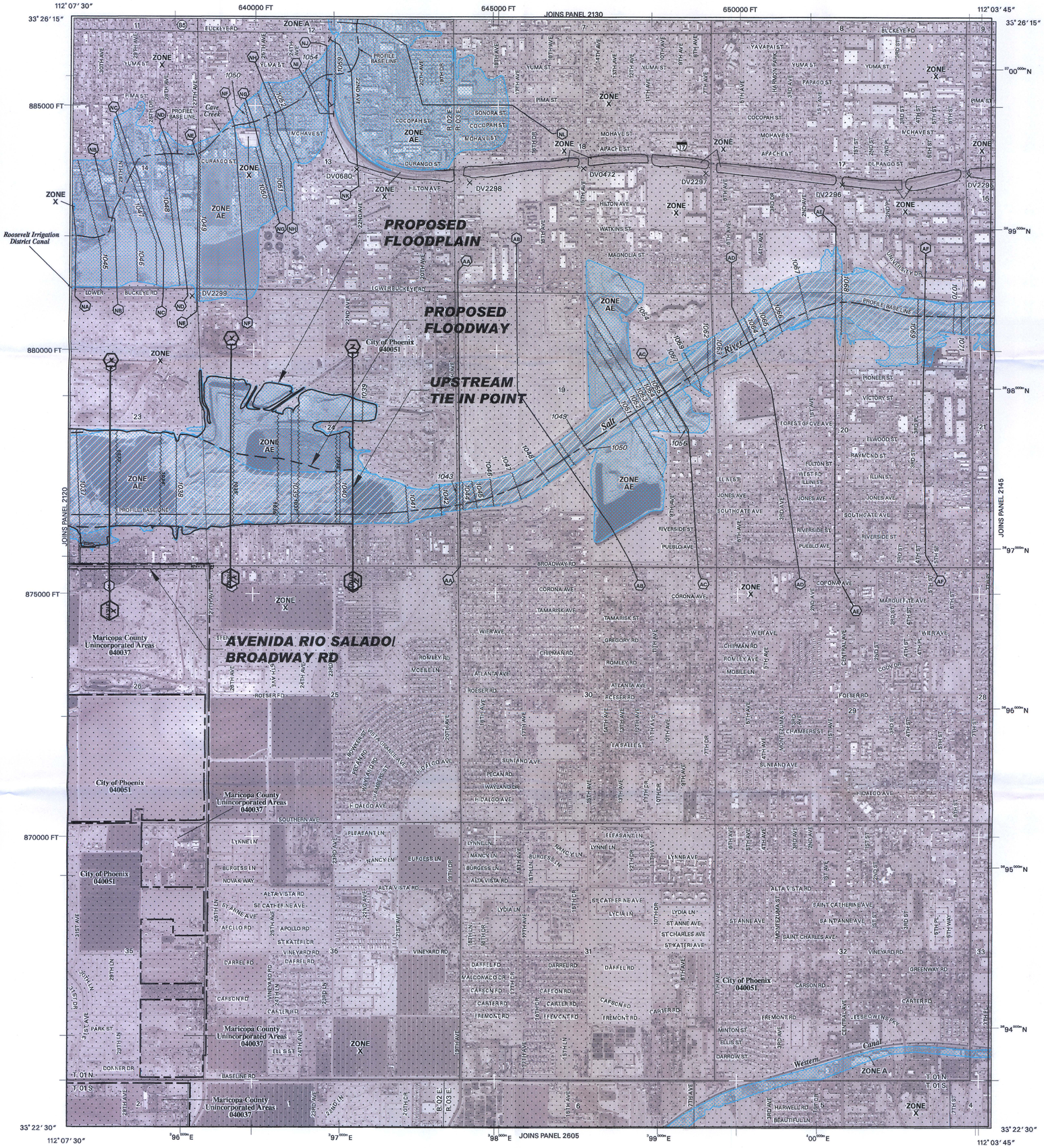

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- (A)—(A) Cross section line
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- 4276000mE 1000-meter Universal Transverse Mercator grid tick values zone 12.
- 875000 FT 5000-foot grid tick values: Arizona State Plane coordinate system, central zone (FIPSZONE 3176) NAD83 (Transverse Mercator)
- ×DV2313 Bench mark (see explanation in Notes to Users section of this FIRM panel)
- M1.5 River Mile

MAP REPOSITORY
Refer to Repositories Listing on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
April 15, 1988

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
September 4, 1991

September 30, 2005 - to update corporate limits, to change Base Flood Elevations, to add Base Flood Elevations, to add Special Flood Hazard Areas, to change Special Flood Hazard Areas, to change zone designations, to add roads and road names, to incorporate previously issued Letters of Map Revision, and to incorporate previously issued Letters of Map Amendment.

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 1000'
500 0 1000 2000 FEET
300 0 300 600 METERS

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

PANEL 2140G

FIRM
FLOOD INSURANCE RATE MAP
MARICOPA COUNTY, ARIZONA
AND INCORPORATED AREAS

PANEL 2140 OF 4350

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY	040037	2140	G
PHOENIX, CITY OF	040051	2140	G

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
04013C2140G
MAP REVISED
SEPTEMBER 30, 2005

Federal Emergency Management Agency

APPENDIX G

ESA DOCUMENTS

From: Kristin Gade [KGade@azdot.gov]
Sent: Friday, June 28, 2013 9:51 AM
To: Jessica Rybczynski
Cc: Justin S. Hoppmann; AZE1005 - ARS_ProgramManagement; belinda.cummings@phoenix.gov; Joanie Cady
Subject: RE: SS606, Avenida Rio Salado/Broadway Road, 1st Submittal UBE

Hi Jessica –

This UPBE is approved. I was just reviewing the CCM for this project and couldn't find an approval email for the UPBE, so here it is just to complete the paper trail.

Kris

Kris Gade
602.712.7649
kgade@azdot.gov

From: Jessica Rybczynski [mailto:JRybczynski@aztec.us]
Sent: Friday, December 28, 2012 11:27 AM
To: Kristin Gade
Cc: Justin S. Hoppmann; AZE1005 - ARS_ProgramManagement; belinda.cummings@phoenix.gov
Subject: SS606, Avenida Rio Salado/Broadway Road, 1st Submittal UBE

Hello Kris,
Attached for your review and approval is the 1st submittal Urban BE Form for SS606. As previously discussed, a BE was completed for this project in 2009. However, the project limits of the current project have been reduced to include Broadway Road from 7th St to 51st Ave, rather than extending to 67th Ave as was cleared in the 2009 BE. Construction of a bridge across the Salt River and impacts to the Salt River are no longer included in the current project. Please let me know if you have any questions or require additional information. Thanks!

Consultant Biologist: **Jessica Rybczynski**
Clearance Date: **1/31/2013**
Project Manager: **Susan Anderson**
Landowners: **Private**
Vegetation Removal: **Yes, weedy annuals, disturbance species, and landscape plants**
404 Permit Requirements: **Non-Notifying NWP 14**
Preliminary affect determination: **No effect/impact**

Jessica Rybczynski
Biologist
Environmental Services Group

AZTEC Engineering | 4561 E. McDowell Road | Phoenix, AZ 85008
O: 602.454.0402 | **D:** 602.659.9332 | **F:** 602.454.0403 | C: 480.695.7360 | JRybczynski@aztec.us

Visit us online at www.aztec.us

This message has been scanned for malware by Websense. www.websense.com

Arizona Department of Transportation
Environmental Planning Group
Urban Project Biological Evaluation Form

Date: December 28, 2012	Project Name: Avenida Rio Salado/Broadway Road
TRACS #: 0000 MA PHX SS606 01C	Land Ownership: City of Phoenix, Maricopa County Department of Transportation, Private
Project #: HPS-PHX-0(055)A City of Phoenix Project #: ST85100259	Local Gov't : City of Phoenix

Location Description: The project is located along Broadway Road between 7th Street and 51st Avenue in south-central Phoenix, Maricopa County, Arizona. The cadastral location description for the project includes Township 1 North, Range 2 East, portions of Sections 22-29; and Township 1 North, Range 3 East, portions of Sections 19–21, and 28–30. (Gila and Salt River Baseline and Meridian). The project would occur within and adjacent to the City of Phoenix (COP) and Maricopa County Department of Transportation (MCDOT) right-of-way (ROW) through private lands.

Project Description: The City of Phoenix proposes to widen and realign Broadway Road between 7th Street and 43rd Avenue and construct a new segment of Broadway Road between 43rd Avenue and 51st Avenue.
Currently, Broadway Road does not exist between 51st Avenue and 43rd Avenue. Broadway Road has a minimum of one travel lane in each direction from 43rd Avenue east to 19th Avenue, and includes a center left-turn lane beginning at 35th Avenue. From 19th Avenue east to 7th Street, Broadway Road expands to an urban arterial roadway with three travel lanes in each direction and a center left-turn lane. The scope of work for the project includes the following:

- Construct a 6-lane arterial roadway with three travel lanes in each direction and a raised center median containing breakouts and turn bays between 51st Avenue and 43rd Avenue
- Widen Broadway Road between 43rd Avenue and 17th Avenue from two lanes to six lanes with three travel lanes in each direction and a raised center median containing breakouts and turn bays
- Broadway Road would be widened symmetrically except between 39th Avenue and 35th Avenue and at the 19th Avenue intersection, where the roadway will be widened entirely to the north
- Minor intersection improvements including reconstruction of sub-standard radius returns and installing bus bays would occur from 17th Avenue to 7th Street
- At Central Avenue, Broadway Road would be widened to the south to eliminate an existing lane reduction in the eastbound direction
- Installing new street lighting and relocating existing street lighting where necessary
- Modifying existing storm drain systems and constructing new storm drain systems where necessary
- Installing new traffic signals or relocating existing signals where necessary
- Installing new pavement markings and landscaping as needed.

New ROW and temporary construction easements would be required. Most of the new ROW would be acquired between 43rd and 51st Avenues. Construction is expected to occur with conventional equipment; no blasting is anticipated to be required. Construction is anticipated to begin in Winter of 2013 and would occur for approximately 1 year. The project would be federally funded.

Vegetation/Habitat Type: The project is located in the Phoenix metropolitan area within the Lower Colorado River Valley subdivision of the Sonoran Desertscrub Biotic Community. Terrain within the project area is relatively flat with a slight northwest slope and elevations ranging from 985 to 1,085 feet above mean sea level. Developed areas from 7th Street to 43rd Avenue, are characterized by landscaped gravel surfaces and trees such as mesquite (*Prosopis sp.*) and palo verde (*Parkinsonia sp.*). Vacant lots in the same reach consist of bare ground interspersed with patches weedy annuals, forbs, and grasses such as Russian thistle (Salsola sp.), cheeseweed (*Malva parviflora*), and bermuda grass (*Cynodon* spp.). The project area west of 43rd Avenue consists of a gravel mining operation in the Salt River floodplain that is highly disturbed and generally lacking vegetation. Sparse patches of weedy annuals containing species such as Russian thistle, cheeseweed, and London Rocket (*Sisymbrium irio*), and occasional shrubs such as burro brush (*Hymenoclea salsola*), and snakeweed (Gutierezzia sarothrae) are scattered throughout this portion of the project area.

Project Evaluation Checklist

I. Previous Biological Evaluation (BE)	No	Yes
1. Prior Project BE – Name: Avenida Rio Salado/Broadway Road TRACS#:0000 MA PHX SS606 01C Date: 08/28/09		X
2. Update to BE Required	X	
II. Species and/or Habitat	**No**	**Yes**
1. Survey Completed: August 1, 2012 By: Jessica Rybczynski		X
2. Previous Species Observation - attach AZ Game and Fish Environmental Review On-Line Tool		X
3. Federally Listed Species Present	X	
4. Habitat for Federally Listed Species Present	X	
5. Sensitive Species Present (Tribal or Federal Lands)	X	
6. Habitat for Sensitive Species Present (Tribal or Federal Lands)	X	
III. Analysis of Effects	**No**	**Yes**
1. Substantial Habitat Alteration	X	
2. Impacts Outside the Project Area	X	
3. Impacts to Native Vegetation	X	
4. Impacts to Riparian, Wetland and/or Water Resources	X	
IV. Determination of Effects	**No**	**Yes**
1. No effect on listed species or habitat		X
2. May affect, not likely to adversely affect listed species or habitat	X	
3. May affect, likely to adversely affect listed species or habitat	X	
4. No impact to individual sensitive species		X
5. May impact individual sensitive species or sensitive species' population viability	X	
V. USFWS/Agency Consultation Requirements	**No**	**Yes**
1. Informal Consultation Required	X	
2. Formal Consultation Required	X	
3. Agency Review Required	X	

Prepared By: Angela Jordan, Wildlife Biologist, AZTEC Date: 12/28/2012

Reviewed By: Jessica Rybczynski Date: 12/28/2012
Jessica Rybczynski, Wildlife Biologist, AZTEC

Based on the findings above a detailed evaluation and further consultation are not required.

Attachments: Additional notes or analysis, On-line tool printout, maps and project photographs

Additional Notes, Analysis or Mitigation Measures: (include brief discussion of any potential impacts to nesting migratory birds)

Vegetation removal may be required; however due to the disturbed nature of the project limits, removal would be minimal and would be limited to landscaped plants, small disturbance species, and weedy annuals.

As previously mentioned, a Biological Evaluation (BE) was completed for this project on August 28, 2009. Since 2009, the bald eagle and California brown pelican have been delisted, and the Sonoran desert tortoise (Gopherus agassizii), Sprague's pipit (Anthus spragueii) and Tucson shovel-nosed snake (Chionactis occipitalis klauber) have been added as candidates for listing under the Endangered Species Act. Suitable habitat for Sonoran desert tortoise, Sprague's pipit and Tucson shovel-nosed snakes is not present within or adjacent to the project area. All areas impacted by project activities are located within the 2009 study area and would cause no new affects from those evaluated in the 2009 BE. Therefore, the current project activities would have no new impacts or effects to listed species from those evaluated in 2009.

The BE also discusses the presence of suitable foraging and nesting habitat for the Western burrowing owl within the project area. There still is a potential for take to occur and in order to avoid or minimize this potential, the following measures should be adhered to:

- Pre-construction surveys for the Western burrowing owl shall be conducted in all suitable habitat that would be disturbed in accordance with Arizona Game and Fish Department's Burrowing Owl Clearance Guidance for Landowners or currently accepted protocol.
- If any burrowing owls are located during pre-construction surveys or construction, a biologist holding a permit from the US Fish and Wildlife Service to relocate burrowing owls shall be contacted to relocate those burrowing owls from the project area, as appropriate.
- If burrowing owls or active burrows are identified during the pre-construction surveys or during construction, no construction activities shall take place within 100 feet of any active burrow until the owls are relocated.

The attached updated AGFD online environmental review tool was accessed on December 13, 2012 and identified the Western burrowing owl (*Athene cunicularia hypugaea*), a bat colony, the black-bellied whistling-duck (*Dendrocygna autumnalis*), Sonoran desert tortoise (*Gopherus agassizii*), the Sonoran and wintering populations of bald eagles (*Haliaeetus leucocephalus*) and the least bittern (*Ixobrychus exilis*) as occurring within 3 miles of the project vicinity (Search ID: 20121213019218). The current review differs from the previous 2009 AGFD online environmental review tool by including the Sonoran and wintering populations of bald eagles and the least bittern. As previously discussed in the 2009 BE, marginal opportunistic foraging habitat for bald eagles and the least bittern is located along the Salt River between 51st and 59th Avenues. The current project limits do not extend past 51st Avenue, therefore no suitable habitat is located within the project limits and no impacts to bald eagles or least bitterns are anticipated.

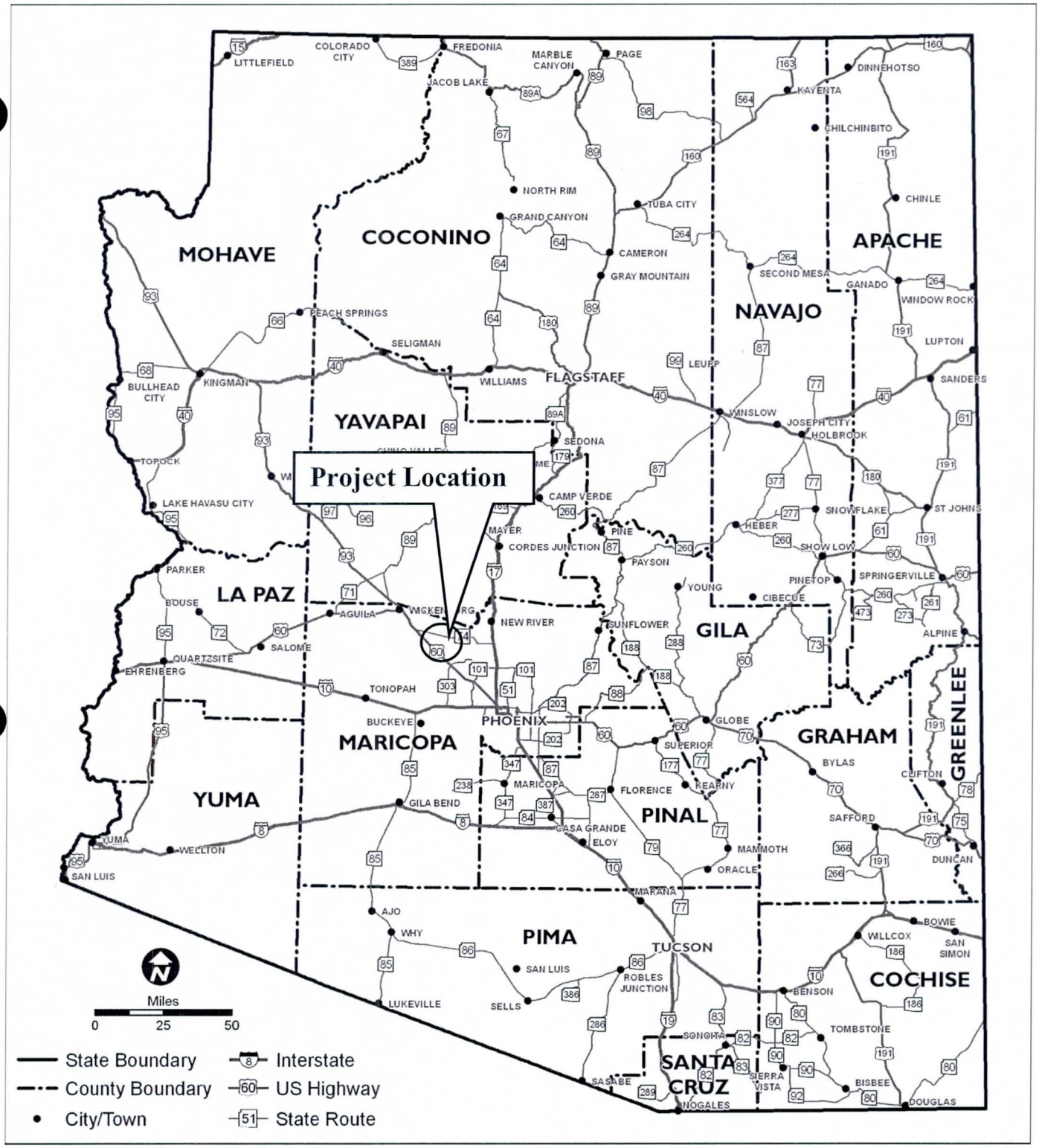
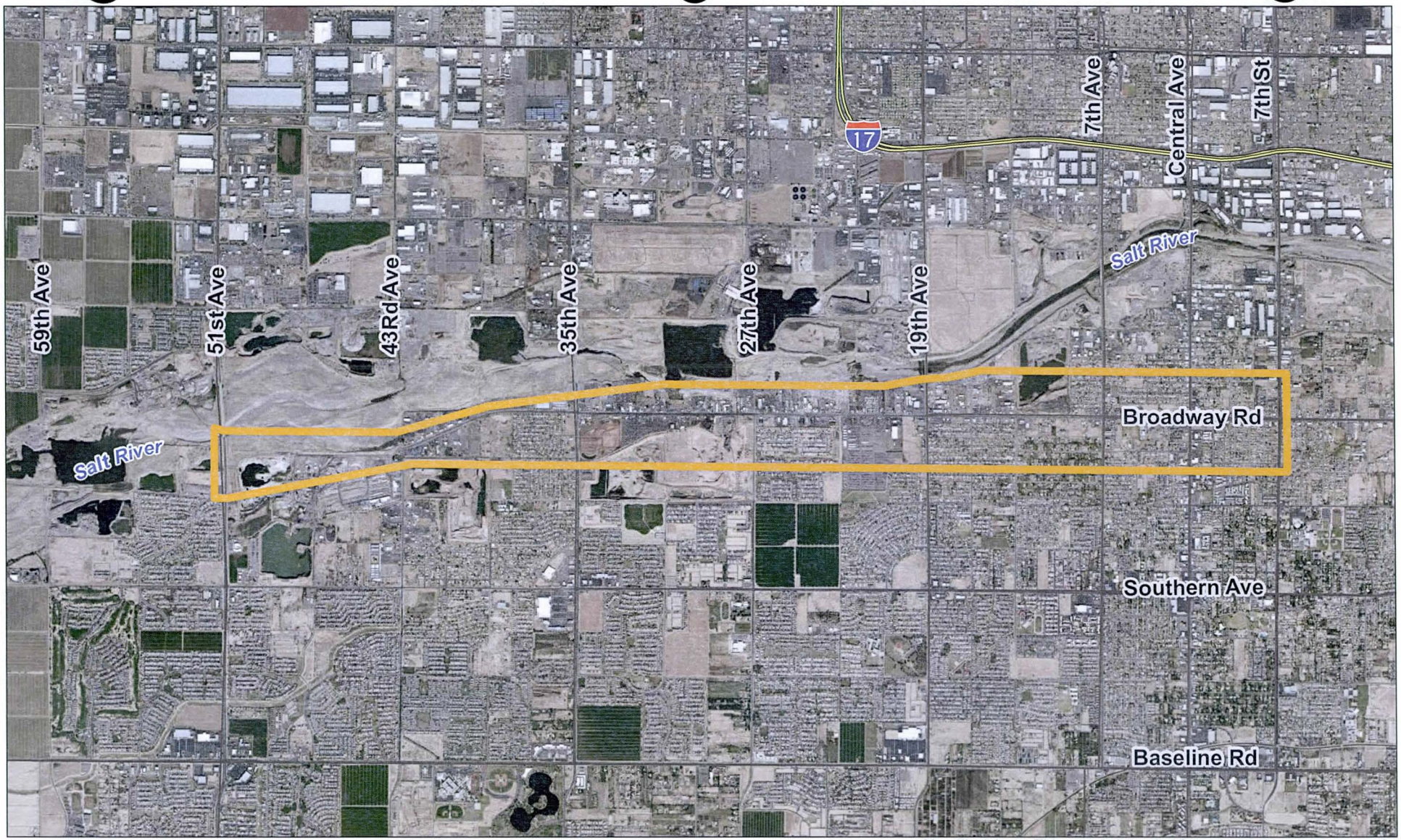


Figure 1. State Location Map
HPS-PHX-0(055)A
0000 MA PHX SS606 01C
Avenida Rio Salado/Broadway Road



Map disclaimer: This map is intended for general siting purposes only.

Sources:
Bing (2011)
City of Phoenix (2008)

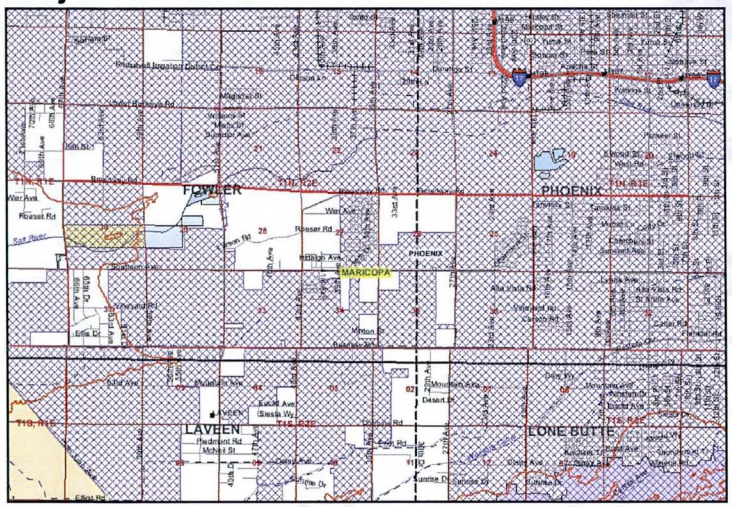
Project Area

Figure 2. Project Vicinity Map
HPS-PHX-0(055)A
0000 MA PHX SS606 01C
Avenida Rio Salado/Broadway Road

mile
0 0.5 1

Arizona's On-line Environmental Review Tool
Search ID: 20121213019218
Project Name: SS606, ARS Broadway Road
Date: 12/13/2012 11:38:37 AM

Project Location



Project Name: SS606, ARS Broadway Road
Submitted By: Mike Myers
On behalf of: ADOT
Project Search ID: 20121213019218
Date: 12/13/2012 11:38:31 AM
Project Category: Transportation & Infrastructure,Road construction (including staging areas),Realignment/ new roads
Project Coordinates (UTM Zone 12-NAD 83): 394747.929, 3697017.013 meter
Project Length: 12955.663 meter
County: MARICOPA
USGS 7.5 Minute Quadrangle ID: 1299
Quadrangle Name: PHOENIX
Project locality is not anticipated to change

The Department appreciates the opportunity to provide in-depth comments and project review when additional information or environmental documentation becomes available.

Special Status Species Occurrences/Critical Habitat/Tribal Lands within 3 miles of Project Vicinity:

Name	Common Name	FWS	USFS	BLM	State
Athene cunicularia hypugaea	Western Burrowing Owl	SC	S	S	
Bat Colony					
Dendrocygna autumnalis	Black-bellied Whistling-Duck				WSC
Gila River Indian Reservation	Gila River Indian Reservation				
Gopherus agassizii (Sonoran Population)	Sonoran Desert Tortoise	C	S		WSC
Haliaeetus leucocephalus (wintering pop.)	Bald Eagle - Winter Population	SC,BGA	S	S	WSC
Haliaeetus leucocephalus pop. 3	Bald Eagle - Sonoran Desert Population	SC,BGA	S	S	WSC
Ixobrychus exilis	Least Bittern				WSC

Location Accuracy Disclaimer

Project locations are assumed to be both precise and accurate for the purposes of environmental review. The creator/owner of the Project Review Receipt is solely responsible for the project location and thus the correctness of the Project Review Receipt content.

 APPLICATION INITIALS: _____

Please review the entire receipt for project type recommendations and/or species or location information and retain a copy for future reference. If any of the information you provided did not accurately reflect this project, or if project plans change, another review should be conducted, as this determination may not be valid.

Arizona's On-line Environmental Review Tool:

1. This On-line Environmental Review Tool inquiry has generated recommendations regarding the potential impacts of your project on Special Status Species (SSS) and other wildlife of Arizona. SSS include all U.S. Fish and Wildlife Service federally listed, U.S. Bureau of Land Management sensitive, U.S. Forest Service sensitive, and Arizona Game and Fish Department (Department) recognized species of concern.
2. These recommendations have been made by the Department, under authority of Arizona Revised Statutes Title 5 (Amusements and Sports), 17 (Game and Fish), and 28 (Transportation). These recommendations are preliminary in scope, designed to provide early considerations for all species of wildlife, pertinent to the project type you entered.
3. This receipt, generated by the automated On-line Environmental Review Tool does not constitute an official project review by Department biologists and planners. Further coordination may be necessary as appropriate under the National Environmental Policy Act (NEPA) and/or the Endangered Species Act (ESA).

The U.S. Fish and Wildlife Service (USFWS) has regulatory authority over all federally listed species under the ESA. Contact USFWS Ecological Services Offices: http://arizonaes.fws.gov/.

Phoenix Main Office
2321 W. Royal Palm Road, Suite 103
Phoenix, AZ 85021
Phone 602-242-0210
Fax 602-242-2513

Tucson Sub-Office
201 North Bonita, Suite 141
Tucson, AZ 85745
Phone 520-670-6144
Fax 520-670-6154

Flagstaff Sub-Office
323 N. Leroux Street, Suite 101
Flagstaff, AZ 86001
Phone 928-226-0614
Fax 928-226-1099

Disclaimer:

1. This is a preliminary environmental screening tool. It is not a substitute for the potential knowledge gained by having a biologist conduct a field survey of the project area.
2. The Department's Heritage Data Management System (HDMS) data is not intended to include potential distribution of special status species. Arizona is large and diverse with plants, animals, and environmental conditions that are ever changing. Consequently, many areas may contain species that biologists do not know about or species previously noted in a particular area may no longer occur there.
3. Not all of Arizona has been surveyed for special status species, and surveys that have been conducted have varied greatly in scope and intensity. Such surveys may reveal previously undocumented population of species of special concern.
4. HDMS data contains information about species occurrences that have actually been reported to the Department.

Arizona Game and Fish Department Mission

To conserve, enhance, and restore Arizona's diverse wildlife resources and habitats through aggressive protection and

 APPLICATION INITIALS: _____

management programs, and to provide wildlife resources and safe watercraft and off-highway vehicle recreation for the enjoyment, appreciation, and use by present and future generations.

Project Category: Transportation & Infrastructure,Road construction (including staging areas),Realignment/ new roads

Project Type Recommendations:

All degraded and disturbed lands should be restored to their natural state. Vegetation restoration projects (including treatments of invasive or exotic species) should have a completed site-evaluation plan (identifying environmental conditions necessary to re-establish native vegetation), a revegetation plan (species, density, method of establishment), a short and long-term monitoring plan, including adaptive management guidelines to address needs for replacement vegetation.

Based on the project type entered; coordination with Arizona Department of Environmental Quality may be required (http://www.azdeq.gov/).

Based on the project type entered; coordination with County Flood Control districts may be required.

Based on the project type entered; coordination with State Historic Preservation Office may be required http://azstateparks.com/SHPO/index.html

Based on the project type entered; coordination with U.S. Army Corps of Engineers may be required (http://www.spl.usace.army.mil/regulatory/phonedir.html)

During planning and construction, minimize potential introduction or spread of exotic invasive species. Invasive species can be plants, animals (exotic snails), and other organisms (e.g. microbes), which may cause alteration to ecological functions or compete with or prey upon native species and can cause social impacts (e.g. livestock forage reduction, increase wildfire risk). The terms noxious weed or invasive plants are often used interchangeably. Precautions should be taken to wash all equipment utilized in the project activities before and after project activities to reduce the spread of invasive species. Arizona has noxious weed regulations (Arizona Revised Statutes, Rules R3-4-244 and R3-4-245). See Arizona Department of Agriculture website for restricted plants http://www.azda.gov/PSD/quarantine5.htm. Additionally, the U.S. Department of Agriculture has information regarding pest and invasive plant control methods including: pesticide, herbicide, biological control agents, and mechanical control: http://www.usda.gov/wps/portal/usdahome. The Department regulates the importation, purchasing, and transportation of wildlife and fish (Restricted Live Wildlife), please refer to the hunting regulations for further information http://www.azgfd.gov/h_f/hunting_rules.shtml.

During the planning stages of your project, please consider the local or regional needs of wildlife in regards to movement, connectivity, and access to habitat needs. Loss of this permeability prevents wildlife from accessing resources, finding mates, reduces gene flow, prevents wildlife from re-colonizing areas where local extirpations may have occurred, and ultimately prevents wildlife from contributing to ecosystem functions, such as pollination, seed dispersal, control of prey numbers, and resistance to invasive species. In many cases, streams and washes provide natural movement corridors for wildlife and should be maintained in their natural state. Uplands also support a large diversity of species, and should be contained within important

 APPLICATION INITIALS: _____

wildlife movement corridors. In addition, maintaining biodiversity and ecosystem functions can be facilitated through improving designs of structures, fences, roadways, and culverts to promote passage for a variety of wildlife.

Hydrological considerations: design culverts to minimize impacts to channel geometry, or design channel geometry (low flow, overbank, floodplains) and substrates to carry expected discharge using local drainages of appropriate size as templates. Aquatic wildlife considerations: reduce/minimize barriers to migration of amphibians or fish (e.g. eliminate falls). Terrestrial wildlife: washes and stream corridors often provide important corridors for movement. Overall culvert width, height, and length should be optimized for movement of the greatest number and diversity of species expected to utilize the passage. Culvert designs should consider moisture, light, and noise, while providing clear views at both ends to maximize utilization. For many species, fencing is an important design feature that can be utilized with culverts to funnel wildlife into these areas and minimize the potential for roadway collisions. Guidelines for culvert designs to facilitate wildlife passage can be found at http://www.azgfd.gov/hgis/guidelines.aspx.

Minimization and mitigation of impacts to wildlife and fish species due to changes in water quality, quantity, chemistry, temperature, and alteration to flow regimes (timing, magnitude, duration, and frequency of floods) should be evaluated. Minimize impacts to springs, in-stream flow, and consider irrigation improvements to decrease water use. If dredging is a project component, consider timing of the project in order to minimize impacts to spawning fish and other aquatic species (including spawning seasons), and to reduce spread of exotic invasive species. We recommend early direct coordination with Project Evaluation Program for projects that could impact water resources, wetlands, streams, springs, and/or riparian habitats.

Planning: consider impacts of lighting intensity on mammals and birds and develop measures or alternatives that can be taken to increase human safety while minimizing potential impacts to wildlife. Conduct wildlife surveys to determine species within project area, and evaluate proposed activities based on species biology and natural history to determine if artificial lighting may disrupt behavior patterns or habitat use.

Preconstruction - Consider design structures and construction plans that minimize impacts to channel geometry (i.e. width/depth ratio, sinuosity, allow overflow channels) to avoid alteration of hydrological function. Identify whether wildlife species use the structure for roosting or nesting during anticipated construction period. Plan the timing of construction/maintenance to minimize impacts to wildlife species. In addition to the species list generated by the Arizona's On-line Environmental Review Tool, the Department recommends that surveys be conducted at the bridge and in the vicinity of the bridge to identify additional or currently undocumented bat, bird, or aquatic species in the project area. To minimize impacts to birds and bats, as well as aquatic species, consider conducting maintenance and construction activities outside the breeding/maternity season (breeding seasons for birds and bats usually occur spring - summer). Examining the crevices for the presence of bats prior to pouring new paving materials. When bats are present, the top of the crevices should be sealed to prevent material from dripping or falling through the cracks and potentially onto bats. If bats are present, maintenance and construction (including paving and milling) activities should be conducted during nighttime hours, if possible, when the fewest number of bats will be roosting. Consider incorporating roosting habitat for bats into bridge designs. Minimize impacts to the vegetation community. A revegetation plan should be developed to replace impacted communities. Unavoidable impacts to vegetation should be mitigated on-site whenever possible. During construction: Erosion control structures and drainage features should be used to prevent introduction of sediment laden runoff into the waterway. Minimize instream construction activity. If culverts are planned, mitigate impacts to wildlife and fish movement. Guidelines for bridge designs to facilitate wildlife passage can be found at http://www.azgfd.gov/hgis/guidelines.aspx.

 APPLICATION INITIALS: _____

Recommendations will be dependant upon goals of the fence project and the wildlife species expected to be impacted by the project. General guidelines for ensuring wildlife-friendly fences include: barbless wire on the top and bottom with the maximum fence height 42", minimum height for bottom 16". Modifications to this design may be considered for fencing anticipated to be routinely encountered by elk, bighorn sheep or pronghorn (e.g., Pronghorn fencing would require 18" minimum height on the bottom). Please refer to the Department's Fencing Guidelines located at http://www.azgfd.gov/hgis/guidelines.aspx.

The Department recommends that wildlife surveys are conducted to determine if noise-sensitive species occur within the project area. Avoidance or minimization measures could include conducting project activities outside of breeding seasons.

The Department requests further coordination to provide project/species specific recommendations, please contact Project Evaluation Program directly.

Trenches should be covered or back-filled as soon as possible. Incorporate escape ramps in ditches or fencing along the perimeter to deter small mammals and herptefauna (snakes, lizards, tortoise) from entering ditches.

Project Location and/or Species recommendations:

Tribal Lands are within the vicinity of your project area (refer to page 1 of the receipt) and may require further coordination. Please contact:
Gila River Indian Community
P.O. Box 97
Sacaton, AZ 85247
Phone: 520-562-6000
Fax: 520-562-6010

Heritage Data Management System records indicate that one or more listed, proposed, or candidate species or Critical Habitat (Designated or Proposed) have been documented in the vicinity of your project (refer to page 1 of the receipt). Please contact:
Ecological Services Office
US Fish and Wildlife Service
2321 W. Royal Palm Rd.
Phoenix, AZ 85021-4951
Phone: 602-242-0210
Fax: 602-242-2513

Heritage Data Management System records indicate that western burrowing owls have been documented within the vicinity of your project area (refer to the species list on page 1 of the receipt). Please review the relocation procedures recommended for burrowing owls found on the Environmental Review Home Page: http://mirror-pole.com/burr_owl/bur_owl1.htm.

Recommendations Disclaimer:

1. Potential impacts to fish and wildlife resources may be minimized or avoided by the recommendations generated from information submitted for your proposed project.
2. These recommendations are proposed actions or guidelines to be considered during **preliminary project development**.
3. Additional site specific recommendations may be proposed during further NEPA/ESA analysis or through coordination with affected agencies.
4. Making this information directly available does not substitute for the Department's review of project proposals, and should not decrease our opportunity to review and evaluate additional project information and/or new project proposals.
5. The Department is interested in the conservation of all fish and

 APPLICATION INITIALS: _____

wildlife resources, including those Special Status Species listed on this receipt, and those that may have not been documented within the project vicinity as well as other game and nongame wildlife.
6. **Further coordination requires the submittal of this initialed and signed Environmental Review Receipt with a cover letter and project plans or documentation that includes project narrative, acreage to be impacted, how construction or project activity(s) are to be accomplished, and project locality information (including site map).**
7. Upon receiving information by AZGFD, please allow 30 days for completion of project reviews. Mail requests to:

Project Evaluation Program, Habitat Branch
Arizona Game and Fish Department
5000 West Carefree Highway
Phoenix, Arizona 85086-5000
Phone Number: (623) 236-7600
Fax Number: (623) 236-7366

Terms of Use

By using this site, you acknowledge that you have read and understand the terms of use. Department staff may revise these terms periodically. If you continue to use our website after we post changes to these terms, it will mean that you accept such changes. If at any time you do not wish to accept the Terms, you may choose not to use the website.

1. This Environmental Review and project planning website was developed and intended for the purpose of screening projects for potential impacts on resources of special concern. By indicating your agreement to the terms of use for this website, you warrant that you will not use this website for any other purpose.
2. Unauthorized attempts to upload information or change information on this website are strictly prohibited and may be punishable under the Computer Fraud and Abuse Act of 1986 and/or the National Information Infrastructure Protection Act .
3. The Department reserves the right at any time, without notice, to enhance, modify, alter, or suspend the website and to terminate or restrict your access to the website.
4. This Environmental Review is based on the project study area that was entered. The review must be redone if the project study area, location, or the type of project changes. If additional information becomes available, this review may need to be reconsidered.
5. A signed and initialed copy of the Environmental Review Receipt indicates that the entire receipt has been read by the signer of the Environmental Review Receipt.

Security:

The Environmental Review and project planning web application operates on a complex State computer system. This system is monitored to ensure proper operation, to verify the functioning of applicable security features, and for other like purposes. Anyone using this system expressly consents to such monitoring and is advised that if such monitoring reveals possible evidence of criminal activity, system personnel may provide the evidence of such monitoring to law enforcement officials. Unauthorized attempts to upload or change information; to defeat or circumvent security measures; or to utilize this system for other than its intended purposes are prohibited.

This website maintains a record of each environmental review search result as well as all contact information. This information is maintained for internal tracking purposes. Information collected in this application will not be shared outside of the purposes of the Department.

If the Environmental Review Receipt and supporting material are not mailed to the Department or other appropriate agencies within six (6) months of the Project Review Receipt date, the receipt is considered to be null and void, and a new review must be initiated.

 APPLICATION INITIALS: _____

Print this Environmental Review Receipt using your Internet browser's print function and keep it for your records. Signature of this receipt indicates the signer has read and understands the information provided.

Signature:_____

Date: _____

Proposed Date of Implementation: _____

Please provide point of contact information regarding this Environmental Review.

Application or organization responsible for project implementation

Agency/organization:_____

Contact Name: _____

Address: _____

City, State, Zip: _____

Phone: _____

E-mail: _____

Person Conducting Search (if not applicant)

Agency/organization:_____

Contact Name: _____

Address: _____

City, State, Zip: _____

Phone: _____

E-mail: _____

 APPLICATION INITIALS: _____

APPENDIX H

ARS IMPROVEMENT PLANS

PRELIMINARY SUBMITTAL

90%

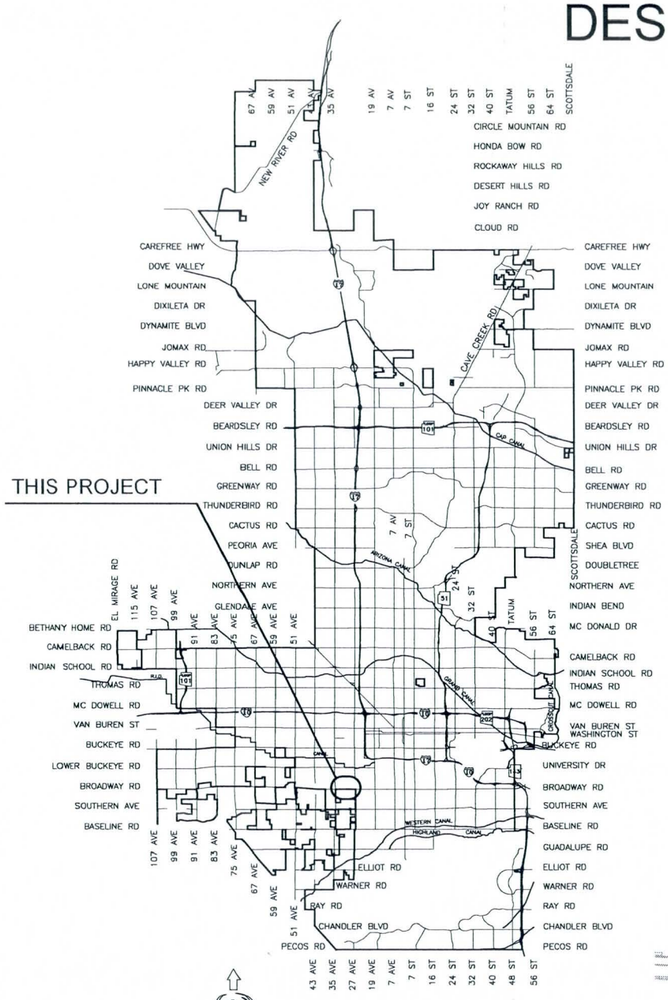
NOT FOR CONSTRUCTION OR RECORDING

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100332	1	96	

Dibble Engineering — 7500 N. Dreamy Draw Drive, Suite 260, Phoenix, AZ 85020, P 602.957.1199 — DIBBLE ENGINEERING, CONSULTING ENGINEER

DES: DHD | DR: CDF | CK: GPH | DATE: 08/13

CITY OF PHOENIX
STREET TRANSPORTATION DEPARTMENT
DESIGN & CONSTRUCTION MANAGEMENT DIVISION
PAVING AND STORM DRAIN
AVENIDA RIO SALADO/BROADWAY ROAD
35TH AVENUE TO 27TH AVENUE
ST85100332
FEDERAL AID NO. HPS-PHX-0(055)A
ADOT TRACS NO. 0000 MA PHX SS606 03D



VICINITY MAP

NTS

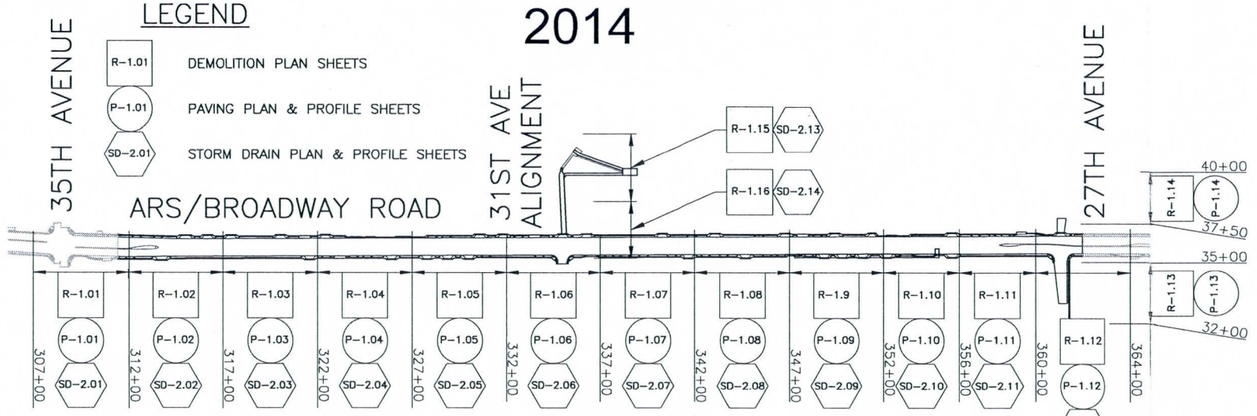
City of Phoenix N

LEGEND

R-1.01 — DEMOLITION PLAN SHEETS

P-1.01 — PAVING PLAN & PROFILE SHEETS

SD-2.01 — STORM DRAIN PLAN & PROFILE SHEETS



KEY MAP

NTS

City of Phoenix N

2014

COP INSPECTION STAMP

CITY PROJECT MANAGER _____

CITY INSPECTOR _____

CONTRACTOR _____

DATE OF FINAL COMPLETION _____

APPROVED _____ _____

ASSISTANT STREET TRANSPORTATION DIRECTOR — DATE

APPROVED _____ _____

DEPUTY STREET TRANSPORTATION DIRECTOR — DATE

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED AND ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

_____ _____

REGISTERED CIVIL ENGINEER/LAND SURVEYOR — DATE

_____ _____

REGISTRATION NUMBER — EXPIRATION DATE

CITY BENCHMARKS

▲ COP BC IN NORTH HH, ABOUT 15' WEST OF SECOND COP BC IN HH AT THE INTERSECTION OF 35TH AVE AND BROADWAY RD EL 1034.91 PT# 104

▲ COP BC IN HH AT THE INTERSECTION OF 27TH AVE AND BROADWAY RD EL 1046.63 PT# 6502601

MAYOR
GREG STANTON

CITY MANAGER
DAVID CAVAZOS

CITY COUNCIL

DISTRICT NO 1.	THELDA WILLIAMS
DISTRICT NO 2.	JIM WARING
DISTRICT NO 3.	BILL GATES
DISTRICT NO 4.	TOM SIMPLOT
DISTRICT NO 5.	DANIEL VALENZUELA
DISTRICT NO 6.	SAL DICICCIO
DISTRICT NO 7.	MICHAEL NOWAKOWSKI
DISTRICT NO 8.	MICHAEL JOHNSON

INDEX OF SHEETS

SHEET NO.	DWG SERIES NO.	SHEET TITLE
1	G-1.01	COVER SHEET
2	G-1.02	LEGEND & NOTES
3	G-5.01	SURVEY CONTROL
4	G-2.01	REMOVAL SUMMARY
5	G-2.02	ROADWAY SUMMARY
6-7	G-3.01 – G-3.02	TYPICAL SECTIONS
8-23	R-1.01 – R-1.16	REMOVAL PLAN
24-37	P-1.01 – P-1.14	PAVING PLAN & PROFILE
38-53	DP-1.01 – DP-1.16	DRIVEWAY PROFILES
54	DT-1.01	PAVING DETAILS
55	SD-1.01	HYDRAULIC & ENERGY GRADE LINE
56	DS-1.01	STORM DRAIN DESIGN SUMMARY
57-70	SD-2.01 – SD-2.14	STORM DRAIN PLAN & PROFILE
71-77	CP-1.01 – CP-1.07	CONNECTOR PIPE PROFILES
78	AP-1.01	ALTERNATE PIPE CHART
79	SB-1.01	SOIL BORING LOGS
80-93	SL-1.01 – SL-1.14	STREET LIGHT PLANS
1-3	TS-1.01 – TS-1.03	TRAFFIC SIGNAL PLANS
4-9	DT-2.01 – DT-2.06	TRAFFIC SIGNAL DETAILS
1-3	SM-1.01 – SM-1.02	SIGNING & MARKING PLANS

Call at least two full working days before you begin excavation. ARIZONA 811 Arizona Blue Stake, Inc. Dial 8-1-1 or 1-800-STAKE-IT (782-5348) In Maricopa County: (602) 263-1100

"PER CITY OF PHOENIX CITY CODE CHAPTER 2, SECTION 2-28, THESE PLANS ARE FOR OFFICIAL USE ONLY AND MAY NOT BE SHARED WITH OTHERS EXCEPT AS REQUIRED TO FULFILL THE OBLIGATIONS OF THE CONTRACTOR'S CONTRACT WITH THE CITY OF PHOENIX."

ST85100332 : AVENIDA RIO SALADO/BROADWAY ROAD: 35TH AVENUE TO 27TH AVENUE 90% SUBMITTAL

ST85100332CS.dwg, Aug. 14, 13

AVENIDA RIO SALADO/BROADWAY RD
35TH AVENUE TO 27TH AVENUE
PHOENIX STREETS – MARICOPA CO.

SCALE: 1"=20'

City of Phoenix
N

PRELIMINARY SUBMITTAL
90%
NOT FOR CONSTRUCTION OR RECORDING

31ST AVENUE ALIGNMENT
403+00
MID–SECTION LINE & 31ST AVE CONST ℄
S00°27'59"E
N43°44'16"W
N83°29'00"W
N00°00'00"E
N90°00'00"E
325'
320'
245'
R35'
R=31'
R=19'
10'
12'
10% MAX
14'
2:1 TAPER
20'
24'
5'
10'
12'
13'
NEW TCE
NEW DE
JD LIMITS
FLOODPLAIN
CALIFORNIA PORTLAND CEMENT COMPANY
105-50-004B
REN 8419
COMPACTED ABC (85%), MAG SPEC 702
ACCESS ROADWAY (AT GRADE)
402+91.81
93.62' LT
EL=1012.13
403+02.70
84.81' LT
EL=1012.41
403+15.69
123.11' LT
EL=1012.88
403+14.13
120.55' LT
EL=1013.00
403+23.72
110.78' LT
EL=1013.12
403+87.39
25.6' LT
EL=1035.90
403+16.97
82.58' LT
EL=1013.25
404+14.10
52.32' LT
404+26.09
51.81' LT
404+26.62
32.0' LT
404+44.37
32.0' LT
404+03.28
345.02' LT
EL=1035.88
404+09.77
344.74' LT
EL=1036.00
404+06.51
419.95' LT
EL=1036.03
404+16.11
344.47' LT
EL=1036.12
404+39.25
343.47' LT
EL=1036.59
404+42.48
418.40' LT
EL=1036.74
MATCH LINE STA 404+50 SEE DWG SD–2.14

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.	ST85100332	69	93

Dibble Engineering — DIBBLE ENGINEERING — CONSULTING ENGINEER

DES: DHD | DR: CDF | CK: GPH | DATE: 08/13

STORM DRAIN PIPE

NO	STA TO STA	SIZE	LF
20	403+13 TO 403+55	30	90
21	403+55 TO 403+65	30	10

STORM DRAIN MANHOLE

NO	STATION	TYPE
15	404+07	P1520 & MAG 522

STORM DRAIN HEADWALL

NO	STATION	TYPE
1	403+32 91.5' LT	MAG 501–4 SEE DETAILS 1 & 2

PAVING

NO	DESCRIPTION	UNIT	QUAN
19	PCC PAVEMENT CLASS A, 9" THICK	SY	694
27	AGGREGATE BASE COURSE	TON	142

RIPRAP

NO	DESCRIPTION	UNIT	QUAN
25	RIPRAP, D50=12", H=24"	CY	144
26	GROUTED RIPRAP, D50=8", H=16" 2.67" EXPOSED ROCK	CY	66

▲TBM PT NO 91
STA 335+00.84, 7.41' RT
SET MAG NAIL EL=1038.55

EXST GRADE
EROSION CONTROL GEOSYNTHETIC, TYPE B, TABLE 796–3, MAG SECTION 796 (NPI)
DUMPED RIP RAP D_{50}=6", 12" THICK

DUMPED RIP RAP D_{50}=4", 12" THICK
2'–0"
HEAD WALL
ROCK MULCH SHALL BE EXCAVATED TO ALLOW THE TOP OF THE MULCH TO BE 1" TO 2" LOWER THAN GRADE ON EACH END
EROSION CONTROL GEOSYNTHETIC, TYPE B, TABLE 796–3, MAG SECTION 796 (NPI)

2' WIDE ROCK PROTECTION
CULVERT
HEAD WALL
TOE OF SLOPE

1 RIPRAP DETAILS NTS

+12
+33.26
2–YR EGL
2–YR HGL
HEADWALL SEE DETAILS 1 & 2
INV=1013.75

EXST GROUND @ PIPE ℄
PROPOSED GRADE @ PIPE ℄
MH NO 15
STA 404+07, 31.2' LT
RIM=1036.00
PIPE COLLAR COP STD DET P1505 STA 403+65 30.9' LT
INV=1030.19 N,S
35 LF 30" PIPE @ S=0.0019'/FT
INV=1030.26
8 LF 30" PIPE @ S=0.0020'/FT
INV=1030.17 30" NE,S.
95 LF 30" PIPE @ S=0.1724'/FT

STATION	DIMENSIONS L	E	F APPROX	CUTOFF WALL DEPTH: INLET	OUTLET
403+32	7'–0"	3'–6"	6'–0"	–	2'–6"

L
F
ID/2
12"
E
SYMMETRICAL ABOUT ℄

2 HEADWALL & APRON MAG 501–4 MODIFIED NTS

NOTES
1. HEADWALL AND APRON SHALL BE CONSTRUCTED ACCORDING TO MAG STD DET 501–4 EXCEPT AS NOTED HERE.
2. FOR MULTIPLE PIPES, DISTANCE BETWEEN PIPE SPRINGLINE PER CULVERT PLAN & PROFILE.

1030 1028 1026 1024 1022 1020 1018 1016 1014 1012
1040 1038 1036 1034 1032 1030 1028 1026 1024 1022
402+00 403+00 404+00 405+00

SHEET REFERENCES

1. SEE DWG R–1.15 FOR REMOVAL PLAN

Call at least two full working days before you begin excavation. ARIZONA811 Arizona Blue Stake, Inc. Dial 8-1-1 or 1-800-STAKE-IT (782-5348) In Maricopa County (602) 263-1100

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STORM DRAIN PLAN & PROFILE

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

AVENIDA RIO SALADO/BROADWAY ROAD
35TH AVENUE TO 27TH AVENUE
ST85100332

DR: STAFF	DES: DHD	CK: GPH	DWG SERIES NO.
DATE: 08/13	DATE: 08/13	DATE: 08/13	
SCALE: 1" = 20' HORIZONTAL, 1" = 2' VERTICAL			SD–2.13

ST85100332SD13.dwg 8/14/13

REVISION BY CITY OF PHOENIX
NO. | DESCRIPTION | REV BY | CKD BY | DATE

AVENIDA RIO SALADO/BROADWAY RD
35TH AVENUE TO 27TH AVENUE
PHOENIX STREETS – MARICOPA CO.

PRELIMINARY SUBMITTAL

90%

NOT FOR CONSTRUCTION OR RECORDING

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.	ST85100332	70	93

Dibble Engineering — DIBBLE ENGINEERING — CONSULTING ENGINEER

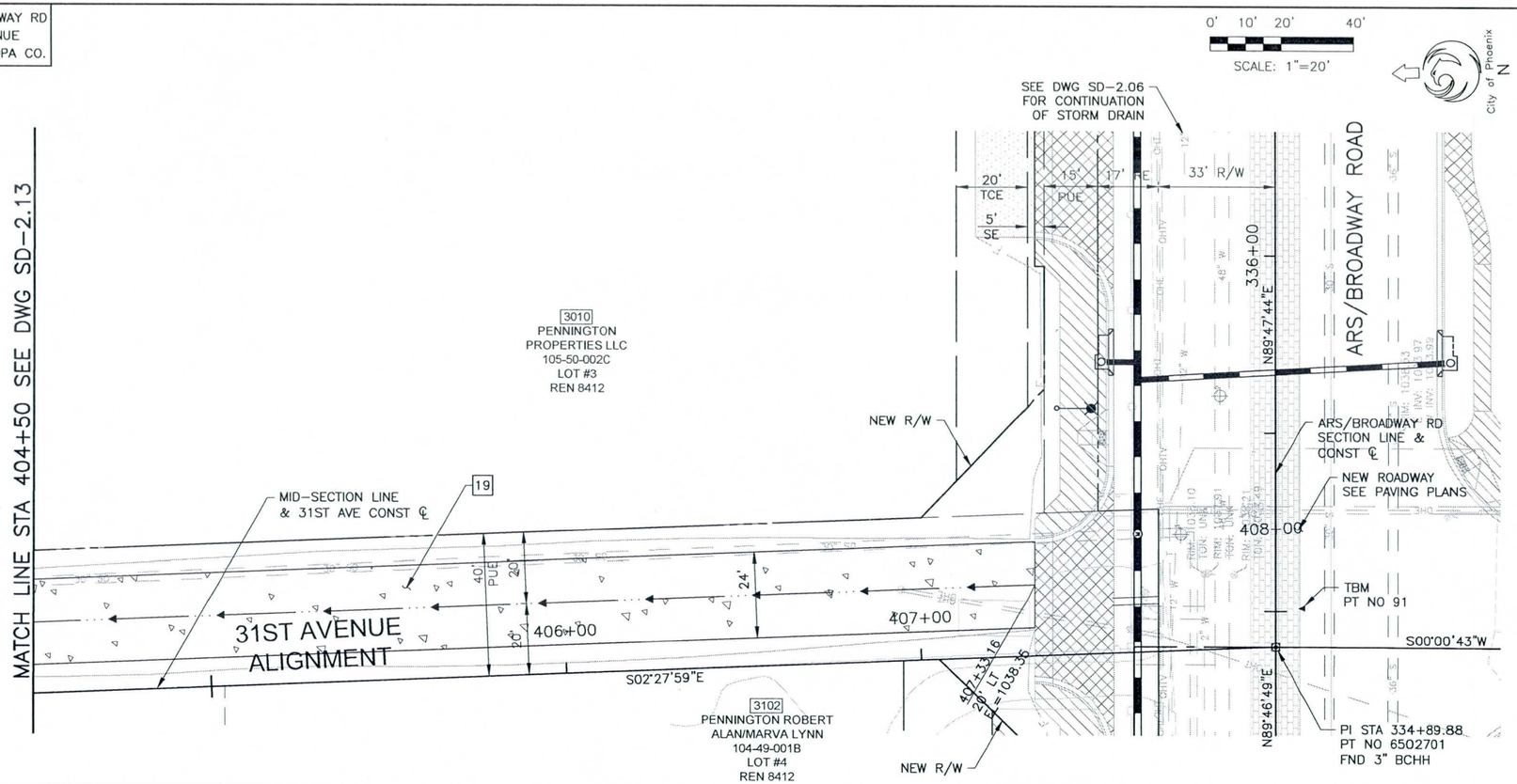
DES: DHD	DR: CDF	CK: GPH	DATE: 08/13

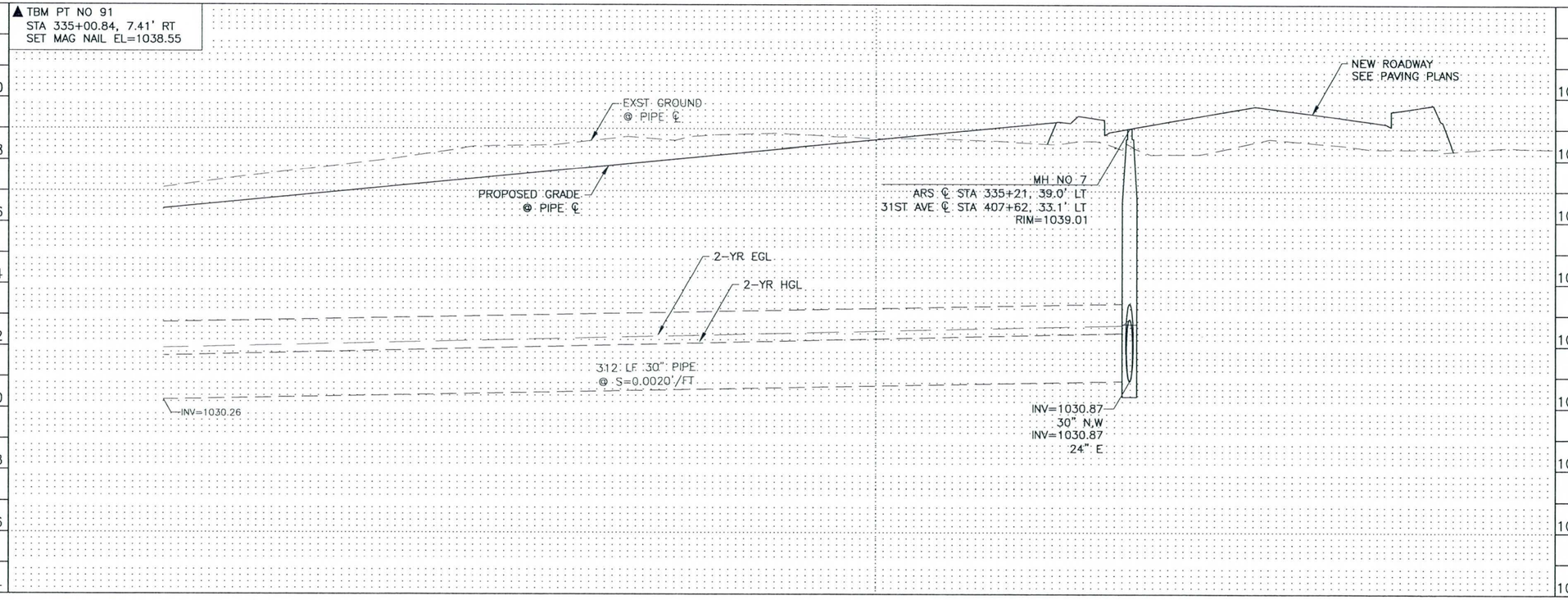
CONCRETE CHANNEL

NO	DESCRIPTION	UNIT	QUAN
19	PCC PAVEMENT CLASS A, 9" THICK 404+50 TO 407+10.06	SY	841

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE





SHEET REFERENCES

1. SEE DWG R-1.16 FOR REMOVAL PLAN

Call at least two full working days before you begin excavation. ARIZONA 811 Arizona Blue Stake, Inc. Dial 8-1-1 or 1-800-STAKE-IT (782-5348) In Maricopa County (602) 263-1100

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STORM DRAIN PLAN & PROFILE

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

AVENIDA RIO SALADO/BROADWAY ROAD
35TH AVENUE TO 27TH AVENUE
ST85100332

DR: STAFF	DES: DHD	CK: GPH	DWG SERIES NO.
DATE: 08/13	DATE: 08/13	DATE: 08/13	
SCALE: 1" = 20' HORIZONTAL 1" = 2' VERTICAL			SD-2.14

ST85100332SD14.dwg 8/14/13

PRELIMINARY

90%

NOT FOR CONSTRUCTION OR RECORDING

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100333	1	133	

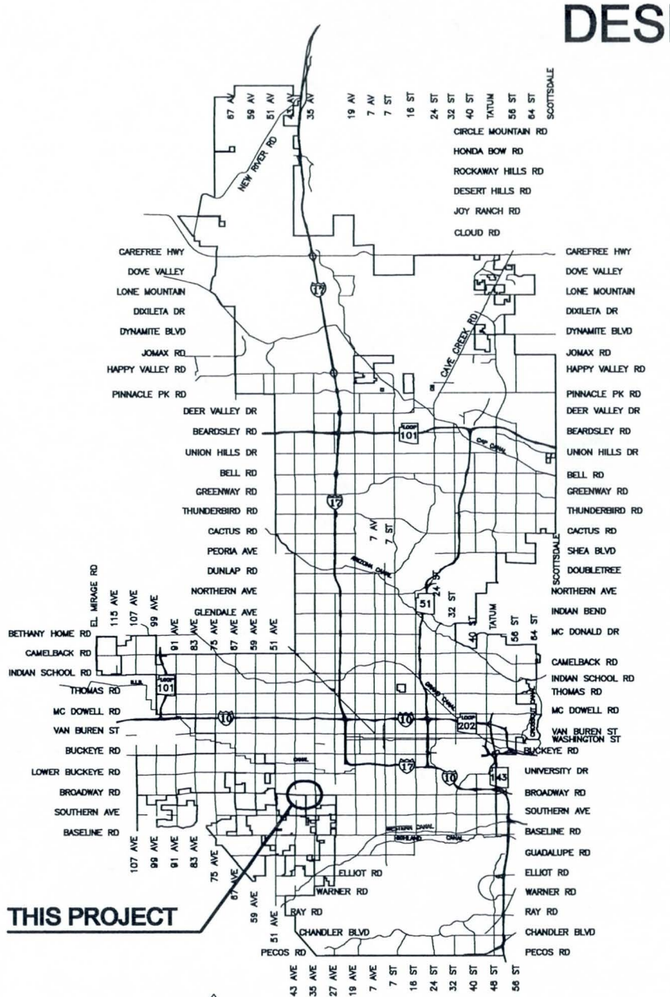
PROJECT ENGINEERING CONSULTANTS, LTD.
2310 W. MISSION LANE, STE. 4 PHOENIX, AZ 85021
PHONE (602) 906-1901

DES	MVL	DR:	JG	CK:	SM	DATE:	08/13

CITY OF PHOENIX
STREET TRANSPORTATION DEPARTMENT
DESIGN & CONSTRUCTION MANAGEMENT DIVISION
PAVING AND STORM DRAIN

AVENIDA RIO SALADO/BROADWAY ROAD
43RD AVENUE TO 35TH AVENUE
ST85100333
FEDERAL AID NO. HPS-PHX-0(005)A
ADOT TRACS NO. 0000 MA PHX SS606 01C

2014



VICINITY MAP

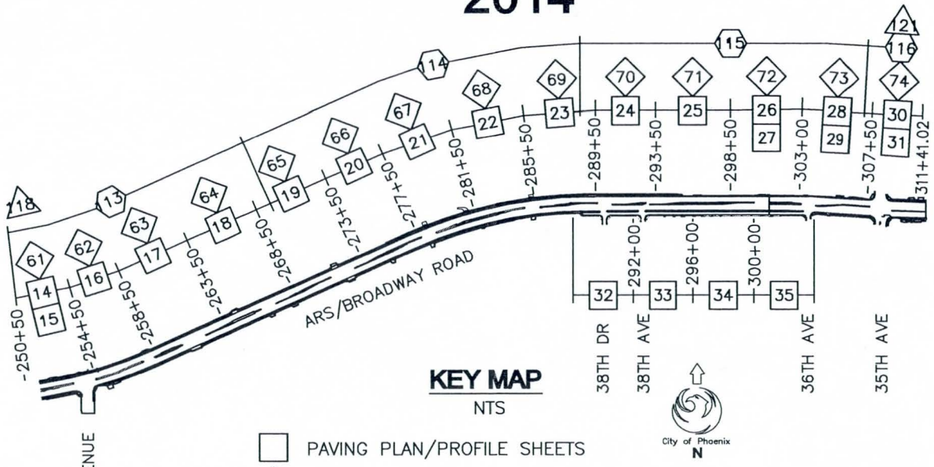
NTS

APPROVED _____ DATE _____
ASSISTANT STREET TRANSPORTATION DIRECTOR

APPROVED _____ DATE _____
DEPUTY STREET TRANSPORTATION DIRECTOR

APPROVED _____ DATE _____
WATER SERVICES DEPARTMENT

APPROVED _____ DATE _____
MARICOPA COUNTY ENVIRONMENTAL SERVICES DEPARTMENT



KEY MAP

NTS

- PAVING PLAN/PROFILE SHEETS
- STORM DRAIN PLAN/PROFILE SHEETS
- TRAFFIC SIGNAL PLAN SHEETS
- STREET LIGHT PLAN SHEETS
- LANDSCAPE PLAN SHEETS

LENGTH OF PROJECT = 6,053 LF = 1.15 MILES
AREA OF DISTURBANCE = 20.4 ACRES

MAYOR
GREG STANTON

CITY MANAGER
DAVID CAVAZOS

CITY COUNCIL

DISTRICT NO 1.	THELDA WILLIAMS
DISTRICT NO 2.	JIM WARING
DISTRICT NO 3.	BILL GATES
DISTRICT NO 4.	TOM SIMPLOT
DISTRICT NO 5.	DANIEL VALENZUELA
DISTRICT NO 6.	SAL DICICCIO
DISTRICT NO 7.	MICHAEL NOWAKOWSKI
DISTRICT NO 8.	MICHAEL JOHNSON

INDEX OF SHEETS

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2	G-1.02	LEGEND AND NOTES SHEET
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6 – 7	G-3.01 – G-3.02	TYPICAL SECTIONS
8 – 10	G-4.01 – G-4.04	MEDIAN ISLAND GEOMETRIC SHEETS
11	G-5.01	SURVEY CONTROL SHEETS
12 – 13	G-6.01 – G-6.02	INTERSECTION WORKSHEETS
14 – 31	P-1.01 – P-1.18	PAVING PLAN & PROFILE SHEETS – ARS/BROADWAY RD
32 – 35	P-1.19 – P-1.22	PAVING PLAN & PROFILE – FRONTAGE RD
36	DT-1.01	SPECIAL DETAILS – PAVING
37 – 38	DT-2.01 – DT-2.02	MEDIAN ISLAND DETAIL SHEETS
39 – 42	DT-3.01 – DT-3.04	DRIVEWAY CROSS SECTION SHEETS
43 – 55	DT-4.01 – DT-4.13	ROADWAY CROSS SECTIONS
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57	DS-1.01	STORM SEWER DESIGN SUMMARY SHEET
58 – 60	SB-1.01 – SB-1.03	GEOTECHNICAL INFORMATION
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75 – 88	CP-1.01 – CP-1.14	CATCH BASIN CONNECTOR PIPE PROFILES
89	AP-1.01	ALTERNATE PIPE CHART
90	DD-1.01	SPECIAL DETAILS (STORM SEWER)
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112	SC-1.01	STREET LIGHT COVER SHEET
113 – 116	SL-1.01 – SL-1.04	STREET LIGHT PLAN SHEETS
117	ST-1.01	STREET LIGHT DETAIL SHEET
118 –123	TS-1.01 – TS-1.06	TRAFFIC SIGNAL PLANS
124 – 127	PS-1.01 – PS-1.04	PAINT AND SIGNING PLANS
128 – 133	SS-1.01 – SS-1.06	SANITARY SEWER PLANS

CITY BENCHMARKS:

MARICOPA COUNTY BRASS CAP IN HANDHOLE AT INTERSECTION OF BROADWAY ROAD AND 31ST AVENUE. ELEV 1037.44 (COP DATUM)

MARICOPA COUNTY BRASS CAP FLUSH AT WIER AVENUE AND 43RD AVENUE ELEV 1025.92 (COP DATUM)

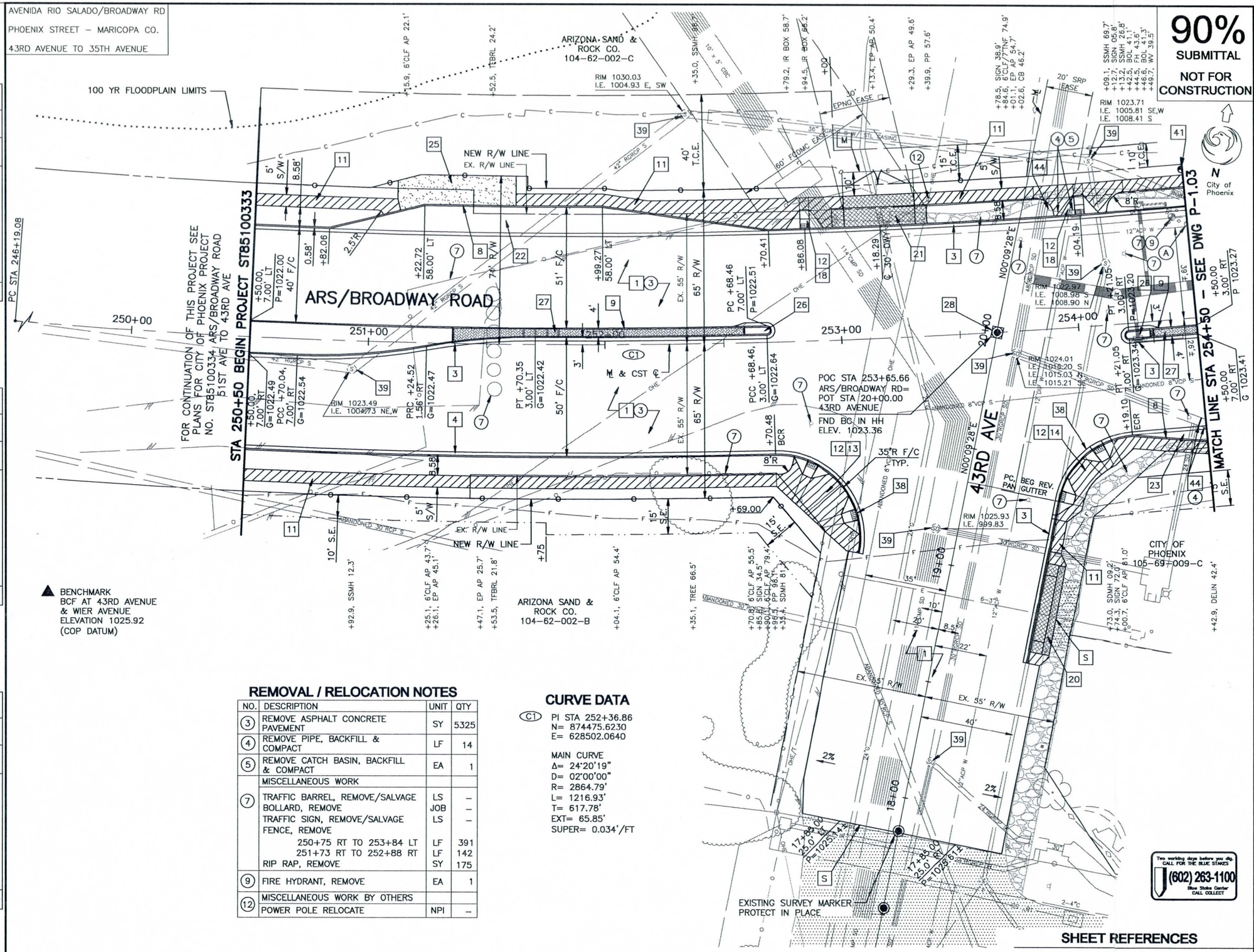
CALL TWO WORKING DAYS BEFORE YOU DIG
CALL FOR THE BLUE STAKES
602-263-1100
1-800-STAKE-IT
OUTSIDE MARICOPA COUNTY

"PER CITY OF PHOENIX CITY CODE CHAPTER 2, SECTION 2-28, THESE PLANS ARE FOR OFFICIAL USE ONLY AND MAY NOT BE SHARED WITH OTHERS EXCEPT AS REQUIRED TO FULFILL THE OBLIGATIONS OF THE CONTRACTOR'S CONTRACT WITH THE CITY OF PHOENIX."

ST85100333: Q.S. 4-19, 4-20, 4-21, 5-20, 5-21: AVENIDA RIO SALADO/ BROADWAY ROAD: 43RD AVENUE TO 35TH AVENUE - 90% SUBMITTAL

ST85100333 CS.DWG, 08/14/13

AVENIDA RIO SALADO/BROADWAY RD
PHOENIX STREET – MARICOPA CO.
43RD AVENUE TO 35TH AVENUE



▲ BENCHMARK
BCF AT 43RD AVENUE
& WIER AVENUE
ELEVATION 1025.92
(COP DATUM)

REMOVAL / RELOCATION NOTES

NO.	DESCRIPTION	UNIT	QTY
(3)	REMOVE ASPHALT CONCRETE PAVEMENT	SY	5325
(4)	REMOVE PIPE, BACKFILL & COMPACT	LF	14
(5)	REMOVE CATCH BASIN, BACKFILL & COMPACT	EA	1
	MISCELLANEOUS WORK		
(7)	TRAFFIC BARREL, REMOVE/SALVAGE	LS	–
	BOLLARD, REMOVE	JOB	–
	TRAFFIC SIGN, REMOVE/SALVAGE	LS	–
	FENCE, REMOVE		
	250+75 RT TO 253+84 LT	LF	391
	251+73 RT TO 252+88 RT	LF	142
	RIP RAP, REMOVE	SY	175
(9)	FIRE HYDRANT, REMOVE	EA	1
(12)	MISCELLANEOUS WORK BY OTHERS		
	POWER POLE RELOCATE	NPI	–

CURVE DATA

(C1) PI STA 252+36.86
N= 874475.6230
E= 628502.0640

MAIN CURVE
Δ= 24°20'19"
D= 02°00'00"
R= 2864.79'
L= 1216.93'
T= 617.78'
EXT= 65.85'
SUPER= 0.034'/FT

SHEET REFERENCES

1. SEE DT-2.01 & DT-2.02 FOR MEDIAN DETAILS
2. SEE SD-2.01 FOR STORM DRAIN PLAN
3. SEE CP-1.01 FOR CB CONN PIPE PROFILE
4. SEE P-1.02 FOR PAVING PROFILE
5. SEE G-6.01 FOR INTERSECTION WORKSHEET

90% SUBMITTAL

NOT FOR CONSTRUCTION

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100333	14	133	

PROJECT ENGINEERING CONSULTANTS, LTD.
2310 W. MISSION LANE, STE. 4 PHOENIX, AZ 85021
PHONE (602) 906-1901

CONSTRUCTION NOTES

NO.	DESCRIPTION	UNIT	QTY
	SUBGRADE PREPARATION	SY	5426
1	2" ASPHALT CONCRETE SURFACE COURSE, MOD. TYPE D 1/2	TON	611
	5-1/2" ASPHALT CONCRETE BASE COURSE, TYPE A 1-1/2	TON	1679
	TACK COAT	TON	5
3	VERTICAL CURB & GUTTER, MAG STD DET 220, TYPE 'A', H=6"	LF	541
4	VERTICAL CURB & GUTTER, MAG STD DET 220, TYPE 'A', H=6", MODIFIED WITH REVERSE PAN	LF	224
8	SINGLE CURB, MAG STD DET 222, TYPE 'A', MODIFIED FOR BUS BAY	LF	219
9	SINGLE CURB, MAG STD DET 222, TYPE 'A',	LF	241
11	5' CONCRETE SIDEWALK, COP STD DET P1230, 6" THICK	SF	2886
12	TRUNCATED DOMES, COP STD DET P1232	SF	60
	CONC SIDEWALK, MOD. 9" THICK	SF	706
13	CURB RAMP, 35' RADII, COP STD DET P1235		
	CONC SDWK, MOD. 9" THICK	SF	425
14	CURB RAMP, 35' RADII, COP STD DET P1236		
18	CURB RAMP, MID BLOCK WITH DETACHED SIDEWALK, COP STD DET P1241-2	SF	808
20	DRIVEWAY ENTRANCE – TYPE 1, COP STD DETAIL P1255-1, 9" THICK	SF	304
21	DRIVEWAY ENTRANCE – TYPE II, COP STD DETAIL P1255-2, 9" THICK	SF	390
22	CONCRETE PAVEMENT, 9" THICK	SF	1782
	BUS BAY, TYPE I, COP STD DETAIL P1256-1		
	CONCRETE PAVEMENT, 9" THICK	SF	122
23	BUS BAY, TYPE I, COP STD DET P1256-1, MOD. WITH NO FLOWLINE DEPRESSION		
25	BUS SHELTER / ACCESSORY PAD, COP STANDARD DETAIL P1261	SF	620
26	CONCRETE MEDIAN NOSE	SF	66
	STAMPED ASPHALT PAVEMENT	SF	445
27	2-1/2" ASPHALT CONCRETE SURFACE COURSE, (D 1/2)	TON	7
	AGGREGATE BASE COURSE	TON	11
28	SURVEY MARKER, MAG STD DETAIL 120-1, TYPE 'A'	EA	1
38	VERT. CURB & GUTTER, MAG STD DET 220, TYPE 'A', H=6". 9" THICK	LF	109
39	ADJUST EXISTING MANHOLE FRAME & COVER, COP STD. DET. P1422	EA	6
41	FIRE HYDRANT ASSEMBLY, 6" GATE VALVE, VALVE BOX AND COVER, TYPE 'A'. FIRE HYDRANT FURNISHED BY CITY OF PHOENIX	EA	1
44	PIPE PLUG, MAG STD DET 427	EA	2
(A)	ADJUST WATER VALVE BOX PER COP STD DET P1391, TYPE 'A' & P1391-1	EA	1

"PER CITY OF PHOENIX CITY CODE CHAPTER 2, SECTION 2-28. THESE PLANS ARE FOR OFFICIAL USE ONLY AND MAY NOT BE SHARED WITH OTHERS EXCEPT AS REQUIRED TO FULFILL THE OBLIGATIONS OF THE CONTRACTOR'S CONTRACT WITH THE CITY OF PHOENIX."

Two working days before you dig. CALL FOR THE BLUE STAKES (602) 263-1100 Blue Stake Center CALL COLLECT

PAVING PLAN SHEET
STA 250+50 TO STA 254+50
CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

AVENIDA RIO SALADO / BROADWAY RD
43RD AVENUE TO 35TH AVENUE
ST85100333

DR:	DES:	CK:	DWG SERIES NO.
JG	MVL	SM	
DATE: 08/13	DATE: 08/13	DATE: 08/13	
SCALE: HORIZ 1"= 20' VERT 1"= 2'			P-1.01

ST85100333 PP12.DWG

REVISION BY CITY OF PHOENIX
NO. | DESCRIPTION | REV BY | CKD BY | DATE

REVISION BY CITY OF PHOENIX
NO. | DESCRIPTION | REV BY | CKD BY | DATE

REVISION BY CITY OF PHOENIX
NO. | DESCRIPTION | REV BY | CKD BY | DATE

AVENIDA RIO SALADO/BROADWAY RD
PHOENIX STREET – MARICOPA CO.
43RD AVENUE TO 35TH AVENUE

90%
SUBMITTAL
NOT FOR CONSTRUCTION

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100333	15	133	

PROJECT ENGINEERING CONSULTANTS, LTD.
2310 W. MISSION LANE, STE. 4 PHOENIX, AZ 85021
PHONE (602) 906-1901

REVISION BY CITY OF PHOENIX

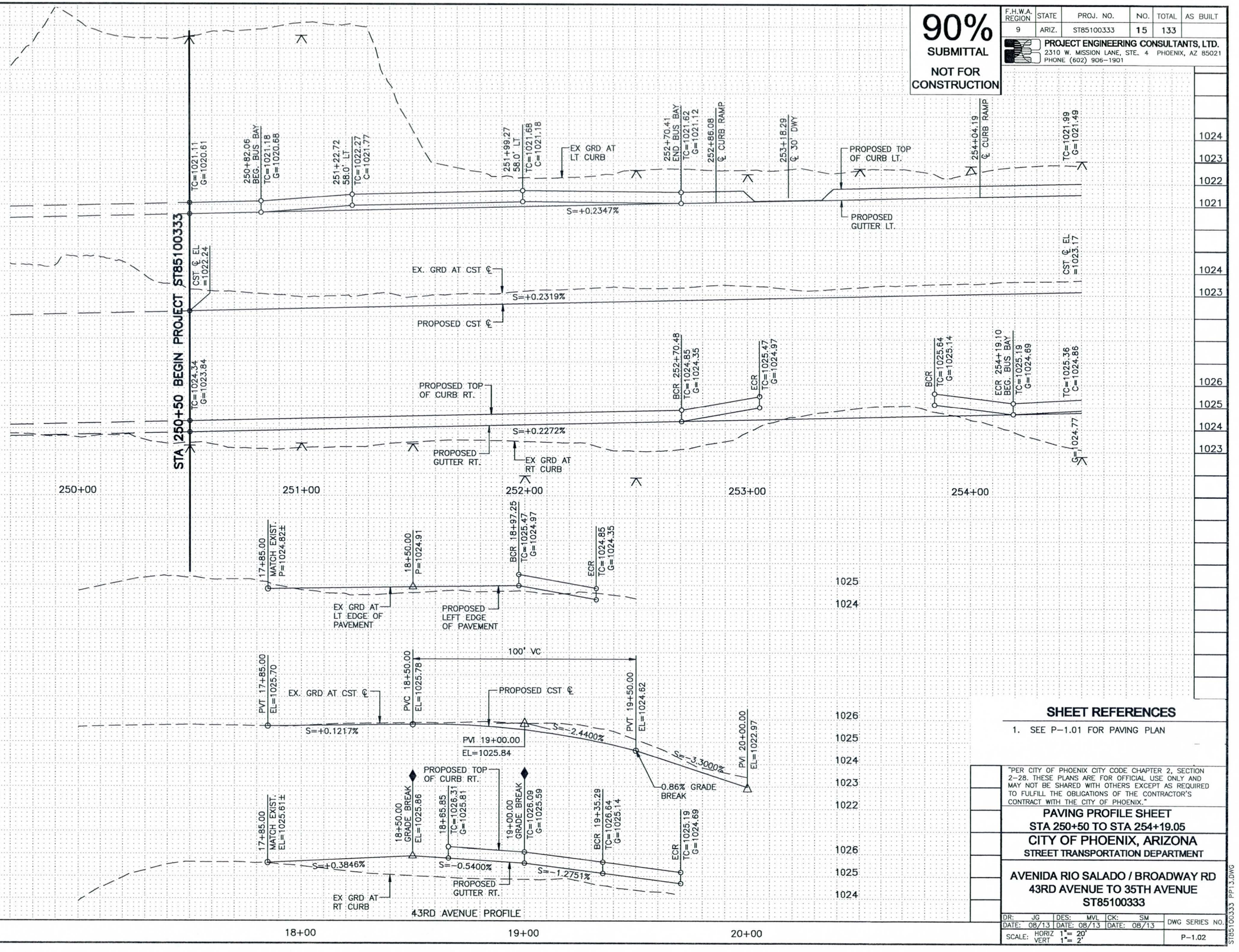
NO.	DESCRIPTION	REV BY	CKD BY	DATE

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE



SHEET REFERENCES

1. SEE P-1.01 FOR PAVING PLAN

"PER CITY OF PHOENIX CITY CODE CHAPTER 2, SECTION 2-28. THESE PLANS ARE FOR OFFICIAL USE ONLY AND MAY NOT BE SHARED WITH OTHERS EXCEPT AS REQUIRED TO FULFILL THE OBLIGATIONS OF THE CONTRACTOR'S CONTRACT WITH THE CITY OF PHOENIX."

PAVING PROFILE SHEET
STA 250+50 TO STA 254+19.05

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

AVENIDA RIO SALADO / BROADWAY RD
43RD AVENUE TO 35TH AVENUE
ST85100333

DR: JG	DES: MVL	CK: SM	DWG SERIES NO.
DATE: 08/13	DATE: 08/13	DATE: 08/13	
SCALE: HORIZ 1"= 20' VERT 1"= 2'			P-1.02

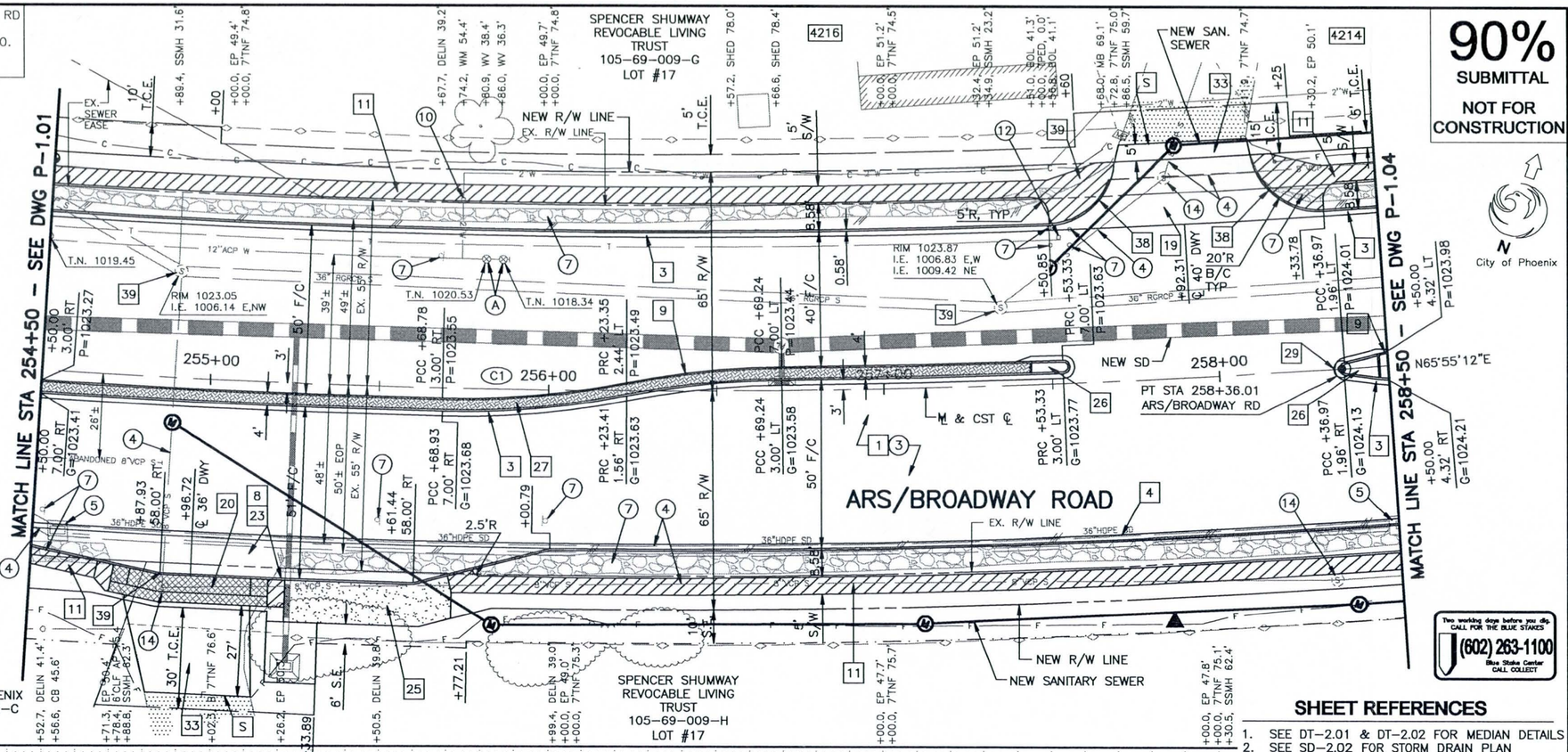
ST85100333 PP13.DWG

AVENIDA RIO SALADO/BROADWAY RD
PHOENIX STREET – MARICOPA CO.
43RD AVENUE TO 35TH AVENUE

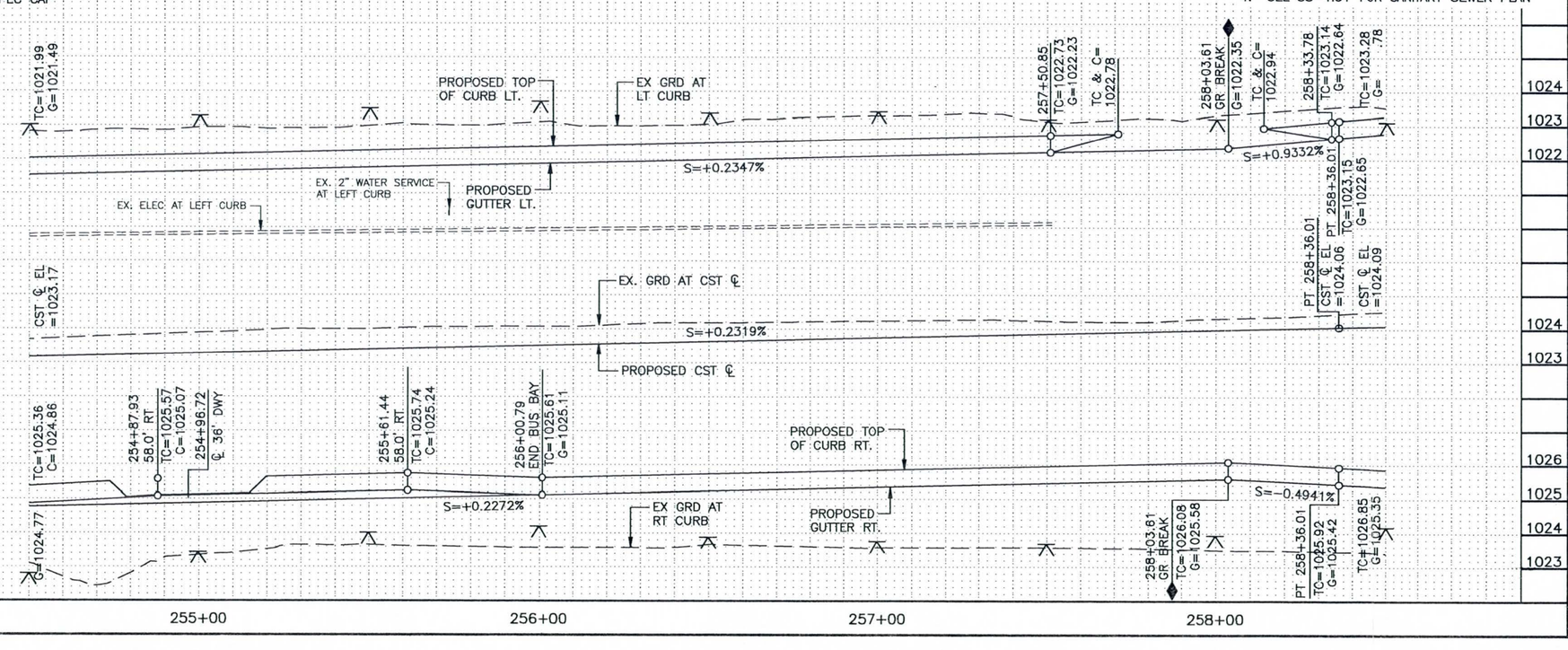
CURVE DATA

(C1) PI STA 252+36.86
N= 874475.6230
E= 628502.0640

MAIN CURVE
Δ= 24°20'19"
D= 02°00'00"
R= 2864.79'
L= 1216.93'
T= 617.78'
EXT= 65.85'
SUPER= 0.034'/ft



▲ T.B.M.
STA 257+83.06, 69.17' RT
SET 1/2" REBAR W/ PEC CAP
ELEVATION 1023.70



SHEET REFERENCES

1. SEE DT–2.01 & DT–2.02 FOR MEDIAN DETAILS
2. SEE SD–2.02 FOR STORM DRAIN PLAN
3. SEE CP–1.01 & CP–1.02 FOR CB CONN PIPE PROFILES
4. SEE SS–1.01 FOR SANITARY SEWER PLAN

90% SUBMITTAL

NOT FOR CONSTRUCTION

City of Phoenix

Two working days before you dig. CALL FOR THE BLUE STAKES (602) 263-1100 Blue Stake Center CALL COLLECT

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100333	16	133	

PROJECT ENGINEERING CONSULTANTS, LTD.
2310 W. MISSION LANE, STE. 4 PHOENIX, AZ 85021
PHONE (602) 906–1901

REMOVAL / RELOCATION NOTES

NO.	DESCRIPTION	UNIT	QTY
(3)	REMOVE ASPHALT CONCRETE PAVEMENT	SY	4675
(4)	REMOVE PIPE, BACKFILL & COMPACT	LF	913
(5)	REMOVE CATCH BASIN, BACKFILL & COMPACT	EA	2
(7)	MISCELLANEOUS WORK DELINEATOR, REMOVE BOLLARD, REMOVE RIP RAP, REMOVE	 LS JOB SY	 – – 358
(10)	RELOCATE WATER METER, BOX AND COVER PER COP SUPP. 610.11 AND COP DET P1363	EA	1
(12)	MISCELLANEOUS WORK BY OTHERS		
	TELEPHONE PEDESTAL, RELOCATE	NPI	–
(14)	REMOVE MANHOLE, BACKFILL & COMPACT	EA	3

CONSTRUCTION NOTES

NO.	DESCRIPTION	UNIT	QTY
	SUBGRADE PREPARATION	SY	3856
1	2" ASPHALT CONCRETE SURFACE COURSE, MOD. TYPE D 1/2	TON	434
	5–1/2" ASPHALT CONCRETE BASE COURSE, TYPE A 1–1/2	TON	1193
	TACK COAT	TON	4
3	VERTICAL CURB & GUTTER, MAG STD DET 220, TYPE 'A', H=6"	LF	660
4	VERTICAL CURB & GUTTER, MAG STD DET 220, TYPE 'A', H=6", MODIFIED WITH REVERSE PAN	LF	253
8	SINGLE CURB, MAG STD DET 222, TYPE 'A', MODIFIED FOR BUS BAY	LF	156
9	SINGLE CURB, MAG STD DET 222, TYPE 'A',	LF	301
11	5' CONCRETE SIDEWALK, COP STD DET P1230, 6" THICK	SF	3630
19	RETURN TYPE DRIVEWAY COP STD DET. P1243	SF	931
20	DRIVEWAY ENTRANCE– TYPE 1, COP STD DET P1255–1, 9" THICK	SF	373
	CONCRETE PAVEMENT, 9" THICK	SF	1652
23	BUS BAY, TYPE I, COP STD DET P1256–1, MOD. WITH NO FLOWLINE DEPRESSION		
25	BUS SHELTER / ACCESSORY PAD, COP STD DET. P1261	SF	617
26	CONCRETE MEDIAN NOSE	SF	111
	STAMPED ASPHALT PAVEMENT	SF	880
27	2–1/2" ASPHALT CONCRETE SURFACE COURSE, (D 1/2)	TON	14
	AGGREGATE BASE COURSE	TON	21
29	SURVEY MARKER, MAG STD DETAIL 120–1, TYPE 'B'	EA	1
33	DRIVEWAY CONNECTION, ASPHALT	TON	4
38	VERT. CURB & GUTTER, MAG STD DET 220, TYPE 'A', H=6". 9" THICK	LF	60
39	ADJUST EXISTING MANHOLE FRAME & COVER, COP STD DET. P1422	EA	4
(A)	ADJUST WATER VALVE BOX PER COP STD DET P1391, TYPE 'A' & P1391–1	EA	2

"PER CITY OF PHOENIX CITY CODE CHAPTER 2, SECTION 2–28. THESE PLANS ARE FOR OFFICIAL USE ONLY AND MAY NOT BE SHARED WITH OTHERS EXCEPT AS REQUIRED TO FULFILL THE OBLIGATIONS OF THE CONTRACTOR'S CONTRACT WITH THE CITY OF PHOENIX."

PAVING PLAN & PROFILE
STA 254+50 TO STA 258+50
CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

AVENIDA RIO SALADO / BROADWAY RD
43RD AVENUE TO 35TH AVENUE
ST85100333

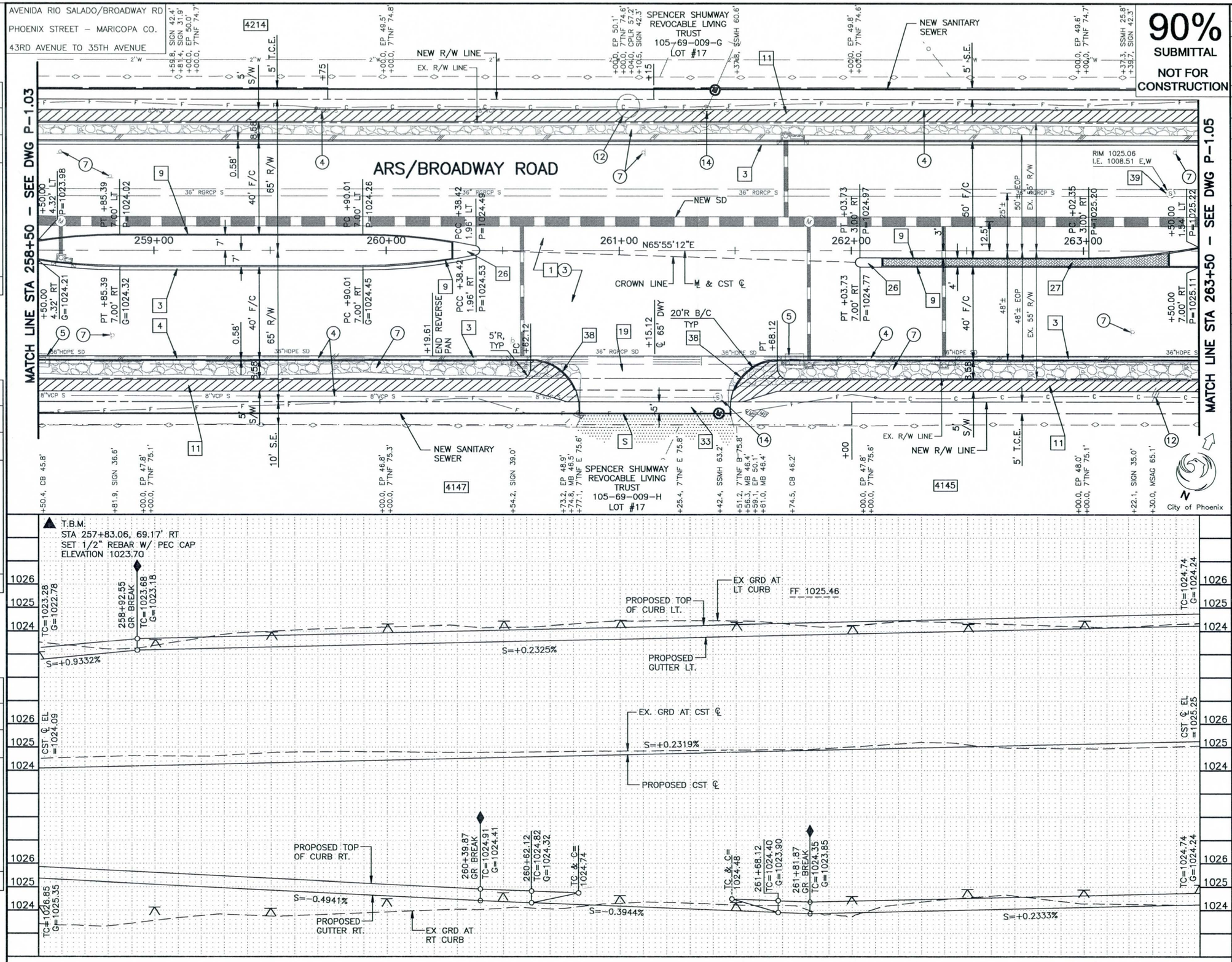
DR: JG	DES: MVL	CK: SM	DWG SERIES NO.
DATE: 08/13	DATE: 08/13	DATE: 08/13	
SCALE: HORIZ 1"= 20' VERT 1"= 2'			P–1.03

ST85100333 PP14.DWG

REVISION BY CITY OF PHOENIX
NO. | DESCRIPTION | REV BY | CKD BY | DATE

REVISION BY CITY OF PHOENIX
NO. | DESCRIPTION | REV BY | CKD BY | DATE

AVENIDA RIO SALADO/BROADWAY RD
PHOENIX STREET – MARICOPA CO.
43RD AVENUE TO 35TH AVENUE



90% SUBMITTAL

NOT FOR CONSTRUCTION

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100333	17	133	

PROJECT ENGINEERING CONSULTANTS, LTD.
2310 W. MISSION LANE, STE. 4 PHOENIX, AZ 85021
PHONE (602) 906-1901

REMOVAL / RELOCATION NOTES

NO.	DESCRIPTION	UNIT	QTY
(3)	REMOVE ASPHALT CONCRETE PAVEMENT	SY	5597
(4)	REMOVE PIPE, BACKFILL & COMPACT	LF	1287
(5)	REMOVE CATCH BASIN, BACKFILL & COMPACT	EA	2
	MISCELLANEOUS WORK		
(7)	TRAFFIC SIGN, REMOVE AND SALVAGE	LS	–
	DELINEATOR, REMOVE	LS	–
	RIP RAP, REMOVE	SY	554
	MISCELLANEOUS WORK BY OTHERS		
(12)	METAL SAGUARO SCULPTURE, RELOCATED BY OTHERS	NPI	–
	CONC. PIPE LANDSCAPE FEATURE RELOCATED BY OTHERS	NPI	–
(14)	REMOVE MANHOLE, BACKFILL & COMPACT	EA	2

CONSTRUCTION NOTES

NO.	DESCRIPTION	UNIT	QTY
	SUBGRADE PREPARATION	SY	4696
1	2" ASPHALT CONCRETE SURFACE COURSE, MOD. TYPE D 1/2	TON	529
	5-1/2" ASPHALT CONCRETE BASE COURSE, TYPE A 1-1/2	TON	1453
	TACK COAT	TON	4
3	VERTICAL CURB & GUTTER, MAG STD DET 220, TYPE 'A', H=6"	LF	894
4	VERTICAL CURB & GUTTER, MAG STD DET 220, TYPE 'A', H=6", MODIFIED WITH REVERSE PAN	LF	170
9	SINGLE CURB, MAG STD DET 222, TYPE 'A',	LF	470
11	5' CONCRETE SIDEWALK, COP STD DET P1230, 6" THICK	SF	4945
19	RETURN TYPE DRIVEWAY COP STD DETAIL P1243	SF	1414
26	CONCRETE MEDIAN NOSE	SF	111
	STAMPED ASPHALT PAVEMENT	SF	397
27	2-1/2" ASPHALT CONCRETE SURFACE COURSE, (D 1/2)	TON	7
	AGGREGATE BASE COURSE	TON	10
33	DRIVEWAY CONNECTION, ASPHALT	TON	3
38	VERT. CURB & GUTTER, MAG STD DET 220, TYPE 'A', H=6", 9" THICK	LF	60
39	ADJUST EXISTING MANHOLE FRAME & COVER, COP STD. DET. P1422	EA	1

SHEET REFERENCES

1. SEE DT-2.01 & DT-2.02 FOR MEDIAN DETAILS
2. SEE SD-2.03 FOR STORM DRAIN PLAN
3. SEE CP-1.02, CP-1.03 & CP-1.04 FOR CB CONN PIPE PROFILES
4. SEE SS-1.02 FOR SANITARY SEWER PLAN

Two working days before you dig CALL FOR THE BLUE STAKES (602) 263-1100 Blue Stake Center CALL COLLECT

"PER CITY OF PHOENIX CITY CODE CHAPTER 2, SECTION 2-2B. THESE PLANS ARE FOR OFFICIAL USE ONLY AND MAY NOT BE SHARED WITH OTHERS EXCEPT AS REQUIRED TO FULFILL THE OBLIGATIONS OF THE CONTRACTOR'S CONTRACT WITH THE CITY OF PHOENIX."

PAVING PLAN & PROFILE
STA 258+50 TO STA 263+50

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

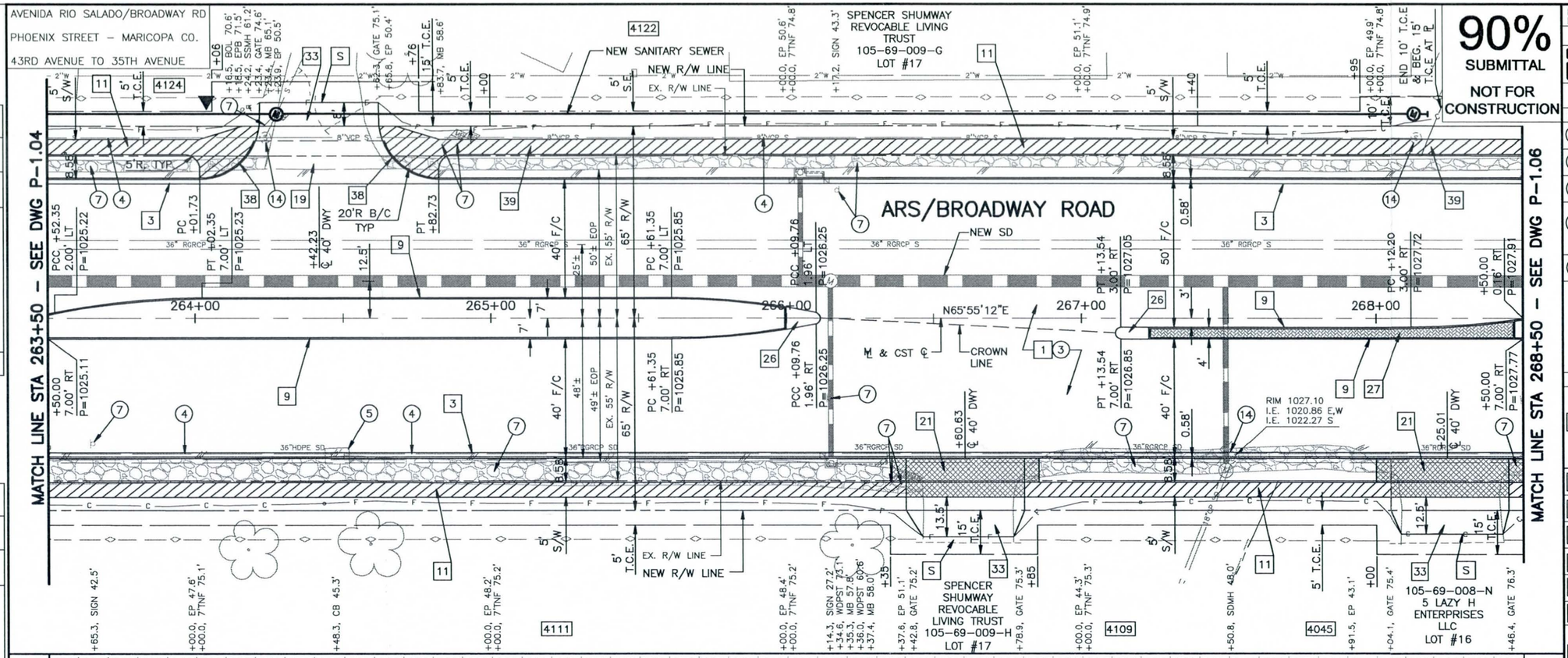
AVENIDA RIO SALADO / BROADWAY RD
43RD AVENUE TO 35TH AVENUE
ST85100333

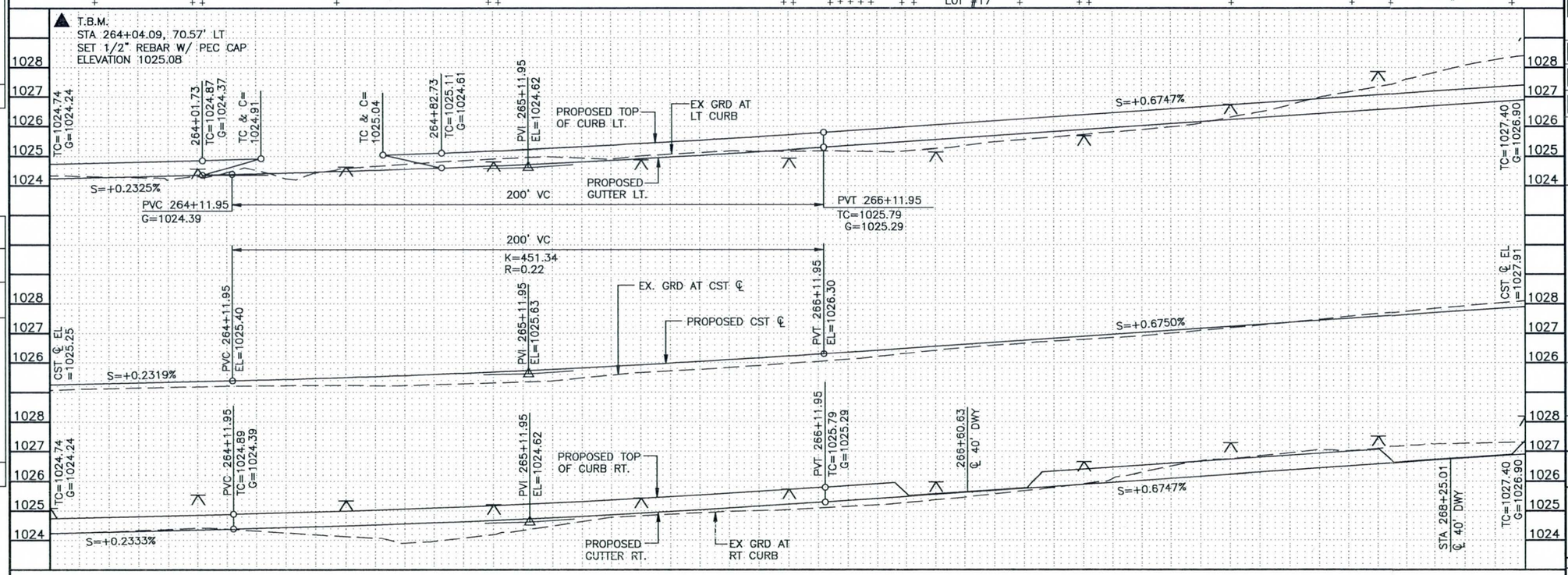
DR: JG	DES: MVL	CK: SM	DWG SERIES NO.
DATE: 08/13	DATE: 08/13	DATE: 08/13	
SCALE: HORIZ 1"= 20' VERT 1"= 2'			P-1.04

ST85100333 PP15.DWG

REVISION BY CITY OF PHOENIX
NO. | DESCRIPTION | REV BY | CKD BY | DATE

AVENIDA RIO SALADO/BROADWAY RD
PHOENIX STREET – MARICOPA CO.
43RD AVENUE TO 35TH AVENUE





90% SUBMITTAL

NOT FOR CONSTRUCTION

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100333	18	133	

PROJECT ENGINEERING CONSULTANTS, LTD.
2310 W. MISSION LANE, STE. 4 PHOENIX, AZ 85021
PHONE (602) 906–1901

REMOVAL / RELOCATION NOTES

NO.	DESCRIPTION	UNIT	QTY
3	REMOVE ASPHALT CONCRETE PAVEMENT	SY	5631
4	REMOVE PIPE, BACKFILL & COMPACT	LF	960
5	REMOVE CATCH BASIN, BACKFILL & COMPACT	EA	1
7	MISCELLANEOUS WORK		
	MAILBOX, RELOCATE	EA	5
	TRAFFIC SIGN, REMOVE & SALVAGE	LS	–
	RIP RAP, REMOVE	SY	570
14	REMOVE MANHOLE, BACKFILL & COMPACT	EA	3

CONSTRUCTION NOTES

NO.	DESCRIPTION	UNIT	QTY
	SUBGRADE PREPARATION	SY	4624
1	2" ASPHALT CONCRETE SURFACE COURSE, MOD. TYPE D 1/2	TON	521
	5–1/2" ASPHALT CONCRETE BASE COURSE, TYPE A 1–1/2	TON	1431
	TACK COAT	TON	4
3	VERTICAL CURB & GUTTER, MAG STD DET 220, TYPE 'A', H=6"	LF	919
9	SINGLE CURB, MAG STD DET 222, TYPE 'A',	LF	763
11	5' CONCRETE SIDEWALK, COP STD DET P1230, 6" THICK	SF	4832
19	RETURN TYPE DRIVEWAY COP STD DETAIL P1243	SF	928
21	DRIVEWAY ENTRANCE – TYPE II, COP STD DETAIL P1255–2, 9" THICK	SF	1040
26	CONCRETE MEDIAN NOSE	SF	111
	STAMPED ASPHALT PAVEMENT	SF	397
27	2–1/2" ASPHALT CONCRETE SURFACE COURSE, (D 1/2)	TON	7
	AGGREGATE BASE COURSE	TON	10
33	DRIVEWAY CONNECTION, ASPHALT	TON	24
38	VERT. CURB & GUTTER, MAG STD DET 220, TYPE 'A', H=6", 9" THICK	LF	60
39	ADJUST EXISTING MANHOLE FRAME & COVER, COP STD DET. P1422	EA	2

SHEET REFERENCES

1. SEE DT–2.01 & DT–2.02 FOR MEDIAN DETAILS
2. SEE SD–2.04 FOR STORM DRAIN PLAN
3. SEE CP–1.04 FOR CB CONN PIPE PROFILE
4. SEE SS–1.03 FOR SANITARY SEWER PLAN

City of Phoenix

Two working days before you dig. CALL FOR THE BLUE STAKES (602) 263-1100 Blue Stake Center CALL COLLECT

"PER CITY OF PHOENIX CITY CODE CHAPTER 2, SECTION 2–28. THESE PLANS ARE FOR OFFICIAL USE ONLY AND MAY NOT BE SHARED WITH OTHERS EXCEPT AS REQUIRED TO FULFILL THE OBLIGATIONS OF THE CONTRACTOR'S CONTRACT WITH THE CITY OF PHOENIX."

PAVING PLAN & PROFILE
STA 263+50 TO STA 268+50

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

AVENIDA RIO SALADO / BROADWAY RD
43RD AVENUE TO 35TH AVENUE
ST85100333

DR: JG	DES: MVL	CK: SM	DWG SERIES NO.
DATE: 08/13	DATE: 08/13	DATE: 08/13	
SCALE: HORIZ 1"= 20' VERT 1"= 2'			P–1.05

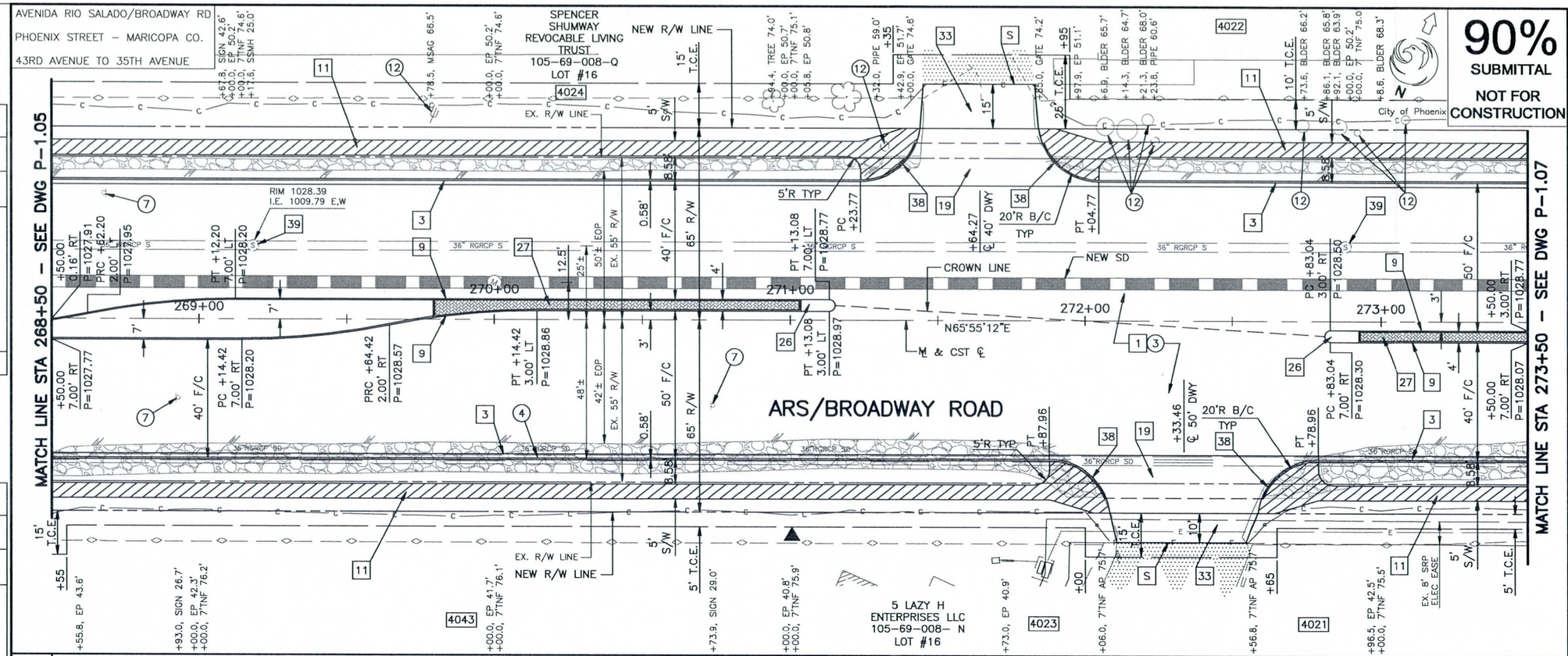
ST85100333 PP16.DWG

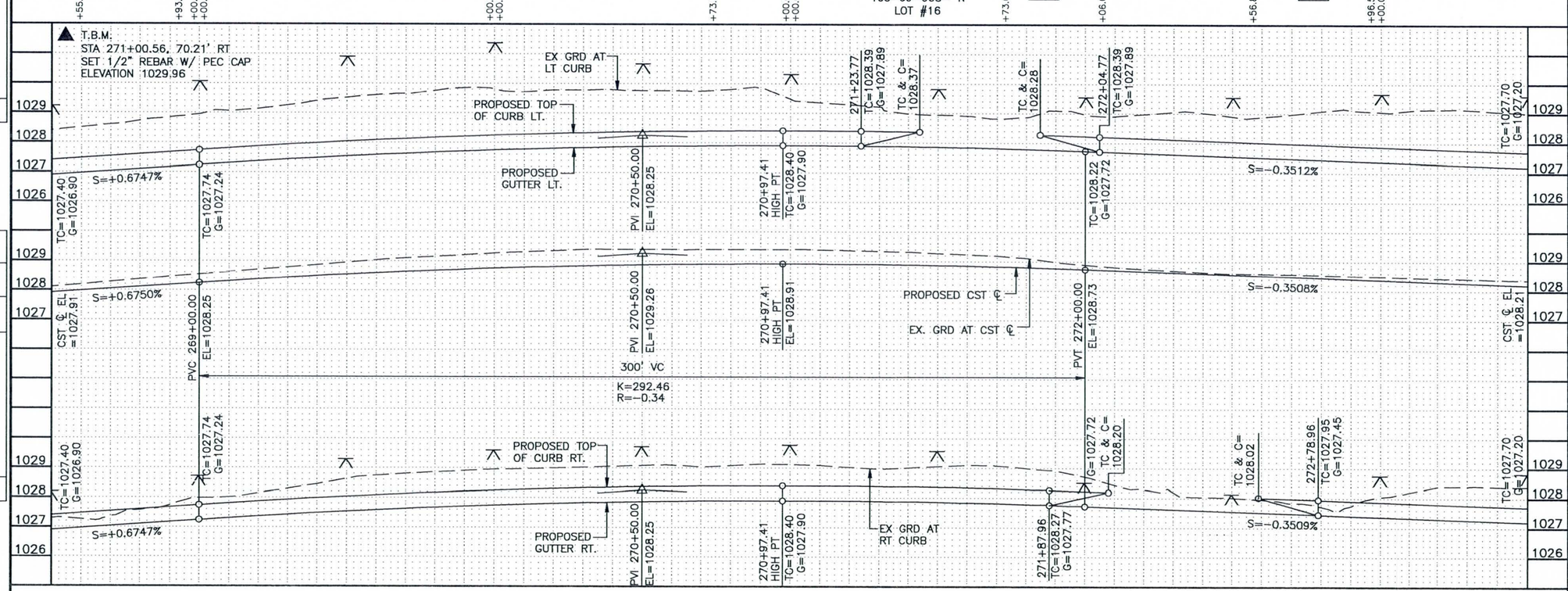
REVISION BY CITY OF PHOENIX
NO. | DESCRIPTION | REV BY | CKD BY | DATE

REVISION BY CITY OF PHOENIX
NO. | DESCRIPTION | REV BY | CKD BY | DATE

REVISION BY CITY OF PHOENIX
NO. | DESCRIPTION | REV BY | CKD BY | DATE

AVENIDA RIO SALADO/BROADWAY RD
PHOENIX STREET – MARICOPA CO.
43RD AVENUE TO 35TH AVENUE





90%
SUBMITTAL
NOT FOR CONSTRUCTION

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100333	19	133	

PROJECT ENGINEERING CONSULTANTS, LTD.
2310 W. MISSION LANE, STE. 4 PHOENIX, AZ 85021
PHONE (602) 906-1901

REMOVAL / RELOCATION NOTES

NO.	DESCRIPTION	UNIT	QTY
3	REMOVE ASPHALT CONCRETE PAVEMENT	SY	5481
4	REMOVE PIPE, BACKFILL & COMPACT	LF	500
7	MISCELLANEOUS WORK		
	TRAFFIC SIGN, REMOVE AND SALVAGE	LS	–
	RIP RAP, REMOVE	SY	712
12	MISCELLANEOUS WORK BY OTHERS		
	METAL SAGUARO SCULPTURE, RELOCATED BY OTHERS	NPI	–
	CONC. PIPE LANDSCAPE FEATURE, RELOCATED BY OTHERS	NPI	–
	BOULDERS, REMOVE	NPI	–

CONSTRUCTION NOTES

NO.	DESCRIPTION	UNIT	QTY
	SUBGRADE PREPARATION	SY	4807
1	2" ASPHALT CONCRETE SURFACE COURSE, MOD. TYPE D 1/2	TON	541
	5–1/2" ASPHALT CONCRETE BASE COURSE, TYPE A 1–1/2	TON	1488
	TACK COAT	TON	4
3	VERTICAL CURB & GUTTER, MAG STD DET 220, TYPE 'A', H=6"	LF	828
9	SINGLE CURB, MAG STD DET 222, TYPE 'A',	LF	637
11	5' CONCRETE SIDEWALK, COP STD DET P1230, 6" THICK	SF	5093
19	RETURN TYPE DRIVEWAY COP STD DETAIL P1243	SF	2050
26	CONCRETE MEDIAN NOSE	SF	89
	STAMPED ASPHALT PAVEMENT	SF	568
27	2–1/2" ASPHALT CONCRETE SURFACE COURSE, (D 1/2)	TON	9
	AGGREGATE BASE COURSE	TON	14
33	DRIVEWAY CONNECTION, ASPHALT	TON	20
38	VERT. CURB & GUTTER, MAG STD DET 220, TYPE 'A', H=6", 9" THICK	LF	120
39	ADJUST EXISTING MANHOLE FRAME & COVER, COP STD DET. P1422	EA	2

SHEET REFERENCES

1. SEE DT–2.01 & DT–2.02 FOR MEDIAN DETAILS
2. SEE SD–2.05 FOR STORM DRAIN PLAN

Two working days before you dig. CALL FOR THE BLUE STAKES
(602) 263-1100
Blue Stake Center CALL COLLECT

"PER CITY OF PHOENIX CITY CODE CHAPTER 2, SECTION 2–28. THESE PLANS ARE FOR OFFICIAL USE ONLY AND MAY NOT BE SHARED WITH OTHERS EXCEPT AS REQUIRED TO FULFILL THE OBLIGATIONS OF THE CONTRACTOR'S CONTRACT WITH THE CITY OF PHOENIX."

PAVING PLAN & PROFILE
STA 268+50 TO STA 273+50
CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

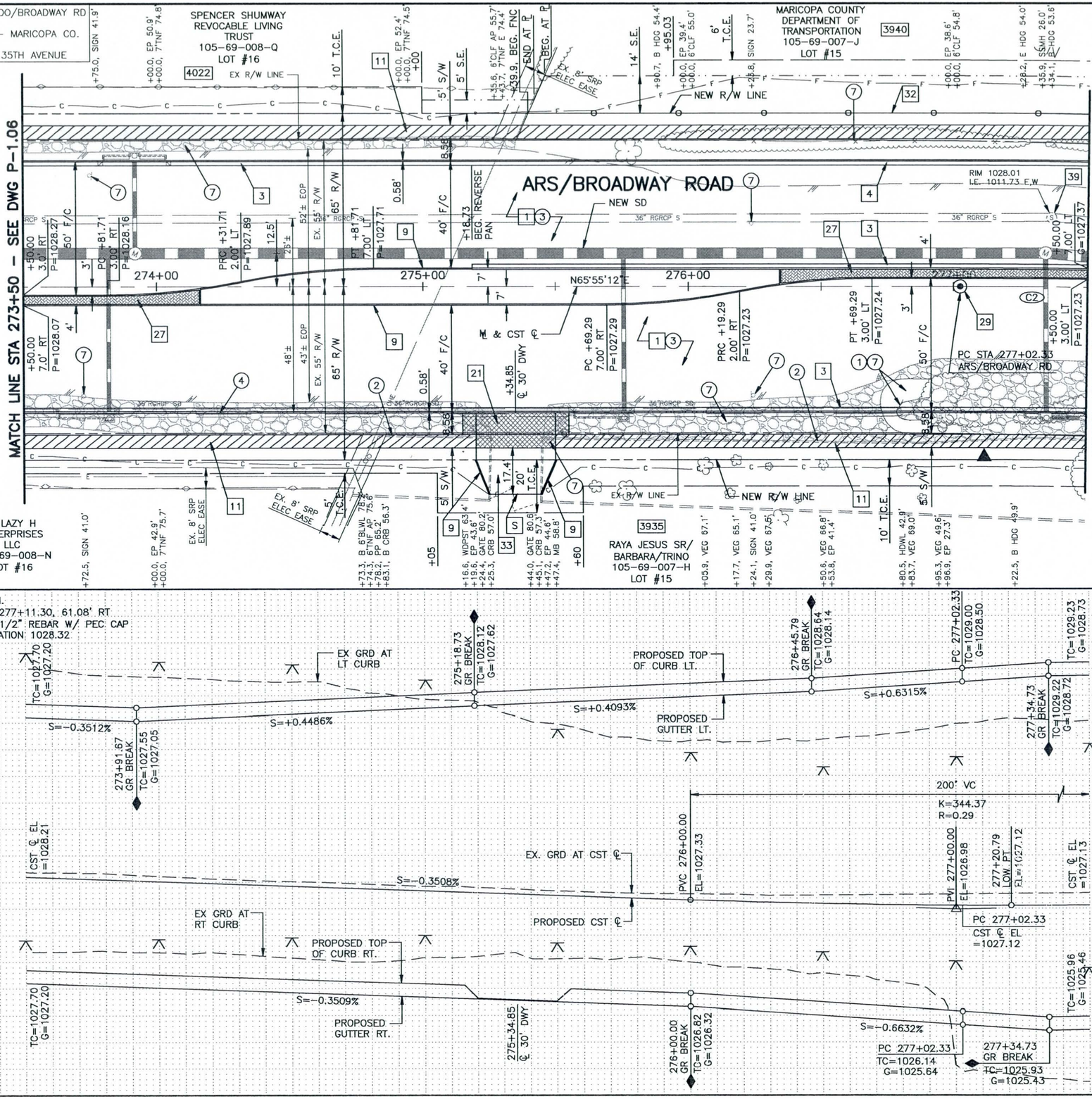
AVENIDA RIO SALADO / BROADWAY RD
43RD AVENUE TO 35TH AVENUE
ST85100333

DR: JG	DES: MVL	CK: SM	DWG SERIES NO.
DATE: 08/13	DATE: 08/13	DATE: 08/13	
SCALE: HORIZ 1"= 20' VERT 1"= 2'			P–1.06

ST85100333 PP17.DWG

REVISION BY CITY OF PHOENIX
NO. | DESCRIPTION | REV BY | CKD BY | DATE

AVENIDA RIO SALADO/BROADWAY RD
PHOENIX STREET – MARICOPA CO.
43RD AVENUE TO 35TH AVENUE



City of Phoenix

90%
SUBMITTAL
NOT FOR CONSTRUCTION

C2 CURVE DATA

PI STA 283+09.81
N= 875737.0279
E= 631324.6025

MAIN CURVE
Δ= 23°56'39"
D= 02°00'00"
R= 2864.79'
L= 1197.20'
T= 607.47'
EXT= 63.70'
SUPER= 0.034'/ft

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100333	20	133	

PROJECT ENGINEERING CONSULTANTS, LTD.
2310 W. MISSION LANE, STE. 4 PHOENIX, AZ 85021
PHONE (602) 906-1901

REMOVAL / RELOCATION NOTES

NO.	DESCRIPTION	UNIT	QTY
1	REMOVE CONCRETE SIDEWALK, DRIVEWAY, VALLEY GUTTER & SLAB		
	276+71 TO 276+91 RT	SF	250
2	REMOVE CONCRETE SINGLE CURB AND CURB & GUTTER		
	274+83 TO 277+50 RT	LF	289
3	REMOVE CONCRETE ASPHALT PAVEMENT	SY	3887
4	REMOVE PIPE, BACKFILL & COMPACT	LF	329
	MISCELLANEOUS WORK		
7	MAILBOX, RELOCATE	EA	1
	HEADWALL, REMOVE	EA	1
	TRAFFIC SIGN, REMOVE & SALVAGE	LS	–
	RIP RAP, REMOVE	SY	740
	FENCE, REMOVE 275+40 TO 277+50 LT	LF	226

CONSTRUCTION NOTES

NO.	DESCRIPTION	UNIT	QTY
	SUBGRADE PREPARATION	SY	3629
1	2" ASPHALT CONCRETE SURFACE COURSE, MOD. TYPE D 1/2	TON	409
	5-1/2" ASPHALT CONCRETE BASE COURSE, TYPE A 1-1/2	TON	1123
	TACK COAT	TON	3
3	VERTICAL CURB & GUTTER, MAG STD DET 220, TYPE 'A', H=6"	LF	800
4	VERTICAL CURB & GUTTER, MAG STD DET 220, TYPE 'A', H=6", MODIFIED WITH REVERSE PAN	LF	232
9	SINGLE CURB, MAG STD DET 222, TYPE 'A',	LF	599
11	5' CONCRETE SIDEWALK, COP STD DET P1230	SF	3930
21	DRIVEWAY ENTRANCE – TYPE II, COP STD DETAIL P1255-2, 9" THK	SF	390
	STAMPED ASPHALT PAVEMENT	SF	599
27	2-1/2" ASPHALT CONCRETE SURFACE COURSE, (D 1/2)	TON	10
	AGGREGATE BASE COURSE	TON	14
29	SURVEY MARKER, MAG STD DETAIL 120-1, TYPE 'B'	EA	1
32	NEW 6 FOOT CHAIN LINK FENCE	LF	212
33	DRIVEWAY CONNECTION, ASPHALT	TON	8
39	ADJUST EXISTING MANHOLE FRAME & COVER, COP STD DET. P1422	EA	2

SHEET REFERENCES

1. SEE DT-2.01 & DT-2.02 FOR MEDIAN DETAILS
2. SEE SD-2.06 FOR STORM DRAIN PLAN
3. SEE CP-1.05 & CP-1.06 FOR CB CONN PIPE PROFILE

Two working days before you dig CALL FOR THE BLUE STAKES
(602) 263-1100
Blue Stake Center CALL COLLECT

"PER CITY OF PHOENIX CITY CODE CHAPTER 2, SECTION 2-28. THESE PLANS ARE FOR OFFICIAL USE ONLY AND MAY NOT BE SHARED WITH OTHERS EXCEPT AS REQUIRED TO FULFILL THE OBLIGATIONS OF THE CONTRACTOR'S CONTRACT WITH THE CITY OF PHOENIX."

PAVING PLAN & PROFILE
STA 273+50 TO STA 277+50
CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

AVENIDA RIO SALADO / BROADWAY RD
43RD AVENUE TO 35TH AVENUE
ST85100333

DR: JG	DES: MVL	CK: SM	DWG SERIES NO.
DATE: 08/13	DATE: 08/13	DATE: 08/13	
SCALE: HORIZ 1"= 20' VERT 1"= 2'			P-1.07

ST85100333 PP18.DWG

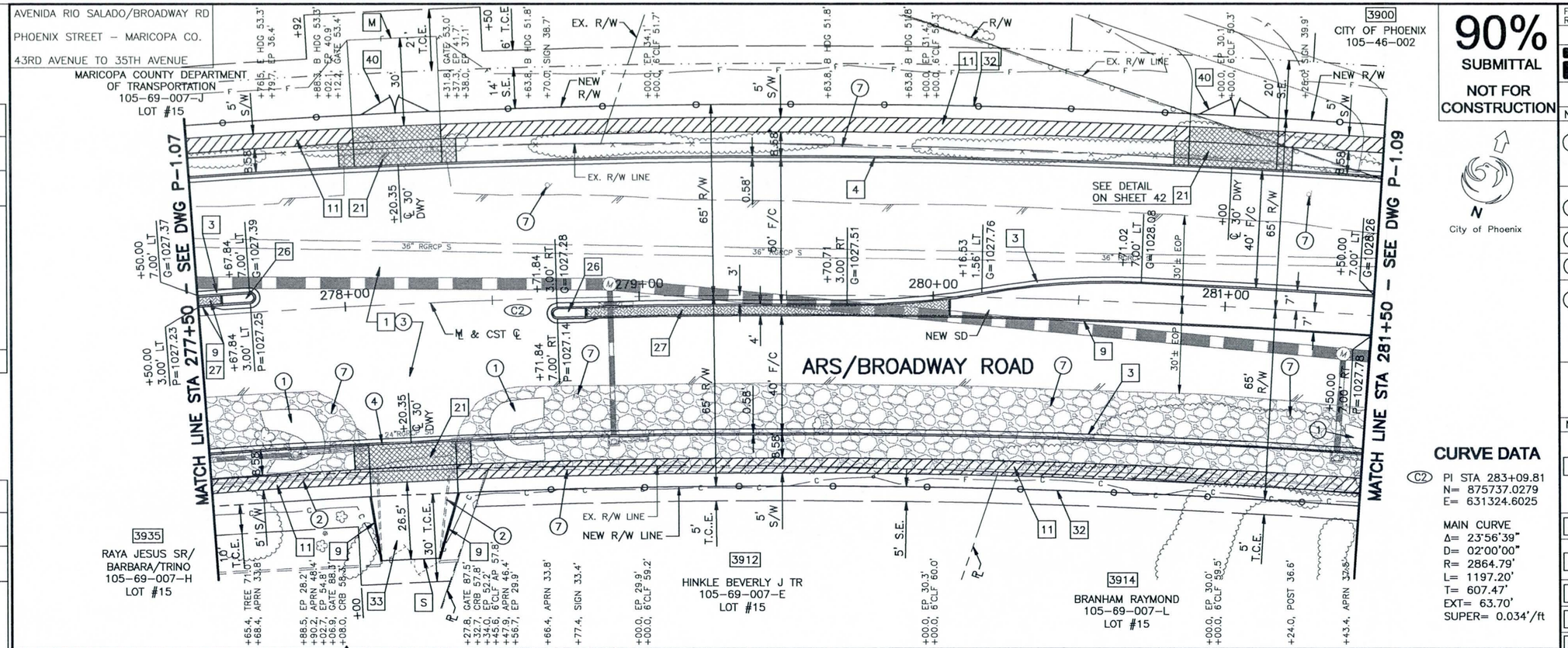
REVISION BY CITY OF PHOENIX
NO. | DESCRIPTION | REV BY | CKD BY | DATE

REVISION BY CITY OF PHOENIX
NO. | DESCRIPTION | REV BY | CKD BY | DATE

AVENIDA RIO SALADO/BROADWAY RD

PHOENIX STREET – MARICOPA CO.

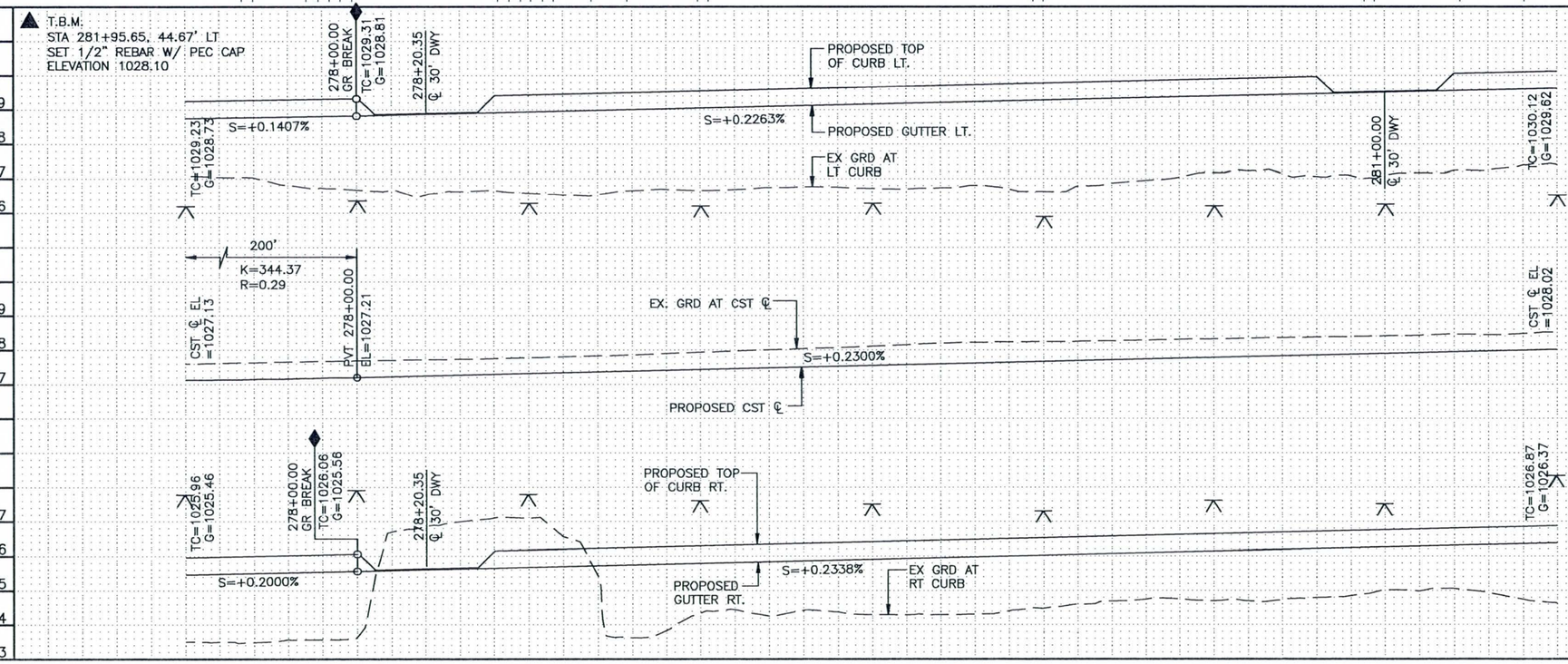
43RD AVENUE TO 35TH AVENUE



CURVE DATA

C2 PI STA 283+09.81
N= 875737.0279
E= 631324.6025

MAIN CURVE
Δ= 23°56'39"
D= 02°00'00"
R= 2864.79'
L= 1197.20'
T= 607.47'
EXT= 63.70'
SUPER= 0.034'/ft



90%
SUBMITTAL
NOT FOR CONSTRUCTION

City of Phoenix

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100333	21	133	

PROJECT ENGINEERING CONSULTANTS, LTD.
2310 W. MISSION LANE, STE. 4 PHOENIX, AZ 85021
PHONE (602) 906-1901

REMOVAL / RELOCATION NOTES

NO.	DESCRIPTION	UNIT	QTY
1	REMOVE CONCRETE SIDEWALK, DRIVEWAY, VALLEY GUTTER & SLAB		
	277+69 TO 277+91 RT	SF	259
	277+47 TO 278+67 RT	SF	256
	281+43 TO 281+50 RT	SF	41
2	REMOVE CONCRETE SINGLE CURB AND CURB & GUTTER		
	277+50 TO 278+46 RT	LF	127
3	REMOVE CONCRETE ASPHALT PAVEMENT	SY	3056
4	REMOVE PIPE, BACKFILL & COMPACT	LF	69
7	MISCELLANEOUS WORK		
	TRAFFIC SIGN, REMOVE & SALVAGE	LS	–
	RIP RAP, REMOVE	SY	1053
	FENCE, REMOVE		
	277+50 TO 281+50 LT	LF	409
	278+44 TO 281+50 RT	LF	300

CONSTRUCTION NOTES

NO.	DESCRIPTION	UNIT	QTY
	SUBGRADE PREPARATION	SY	3723
1	2" ASPHALT CONCRETE SURFACE COURSE, MOD. TYPE D 1/2	TON	419
	5-1/2" ASPHALT CONCRETE BASE COURSE, TYPE A 1-1/2	TON	1152
	TACK COAT	TON	3
3	VERTICAL CURB & GUTTER, MAG STD DET 220, TYPE 'A', H=6"	LF	712
4	VERTICAL CURB & GUTTER, MAG STD DET 220, TYPE 'A', H=6", MODIFIED WITH REVERSE PAN	LF	407
9	SINGLE CURB, MAG STD DET 222, TYPE 'A',	LF	335
11	5' CONCRETE SIDEWALK, COP STD DET P1230, 6" THICK	SF	3790
21	DRIVEWAY ENTRANCE – TYPE II, COP STD DETAIL P1255-2, 9" THK	SF	1171
26	CONCRETE MEDIAN NOSE	SF	66
	STAMPED ASPHALT PAVEMENT	SF	423
27	2-1/2" ASPHALT CONCRETE SURFACE COURSE, (D 1/2)	TON	7
	AGGREGATE BASE COURSE	TON	10
32	NEW 6 FOOT CHAIN LINK FENCE	LF	709
33	DRIVEWAY CONNECTION, ASPHALT	TON	13
40	DBL GATE,MAG STD 160 (24' WIDE)	EA	2

SHEET REFERENCES

1. SEE DT-2.01 & DT-2.02 FOR MEDIAN DETAILS
2. SEE SD-2.07' FOR STORM DRAIN PLAN
3. SEE CP-1.06 & CP1.07 FOR CB CONN PIPE PROFILES

Two working days before you dig. CALL FOR THE BLUE STAKES
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Blue Stake Center CALL COLLECT

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PAVING PLAN & PROFILE
STA 277+50 TO STA 281+50

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

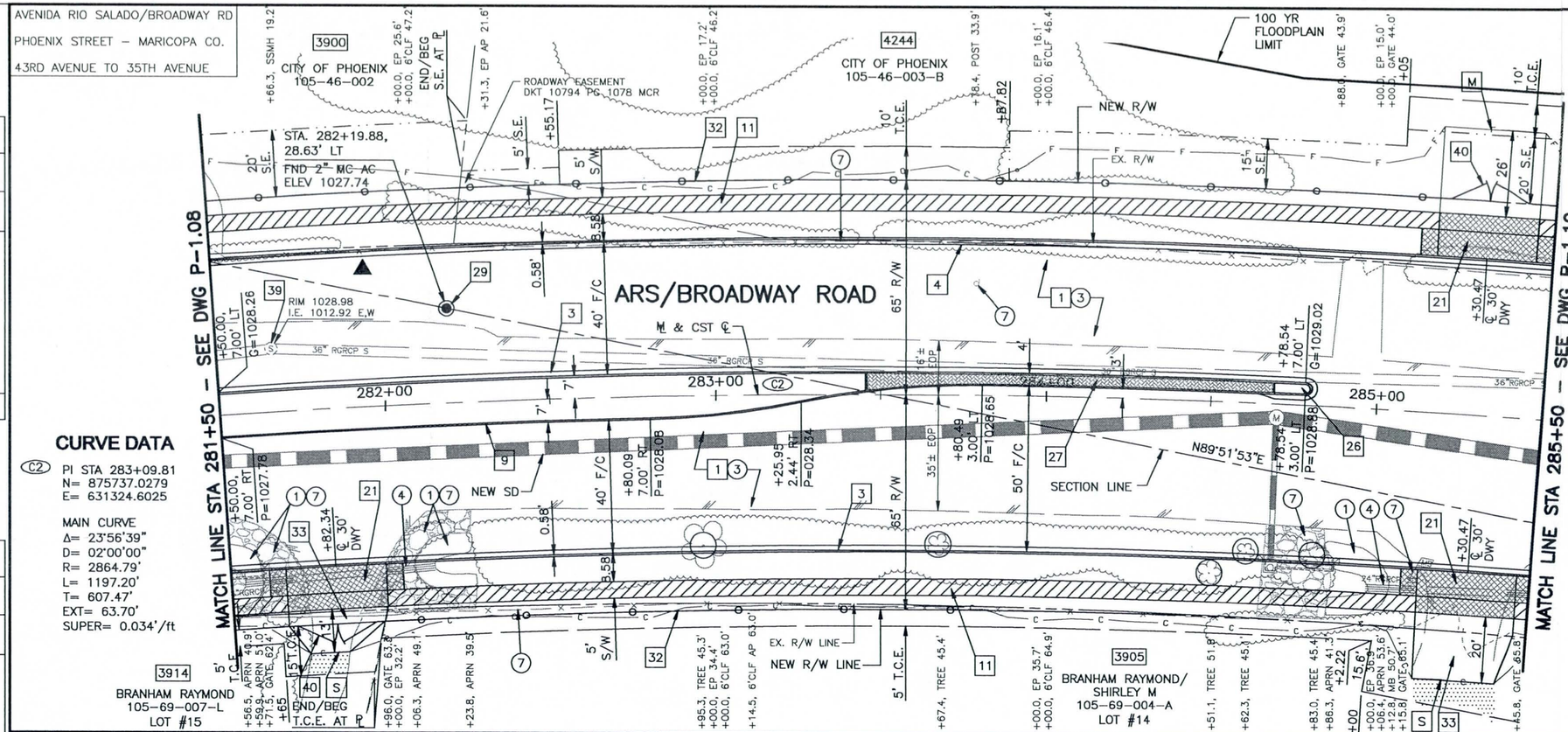
AVENIDA RIO SALADO / BROADWAY RD
43RD AVENUE TO 35TH AVENUE
ST85100333

DR: JG	DES: MVL	CK: SM	DWG SERIES NO.
DATE: 08/13	DATE: 08/13	DATE: 08/13	
SCALE: HORIZ 1"= 20' VERT 1"= 2'			P-1.08

ST85100333 PP19.DWG

REVISION BY CITY OF PHOENIX
NO. | DESCRIPTION | REV BY | CKD BY | DATE

AVENIDA RIO SALADO/BROADWAY RD
PHOENIX STREET – MARICOPA CO.
43RD AVENUE TO 35TH AVENUE

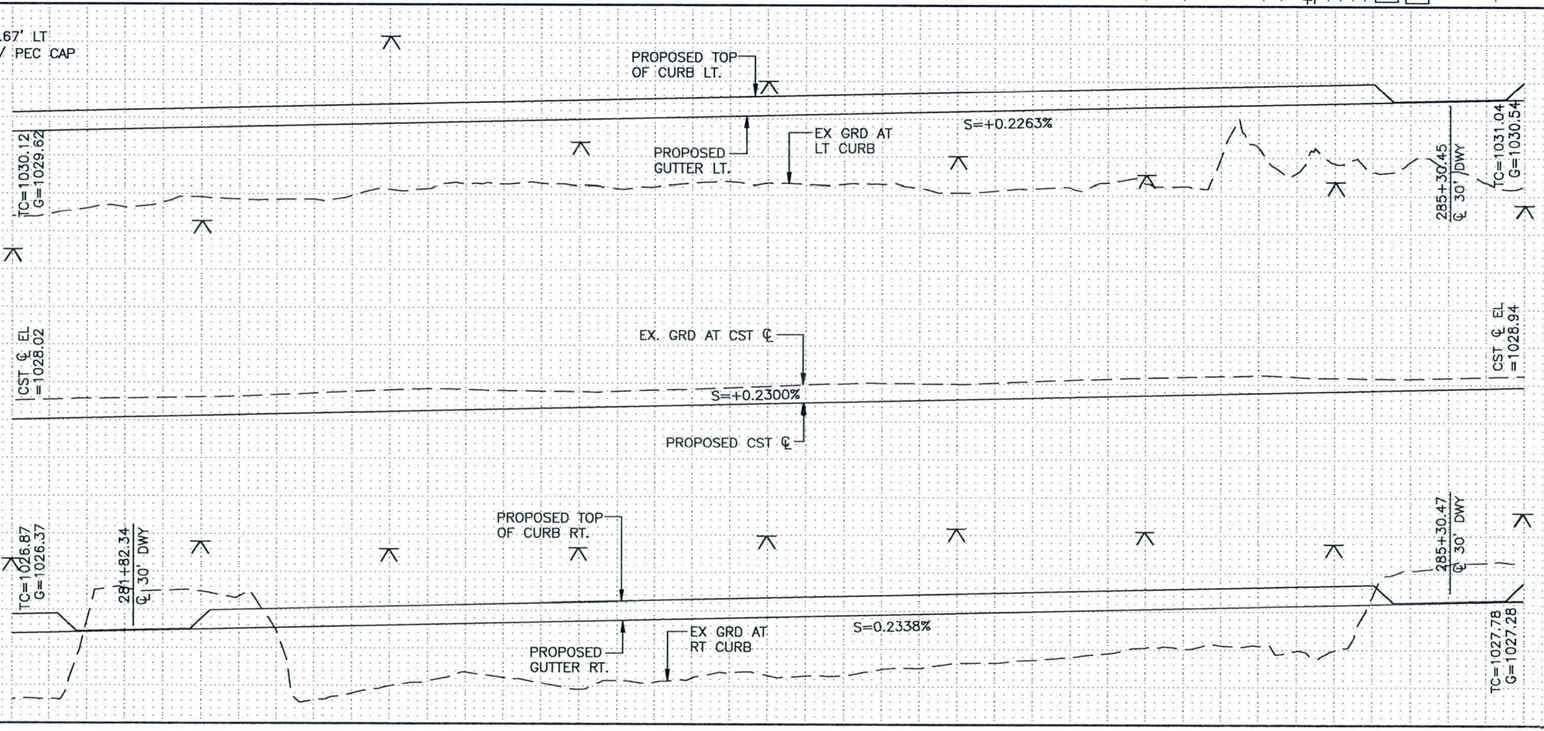


CURVE DATA

(C2) PI STA 283+09.81
N= 875737.0279
E= 631324.6025

MAIN CURVE
Δ= 23°56'39"
D= 02°00'00"
R= 2864.79'
L= 1197.20'
T= 607.47'
EXT= 63.70'
SUPER= 0.034'/ft

▲ T.B.M.
STA 281+95.65, 44.67' LT
SET 1/2" REBAR W/ PEC CAP
ELEVATION 1028.10



90% SUBMITTAL

NOT FOR CONSTRUCTION

N
City of Phoenix

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100333	22	133	

PROJECT ENGINEERING CONSULTANTS, LTD.
2310 W. MISSION LANE, STE. 4 PHOENIX, AZ 85021
PHONE (602) 906-1901

REMOVAL / RELOCATION NOTES

NO.	DESCRIPTION	UNIT	QTY
(1)	REMOVE CONCRETE SIDEWALK, DRIVEWAY, VALLEY GUTTER , & SLAB		
	281+50 TO 281+60 RT	SF	131
	282+06 TO 282+25 RT	SF	195
	284+86 TO 285+07 RT	SF	260
(3)	REMOVE CONCRETE ASPHALT PAVEMENT	SF	2640
(4)	REMOVE PIPE, BACKFILL & COMPACT	LF	108
(7)	MISCELLANEOUS WORK		
	MAILBOX, RELOCATE	EA	1
	WOOD POST, REMOVE	JOB	–
	RIP RAP, REMOVE	SY	163
	FENCE, REMOVE		
	281+50 TO 285+50 LT	LF	406
	281+50 TO 284+73 RT	LF	316

CONSTRUCTION NOTES

NO.	DESCRIPTION	UNIT	QTY
	SUBGRADE PREPARATION	SY	3653
1	2" ASPHALT CONCRETE SURFACE COURSE, MOD.TYPE D 1/2	TON	411
	5-1/2" ASPHALT CONCRETE BASE COURSE, TYPE A 1-1/2	TON	1131
	TACK COAT	TON	3
3	VERTICAL CURB & GUTTER, MAG STD DET 220, TYPE 'A', H=6"	LF	735
4	VERTICAL CURB & GUTTER, MAG STD DET 220, TYPE 'A', H=6". MODIFIED WITH REVERSE PAN	LF	407
9	SINGLE CURB, MAG STD DET 222, TYPE 'A',	LF	328
11	5' CONCRETE SIDEWALK, COP STD DET P1230, 6" THICK	SF	3784
21	DRIVEWAY ENTRANCE – TYPE II, COP STD DETAIL P1255-2, 9" THK	SF	1169
26	CONCRETE MEDIAN NOSE	SF	33
	STAMPED ASPHALT PAVEMENT	SF	394
27	2-1/2" ASPHALT CONCRETE SURFACE COURSE, (D 1/2)	TON	7
	AGGREGATE BASE COURSE	TON	10
29	SURVEY MARKER, MAG STD DETAIL 120-1, TYPE 'B'	EA	1
32	NEW 6 FOOT CHAIN LINK FENCE	LF	725
33	DRIVEWAY CONNECTION, ASPHALT	TON	16
39	ADJUST EXISTING MANHOLE FRAME & COVER. COP STD DET P1422	EA	1
40	DBL GATE, MAG STD 160 (24' WIDE)	EA	2

SHEET REFERENCES

1. SEE DT-2.01 & DT-2.02 FOR MEDIAN DETAILS
2. SEE SD-2.08 FOR STORM DRAIN PLAN
3. SEE CP-1.07 FOR CB CONN PIPE PROFILE

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Blue Stake Center CALL COLLECT

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PAVING PLAN & PROFILE
STA 281+50 TO STA 285+50

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

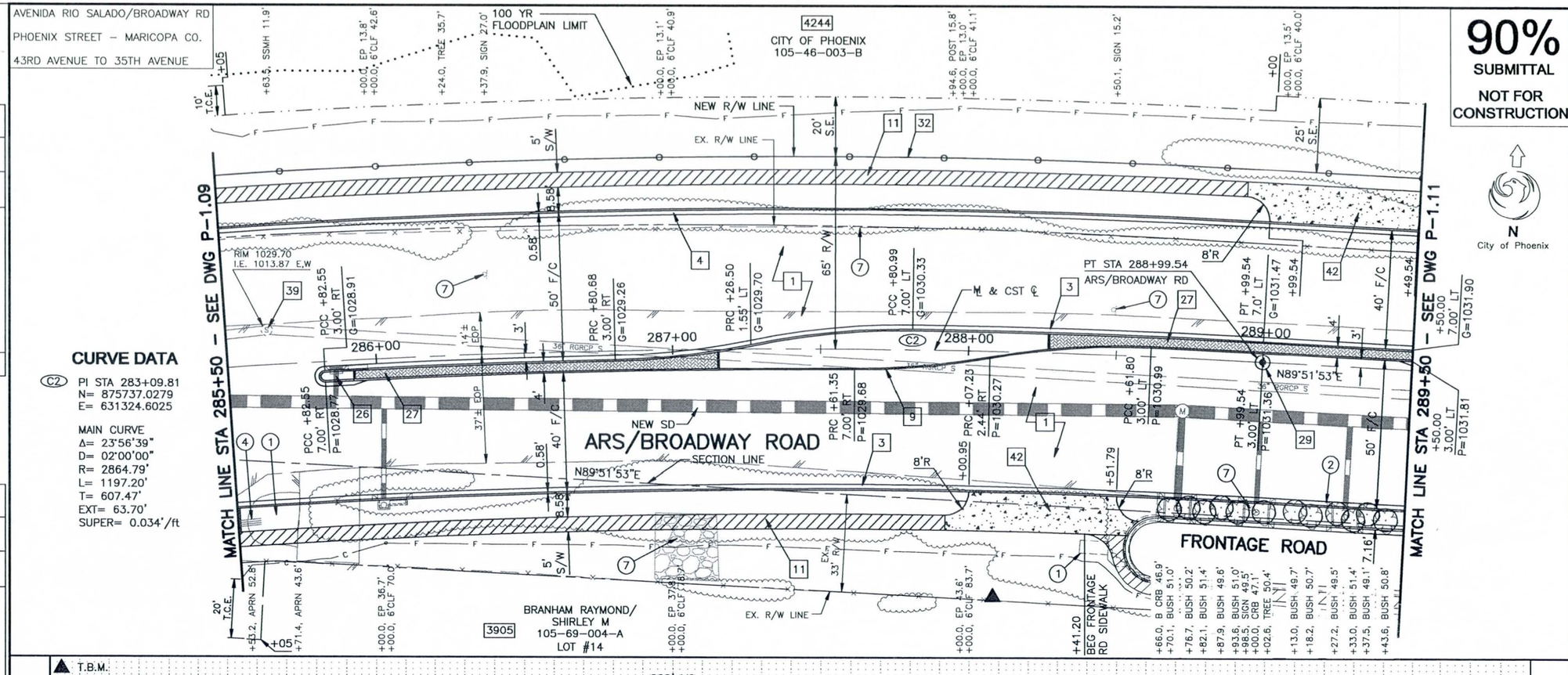
AVENIDA RIO SALADO / BROADWAY RD
43RD AVENUE TO 35TH AVENUE
ST85100333

DR: JG	DES: MVL	CK: SM	DWG SERIES NO.
DATE: 08/13	DATE: 08/13	DATE: 08/13	
SCALE: HORIZ 1"= 20' VERT 1"= 2'			P-1.09

ST85100333 PP20.DWG

REVISION BY CITY OF PHOENIX
NO. | DESCRIPTION | REV BY | CKD BY | DATE

AVENIDA RIO SALADO/BROADWAY RD
PHOENIX STREET – MARICOPA CO.
43RD AVENUE TO 35TH AVENUE

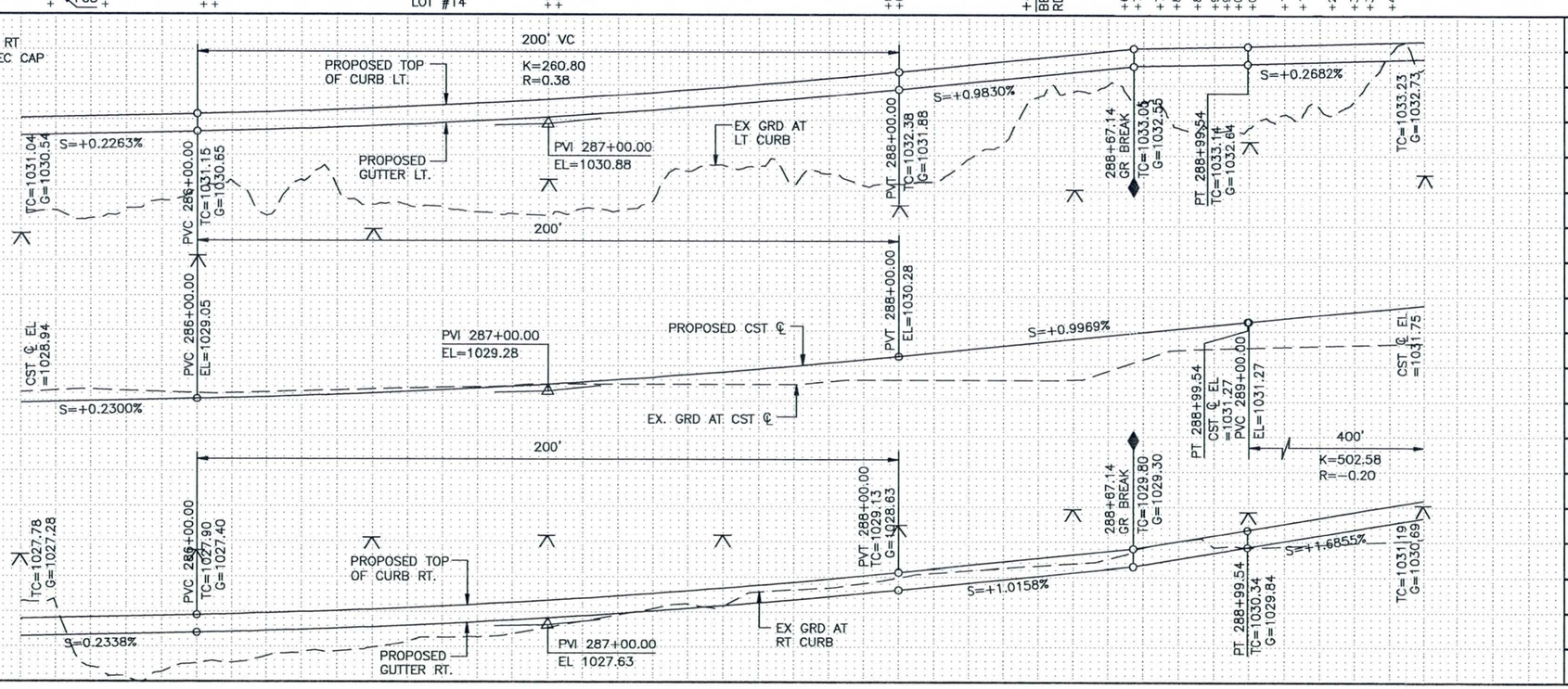


CURVE DATA

(C2) PI STA 283+09.81
N= 875737.0279
E= 631324.6025

MAIN CURVE
Δ= 23°56'39"
D= 02°00'00"
R= 2864.79'
L= 1197.20'
T= 607.47'
EXT= 63.70'
SUPER= 0.034'/ft

▲ T.B.M.
STA 288+09.68, 80.03' RT
SET 1/2" REBAR W/ PEC CAP
ELEVATION 1030.77



90% SUBMITTAL

NOT FOR CONSTRUCTION

N
City of Phoenix

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100333	23	133	

PROJECT ENGINEERING CONSULTANTS, LTD.
2310 W. MISSION LANE, STE. 4 PHOENIX, AZ 85021
PHONE (602) 906-1901

REMOVAL / RELOCATION NOTES

NO.	DESCRIPTION	UNIT	QTY
(1)	REMOVE CONCRETE SIDEWALK, DRIVEWAY, VALLEY GUTTER, & SLAB		
	285+53 TO 285+72 RT	SF	272
	288+39 TO 288+56 RT	SF	104
(2)	REMOVE CONCRETE SINGLE CURB, AND CURB AND GUTTER		
	288+66 TO 289+50 RT	LF	84
(3)	REMOVE CONCRETE ASPHALT PAVEMENT	SY	2414
(4)	REMOVE PIPE, BACKFILL & COMPACT	LF	8
(7)	MISCELLANEOUS WORK		
	TRAFFIC SIGN, REMOVE & SALVAGE	LS	–
	RIP RAP, REMOVE	SY	52
	FENCE, REMOVE		
	285+50 TO 289+50 LT	LF	405

CONSTRUCTION NOTES

NO.	DESCRIPTION	UNIT	QTY
	SUBGRADE PREPARATION	SY	3738
1	2" ASPHALT CONCRETE SURFACE COURSE, MOD. TYPE D 1/2	TON	421
	5-1/2" ASPHALT CONCRETE BASE COURSE, TYPE A 1-1/2	TON	1157
	TACK COAT	TON	3
3	VERTICAL CURB & GUTTER, MAG STD DET 220, TYPE 'A', H=6"	LF	770
4	VERTICAL CURB & GUTTER, MAG STD DET 220, TYPE 'A', H=6", MODIFIED WITH REVERSE PAN	LF	406
9	SINGLE CURB, MAG STD DET 222, TYPE 'A',	LF	375
11	5' CONCRETE SIDEWALK, COP STD DET P1230, 6" THICK	SF	2933
26	CONCRETE MEDIAN NOSE	SF	44
	STAMPED ASPHALT PAVEMENT	SF	788
27	2-1/2" ASPHALT CONCRETE SURFACE COURSE, (D 1/2)	TON	13
	AGGREGATE BASE COURSE	TON	19
29	SURVEY MARKER, MAG STD DETAIL 120-1, TYPE 'B'	EA	1
32	NEW 6 FOOT CHAIN LINK FENCE	LF	408
39	ADJUST EXISTING MANHOLE FRAME & COVER, COP STD DET. P1422	EA	1
42	PARKWAY BUS SHELTER/ACCESSORY PAD, COP STD DET P1262	SF	1453

SHEET REFERENCES

1. SEE DT-2.01 & DT-2.02 FOR MEDIAN DETAILS
2. SEE SD-2.09 FOR STORM DRAIN PLAN
3. SEE CP-1.07 & CP-1.08 FOR CB CONN PIPE PROFILES
4. SEE P-1.19 FOR FRONTAGE ROAD PLAN AND PROFILE

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Blue Stake Center CALL COLLECT

"PER CITY OF PHOENIX CITY CODE CHAPTER 2, SECTION 2-28. THESE PLANS ARE FOR OFFICIAL USE ONLY AND MAY NOT BE SHARED WITH OTHERS EXCEPT AS REQUIRED TO FULFILL THE OBLIGATIONS OF THE CONTRACTOR'S CONTRACT WITH THE CITY OF PHOENIX."

PAVING PLAN & PROFILE
STA 285+50 TO STA 289+50

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

AVENIDA RIO SALADO / BROADWAY RD
43RD AVENUE TO 35TH AVENUE
ST85100333

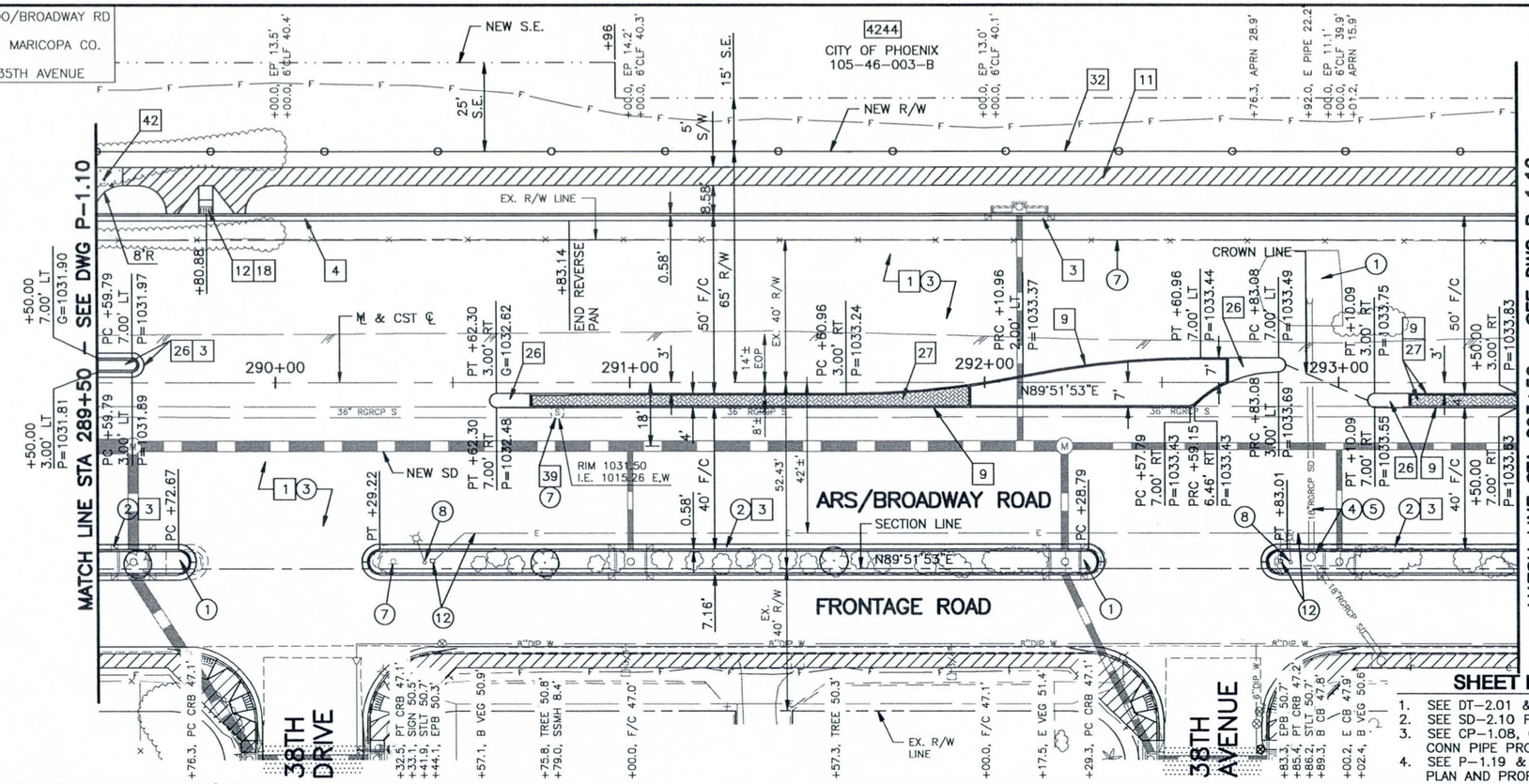
DR: JG	DES: MVL	CK: SM	DWG SERIES NO.
DATE: 08/13	DATE: 08/13	DATE: 08/13	
SCALE: HORIZ 1"= 20' VERT 1"= 2'			P-1.10

ST85100333 PP21.DWG

REVISION BY CITY OF PHOENIX
NO. | DESCRIPTION | REV BY | CKD BY | DATE

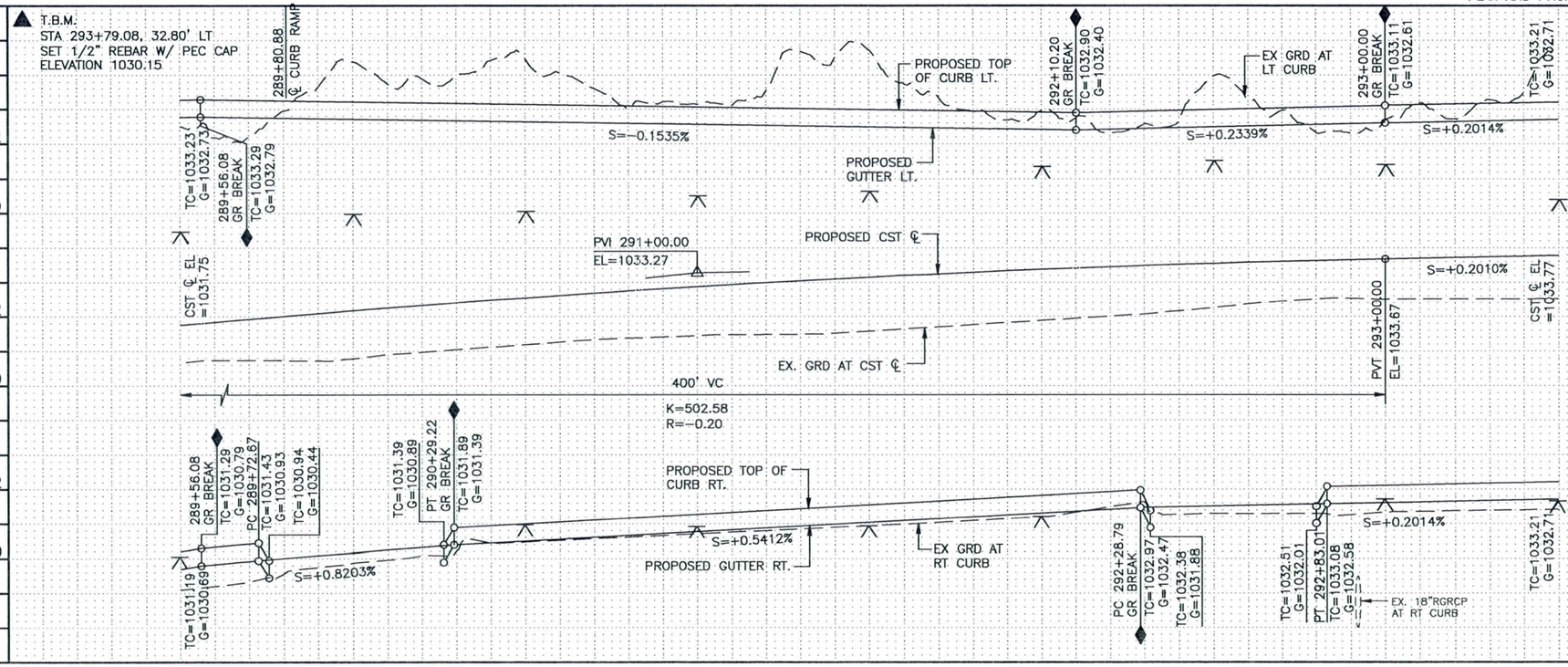
REVISION BY CITY OF PHOENIX
NO. | DESCRIPTION | REV BY | CKD BY | DATE

AVENIDA RIO SALADO/BROADWAY RD
PHOENIX STREET – MARICOPA CO.
43RD AVENUE TO 35TH AVENUE



SHEET REFERENCES

1. SEE DT–2.01 & DT–2.02 FOR MEDIAN DETAILS
2. SEE SD–2.10 FOR STORM DRAIN PLAN
3. SEE CP–1.08, CP–1.09 & CP–1.10 FOR CB CONN PIPE PROFILES
4. SEE P–1.19 & P–1.20 FOR FRONTAGE ROAD PLAN AND PROFILE



290+00 291+00 292+00 293+00

90% SUBMITTAL

NOT FOR CONSTRUCTION

N
City of Phoenix

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100333	24	133	

PROJECT ENGINEERING CONSULTANTS, LTD.
2310 W. MISSION LANE, STE. 4 PHOENIX, AZ 85021
PHONE (602) 906–1901

REMOVAL / RELOCATION NOTES

NO.	DESCRIPTION	UNIT	QTY
1	REMOVE CONCRETE SIDEWALK, DRIVEWAY, VALLEY GUTTER, & SLAB		
	MEDIAN NOSE	SF	104
	292+76 TO 293+01 RT	SF	457
2	REMOVE CONCRETE SINGLE CURB AND CURB & GUTTER		
	289+50 TO 289+78 RT	LF	28
	290+26 TO 292+32 RT	LF	206
	292+80 TO 293+50 RT	LF	70
3	REMOVE CONCRETE ASPHALT PAVEMENT	SY	2614
4	REMOVE PIPE, BACKFILL & COMPACT	LF	71
5	REMOVE CATCH BASIN, BACKFILL & COMPACT	EA	1
7	MISCELLANEOUS WORK		
	TRAFFIC SIGN, REMOVE & SALVAGE	LS	–
	FENCE, REMOVE 289+50 TO 293+50 LT	LF	400
	MANHOLE CONE, ROTATE	EA	1
8	STREET LIGHT, REMOVE & SALVAGE	EA	2
12	MISCELLANEOUS WORK BY OTHERS		
	ELECTRIC PULLBOX & CONDUCTORS, RELOCATE	NPI	–

CONSTRUCTION NOTES

NO.	DESCRIPTION	UNIT	QTY
	SUBGRADE PREPARATION	SY	3860
1	2" ASPHALT CONCRETE SURFACE COURSE, MOD. TYPE D 1/2	TON	435
	5–1/2" ASPHALT CONCRETE BASE COURSE, TYPE A 1–1/2	TON	1195
	TACK COAT	TON	4
3	VERTICAL CURB & GUTTER, MAG STD DET 220, TYPE 'A', H=6"	LF	589
4	VERTICAL CURB & GUTTER, MAG STD DET 220, TYPE 'A', H=6", MODIFIED WITH REVERSE PAN	LF	133
9	SINGLE CURB, MAG STD DET 222, TYPE 'A'	LF	463
11	5' CONCRETE SIDEWALK, COP STD DET P1230, 6" THICK	SF	1773
12	TRUNCATED DOMES, COP STD DET P1232	SF	10
18	CURB RAMP, MID BLOCK WITH DETACHED SIDEWALK, COP STD DET P1241–2	SF	394
26	CONCRETE MEDIAN NOSE	SF	188
	STAMPED ASPHALT PAVEMENT	SF	487
27	2–1/2" ASPHALT CONCRETE SURFACE COURSE, (D 1/2)	TON	8
	AGGREGATE BASE COURSE	TON	12
32	NEW 6 FOOT CHAIN LINK FENCE	LF	400
39	ADJUST EXISTING MANHOLE FRAME & COVER. COP STD DET. P1422	EA	1
42	PARKWAY BUS SHELTER/ACCESSORY PAD. COP STD DET P1262	SF	49

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Blue Stake Center CALL COLLECT

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PAVING PLAN & PROFILE
STA 289+50 TO 293+50

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

AVENIDA RIO SALADO / BROADWAY RD
43RD AVENUE TO 35TH AVENUE
ST85100333

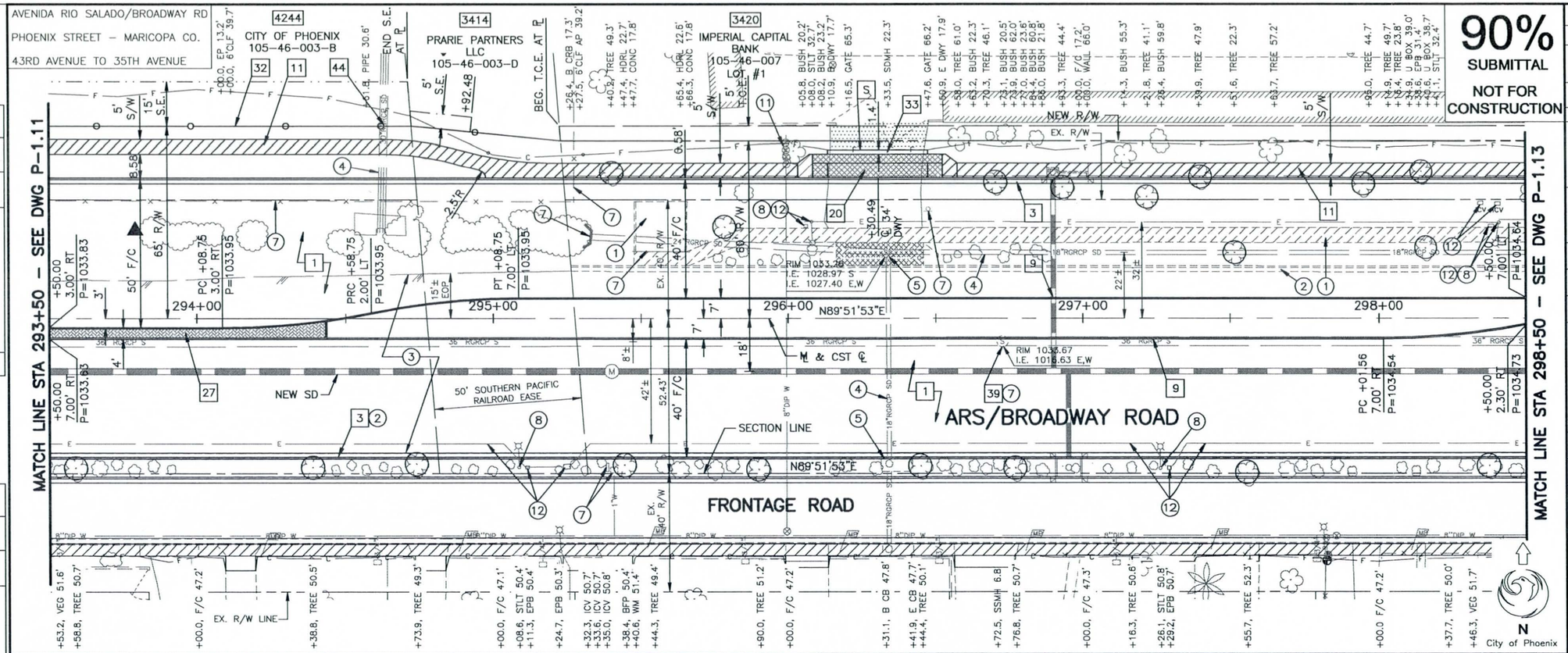
DR: JG	DES: MVL	CK: SM	DWG SERIES NO.
DATE: 08/13	DATE: 08/13	DATE: 08/13	
SCALE: HORIZ 1"= 20' VERT 1"= 2'			P–1.11

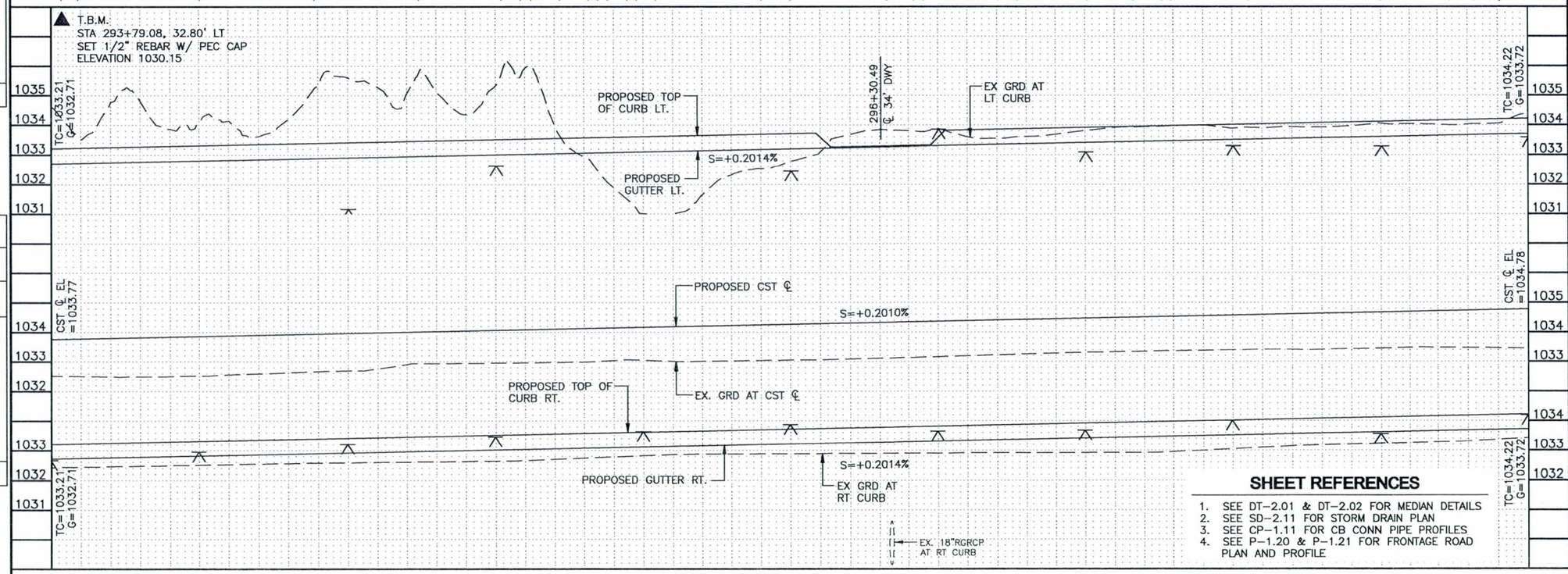
ST85100333 PP22.DWG

REVISION BY CITY OF PHOENIX
NO. | DESCRIPTION | REV. BY | CKD. BY | DATE

AVENIDA RIO SALADO/BROADWAY RD
PHOENIX STREET – MARICOPA CO.
43RD AVENUE TO 35TH AVENUE

90%
SUBMITTAL
NOT FOR CONSTRUCTION





SHEET REFERENCES

1. SEE DT-2.01 & DT-2.02 FOR MEDIAN DETAILS
2. SEE SD-2.11 FOR STORM DRAIN PLAN
3. SEE CP-1.11 FOR CB CONN PIPE PROFILES
4. SEE P-1.20 & P-1.21 FOR FRONTAGE ROAD PLAN AND PROFILE

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100333	25	133	

PROJECT ENGINEERING CONSULTANTS, LTD.
2310 W. MISSION LANE, STE. 4 PHOENIX, AZ 85021
PHONE (602) 906-1901

REMOVAL / RELOCATION NOTES

NO.	DESCRIPTION	UNIT	QTY
1	REMOVE CONCRETE SIDEWALK, DRIVEWAY, VALLEY GUTTER, & SLAB		
	295+47 TO 295+66 LT	SF	302
	S/W 295+47 TO 298+50 LT	SF	1500
	D/W 296+11 TO 296+51 LT	SF	297
2	REMOVE CONCRETE SINGLE CURB AND CURB & GUTTER		
	295+26 TO 298+50 LT	LF	324
	293+50 TO 298+50 RT	LF	500
3	REMOVE ASPHALT CONCRETE PAVEMENT	SY	3475
4	REMOVE PIPE, BACKFILL & COMPACT	LF	485
5	REMOVE CATCH BASIN, BACKFILL & COMPACT	EA	3
	MISCELLANEOUS WORK		
7	TRAFFIC SIGN, REMOVE & SALVAGE	LS	–
	HANDRAIL, REMOVE	NPI	–
	LANDSCAPE IRR. SYSTEM, REMOVE	LS	–
	HEADWALL, REMOVE	NPI	–
	FENCE, REMOVE		
	293+50 TO 295+28 LT	LF	196
	MANHOLE CONE, ROTATE	EA	1
8	STREET LIGHT, REMOVE & SALVAGE	EA	4
11	BACKFLOW PREVENTER, RELOCATE	EA	1
	MISCELLANEOUS WORK BY OTHERS		
12	IRRIGATION CONTROL VALVE, REMOVE	NPI	–
	ELECTRIC PULLBOX & CONDUCTORS, RELOCATE	NPI	–

CONSTRUCTION NOTES

NO.	DESCRIPTION	UNIT	QTY
	SUBGRADE PREPARATION	SY	4417
1	2" ASPHALT CONCRETE SURFACE COURSE, MOD. TYPE D 1/2	TON	497
	5-1/2" ASPHALT CONCRETE BASE COURSE, TYPE A 1-1/2	TON	1367
	TACK COAT	TON	4
3	VERTICAL CURB & GUTTER, MAG STD DET 220, TYPE 'A', H=6"	LF	1000
9	SINGLE CURB, MAG STD DET 222, TYPE 'A'	LF	1006
11	5' CONCRETE SIDEWALK, COP STD DET P1230. 6" THICK	SF	2317
20	DRIVEWAY ENTRANCE– TYPE 1, COP STD DETAIL P1255-1, 9" THK	SF	352
	STAMPED ASPHALT PAVEMENT	SF	307
27	2-1/2" ASPHALT CONCRETE SURFACE COURSE, (D 1/2)	TON	5
	AGGREGATE BASE COURSE	TON	7
32	NEW 6 FOOT CHAIN LINK FENCE	LF	179
33	DRIVEWAY CONNECTION, ASPHALT	TON	1
39	ADJUST EXISTING MANHOLE FRAME & COVER, COP STD DET P1422	EA	1
44	PIPE PLUG, MAG STD DET 427	EA	1

Two working days before you dig, CALL FOR THE BLUE STAKES
(602) 263-1100
Blue Stake Center
CALL COLLECT

"PER CITY OF PHOENIX CITY CODE CHAPTER 2, SECTION 2-28. THESE PLANS ARE FOR OFFICIAL USE ONLY AND MAY NOT BE SHARED WITH OTHERS EXCEPT AS REQUIRED TO FULFILL THE OBLIGATIONS OF THE CONTRACTOR'S CONTRACT WITH THE CITY OF PHOENIX."

PAVING PLAN & PROFILE
STA 293+50 TO STA 298+50

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

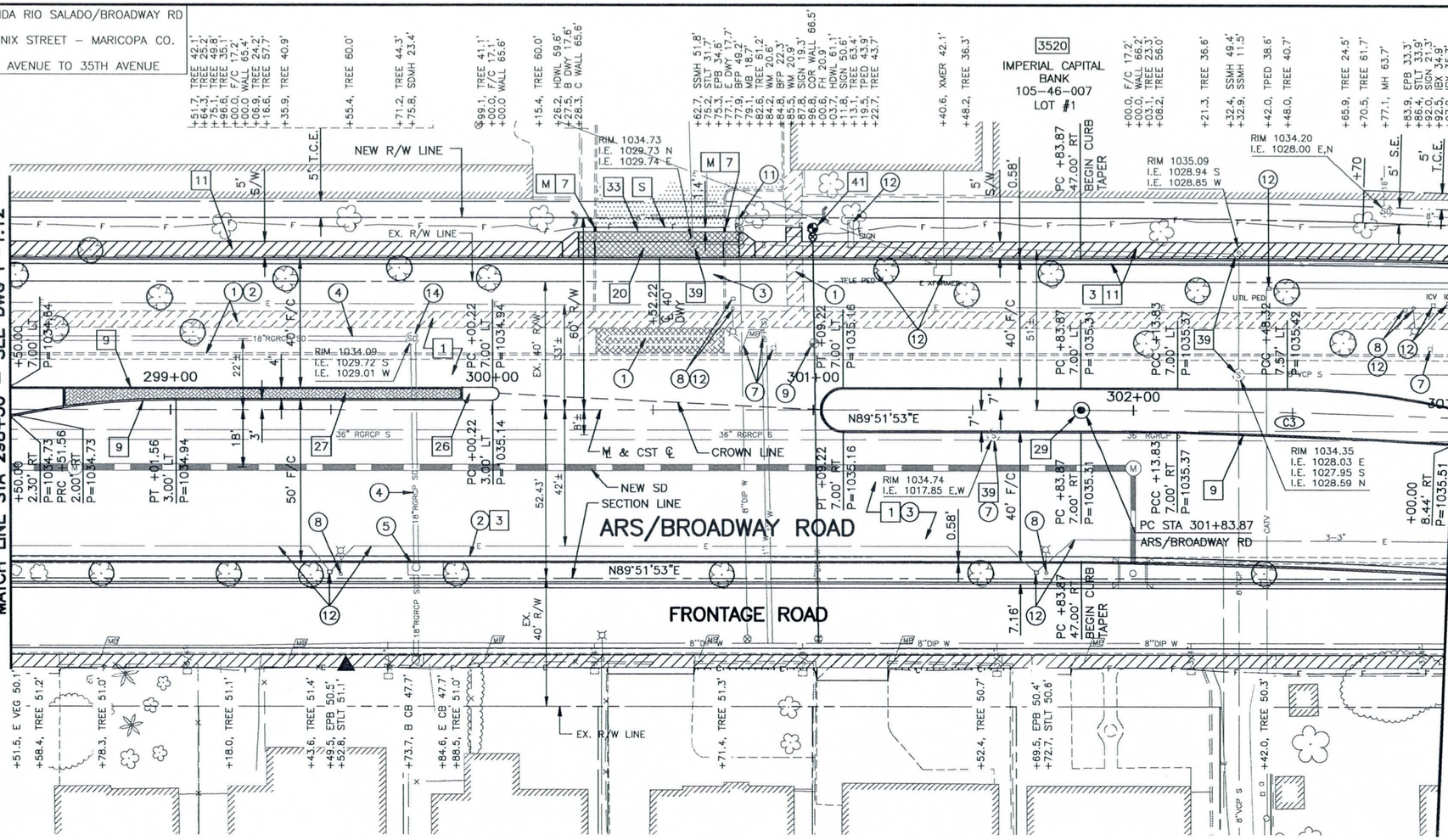
AVENIDA RIO SALADO / BROADWAY RD
43RD AVENUE TO 35TH AVENUE
ST85100333

DR:	DES:	CK:	DWG SERIES NO.
JG	MVL	SM	
DATE: 08/13	DATE: 08/13	DATE: 08/13	
SCALE: HORIZ 1"= 20' VERT 1"= 2'			P-1.12

ST85100333 PP23.DWG

REVISION BY CITY OF PHOENIX
NO. | DESCRIPTION | REV BY | CKD BY | DATE

AVENIDA RIO SALADO/BROADWAY RD
PHOENIX STREET – MARICOPA CO.
43RD AVENUE TO 35TH AVENUE



REMOVAL / RELOCATION NOTES

NO.	DESCRIPTION	UNIT	QTY
①	REMOVE CONCRETE SIDEWALK, DRIVEWAY, VALLEY GUTTER, & SLAB		
	S/W 298+50 TO 303+00 LT	SF	2408
	D/W 300+27 TO 300+77 LT	SF	379
②	REMOVE CONCRETE SINGLE CURB AND CURB & GUTTER		
	298+50 TO 303+00 LT	LF	450
	298+50 TO 303+00 RT	LF	450
③	REMOVE ASPHALT CONCRETE PAVEMENT	SY	3197
④	REMOVE PIPE, BACKFILL & COMPACT	LF	197
⑤	REMOVE CATCH BASIN, BACKFILL & COMPACT	EA	1
⑦	MISCELLANEOUS WORK		
	MAILBOX, RELOCATE	EA	1
	TRAFFIC SIGN, REMOVE & SALVAGE	LS	–
	LANDSCAPE IRRIGATION SYSTEM, REMOVE	LS	–
	MANHOLE CONE, ROTATE	EA	1

NO.	DESCRIPTION	UNIT	QTY
⑧	STREET LIGHT, REMOVE & SALVAGE	EA	4
⑨	FIRE HYDRANT, REMOVE	EA	1
⑪	BACKFLOW PREVENTER, RELOCATE	EA	1
⑫	MISCELLANEOUS WORK BY OTHERS		
	IRRIGATION CONTROL VALVE, REMOVE	NPI	–
	ELECTRIC TRANSFORMER, RELOCATE	NPI	–
	ELECTRIC PULLBOX & CONDUCTORS, RELOCATE	NPI	–
	TELEPHONE PEDESTAL, RELOCATE	NPI	–
	CATV PEDESTAL, RELOCATE	NPI	–
	PRIVATE SIGN, RELOCATE	NPI	–
⑭	REMOVE MANHOLE, BACKFILL & COMPACT	EA	1

CURVE DATA

(C3) PI STA 302+88.64
N= 875741.7537
E= 633321.1617

MAIN CURVE
Δ= 04°00'00"
D= 01°54'35"
R= 3000.00'
L= 209.44'
T= 104.76'
EXT= 1.83'
SUPER= N/C

90%
SUBMITTAL
NOT FOR CONSTRUCTION

N
City of Phoenix

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100333	26	133	

PROJECT ENGINEERING CONSULTANTS, LTD.
2310 W. MISSION LANE, STE. 4 PHOENIX, AZ 85021
PHONE (602) 906-1901

CONSTRUCTION NOTES

NO.	DESCRIPTION	UNIT	QTY
	SUBGRADE PREPARATION	SY	4185
1	2" ASPHALT CONCRETE SURFACE COURSE, MOD. TYPE D 1/2	TON	471
	5-1/2" ASPHALT CONCRETE BASE COURSE, TYPE A 1-1/2	TON	1295
	TACK COAT	TON	4
3	VERTICAL CURB & GUTTER, MAG STD DET 220, TYPE 'A', H=6"	LF	900
7	SINGLE CURB, MAG STD DET 222, CURB TERMINATION	LF	3
9	SINGLE CURB, MAG STD DET 222, TYPE 'A'	LF	695
11	5' CONCRETE SIDEWALK, COP STD DET P1230, 6" THICK	SF	2028
20	DRIVEWAY ENTRANCE– TYPE 1, COP STD DETAIL P1255-1, 9" THICK	SF	400
26	CONCRETE MEDIAN NOSE	SF	45
	STAMPED ASPHALT PAVEMENT	SF	397
27	2-1/2" ASPHALT CONCRETE SURFACE COURSE, (D 1/2)	TON	7
	AGGREGATE BASE COURSE	TON	10
29	SURVEY MARKER, MAG STD DETAIL 120-1, TYPE 'B'	EA	1
33	DRIVEWAY CONNECTION, ASPHALT	TON	1
39	ADJUST EXISTING MANHOLE FRAME & COVER. COP STD DET P1422	EA	4
41	FIRE HYDRANT ASSEMBLY, 6" GATE VALVE, VALVE BOX AND COVER, TYPE 'A'. FIRE HYDRANT FURNISHED BY CITY OF PHOENIX	EA	1

SHEET REFERENCES

1. SEE DT-2.01 & DT-2.02 FOR MEDIAN DETAILS
2. SEE SD-2.12 FOR STORM DRAIN PLAN
3. SEE CP-1.11 FOR CB CONN PIPE PROFILE
4. SEE P-1.14 FOR PAVING PROFILE
5. SEE P-1.21 & P-1.22 FOR FRONTAGE ROAD PLAN AND PROFILE

Two working days before you dig. CALL FOR THE BLUE STAKES (602) 263-1100 Blue Stake Center CALL COLLECT

"PER CITY OF PHOENIX CITY CODE CHAPTER 2, SECTION 2-28. THESE PLANS ARE FOR OFFICIAL USE ONLY AND MAY NOT BE SHARED WITH OTHERS EXCEPT AS REQUIRED TO FULFILL THE OBLIGATIONS OF THE CONTRACTOR'S CONTRACT WITH THE CITY OF PHOENIX."

PAVING PLAN
STA 298+50 TO STA 303+00

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

AVENIDA RIO SALADO / BROADWAY RD
43RD AVENUE TO 35TH AVENUE
ST85100333

DR: JG	DES: MVL	CK: SM	DWG SERIES NO.
DATE: 08/13	DATE: 08/13	DATE: 08/13	
SCALE: HORIZ 1"= 20' VERT 1"= 2'			P-1.13

ST85100333 PP24.DWG

REVISION BY CITY OF PHOENIX
NO. | DESCRIPTION | REV BY | CKD BY | DATE

AVENIDA RIO SALADO/BROADWAY RD
PHOENIX STREET – MARICOPA CO.
43RD AVENUE TO 35TH AVENUE

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100333	27	133	

PROJECT ENGINEERING CONSULTANTS, LTD.
2310 W. MISSION LANE, STE. 4 PHOENIX, AZ 85021
PHONE (602) 906-1901

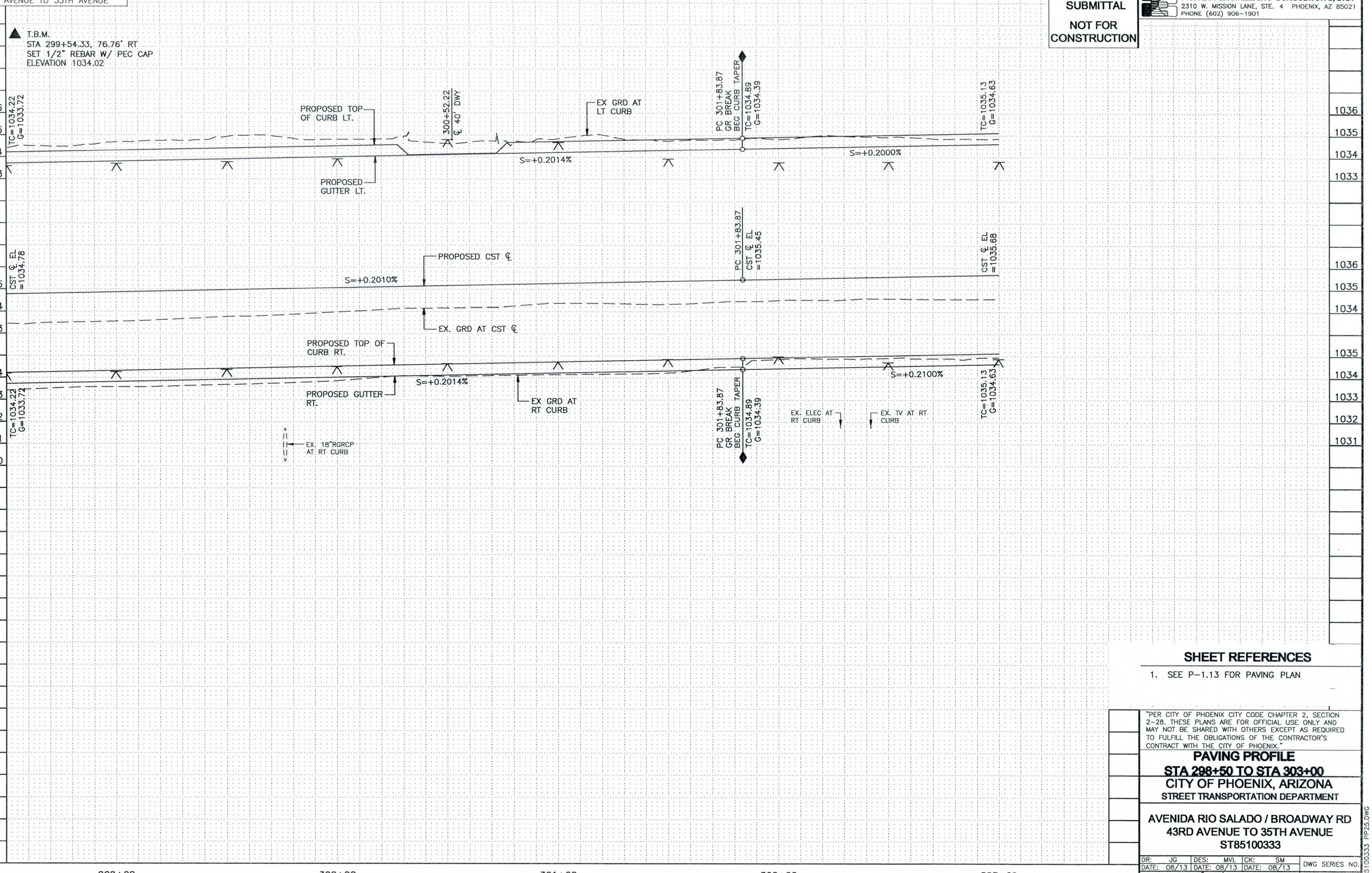
90% SUBMITTAL

NOT FOR CONSTRUCTION

REVISION BY CITY OF PHOENIX
NO. | DESCRIPTION | REV BY | CKD BY | DATE

REVISION BY CITY OF PHOENIX
NO. | DESCRIPTION | REV BY | CKD BY | DATE

REVISION BY CITY OF PHOENIX
NO. | DESCRIPTION | REV BY | CKD BY | DATE



SHEET REFERENCES

1. SEE P–1.13 FOR PAVING PLAN

"PER CITY OF PHOENIX CITY CODE CHAPTER 2, SECTION 2–28. THESE PLANS ARE FOR OFFICIAL USE ONLY AND MAY NOT BE SHARED WITH OTHERS EXCEPT AS REQUIRED TO FULFILL THE OBLIGATIONS OF THE CONTRACTOR'S CONTRACT WITH THE CITY OF PHOENIX."

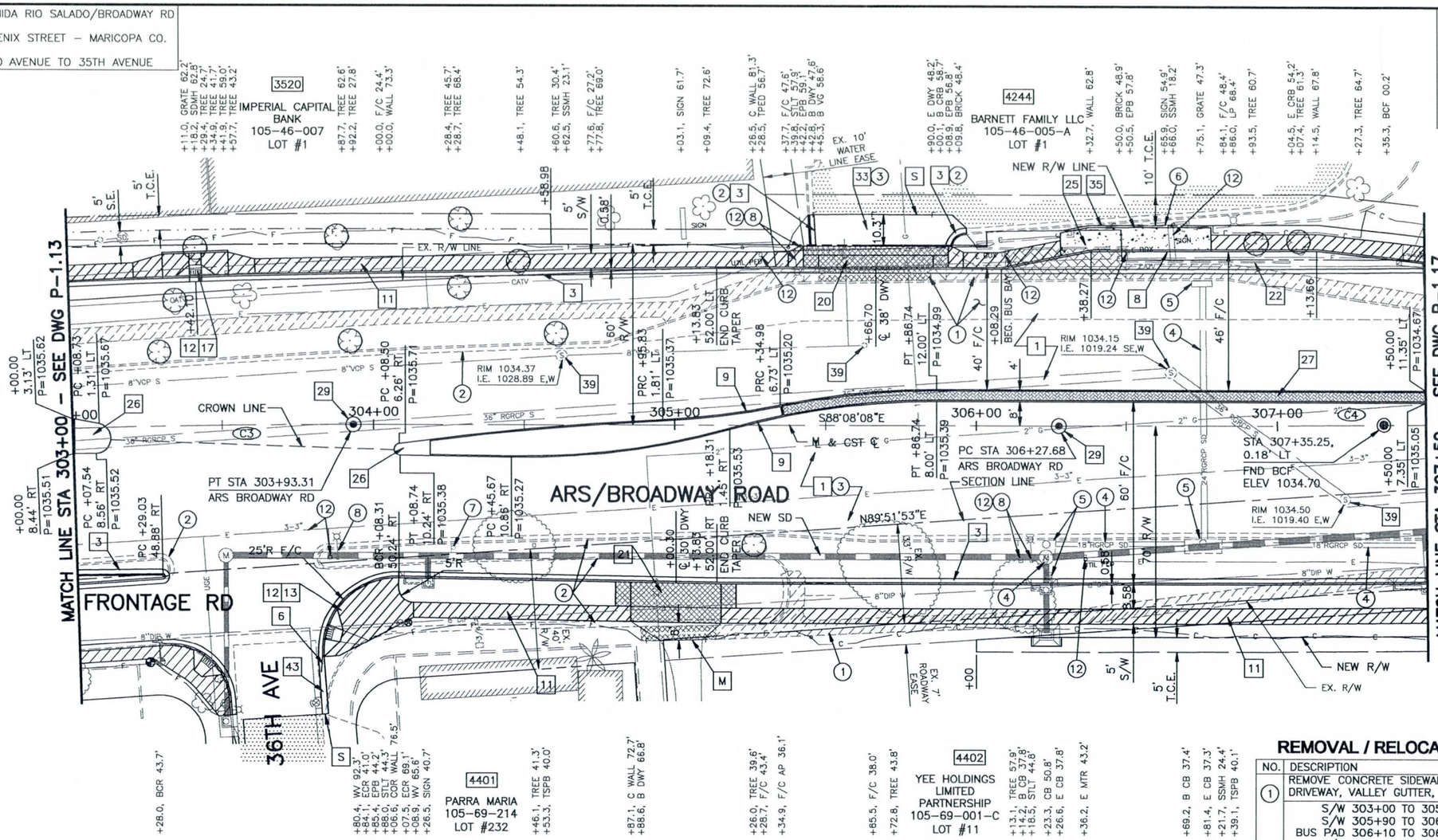
PAVING PROFILE
STA 298+50 TO STA 303+00
CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

AVENIDA RIO SALADO / BROADWAY RD
43RD AVENUE TO 35TH AVENUE
ST85100333

DR:	DES:	CK:	DWG SERIES NO.
JG	MVL	SM	
DATE: 08/13	DATE: 08/13	DATE: 08/13	
SCALE: HORIZ 1"= 20' VERT 1"= 2'			P–1.14

ST85100333 PP25.DWG

AVENIDA RIO SALADO/BROADWAY RD
PHOENIX STREET – MARICOPA CO.
43RD AVENUE TO 35TH AVENUE



CURVE DATA

(C3) PI STA 302+88.64
N= 875741.7537
E= 633321.1617

MAIN CURVE
Δ= 04°00'00"
D= 01°54'35"
R= 3000.00'
L= 209.44'
T= 104.76'
EXT= 1.83'
SUPER= N/C

(C4) PI STA 310+36.95
N= 875691.3136
E= 634067.8589

MAIN CURVE
Δ= 04°05'02"
D= 00°30'00"
R= 11459.16'
L= 816.77'
T= 408.56'
EXT= 7.28'
SUPER= N/C

Two working days before you dig. CALL FOR THE BLUE STAKES
(602) 263-1100
Blue Stake Center
CALL COLLECT

REMOVAL / RELOCATION NOTES

NO.	DESCRIPTION	UNIT	QTY
(1)	REMOVE CONCRETE SIDEWALK, DRIVEWAY, VALLEY GUTTER, & SLAB		
	S/W 303+00 TO 305+43 LT	SF	1254
	S/W 305+90 TO 306+10 LT	SF	127
	BUS PAD 306+10 TO 306+50 LT	SF	410
	S/W 306+50 TO 307+50 LT	SF	500
	S/W 305+13 TO 307+50 RT	SF	1267
	DWY 305+43 TO 305+90 LT	SF	510
	DWY 304+88 TO 305+13 RT	SF	115
	BUS BAY 304+87 TO 307+44 LT	SF	2719
	VG 303+81 TO 304+08 RT	SF	176
(2)	REMOVE CONCRETE SINGLE CURB AND CURB & GUTTER		
	303+00 TO 307+50 LT	LF	467
	303+00 TO 303+31 RT	LF	36
	303+81 TO 307+50 RT	LF	714
(3)	REMOVE ASPHALT CONCRETE PAVEMENT	SY	3778
(4)	REMOVE PIPE, BACKFILL & COMPACT	LF	220
(5)	REMOVE CATCH BASIN, BACKFILL & COMPACT	EA	4
(6)	REMOVE EXISTING BLOCK WALL (MISCELLANEOUS REMOVALS)		
	306+00 TO 306+82 LT	LF	86
(7)	MISCELLANEOUS WORK		
	TRAFFIC SIGN, REMOVE & SALVAGE	LS	–
(8)	STREET LIGHT, REMOVE & SALVAGE	EA	3
(12)	MISCELLANEOUS WORK BY OTHERS		
	ELECTRIC METER, RELOCATE	NPI	–
	ELECTRIC PULLBOX & CONDUCTORS, RELOCATE	NPI	–
	TELEPHONE PEDESTAL, RELOCATE	NPI	–
	PRIVATE SIGN WITH ELEC, RELOCATE	NPI	–

90%
SUBMITTAL
NOT FOR CONSTRUCTION

N
City of Phoenix

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100333	28	133	

PROJECT ENGINEERING CONSULTANTS, LTD.
2310 W. MISSION LANE, STE. 4 PHOENIX, AZ 85021
PHONE (602) 906-1901

CONSTRUCTION NOTES

NO.	DESCRIPTION	UNIT	QTY
	SUBGRADE PREPARATION	SY	4753
1	2" ASPHALT CONCRETE SURFACE COURSE, MOD. TYPE D 1/2	TON	535
	5-1/2" ASPHALT CONCRETE BASE COURSE, TYPE A 1-1/2	TON	1471
	TACK COAT	TON	4
3	VERTICAL CURB & GUTTER, MAG STD DET 220, TYPE 'A', H=6"	LF	763
6	CURB TRANSITION, MAG STD DET 221	LF	–
8	SINGLE CURB, MAG STD DET 222, TYPE 'A', MODIFIED FOR BUS BAY	LF	142
9	SINGLE CURB, MAG STD DET 222, TYPE 'A',	LF	694
11	5' CONCRETE SIDEWALK, COP STD DET P1230, 6" THICK	SF	3312
12	TRUNCATED DOMES, COP STD DET P1232	SF	20
13	CURB RAMP, 25' RADII, COP STD DET P1235	SF	448
17	CURB RAMP, MID BLOCK, COP STD DETAIL P1241-1	SF	178
20	DRIVEWAY ENTRANCE- TYPE 1, COP STD DETAIL P1255-1, 9" THICK	SF	336
21	DRIVEWAY ENTRANCE – TYPE II, COP STD DETAIL P1255-2, 9" THICK	SF	390
22	CONCRETE PAVEMENT, 9" THICK BUS BAY, TYPE I, COP STD DETAIL P1256-1	SF	677
25	BUS SHELTER / ACCESSORY PAD, COP STANDARD DETAIL P1261	SF	373
26	CONCRETE MEDIAN NOSE	SF	170
	STAMPED ASPHALT PAVEMENT	SF	643
27	2-1/2" ASPHALT CONCRETE SURFACE COURSE, (D 1/2)	TON	10
	AGGREGATE BASE COURSE	TON	16
29	SURVEY MARKER, MAG STD DETAIL 120-1, TYPE 'B'	EA	2
33	DRIVEWAY CONNECTION, ASPHALT	TON	8
35	NEW RETAINING WALL, SEE DETAIL ON SHEET 36	LF	127
39	ADJUST EXISTING MANHOLE FRAME & COVER. COP STD DET P1422	EA	2
43	ROLL CURB & GUTTER, MAG STD DET 220, TYPE 'C'	LF	19

SHEET REFERENCES

1. SEE DT-2.01 & DT-2.02 FOR MEDIAN DETAILS
2. SEE SD-2.13 FOR STORM DRAIN PLAN
3. SEE CP-1.12 FOR CB CONN PIPE PROFILE
4. SEE P-1.16 FOR ROADWAY PROFILE
5. SEE P-1.19, P-1.20 AN P-1.21 FOR FRONTAGE RD PLANS
6. SEE TS-1.02 FOR TRAFFIC SIGNAL ITEMS

"PER CITY OF PHOENIX CITY CODE CHAPTER 2, SECTION 2-28. THESE PLANS ARE FOR OFFICIAL USE ONLY AND MAY NOT BE SHARED WITH OTHERS EXCEPT AS REQUIRED TO FULFILL THE OBLIGATIONS OF THE CONTRACTOR'S CONTRACT WITH THE CITY OF PHOENIX."

PAVING PLAN
STA 303+00 TO STA 307+50

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

AVENIDA RIO SALADO / BROADWAY RD
43RD AVENUE TO 35TH AVENUE
ST85100333

DR:	DES:	CK:	DWG SERIES NO.
JG	MVL	SM	
DATE: 08/13	DATE: 08/13	DATE: 08/13	
SCALE: HORIZ 1"= 20' VERT 1"= 2'			P-1.15

ST85100333 PP26.DWG

REVISION BY CITY OF PHOENIX
NO. | DESCRIPTION | REV BY | CK'D BY | DATE

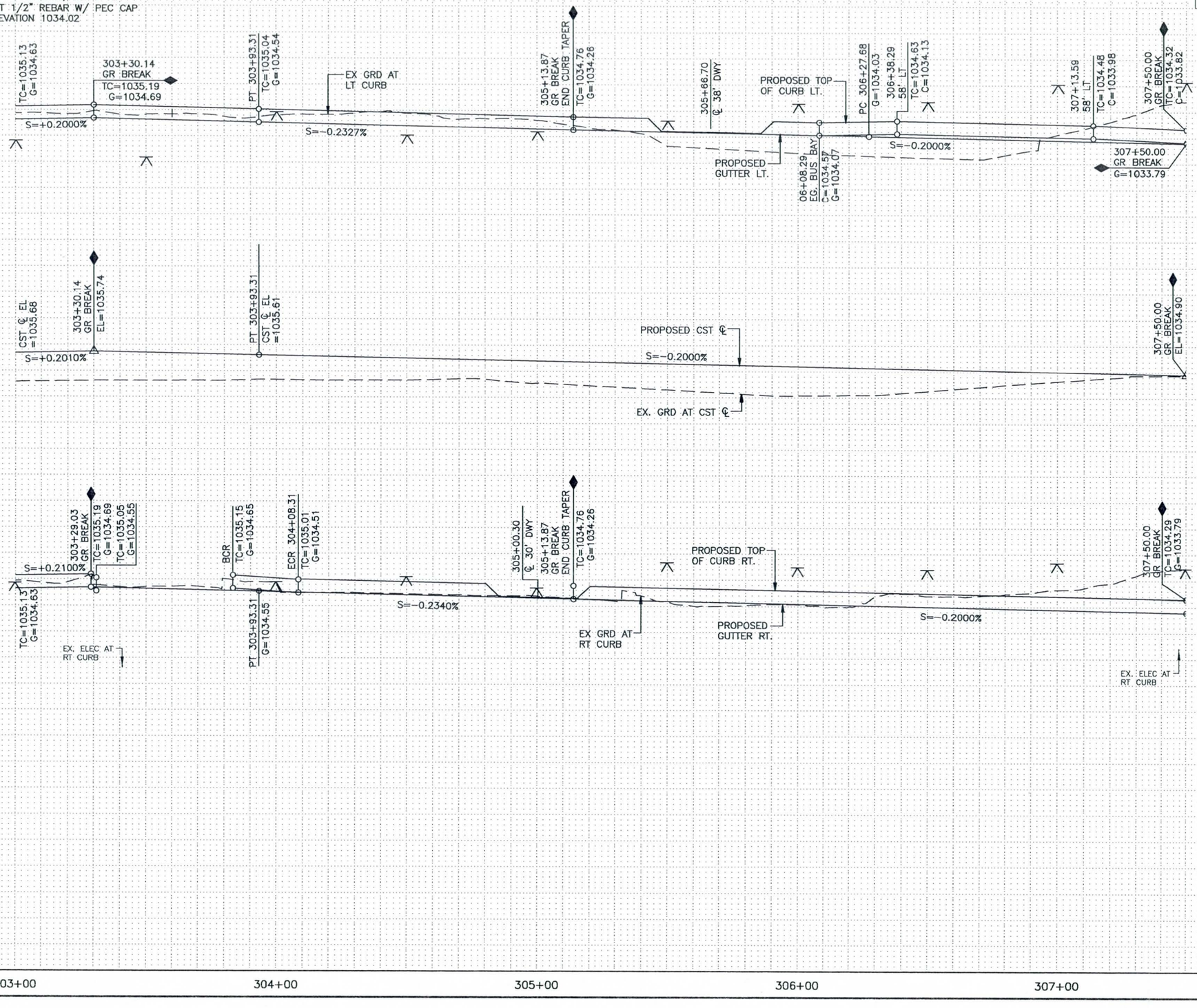
AVENIDA RIO SALADO/BROADWAY RD
PHOENIX STREET – MARICOPA CO.
43RD AVENUE TO 35TH AVENUE

90%
SUBMITTAL
NOT FOR CONSTRUCTION

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100333	29	133	

PROJECT ENGINEERING CONSULTANTS, LTD.
2310 W. MISSION LANE, STE. 4 PHOENIX, AZ 85021
PHONE (602) 906-1901

REVISION BY CITY OF PHOENIX
NO. | DESCRIPTION | REV BY | CKD BY | DATE



SHEET REFERENCES

1. SEE P-1.15 FOR PAVING PLAN

"PER CITY OF PHOENIX CITY CODE CHAPTER 2, SECTION 2-28. THESE PLANS ARE FOR OFFICIAL USE ONLY AND MAY NOT BE SHARED WITH OTHERS EXCEPT AS REQUIRED TO FULFILL THE OBLIGATIONS OF THE CONTRACTOR'S CONTRACT WITH THE CITY OF PHOENIX."

PAVING PROFILE
STA 303+00 TO STA 307+50

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

AVENIDA RIO SALADO / BROADWAY RD
43RD AVENUE TO 35TH AVENUE
ST85100333

DR: JG	DES: MVL	CK: SM	DWG SERIES NO.
DATE: 08/13	DATE: 08/13	DATE: 08/13	
SCALE: HORIZ 1"= 20' VERT 1"= 2'			P-1.16

ST85100333 PP22.DWG

AVENIDA RIO SALADO/BROADWAY RD
PHOENIX STREET – MARICOPA CO.
43RD AVENUE TO 35TH AVENUE

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100333	30	133	

PROJECT ENGINEERING CONSULTANTS, LTD.
2310 W. MISSION LANE, STE. 4 PHOENIX, AZ 85021
PHONE (602) 906-1901

90% SUBMITTAL
NOT FOR CONSTRUCTION

City of Phoenix

REMOVAL / RELOCATION NOTES

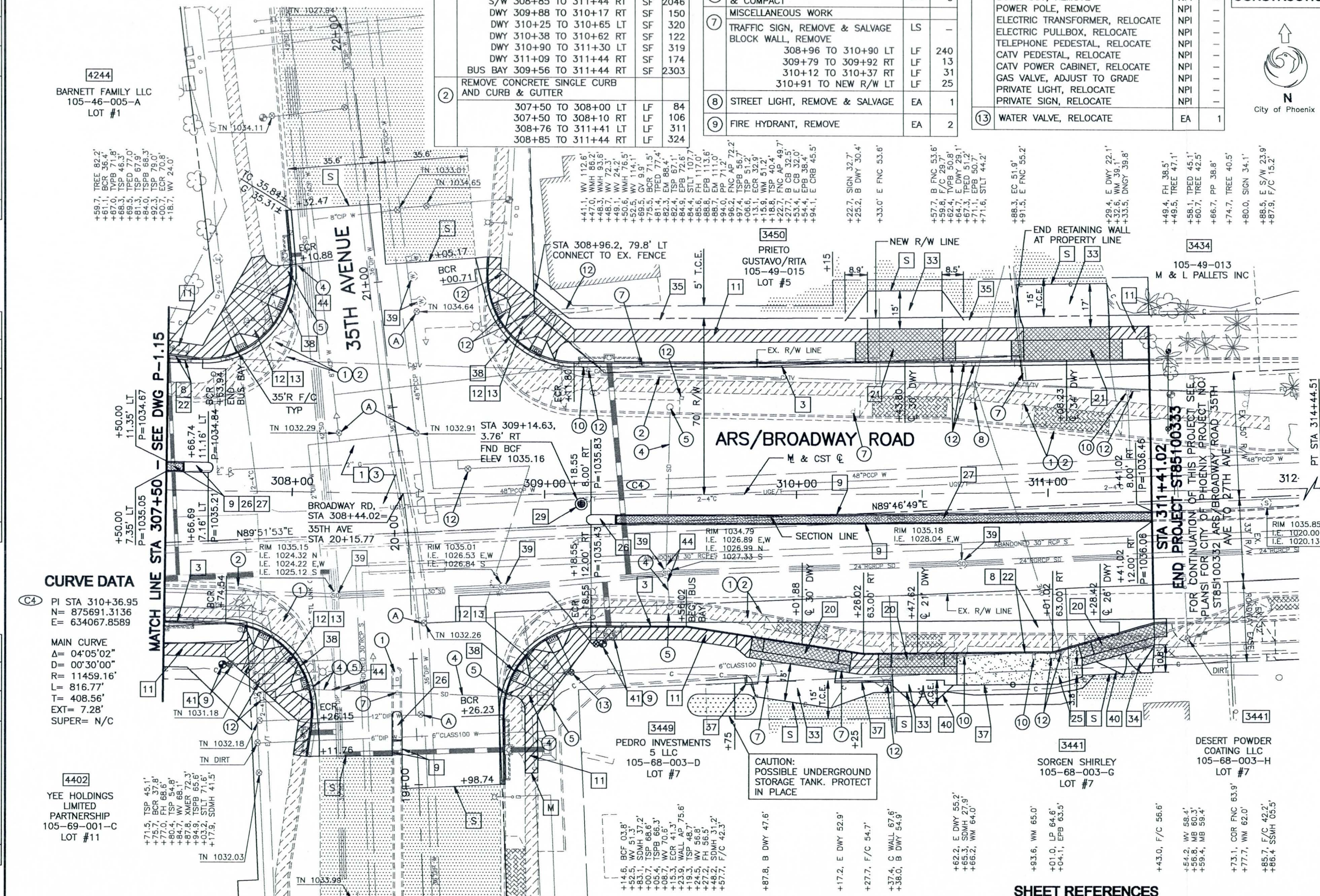
NO.	DESCRIPTION	UNIT	QTY
1	REMOVE CONCRETE SIDEWALK, DRIVEWAY, VALLEY GUTTER, & SLAB		
	S/W 307+50 TO 308+00 LT	SF	637
	S/W 307+50 TO 308+10 RT	SF	659
	S/W 308+76 TO 311+41 LT	SF	1823
	S/W 308+85 TO 311+44 RT	SF	2046
	DWY 309+88 TO 310+17 RT	SF	150
	DWY 310+25 TO 310+65 LT	SF	320
	DWY 310+38 TO 310+62 RT	SF	122
	DWY 310+90 TO 311+30 LT	SF	319
	DWY 311+09 TO 311+44 RT	SF	174
	BUS BAY 309+56 TO 311+44 RT	SF	2303
2	REMOVE CONCRETE SINGLE CURB AND CURB & GUTTER		
	307+50 TO 308+00 LT	LF	84
	307+50 TO 308+10 RT	LF	106
	308+76 TO 311+41 LT	LF	311
	308+85 TO 311+44 RT	LF	324

NO.	DESCRIPTION	UNIT	QTY
3	REMOVE ASPHALT CONCRETE PAVEMENT	SY	4250
4	REMOVE PIPE, BACKFILL & COMPACT	LF	179
5	REMOVE CATCH BASIN, BACKFILL & COMPACT	EA	5
7	MISCELLANEOUS WORK		
	TRAFFIC SIGN, REMOVE & SALVAGE	LS	–
	BLOCK WALL, REMOVE		
	308+96 TO 310+90 LT	LF	240
	309+79 TO 309+92 RT	LF	13
	310+12 TO 310+37 RT	LF	31
	310+91 TO NEW R/W LT	LF	25
8	STREET LIGHT, REMOVE & SALVAGE	EA	1
9	FIRE HYDRANT, REMOVE	EA	2

NO.	DESCRIPTION	UNIT	QTY
10	RELOCATE WATER METER, BOX AND COVER PER COP SUPP 610.11 AND COP DET P1363	EA	4
12	MISCELLANEOUS WORK BY OTHERS		
	DOWN GUY, REMOVE	NPI	–
	POWER POLE, REMOVE	NPI	–
	ELECTRIC TRANSFORMER, RELOCATE	NPI	–
	ELECTRIC PULLBOX, RELOCATE	NPI	–
	TELEPHONE PEDESTAL, RELOCATE	NPI	–
	CATV PEDESTAL, RELOCATE	NPI	–
	CATV POWER CABINET, RELOCATE	NPI	–
	GAS VALVE, ADJUST TO GRADE	NPI	–
	PRIVATE LIGHT, RELOCATE	NPI	–
	PRIVATE SIGN, RELOCATE	NPI	–
13	WATER VALVE, RELOCATE	EA	1

CONSTRUCTION NOTES

NO.	DESCRIPTION	UNIT	QTY
	SUBGRADE PREPARATION	SY	5301
1	1-1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE D 1/2	TON	597
	6-1/2" ASPHALT CONCRETE BASE COURSE, TYPE A 1-1/2	TON	1640
	TACK COAT	TON	5
3	VERTICAL CURB & GUTTER, MAG STD DET 220, TYPE 'A', H=6"	LF	371
8	SINGLE CURB, MAG STD DET 222, TYPE 'A', MODIFIED FOR BUS BAY	LF	202
9	SINGLE CURB, MAG STD DET 222, TYPE 'A'	LF	442
11	5' CONCRETE SIDEWALK, COP STD DET P1230, 6" THICK	SF	1606
12	TRUNCATED DOMES, COP STD DET P1232	SF	80
	CONC SIDEWALK, MOD. 9" THICK	SF	2594
13	CURB RAMP, 35' RADII, COP STD DET P1235		
20	DRIVEWAY ENTRANCE– TYPE 1, COP STD DETAIL P1255–1, 9" THICK	SF	835
21	DRIVEWAY ENTRANCE – TYPE II, COP STD DETAIL P1255–2, 9" THICK	SF	992
	CONCRETE PAVEMENT, 9" THICK	SF	1718
22	BUS BAY, TYPE I, COP STD DETAIL P1256–1		
25	BUS SHELTER / ACCESSORY PAD, COP STANDARD DETAIL P1261	SF	622
26	CONCRETE MEDIAN NOSE	SF	130
	STAMPED ASPHALT PAVEMENT	SF	650
27	2-1/2" ASPHALT CONCRETE SURFACE COURSE, (D 1/2)	TON	11
	AGGREGATE BASE COURSE	TON	16
29	SURVEY MARKER, MAG STD DETAIL 120–1, TYPE 'B'	EA	1
33	DRIVEWAY CONNECTION, ASPHALT	TON	40
34	DRIVEWAY CONNECTION, CONCRETE, 6" THICK	SF	213
35	NEW RETAINING WALL, SEE DETAIL ON SHEET 36	LF	166
37	NEW MASONRY BLOCK WALL	SF	180
38	VERT. CURB & GUTTER, MAG STD DET 220, TYPE 'A', H=6", 9" THICK	LF	231
39	ADJUST EXISTING MANHOLE FRAME & COVER, COP STD DET P1422	EA	6
40	DOUBLE GATE, MAG STD DET 160 (24' WIDE)	EA	2
41	FIRE HYDRANT ASSEMBLY, 6" GATE VALVE, VALVE BOX AND COVER, TYPE 'A'. FIRE HYDRANT FURNISHED BY CITY OF PHOENIX	EA	2
44	PIPE PLUG, MAG STD DET 427	EA	5
A	ADJUST WATER VALVE BOX PER COP STD DET P1391 ,TYPE 'A' & P1391–1	EA	5



CURVE DATA

C4 PI STA 310+36.95
N= 875691.3136
E= 634067.8589

MAIN CURVE
Δ= 04°05'02"
D= 00°30'00"
R= 11459.16'
L= 816.77'
T= 408.56'
EXT= 7.28'
SUPER= N/C

Two working days before you dig CALL FOR THE BLUE STAKES (602) 263-1100 Blue Stake Center CALL COLLECT

SHEET REFERENCES

1. SEE DT–2.01 & DT–2.02 FOR MEDIAN DETAILS
2. SEE SD–2.14 FOR STORM DRAIN PLAN
3. SEE CP–1.12 & CP–1.13 FOR CB CONN PIPE PROFILE
4. SEE P–1.18 FOR PAVING PROFILE
5. SEE TS–1.02 FOR TRAFFIC SIGNAL PLANS
6. SEE G–6.02 FOR INTERSECTION WORKSHEET

"PER CITY OF PHOENIX CITY CODE CHAPTER 2, SECTION 2–28. THESE PLANS ARE FOR OFFICIAL USE ONLY AND MAY NOT BE SHARED WITH OTHERS EXCEPT AS REQUIRED TO FULFILL THE OBLIGATIONS OF THE CONTRACTOR'S CONTRACT WITH THE CITY OF PHOENIX."

PAVING PLAN SHEET
STA 307+50 TO STA 311+41.02

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

AVENIDA RIO SALADO / BROADWAY RD
43RD AVENUE TO 35TH AVENUE
ST85100333

DR: JG	DES: MVL	CK: SM	DWG SERIES NO.
DATE: 08/13	DATE: 08/13	DATE: 08/13	
SCALE: HORIZ 1"= 20' VERT N/A			P–1.17

ST85100333 P123.DWG

NO.	DESCRIPTION	REV BY	CKD BY	DATE
REVISION BY CITY OF PHOENIX				

AVENIDA RIO SALADO/BROADWAY RD
PHOENIX STREET – MARICOPA CO.
43RD AVENUE TO 35TH AVENUE

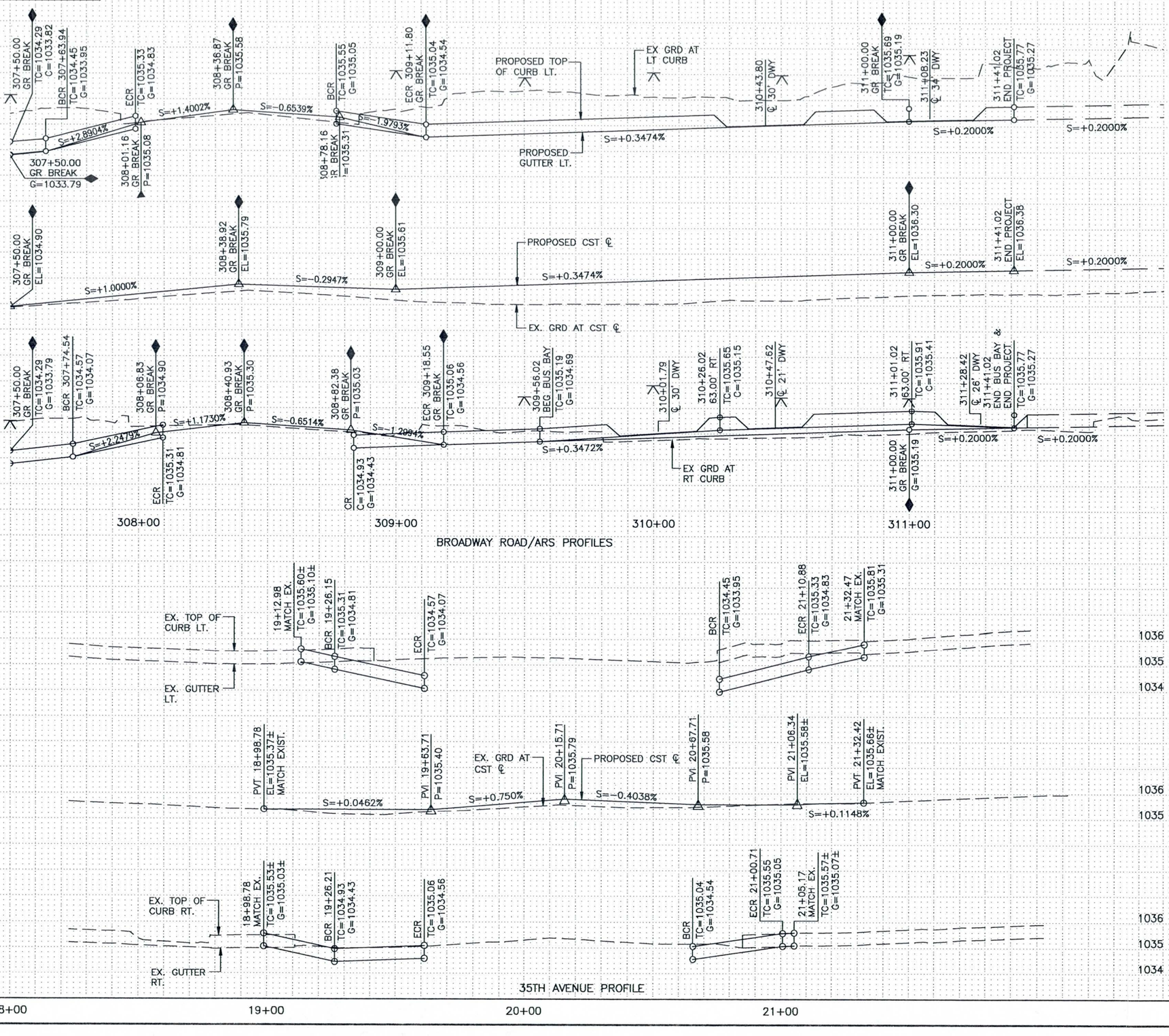
F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL	AS BUILT
9	ARIZ.	ST85100333	31	133	

PROJECT ENGINEERING CONSULTANTS, LTD.
2310 W. MISSION LANE, STE. 4 PHOENIX, AZ 85021
PHONE (602) 906-1901

90%
SUBMITTAL
NOT FOR CONSTRUCTION

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE



SHEET REFERENCES

1. SEE P-1.17 FOR PAVING PLAN

"PER CITY OF PHOENIX CITY CODE CHAPTER 2, SECTION 2-28. THESE PLANS ARE FOR OFFICIAL USE ONLY AND MAY NOT BE SHARED WITH OTHERS EXCEPT AS REQUIRED TO FULFILL THE OBLIGATIONS OF THE CONTRACTOR'S CONTRACT WITH THE CITY OF PHOENIX."

PAVING PROFILE SHEET
STA 307+50 TO STA 311+41.02

CITY OF PHOENIX, ARIZONA
STREET TRANSPORTATION DEPARTMENT

AVENIDA RIO SALADO / BROADWAY RD
43RD AVENUE TO 35TH AVENUE
ST85100333

DR:	DES:	CK:	DWG SERIES NO.
JG	MVL	SM	
DATE: 08/13	DATE: 08/13	DATE: 08/13	
SCALE: HORIZ N/A VERT 1" = 2'			P-1.18

S:\ST85100333\P29.DWG

CITY OF PHOENIX
STREET TRANSPORTATION DEPARTMENT
DESIGN & CONSTRUCTION MANAGEMENT DIVISION
PAVING AND STORM DRAIN

AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
ST85100334
FEDERAL AID NO.HPS-PHX-0(055)A
ADOT PROJECT NO. 0000 MA PHX SS606 01C

2013

PRELIMINARY
75%
NOT FOR CONSTRUCTION OR RECORDING

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.	ST85100334	01	106

PREMIER
ENGINEERING CORPORATION
6437 W. CHANDLER BLVD., SUITE 1
CHANDLER, AZ 85226; 480-829-6000
CONSULTING ENGINEER

DR: JRR | DES: DVV | CK: KJB | DATE: 05/13

MAYOR
GREG STANTON

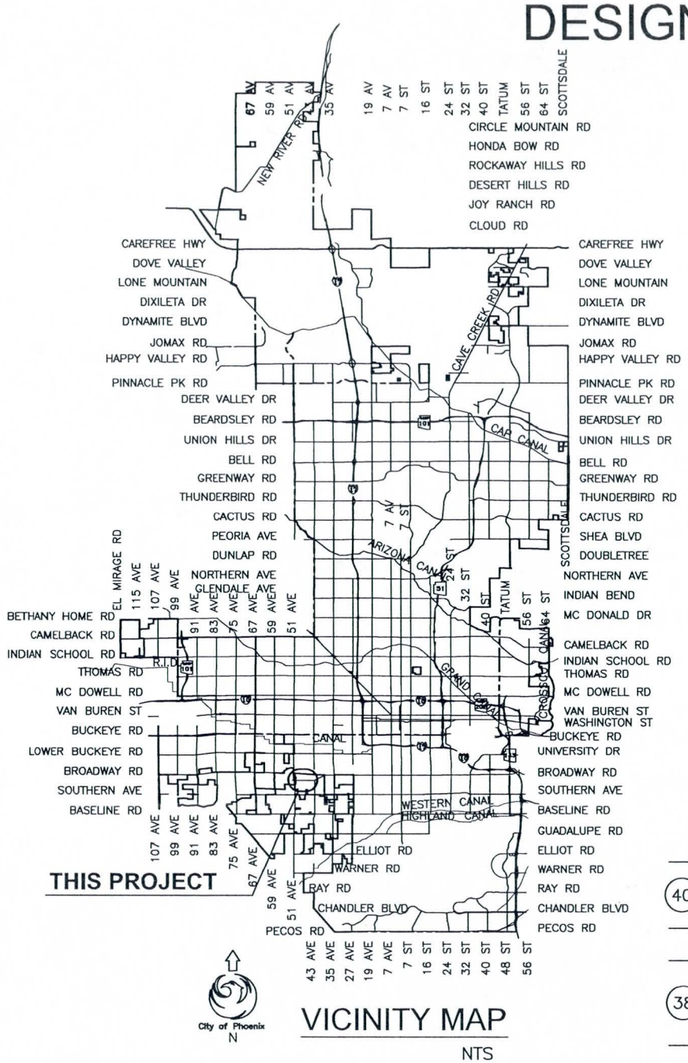
CITY MANAGER
DAVID CAVAZOS

CITY COUNCIL

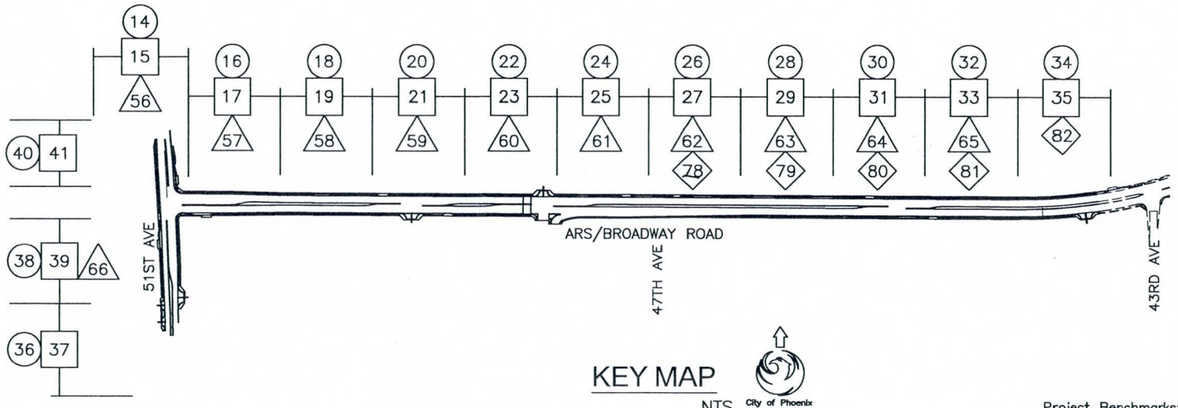
DISTRICT NO 1.	THELDA WILLIAMS
DISTRICT NO 2.	JIM WARING
DISTRICT NO 3.	BILL GATES
DISTRICT NO 4.	TOM SIMPLOT
DISTRICT NO 5.	DANIEL VALENZUELA
DISTRICT NO 6.	SAL DICICCIO
DISTRICT NO 7.	MICHAEL NOWAKOWSKI
DISTRICT NO 8.	MICHAEL JOHNSON

INDEX OF SHEETS

SHEET No.	DWG SERIES No.	SHEET TITLE
01	G-1.01	COVER SHEET
02	G-1.02	LEGEND & NOTES SHEET
03-04	G-1.03 - G-1.04	QUANTITY SUMMARY SHEET
05-08	G-3.01 - G-3.04	TYPICAL SECTIONS
09	G-4.01	SURVEY CONTROL SHEET
10	G-5.01	STAMPED ASPHALT DETAILS
11 - 13	G-6.01 - G-6.03	MEDIAN GEOMETRY
14 - 40	PL-1.01 - PL-1.14	PAVING PLAN (ODD)
15 - 41	PR-1.01 - PR-1.14	PAVING PROFILE (EVEN)
42	PL-2.01	JOINTING PLAN
43	DT-1.01	PAVING DETAILS
44	PR-2.02	DRIVEWAY PROFILES
45	ST-1.01	GENERAL NOTES & QUANTITIES
46	ST-1.02	PLAN & ELEVATION
47	DT-2.01	STRUCTURAL DETAILS
48 - 53	XS-1.01 - XS-1.06	ROADWAY CROSS SECTIONS
54	DS-1.01	STORM DRAIN DESIGN SUMMARY SHEET
55	SD-1.01	HYDRAULIC & ENERGY GRADE LINE
56 - 66	SD-2.01 - SD-2.11	STORM DRAIN PLAN & PROFILE
67	DT-3.01	DRAINAGE DETAIL
68 - 76	CP-1.01 - CP-1.09	CONNECTOR PIPE PROFILES
77	AP-1.01	ALTERNATE PIPE CHART
78 - 84	DD-1.01 - DD-1.07	BANK PROTECTION PLAN
NOT INC	NOT INC	LANDSCAPING PLANS
85 - 87	TS-1.01 - TS-1.03	TRAFFIC SIGNAL PLANS
88 - 101	SL-1.01 - SL-1.14	STREET LIGHT LAYOUT
NOT INC	NOT INC	TRAFFIC SIGNAL DETAILS
NOT INC	NOT INC	BORING LOGS



VICINITY MAP
NTS



KEY MAP
NTS

COP INSPECTION STAMP

CITY PROJECT MANAGER _____
CITY INSPECTOR _____
CONTRACTOR _____
DATE OF FINAL COMPLETION _____

APPROVED _____ _____
ASSISTANT STREET TRANSPORTATION DIRECTOR — DATE

APPROVED _____ _____
DEPUTY STREET TRANSPORTATION DIRECTOR — DATE

(#) PAVING PLAN SHEET
[#] PAVING PROFILE SHEET
△# STORM DRAIN PLAN & PROFILE SHEET
⟨#⟩ SALT RIVER BANK PROTECTION PLAN

CITY BENCHMARKS:
1. C.O.P. B.C. IN NORTH H.H., ABOUT 15' NORTH OF SECOND C.O.P. B.C. IN H.H. AT THE INTERSECTION OF 35TH AVE. AND BROADWAY RD. EL. 1034.893

2. C.O.P B.C. IN H.H. AT THE INTERSECTION OF 27TH AVE AND BROADWAY RD. EL. 1046.695

LENGTH OF PROJECT = 6,154 LF = 1.1655 MILES

AREA OF DISTURBANCE =34.02 ACRES

Project Benchmarks:
Point #5 (AZTEC #30032)
25' West of Curb @
Vulcan Materials office
Found 1 1/4" rebar
Elevation=1019.43
Northing=874320.9662'
Easting=626078.182'

Point #12 (AZTEC #1006)
39th Ave. and Broadway Rd
Found 2" Maricopa County
Aluminum Cap
Elevation=1027.74
Northing=875684.4381'
Easting=631252.1622'

CALL TWO WORKING DAYS BEFORE YOU DIG
CALL FOR THE BLUE STAKES
602-263-1100
1-800-STAKE-IT
OUTSIDE MARICOPA COUNTY

"PER CITY OF PHOENIX, CITY CODE CHAPTER 2, SECTION 2028, THESE PLANS ARE FOR OFFICIAL USE ONLY AND MAY NOT BE SHARED WITH OTHERS EXCEPT AS REQUIRED TO FULFILL THE OBLIGATIONS OF CONTRACTOR'S CONTRACT WITH THE CITY OF PHOENIX

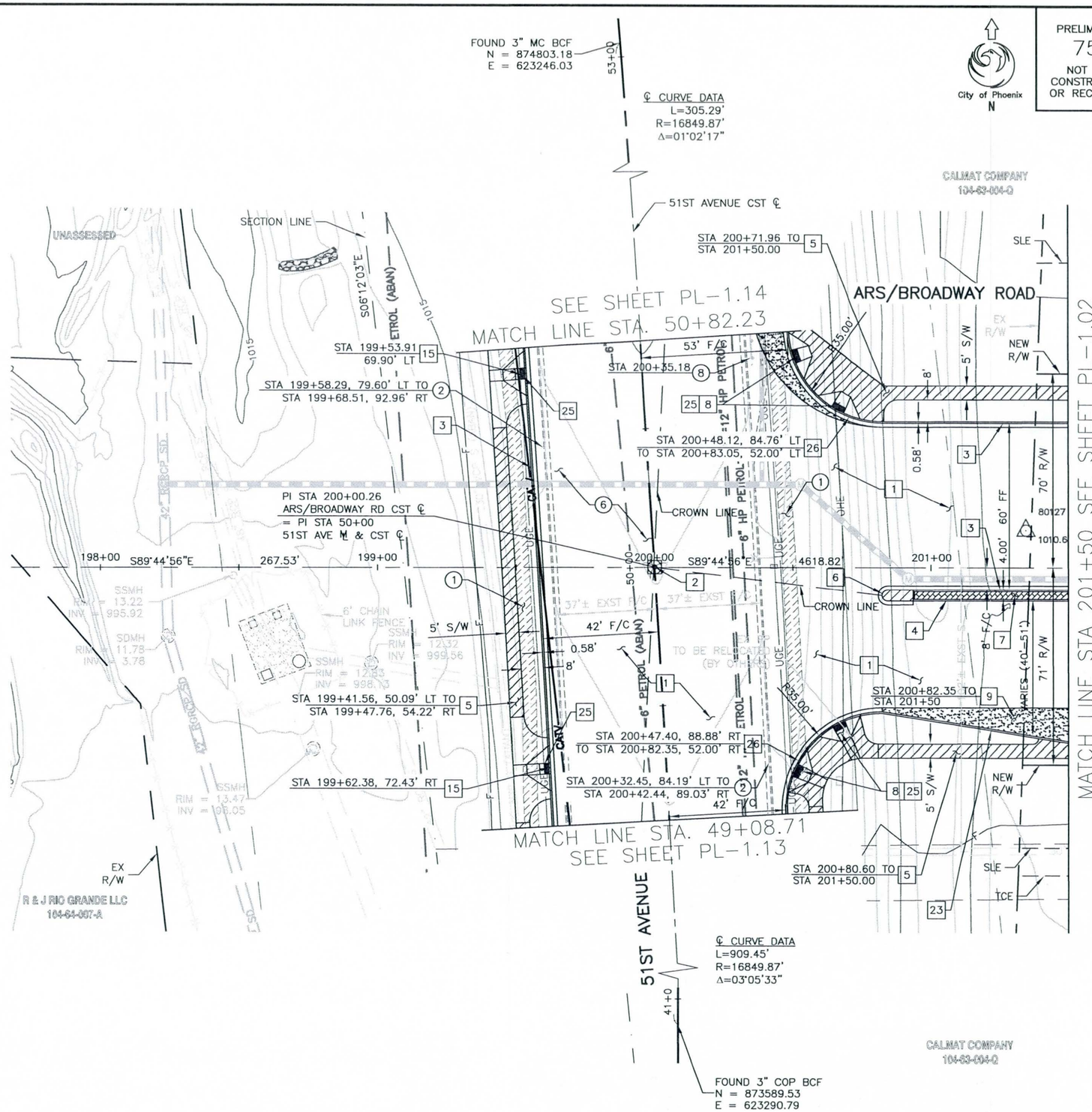
ST85100334 AVENIDA RIO SALADO/BROADWAY ROAD - 51ST AVENUE TO 43RD AVENUE - 75 % SUBMITTAL

p:\2010011\CADD\Civil\Sheets\ST85100334CS.dwg, 8/15/2013

AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
PHOENIX STREETS – MARICOPA CO.

PRELIMINARY
75%
NOT FOR CONSTRUCTION OR RECORDING

City of Phoenix
N



▲ T.B.M.: SET 1/2" REBAR AT
STA 199+22.48, 335.71' LT
ELEV = 1021.91

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.	ST85100334	14	106

PREMIER
ENGINEERING CORPORATION
6437 W. CHANDLER BLVD., SUITE 1
CHANDLER, AZ 85226; 480-829-6000
CONSULTING ENGINEER

DR: JRR | DES: DVV | CK: KJB | DATE: 05/13

REMOVAL/RELOCATION NOTES

NO	DESCRIPTION	UNIT	QTY
1	REMOVE PORTLAND CEMENT CONCRETE SIDEWALK, DRIVEWAY, VALLEY GUTTER, & SLAB	SF	1735
2	REMOVE PORTLAND CEMENT CONCRETE SINGLE CURB AND CURB & GUTTER	LF	347
6	REMOVE ASPHALT CONCRETE PAVEMENT	SY	1367
8	REMOVE EXISTING GUARD RAIL	LF	11

CONSTRUCTION NOTES

NO	DESCRIPTION	UNIT	QTY
	SUBGRADE PREPARATION	SY	2813
1	ASPHALTIC CONCRETE SURFACE COURSE, (D 1/2), 1-1/2" THICK	TON	241
	ASPHALTIC CONCRETE BASE COURSE, (A 1-1/2), 6" THICK	TON	963
	EMULSIFIED ASPHALT FOR TACK COAT, TYPE SS-1H	TON	1.9
2	SURVEY MARKER, M.A.G. DET. 120-1, TYPE A	EA	1
3	CURB & GUTTER, M.A.G. DET. 220 TYPE A, H=6"	LF	436
4	SINGLE CURB, M.A.G. DET. 222 TYPE A, H=6"	LF	63
5	CONCRETE SIDEWALK, C.O.P. DET. P1230 (6" THICK)	SF	1809
6	CONCRETE MEDIAN NOSE, M.A.G. DET. 223	SF	44
7	STAMPED ASPHALT DECORATIVE PAVEMENT	SF	145
8	CONCRETE SIDEWALK RAMP, C.O.P. DET. P1233 (9" THICK)	SF	1142
9	9" THICK CONC. PVMT. CLASS "A" PER M.A.G. SPECS & C.O.P. DET. P1256-1	SF	459
15	CONSTRUCT SIDEWALK RAMP, C.O.P. DET. P1241-2	SF	–
23	CONCRETE SINGLE CURB, M.A.G. DET. 222, TYPE 'A' MOD FOR BUS BAYS	LF	69
25	CONSTRUCT TRUNCATED DOMES PER C.O.P. DET. P1232	SF	48
26	CURB & GUTTER, M.A.G. DET. 220 TYPE A, H=6" (9" THICK)	LF	436

SHEET REFERENCES

1. SEE SHEET 11 FOR MEDIAN DETAILS
2. SEE SHEET 56 FOR STORM DRAIN PLAN
3. SEE SHEET 68 FOR CB CONN PIPE PROFILE

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OUTSIDE MARICOPA COUNTY

PREMIER ENGINEERING
PROJECT NO.: 2010011

PAVING PLAN

CITY OF PHOENIX STREET TRANSPORTATION
DEPARTMENT DESIGN AND CONSTRUCTION
MANAGEMENT DIVISION

AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
ST85100334

DR: JRR	DES: DVV	CK: KJB	DWG NO:
DATE: 05/13	DATE: 05/13	DATE: 05/13	
SCALE: 1"=20'			PL-1.01

ST85100334

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
PHOENIX STREETS – MARICOPA CO.

▲ T.B.M.: SET 1/2" REBAR AT
STA 199+22.48, 335.71' LT
ELEV = 1021.91

PRELIMINARY
75%
NOT FOR CONSTRUCTION OR RECORDING

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.	ST85100334	15	106

PREMIER
ENGINEERING CORPORATION
6437 W. CHANDLER BLVD., SUITE 1
CHANDLER, AZ 85226; 480-829-8000
CONSULTING ENGINEER

DR: JRR | DES: DVV | CK: KJB | DATE: 05/13

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

STA 199+55.53
TC=1019.19
G=1018.69
+1.525%
STA 199+97.52
TC=1019.34
-1.301%
BCR
STA:200+37.10, 84.76' LT
TC=1019.81
G=1019.31
-2.719%
ECR/BEGIN TRANSITION
STA:200+72.06, 52' LT
TC=1018.87
G=1018.37
NEW LT TOP OF CURB
TC=1017.49
G=1016.99
NEW LT GUTTER
EXISTING GROUND @ LT GUTTER
PVI STA:201+40.00
PVI ELEV:1017.66
K:243.31
LVC:200.00
R=24331.356
STA 199+58.27
TC=1018.64
G=1018.15
+1.279%
PI STA 200+00.26
ARS/BROADWAY RD CST ℄
ELEV=1018.69
-0.865%
STA 200+33.85
P=1018.40
STA: 200+49.00
EL 1018.38
-9.700%
-0.902%
P=1017.34
PROPOSED GRADE @ PGL
EXISTING GROUND @ ℄
STA 199+61.24
TC=1018.01
G=1017.51
+1.983%
STA 200+03.30
TC=1018.05
-1.556%
BCR
STA 200+17.40, 88.88' RT
TC=1017.64
G=1017.14
ECR
STA 200+82.35, 52.00' RT
TC=1017.32
R=1016.82
NEW RT TOP OF CURB
NEW RT BUS BAY TOP OF CURB
NEW RT GUTTER
NEW RT BUS BAY F/C
NEW RT BUS BAY FLOW LINE
EXISTING GROUND @ RT GUTTER
MATCH LINE STA 201+50 SEE SHEET PR-1.02
G=1016.03

1024 1022 1020 1018 1016 1014 1012 1010

196+50 197+00 198+00 199+00 200+00 201+00 201+50

NOTE

SEE PAVING PLAN SHEETS FOR MEDIAN ISLAND CONSTRUCTION.

PREMIER ENGINEERING
PROJECT NO.: 2010011

CALL TWO WORKING DAYS BEFORE YOU DIG
CALL FOR THE BLUE STAKES
602-263-1100
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OUTSIDE MARICOPA COUNTY

PAVING PROFILE

CITY OF PHOENIX STREET TRANSPORTATION
DEPARTMENT DESIGN AND CONSTRUCTION
MANAGEMENT DIVISION

AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
ST85100334

DR: JRR	DES: DVV	CK: KJB	DWG NO:
DATE:05/13	DATE: 05/13	DATE: 05/13	
SCALE: 1"=20' H, 1"= 2' V			PR-1.01

ST85100334

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AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
PHOENIX STREETS – MARICOPA CO.

City of Phoenix
N

PRELIMINARY
75%
NOT FOR CONSTRUCTION OR RECORDING

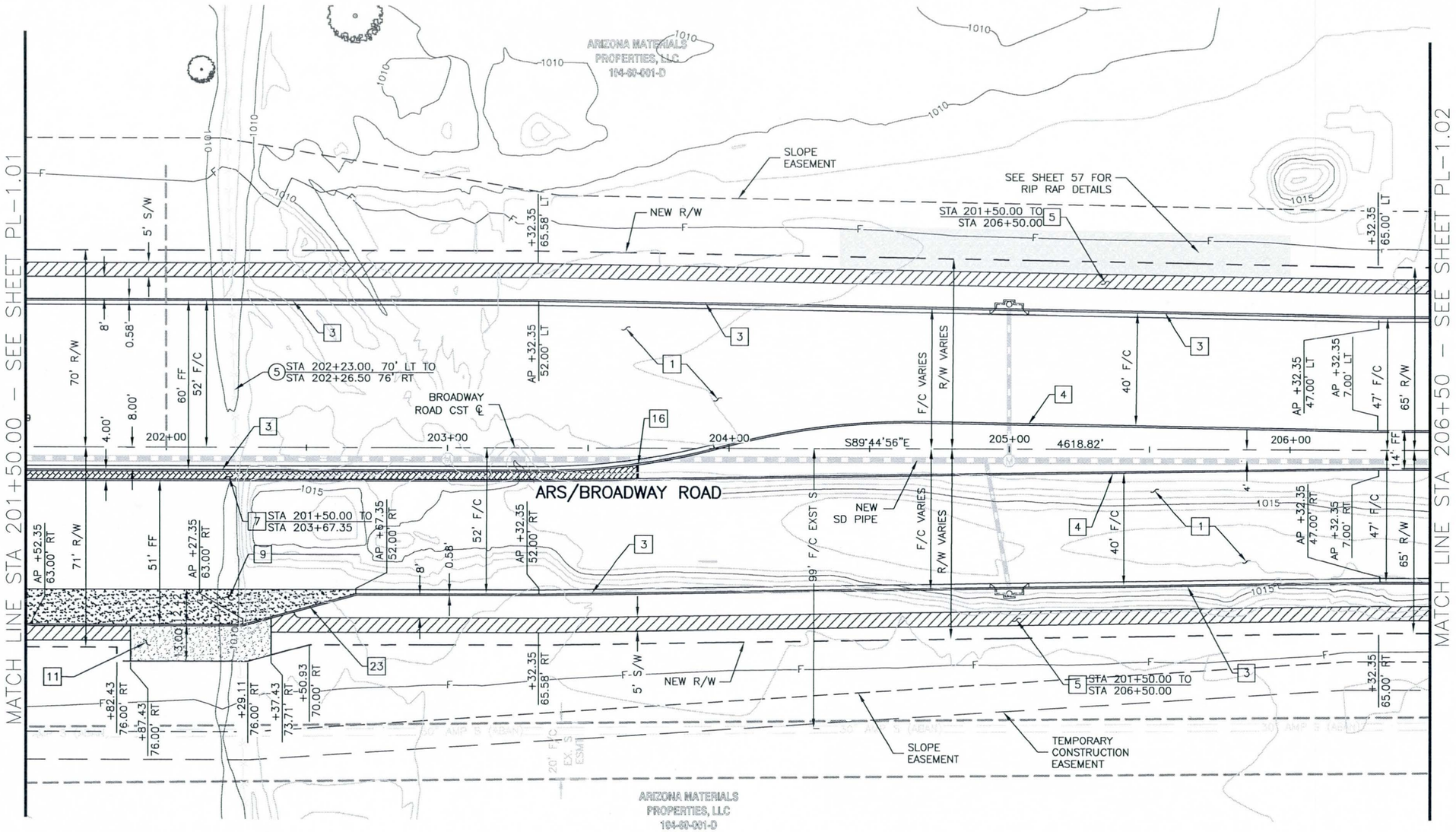
F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.	ST85100334	16	106

PREMIER
ENGINEERING CORPORATION
6437 W. CHANDLER BLVD., SUITE 1
CHANDLER, AZ 85226; 480-829-6000
CONSULTING ENGINEER

DR: JRR	DES: DVV	CK: KJB	DATE: 05/13

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE



REMOVAL/RELOCATION NOTES

NO	DESCRIPTION	UNIT	QTY
(5)	REMOVE EXISTING FENCE	LF	221

CONSTRUCTION NOTES

NO	DESCRIPTION	UNIT	QTY
	SUBGRADE PREPARATION	SY	4800
1	ASPHALTIC CONCRETE SURFACE COURSE, (D 1/2), 1-1/2" THICK	TON	411
	ASPHALTIC CONCRETE BASE COURSE, (A 1-1/2), 6" THICK	TON	1642
	EMULSIFIED ASPHALT FOR TACK COAT, TYPE SS-1H	TON	3.2
3	CURB & GUTTER, M.A.G. DET. 220 TYPE A, H=6"	LF	1128
4	SINGLE CURB, M.A.G. DET. 222 TYPE A, H=6"	LF	756
5	CONCRETE SIDEWALK, C.O.P. DET. P1230 (6" THICK)	SF	4759
7	STAMPED ASPHALT DECORATIVE PAVEMENT	SF	637
9	9" THICK CONC. PVMT. CLASS "A" PER M.A.G. SPECS & C.O.P. DET. P1256-1	SF	1234
11	BUS SHELTER PAD, C.O.P. DET. P1261	SF	625
16	SINGLE CURB, M.A.G. DET. 222 TYPE B, H=6"	LF	5
23	CONSTRUCT CONCRETE SINGLE CURB, M.A.G. DET 222, TYPE 'A' MODIFIED (FOR BUS BAYS)	LF	119

SHEET REFERENCES

1. SEE SHEET 11 FOR MEDIAN DETAILS
2. SEE SHEET 57 FOR STORM DRAIN PLAN

▲ T.B.M.: SET 1/2" REBAR AT STA 204+16.30, 246.36' LT ELEV = 1011.14

PREMIER ENGINEERING
PROJECT NO.: 2010011

CALL TWO WORKING DAYS BEFORE YOU DIG
CALL FOR THE BLUE STAKES
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OUTSIDE MARICOPA COUNTY

PAVING PLAN

CITY OF PHOENIX STREET TRANSPORTATION DEPARTMENT DESIGN AND CONSTRUCTION MANAGEMENT DIVISION

AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
ST85100334

DR: JRR	DES: DVV	CK: KJB	DWG NO:
DATE:05/13	DATE: 05/13	DATE: 05/13	
SCALE: 1"=20'			PL-1.02

ST85100334

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AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
PHOENIX STREETS – MARICOPA CO.

▲ T.B.M.: SET 1/2" REBAR AT STA 204+16.30, 246.36' LT ELEV = 1011.14

PRELIMINARY
75%
NOT FOR CONSTRUCTION OR RECORDING

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.	ST85100334	17	106

PREMIER
ENGINEERING CORPORATION
6437 W. CHANDLER BLVD., SUITE 1
CHANDLER, AZ 85226; 480-829-6000
CONSULTING ENGINEER

DR: JRR	DES: DVV	CK: KJB	DATE: 05/13

REVISION BY CITY OF PHOENIX

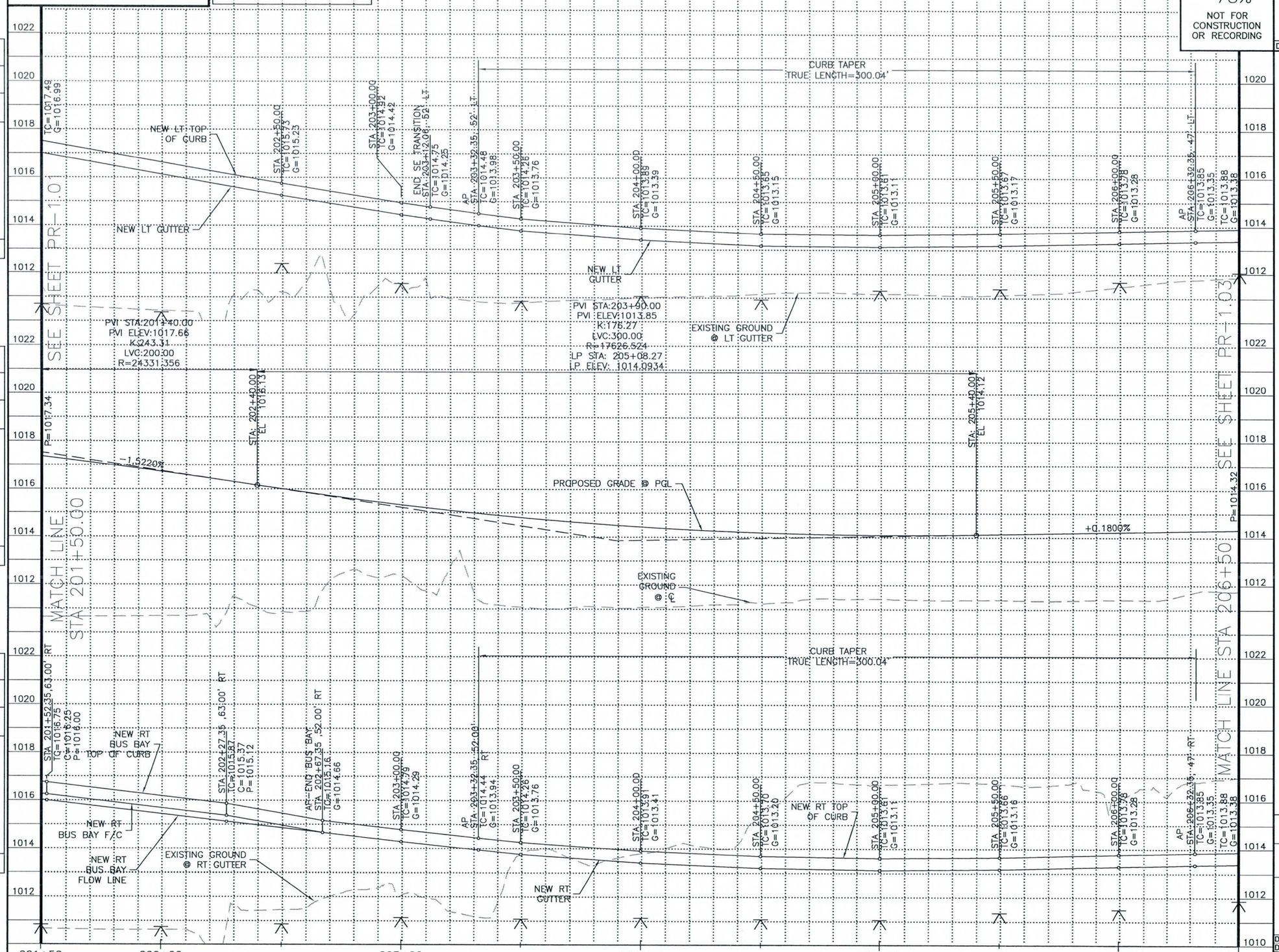
NO.	DESCRIPTION	REV BY	CKD BY	DATE

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE



NOTE

SEE PAVING PLAN SHEETS FOR MEDIAN ISLAND CONSTRUCTION.

CALL TWO WORKING DAYS BEFORE YOU DIG
CALL FOR THE BLUE STAKES
602-263-1100
1-800-STAKE-IT
OUTSIDE MARICOPA COUNTY

PREMIER ENGINEERING
PROJECT NO.: 2010011

PAVING PROFILE

CITY OF PHOENIX STREET TRANSPORTATION
DEPARTMENT DESIGN AND CONSTRUCTION
MANAGEMENT DIVISION

AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
ST85100334

DR: JRR	DES: DVV	CK: KJB	DWG
DATE:05/13	DATE: 05/13	DATE: 05/13	NO:
SCALE: 1"=20' H 1"= 2' V			PR-1.02

ST85100334

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AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
PHOENIX STREETS – MARICOPA CO.

City of Phoenix
N

PRELIMINARY
75%
NOT FOR CONSTRUCTION OR RECORDING

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.	ST85100334	18	106

PREMIER
ENGINEERING CORPORATION
6437 W. CHANDLER BLVD., SUITE 1
CHANDLER, AZ 85226; 480-829-6000
CONSULTING ENGINEER

DR: JRR	DES: DVV	CK: KJB	DATE: 05/13

REVISION BY CITY OF PHOENIX

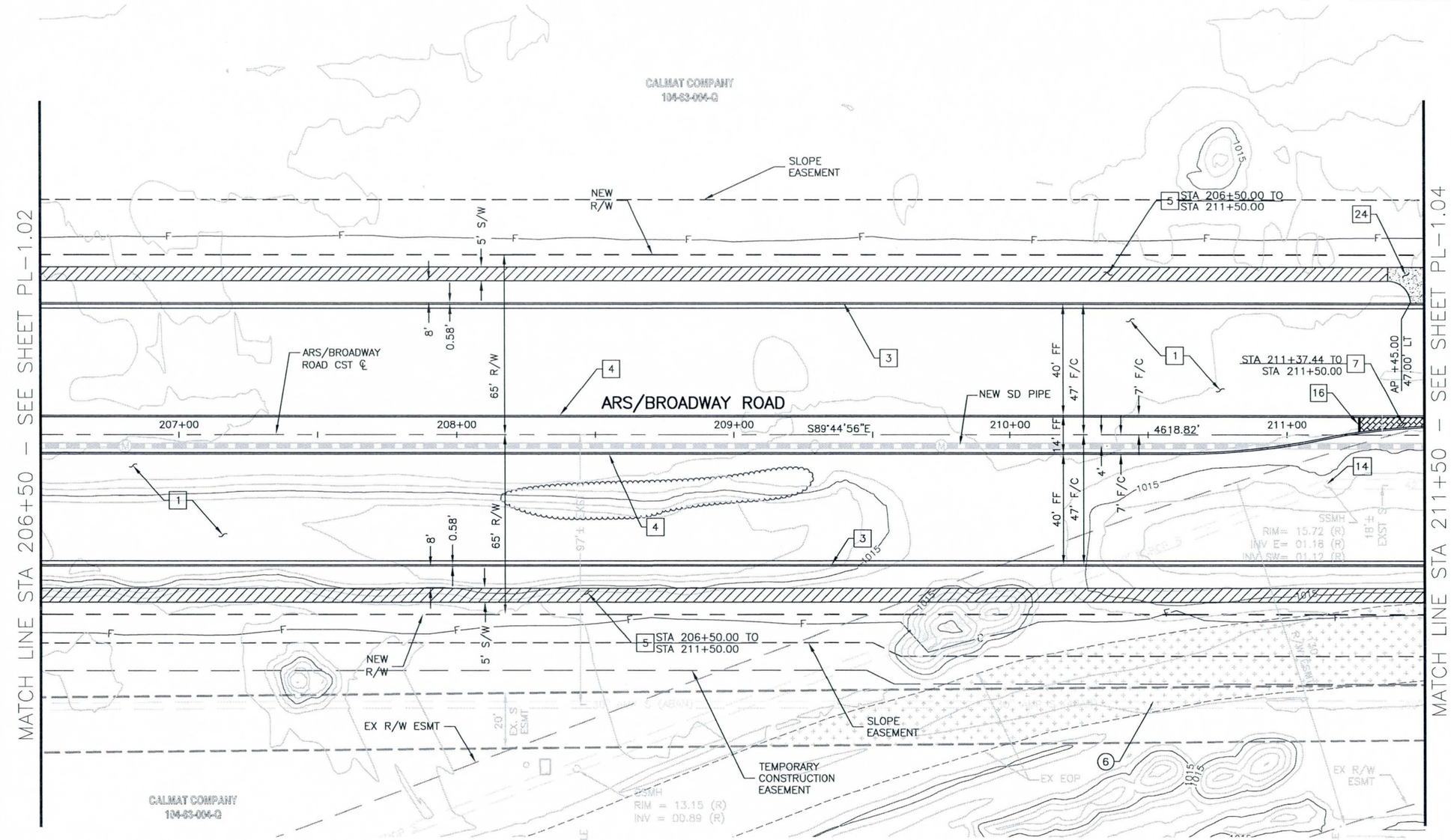
NO.	DESCRIPTION	REV BY	CKD BY	DATE

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE



▲ T.B.M.: SET 1/2" REBAR AT STA 204+16.30, 246.36' LT ELEV = 1011.14

REMOVAL/RELOCATION NOTES

NO	DESCRIPTION	UNIT	QTY
(6)	REMOVE ASPHALT CONCRETE PAVEMENT	SY	42

CONSTRUCTION NOTES

NO	DESCRIPTION	UNIT	QTY
	SUBGRADE PREPARATION	SY	4329
1	ASPHALTIC CONCRETE SURFACE COURSE, (D 1/2), 1-1/2" THICK	TON	371
	ASPHALT CONCRETE BASE COURSE (A 1-1/2), 6" THICK	TON	1481
	EMULSIFIED ASPHALT FOR TACK COAT, TYPE SS-1H	TON	2.9
3	CURB & GUTTER, M.A.G. DET. 220 TYPE A, H=6"	LF	1000
4	SINGLE CURB, M.A.G. DET. 222 TYPE A, H=6"	LF	1001
5	CONCRETE SIDEWALK, C.O.P. DET. P1230 (6" THICK)	SF	4936
7	STAMPED ASPHALT DECORATIVE PAVEMENT	SF	90
14	ADJUST EXISTING MANHOLE FRAME AND COVER, MAG STD DETAIL 422 AND COP DETAIL P1422	EA	1
16	SINGLE CURB, M.A.G. DET. 222 TYPE B, H=6"	LF	5
24	BUS SHELTER PAD, C.O.P. DET. P1262	SF	116

SHEET REFERENCES

1. SEE SHEET 11 FOR MEDIAN DETAILS
2. SEE SHEET 58 FOR STORM DRAIN PLAN

CALL TWO WORKING DAYS BEFORE YOU DIG
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OUTSIDE MARICOPA COUNTY

PREMIER ENGINEERING
PROJECT NO.: 2010011

PAVING PLAN

CITY OF PHOENIX STREET TRANSPORTATION DEPARTMENT DESIGN AND CONSTRUCTION MANAGEMENT DIVISION

AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
ST85100334

DR: JRR	DES: DVV	CK: KJB	DWG NO:
DATE:05/13	DATE: 05/13	DATE: 05/13	
SCALE: 1"=20'			PL–1.03

ST85100334

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AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
PHOENIX STREETS – MARICOPA CO.

▲ T.B.M.: SET 1/2" REBAR AT
STA 204+16.30, 246.36' LT
ELEV = 1011.14

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F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.	ST85100334	19	106

PREMIER
ENGINEERING CORPORATION
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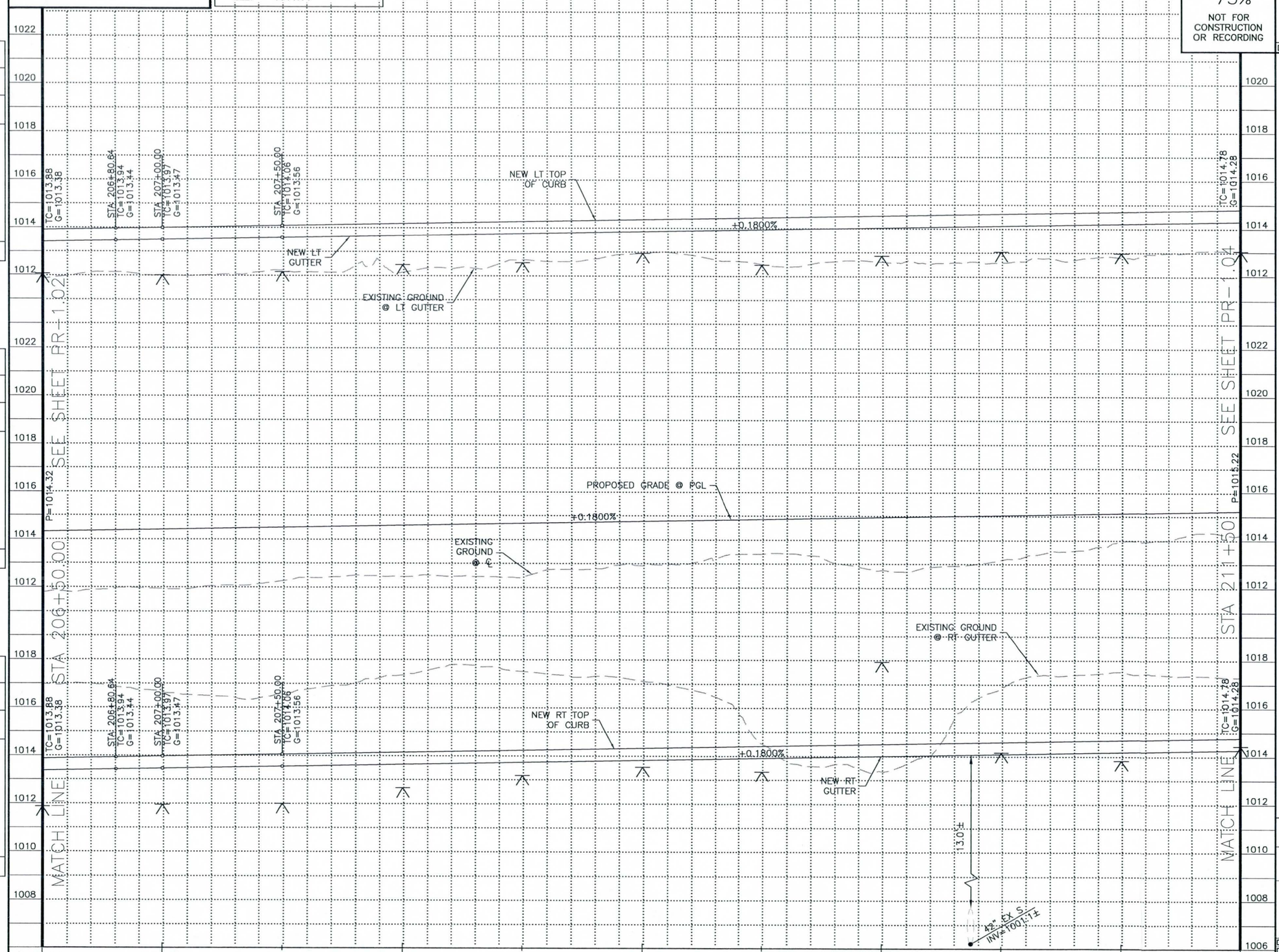
CHANDLER, AZ 85226; 480-829-6000
CONSULTING ENGINEER

DR: JRR	DES: DVV	CK: KJB	DATE: 05/13

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE



NOTE

SEE PAVING PLAN SHEETS FOR MEDIAN ISLAND CONSTRUCTION.

CALL TWO WORKING DAYS BEFORE YOU DIG.
CALL FOR THE BLUE STAKES
602-263-1100
1-800-STAKE-IT
OUTSIDE MARICOPA COUNTY

PREMIER ENGINEERING
PROJECT NO.: 2010011

PAVING PROFILE

CITY OF PHOENIX STREET TRANSPORTATION
DEPARTMENT DESIGN AND CONSTRUCTION
MANAGEMENT DIVISION

AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
ST85100334

DR: JRR	DES: DVV	CK: KJB	DWG NO:
DATE: 05/13	DATE: 05/13	DATE: 05/13	
SCALE: 1"=20' H 1"=2' V			PR-1.03

ST85100334

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AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
PHOENIX STREETS – MARICOPA CO.

City of Phoenix
N

PRELIMINARY
75%
NOT FOR CONSTRUCTION OR RECORDING

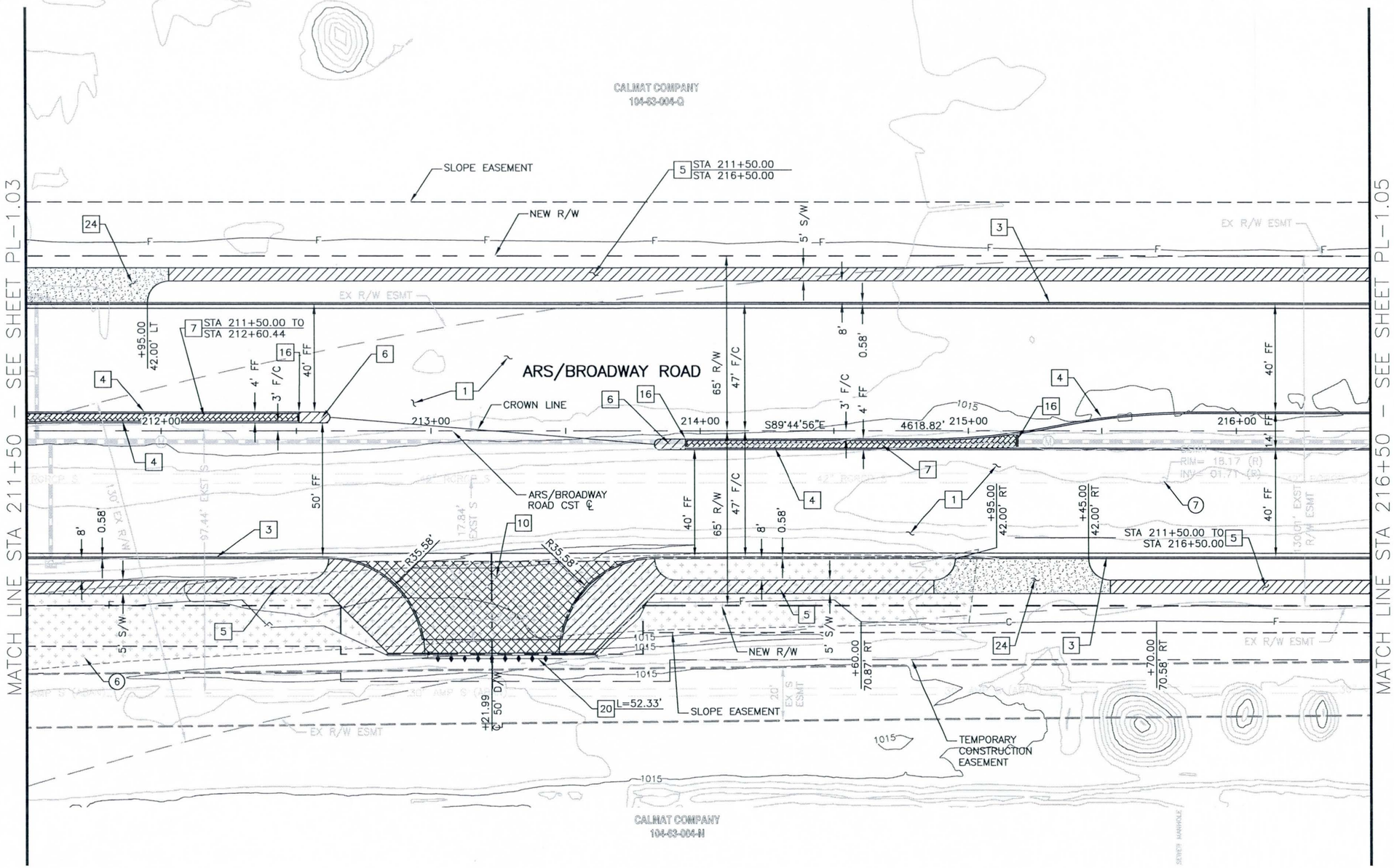
F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.	ST85100334	20	106

PREMIER
ENGINEERING CORPORATION
6437 W. CHANDLER BLVD., SUITE 1
CHANDLER, AZ 85226; 480-829-6000
CONSULTING ENGINEER

DR: JRR | DES: DVV | CK: KJB | DATE: 05/13

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CK'D BY	DATE



▲ T.B.M.: SET 1/2" REBAR AT STA 214+21.89, 249.50' LT ELEV = 1013.85

REMOVAL/RELOCATION NOTES

NO	DESCRIPTION	UNIT	QTY
6	REMOVE ASPHALT CONCRETE PAVEMENT	SY	1020
7	REBUILD MANHOLE GRADE ADJUSTMENT	EA	1

CONSTRUCTION NOTES

NO	DESCRIPTION	UNIT	QTY
	SUBGRADE PREPARATION	SY	4767
1	ASPHALTIC CONCRETE SURFACE COURSE, (D 1/2), 1–1/2" THICK	TON	408
	ASPHALT CONCRETE BASE COURSE (A 1–1/2), 6" THICK	TON	1631
	EMULSIFIED ASPHALT FOR TACK COAT, TYPE SS–1H	TON	3.2
3	CURB & GUTTER, M.A.G. DET. 220 TYPE A, H=6"	LF	879
4	SINGLE CURB, M.A.G. DET. 222 TYPE A, H=6"	LF	764
5	CONCRETE SIDEWALK, C.O.P. DET. P1230 (6" THICK)	SF	3825
6	CONCRETE MEDIAN NOSE, M.A.G. DET. 225	SF	56
7	STAMPED ASPHALT DECORATIVE PAVEMENT	SF	664
10	CONCRETE DRIVEWAY ENTRANCE , C.O.P. DET. P1243 (9" THICK)	SF	3999
16	SINGLE CURB, M.A.G. DET. 222 TYPE B, H=6"	LF	11
20	BARRICADE, STANDARD DETAIL P–1106, TYPE 'B'	LF	52
24	BUS SHELTER PAD, C.O.P. DET. P1262	SF	642

SHEET REFERENCES

1. SEE SHEET 11 FOR MEDIAN DETAILS
2. SEE SHEET 59 FOR STORM DRAIN PLAN

CALL TWO WORKING DAYS BEFORE YOU DIG
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602-263-1100
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OUTSIDE MARICOPA COUNTY

PREMIER ENGINEERING
PROJECT NO.: 2010011

PAVING PLAN

CITY OF PHOENIX STREET TRANSPORTATION DEPARTMENT DESIGN AND CONSTRUCTION MANAGEMENT DIVISION

AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
ST85100334

DR: JRR	DES: DVV	CK: KJB	DWG NO:
DATE: 05/13	DATE: 05/13	DATE: 05/13	
SCALE: 1"=20'			PL–1.04

ST85100334

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AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
PHOENIX STREETS – MARICOPA CO.

▲ T.B.M.: SET 1/2" REBAR AT
STA 214+21.89, 249.50' LT
ELEV = 1013.85

PRELIMINARY
75%
NOT FOR
CONSTRUCTION
OR RECORDING

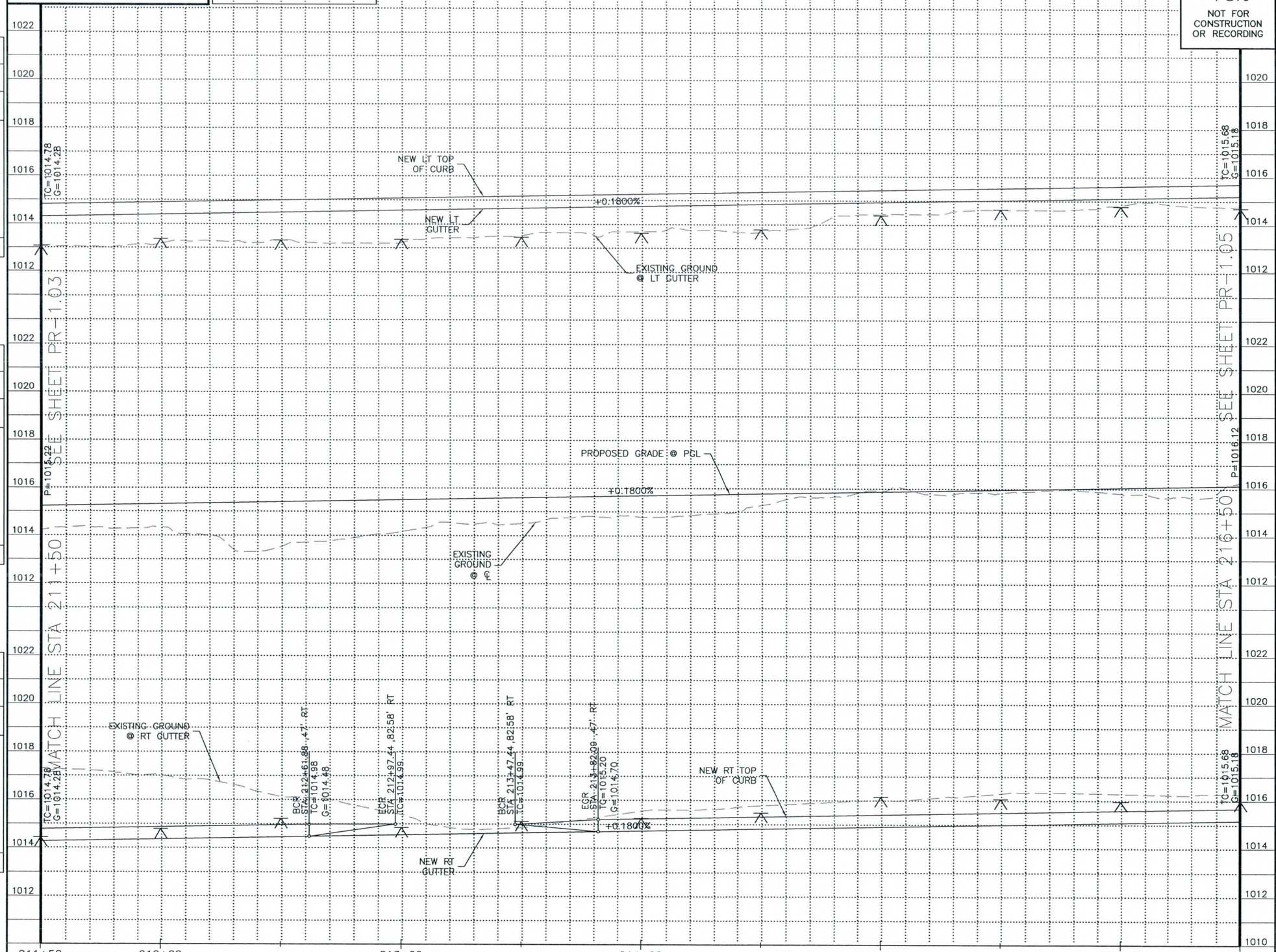
F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.	ST85100334	21	106

PREMIER
ENGINEERING CORPORATION
6437 W. CHANDLER BLVD., SUITE 1
CHANDLER, AZ 85226; 480-829-6000
CONSULTING ENGINEER

DR: JRR | DES: DVV | CK: KJB | DATE: 05/13

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE



NOTE

SEE PAVING PLAN SHEETS FOR MEDIAN ISLAND CONSTRUCTION.

CALL TWO WORKING DAYS BEFORE YOU DIG
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1-800-STAKE-IT
OUTSIDE MARICOPA COUNTY

PREMIER ENGINEERING
PROJECT NO.: 2010011

PAVING PROFILE

CITY OF PHOENIX STREET TRANSPORTATION
DEPARTMENT DESIGN AND CONSTRUCTION
MANAGEMENT DIVISION

AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
ST85100334

DR: JRR	DES: DVV	CK: KJB	DWG NO:
DATE: 05/13	DATE: 05/13	DATE: 05/13	PR-1.04
SCALE: 1"=20' H, 1"=2' V			

ST85100334

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AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
PHOENIX STREETS – MARICOPA CO.

NO.	DESCRIPTION	REV BY	CKD BY	DATE
REVISION BY CITY OF PHOENIX				

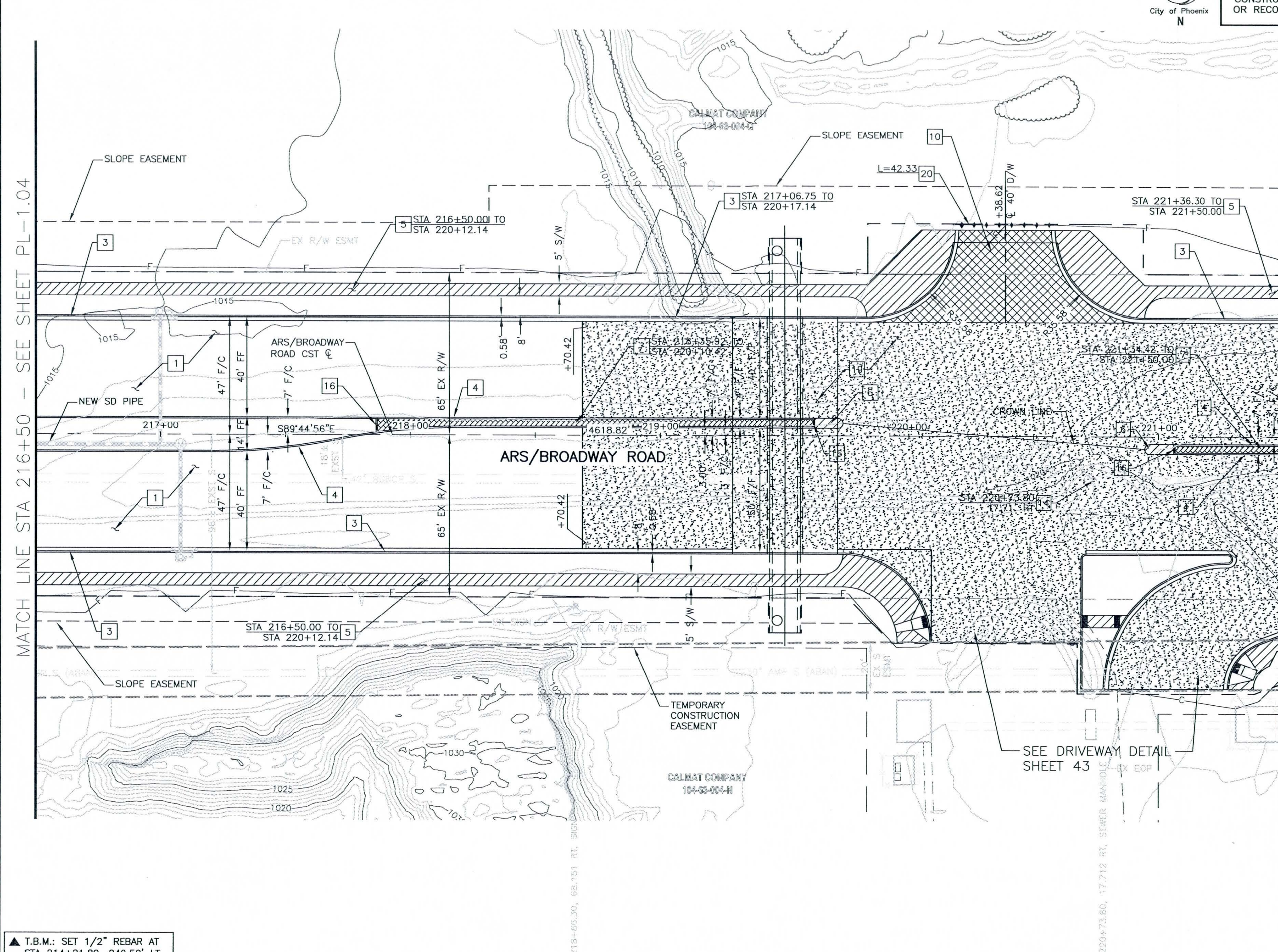
City of Phoenix
N

PRELIMINARY
75%
NOT FOR CONSTRUCTION OR RECORDING

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.	ST85100334	22	106

PREMIER
ENGINEERING CORPORATION
6437 W. CHANDLER BLVD., SUITE 1
CHANDLER, AZ 85226; 480-829-6000
CONSULTING ENGINEER

DR: JRR | DES: DVV | CK: KJB | DATE: 05/13



CONSTRUCTION NOTES

NO	DESCRIPTION	UNIT	QTY
1	SUBGRADE PREPARATION	SY	2000
	ASPHALTIC CONCRETE SURFACE COURSE, (D 1/2), 1-1/2" THICK	TON	172
	ASPHALT CONCRETE BASE COURSE (A 1-1/2), 6" THICK	TON	685
	EMULSIFIED ASPHALT FOR TACK COAT, TYPE SS-1H	TON	1.3
3	CURB & GUTTER, M.A.G. DET. 220 TYPE A, H=6"	LF	628
4	SINGLE CURB, M.A.G. DET. 222 TYPE A, H=6"	LF	672
5	CONCRETE SIDEWALK, C.O.P. DET. P1230 (6" THICK)	SF	3601
6	CONCRETE MEDIAN NOSE, M.A.G. DET. 223	SF	88
7	STAMPED ASPHALT DECORATIVE PAVEMENT	SF	496
10	CONCRETE DRIVEWAY ENTRANCE, C.O.P. DET. P1243 (9" THICK)	SF	3629
14	ADJUST EXISTING MANHOLE FRAME AND COVER, MAG STD DETAIL 422 AND COP DETAIL P1422	EA	1
16	SINGLE CURB, M.A.G. DET. 222 TYPE B, H=6"	LF	8
19	SUBGRADE PREPARATION	SY	2354
	PORTLAND CEMENT CONCRETE PAVEMENT, 9" THICK	SF	21185
	AGGREGATE BASE COURSE	TON	512
20	BARRICADE, STANDARD DETAIL P-1106, TYPE 'B'	LF	42

SHEET REFERENCES

1. SEE SHEET 12 FOR MEDIAN DETAILS
2. SEE SHEET 60 FOR STORM DRAIN PLAN
3. SEE SHEET 70 FOR CB CONN PIPE PROFILE
4. SEE SHEET 46 FOR CBC PLAN AND PROFILE
5. SEE SHEET 42 FOR JOINTING PLAN

PREMIER ENGINEERING
PROJECT NO.: 2010011

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PAVING PLAN

CITY OF PHOENIX STREET TRANSPORTATION DEPARTMENT DESIGN AND CONSTRUCTION MANAGEMENT DIVISION

AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
ST85100334

DR: JRR	DES: DVV	CK: KJB	DWG NO:
DATE: 05/13	DATE: 05/13	DATE: 05/13	
SCALE: 1"=20'			PL-1.05

ST85100334

▲ T.B.M.: SET 1/2" REBAR AT STA 214+21.89, 249.50' LT
ELEV = 1013.85

P:\2010011\CADD\Civil\Sheets\ST85100334PL05.dwg dvoigt Aug 16, 2013 – 1:22pm

AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
PHOENIX STREETS – MARICOPA CO.

▲ T.B.M.: SET 1/2" REBAR AT
STA 214+21.89, 249.50' LT
ELEV = 1013.85

PRELIMINARY
75%
NOT FOR CONSTRUCTION OR RECORDING

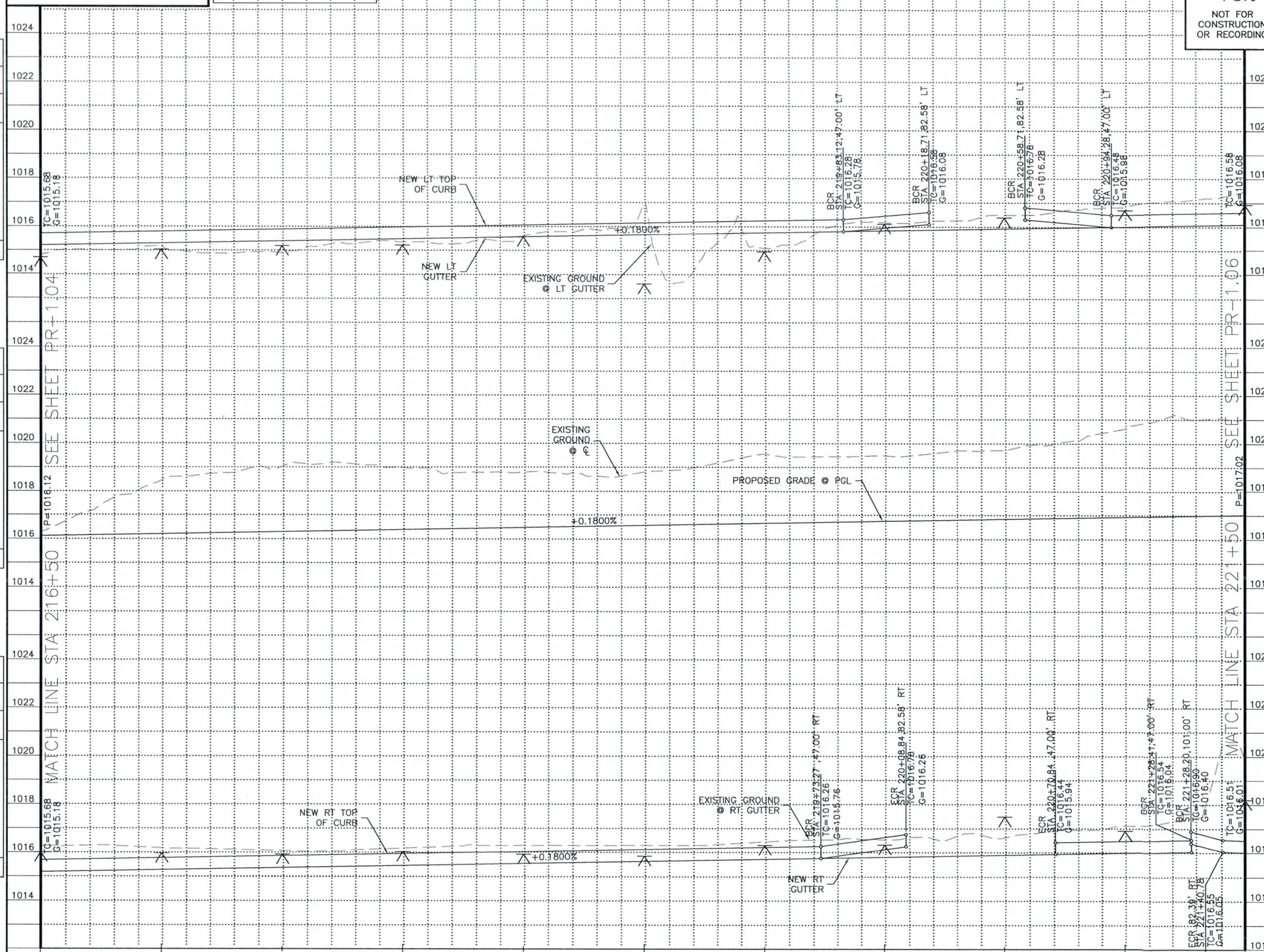
F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.	ST85100334	23	106

PREMIER
ENGINEERING CORPORATION
6437 W. CHANDLER BLVD., SUITE 1
CHANDLER, AZ 85226; 480-829-6000
CONSULTING ENGINEER

DR: JRR | DES: DVV | CK: KJB | DATE: 05/13

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE



NOTE

SEE PAVING PLAN SHEETS FOR MEDIAN ISLAND CONSTRUCTION.

PREMIER ENGINEERING
PROJECT NO.: 2010011

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PAVING PROFILE

CITY OF PHOENIX STREET TRANSPORTATION
DEPARTMENT DESIGN AND CONSTRUCTION
MANAGEMENT DIVISION

AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
ST85100334

DR: JRR	DES: DVV	CK: KJB	DWG NO:
DATE: 05/13	DATE: 05/13	DATE: 05/13	
SCALE: 1"=20' H, 1"=2' V			PR-1.05

ST85100334

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AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
PHOENIX STREETS – MARICOPA CO.

PRELIMINARY
75%
NOT FOR CONSTRUCTION OR RECORDING

City of Phoenix
N

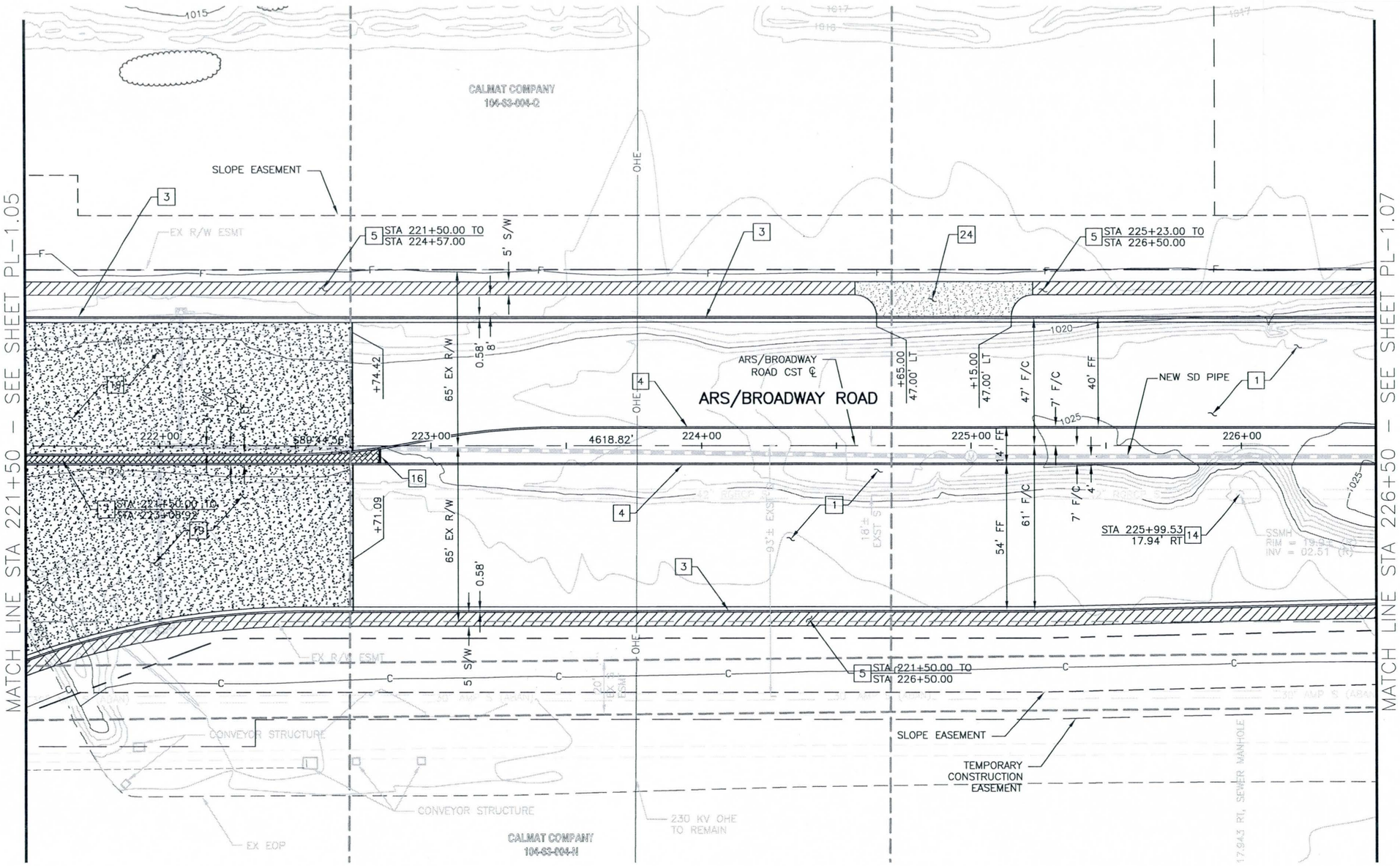
F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.	ST85100334	24	106

PREMIER
ENGINEERING CORPORATION
6437 W. CHANDLER BLVD., SUITE 1
CHANDLER, AZ 85226; 480-829-6000
CONSULTING ENGINEER

DR: JRR | DES: DVV | CK: KJB | DATE: 05/13

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE



CONSTRUCTION NOTES

NO	DESCRIPTION	UNIT	QTY
	SUBGRADE PREPARATION	SY	3810
	ASPHALTIC CONCRETE SURFACE COURSE, (D 1/2), 1–1/2" THICK	TON	294
1	ASPHALT CONCRETE BASE COURSE (A 1–1/2), 6" THICK	TON	1173
	EMULSIFIED ASPHALT FOR TACK COAT, TYPE SS–1H	TON	2.3
3	CURB & GUTTER, M.A.G. DET. 220 TYPE A, H=6"	LF	876
4	SINGLE CURB, M.A.G. DET. 222 TYPE A, H=6"	LF	1001
5	CONCRETE SIDEWALK, C.O.P. DET. P1230 (6" THICK)	SF	4047
7	STAMPED ASPHALT DECORATIVE PAVEMENT	SF	398
14	ADJUST EXISTING MANHOLE FRAME AND COVER, MAG STD DETAIL 422 AND COP DETAIL P1422	EA	1
16	SINGLE CURB, M.A.G. DET 222 TYPE B, H=6"	LF	5
	SUBGRADE PREPARATION	SY	1204
19	PORTLAND CEMENT CONCRETE PAVEMENT, 9" THICK	SF	10533
	AGGREGATE BASE COURSE	TON	262
24	BUS SHELTER PAD, C.O.P. DET. P1262	SF	757

SHEET REFERENCES

1. SEE SHEET 12 FOR MEDIAN DETAILS
2. SEE SHEET 61 FOR STORM DRAIN PLAN
3. SEE SHEET 71 FOR CB CONN PIPE PROFILE
4. SEE SHEET 76 FOR STORM DRAIN OUTFALL

▲ T.B.M.: SET 1/2" REBAR AT STA 224+25.33, 257.42' LT ELEV = 1010.48

PREMIER ENGINEERING
PROJECT NO.: 2010011

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PAVING PLAN

CITY OF PHOENIX STREET TRANSPORTATION
DEPARTMENT DESIGN AND CONSTRUCTION
MANAGEMENT DIVISION

AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
ST85100334

DR: JRR	DES: DVV	CK: KJB	DWG NO:
DATE: 05/13	DATE: 05/13	DATE: 05/13	
SCALE: 1"=20'			PL–1.06

ST85100334

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AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
PHOENIX STREETS – MARICOPA CO.

▲ T.B.M.: SET 1/2" REBAR AT
STA 224+25.33, 257.42' LT
ELEV = 1010.48

PRELIMINARY
75%
NOT FOR
CONSTRUCTION
OR RECORDING

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.	ST85100334	25	106

PREMIER
ENGINEERING CORPORATION
6437 W. CHANDLER BLVD., SUITE 1
CHANDLER, AZ 85226; 480-829-6000
CONSULTING ENGINEER

DR: JRR	DES: DVV	CK: KJB	DATE: 05/13

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

EXISTING GROUND @ LT GUTTER
NEW LT TOP OF CURB
NEW LT GUTTER
TC=1016.58
G=1016.08
+0.1800%
TC=1017.48
G=1016.98
SEE SHEET PR-1.05
MATCH LINE STA 221+50
P=1017.02
EXISTING GROUND @ ℄
PROPOSED GRADE @ PGL
+0.1800%
SEE SHEET PR-1.07
MATCH LINE STA 226+50
P=1017.92
TC=1016.51
G=1016.01
GRADE BREAK
STA 221+99.99
P=1016.30
G=1015.80
-0.4222%
EXISTING GROUND @ RT GUTTER
NEW RT TOP OF CURB
+0.1800%
NEW RT GUTTER
GRADE BREAK
STA 225+25.09
TC=1018.98
G=1018.48
+0.2206%
TC=1017.26
G=1016.76

221+50 222+00 223+00 224+00 225+00 226+00 226+50

1024 1022 1020 1018 1016 1014 1012

NOTE

SEE PAVING PLAN SHEETS FOR MEDIAN ISLAND CONSTRUCTION.

CALL TWO WORKING DAYS BEFORE YOU DIG
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PREMIER ENGINEERING
PROJECT NO.: 2010011

PAVING PROFILE

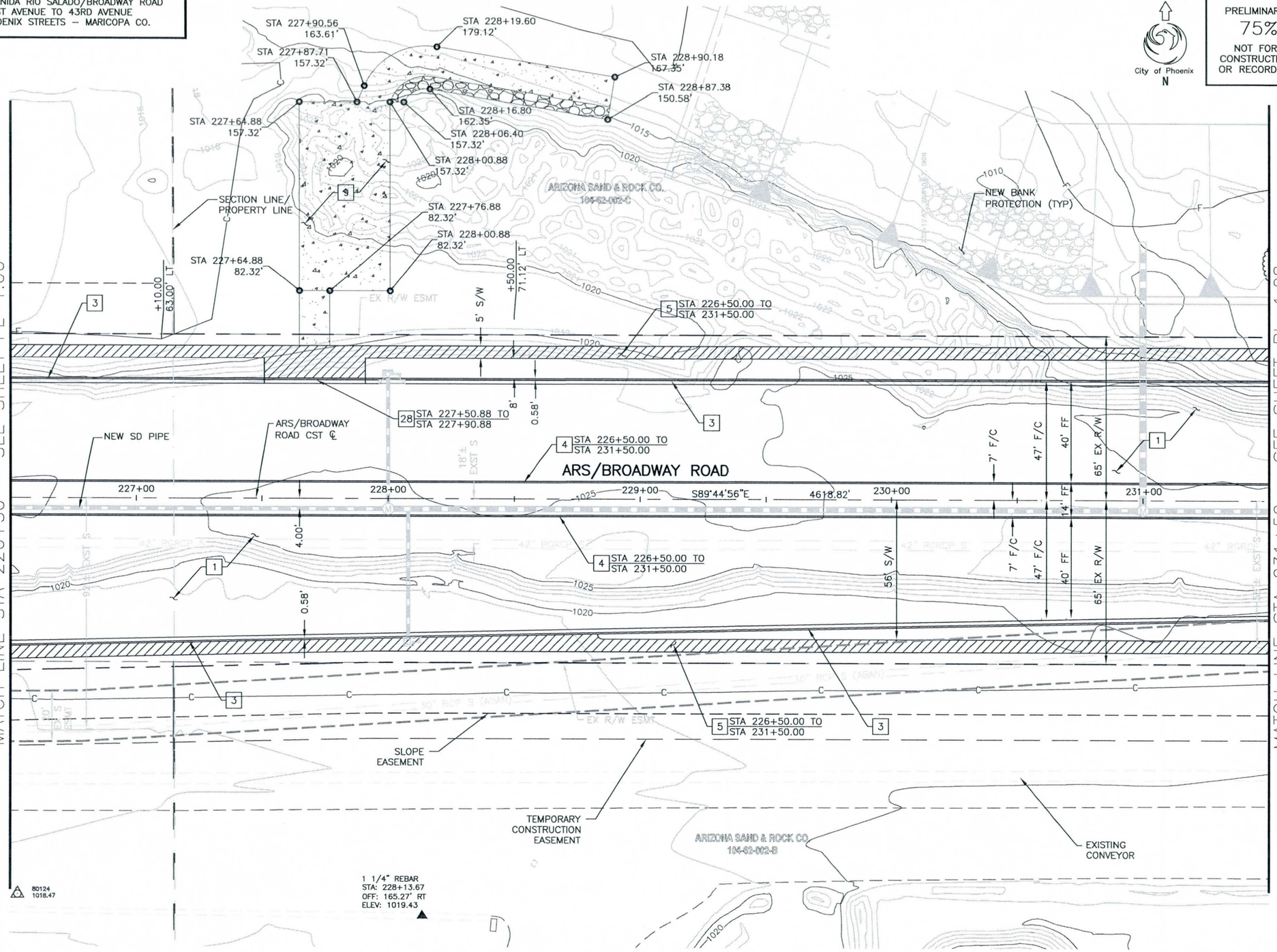
CITY OF PHOENIX STREET TRANSPORTATION
DEPARTMENT DESIGN AND CONSTRUCTION
MANAGEMENT DIVISION

AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
ST85100334

DR: JRR	DES: DVV	CK: KJB	DWG NO:
DATE: 05/13	DATE: 05/13	DATE: 05/13	
SCALE: 1"=20' H, 1"=2' V			PR-1.06

ST85100334

AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
PHOENIX STREETS – MARICOPA CO.



▲ B.M.: FND 1 1/4" REBAR AT
STA 228+13.67, 165.27' RT
ELEV = 1019.43

City of Phoenix
N

PRELIMINARY
75%
NOT FOR
CONSTRUCTION
OR RECORDING

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.	ST85100334	26	106

PREMIER
ENGINEERING CORPORATION
6437 W. CHANDLER BLVD., SUITE 1
CHANDLER, AZ 85226; 480-829-6000
CONSULTING ENGINEER

DR: JRR	DES: DVV	CK: KJB	DATE: 05/13

CONSTRUCTION NOTES

NO	DESCRIPTION	UNIT	QTY
1	SUBGRADE PREPARATION	SY	4599
	ASPHALTIC CONCRETE SURFACE COURSE, (D 1/2), 1-1/2" THICK	TON	394
	ASPHALT CONCRETE BASE COURSE (A 1-1/2), 6" THICK	TON	1573
	EMULSIFIED ASPHALT FOR TACK COAT, TYPE SS-1H	TON	3.1
3	CURB & GUTTER, M.A.G. DET. 220 TYPE A, H=6"	LF	1000
4	SINGLE CURB, M.A.G. DET. 222 TYPE A, H=6"	LF	1000
5	CONCRETE SIDEWALK, C.O.P. DET. P1230 (6" THICK)	SF	5091
19	9" THICK CONC. PVMT. CLASS "A" PER M.A.G. SPECS	SF	4200
28	CURB & GUTTER, M.A.G. DET. 220 TYPE E, H=6"	LF	1000

SHEET REFERENCES

1. SEE SHEET 62 FOR STORM DRAIN PLAN
2. SEE SHEET 72 FOR CB CONN PIPE PROFILE
3. SEE SHEET 78 FOR BANK PROTECTION

PREMIER ENGINEERING
PROJECT NO.: 2010011

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PAVING PLAN

CITY OF PHOENIX STREET TRANSPORTATION
DEPARTMENT DESIGN AND CONSTRUCTION
MANAGEMENT DIVISION

AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
ST85100334

DR: JRR	DES: DVV	CK: KJB	DWG NO:
DATE: 05/13	DATE: 05/13	DATE: 05/13	
SCALE: 1"=20'			PL-1.07

ST85100334

REVISION BY CITY OF PHOENIX

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REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

P:\2010011\CADD\Civil\Sheets\ST85100334PL07.dwg dvoigt Aug 16, 2013 – 1:58pm

AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
PHOENIX STREETS – MARICOPA CO.

▲ B.M.: FND 1 1/4" REBAR AT
STA 228+13.67, 165.27' RT
ELEV = 1019.43

PRELIMINARY
75%
NOT FOR
CONSTRUCTION
OR RECORDING

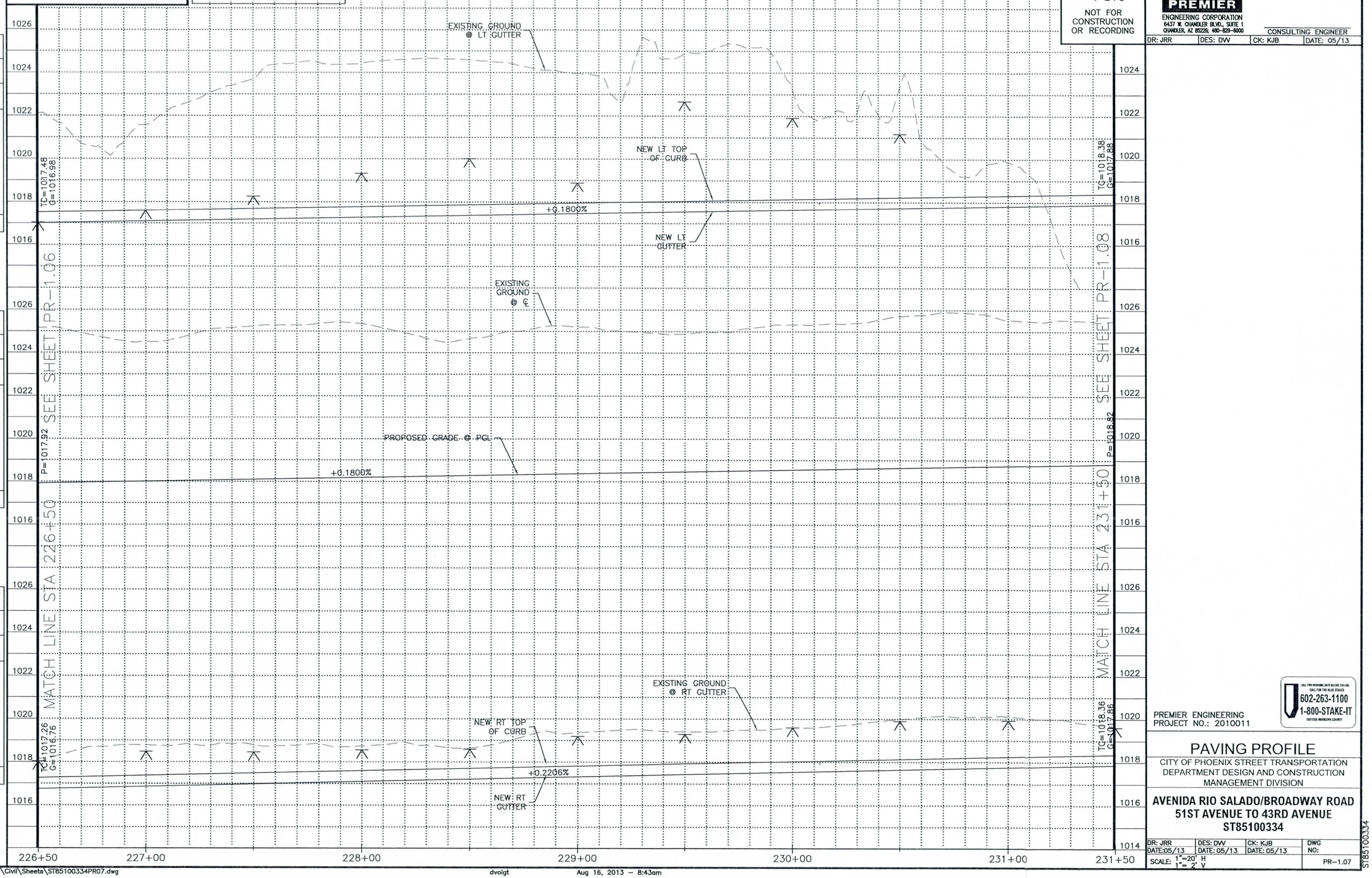
F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.	ST85100334	27	106

PREMIER
ENGINEERING CORPORATION
6437 W. CHANDLER BLVD., SUITE 1
CHANDLER, AZ 85226; 480-829-6000
CONSULTING ENGINEER

DR: JRR | DES: DVV | CK: KJB | DATE: 05/13

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE



PREMIER ENGINEERING
PROJECT NO.: 2010011

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PAVING PROFILE

CITY OF PHOENIX STREET TRANSPORTATION
DEPARTMENT DESIGN AND CONSTRUCTION
MANAGEMENT DIVISION

AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
ST85100334

DR: JRR	DES: DVV	CK: KJB	DWG NO:
DATE:05/13	DATE: 05/13	DATE: 05/13	
SCALE: 1"=20' H, 1"= 2' V			PR-1.07

ST85100334

P:\2010011\CADD\Civil\Sheets\ST85100334PR07.dwg dvoigt Aug 16, 2013 – 8:43am

AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
PHOENIX STREETS – MARICOPA CO.

City of Phoenix
N

PRELIMINARY
75%
NOT FOR CONSTRUCTION OR RECORDING

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.	ST85100334	28	106

PREMIER
ENGINEERING CORPORATION
6437 W. CHANDLER BLVD., SUITE 1
CHANDLER, AZ 85226; 480-829-6000
CONSULTING ENGINEER

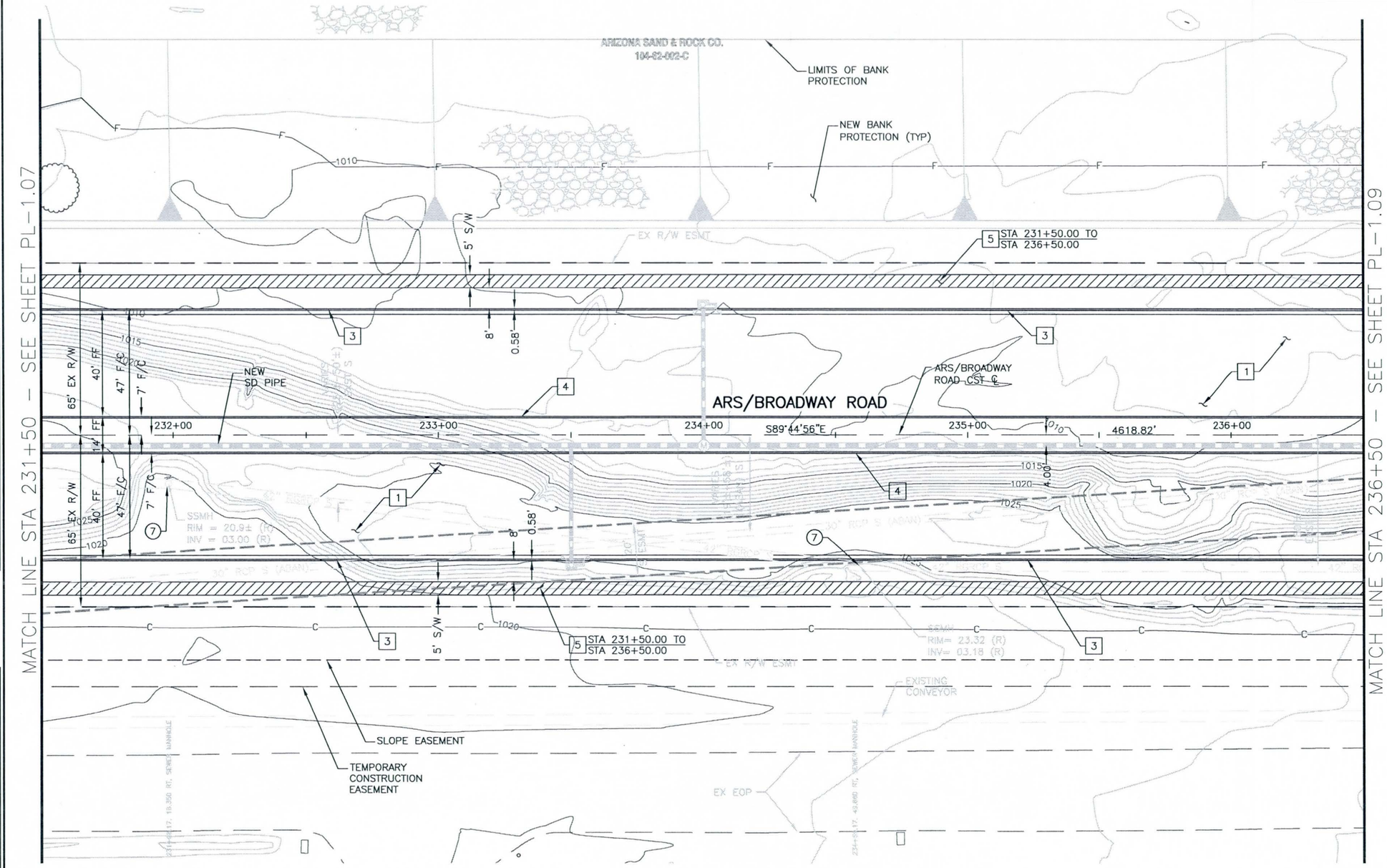
DR: JRR	DES: DVV	CK: KJB	DATE: 05/13

REMOVAL/RELOCATION NOTES

NO	DESCRIPTION	UNIT	QTY
7	REBUILD MANHOLE GRADE ADJUSTMENT	EA	2

CONSTRUCTION NOTES

NO	DESCRIPTION	UNIT	QTY
1	SUBGRADE PREPARATION	SY	4287
	ASPHALTIC CONCRETE SURFACE COURSE, (D 1/2), 1-1/2" THICK	TON	367
	ASPHALT CONCRETE BASE COURSE (A 1-1/2), 6" THICK	TON	1467
	EMULSIFIED ASPHALT FOR TACK COAT, TYPE SS-1H	TON	2.9
3	CURB & GUTTER, M.A.G. DET. 220 TYPE A, H=6"	LF	1000
4	SINGLE CURB, M.A.G. DET. 222 TYPE A, H=6"	LF	1000
5	CONCRETE SIDEWALK, C.O.P. DET. P1230 (6" THICK)	SF	5000



▲ T.B.M.: SET 1/2" REBAR AT
STA 234+16.10, 258.60' LT
ELEV = 1009.30

SHEET REFERENCES

1. SEE SHEET 63 FOR STORM DRAIN PLAN
2. SEE SHEET 73 FOR CB CONN PIPE PROFILE
3. SEE SHEET 79 FOR BANK PROTECTION

CALL TWO WORKING DAYS BEFORE YOU DIG
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OUTSIDE MARICOPA COUNTY

PREMIER ENGINEERING
PROJECT NO.: 2010011

PAVING PLAN

CITY OF PHOENIX STREET TRANSPORTATION DEPARTMENT DESIGN AND CONSTRUCTION MANAGEMENT DIVISION

AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
ST85100334

DR: JRR	DES: DVV	CK: KJB	DWG NO:
DATE: 05/13	DATE: 05/13	DATE: 05/13	
SCALE: 1"=20'			PL-1.08

ST85100334

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
PHOENIX STREETS – MARICOPA CO.

▲ T.B.M.: SET 1/2" REBAR AT
STA 234+16.10, 258.60' LT
ELEV = 1009.30

PRELIMINARY
75%
NOT FOR CONSTRUCTION OR RECORDING

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.	ST85100334	29	106

PREMIER
ENGINEERING CORPORATION
6437 W. CHANDLER BLVD., SUITE 1
CHANDLER, AZ 85226; 480-829-6000
CONSULTING ENGINEER

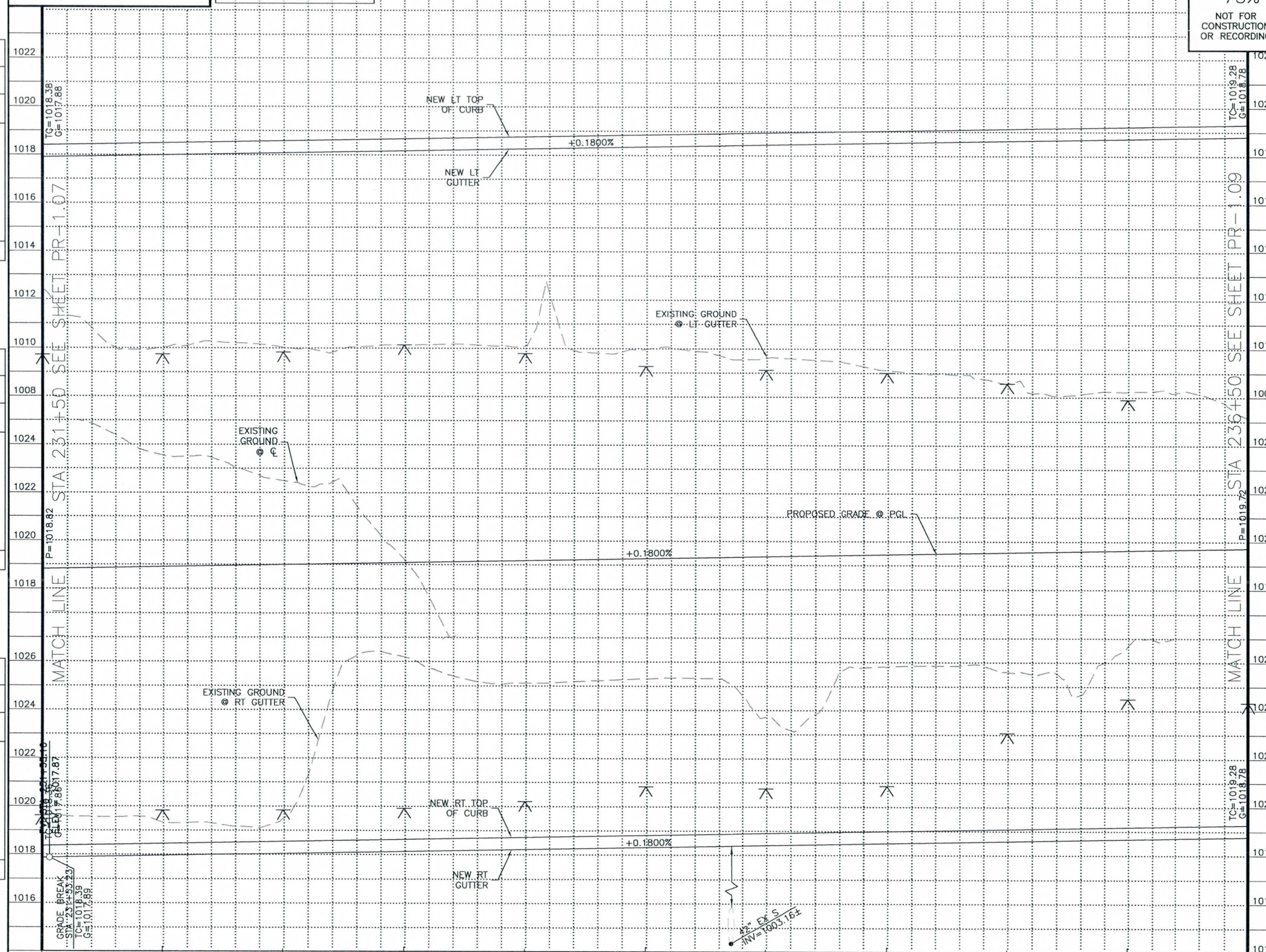
DR: JRR	DES: DVV	CK: KJB	DATE: 05/13

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE



PREMIER ENGINEERING
PROJECT NO.: 2010011

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PAVING PROFILE

CITY OF PHOENIX STREET TRANSPORTATION
DEPARTMENT DESIGN AND CONSTRUCTION
MANAGEMENT DIVISION

AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
ST85100334

DR: JRR	DES: DVV	CK: KJB	DWG NO:
DATE: 05/13	DATE: 05/13	DATE: 05/13	
SCALE: 1"=20' H 1"= 2' V			PR-1.08

ST85100334

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AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
PHOENIX STREETS – MARICOPA CO.

City of Phoenix
N

PRELIMINARY
75%
NOT FOR CONSTRUCTION OR RECORDING

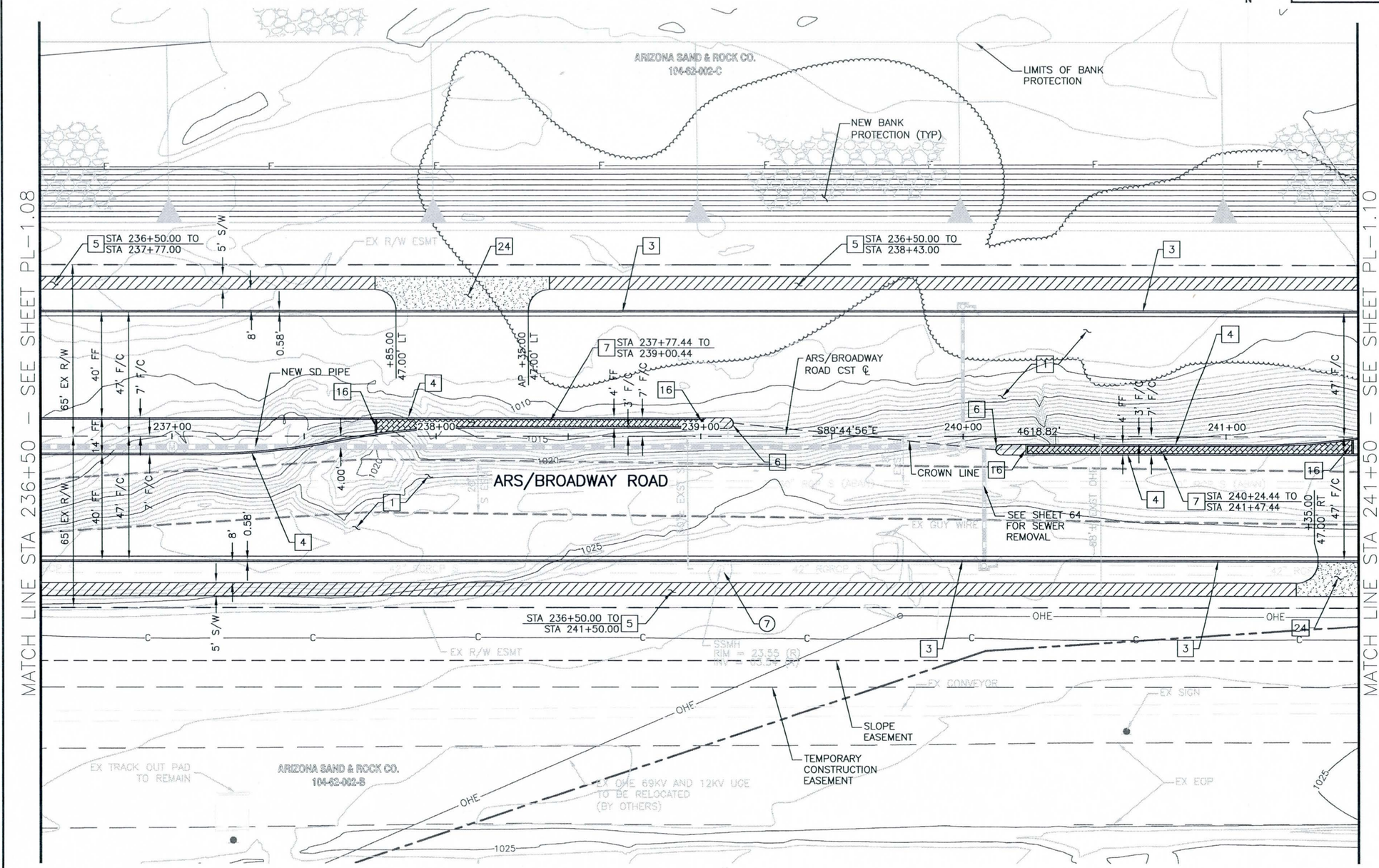
F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.	ST85100334	30	106

PREMIER
ENGINEERING CORPORATION
6437 W. CHANDLER BLVD., SUITE 1
CHANDLER, AZ 85226; 480-829-8000
CONSULTING ENGINEER

DR: JRR | DES: DVV | CK: KJB | DATE: 05/13

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE



▲ T.B.M.: SET 1/2" REBAR AT
STA 242+73.32, 76.89' RT
ELEV = 1024.47

REMOVAL/RELOCATION NOTES

NO	DESCRIPTION	UNIT	QTY
7	REBUILD MANHOLE GRADE ADJUSTMENT	EA	1

CONSTRUCTION NOTES

NO	DESCRIPTION	UNIT	QTY
	SUBGRADE PREPARATION	SY	4759
1	ASPHALT CONCRETE SURFACE COURSE, (D 1/2), 1–1/2" THICK	TON	407
	ASPHALT CONCRETE BASE COURSE (A 1–1/2), 6" THICK	TON	1628
	EMULSIFIED ASPHALT FOR TACK COAT, TYPE SS–1H	TON	3.2
3	CURB & GUTTER, M.A.G. DET. 220 TYPE A, H=6"	LF	1000
4	SINGLE CURB, M.A.G. DET. 222 TYPE A, H=6"	LF	805
5	CONCRETE SIDEWALK, C.O.P. DET. P1230 (6" THICK)	SF	4555
6	CONCRETE MEDIAN NOSE, M.A.G. DET. 223	SF	52
7	STAMPED ASPHALT DECORATIVE PAVEMENT	SF	754
16	SINGLE CURB, M.A.G. DET 222 TYPE B, H=6"	LF	8
24	BUS SHELTER PAD, C.O.P. DET. P1262	SF	1006

SHEET REFERENCES

1. SEE SHEET 12 FOR MEDIAN DETAILS
2. SEE SHEET 64 FOR STORM DRAIN PLAN
3. SEE SHEET 74 FOR CB CONN PIPE PROFILE
4. SEE SHEET 80 FOR BANK PROTECTION

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PREMIER ENGINEERING
PROJECT NO.: 2010011

PAVING PLAN

CITY OF PHOENIX STREET TRANSPORTATION DEPARTMENT DESIGN AND CONSTRUCTION MANAGEMENT DIVISION

AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
ST85100334

DR: JRR	DES: DVV	CK: KJB	DWG NO:
DATE: 05/13	DATE: 05/13	DATE: 05/13	
SCALE: 1"=20'			PL–1.09

ST85100334

P:\2010011\CADD\Civil\Sheets\ST85100334PL09.dwg dvoigt Aug 16, 2013 – 8:44am

AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
PHOENIX STREETS – MARICOPA CO.

▲ T.B.M.: SET 1/2" REBAR AT
STA 242+73.32, 76.89' RT
ELEV = 1024.47

PRELIMINARY
75%
NOT FOR CONSTRUCTION OR RECORDING

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.	ST85100334	31	106

PREMIER
ENGINEERING CORPORATION
6437 W. CHANDLER BLVD., SUITE 1
CHANDLER, AZ 85226; 480-829-6000
CONSULTING ENGINEER

DR: JRR	DES: DVV	CK: KJB	DATE: 05/13

REVISION BY CITY OF PHOENIX

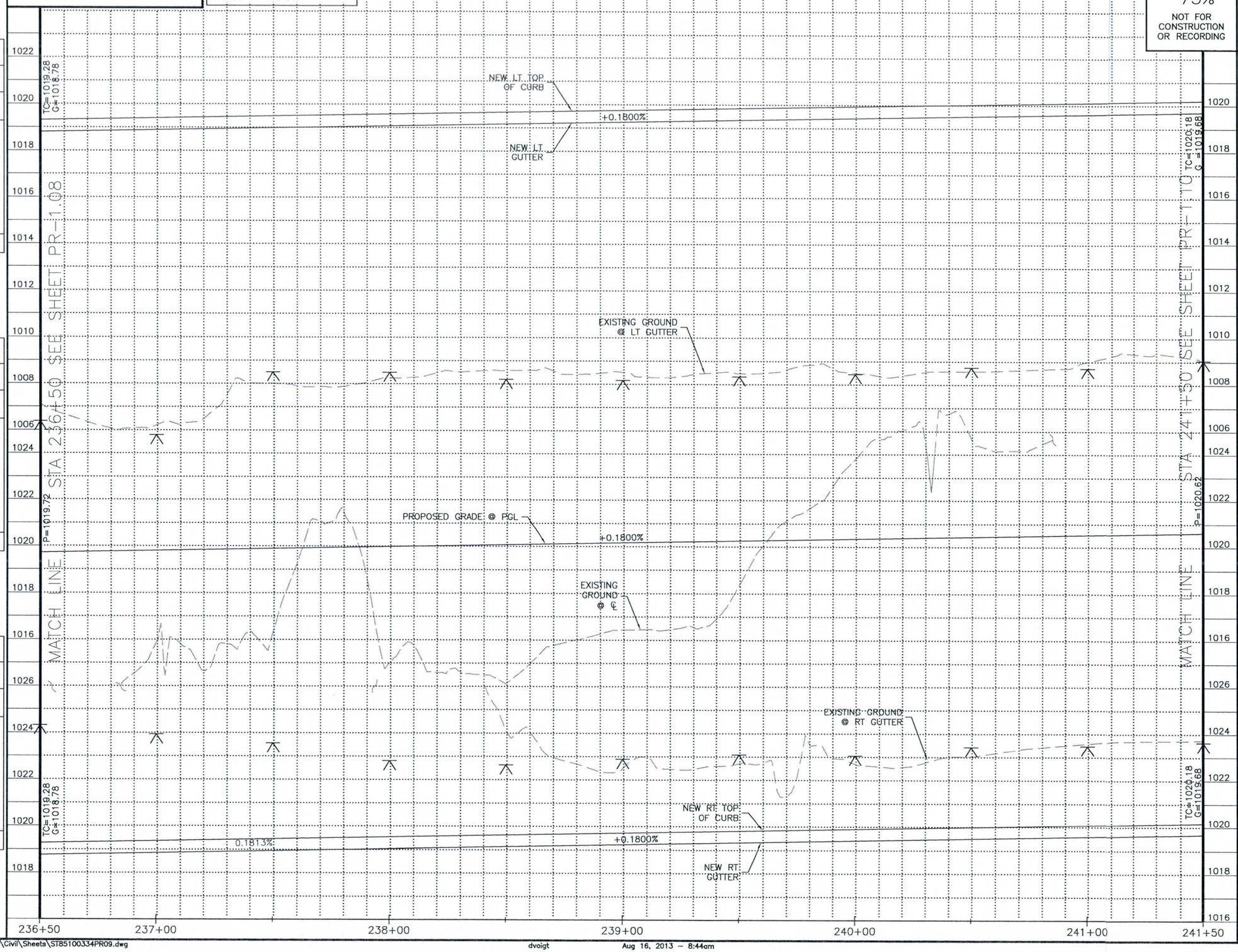
NO.	DESCRIPTION	REV BY	CKD BY	DATE

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE



NOTE

SEE PAVING PLAN SHEETS FOR MEDIAN ISLAND CONSTRUCTION.

PREMIER ENGINEERING
PROJECT NO.: 2010011

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PAVING PROFILE

CITY OF PHOENIX STREET TRANSPORTATION
DEPARTMENT DESIGN AND CONSTRUCTION
MANAGEMENT DIVISION

AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
ST85100334

DR: JRR	DES: DVV	CK: KJB	DWG NO:
DATE:05/13	DATE: 05/13	DATE: 05/13	
SCALE: 1"=20' H 1"= 2' V			PR-1.09

ST85100334

P:\2010011\CADD\Civil\Sheets\ST85100334PR09.dwg dvoigt Aug 16, 2013 – 8:44am

AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
PHOENIX STREETS – MARICOPA CO.

PRELIMINARY
75%
NOT FOR CONSTRUCTION OR RECORDING

City of Phoenix
N

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.	ST85100334	32	106

PREMIER
ENGINEERING CORPORATION
6437 W. CHANDLER BLVD., SUITE 1
CHANDLER, AZ 85226; 480-829-6000
CONSULTING ENGINEER

DR: JRR | DES: DVV | CK: KJB | DATE: 05/13

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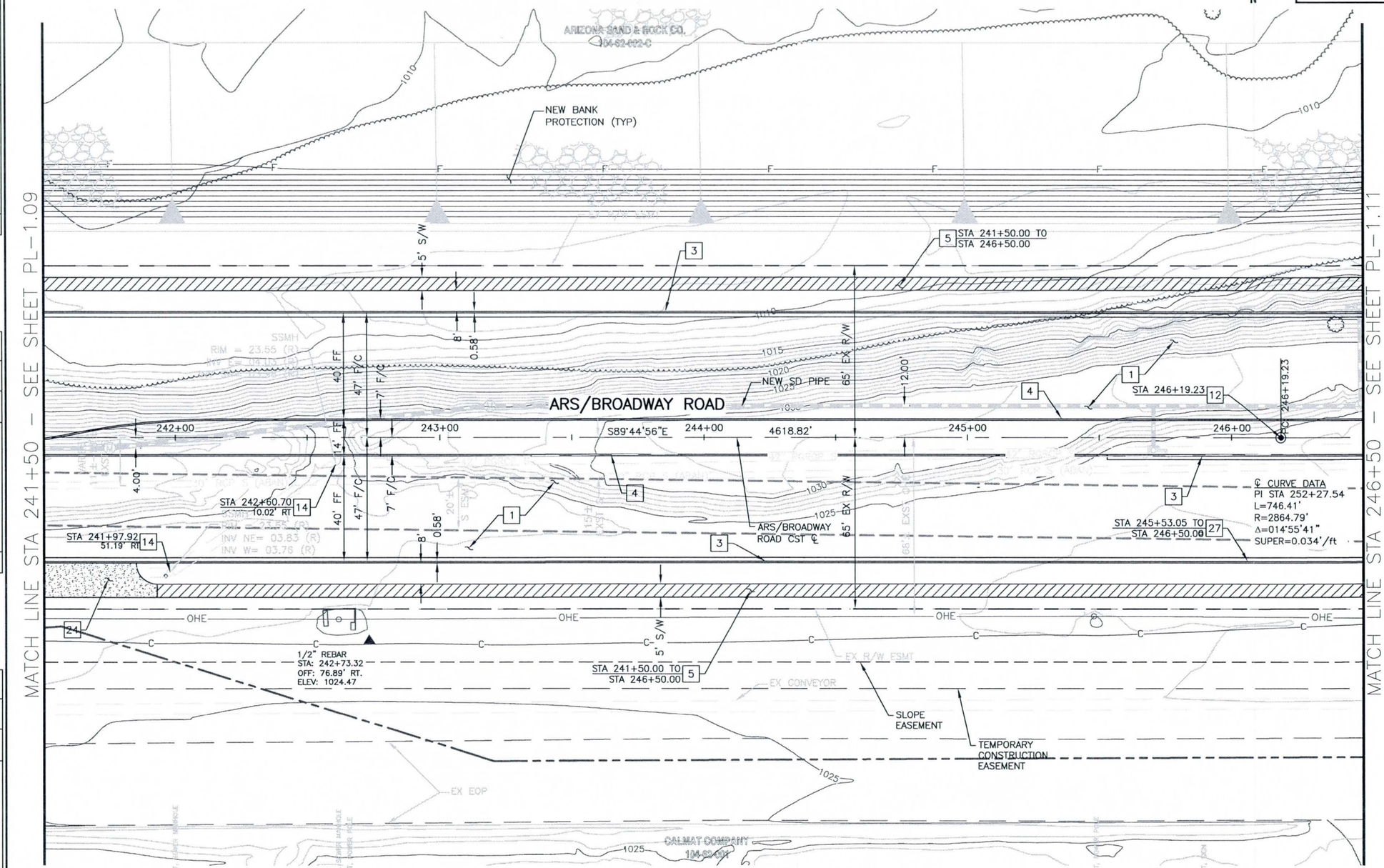
NO.	DESCRIPTION	REV BY	CKD BY	DATE

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE



▲ T.B.M.: SET 1/2" REBAR AT STA 242+73.32, 76.89' RT ELEV = 1024.47

CONSTRUCTION NOTES

NO	DESCRIPTION	UNIT	QTY
1	SUBGRADE PREPARATION	SY	4290
	ASPHALT CONCRETE SURFACE COURSE, (D 1/2), 1–1/2" THICK	TON	367
	ASPHALT CONCRETE BASE COURSE, (A 1–1/2), 6" THICK	TON	1467
	EMULSIFIED ASPHALT FOR TACK COAT, TYPE SS–1H	TON	2.9
3	CURB & GUTTER, M.A.G. DET. 220 TYPE A, H=6"	LF	1000
4	SINGLE CURB, M.A.G. DET. 222 TYPE A, H=6"	LF	904
5	CONCRETE SIDEWALK, C.O.P. DET. P1230 (6" THICK)	SF	3539
12	SURVEY MARKER, M.A.G. DET. 120–1, TYPE B	EA	1
14	ADJUST EXISTING MANHOLE FRAME AND COVER, MAG STD DETAIL 422 AND COP DETAIL P1422	EA	2
24	BUS SHELTER PAD, C.O.P. DET. P1262	SF	508
27	CURB & GUTTER, M.A.G. DET. 220 TYPE A, H=6", DEPRESSED LIP	LF	96

SHEET REFERENCES

1. SEE SHEET 12 FOR MEDIAN DETAILS
2. SEE SHEET 65 FOR STORM DRAIN PLAN
3. SEE SHEET 75 FOR CB CONN PIPE PROFILE
4. SEE SHEET 81 FOR BANK PROTECTION

PREMIER ENGINEERING
PROJECT NO.: 2010011

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PAVING PLAN

CITY OF PHOENIX STREET TRANSPORTATION DEPARTMENT DESIGN AND CONSTRUCTION MANAGEMENT DIVISION

AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
ST85100334

DR: JRR	DES: DVV	CK: KJB	DWG NO:
DATE: 05/13	DATE: 05/13	DATE: 05/13	
SCALE: 1"=20'			PL–1.10

ST85100334

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AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
PHOENIX STREETS – MARICOPA CO.

▲ T.B.M.: SET 1/2" REBAR AT
STA 242+73.32, 76.89' RT
ELEV = 1024.47

PRELIMINARY
75%
NOT FOR
CONSTRUCTION
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F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.	ST85100334	33	106

PREMIER
ENGINEERING CORPORATION
6437 W. CHANDLER BLVD., SUITE 1
CHANDLER, AZ 85226; 480-829-6000
CONSULTING ENGINEER

DR: JRR	DES: DVV	CK: KJB	DATE: 05/13

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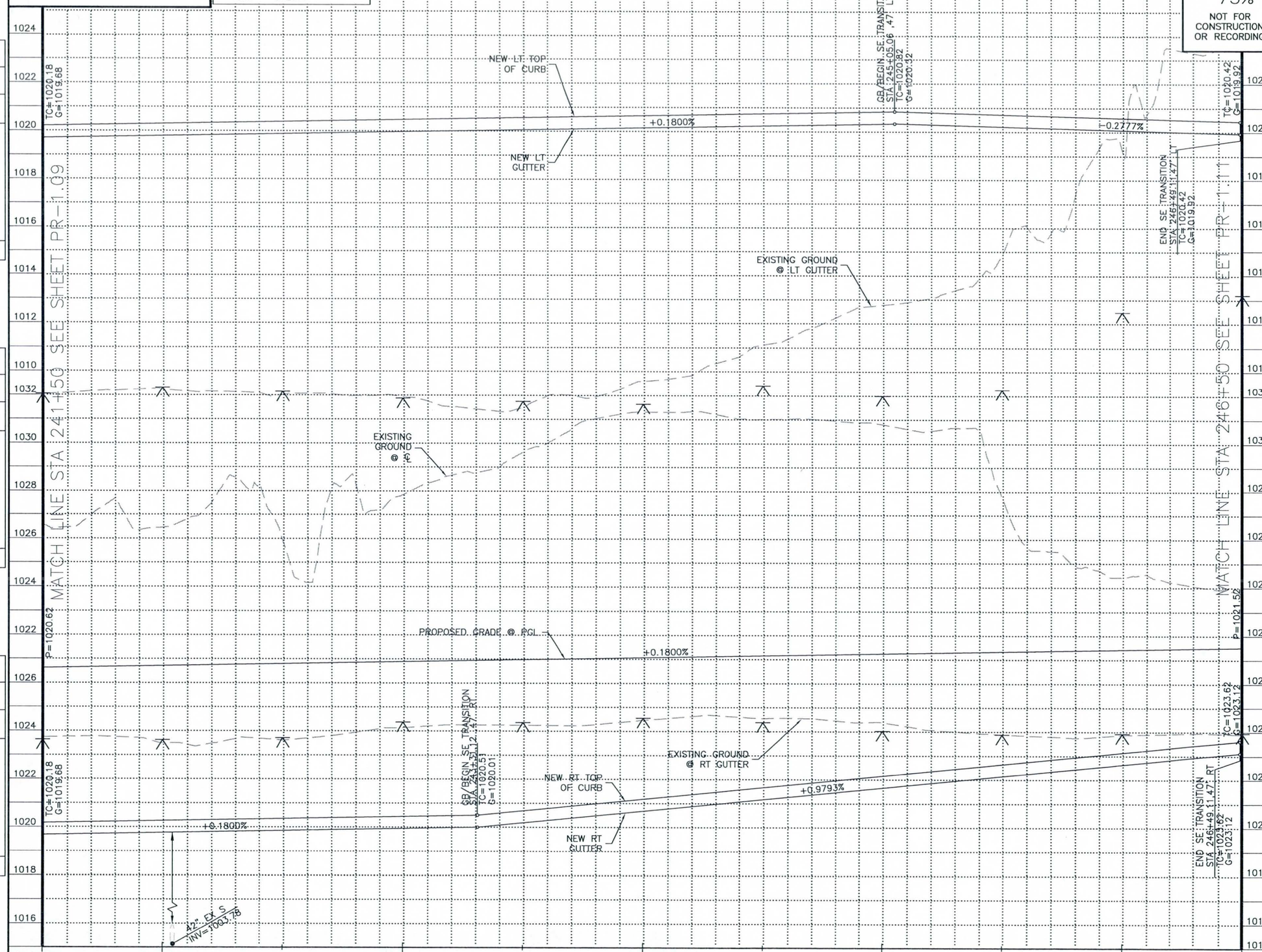
NO.	DESCRIPTION	REV BY	CKD BY	DATE

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE



PREMIER ENGINEERING
PROJECT NO.: 2010011

602-263-1100
1-800-STAKE-IT
OUTSIDE MARICOPA COUNTY

PAVING PROFILE

CITY OF PHOENIX STREET TRANSPORTATION
DEPARTMENT DESIGN AND CONSTRUCTION
MANAGEMENT DIVISION

AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
ST85100334

DR: JRR	DES: DVV	CK: KJB	DWG NO:
DATE:05/13	DATE: 05/13	DATE: 05/13	
SCALE: 1"=20' H 1"= 2' V			PR-1.10

ST85100334

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AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
PHOENIX STREETS – MARICOPA CO.

City of Phoenix
N

PRELIMINARY
75%
NOT FOR CONSTRUCTION OR RECORDING

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.	ST85100334	34	106

PREMIER
ENGINEERING CORPORATION
6437 W. CHANDLER BLVD., SUITE 1
CHANDLER, AZ 85226; 480-829-6000
CONSULTING ENGINEER

DR: JRR | DES: DVV | CK: KJB | DATE: 05/13

REMOVAL/RELOCATION NOTES

NO	DESCRIPTION	UNIT	QTY
(2)	REMOVE PORTLAND CEMENT CONCRETE SINGLE CURB AND CURB & GUTTER	LF	22
(5)	REMOVE EXISTING FENCE	LF	58

CONSTRUCTION NOTES

NO	DESCRIPTION	UNIT	QTY
	SUBGRADE PREPARATION	SY	3367
	ASPHALT CONCRETE SURFACE COURSE, (D 1/2), 1-1/2" THICK	TON	288
1	ASPHALT CONCRETE BASE COURSE (A 1-1/2), 6" THICK	TON	1152
	EMULSIFIED ASPHALT FOR TACK COAT, TYPE SS-1H	TON	2.2
3	CURB & GUTTER, M.A.G. DET. 220 TYPE A, H=6"	LF	800
4	SINGLE CURB, M.A.G. DET. 222 TYPE A, H=6"	LF	399
5	CONCRETE SIDEWALK, C.O.P. DET. P1230 (6" THICK)	SF	3539
10	CONCRETE DRIVEWAY ENTRANCE , C.O.P. DET. P1243 (9" THICK)	SF	3388
14	ADJUST EXISTING MANHOLE FRAME AND COVER, MAG STD DETAIL 422 AND COP DETAIL P1422	EA	1
27	CURB & GUTTER, M.A.G. DET. 220 TYPE A, H=6", DEPRESSED LIP	LF	295

SHEET REFERENCES

1. SEE SHEET 12 FOR MEDIAN DETAILS
2. SEE SHEET 82 FOR BANK PROTECTION

PREMIER ENGINEERING
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CITY OF PHOENIX STREET TRANSPORTATION
DEPARTMENT DESIGN AND CONSTRUCTION
MANAGEMENT DIVISION

AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
ST85100334

DR: JRR	DES: DVV	CK: KJB	DWG NO:
DATE: 05/13	DATE: 05/13	DATE: 05/13	
SCALE: 1"=20'			PL-1.11

ST85100334

▲ T.B.M.: FND 3" BCHH COP
C-0.4_D AT STA 253+65.67,
0.07'' LT, ELEV = 1023.40

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AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
PHOENIX STREETS – MARICOPA CO.

▲ T.B.M.: FND 3" BCHH COP
C-0.4_D AT STA 253+65.67,
0.07' LT, ELEV = 1023.40

PRELIMINARY
75%
NOT FOR CONSTRUCTION OR RECORDING

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.	ST85100334	35	106

PREMIER
ENGINEERING CORPORATION
6437 W. CHANDLER BLVD., SUITE 1
CHANDLER, AZ 85226; 480-829-6000
CONSULTING ENGINEER

DR: JRR	DES: DVV	CK: KJB	DATE: 05/13

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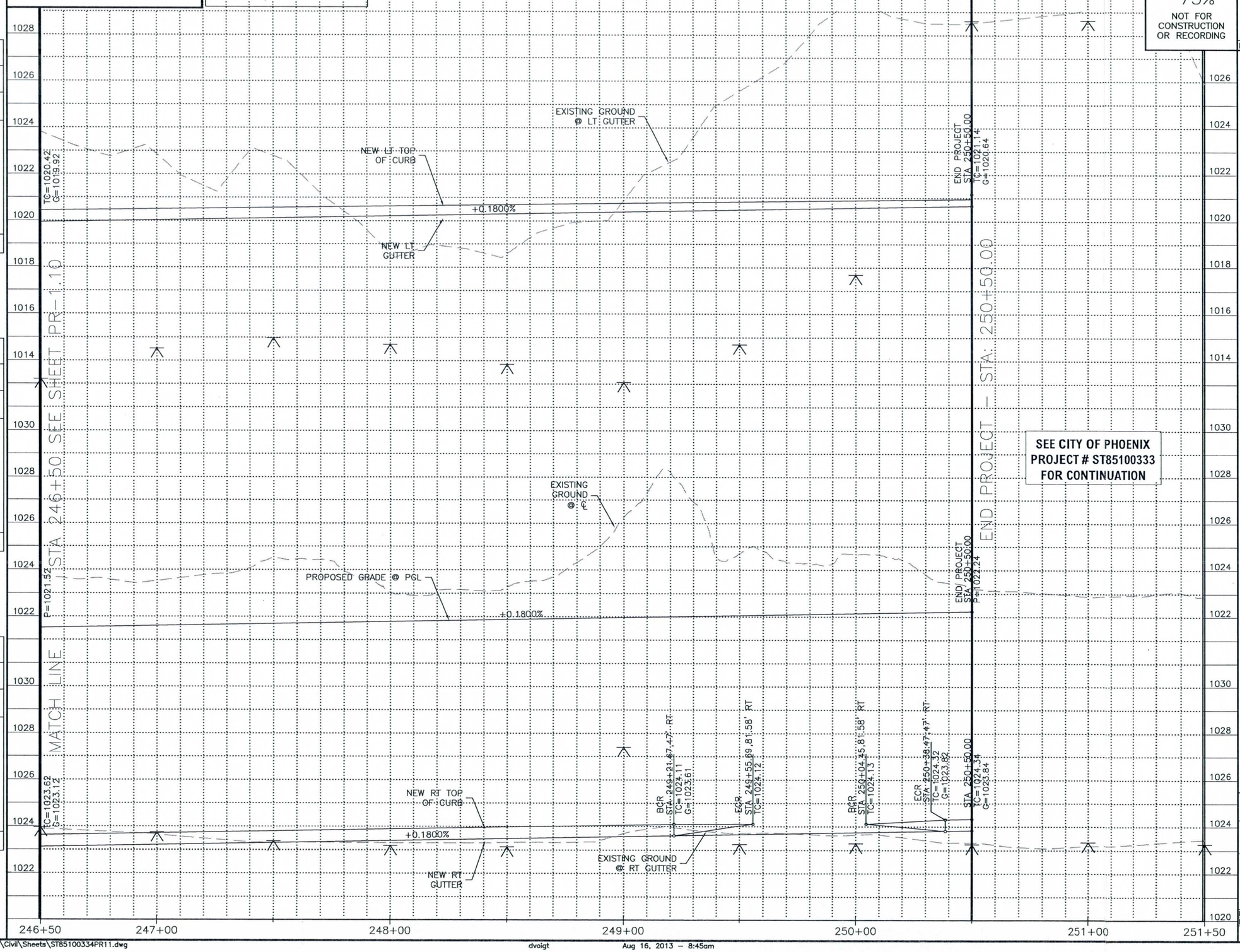
NO.	DESCRIPTION	REV BY	CKD BY	DATE

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE



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PREMIER ENGINEERING
PROJECT NO.: 2010011

PAVING PROFILE

CITY OF PHOENIX STREET TRANSPORTATION
DEPARTMENT DESIGN AND CONSTRUCTION
MANAGEMENT DIVISION

AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
ST85100334

DR: JRR	DES: DVV	CK: KJB	DWG NO:
DATE:05/13	DATE: 05/13	DATE: 05/13	
SCALE: 1"=20' H, 1"=2' V			PR-1.11

ST85100334

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AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
PHOENIX STREETS – MARICOPA CO.

PRELIMINARY
75%
NOT FOR CONSTRUCTION OR RECORDING

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.	ST85100334	36	106

PREMIER
ENGINEERING CORPORATION
6437 W. CHANDLER BLVD., SUITE 1
CHANDLER, AZ 85226; 480-829-6000
CONSULTING ENGINEER

DR: JRR	DES: DVV	CK: KJB	DATE: 05/13

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REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

REMOVAL/RELOCATION NOTES

NO	DESCRIPTION	UNIT	QTY
(1)	REMOVE PORTLAND CEMENT CONCRETE SIDEWALK, DRIVEWAY, VALLEY GUTTER & SLAB	SF	3521
(2)	REMOVE PORTLAND CEMENT CONCRETE SINGLE CURB AND CURB & GUTTER	LF	499
(3)	REMOVE AND SALVAGE TRAFFIC SIGN (MISC)	EA	1
(6)	REMOVE ASPHALT CONCRETE PAVEMENT	SY	670

CONSTRUCTION NOTES

NO	DESCRIPTION	UNIT	QTY
	SUBGRADE PREPARATION	SY	355
1	ASPHALT CONCRETE SURFACE COURSE, (D 1/2), 1-1/2" THICK	TON	31
	ASPHALT CONCRETE BASE COURSE (A 1-1/2), 6" THICK	TON	122
	EMULSIFIED ASPHALT FOR TACK COAT, TYPE SS-1H	TON	.2
3	CURB & GUTTER, M.A.G. DET. 220 TYPE A, H=6"	LF	146
4	SINGLE CURB, M.A.G. DET. 222 TYPE A, H=6"	LF	530
5	CONCRETE SIDEWALK, C.O.P. DET. P1230 (6" THICK)	SF	383
10	CONCRETE DRIVEWAY ENTRANCE, C.O.P. DET. P1243 (9" THICK)	SF	6925

SHEET REFERENCES

1. SEE SHEET 13 FOR MEDIAN DETAILS

PREMIER ENGINEERING
PROJECT NO.: 2010011

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PAVING PLAN

CITY OF PHOENIX STREET TRANSPORTATION
DEPARTMENT DESIGN AND CONSTRUCTION
MANAGEMENT DIVISION

AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
ST85100334

DR: JRR	DES: DVV	CK: KJB	DWG NO:
DATE: 05/13	DATE: 05/13	DATE: 05/13	
SCALE: 1"=20'			PL-1.12

ST85100334

▲ T.B.M.: SET 1/2" REBAR AT STA 199+22.48, 335.71' LT ELEV = 1021.91

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AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
PHOENIX STREETS – MARICOPA CO.

▲ T.B.M.: SET 1/2" REBAR AT
STA 199+22.48, 335.71' LT
ELEV = 1021.91

PRELIMINARY
75%
NOT FOR CONSTRUCTION OR RECORDING

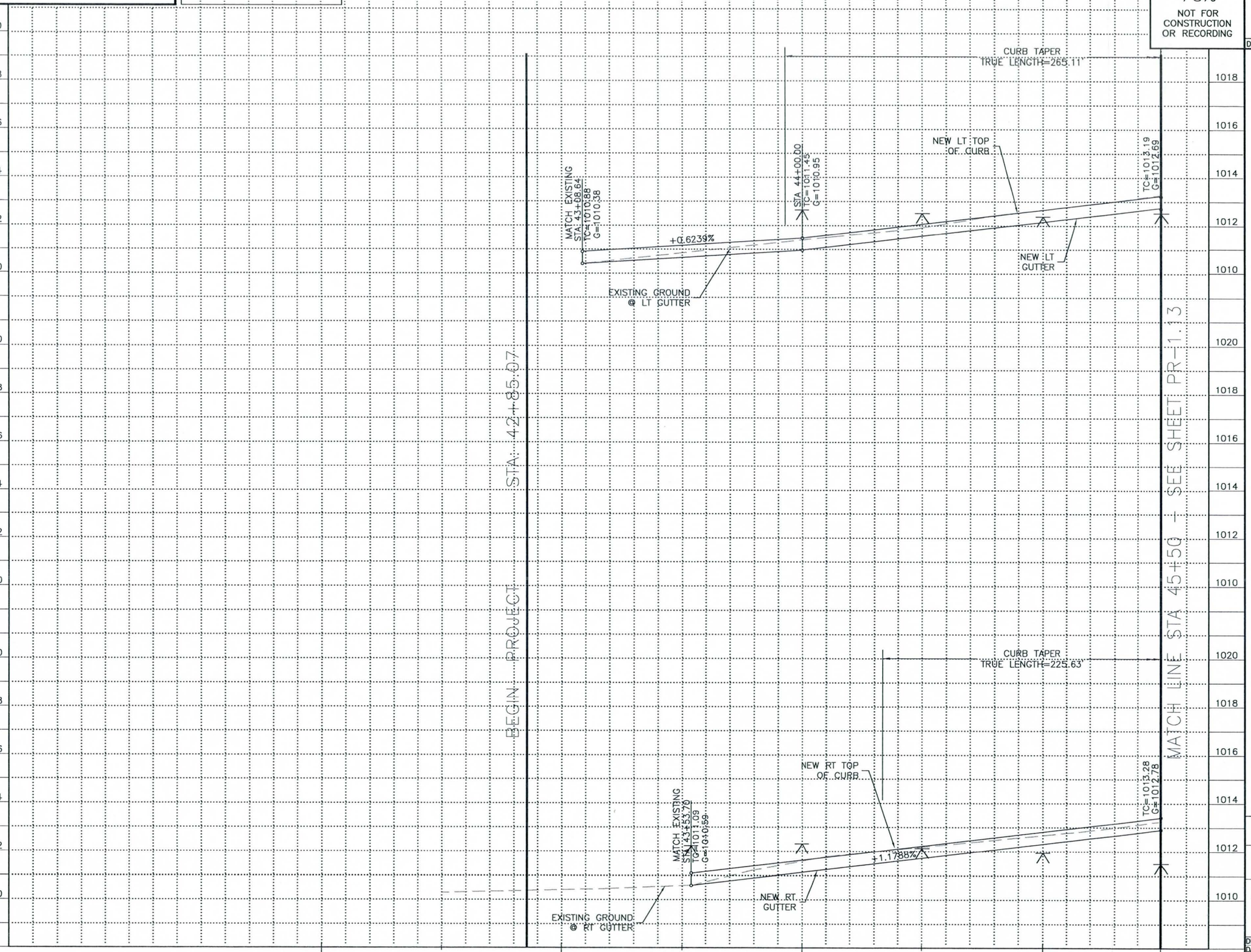
F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.	ST85100334	37	106

PREMIER
ENGINEERING CORPORATION
6437 W. CHANDLER BLVD., SUITE 1
CHANDLER, AZ 85226; 480-829-6000
CONSULTING ENGINEER

DR: JRR | DES: DVV | CK: KJB | DATE: 05/13

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE



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1-800-STAKE-IT
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PREMIER ENGINEERING
PROJECT NO.: 2010011

PAVING PROFILE

CITY OF PHOENIX STREET TRANSPORTATION
DEPARTMENT DESIGN AND CONSTRUCTION
MANAGEMENT DIVISION

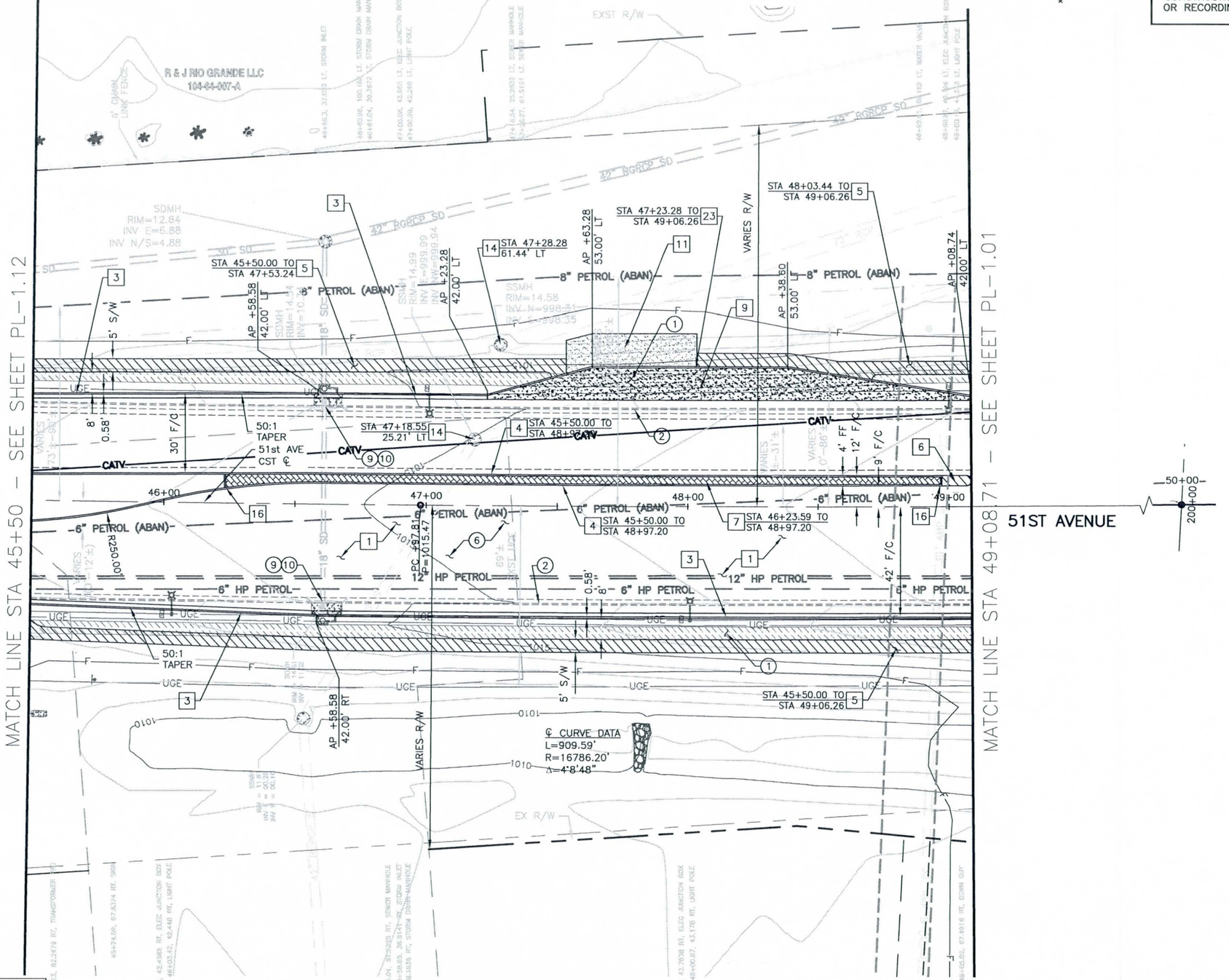
AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
ST85100334

DR: JRR	DES: DVV	CK: KJB	DWG NO: PR-1.12
DATE:05/13	DATE: 05/13	DATE: 05/13	
SCALE: 1"=20' H 1"= 2' V			

ST85100334

P:\2010011\CADD\Civil\Sheets\ST85100334PR12.dwg dvoigt Aug 16, 2013 – 8:46am

AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
PHOENIX STREETS – MARICOPA CO.



▲ T.B.M.: SET 1/2" REBAR AT
STA 53+40.79, 54.33' LT
ELEV = 1021.91

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CK'D BY	DATE

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CK'D BY	DATE

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CK'D BY	DATE

City of Phoenix
N

PRELIMINARY
75%
NOT FOR CONSTRUCTION OR RECORDING

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.	ST85100334	38	106

PREMIER
ENGINEERING CORPORATION
6437 W. CHANDLER BLVD., SUITE 1
CHANDLER, AZ 85226; 480-829-6000
CONSULTING ENGINEER

DR: JRR | DES: DVV | CK: KJB | DATE: 05/13

REMOVAL/RELOCATION NOTES

NO	DESCRIPTION	UNIT	QTY
(1)	REMOVE PORTLAND CEMENT CONCRETE SIDEWALK, DRIVEWAY, VALLEY GUTTER & SLAB	SF	3588
(2)	REMOVE PORTLAND CEMENT CONCRETE SINGLE CURB AND CURB & GUTTER	LF	717
(6)	REMOVE ASPHALT CONCRETE PAVEMENT	SY	2046
(9)	REMOVE PIPE, BACKFILL AND COMPACT	LF	10
(10)	REMOVE CATCH BASIN	EA	2

CONSTRUCTION NOTES

NO	DESCRIPTION	UNIT	QTY
	SUBGRADE PREPARATION	SY	2189
	ASPHALT CONCRETE SURFACE COURSE, (D 1/2), 1-1/2" THICK	TON	188
1	ASPHALT CONCRETE BASE COURSE (A 1-1/2), 6" THICK	TON	749
	EMULSIFIED ASPHALT FOR TACK COAT, TYPE SS-1H	TON	1.5
3	CURB & GUTTER, M.A.G. DET. 220 TYPE A, H=6"	LF	532
4	SINGLE CURB, M.A.G. DET. 222 TYPE A, H=6"	LF	721
5	CONCRETE SIDEWALK, C.O.P. DET. P1230	SF	3364
6	CONCTETE MEDIAN NOSE	SF	30
7	STAMPED ASPHALT DECORATIVE PAVEMENT	SF	783
9	9" THICK CONC. PVMT. CLASS "A" PER MAG SPECS & C.O.P. DET. P1256-1	SF	1687
11	BUS SHELTER PAD, C.O.P. DET. P1261	SF	622
14	ADJUST EXISTING MANHOLE FRAME AND COVER, MAG STD DETAIL 422 AND COP DETAIL P1430	EA	2
16	SINGLE CURB, M.A.G. DET. 222 TYPE B, H=6"	LF	8
20	BARRICADE, STANDARD DETAIL P-1106, TYPE 'B'	EA	–
23	CONCRETE SINGLE CURB, MAG DET. 222, TYPE A MOD FOR BUS BAYS	LF	187

SHEET REFERENCES

1. SEE SHEET 13 FOR MEDIAN DETAILS

CALL TWO WORKING DAYS BEFORE YOU DIG
CALL FOR THE BLUE STAKE
602-263-1100
1-800-STAKE-IT
OUTSIDE MARICOPA COUNTY

PREMIER ENGINEERING
PROJECT NO.: 2010011

PAVING PLAN

CITY OF PHOENIX STREET TRANSPORTATION
DEPARTMENT DESIGN AND CONSTRUCTION
MANAGEMENT DIVISION

AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
ST85100334

DR: JRR	DES: DVV	CK: KJB	DWG NO:
DATE: 05/13	DATE: 05/13	DATE: 05/13	
SCALE: 1"=20'			PL-1.13

ST85100334

P:\2010011\CADD\Civil\Sheets\ST85100334PL13.dwg dvoigt Aug 16, 2013 – 8:46am

AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
PHOENIX STREETS – MARICOPA CO.

▲ T.B.M.: SET 1/2" REBAR AT
STA 199+22.48, 335.71' LT
ELEV = 1021.91

CURB TAPER
TRUE LENGTH=265.11'

EXISTING GROUND
@ LT GUTTER

NEW LT
GUTTER

TC=1013.19
G=1012.69

STA 47+23.28
TC=1015.26
G=1014.76

STA 47+63.28
TC=1015.99
G=1015.49

NEW RT
BUS BAY
TOP OF CURB

STA 48+38.60
TC=1016.89
G=1016.39

TC=1017.48
G=1016.98

+1.85%

NEW RT
BUS BAY F/C

MATCH LINE STA 45+50 + SEE SHEET PR-1.12

MATCH LINE STA 49+08.69 – SEE SHEET PR-1.01

CURB TAPER
TRUE LENGTH=225.63'

TC=1013.28
G=1012.78

NEW RT TOP
OF CURB

NEW RT
GUTTER

EXISTING GROUND
@ RT GUTTER

BCR
TC=1017.64
G=1017.14

1022
1020
1018
1016
1014
1012
1010

45+50 46+00 47+00 48+00 49+00

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

PRELIMINARY
75%
NOT FOR
CONSTRUCTION
OR RECORDING

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.	ST85100334	39	106

PREMIER
ENGINEERING CORPORATION
6437 W. CHANDLER BLVD., SUITE 1
CHANDLER, AZ 85226; 480-829-6000
CONSULTING ENGINEER

DR: JRR	DES: DVV	CK: KJB	DATE: 05/13

CALL TWO WORKING DAYS BEFORE YOU DIG
CALL FOR THE BLUE STAKES
602-263-1100
1-800-STAKE-IT
OUTSIDE MARICOPA COUNTY

PREMIER ENGINEERING
PROJECT NO.: 2010011

PAVING PROFILE

CITY OF PHOENIX STREET TRANSPORTATION
DEPARTMENT DESIGN AND CONSTRUCTION
MANAGEMENT DIVISION

AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
ST85100334

DR: JRR	DES: DVV	CK: KJB	DWG NO:
DATE:05/13	DATE: 05/13	DATE: 05/13	
SCALE: 1"=20' H, 1"= 2' V			PR-1.13

ST85100334

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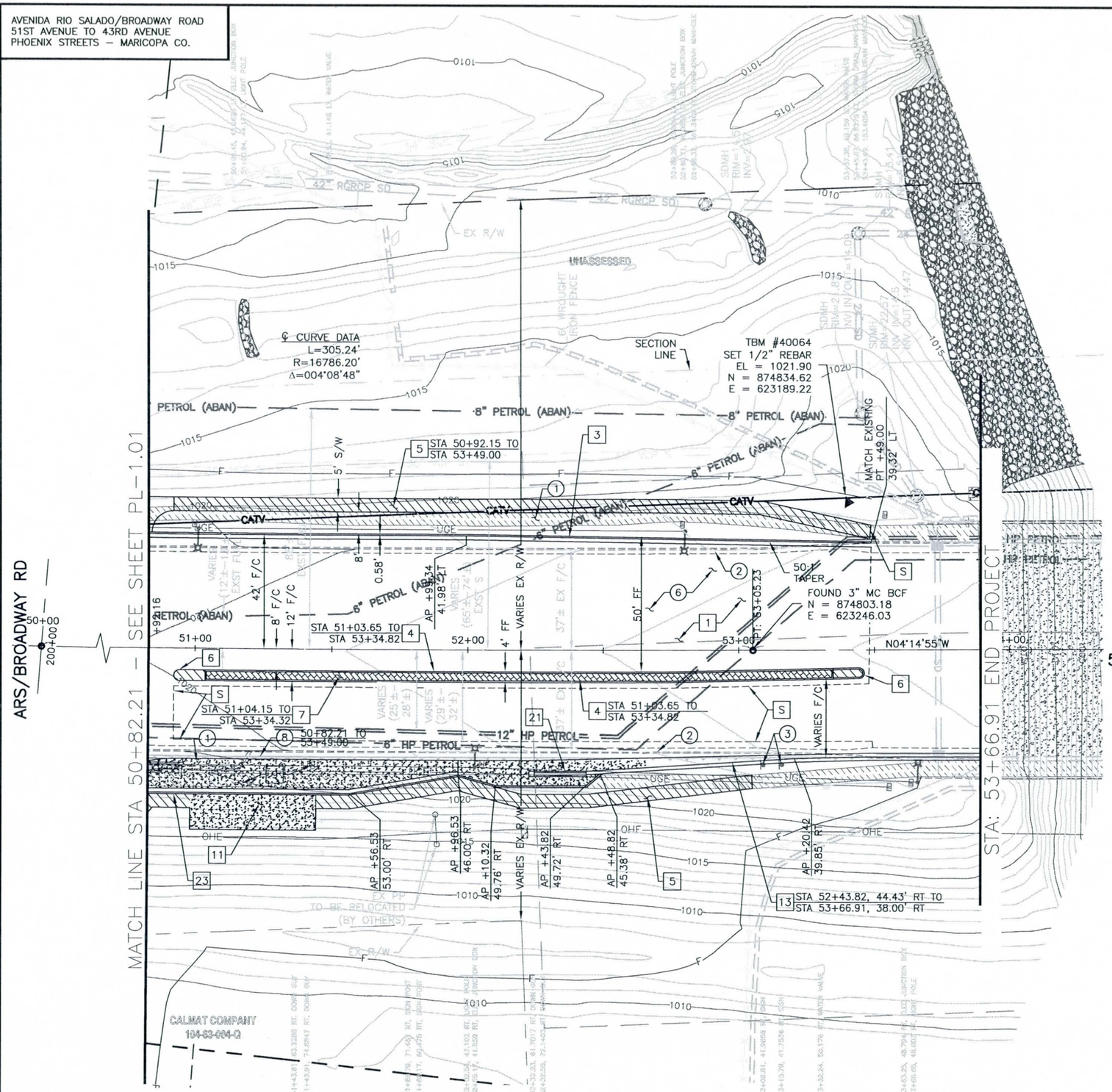
AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
PHOENIX STREETS – MARICOPA CO.



▲ T.B.M.: SET 1/2" REBAR AT
STA 53+40.79, 54.33' LT
ELEV = 1021.90

SHEET REFERENCES

1. SEE SHEET 13 FOR MEDIAN DETAILS
2. SEE SHEET 68 FOR CB CONN PIPE PROFILE
3. SEE SEPARATE RIGHT OF WAY PLAN ST85100334 SHEETS 1 THRU 3

PRELIMINARY
75%
NOT FOR CONSTRUCTION OR RECORDING

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.	ST85100334	40	106

PREMIER
ENGINEERING CORPORATION
6437 W. CHANDLER BLVD., SUITE 1
CHANDLER, AZ 85226; 480-829-6000
CONSULTING ENGINEER

DR: JRR	DES: DW	CK: KJB	DATE: 05/13

REMOVAL/RELOCATION NOTES

NO	DESCRIPTION	UNIT	QTY
1	REMOVE PORTLAND CEMENT CONCRETE SIDEWALK, DRIVEWAY, VALLEY GUTTER & SLAB	SF	2669
2	REMOVE PORTLAND CEMENT CONCRETE SINGLE CURB AND CURB & GUTTER	LF	534
3	REMOVE AND SALVAGE TRAFFIC SIGN (MISC)	EA	2
6	REMOVE EXISTING ASPHALT CONCRETE	SY	1445
8	REMOVE EXISTING GUARD RAIL	LF	285

CONSTRUCTION NOTES

NO	DESCRIPTION	UNIT	QTY
1	SUBGRADE PREPARATION	SY	1686
	ASPHALT CONCRETE SURFACE COURSE, (D 1/2), 1-1/2" THICK	TON	145
	ASPHALT CONCRETE BASE COURSE (A 1-1/2), 6" THICK	TON	577
	EMULSIFIED ASPHALT FOR TACK COAT, TYPE SS-1H	TON	1.1
3	CURB & GUTTER, M.A.G. DET. 220 TYPE A, H=6"	LF	323
4	SINGLE CURB, M.A.G. DET. 222 TYPE A, H=6"	LF	513
5	CONCRETE SIDEWALK, C.O.P. DET. P1230 (6" THICK)	SF	2400
6	CONCTETE MEDIAN NOSE	SF	60
7	STAMPED ASPHALT DECORATIVE PAVEMENT	SF	654
11	BUS SHELTER PAD, C.O.P. DET. P1261	SF	607
13	CONSTRUCT CONCRETE BARRIER PER DETAIL B ON SHEET 43	LF	123
21	CONSTRUCT TRACC ENERGY ABSORBING TERMINAL	EA	1
23	CONCRETE SINGLE CURB, MAG DET. 222, TYPE A MOD FOR BUS BAYS	LF	214
28	9" THICK CONC. PVMT. CLASS "A" PER MAG SPECS & C.O.P. DET. P1256-1 (PAVEMENT ONLY)	SF	1567

CALL TWO WORKING DAYS BEFORE YOU DIG
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1-800-STAKE-IT
OUTSIDE MARICOPA COUNTY

PREMIER ENGINEERING
PROJECT NO.: 2010011

PAVING PLAN

CITY OF PHOENIX STREET TRANSPORTATION
DEPARTMENT DESIGN AND CONSTRUCTION
MANAGEMENT DIVISION

AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
ST85100334

DR: JRR	DES: DW	CK: KJB	DWG
DATE: 05/13	DATE: 05/13	DATE: 05/13	NO:
SCALE: 1"=20'			PL-1.14

ST85100334

REVISION BY CITY OF PHOENIX
NO. | DESCRIPTION | REV BY | CKD BY | DATE

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AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
PHOENIX STREETS – MARICOPA CO.

▲ T.B.M.: SET 1/2" REBAR AT
STA 199+22.48, 335.71' LT.
ELEV = 1021.91

PRELIMINARY
30%
NOT FOR CONSTRUCTION OR RECORDING

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.	ST85100334	41	106

PREMIER
ENGINEERING CORPORATION
6437 W. CHANDLER BLVD., SUITE 1
CHANDLER, AZ 85226; 480-829-6000
CONSULTING ENGINEER

DR: JRR	DES: DVV	CK: KJB	DATE: 05/13

REVISION BY CITY OF PHOENIX

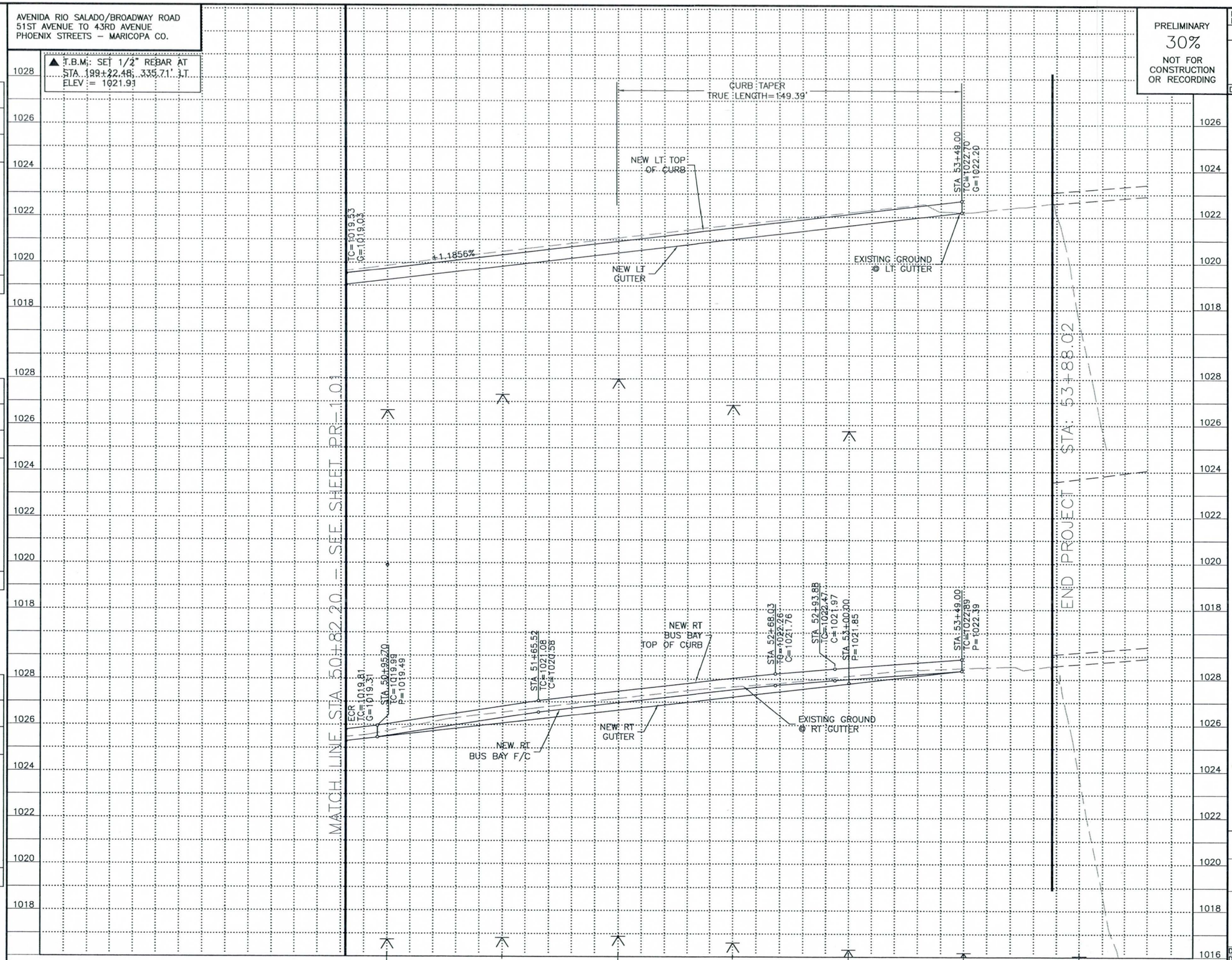
NO.	DESCRIPTION	REV BY	CKD BY	DATE

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE



PREMIER ENGINEERING
PROJECT NO.: 2010011

CALL TWO WORKING DAYS BEFORE YOU DIG
CALL FOR THE BLUE STAKES
602-263-1100
1-800-STAKE-IT
OUTSIDE MARICOPA COUNTY

PAVING PROFILE

CITY OF PHOENIX STREET TRANSPORTATION
DEPARTMENT DESIGN AND CONSTRUCTION
MANAGEMENT DIVISION

AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
ST85100334

DR: JRR	DES: DVV	CK: KJB	DWG NO:
DATE:05/13	DATE: 05/13	DATE: 05/13	
SCALE: 1"=20' H, 1"= 2' V			PR-1.14

ST85100334

AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
PHOENIX STREETS – MARICOPA CO.

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV. BY	CKD. BY	DATE

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV. BY	CKD. BY	DATE

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV. BY	CKD. BY	DATE

GRAPHIC SCALE
20 0 10 20
1 INCH = 20 FT

City of Phoenix
N

PRELIMINARY
75%
NOT FOR CONSTRUCTION OR RECORDING

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.	ST85100334	78	106

PREMIER
ENGINEERING CORPORATION
6437 W. CHANDLER BLVD., SUITE 1
CHANDLER, AZ 85226; 480-829-6000
CONSULTING ENGINEER

DR: JRR	DES: BBJ	CK: KJB	DATE: 05/13

CONSTRUCTION NOTES

NO	DESCRIPTION	UNIT	QTY
1	CONSTRUCT 12"x9'x6' SLOPE MATTRESS BANK PROTECTION PER DETAIL ON SHEET 84	SY	882
2	CONSTRUCT 3'x3'x3' GABION BLOCK PER DETAIL ON SHEET 84	CY	58
3	INSTALL HIGH SURVIVABILITY NON-WOVEN FILTER FABRIC	SY	911
4	CONSTRUCT 12"x3'x9' SLOPE MATTRESS BANK PROTECTION PER PLAN	SY	29

1010
1015
1020
1025
1012 1011 1014 1013 1015 1016 1017 1018
TCE
EX. BANK CONSTRUCTION/ MAINTENANCE EASEMENT
LIMIT OF 100-YR FLOODWAY
ARIZONA SAND & ROCK CO.
104-62-002-C
150'
TCE
SLOPE EASEMENT
SECTION LINE
STA:229+31.12
OFF:193.54' LT
TOE=986.00
18' APRON
12'
18'
STA:230+00.00
OFF:170.75' LT
TOE=986.00
END BANK PROTECTION
2:1
2 58 CY
BURIED SLOPE MATTRESSES
STA:229+10.46
OFF:110.86' LT
TOP=1019.00
29 SY 3
29 SY 4
882 SY 1
882 SY 3
EXPOSED SLOPE MATTRESSES
EX R/W ESMT
5' S/W
STA:230+00.00
OFF:101.22' LT
TOP=1019.00
8.58'
0.58'
40' FF
65' EX R/W ESMT
14' FF
40' FF
65' EX R/W ESMT
ARS/BROADWAY ROAD CST ℄
ARS/BROADWAY ROAD
+00
226+00
227+00
228+00
229+00
S89°44'56"E
4618.82'
230
4.00'
0.58'
5' S/W
DRAINAGE EASEMENT
TCE
EX R/W ESMT
ARIZONA SAND & ROCK CO.
104-62-002-B
MATCH LINE STA 230+00 – SEE SHEET DD-1.02

CALL TWO WORKING DAYS BEFORE YOU DIG
CALL FOR THE BLUE STAKES
602-263-1100
1-800-STAKE-IT
OUTSIDE MARICOPA COUNTY

PREMIER ENGINEERING
PROJECT NO.: 2010011

BANK PROTECTION PLAN

CITY OF PHOENIX STREET TRANSPORTATION
DEPARTMENT DESIGN AND CONSTRUCTION
MANAGEMENT DIVISION

AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
ST85100334

DR: JRR	DES: BBJ	CK: KJB	DWG NO: DD-1.01
DATE: 05/13	DATE: 05/13	DATE: 05/13	

SCALE: 1"=20'

ST85100334

P:\2010011\CADD\Civil\Sheets\ST85100334BP01.dwg dvoigt Aug 16, 2013 – 9:08am

AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
PHOENIX STREETS – MARICOPA CO.

GRAPHIC SCALE
20 0 10 20
1 INCH = 20 FT

City of Phoenix
N

PRELIMINARY
75%
NOT FOR CONSTRUCTION OR RECORDING

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.	ST85100334	79	106

PREMIER
ENGINEERING CORPORATION
6437 W. CHANDLER BLVD., SUITE 1
CHANDLER, AZ 85226; 480-829-6000
CONSULTING ENGINEER

DR: JRR | DES: BBJ | CK: KJB | DATE: 05/13

CONSTRUCTION NOTES

NO	DESCRIPTION	UNIT	QTY
(1)	CONSTRUCT 12"x9'x6' SLOPE MATTRESS BANK PROTECTION PER DETAIL ON SHEET 84	SY	5162
(3)	INSTALL HIGH SURVIVABILITY NON-WOVEN FILTER FABRIC	SY	5329
(4)	CONSTRUCT 12"x3'x9' SLOPE MATTRESS BANK PROTECTION PER PLAN	SY	167

EX. BANK CONSTRUCTION/MAINTENANCE EASEMENT
ARIZONA SAND & ROCK CO.
104-62-002-C
18' APRON
(1) 5162 SY
(3) 5162 SY
SALT RIVER
BURIED SLOPE MATTRESSES
EXPOSED SLOPE MATTRESSES
(3) 167 SY
(4) 167 SY
STA:230+00.00 OFF:170.75' LT TOE=986.00
STA:230+64.21 OFF:149.51' LT TOE=986.00
STA:235+00.00 OFF:149.51' LT TOE=986.00
STA:230+00.00 OFF:101.22' LT TOP=1019.00
STA:230+61.06 OFF:81.00' LT TOP=1019.00
STA:235+00.00 OFF:81.00' LT TOP=1019.95
EX R/W ESMT
5' S/W
150'
2:1
1008 1009 1010 1012 1014 1016 1018
8.58'
0.58'
EX LIMIT OF 100-YR FLOODWAY
ARS/BROADWAY ROAD CST ℄
40' FF
65' EX R/W ESMT
14' FF
4.00'
ARS/BROADWAY ROAD
231+00 232+00 233+00 234+00 235
4618.82'
1015 1020 1025 1030
42" RCP S
30" RCP S (ABAN)
DRAINAGE EASEMENT
TCE
ARIZONA SAND & ROCK CO.
104-62-002-B

MATCH LINE STA 230+00 – SEE SHEET DD–1.01
MATCH LINE STA 235+00 – SEE SHEET DD–1.03

REVISION BY CITY OF PHOENIX

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PREMIER ENGINEERING
PROJECT NO.: 2010011

CALL TWO WORKING DAYS BEFORE YOU DIG
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OUTSIDE MARICOPA COUNTY

BANK PROTECTION PLAN

CITY OF PHOENIX STREET TRANSPORTATION DEPARTMENT DESIGN AND CONSTRUCTION MANAGEMENT DIVISION

AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
ST85100334

DR: JRR	DES: BBJ	CK: KJB	DWG NO:
DATE: 05/13	DATE: 05/13	DATE: 05/13	
SCALE: 1"=20'			DD–1.02

ST85100334

P:\2010011\CADD\Civil\Sheets\ST85100334BP02.dwg dvoigt Aug 16, 2013 – 9:08am

AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
PHOENIX STREETS – MARICOPA CO.

PRELIMINARY
75%
NOT FOR CONSTRUCTION OR RECORDING

GRAPHIC SCALE
20 0 10 20
1 INCH = 20 FT

N

EX. BANK CONSTRUCTION/MAINTENANCE EASEMENT

ARIZONA SAND & ROCK CO.
104-62-002-C

SALT RIVER

5222 SY (1)
5222 SY (3)

STA:235+00.00
OFF:149.51' LT
TOE=986.00

STA:240+00.00
OFF:149.51' LT
TOE=986.00

18' APRON

2:1

150'

BURIED SLOPE MATTRESSES

EXPOSED SLOPE MATTRESSES

EX R/W ESMT

STA:235+00.00
OFF:81.00' LT
TOP=1019.95

STA:240+00.00
OFF:81.00' LT
TOP=1020.10

(3) 167 SY
(4) 167 SY

5' S/W

8.58'
0.58'

ARS/BROADWAY ROAD CST ℄

ARS/BROADWAY ROAD

40' FF
14' FF
40' FF

65' EX R/W ESMT

4.00'

0.58'
8.58'

4618.82'

236+00
237+00
238+00
239+00
240

1010
1012
1014
1015
1016
1018
1020
1025

MATCH LINE STA 235+00 – SEE SHEET DD–1.02

MATCH LINE STA 240+00 – SEE SHEET DD–1.04

18" DIA WOOD POWER POLE

TCE

DRAINAGE EASMENT

OHE

ARIZONA SAND & ROCK CO.
104-62-002-B

DIRT ON

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.	ST85100334	80	106

PREMIER
ENGINEERING CORPORATION
6437 W. CHANDLER BLVD., SUITE 1
CHANDLER, AZ 85226; 480-829-6000
CONSULTING ENGINEER

DR: JRR	DES: BBJ	CK: KJB	DATE: 05/13

CONSTRUCTION NOTES

NO	DESCRIPTION	UNIT	QTY
(1)	CONSTRUCT 12"x9'x6' SLOPE MATTRESS BANK PROTECTION PER DETAIL ON SHEET 84	SY	5222
(3)	INSTALL HIGH SURVIVABILITY NON-WOVEN FILTER FABRIC	SY	5389
(4)	CONSTRUCT 12"x3'x9' SLOPE MATTRESS BANK PROTECTION PER PLAN	SY	167

CALL TWO WORKING DAYS BEFORE YOU DIG
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602-263-1100
1-800-STAKE-IT
OUTSIDE MARICOPA COUNTY

PREMIER ENGINEERING
PROJECT NO.: 2010011

BANK PROTECTION PLAN

CITY OF PHOENIX STREET TRANSPORTATION DEPARTMENT DESIGN AND CONSTRUCTION MANAGEMENT DIVISION

AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
ST85100334

DR: JRR	DES: BBJ	CK: KJB	DWG NO:
DATE: 05/13	DATE: 05/13	DATE: 05/13	
SCALE: 1"=20'			DD–1.03

ST85100334

P:\2010011\CADD\Civil\Sheets\ST85100334BP03.dwg dvoigt Aug 16, 2013 – 9:08am

AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
PHOENIX STREETS – MARICOPA CO.

GRAPHIC SCALE
20 0 10 20
1 INCH = 20 FT

City of Phoenix
N

PRELIMINARY
75%
NOT FOR CONSTRUCTION OR RECORDING

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.	ST85100334	81	106

PREMIER
ENGINEERING CORPORATION
6437 W. CHANDLER BLVD., SUITE 1
CHANDLER, AZ 85226; 480-829-6000
CONSULTING ENGINEER

DR: JRR | DES: BBJ | CK: KJB | DATE: 05/13

CONSTRUCTION NOTES

NO	DESCRIPTION	UNIT	QTY
(1)	CONSTRUCT 12"x9'x6' SLOPE MATTRESS BANK PROTECTION PER DETAIL ON SHEET 84	SY	5222
(3)	INSTALL HIGH SURVIVABILITY NON-WOVEN FILTER FABRIC	SY	5389
(4)	CONSTRUCT 12"x3'x9' SLOPE MATTRESS BANK PROTECTION PER PLAN	SY	167

EX. BANK CONSTRUCTION/MAINTENANCE EASEMENT
SALT RIVER
(1) 5222 SY
(3) 5222 SY
18' APRON
ARIZONA SAND & ROCK CO.
104-52-002-C
STA:240+00.00 OFF:149.51' LT TOE=986.00
STA:245+00.00 OFF:149.50' LT TOE=986.00
150'
2:1
BURIED SLOPE MATTRESSES
EXPOSED SLOPE MATTRESSES
EX R/W ESMT
5' S/W
STA:240+00.00 OFF:81.00' LT TOP=1020.10
STA:245+00.00 OFF:81.00' LT TOP=1020.25
(3) 167 SY
(4) 167 SY
ARS/BROADWAY ROAD CST ℄
ARS/BROADWAY ROAD
8.58'
0.58'
40' FF
65' EX R/W ESMT
14' FF
241+00
242+00
243+00
244+00
4618.82'
245
CONCRETE BARRIERS
4' TALL CONCRETE 5.5'x1.1'
8' TALL CONCRETE 2.2'x7.8' W/ 1.3'x5.3' LEG CUT OUT
18" DIA WOOD POWER POLE
DRAINAGE EASEMENT
ARIZONA SAND & ROCK CO.
104-52-002-B
THE ROAD

MATCH LINE STA 240+00 – SEE SHEET DD–1.03
MATCH LINE STA 245+00 – SEE SHEET DD–1.05

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

PREMIER ENGINEERING
PROJECT NO.: 2010011

CALL TWO WORKING DAYS BEFORE YOU DIG
CALL FOR THE BLUE STAKES
602-263-1100
1-800-STAKE-IT
OUTSIDE MARICOPA COUNTY

BANK PROTECTION PLAN

CITY OF PHOENIX STREET TRANSPORTATION DEPARTMENT DESIGN AND CONSTRUCTION MANAGEMENT DIVISION

AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
ST85100334

DR: JRR	DES: BBJ	CK: KJB	DWG NO:
DATE: 05/13	DATE: 05/13	DATE: 05/13	
SCALE: 1"=20'			DD–1.04

ST85100334

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AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
PHOENIX STREETS – MARICOPA CO.

GRAPHIC SCALE
20 0 10 20
1 INCH = 20 FT

City of Phoenix
N

PRELIMINARY
75%
NOT FOR CONSTRUCTION OR RECORDING

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.	ST85100334	82	106

PREMIER
ENGINEERING CORPORATION
6437 W. CHANDLER BLVD., SUITE 1
CHANDLER, AZ 85226; 480-829-6000
CONSULTING ENGINEER

DR: JRR	DES: BBJ	CK: KJB	DATE: 05/13

CONSTRUCTION NOTES

NO	DESCRIPTION	UNIT	QTY
1	CONSTRUCT 12"x9'x6' SLOPE MATTRESS BANK PROTECTION PER DETAIL ON SHEET 84	SY	4729
3	INSTALL HIGH SURVIVABILITY NON-WOVEN FILTER FABRIC	SY	4877
4	CONSTRUCT 12"x3'x9' SLOPE MATTRESS BANK PROTECTION PER PLAN	SY	148

SALT RIVER

EX. BANK CONSTRUCTION/MAINTENANCE EASEMENT

MATCH LINE STA 245+00 – SEE SHEET DD–1.04

MATCH LINE STA 249+50 – SEE SHEET DD–1.06

STA:245+00.00
OFF:149.50' LT
TOE=986.00

STA:245+00.00
OFF:81.00' LT
TOP=1020.25

STA:249+50.00
OFF:144.61' LT
TOE=986.00

STA:249+50.00
OFF:79.69' LT
TOP=1020.25

1 4729 SY
3 4729 SY
3 148 SY
4 148 SY

BURIED SLOPE MATTRESSES

EXPOSED SLOPE MATTRESSES

18' APRON

150'

2:1

5' S/W

8.58'

0.58'

65' EX R/W

40' FF

14' FF

LIMIT OF 100-YR FLOODWAY

ARS/BROADWAY ROAD

POC 246+19.23

ARS/BROADWAY ROAD CST ℄

245+00 246+00 247+00 248+00 249+00

1010 1011 1012 1013 1014 1016 1018 1020 1025 1030

OHE

PREMIER ENGINEERING
PROJECT NO.: 2010011

CALL TWO WORKING DAYS BEFORE YOU DIG
CALL FOR THE BLUE STAKES
602-263-1100
1-800-STAKE-IT
OUTSIDE MARICOPA COUNTY

BANK PROTECTION PLAN

CITY OF PHOENIX STREET TRANSPORTATION
DEPARTMENT DESIGN AND CONSTRUCTION
MANAGEMENT DIVISION

AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
ST85100334

DR: JRR	DES: BBJ	CK: KJB	DWG NO:
DATE: 05/13	DATE: 05/13	DATE: 05/13	
SCALE: 1"=20'			DD–1.05

ST85100334

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

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AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
PHOENIX STREETS – MARICOPA CO.

GRAPHIC SCALE
20 0 10 20
1 INCH = 20 FT

City of Phoenix
N

PRELIMINARY
75%
NOT FOR CONSTRUCTION OR RECORDING

F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.	ST85100334	83	106

PREMIER
ENGINEERING CORPORATION
6437 W. CHANDLER BLVD., SUITE 1
CHANDLER, AZ 85226; 480-829-6000
CONSULTING ENGINEER

DR: JRR	DES: BBJ	CK: KJB	DATE: 05/13

CONSTRUCTION NOTES

NO	DESCRIPTION	UNIT	QTY
1	CONSTRUCT 12"x9'x6' SLOPE MATTRESS BANK PROTECTION PER DETAIL ON SHEET 84	SY	2050
2	CONSTRUCT 3'x3'x3' GABION BLOCK PER DETAIL ON SHEET 84	CY	64
3	INSTALL HIGH SURVIVABILITY NON-WOVEN FILTER FABRIC	SY	2108
4	CONSTRUCT 12"x3'x9' SLOPE MATTRESS BANK PROTECTION PER PLAN	SY	58

EX. BANK CONSTRUCTION/ MAINTENANCE EASEMENT
60' FCDMC ESMT
1 2050 SY
3 2050 SY
STA:251+17.63
OFF:162.15' LT
TOE=986.00
18'
12'
STA:249+50.00
OFF:144.61' LT
TOE=986.00
SLOPE TRANSITION
BEGIN BANK PROTECTION SLOPE TRANSITION TO MATCH EX BANK SLOPE
2:1
2 64 CY
STA:251+52.54
OFF:86.97' LT
TOP=1028.83
SEE CITY OF PHOENIX PROJECT # ST85100333 FOR CONTINUATION
55' R/W
3 58 SY
4 58 SY
STA:249+50.00
OFF:79.69' LT
TOE=1020.25
MATCH LINE STA 249+50 – SEE SHEET DD-1.04
ARS/BROADWAY ROAD
END OF PROJECT ST85100334
EXST GAS
OHE
UGE
1015 1016 1017 1018 1020 1022 1025 1026 1028
250+00 251+00 252+00 253+00
19+00 20+00 21+00 22+00

PREMIER ENGINEERING
PROJECT NO.: 2010011

CALL TWO WORKING DAYS BEFORE YOU DIG
CALL FOR THE BLUE STAKES
602-263-1100
1-800-STAKE-IT
OUTSIDE MAJOR/COUNTY

BANK PROTECTION PLAN

CITY OF PHOENIX STREET TRANSPORTATION DEPARTMENT DESIGN AND CONSTRUCTION MANAGEMENT DIVISION

AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
ST85100334

DR: JRR	DES: BBJ	CK: KJB	DWG NO:
DATE: 05/13	DATE: 05/13	DATE: 05/13	
SCALE: 1"=20'			DD-1.06

ST85100334

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CKD BY	DATE

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AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
PHOENIX STREETS – MARICOPA CO.

PRELIMINARY
75%
NOT FOR CONSTRUCTION OR RECORDING

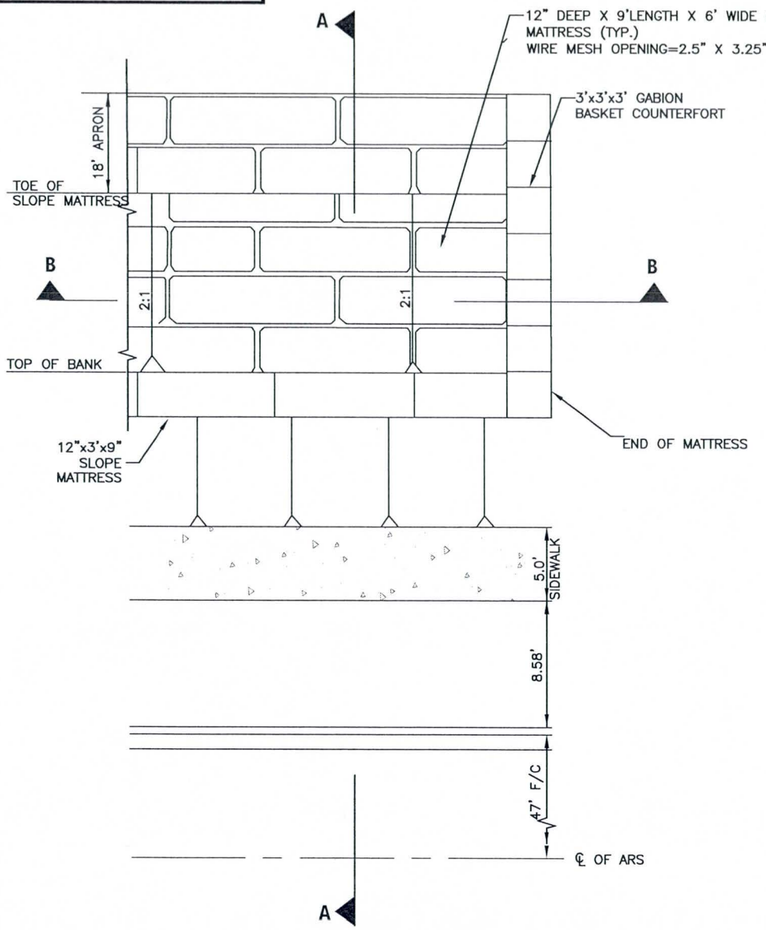
F.H.W.A. REGION	STATE	PROJ. NO.	NO.	TOTAL
9	ARIZ.	ST85100334	84	106

PREMIER
ENGINEERING CORPORATION
6437 W. CHANDLER BLVD., SUITE 1
CHANDLER, AZ 85226; 480-829-6000
CONSULTING ENGINEER

DR: JRR	DES: BBJ	CK: KJB	DATE: 05/13

REVISION BY CITY OF PHOENIX

NO.	DESCRIPTION	REV BY	CK'D BY	DATE

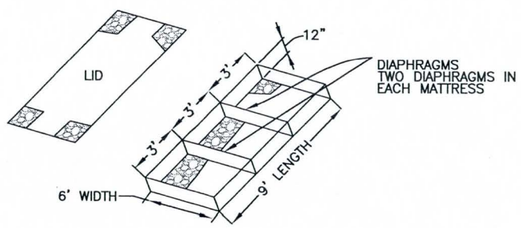


TYPICAL SLOPE MATTRESS AND APRON PLAN VIEW GABION
NTS

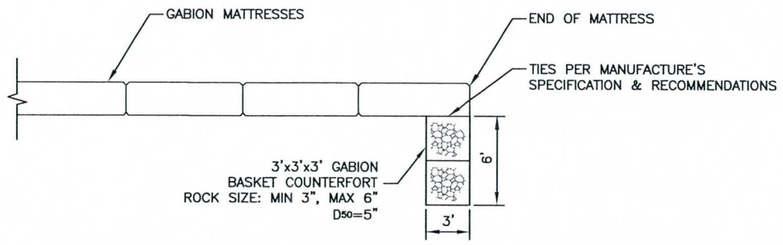
SECTION A–A
NTS

NOTE:

1. ALL CONNECTION TO EXISTING SLOPE MATTRESSES SHALL BE STANDARD FULL DEPTH "BUTT" CONNECTIONS. BEFORE THE MATTRESS UNITS ARE FILLED THE LONGITUDINAL AND LATERAL EDGE SURFACES OF ADJOINING UNITS SHALL BE TIGHTLY CONNECTED BY TIE WIRES AT MINIMUM OF FOUR INCH AND MAXIMUM OF 6 INCH INTERVAL. THE LID EDGES OF EACH UNIT SHALL BE CONNECTED IN A SIMILAR MANNER TO ADJACENT UNITS. LID SHALL BE SECURED TO SIDES, ENDS AND DIAPHRAM IN A SIMILAR MANNER.
2. ALL WIRE USED IN THE CONSTRUCTION OF MATTRESS SHALL BE GALVANIZED AND OF MINIMUM NO. 13 GAUGE. WIRE USED FOR EDGE AND CORNER SHALL BE MINIMUM NO. 12 GAUGE.
3. SLOPE MATTRESSES SHALL BE FABRICATED FROM A DOUBLE TWIST BY TWISTING EACH PAIR OF WIRE THROUGH THREE HALF TURNS DEVELOPING THE APPEARANCE OF A TRIPLE TWIST PER ASTM A975. CONTRACTOR SHALL FOLLOW THE MANUFACTURER'S INSTRUCTION FOR FIELD ASSEMBLY OF BASKET UNIT.



MATTRESS CONFIGURATION
NTS



SECTION B–B
NTS

602-263-1100
1-800-STAKE-IT
OUTSIDE MARICOPA COUNTY

PREMIER ENGINEERING
PROJECT NO.: 2010011

BANK PROTECTION DETAILS

CITY OF PHOENIX STREET TRANSPORTATION DEPARTMENT DESIGN AND CONSTRUCTION MANAGEMENT DIVISION

AVENIDA RIO SALADO/BROADWAY ROAD
51ST AVENUE TO 43RD AVENUE
ST85100334

DR: JRR	DES: BBJ	CK: KJB	DWG NO:
DATE:05/13	DATE: 05/13	DATE: 05/13	
SCALE: NTS			DD–1.07

ST85100334

APPENDIX I

DIGITAL FILES