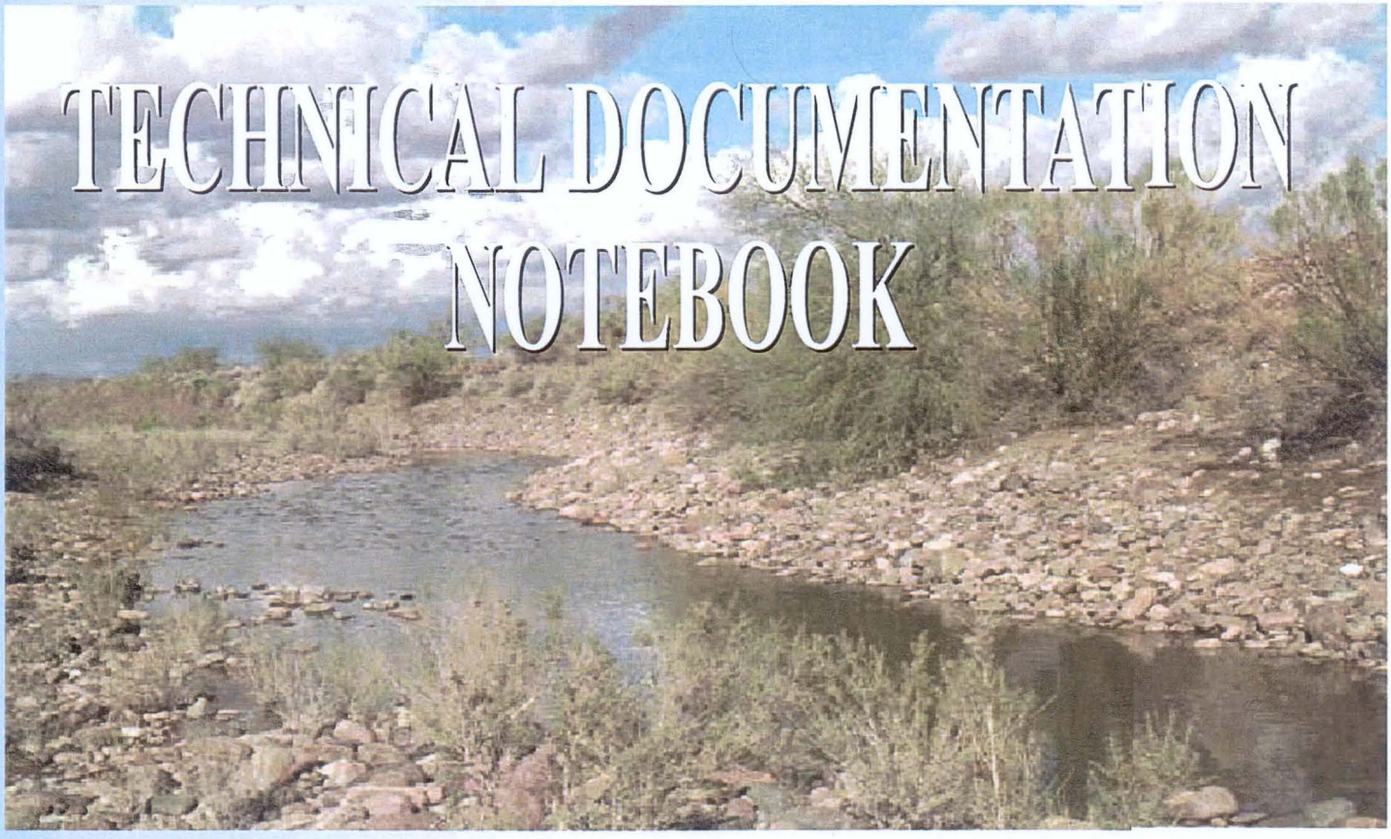
MIDDLE NEW RIVER WATERCOURSE MASTER PLAN



Prepared for

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY 1959

GLENDALE AZ

CITY OF PEORIA

Revised May 2000
FCD Contract 97-04
Stantec Consulting Project Number 28900058

Prepared by

Stantec

MIDDLE NEW RIVER WATERCOURSE MASTER PLAN

TECHNICAL DATA NOTEBOOK

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PREPARED FOR:

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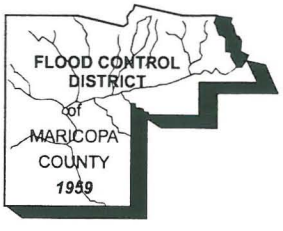
JUNE 1999
Revised: May 2000

STANTEC CONSULTING Inc.
Project No. 28900058

Contract FCD 97-04



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Foreward

The Middle New River Watercourse Master Plan report and conceptual engineering plans and its companion document, the Middle New River Watercourse Master Plan Technical Documentation Notebook, were submitted for final review to the Flood Control District of Maricopa County, the City of Glendale and the City of Peoria in early June 1999 by Stantec Consulting Inc. (Stantec). Several delays were necessary to resolve issues raised during the review of the final documents in June 1999 and subsequent items.

- The study identified potential flooding from New River into the Bell Park subdivision. The risk was identified as the potential for static water in New River during a 100-year flood event to enter the street system via the subdivision's interior drainage outlet channels that discharge to New River. In June 1999, Stantec was requested to delay completion of the Master Plan by the City of Peoria until additional detailed studies by Stantec and the subdivision's design engineer could be completed. Two separate reports entitled, "Bell Park Subdivision Flood Analysis Review" by Stantec, and the "Bell Park Subdivision Flood Analysis" by DEI, Inc., present the results.

- In September 1999, the Flood Control District of Maricopa County, the City of Glendale and the City of Peoria were advised by the Phoenix office of the U.S. Army Corps of Engineers - Los Angeles District, that an individual Section 404 permit was required for the entire 8.5 mile long Watercourse Master Plan. This was a unique request that had never before been required for a master plan of this type in Arizona. Stantec commenced with the preparation of the Section 404 permit application and supporting work in October 1999.

- In April 2000, Stantec was advised that because of some of the unique non-structural flood protection measures that affected only the City of Peoria, approval was required by the Peoria City Council for submittal of the Section 404 permit application. Since non-structural

flood protection was not called for in the City of Glendale, city representatives determined that it was not necessary to gain approval from the Glendale City Council for submittal of the Section 404 permit application. The Middle New River Watercourse Master Plan and a request for authorization to submit the Section 404 permit application for it was made to the Peoria City Council on 16 May 2000. The request was approved unanimously by the Peoria City Council. The Section 404 permit application was delivered to the Phoenix office of the U.S. Army Corps of Engineers - Los Angeles District on 25 May 2000.

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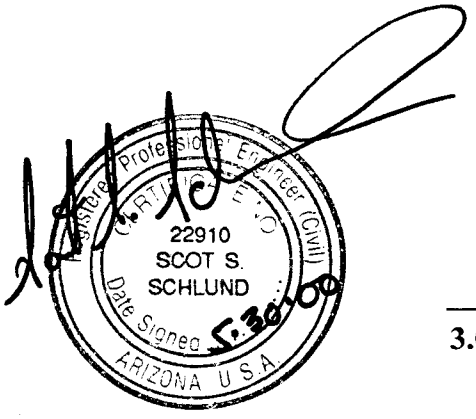

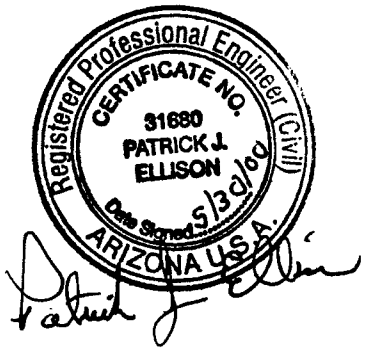

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1.0 INTRODUCTION

1.1 PURPOSE OF REPORT

The Flood Control District of Maricopa County (DISTRICT) the City of Peoria (PEORIA), and the City of Glendale (GLENDALE), jointly concluded that the Middle New River Watercourse Master Plan Study should be conducted for New River. The study reach is located along New River from the confluence with Skunk Creek to the New River Dam. Presently, this reach is under development pressure. Several residential development projects, which include construction within the floodplain and/or channelization of the New River, have been proposed for completion within the next few years. This Watercourse Master Plan will provide both the cities of Glendale and Peoria with a comprehensive approach to river management. The DISTRICT also desires to honor commitments to the U. S. Corps of Engineers to maintain a floodwater conveyance corridor downstream of New River Dam.

This report, the Middle New River Watercourse Master Plan – Technical Documentation Note Book, presents the preferred plan and documents hydrology and hydraulic data, assumptions, procedures and criteria used in conducting the study. This report is generally structured in a Technical Data Notebook format in accordance with Arizona Department of Water Resources (ADWR) requirements of State Standard SS1-97 and State Standard Attachment SSA1-97. Conceptual engineering construction plans are included to convey the intent of the Watercourse Master Plan and to direct future development along New River. These conceptual plans are not for construction purposes. Preparation of final construction plans and specifications are necessary and will require the engineer to conduct further in-depth design and analyses that is project specific. Some adjustment to the Watercourse Master Plan's proposed improvements could be expected.

Analyses conducted in the preparation of the Watercourse Master Plan evaluate strategies for incorporating undeveloped portions of the river with existing development. The Plan will provide a uniform and coordinated approach to floodplain management. A multi-faceted approach will best ensure that present and future residents are protected from the damaging effects of flooding.

As part of the scope of work for the Watercourse Master Plan Study, topographic field surveys, archeological and historic property surveys, biological documentation surveys and hazardous waste surveys are conducted. Results of the surveys are formulated into separate reports. The following separate reports are developed as part of the Watercourse Master Plan:

1. Middle New River Watercourse Master Plan Study - Hazmat Database Review

2. Middle New River Watercourse Master Plan Study - Cultural Resources Overview

3. Middle New River Watercourse Master Plan Study - Photogrammetric Control and Topographic Survey

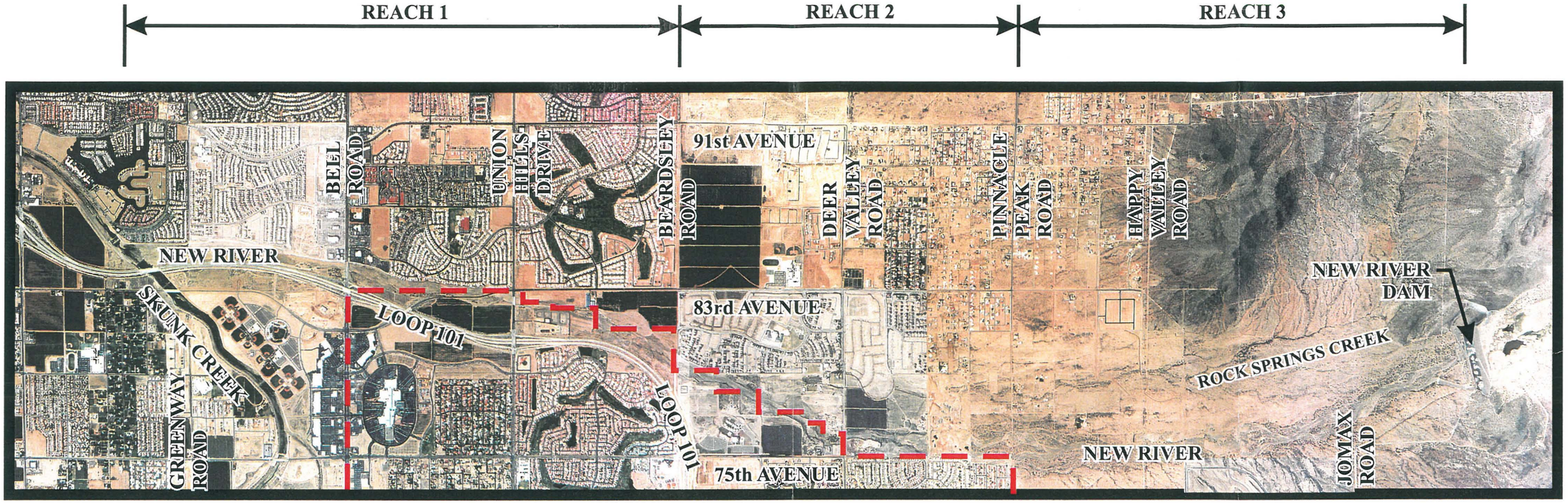
4. Overview of Biological Resources in the Middle New River Watercourse (Confluence With Skunk Creek To New River Dam).

1.2 AUTHORITY FOR STUDY

Pursuant to Arizona revised Statutes 48-3609.01 the District is authorized to conduct watercourse master plans for river reaches within Maricopa County. Stantec Consulting Inc. (Stantec) was awarded the Middle New River Watercourse Master Plan Study (Contract FCD 97-04) in January of 1998.

1.3 LOCATION

The project is located within unincorporated areas in Maricopa County, and within the jurisdictional limits of the City of Glendale and the City of Peoria. Commencing at the confluence of New River with Skunk Creek the project extends upstream along New River for approximately 8.5 miles to the New River Dam. The project area is located on land that is publicly or privately held. Figure 1-1 displays the location of the study area.



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CITY OF PEORIA/GLENDALE BOUNDARY

Stantec

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Client/Project
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
MIDDLE NEW RIVER WATERCOURSE MASTER PLAN

Figure No.
1-1

Title
Vicinity Map

Date: December 21, 1999
Project Number:28900058

1.4 HYDROLOGIC/HYDRAULIC SETTING

The Army Corps of Engineers conducted hydrologic, hydraulic and design studies in the 1970's and the 1980's, to develop a comprehensive plan for the Phoenix valley to mitigate experienced and potential flooding. Excerpts, from the COE's studies concerning the flooding history of the Phoenix valley are presented below.

Storm types experienced over the New River watershed include general winter storms, normally of northern Pacific origin, general summer storms, normally beginning in the Pacific Ocean and the Sea of Cortez and summer thunderstorms. Floods from summer thunderstorms often provide little or no warning to affected communities.

Flows are generated from two distinct sub-areas of approximately equal size, a mountainous sub-area and a flat valley sub-area. Flows are not perennial and are experienced only after relatively heavy precipitation. Flooding is experienced after flood flows overtop the generally dry streambeds and spread as overbank flow. Mountainous areas are characterized by well-defined and incised streambeds. Flat valley areas, however, have poorly defined braided streams that are over toped by larger flows. The resultant characteristic of wide overbank flow within the existing and rapidly urbanizing areas of Phoenix produces a severe flooding problem. Overbank flow produced by a standard project flood (SPF), should it occur, would inundate approximately 79 square miles, approximately 50 percent of which are within urbanized areas.

As a comprehensive plan for flood control for the metropolitan Phoenix area, the Dreamy Draw, Cave Buttes, Adobe, and New River Dams are utilized to reduce storm water flow originating in the watershed north of the metropolitan Phoenix area to nondamaging storm water flow. In addition, the Arizona Canal diversion channel (ACDC) diverts controlled flows from Dreamy Draw and Cave Buttes Dams and local runoff generated in areas below the dams to Skunk Creek and then downstream to the New and Agua Fria Rivers.

The Middle New River Watercourse Master Plan study area lies below New River Dam and within watersheds contributing runoff to New River. Upstream of the dam the New River watershed is comprised of 164 square miles of primarily undeveloped

desert and desert mountains, whereas below the dam, New River watersheds are highly urbanized. Downstream of the dam storm water is conveyed as concentrated flow within defined and braided channels and as overland flow within overbank areas of New River.

1.5 GOALS AND OBJECTIVES

The following goals and objectives are established for the Watercourse Master Plan.

1.5.1 Project Goals

- To assure the requirements of the U.S. Army Corps of Engineers for the future condition 100-year conveyance capacity of the New River channel below the New River Dam.
- To establish a Watercourse Master Plan for planned developments bordering or within the New River floodplain for both GLENDALE and PEORIA.
- To include in the Master Plan Study the size, alignment, grades and construction requirements of proposed channel/floodplain improvements in sufficient detail to permit incorporation of the Master Plan into development plans for adjoining areas and individual parcels.

1.5.2 Project Objectives

- To update existing topographic mapping in areas which have subsequently been developed.
- To update 100 year water surface profiles that were used to establish the existing FEMA floodplain to reflect developments within the floodplain, which have previously been completed or are currently being planned.
- To identify and document the existing quality of biological habitat within the reach of the New River.
- To conduct a literature search of all known archaeological sites.
- To conduct public hearings and publish hearing notices for this study.
- To formulate development alternatives to be studied.

- To conduct feasibility level studies of the alternatives to evaluate areas required for water conveyance (not developable), project costs and impacts to the existing environment.
- To select a specific preferred plan.
- To conduct pre-design studies of the preferred plan to refine designs and construction requirements.
- To adopt and develop the Master Plan in accordance with State of Arizona Statutes.
- To conduct a records search and identify potential illegal waste deposits or hazardous materials along the reach
- To survey literature and evaluate general scour/aggradation.
- If authorized, submit to FEMA updated topographic mapping and new floodplain maps if floodplain has significantly changed.
- To determine minimum Rights of Way requirements if any for proposed Improvements.

1.6 ACKNOWLEDGMENTS

The Middle New River Watercourse Master Plan is prepared by Stantec Consulting Inc., under the direction of the Flood Control District of Maricopa County, the City of Glendale and the City of Peoria. The District formulated a Steering Committee that consisted of the District, City of Glendale and City of Peoria personnel. The committee provided guidance and direction to Stantec staff during the study. The Steering Committee meetings were also open to interested parties. The project team would like to thank the following Steering Committee members and interested participants for their time, dedication, and guidance provide during the development of the Watercourse Master Plan:

Flood Control District of Maricopa County

Doug Williams
Dan Carroll

City of Glendale

Grant Anderson
Thomas Sedlmeier
Dan Sherwood
Shirley Medler

City of Peoria

David Moody
Burton Charron
David Fitzhugh
Scott Friend

Community of Joy

Wayne Skaff

2.0 DATA COLLECTION

Data relevant to the project such as previous flood hazard and hydrologic reports, existing topographic mapping, historical flooding information, as-built plans for existing structures, and FEMA Flood Hazard Boundary maps were collected from various sources and reviewed. In addition to historical or existing data, field surveys were conduct for updated topographic mapping, hydraulic analyses and planing tasks. Data collected for the Middle New River Watercourse Master Plan are categorized into one of the following categories: Survey, Mapping or Reference Material.

2.1 SURVEY

As part of the Middle New River Watercourse Master Plan study, field surveys were conducted for structures, to establish aerial mapping control points, to establish additional monumentation, and to provide elevation reference markers for the study area. Information collected for the Watercourse Master Plan is also used for the New River Spillway Flows Inundation Study. Alcocer Land Surveyors conducted all field surveys. Detail survey information can be found in a report entitled "Flood Plain Delineation and Topographic Mapping for Middle New River Watercourse Master Plan Study, Confluence with Skunk Creek to New River Dam, PHOTOGRAMMETRIC CONTROL AND TOPOGRAPHIC SURVEY".

2.1.1 Horizontal/Vertical Control

Surveys were completed with horizontal control necessary to tie all field data to the State Plane Coordinate System 1927. Vertical control is based on the National Geodetic Vertical Datum (NGVD) 1929 per FEMA guidelines. NAD83 coordinate points and their coordinates and conversions factors utilized are listed in the Photographic Control and Topographic Survey Report, prepared by Alcocer Land Surveyors.

2.1.2 Structure Surveys

Field surveys of the Thunderbird Road, Bell Road and Union Hills Drive bridges were conducted to ensure that a datum correction value between "As Built" bridge plans and new topographic mapping could be determined.

2.1.3 Elevation Reference Markers

Table 2-1 lists elevation references markers established and or used for this study.

TABLE 2-1

Middle New River Watercourse Master Plan

Elevation Reference Markers

ERM #1 – Elevation 1158.237
C.O.P. brass cap (flush) ±600' east of 91st Avenue on Desert Harbor Drive.
N = 950,020.434, E = 597,876.412

ERM #2 – Elevation 1167.042
C.O.P. brass cap in handhole @ centerline P.C. ±300' north of intersection of Acoma Drive & Desert Harbor Drive.
N =952,352.855, E = 6000,083.940

ERM #3 – Elevation 1176.08
Top of brass cap (flush) at 86th Drive and Betty Elyse Lane.
N = 955,371.460, E = 600,649.882

ERM #4 – Elevation 1187.90
Top of brass cap (flush) at intersection of 86th Avenue and Paradise Lane.
N = 957,952.5087, E = 600,876.5092

ERM #5 – Elevation 1202.16
C.O.G. brass cap in handhole at intersection of 83rd Avenue and Bell Road.
N = 959,865.3980, E = 603,591.6290

ERM #6 – Elevation 1212.88
Top brass cap in handhole at 83rd Drive and 84th Avenue.
N = 962,778.2886, E = 601,757.3035

ERM #7 – Elevation 1228.432
C.O.P. brass cap in handhole at 83rd Avenue and Union Hills Road.
N = 965,165.9800, E = 602,319.8490

ERM #8 – Elevation 1243.04
Top of 2" iron pipe in handhole at intersection of 83rd Avenue and Village Parkway.
N = 967,794.0929, E = 602,310.3583

ERM#9 – Elevation 1254.712
Top of ADOT aluminum cap along the north side of 101 Freeway, P.O.C. Sta. 918+00.00.
N = 970,052.7038, E = 604,816.5717

TABLE 2-1 (continued)

Middle New River Watercourse Master Plan

Elevation Reference Markers

ERM #10 – Elevation 1269.557
C.O.G. brass cap in handhole at intersection of 75th Avenue and Rose Garden Lane.
N = 973,052.1660, E = 607,608.9740

ERM #11 – Elevation 1282.707
MC brass cap in handhole at intersection of 75th Avenue and Deer Valley Road.
N = 975,699.5464, E = 607,625.3702

ERM #12 – Elevation 1292.2328
Top of brass cap (flush) on 75th Avenue and Centerline P.C., ±400' south of the East Quarter Corner of Section 14, T4N, R1E, G&SRBM.
N = 977,959.8072, E = 607,618.8313

ERM #13 – Elevation 1308.215
Top of brass cap (flush) at center of cul de sac at 7431 W. Monte Lindo.
N = 980,803.8653, E = 607,965.9155

ERM #14 – Elevation 1324.912
Set Flood Control District of Maricopa County brass cap in concrete, ±300' east of the West Quarter Corner of Section 12, T4N, R1E, G&SRBM.
N = 983,629.7495, E = 607,924.4658

ERM #15 – Elevation 1342.977
Chiseled 'X' on center of top of west end of 4' x 10' storm culvert ±573' east of Southwest Corner of Section 1, T4N, R1E, G&SRBM.
N = 986,334.7848, E = 608,184.8756

ERM #16 – Elevation 1352.51
Set Flood Control District of Maricopa County brass cap in concrete, ±20' west of the East Quarter Corner of Section 2, T4N, R1E, G&SRBM.
N = 988,916.250, E = 607,591.737

ERM #17 – Elevation 1371.017
Top of AZDOT Aluminum cap (BM517-6), Northeast Corner of Section 2, T4N, R1E, G&SRBM.
N = 991,467.776, E = 607,592.682

ERM #18 – Elevation 1399.62
Top of 1" aluminum cap (CBA), set in concrete at the East Quarter Corner of Section 35, T4N, R1E, G&SRBM.
N = 994,098.5406, E = 607,547.574

ERM #19 – Elevation 1427.002
Top of ¾' rod with 2" copper cap, USCE NR3, at top of hill ±500' south of the west end of New River Dam.
N = 994,248.6944, E = 603,962.5272

2.2 MAPPING

Mapping required for this project includes portions of the New River from the New River Dam to the confluence with Skunk Creek. Mapping of the project area is at a scale of 1"=400' having a contour interval of two feet. The mapped area is approximately 4,000 feet wide, from New River Dam to approximately Pinnacle Peak Road and 1,500 feet wide from approximately Pinnacle Peak Road to the confluence with Skunk Creek. Mylar copies of topographic mapping are provided to the District under separate cover.

2.3 REFERENCE MATERIAL

Reference material used in the study was obtained from the Flood Control District of Maricopa County the City of Peoria, the City of Glendale or Stantec's reference library. Reference material is subcategorized into Reports, Manuals, Documents, Improvement Plans, Drainage and Grading Plans and As-Built Plans. The following reference material was utilized in the study:

2.3.1 Reports

CMX Group Inc., June 1996, Fletcher Heights Phase 1, Preliminary Drainage Plan.

CMX Group Inc., July 1996, Fletcher Heights Phase 2, Preliminary Drainage Plan.

CMX Group Inc., June 1996, Fletcher Heights Phase 3, Preliminary Drainage Plan.

CMX Group Inc., August 1996, Deer Valley Estates Drainage Plan.

CMX Group Inc., December 1997, Final Drainage Report for Fletcher Heights Phase 2A, Peoria, Arizona.

CMX Group Inc., May 1998, Final Drainage Report for Fletcher Heights Phase 2B, Peoria, Arizona.

Coe & Van Loo Consultants, Inc., August 12,1998, FEMA CLOMR Submittal for a Portion of New River, Happy Valley Road to Jomax Road, City of Peoria, Maricopa County, Arizona.

Coe & Van Loo Consultants, Inc., November 27, 1996, Feasibility Study, New River Realignment at Terramar.

Federal Emergency Management Agency, September 4, 1991, Flood Insurance Study, Maricopa County, Arizona and Incorporated Areas, Volume 1 of 7

Federal Emergency Management Agency, September 4, 1991, Flood Insurance Study, Maricopa County, Arizona and Incorporated Areas, Volume 2 of 7

Federal Emergency Management Agency, September 4, 1991, Flood Insurance Study, Maricopa County, Arizona and Incorporated Areas, Volume 6 of 7

Federal Emergency Management Agency, September 30, 1995, Flood Insurance Study, Maricopa County, Arizona and Incorporated Areas, Volume 1 of 12, Summary of Discharges, Page 46

Flood Control District of Maricopa County, May 1987, Addendum to Glendale-Peoria Area Drainage Master Plan

Flood Control District of Maricopa County, May 1987, Glendale- Peoria Area Drainage Master Plan

Flood Control District of Maricopa County, July 21, 1977, Flood Control Project, Gila River Basin, Arizona

Flood Control District of Maricopa County, May 1995, New River Watershed, Volume 1.2, Arizona Canal Division Channel, Area Drainage Master Study, ACDC/ADMS Phase 1, Hydrology Report

Flood Control District of Maricopa County, October 31, 1995, Development Plan for P.A.D. Zoning (Planned Area Development) Z-95-09

U.S Army Corps of Engineers, March 1981, New River Dam Spillway Overflow Analysis.

U.S. Army Corps of Engineers, April 1967, Flood - Plain Information Study for Maricopa County, Arizona, Volume 5, New River Report.

U.S. Army Corps of Engineers, October 1974, Gila River Basin, New River and Phoenix City Streams Arizona, Design Memorandum No. 2, Hydrology Part 1.

U.S. Army Corps of Engineers, November 1982, New River Dam (including New River to Skunk Creek) Design Memorandum No. 3, General Design Memorandum, Phase 2, Project Design, Part 3.

U.S. Army Corps of Engineers, February 18, 1998, Gila River Basin, Phoenix, Arizona and Vicinity (including New River) Design Memorandum No. 2, Hydrology, Part 2.

U.S. Geological Survey, April 1991, Estimated Manning's Roughness Coefficients for Stream Channels and Flood Plains in Maricopa County Arizona.

U.S. Geological Survey, 1998, Method to Estimate Effects of Flow-Induced Vegetation Changes on Channel Conveyances of Streams in Central Arizona.

U.S. Geological Survey, 1984 Techniques of Water-Resources Investigations of the United States Geological Survey, Computation of Water-Surface Profiles in Open Channels, Book 3 Chapter15.

2.3.2 Manuals

Dodson & Associates Inc., April 1991, ProHEC2, Users Manual.

Federal Emergency Management Agency, March 1993, Flood Insurance Study, Guidelines and Specifications for Study Contractors.

Flood Control District of Maricopa County, January 1996, Drainage Design Manual for Maricopa County, Arizona, Volume II, Hydraulics.

U.S. Army Corps of Engineers, April 1997, HEC-RAS, River Analysis System, User Manual.

2.3.3 Documents

City of Glendale, January 1996, Glendale General Plan Development Guide.

City of Peoria, April 1997, Comprehensive Master Plan Public Facilities Map.

City of Peoria, April 1997, Land Use Map.

City of Peoria, April 1997, Transportation Plan.

City of Peoria, undated, Peoria Zoning Map, Map Numbers 1d through 1f.

Environmental Management Council, Undated, Model Ordinance for Wetland, Waterbody, and Watercourse Protection Summary.

CMX Group Inc., June 26,1996, Fletcher Heights, Preliminary Plat- Phases IA & IB.

CMX Group Inc., July 12,1996, Fletcher Heights, Preliminary Plat- Phases IIIA & IIIB.

CMX Group Inc., July 25,1996, Fletcher Heights, Preliminary Plat- Phases IIA & IIB.

CMX Group, Inc. August 20, 1996, Preliminary Plat, Phase 1A and 1B, Fletcher Heights, Sheets 3 through 6 of 6.

David Evans and Associated, Inc. June 12, 1997, Final Plat of New River Shores, Sheets 1 and 2 of 2.

Federal Emergency Management Agency, September 29, 1989, FIRM PANEL 1180 of 4350.

Federal Emergency Management Agency, December 3, 1993, FIRM PANEL 1190 of 4350.

Federal Emergency Management Agency, December 3, 1993, FIRM PANEL 1630 of 4350.

Federal Emergency Management Agency, February 26, 1996, FIRM PANEL, 1190 OF 4350 (Revised).

Federal Emergency Management Agency, October 24, 1996, FIRM PANEL, 1180 of 4350 (Revised).

Flood Control District of Maricopa County, March 10, 1987, Floodways IGA FCD-87012.

Flood Control District of Maricopa County, July 8 1987, Floodways IGA FCD-87033

Flood Control District of Maricopa County, July 1, 1963, Flood Plain Study New River, Sheet 1 and 2 of 2.

Flood Control District of Maricopa County, February 1964, Topographical Map, New River Floodplain, From Greenway Road to Town of New River.

Flood Control District of Maricopa County, Photo Date 1996, New River 1 through 7.

Flood Control District of Maricopa County, November 1997, Contract FCD 97-04, Middle New River Watercourse Master Plan Study.

Flood Control District of Maricopa County, April 1998, New River Parcel Ownership, Sheets 1 through 4, Sheets A, B, C.

Flood Control District of Maricopa County, undated, Arizona Canal Diversion Channel Area. Drainage Master Study. Phase 1, Topographical Maps, Sheets 13 through 16 and 22 through 30 of 111.

Pima County Department of Transportation and Flood Control District, undated, Mitigation Standards and Implementation Guidelines

Prima Terra L. L. C. August 28, 1996, Preliminary Zoning and Developmental Plan for Terramar, Sheets 1 and 2 of 2

Simons, Li & Associates, Inc., December 14, 1998, Hydraulic and Scour Analyses for New River, 77th Avenue and Deer Valley Road.

U.S. Army Corps of Engineers, 1967, Historical Flood Areas, Reaches 1 to 6.

U.S Army Corps of Engineers, March 1981, New River Dam Spillway Overflow Analysis.

U.S. Army Corps of Engineers, Gila River Basin, Phoenix, Arizona and Vicinity (Including New River) New River Dam, Construction Drawings.

2.3.4 Improvement Plans

Coe & Van Loo Consultants, Inc., 9/30/96, Offsite Sewer Plans and Well transmission Line, Terramar, Sheet 10 of 10 and Sheet 25 of 25.

Coe & Van Loo Consultants, Inc., 12/16/98, Bank Protection Plans, Terramar-New River.

Dibble & Associates, Consulting Engineers, 2/6/84, Arrowhead Ranch, Glendale, Arizona Wastewater Treatment Facility Development Plans, Sheets 4,5,6,7,8,9 of 21.

U.S. Army Corps of Engineers, July 7, 1983, Gila River Basin, Phoenix, Arizona and Vicinity (Including New River) New River Dam.

Wood, Patel & Associates, Inc., June 1994, New River Channelization & Drop Structure, Grand Avenue to Greenway Road, FCD Contract 94-04.

2.3.5 Grading and Drainage Plans

CMX Group Inc. March 1998, Grading Plans for Fletcher Heights, Phase 2A, Peoria, Arizona, Sheets GC1 of GC1, G1 through G7 of G7, GD1 of GD1.

CMX Group Inc. April 1998, Grading Plans for Fletcher Heights, Phase 2b, Peoria, Arizona, Sheets OG1 through OG4 of OG4.

CMX Group Inc. March 1997, Grading Plans for Fletcher Heights, Phase 1A, Peoria, Arizona, Sheets GC1 of GC1, G1 through G13 of G13, GD1 and GD2 of GD2, G1 through G13 of G13.

Development Engineering Inc., March, 1992 New River Bank Protection Plans for Bell Park City of Peoria, Sheets 1 through 7 of 9.

2.3.6 As-Built Plans

Maricopa County Department of Transportation, July 19, 1996, Plans for the Construction of Union Hills Drive Bridge at New River.

Maricopa County Highway Department, April 10, 1989, Bell Road - New River Bridge, Maricopa County, Portions of Bridge Plans.

3.0 HYDROLOGY

3.1 HYDROLOGIC METHOD DESCRIPTION

Peak discharges developed for previous hydrologic studies conducted by the Federal Emergency Management Agency (FEMA) and the Army Corp's of Engineers (COE) are used in the hydraulic evaluations in this study. Design peak discharges for proposed improvements are based on both FEMA's and the COE's 100-year peak discharges for New River.

3.1.1 FEMA's Peak Discharges

One hundred year peak discharges cited in the FEMA's "Flood Insurance Study (FIS), Maricopa County, Arizona and Incorporated Areas" (1995), and one hundred year peak discharges listed in the FEMA, HEC-2 hydraulic computer model for the effective New River Floodplain/Floodway delineation's are utilized in existing condition and future condition hydraulic evaluations for this study. FEMA 100-year peak discharges are used as the design peak discharges in the Watercourse Master Plan. FEMA 100-year peak discharges utilized in the study are listed in Table 3-1.

3.1.2 COE's Peak Discharges

The COE, in their design process for the New River Dam, developed a hydrologic model to determine future condition 100-Year peak discharges at two specific concentration points downstream of the dam. The concentration points are located at the confluence of New River with Rocks Springs Creek and at the confluence of New River with Skunk Creek. These discharges are to be used when evaluating future flow capacity of New River downstream of the dam and are to be contained within the freeboard of a designed channel.

Interpolations of the future condition 100-Year peak discharges cited in the Army Corps of Engineers (COE) document entitled, "Gila River Basin, Phoenix, Arizona and Vicinity (Including New River), New River Dam (Including New River to Skunk Creek) Design Memorandum No. 3", dated November 1982, are made to determine potential peak discharges at locations other than the locations cited in the COE's report. The interpolated 100-year peak discharges are evaluated for planning

purposes in the Middle New River Watercourse Master Plan study. Peak discharges at various concentration points were estimated by determining a unit discharge per square mile of drainage area from the COE study and applying that unit discharge to updated New River watershed area delineation's. The results of the analysis are summarized in Table 3-1.

Watershed areas used in the interpolation analysis are obtained from the COE report and from the "New River Watershed, Arizona Canal Diversion Channel, Area Master Drainage Channel, ACDC/ADMS Hydrology Report" prepared by Kaminski-Hubbard Engineering, Inc., May 1995. The drainage areas represented in the ACDC/ADMS are utilized in the analysis because they are the most current delineations of drainage areas that drain to the subject reach of New River.

The 100-year peak discharges reported in the COE report (November 1982) is a summation of a base flow discharge from the New River Dam principle outlet works of 2350 cfs plus an additional 2000 cfs to account for potential future diversion of flows from the Agua Fria River watershed plus runoff generated from subject watersheds. To account for potential future diversions of flow from the Skunk Creek watershed, the COE added 3.5 square miles of drainage area to the New River watershed with a concentration point upstream of the confluence with Skunk Creek. A unit discharge, based on the delineation of the COE watersheds, is determined by subtracting the base flow from the peak discharge and dividing the resultant peak discharge by the drainage area of the subject watershed.

Future condition 100-year peak discharges are determined by multiplying the unit discharge by each drainage area listed in the ACDC/ADMS and then adding the base flow of 2350 cfs back in. A unit discharge of 616 cfs per square mile was applied to watersheds outfalling to New River between the confluence with Skunk Creek and Beardsley Road. Upstream of Beardsley Road, a unit discharge of 937 cfs per square mile was utilized.

3.1.3 Revisions to Peak Discharges

Drainage areas that historically have drained to specific concentration points have been altered both in size and in the location of the drainage area outfall to New River. The alteration is primarily a result of sand and gravel mining and land development.

TABLE 3-1

SUMMARY OF PEAK DISCHARGES

Location	X-Sec Sta. (river mile)	Contributing Drainage Area [A] (mile^2)	CORPS 221 Q's (cfs)	221 Q's Interpolation By Drainage Area[B] (cfs)	221 Q's Adopted for Watercourse Master Plan (cfs)	FEMA 100-Year Design Peak Discharges for Watercourse Master Plan (cfs)
New River Dam			2350	2350	2350	**2350**
	15.966		2350	2350	2350	**2350**
	15.533	1.95		4177	4200	
	14.945					**4200**
Pinnacle Peak Rd	14.197	4.51		6575	6600	
	14.013					**6100**
Deer Valley Rd	13.161	6.9		8815	~~8800~~[C] 12000	
	13.076					~~7900~~[C] **9800**
	12.313	<10.3>	12000	12000	12000	**9800**
Beardsley Rd	12.034	13.77		13426	13400	
	11.188					**10350**
Union Hills	10.996	14.31		13860	13900	
	10.271					**10900**
Bell Rd	9.960	16.3		15461	15500	
	9.492					**11450**
	8.807					
Skunk Creek	8.655	27.0 <20.7>	19000	19000	19000	**12000**

A) 6.9 from ACDC ADMS, <20.7> From COE STUDY.
B) Use COE drainage area to determine Unit Q.
C) Strikethrough values have been revised to reflect location change in confluence with Rock Springs Creek,

The Rock Springs Creek watershed historically discharged to New River below Deer Valley Road at approximately River Mile 12.313. Due to sand and gravel mining operations and housing development, the confluence of Rock Springs Creek to New River has been moved approximately 1.5 miles upstream from its historical location. Rock Springs Creek currently joins New River above Deer Valley Road at approximately River Mile 13.820.

The location of peak discharges impacting New River have been adjusted to account for the change in location of the Rock Springs Creek confluence to New River. Under historical conditions the Rock Springs Creek drainage area was approximately 10.3 square miles in size, under current conditions the drainage area is reduced in size by approximately 0.5 square miles due to the location change of the confluence. Since the reduction in drainage area is small relative to its original size, no adjustment to the magnitude of the peak discharge is attempted. The concentration point of peak discharges are moved upstream from the historical location (River Mile 12.313 to River Mile 13.820).

4.0 HYDRAULICS

4.1 METHOD DESCRIPTION

4.1.1 General

Hydraulic computations performed for the Middle New River Watercourse Master Plan are completed following procedures and guidelines listed in the "Drainage Design Manual for Maricopa County, Volume II Hydraulics"; the "ProHEC2, Program Documentation Manual" (Dodson and Associates, Inc.); and the U.S. Army Corps of Engineers, "HEC-RAS River Analysis System User Manual". Water surface profiles determined from the hydraulic computations for present conditions are compared to FEMA's effective water surface profiles to determine changes that may have occurred since FEMA's study was conducted. Water surface profiles are also determined for the proposed Watercourse Master Plan to insure that improvements will convey the FEMA and COE peak discharges referenced in Section 3.

The U.S. Army Corps of Engineers "HEC-RAS, River Analysis System", computer program (Version 2.2) and an enhanced version of the standard Corps of Engineers' "Flood Plain Analysis Computer Program" (Dodson and Associates, Inc. Version 4.6) are used to conduct floodplain delineation hydraulic analyses.

4.1.2 Hydraulic Models

HEC-2 and HEC-RAS hydraulic computer models are reviewed and/or developed for the hydraulic evaluation of the subject reach. The hydraulic models evaluate both existing and proposed (Master Plan) conditions. Existing and proposed condition hydraulic models that are developed, use FEMA's 100-year peak discharges. The proposed condition hydraulic model also models the COE 100-year future condition peak discharges to insure that the future condition peak discharges are contained within proposed freeboard limits. All models commence below the confluence of New River with Skunk Creek and extend upstream to just below the New River Dam. Below the confluence the future condition peak discharge is the same as the existing condition peak discharge. Computer output files for hydraulic models are located in Appendix A. Diskettes with computer input files for HEC-RAS models developed for this study are located in Appendix G.

4.1.2.1 Effective FEMA/COE HEC-2 Models

Models referred to as Effective FEMA/COE are models that best reflect the hydraulic conditions of New River depicted on Effective FEMA FIRM Panels (1190, 1180 and 1630 having effective dates 1993 (revised 1996), 1989 (revised 1996), and 1993 respectively, were obtained from the District. For the reach of New River from the confluence with Skunk Creek to New River Dam, the District recommended using a model (NRIVER-2) that was recreated by District staff from FEMA HEC-2 hard copy printouts. For the reach of New River from the confluence with Skunk Creek to Bell Road, the results of the model REVSB by Coe and Van Loo, closely match's FEMA's original. The NRIVER-2 model is revised by HDR to include Union Hills Drive Bridge and channel improvements associated with the bridge improvements. HDR developed a model (UHILLs) for pre-bridge conditions and a model (UNIONBR8) modeling proposed improvements. All models commence at Cross Section 8.665 and, use a starting water surface elevation of 1170.50 with the exception of the REVSB Model. The REVSB model utilizes a starting water surface elevation of 1170.38.

4.1.2.2 Updated Existing Condition Model

The Existing Condition HEC-2 Model is updated by Stantec to reflect current hydraulic conditions. The upgrades to the hydraulic model include the following:

1. Cross-section geometric data is updated to reflect recent topographic mapping (Fight Date, 3/9/98) developed for this project. Cross-section geometric data is determined at the locations and orientations of cross sections used in FEMA's original study for the reach.

2. Cross-section orientation is updated so that cross-section alignment is perpendicular to main flow path.

3. Bridges that have been constructed since FEMA's 1986 study are included in the updated model.

4. Additional cross-sections are added so that the maximum distance between cross-sections is approximately 500 feet.

5. Bank stations are adjusted so that they are consistent with new topography.

6. At locations along the study reach, expansion and contraction head loss coefficients are adjusted to reflect new channel transitions.

7. The final updated Existing Condition Model by Stantec commences further down stream than the Effective models and initial Updated Existing Condition Models. The reason for starting further downstream is to evaluate potential backwater effects of the Thunderbird Road Bridge and channel improvements (drop structure) downstream of the confluence of Skunk Creek.

The approach to developing an updated HEC-2 model is to construct the model in progressive stages. Each stage becomes a model itself and evaluates a significant parameter change from the original model. The staged approach allows the identification of a parameter or set of parameters that may account for significant differences in the results between the existing and updated Stantec hydraulic models. The staged models constructed, to ultimately develop the Updated Existing Condition Model are summarized in Table 4-1.

TABLE 4-1
Existing Condition Hydraulic Model Development Summary

Model	File Name	Comments
UD1	CORPS1.PRN	Model includes new topographic data
UD2	CORPSBR1.PRN	Model UD1 plus Bell Road bridge as modeled in original FEMA model.
UD3	CORPSBR2.PRN	Model UD2 includes revised Bell Road bridge data and bridge data for the new Union Hills Drive bridge.
Updated Existing Condition Model	NEWBR.IH2	Model UD3 plus additional cross-sections.

Models UD1, UD2 and UD3 commence at Cross Section 8.655 and use a starting water surface elevation 1170.38. The starting water surface elevation is consistent with the Coe and Van Loo model discussed in Section 4.1.2.1. These models primarily start at this location so that the models are consistent with effective models.

The Updated Existing Condition Model commences at the Thunderbird Road Bridge (Cross Section 7.728) and uses a starting water surface elevation of 1150.50. The

starting water surface elevation is obtained from FEMA's Flood Insurance Study, Maricopa County, Arizona and Incorporated Areas.

4.1.2.3 Conversion of HEC-2 to a HEC-RAS Model

The Updated Existing Condition HEC-2 Model is converted to a HEC-RAS format. A conversion routine in the HEC-RAS model is utilized to make the conversion of geometric cross section data. Geometric data at bridge locations are hand coded.

4.1.2.4 Proposed Condition HEC-RAS Model

The intent of the Master Plan design is to let nature shape the future channel bottom (stable slope) where possible. Chapter 5, Erosion and Sediment Transport, discusses the river's trend to degrade or adjust its bottom downward because of erosion. The Master Plan design proposes grading only that portion of the channel absolutely necessary to convey the design discharges. Nature will do the rest of the work.

The Updated Existing Condition HEC-RAS model was revised to create a proposed condition model to reflect Master Plan improvements. Proposed improvements that were modeled vary from grading and armoring of existing channel banks along with minor grading of the channel bottom, to realignment and redefinition of channel banks with major grading within the channel bottom and channel grade control structures. Major grading in the channel bottom consists of providing a new channel invert slope and a uniform geometric bottom. In areas where channel banks and channel bottom grading and realignment is proposed, bottom widths ranged from a 185 feet to 250 feet. Channel improvements are typically within Effective FEMA Floodway limits. A detailed description of the proposed improvements is provided in Chapter 7. The Proposed Condition HEC-RAS Model computer output files are located in Appendix A whereas a diskette with computer input files are located in Appendix G.

4.2 WORK STUDY MAPS

Work Study Maps displaying topography, cultural features and effective 100-Year Floodplain and Floodway Limits and updated 100-Year Floodplain limits are prepared at a scale of 1" = 400' and a contour interval of 2 feet. Work Study maps

are presented as Plates FP1 through FP6. A Legend provided on the Plates explains the nomenclature and symbols used.

4.3 PARAMETER ESTIMATION

4.3.1 Manning's n-Value

4.3.1.1 General

Manning's n-values utilized in FEMA's (effective) hydraulic model for New River ranged from 0.030 to 0.035 for channel cross-section segments and 0.045 to 0.060 for overbanks cross-section segments. Manning's n-values utilized in FEMA's study were utilized in the HEC-2 hydraulic model. Manning's n-values utilized in the HEC-RAS model are estimated using the District current method for estimating n-values.

As part of the Middle New River Watercourse Master Plan contract, a New River Dam Spillway Delineation Study is conducted. As part of that study, an n-value assessment for New River, from below the confluence with Skunk Creek to the New River Dam, was performed. The segment of New River analyzed for the Spillway Delineation Study is separated into four Reaches, which have similar hydraulic characteristics, and therefore, similar Manning's n-values. Reach numbering is from downstream to upstream. Cross-section numbering is expressed as river miles above the confluence with the Agua Fria River as used in previous studies. Manning n-values developed for New River as part of the Spillway Inundation Study are utilized in the HEC-RAS hydraulic models.

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

MIDDLE NEW RIVER WATERCOURSE MASTER PLAN FLOODWAY AND FLOODPLAIN MAP

F.C.D. CONTRACT NO. 97-04

HYDRAULIC BASE LINE

EFFECTIVE FEMA 100-YEAR FLOODPLAIN

EFFECTIVE FEMA 100-YEAR FLOODWAY

UPDATED 100-YEAR FEMA FLOODPLAIN

CROSS SECTION 9.047

ELEVATION REFERENCE MARK 12

CORPORATE LIMITS

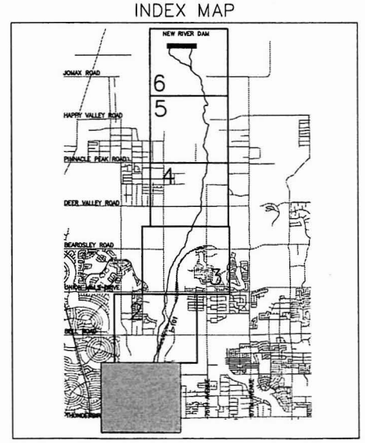
ELEVATION REFERENCE MARKS

ERM #1 – Elevation 1158.237
C.O.P. brass cap (flush) +/- 600' east of 91st Avenue on Desert Harbor Drive.

ERM #2 – Elevation 1167.042
C.O.P. brass cap in handhole @ centerline P.C. +/- 300' north of intersection of Acoma Drive & Desert Harbor Drive

ERM #3 – Elevation 1176.08
Top of brass cap (flush) at 86th Drive and Betty Elyse Lane.

INDEX MAP



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CHIEF ENGINEER AND GENERAL MANAGER

PLATE FP-1 OF FP-6

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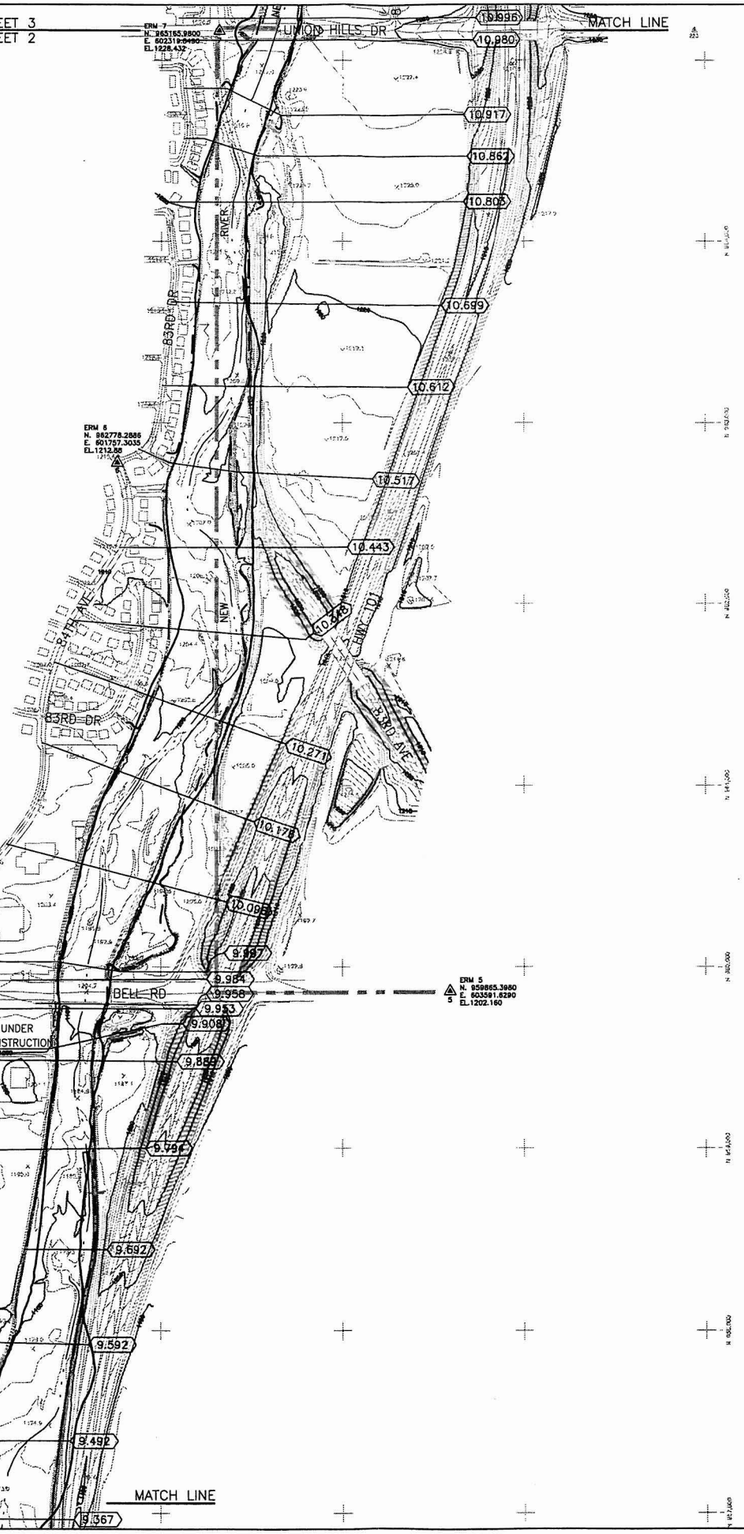


FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

MIDDLE NEW RIVER WATERCOURSE MASTER PLAN FLOODWAY AND FLOODPLAIN MAP

F.C.D. CONTRACT NO. 97-04

LEGEND

- HYDRAULIC BASE LINE
- EFFECTIVE FEMA 100-YEAR FLOODPLAIN
- EFFECTIVE FEMA 100-YEAR FLOODWAY
- UPDATED 100-YEAR FEMA FLOODPLAIN
- CROSS SECTION (9.047)
- ELEVATION REFERENCE MARK (12)
- CORPORATE LIMITS

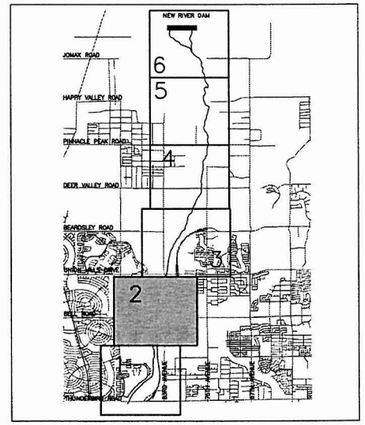
ELEVATION REFERENCE MARKS

ERM #4 – Elevation 1187.90
Top of brass cap (flush) at intersection of 86th Avenue and Paradise Lane.

ERM #5 – Elevation 1202.16
C.O.G. brass cap in handhole at intersection of 83rd Avenue and Bell Road.

ERM #6 – Elevation 1212.88
Top brass cap in handhole at 83rd Drive and 84th Avenue.

INDEX MAP



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CHIEF ENGINEER AND GENERAL MANAGER

PLATE FP-2 OF FP-6

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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

MIDDLE NEW RIVER WATERCOURSE MASTER PLAN FLOODWAY AND FLOODPLAIN MAP

F.C.D. CONTRACT NO. 97-04

LEGEND

- HYDRAULIC BASE LINE
- EFFECTIVE FEMA 100-YEAR FLOODPLAIN
- EFFECTIVE FEMA 100-YEAR FLOODWAY
- UPDATED 100-YEAR FEMA FLOODPLAIN
- CROSS SECTION (9.047)
- ELEVATION REFERENCE MARK (12)
- CORPORATE LIMITS

ELEVATION REFERENCE MARKS

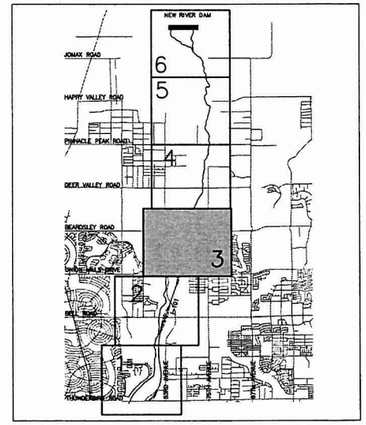
ERM #7 – Elevation 1228.432
C.O.P. brass cap in handhole at 83rd Avenue and Union Hills Drive.

ERM #8 – Elevation 1243.04
Top of 2" iron pipe in handhole at intersection of 83rd Avenue and Village Parkway.

ERM #9 – Elevation 1254.712
Top of ADOT aluminum cap along the north side of 101 Freeway, P.O.C. Sta 918+00.00.

ERM #10 – Elevation 1269.557
C.O.G. brass cap in handhole at intersection of 75th Avenue and Rose Garden Lane.

INDEX MAP



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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

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CHIEF ENGINEER AND GENERAL MANAGER

SUBMITTED BY: DATE:

PLATE FP-3 OF FP-6

SHEET 4
SHEET 3

MATCH LINE

NEW CONSTRUCTION
NEW CONSTRUCTION
NEW CONSTRUCTION
UNDER CONSTRUCTION
UNDER CONSTRUCTION
UNDER CONSTRUCTION
UNDER CONSTRUCTION
DIRT PILES
DIRT PILES
ORCHARD
ORCHARD
NEW RIVER
HWY 101
ERM 9
N. 970052.7038
E. 604816.5717
EL.1254.712
ERM 10
N. 973052.1660
E. 607606.9740
EL.1269.557
ERM 8
N. 987724.0023
E. 602310.1583
EL.1243.04
ERM 7
N. 993185.8800
E. 602319.9900
EL.1228.432
83RD DR
83RD AVE
UNION HILLS DR
WATER TREAMENT PLANT
DIRT PILES
SHEET 3
SHEET 2

12.807
12.508
12.517
12.420
12.313
12.194
12.125
12.032
11.849
11.864
11.750
11.664
11.586
11.481
11.386
11.301
V.283
11.188
11.128
1.030
10.986
10.980

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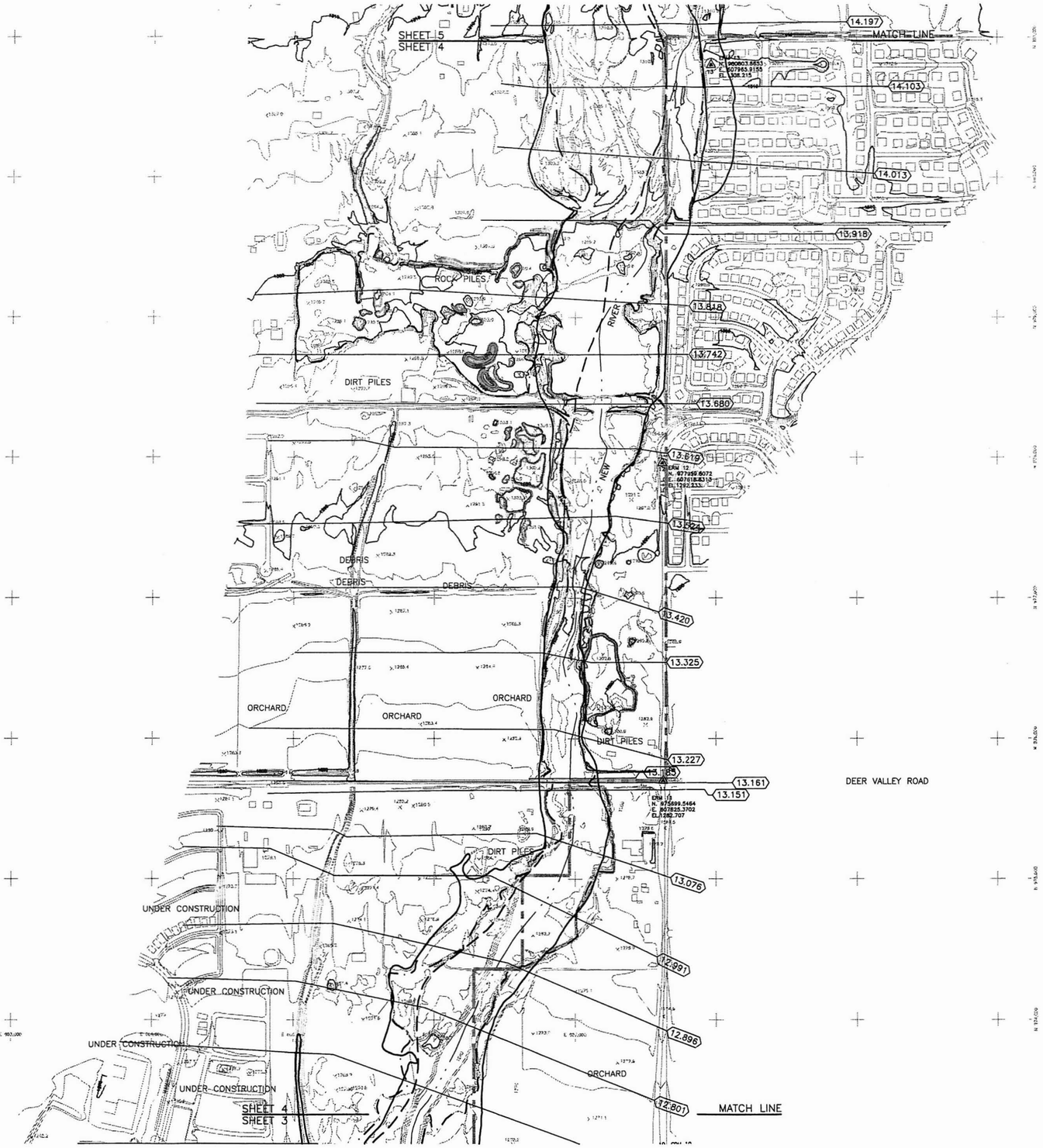


FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

MIDDLE NEW RIVER WATERCOURSE MASTER PLAN FLOODWAY AND FLOODPLAIN MAP

F.C.D. CONTRACT NO. 97-04

LEGEND

- HYDRAULIC BASE LINE
- EFFECTIVE FEMA 100-YEAR FLOODPLAIN
- EFFECTIVE FEMA 100-YEAR FLOODWAY
- UPDATED 100-YEAR FEMA FLOODPLAIN
- CROSS SECTION (9.047)
- ELEVATION REFERENCE MARK (12)
- CORPORATE LIMITS

ELEVATION REFERENCE MARKS

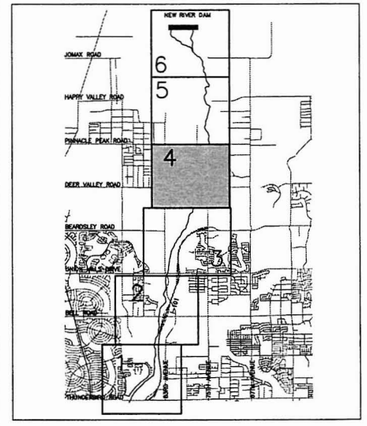
ERM #10 – Elevation 1269.557
C.O.G. brass cap in handhole at intersection of 75th Avenue and Rose Garden Lane.

ERM #11 – Elevation 1282.707
MC brass cap in handhole at intersection of 75th Avenue and Deer Valley Road.

ERM #12 – Elevation 1292.2328
Top of brass cap (flush) on 75th Avenue and Centerline P.C., +/-400' south of the East Quarter Corner of Section 14, T4N, R1E, G&SRBM.

ERM #13 – Elevation 1308.215
Top of brass cap (flush) at center of cul de sac at 7431 W. Monte Lindo.

INDEX MAP



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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

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CHIEF ENGINEER AND GENERAL MANAGER

PLATE FP-4 OF FP-6

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SHEET 6
SHEET 5

MATCH LINE

ERM 16
N. 988916.350
E. 802581.233
EL. 1352.510

15.792
15.699
15.623
15.596
15.475
15.416
15.333
15.248
15.144
15.049
14.983
14.945
14.850
14.752
14.653
14.599
14.495
14.379
14.284
14.197

ERM 15
N. 986336.7858
E. 608164.8756
EL. 1342.977

ERM 14
N. 983869.7485
E. 607824.4658
EL. 1324.912

ERM 13
N. 980893.865

MATCH LINE

SHEET 5
SHEET 4

SPRINGS
CREEK
ROCK
NEW RIVER

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

MIDDLE NEW RIVER WATERCOURSE MASTER PLAN FLOODWAY AND FLOODPLAIN MAP

F.C.D. CONTRACT NO. 97-04

LEGEND

- HYDRAULIC BASE LINE
- EFFECTIVE FEMA 100-YEAR FLOODPLAIN
- EFFECTIVE FEMA 100-YEAR FLOODWAY
- UPDATED 100-YEAR FEMA FLOODPLAIN
- CROSS SECTION (9.047)
- ELEVATION REFERENCE MARK (12)
- CORPORATE LIMITS

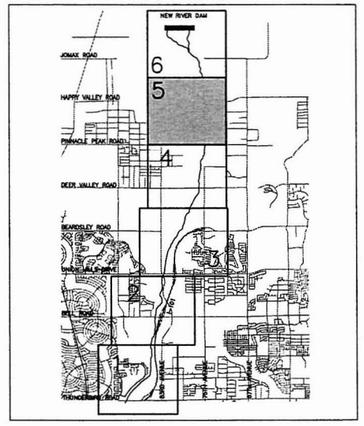
ELEVATION REFERENCE MARKS

ERM #14 – Elevation 1324.912
Chiseled 'X' on center of top of west end of 4' x 10' storm culvert +/- 300' east of the West Quarter Corner of Section 12, T4N, R1E, G&SRBM.

ERM #15 – Elevation 1342.977
Chiseled 'X' on center of top of west end of 4' x 10' storm culvert +/- 573' east of Southwest Corner of Section 1, T4N, R1E, G&SRBM.

ERM #16 – Elevation 1352.51
Set FCDMC brass cap in concrete, +/- 20' west of the East Quarter Corner of Section 2, T4N, R1E, G&SRBM.

INDEX MAP



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CONTOUR INTERVAL: 2 FEET

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PLANS	PAW	04/20/99
PLANS CHK.	PJE	04/13/00
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CHIEF ENGINEER AND GENERAL MANAGER

PLATE FP-5 OF FP-6

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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

MIDDLE NEW RIVER WATERCOURSE MASTER PLAN FLOODWAY AND FLOODPLAIN MAP

F.C.D. CONTRACT NO. 97-04

LEGEND

- HYDRAULIC BASE LINE
- EFFECTIVE FEMA 100-YEAR FLOODPLAIN
- EFFECTIVE FEMA 100-YEAR FLOODWAY
- UPDATED 100-YEAR FEMA FLOODPLAIN
- CROSS SECTION (9.047)
- ELEVATION REFERENCE MARK (12)
- CORPORATE LIMITS

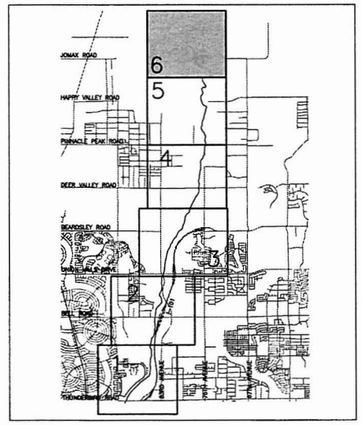
ELEVATION REFERENCE MARKS

ERM #17 – Elevation 1371.017
Top of ADOT Aluminum cap (BM517-6), Northeast Corner of Section 2,T4N, R1E, G&SRBM.

ERM #18 – Elevation 1399.62
Top of 1" aluminum cap (CBA), set in concrete at the East Quarter Corner of Section 35, T4N, R1E, G&SRBM.

ERM #19– Elevation 1427.002
Top of 3/4" rod with 2" copper cap, USCE NR3, at top of hill +/- 500' south of the west end of New River Dam.

INDEX MAP



400' 0' 400' 800'
SCALE: 1"=400'
CONTOUR INTERVAL: 2 FEET

ERM 18
N. 994098.5406
E. 807547.574
EL.1399.620

ERM 17
N. 991467.778
E. 807592.682
EL.1371.017

16.829
16.732
16.632
16.608
16.509
16.411
16.348
16.248
16.167
16.066
15.966
15.885
15.792

SHEET 6
SHEET 5
MATCH LINE

Stantec JOB# 28900058

	BY	DATE
DESIGN	PAW	04/01/99
DESIGN CHK.	PJE	04/13/00
PLANS	PAW	04/20/99
PLANS CHK.	PJE	04/13/00
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

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CHIEF ENGINEER AND GENERAL MANAGER

PLATE FP-6 OF FP-6

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Reach 1 extends from River Mile (RM) 8.655 to RM 11.644 and is characterized by a trapezoidal shaped section with the majority of the west channel side slope being armored with wire-tied rock gabions. The trapezoidal section is a result of encroachment of the natural channel/floodplain by development. The channel side slopes for portions of the lower segment of Reach 1 are armored with soil cement. The east channel side slope of Reach 1 is typically not armored. The channel bed material consists of cobbles and sand.

Reach 2 extends from RM 11.644 to 11.949 and is generally characterized by trapezoidal shaped section. The trapezoidal section is a result of encroachment of the natural channel/floodplain by development. Channel side slopes are not protected. Remnant gravel piles of various height and random distribution occur in the east overbank area. The channel bed material consists of cobbles and sand.

Reach 3 extends from RM 11.949 to RM 13.918. Reach 3 has the same characteristic as Reach 2 however there are not significant obstructions in the flow area, and portions of the west channel side slope are armored with wire-tied rock gabions.

Reach 4 extends from RM 13.918 to the New River Dam. Reach 4 is a natural channel segment with overbank floodplain areas. In various locations the channel is braided. Varying vegetation densities are noted in channel and floodplain areas. Channel bed material predominately consists of cobbles. Outside of the channel areas base material consists of a combination of firm soil, coarse sand and fine gravels.

4.3.1.2 Methodology

Manning's n-values are estimated using methods accepted by the Flood Control District of Maricopa County and are outlined in, "Estimated Manning's N-values for Stream Channels and Flood Plains in Maricopa County Arizona" (U.S.G.S., 1991) and "Method to Estimate Effects of Flow-Induced Vegetation Changes on Channel Conveyances of Streams in Central Arizona (U.S.G.S., 1998). The approach in both methods is to select an initial value of Manning's n-value based on bed material and then adjust the base n-value for channel irregularities, the effects of obstructions, vegetation, and variations in channel cross sections. If the channel has sufficient meander to increase roughness, then the sum of the base n-value plus subsequent adjustments is multiplied by a meander value, m. The second reference cites results from a study that evaluated the effect of flow on vegetation.

4.3.1.3 Manning's n-Value Determination

The base n-value for bed material roughness is estimated from field investigations, photographs, and aerial photos. Base n-values range from 0.028 to 0.035 for overbank and channel areas, respectively.

Based upon field reconnaissance and photographs, adjustments are made to the base n-value to account for vegetation, obstructions, irregularities and channel irregularities and channel cross section variations. The beds of defined channels consist of sand, cobbles and vegetation. The vegetation coverage within the bed ranges from 10% to 30%. Overbank areas have a base material consisting of a combination of firm soil, silt and sands, and cobbles to a lesser extent. Overbank area vegetation cover is estimated to range from 0 to 60 percent.

Manning's n-values are determined for the left overbank, right overbank and channel cross section segments for Reaches 1, 2 and 3, which are predominately characterized by a defined channel that contains the 100-year flow within in the banks of the channel. Overbank areas for Reaches 1, 2, and 3 are also characterized by developed areas with landscaping or natural vegetation along the top of the bank or undeveloped with natural vegetation. In developed areas in which a property wall occurs, Manning's n-value estimation only includes the area between the top of bank and wall.

Reach 4 is characterized by braided flow paths and overbank areas of varying vegetation densities. Manning's n-values for cross section segments within Reach 4 are subdivided into zones of similar physical characteristics. Vegetative cover for the 6 zones identified are: Zone 1, 0 to 5 percent; Zone 2, 20 to 40 percent; Zone 3, 40 to 60 percent; Zone 4, 10 to 30 percent; Zone 5, 10 to 30 percent; and Zone 6, 40 to 60 percent.

Applying procedures for estimating the effect of flow on vegetation changes cited in the report entitled "Method to "Estimate Effects of Flow-Induced Vegetation Changes on Channel Conveyances of Streams in Central Arizona" the following conclusions are inferred:

1. The average stream power (measure of energy transfer in an open channel) for reaches 1, 2 and 3 is greater than the vegetation-susceptibility threshold,

indicating that the vegetation can be expected to lay over thus decreasing the effect of vegetation on roughness values.

2. The critical shear stress (the amount of shear stress required to initiate movement of bed material) is less than the average boundary shear stress (force exerted on the bed by moving water) indicating that channel will degrade and bed material will move, for all reaches. Degradation will potentially expose the vegetation root system leading to total removal of vegetation.

3. Based on above items 1 and 2, channel n-values are not adjusted for vegetation cover.

Manning's n-values utilized in the hydraulic evaluation of reaches 1, 2 and 3 are summarized in Table 4-2. Table 4-3 lists a summary of Manning's n-values utilized in the hydraulic evaluation of Reach 4.

Figures displaying the location and limit of each reach, the location and direction of field photographs used to document river course physical characteristics, the limits for Manning's n-value zone classifications for reach 4 and n-value calculations sheets are provided in Appendix B.

Table 4-2
Summary of Manning's n-values Reaches 1,2 and 3

Reach	Left (east) Overbank	Channel	Right (west) Overbank
1	0.060	0.035	0.060
2	0.085	0.035	0.060
3	0.060	0.035	0.060

Table 4-3
Summary of Manning's n-values Reach 4

Reach	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6
4	0.035	0.052	0.058	0.038	0.056	0.060

4.3.2 Expansion and Contraction Coefficients

Expansion and contraction coefficients were estimated from procedures and guide lines listed in the HEC-RAS User Manual. A summary of expansion and contraction coefficients used in the study are listed in Table 4-4.

Table 4-4
Summary of Expansion and Contraction Coefficients

Condition	Contraction Coefficient	Expansion Coefficient
Natural Reach Gradual Transitions	.1	.3
Channelized Reach Gradual Transitions	.1	.3
Transitions at Bridges	.3	.5

4.4 CROSS-SECTION DESCRIPTION

The initial lay out of cross sections used in the hydraulic study is consistent with cross section location, spacing and identification used in the effective FEMA 100-Year floodplain delineation for New River. Revisions to the initial layout are made to ensure that the following criteria are met:

1. The maximum distance between cross sections is approximately 500 feet.

2. Cross-sections used for hydraulic modeling are orientated perpendicular to primary flow paths.

3. Cross-section stationing is from left to right looking downstream with the thalweg set at station 10,000.

4. The thalweg for the proposed condition model is set to be consistent with the proposed construction centerline.

Cross-section data are determined utilizing a digital terrain model (DTM) and topographic mapping. Distance between cross sections is measured along the hydraulic baseline (thalweg). Distance between bank stations of each cross section is measured along the anticipated path of the center of mass of the overbank flow. Should there be no overbank flow, distance between bank stations is measured along the top of bank. Bank stations are picked at what appeared to be a natural/improved channel bank, or at major grade break in channel side slopes.

4.5 MODELING CONSIDERATIONS

4.5.1 Supercritical Flow

Supercritical flow was determined to occur at existing condition channel contractions (RM 9.289 and RM 12.194) and at locations of existing (RM 9.889 and RM 13.161) or proposed (RM 10.8, RM 13.17, and RM 14.16) grade control structures. At locations of supercritical flow the extent of supercritical flow is not greater than 500 feet.

4.5.2 Bridges

HEC-2 hydraulic models developed for the study utilizes the special bridge method for evaluating the bridge crossings of New River at Bell Road and Union Hills Drive. Bridge and roadway geometric data are obtained from "As-built" Plans and field survey. The HEC-RAS Yarnell and momentum bridge modeling approaches are utilized as the bridge modeling approach in the HEC-RAS hydraulic model.

Photographs of the bridges are located in Appendix B.

4.5.3 Levees and Dikes

There are no Levees and Dikes in the subject reach.

4.5.4 Islands

Divided flow conditions exist upstream of the of Cross-Section 13.918. For the purposes of this study, islands resulting from divided flow are not delineated.

4.5.5 Flow Splits

Flow splits or "breakouts" were identified at and between Cross-Sections 10.803 and 10.433. The flow splits occur due to a lack of capacity to convey the existing condition 100-year peak flow. Flow breakout drains to the Bell Park subdivision.

4.5.6 Ineffective Flow Areas

The ineffective flow area option of the HEC-RAS computer model is used to model ineffective flow areas. Ineffective flow areas occurred upstream and downstream of bridges and within depressions, gravel pits, or detention/retention basins in floodplain

areas. The area represented by these features does not have the ability to convey flow.

HEC –2 hydraulic models use X 3 cards to define ineffective flow areas.

4.5.7 Blocked Ineffective Flow Areas

The blocked ineffective flow area option of the HEC-RAS computer model is used to block out low areas within a cross-section located outside of channel banks that were considered non-flow conveyance areas. This differs from ineffective flow area described in section 4.5.6 in that it was determined that flow would not reach the subject area of the cross-section, and the subject area was blocked-out.

4.5.8 Grade Control Structures

There are four existing structures that are functioning as grade control structures and 3 proposed grade control structures along New River.

- An encased irrigation line below Bell Road that is exposed. There is approximately a 3-foot vertical drop downstream of the irrigation line.
- The apron and cut off wall for the Bell Road Bridge will function as a grade control structure. The cut off wall extends 20 feet below the apron.
- Downstream of Deer Valley Road there is a near vertical drop of approximately 18 feet within the New River Channel. The drop is armored with grouted rock.
- At the Happy Valley Road alignment, a grade control structure has been constructed over a sanitary sewer and waterline crossing New River.
- Grade Control Structures at roadway crossings of New River are proposed at, 83rd Avenue, Deer Valley Road, and at the Pinnacle Peak Roadway alignment.

Photographs of structures are located in Appendix B.

4.6 FLOODWAY MODELING

Floodway modeling is not conducted for new or updated hydraulic models.

4.7 PROBLEMS ENCOUNTERED DURING THE STUDY

4.7.1 Special Problems and Solutions

A gravel pit located between Cross Section 13.680 and Cross Section 13.918 within the New River has a bottom that is lower that the upstream or downstream channel inverts. The gravel pit (portion of pit within channel) is model by setting data points of cross-sections defining the pit to the invert elevation of the channel immediately downstream of the pit.

4.7.2 Modeling Warning and Error Messages

The output files for the HEC-2 model and the HEC-RAS models developed for this study contained no error messages, however there are a number of warning messages. Listings of the warning messages are located in the output files within appendix A. The majority of the warning messages pertained to the ratio of the upstream flow conveyance to the downstream flow conveyance being outside of a range between .7 1.4. This is a common message received when modeling a river system that is characterized by distributary flow patterns.

In areas where the channel is characterized by relatively uniform geometry, the conveyance ratio-warning message was not listed. Some other frequent warning messages listed are: 1) energy loss is greater than 1 foot between current and previous cross sections, and 2) the velocity head has changed by more than 0.5 feet. The message pertaining to energy loss of greater than 1 foot is to be expected given since the average cross section spacing is 500 feet and energy grade line slopes are greater than 0.002 ft/ft. The message pertaining to velocity head typically occurred at locations of channel contractions and/or at locations of rapid changes in channel slope such as at grade control structures. Changes of in velocity head of greater than 0.5 feet is to be expected given the characteristics of the channel.

At some locations, a message relating that critical depth was used to determine the water surface elevation. The critical depth message occurred at locations of channel contractions and/or at locations of rapid changes in channel slope such as at grade control structures.

4.8 CALIBRATION

There are no stream gauge data or high water marks for known flows, to calibrate hydraulic model.

4.9 HYDRAULIC ANALYSIS RESULTS

This section of the report discusses the results of the hydraulic models used to determine flood profiles. Models developed for this study are compared with models previously developed by others for the study reach of New River.

4.9.1 Updated Existing Condition Model

As described in Section 4.1.2.2, the Updated Existing Condition Model was developed in progressive stages with each stage being an independent hydraulic model. Hydraulic model output files are located in Appendix A. A review of the hydraulic models indicate that the major differences between effective models and the updated existing condition models can be attributed to, starting water surface elevation, the location at which the model starts, changes in topography and updated modeling techniques since the time the effective models were developed. The major change in modeling techniques, is the use of a greater number of cross sections in the hydraulic analysis. Table 4-5 summarizes 100-year water surface elevation (WSEL) for selected models. The selected models are the Effective FEMA/COE Model, the Model UD3 (described in Table 4-1) and the Updated Existing Condition Model.

In most instances, the water surface elevation estimated in the Updated Existing Condition Model is lower than the Effective FEMA/COE Model, especially for the reach below Bell Road. The difference in water surface elevations between the models for the reach below Bell Road River from River Mile (RM) 7.728 to RM 9.958 is attributed to channel improvements both upstream and downstream of the confluence of New River with Skunk Creek, channel degradation that has occurred since the original FEMA model was developed and the location of where the updated model starts relative to the effective model. The updated model commences below the grade control structure at the confluence of Skunk Creek with New River. The geometry and hydraulic performance of the grade control structure has had an overall effect of lowering the 100-year water surface elevation relative to the effective 100-year water surface elevation.

Downstream of Union Hills Bridge (RM 10.980 to RM 10.517) water surface elevations determined with the Updated Existing Condition Model are higher than the Effective FEMA/COE Model, and at locations the 100-year flow peak discharge is not contained within the banks of New River. The higher water surface elevations are attributed to changes in channel geometry and overbank geometry, and changes in modeling technique. The change in modeling techniques is the use of a greater number of cross sections in the hydraulic analysis.

Upstream of the Union Hills Bridge, from RM 10.966 to the end of the study at RM 16.829, 100-year water surface elevations estimated with the Updated Existing Condition Model are generally 1 to 2 feet lower or at locations are up to 1.2 feet higher than 100-year water surface elevations listed in the Effective FEMA/COE Model for the same location. The lower water surface elevations are attributed to changes in channel geometry (impart due to degradation and impart due to mining activity), and orientation of cross sections (orientation of cross sections in effective models was not always perpendicular to flow).

At two locations, in the area of RM 13.169 (downstream of Deer Valley Road) and in the area of RM 13.076 and 13.181, the updated 100-year water surface elevations are 4 to 6 feet lower the effective 100-year water surface elevations. These areas are located in active or previously active gravel mining operations within the channel.

TABLE 4-5

Summary and Comparison of 100-Year Water Surface Elevation

Existing Condition Models

Cross Section No. 1	Effective FEMA/COE Model WSEL (ft) 2	Existing Condition Updated Model UD3 WSEL (ft) 3	Existing Condition Updated Model WSEL (ft) 4	Difference Between Effective and Updated Model UD3 WSEL (ft) 5	Difference Between Effective and Existing Condition Updated Model WSEL (ft) 6
7.728			1150.50		
7.751			1150.79		
7.800			1151.87		
7.920			1153.70		
8.006			1154.82		
8.052			1155.38		
8.120			1156.13		
8.220			1157.40		
8.330			1158.59		
8.390			1159.29		
8.457			1160.16		
8.516			1161.20		
8.548			1161.13		
8.655	1170.38	1170.38	1166.34	0	-4.04
8.731	1171.5	1170.79	1166.96	-0.71	-4.54
8.807	1171.53	1170.69	1167.18	-0.84	-4.35
8.883	1171.5	1170.67	1167.26	-0.83	-4.24
8.936	1171.7	1171.00	1168.68	-0.7	-3.02
8.977	1171.77	1171.12	1169.23	-0.65	-2.54
8.994			1169.50		
9.047	1172.56	1171.86	1170.94	-0.7	-1.62
9.129	1172.72	1172.17	1171.38	-0.55	-1.34
9.193			1171.78		
9.289			1175.26		
9.318	1180.55	1174.7	1177.92	-5.85	-2.63
9.367			1178.65		
9.492	1187.16	1179.91	1179.30	-7.25	-7.86
9.592			1181.78		
9.692	1191.36	1182.9	1184.85	-8.46	-6.51
9.794			1186.93		
9.889	1196.92	1191.59	1191.95	-5.33	-4.97
9.908			1194.08		

TABLE 4-5 (continued)

Summary and Comparison of 100-Year Water Surface Elevation

Existing Condition Models

Cross Section No. 1	Effective FEMA/COE Model WSEL (ft) 2	Existing Condition Updated Model UD3 WSEL (ft) 3	Existing Condition Updated Model WSEL (ft) 4	Difference Between Effective and Updated Model UD3 WSEL (ft) 5	Difference Between Effective and Existing Condition Updated Model WSEL (ft) 6
9.953	1197.58	1194.89	1196.54	-2.69	-1.04
9.958			1196.66		
9.984			1196.73		
9.997			1196.73		
10.096	1200.61	1199.40	1200.06	-1.21	-0.55
10.176			1202.11		
10.271	1205.03	1203.83	1204.82	-1.2	-0.21
10.348			1206.60		
10.443	1209.59		1209.15		-0.44
10.517			1212.59		
10.612	1213.73	1214.26	1214.97	0.53	1.24
10.699			1216.03		
10.803	1219.44	1219.28	1220.40	-0.16	0.96
10.862			1221.49		
10.917			1223.13		
10.980			1224.01		
10.996			1224.33		
11.030			1225.18		
11.129	1227.52	1227.18	1227.90	-0.34	0.38
11.188	1228.08	1227.55	1228.13	-0.53	0.05
11.243			1228.46		
11.301	1230.52	1228.8	1229.20	-1.72	-1.32
11.386	1232.74	1231.10	1231.07	-1.64	-1.67
11.481	1234.74	1232.92	1232.92	-1.82	-1.82
11.566	1235.98	1234.23	1234.22	-1.75	-1.76
11.664			1234.96		
11.759	1238.20	1236.97	1238.01	-1.23	-0.19
11.864			1241.38		
11.949	1246.23	1244.23	1244.49	-2	-1.74
12.034			1246.68		
12.125	1251.46	1248.58	1249.28	-2.88	-2.18
12.194			1251.99		

TABLE 4-5 (continued)

Summary and Comparison of 100-Year Water Surface Elevation

Existing Condition Models

Cross Section No. 1	Effective FEMA/COE Model WSEL (ft) 2	Existing Condition Updated Model UD3 WSEL (ft) 3	Existing Condition Updated Model WSEL (ft) 4	Difference Between Effective and Updated Model UD3 WSEL (ft) 5	Difference Between Effective and Existing Condition Updated Model WSEL (ft) 6
12.313	1257.61	1256.34	1257.49	-1.27	-0.12
12.420			1260.55		
12.511	1263.08	1263.55	1263.54	0.47	0.46
12.606			1266.28		
12.701	1268.79	1267.84	1268.57	-0.95	-0.22
12.801			1270.15		
12.896	1273.69	1270.56	1270.73	-3.13	-2.96
12.991			1271.12		
13.076	1277.34	1271.23	1271.26	-6.11	-6.08
13.151			1271.39		
13.161			1278.24		
13.185			1279.17		
13.227	1280.23		1280.48		0.25
13.325			1282.70		
13.420	1285.99	1285.60	1285.10	-0.39	-0.89
13.524			1287.42		
13.619	1292.41	1288.37	1288.75	-4.04	-3.66
13.680			1289.24		
13.742			1290.88		
13.818	1297.44	1290.36	1291.75	-7.08	-5.69
13.918			1298.86		
14.013	1303.74	1301.63	1303.19	-2.11	-0.55
14.103			1304.88		
14.197	1308.77	1309.22	1308.51	0.45	-0.26
14.284			1311.70		
14.379	1315.05	1314.10	1313.90	-0.95	-1.15
14.495			1317.40		
14.599			1319.69		
14.653			1322.91		
14.752	1324.66	1324.94	1325.28	0.28	0.62
14.850			1327.19		
14.945	1329.02	1329.96	1330.21	0.94	1.19

TABLE 4-5 (continued)

Summary and Comparison of 100-Year Water Surface Elevation

Existing Condition Models

Cross Section No. 1	Effective FEMA/COE Model WSEL (ft) 2	Existing Condition Updated Model UD3 WSEL (ft) 3	Existing Condition Updated Model WSEL (ft) 4	Difference Between Effective and Updated Model UD3 WSEL (ft) 5	Difference Between Effective and Existing Condition Updated Model WSEL (ft) 6
14.983			1331.01		
15.049			1333.33		
15.144	1334.80	1334.79	1334.90	-0.01	0.10
15.248			1337.12		
15.333	1338.84	1338.56	1338.83	-0.28	-0.01
15.416			1339.72		
15.475			1340.06		
15.596			1343.10		
15.623			1347.03		
15.699	1349.55	1347.91	1348.73	-1.64	-0.82
15.792			1351.60		
15.885			1354.88		
15.966	1356.31	1356.85	1357.29	0.54	0.98
16.066	1358.68	1358.68	1358.51	0	-0.17
16.167	1362.43	1362.12	1361.80	-0.31	-0.63
16.248	1364.44	1364.53	1364.24	0.09	-0.20
16.348			1366.89		
16.411	1368.15	1368.73	1368.79	0.58	0.64
16.504	1370.58	1371.11	1371.17	0.53	0.59
16.608	1372.19	1373.16	1373.02	0.97	0.83
16.637			1374.51		
16.732	1377.75	1377.02	1377.72	-0.73	-0.03
16.829			1377.72		

4.9.2 Conversion of HEC-2 Model to a HEC-RAS Model

The Updated Existing Condition Model is converted to a HEC-RAS Model. Table 4-6 lists a summary of 100-Year Water Surface Elevations (WSEL) for both models for the study reach of New River.

TABLE 4-6

Summary of 100-Year Water Surface Elevation

Existing Condition Updated HEC-2 and HEC-RAS Models

Cross Section No.	Existing Condition Updated HEC-2 Model WSEL (ft)	Existing Condition Updated HEC-RAS Model WSEL (ft)	Difference Between HEC-2 and HEC-RAS Models WSEL (ft)
1	2	3	4
7.728	1150.50	1150.50	0.00
7.751	1150.79	1151.52	0.73
7.8	1151.87	1152.43	0.56
7.92	1153.70	1154.00	0.30
8.006	1154.82	1155.02	0.20
8.052	1155.38	1155.55	0.17
8.12	1156.13	1156.27	0.14
8.22	1157.40	1157.49	0.09
8.33	1158.59	1158.65	0.06
8.39	1159.29	1159.34	0.05
8.457	1160.16	1160.19	0.03
8.516	1161.20	1161.23	0.03
8.548	1161.13	1161.11	-0.02
8.655	1166.34	1166.34	0.00
8.731	1166.96	1166.94	-0.02
8.807	1167.18	1167.10	-0.08
8.883	1167.26	1167.19	-0.07
8.936	1168.68	1168.66	-0.02
8.977	1169.23	1169.22	-0.01
8.994	1169.50	1169.49	-0.01
9.047	1170.94	1170.94	0.00
9.129	1171.38	1171.38	0.00
9.193	1171.78	1171.78	0.00
9.289	1175.26	1175.23	-0.03
9.318	1177.92	1177.93	0.01
9.367	1178.65	1178.66	0.01
9.492	1179.30	1179.30	0.00
9.592	1181.78	1181.78	0.00
9.692	1184.85	1184.85	0.00
9.794	1186.93	1186.96	0.03
9.889	1191.95	1190.74	-1.21
9.908	1194.08	1194.10	0.02
9.953	1196.54	1196.75	0.21

TABLE 4-6 (continued)

Summary of 100-Year Water Surface Elevation

Existing Condition Updated HEC-2 and HEC-RAS Models

Cross Section No. 1	Existing Condition Updated HEC-2 Model WSEL (ft) 2	Existing Condition Updated HEC-RAS Model WSEL (ft) 3	Difference Between HEC-2 and HEC-RAS Models WSEL (ft) 4
9.958	1196.66	1196.89	0.23
9.984	1196.73	1197.92	1.19
9.997	1196.73	1197.97	1.24
10.096	1200.06	1200.31	0.25
10.176	1202.11	1202.55	0.44
10.271	1204.82	1205.08	0.26
10.348	1206.60	1206.99	0.39
10.443	1209.15	1209.48	0.33
10.517	1212.59	1212.95	0.36
10.612	1214.97	1215.38	0.41
10.699	1216.03	1216.64	0.61
10.803	1220.40	1220.48	0.08
10.862	1221.49	1221.84	0.35
10.917	1223.13	1223.51	0.38
10.98	1224.01	1224.55	0.54
10.996	1224.33	1226.15	1.82
11.03	1225.18	1226.54	1.36
11.129	1227090	1228.38	0.48
11.188	1228.13	1228.68	0.55
11.243	1228.46	1229.10	0.64
11.301	1229.20	1229.88	0.68
11.386	1231.07	1231.44	0.37
11.481	1232.92	1233.00	0.08
11.566	1234.22	1234.25	0.03
11.664	1234.96	1234.86	-0.10
11.759	1238.01	1238.43	0.42
11.864	1241.38	1241.44	0.06
11.949	1244.49	1244.36	-0.13
12.034	1246.68	1246.62	-0.06
12.125	1249.28	1249.29	0.01
12.194	1251.99	1252.01	0.02
12.313	1257.49	1257.47	-0.02
12.42	1260.55	1260.20	-0.35
12.511	1263.54	1263.60	0.06
12.606	1266.28	1266.06	-0.22

TABLE 4-6 (continued)

Summary of 100-Year Water Surface Elevation

Existing Condition Updated HEC-2 and HEC-RAS Models

Cross Section No. 1	Existing Condition Updated HEC-2 Model WSEL (ft) 2	Existing Condition Updated HEC-RAS Model WSEL (ft) 3	Difference Between HEC-2 and HEC-RAS Models WSEL (ft) 4
12.701	1268.57	1268.43	-0.14
12.801	1270.15	1270.06	-0.09
12.896	1270.73	1270.68	-0.05
12.991	1271.12	1271.05	-0.07
13.076	1271.26	1271.19	-0.07
13.151	1271.39	1271.33	-0.06
13.161	1278.24	1278.24	0.00
13.185	1279.17	1279.17	0.00
13.227	1280.48	1280.48	0.00
13.325	1282.70	1282.70	0.00
13.42	1285.10	1285.10	0.00
13.524	1287.42	1287.42	0.00
13.619	1288.75	1288.75	0.00
13.68	1289.24	1289.24	0.00
13.742	1290.88	1290.82	-0.06
13.818	1291.75	1291.67	-0.08
13.918	1298.86	1297.11	-1.75
14.013	1303.19	1302.44	-0.75
14.103	1304.88	1305.22	.034
14.197	1308.51	1308.47	-0.04
14.284	1311.70	1311.69	-0.01
14.379	1313.90	1313.87	-0.03
14.495	1317.40	1317.52	0.12
14.599	1319.69	1319.80	0.11
14.653	1322.91	1322.79	-0.12
14.752	1325.28	1325.48	0.20
14.85	1327.19	1327.36	0.17
14.945	1330.21	1330.09	-0.12
14.983	1331.01	1330.96	-0.05
15.049	1333.33	1333.63	0.30
15.144	1334.90	1335.27	0.37
15.248	1337.12	1337.05	-0.07
15.333	1338.83	1338.93	0.10

TABLE 4-6 (continued)

Summary of 100-Year Water Surface Elevation

Existing Condition Updated HEC-2 and HEC-RAS Models

Cross Section No.	Existing Condition Updated HEC-2 Model WSEL (ft)	Existing Condition Updated HEC-RAS Model WSEL (ft)	Difference Between HEC-2 and HEC-RAS Models WSEL (ft)
1	2	3	4
15.416	1339.72	1339.85	0.13
15.475	1340.06	1340.23	0.17
15.596	1343.10	1343.76	0.66
15.623	1347.03	1347.81	0.78
15.699	1348.73	1349.40	0.67
15.792	1351.60	1351.76	0.16
15.885	1354.88	1354.74	-0.14
15.966	1357.29	1356.95	-0.34
16.066	1358.51	1358.60	0.09
16.167	1361.80	1361.47	-0.33
16.248	1364.24	1364.29	0.05
16.348	1366.89	1366.70	-0.19
16.411	1368.79	1368.80	0.01
16.504	1371.17	1371.22	0.05
16.608	1373.02	1373.08	0.06
16.637	1374.51	1374.65	0.14
16.732	1377.72	1377.80	0.08
16.829	1377.72	1379.46	1.74

The 100-year water surface elevation estimations between the two hydraulic models compare well. In most instances, the comparison is within hundredths of feet. In instances where the comparison is within feet or tenths of feet, the difference is attributed to modeling techniques and/or procedures, at bridges. The modeling approach used in the HEC-RAS model was to use the highest energy answer between Energy (standard step), Momentum and Yarnell options. In the HEC-2 model, the energy standard step is utilized. Modeling techniques such as analyzing in a mix flow regime was used in the HEC-RAS model whereas in the HEC- 2 model only subcritical flow was analyzed. Also, revisions to Manning's n-value at locations along the study reach where made in the HEC-RAS model.

Manning's n-values differed between the two models along two segments of the study reach. In the Effective FEMA HEC-2 Model a channel n-value of 0.030 was utilized. In the Updated Existing Condition HEC-RAS Model, commencing at approximately Bell Road (Cross section 9.889) and extending to the north to the Arrowhead Waste Water Treatment facility (Cross Section 11.386), a channel n-value of 0.035 was utilized. Upstream of Cross Section 13.918, New River is characterized by distributary flow patterns. The Updated Existing Condition HEC-2 Model, is consistent with the Effective FEMA Model, models the distributary flow reach utilizing right overbank, left overbank and channel n-values cross section segments, whereas the Updated Existing Condition HEC-RAS Model is consistent with the Districts' current approach for estimating Mannings roughness coefficients for channel and overbank areas, n-value variation along a cross section is defined by utilizing n-value sub-segments.

4.9.3 Proposed Condition Model

The Updated Existing Condition HEC-RAS model was revised to create a proposed condition model to reflect Master Plan improvements. Proposed improvements that were modeled vary from grading and armoring of existing channel banks along with minor grading of the channel bottom, to realignment and redefinition of channel banks with major grading within the channel bottom and channel grade control structures. Major grading in the channel bottom consists of providing a new channel invert slope and a uniform geometric bottom. In areas where channel bank and channel bottom grading and realignment is proposed, bottom widths ranged from a 185 feet to 250 feet. Channel improvements are typically within Effective FEMA

Floodway limits. Water surface elevations determined in the Proposed Condition HEC-RAS Model are compared with results of the Updated Existing Condition HEC-RAS Model and the Effective FEMA HEC-2 Model to determine water surface elevation differences between the models. A detailed summary of 100-year Water Surface Elevations (WSEL) for existing and proposed conditions is listed in Table 4-7. A general summary of the differences in water surface elevations is provided below.

With the exception of segments RM 11.566 to 12.194 and RM 13.68 to 13.818 water surface elevations for proposed conditions are lower when compared to both the Effective FEMA HEC-2 Model and the Updated Existing Condition HEC-RAS Model. For all locations, with the exception of the cross section located at RM 11.759, proposed condition water surface elevations are lower when compared to just the FEMA Effective HEC-2 Model.

Proposed condition water surface elevations between RM segments 11.566 to 12.194 and RM 13.68 to 13.818 are 0.64 feet to 2.89 feet higher than that determined in the Updated Existing Condition HEC-RAS Model for the same segments. At RM 11.759, the proposed condition water surface elevation is 1.7 feet higher when compared to the Effective FEMA HEC-2 Model. The increase in water surface elevation is a result of the proposed improvements. Improvements for each segment consist of providing a uniform channel with well-defined banks that tie into upstream and downstream improvements with minor or gradual transitions. Under existing conditions, segment RM 11.5666 to 12.194 is characterized by a channel geometry that varies in bottom width, bank location and height and in channel roughness. Throughout this segment there are remnant gravel piles and it appears that this area may have been a gravel mining area. Under existing conditions, segment RM 13.68 to 13.818 is an active mining operation. The increase in water surface elevations does not adversely impact any structures.

Table 4-7

Summary and Comparison of 100-Year Water Surface Elevations Proposed and Existing Condition Models

Cross Section No.	Updated HEC-RAS Model Wsel (ft) 1	Proposed Condition HEC-RAS Models WSEl (ft) 2	Difference Between Updated HEC-RAS WSEL And Proposed Condition HEC-RAS Models WSEL (ft) 3	Effective FEMA/COE Model WSEL (ft) 4	Difference Between Effective FEMA/COE MODEL WSEL And Proposed Condition Hec-Ras Models Wsel (ft) 5
7.728	1150.50	1150.50	0.00	NA	NA
7.751	1151.52	1151.59	0.07	NA	NA
7.8	1152.43	1152.48	0.05	NA	NA
7.92	1154.00	1154.03	0.03	NA	NA
8.006	1155.02	1155.05	0.03	NA	NA
8.052	1155.55	1155.57	0.02	NA	NA
8.12	1156.27	1156.28	0.01	NA	NA
8.22	1157.49	1157.50	0.01	NA	NA
8.33	1158.65	1158.66	0.01	NA	NA
8.39	1159.34	1159.35	0.01	NA	NA
8.457	1160.19	1160.20	0.01	NA	NA
8.516	1161.23	1161.24	0.01	NA	NA
8.548	1161.11	1161.16	0.05	NA	NA
8.655	1166.34	1166.37	0.03	1170.38	-4.01
8.731	1166.94	1166.96	0.02	1171.50	-4.54
8.807	1167.10	1167.14	0.04	1171.53	-4.39
8.883	1167.19	1167.44	0.25	1171.50	-4.06
8.936	1168.66	1168.12	-0.54	1171.70	-3.58
8.977	1169.22	1168.68	-0.54	1171.77	-3.09
8.994	1169.49	1169.06	-0.43	NA	NA
9.047	1170.94	1169.67	-1.27	1172.56	-2.89
9.129	1171.38	1170.37	-1.01	1172.72	-2.35
9.193	1171.78	1170.95	-0.83	NA	NA
9.289	1175.23	1172.63	-2.60	NA	NA
9.318	1177.93	1174.37	-3.56	1180.55	-6.18
9.367	1178.66	1176.29	-2.37	NA	NA
9.492	1179.30	1178.70	-0.60	1187.16	-8.46
9.592	1181.78	1181.73	-0.05	NA	NA
9.692	1184.85	1184.75	-0.10	1191.36	-6.61
9.794	1186.96	1185.65	-1.31	NA	NA

Table 4-7 (continued)

Summary and Comparison of 100-Year Water Surface Elevations
Proposed and Existing Condition Models

Cross Section No.	Updated HEC-RAS Model Wsel (ft) 1	Proposed Condition HEC-RAS Models WSEl (ft) 2	Difference Between Updated HEC-RAS WSEL And Proposed Condition HEC-RAS Models WSEL (ft) 3	Effective FEMA/COE Model WSEL (ft) 4	Difference Between Effective FEMA/COE MODEL WSEL And Proposed Condition Hec-Ras Models Wsel (ft) 5
9.889	1190.74	1190.32	-0.42	1196.92	-6.60
9.908	1194.10	1193.24	-0.86	NA	NA
9.953	1196.75	1195.40	-1.35	1197.58	-2.18
9.958	1196.89	1195.89	-1.00	NA	NA
9.984	1197.92	1197.59	-0.33	1197.87	-0.28
9.997	1197.97	1197.72	-0.25	NA	NA
10.096	1200.31	1200.11	-0.20	1200.61	-0.50
10.176	1202.55	1201.90	-0.65	NA	NA
10.271	1205.08	1203.64	-1.44	1205.03	-1.39
10.348	1206.99	1205.80	-1.19	NA	NA
10.443	1209.48	1207.49	-1.99	1209.59	-2.10
10.517	1212.95	1209.46	-3.49	NA	NA
10.612	1215.38	1210.85	-4.53	1213.73	-2.88
10.699	1216.64	1212.71	-3.93	NA	NA
10.803	1220.48	1209.70	-10.78	1219.44	-9.74
10.862	1221.84	1221.18	-0.66	NA	NA
10.917	1223.51	1223.08	-0.43	NA	NA
10.98	1224.55	1223.99	-0.56	NA	NA
10.996	1226.15	1225.80	-0.35	NA	NA
11.03	1226.54	1226.14	-0.40	NA	NA
11.129	1228.38	1228.10	-0.28	1227.52	0.58
11.188	1228.68	1228.38	-0.30	1228.08	0.30
11.243	1229.10	1228.83	-0.27	NA	NA
11.301	1229.88	1229.73	-0.15	1230.52	-0.79
11.386	1231.44	1230.93	-0.51	1232.74	-1.81
11.481	1233.00	1232.43	-0.57	1234.74	-2.31
11.566	1234.25	1235.11	0.86	1235.98	-0.87
11.664	1234.86	1237.75	2.89	NA	NA
11.759	1238.43	1239.90	1.47	1238.20	1.70
11.864	1241.44	1242.60	1.16	NA	NA
11.949	1244.36	1245.00	0.64	1246.23	-1.23
12.034	1246.62	1248.00	1.38	NA	NA

Table 4-7 (continued)

Summary and Comparison of 100-Year Water Surface Elevations
Proposed and Existing Condition Models

Cross Section No.	Updated HEC-RAS Model Wsel (ft) 1	Proposed Condition HEC-RAS Models WSEl (ft) 2	Difference Between Updated HEC-RAS WSEL And Proposed Condition HEC-RAS Models WSEL (ft) 3	Effective FEMA/COE Model WSEL (ft) 4	Difference Between Effective FEMA/COE MODEL WSEL And Proposed Condition Hec-Ras Models Wsel (ft) 5
12.125	1249.29	1250.58	1.29	1251.46	-0.88
12.194	1252.01	1252.90	0.89	NA	NA
12.313	1257.47	1255.84	-1.63	1257.61	-1.77
12.42	1260.20	1259.14	-1.06	NA	NA
12.511	1263.60	1261.71	-1.89	1263.08	-1.37
12.606	1266.06	1264.31	-1.75	NA	NA
12.701	1268.43	1265.70	-2.73	1268.79	-3.09
12.801	1270.06	1267.00	-3.06	NA	NA
12.896	1270.68	1268.19	-2.49	1273.69	-5.50
12.991	1271.05	1269.45	-1.60	NA	NA
13.076	1271.19	1270.38	-0.81	1277.34	-6.96
13.151	1271.33	1271.23	-0.10	NA	NA
13.161	1278.24	1271.34	-6.90	NA	NA
13.185	1279.17	1278.76	-0.41	NA	NA
13.227	1280.48	1280.43	-0.05	1280.23	0.20
13.325	1282.70	1282.77	0.07	NA	NA
13.42	1285.10	1284.87	-0.23	1285.99	-1.12
13.524	1287.42	1286.93	-0.49	NA	NA
13.619	1288.75	1289.02	0.27	1292.41	-3.39
13.68	1289.24	1290.34	1.10	NA	NA
13.742	1290.82	1291.81	0.99	NA	NA
13.818	1291.67	1293.37	1.70	1297.44	-4.07
13.918	1297.11	1295.77	-1.34	NA	NA
14.013	1302.44	1297.73	-4.71	1303.74	-6.01
14.103	1305.22	1298.64	-6.58	NA	NA
14.197	1308.47	1308.80	0.33	1308.77	0.03
14.284	1311.69	1310.70	-0.99	NA	NA
14.379	1313.87	1314.42	0.55	1315.05	-0.63
14.495	1317.52	1317.12	-0.40	NA	NA
14.599	1319.80	1320.00	0.20	NA	NA

Table 4-7 (continued)

Summary and Comparison of 100-Year Water Surface Elevations Proposed and Existing Condition Models

Cross Section No.	Updated HEC-RAS Model Wsel (ft) 1	Proposed Condition HEC-RAS Models WSEl (ft) 2	Difference Between Updated HEC-RAS WSEL And Proposed Condition HEC-RAS Models WSEL (ft) 3	Effective FEMA/COE Model WSEL (ft) 4	Difference Between Effective FEMA/COE MODEL WSEL And Proposed Condition Hec-Ras Models Wsel (ft) 5
14.653	1322.79	1322.63	-0.16	1320.23	2.40
14.752	1325.48	1325.52	0.04	1324.66	0.86
14.85	1327.36	1327.33	-0.03	NA	NA
14.945	1330.09	1330.11	0.02	1329.02	1.09
14.983	1330.96	1330.97	0.01	NA	NA
15.049	1333.63	1333.63	0.00	NA	NA
15.144	1335.27	1335.27	0.00	1334.80	0.47
15.248	1337.05	1337.05	0.00		
15.333	1338.93	1338.93	0.00	1338.84	0.09
15.416	1339.85	1339.85	0.00	NA	NA
15.475	1340.23	1340.23	0.00	NA	NA
15.596	1343.76	1343.76	0.00	NA	NA
15.623	1347.81	1347.81	0.00	NA	NA
15.699	1349.40	1349.40	0.00	1349.55	-0.15
15.792	1351.76	1351.76	0.00	NA	NA
15.885	1354.74	1354.74	0.00	NA	NA
15.966	1356.95	1356.95	0.00	1356.31	0.64
16.066	1358.60	1358.60	0.00	1358.68	-0.08
16.167	1361.47	1361.47	0.00	1362.43	-0.96
16.248	1364.29	1364.29	0.00	1364.44	-0.15
16.348	1366.70	1366.70	0.00	NA	NA
16.411	1368.80	1368.80	0.00	1368.15	0.65
16.504	1371.22	1371.22	0.00	1370.58	0.64
16.608	1373.08	1373.09	0.01	1372.19	0.90
16.637	1374.65	1374.64	-0.01	NA	NA
16.732	1377.80	1377.81	0.01	1377.75	0.06
16.829	1379.46	1379.46	0.00	NA	NA

5.0 EROSION AND SEDIMENT TRANSPORT

5.1 METHOD DESCRIPTION

Four methods are used for the erosion and sediment transport analysis of the Middle New River Watercourse Master Plan Study. These are the bed degradation (or scour) analysis to evaluate the required toe-down depths of channel structures, equilibrium analysis to determine the stable bed slopes in the channel, bed armoring analysis to evaluate the minimum bed material size for armoring condition, and the lateral migration analysis to compute the erosion setback along the river. Bed degradation, equilibrium slope, and bed armoring analyses are employed for the existing river condition and the five design alternatives of the Middle New River while the lateral migration analysis is employed for the existing condition and the recommended design alternative. The entire reach covered by the Middle New River Watercourse Master Plan study is approximately 8.5 miles spanning from the Skunk Creek downstream to the New River Dam upstream. The reach is subdivided into three sub-reaches with upstream and downstream limits defined as follows:

Reach 1 (from Skunk Creek to Beardsley Rd.), Reach Length = 18,435 ft
Reach 2 (from Beardsley Rd. to Pinnacle Peak Rd.), Reach Length = 11,340 ft
Reach 3 (from Pinnacle Peak Rd. to New River Dam), Reach Length = 16,002 ft.

The 100-year FEMA peak discharges are used as the design discharge for all analyses except the equilibrium slope analysis, and bed armoring analysis where 10-year peak discharges were used. Flow hydraulics associated with the 100-year FEMA peak discharges determined from HEC-RAS models are used for the lateral migration and bed degradation (or total scour) analyses.

The four analyses used in the erosion and sediment transport analysis are described and presented in the sections that follow.

5.1.1 Bed Degradation Analysis

The degree by which a streambed degrades due to a single flood event the combined factors of flow hydraulics and sediment characteristics in the channel provide a way to determine the extent of toe-down requirements for channel structures. Toe-down requirements for bank lining and grade control structures are essential design

information for channel stability. These are estimated from the consideration of various scour components expected to occur along the stream that include the local scour, bend scour, long-term scour, low-flow incisement, anti-dune trough depth, and general scour. The total bed degradation is the summation of the above scour components plus a 30% factor of safety. The 30% safety factor is added to account for the non-uniformity of flow hydraulics in the channel and sediment characteristics in the streambed (SLA, 1989).

The total scour that determines the toe-down requirements for channel structures is expressed as follows:

$$Z_t = 1.3\left[Z_{ls} + Z_{lt} + Z_{bs} + Z_a + Z_{li} + Z_g\right] \qquad (5.1)$$

Where: Z_t = the total scour depth, in feet.
Z_{ls} = the local scour depth, in feet.
Z_{lt} = the long-term degradation, in feet.
Z_{bs} = the bend scour, in feet.
Z_a = the anti-dune trough depth, in feet.
Z_{li} = the low-flow incisement, in feet.
Z_g = the general scour depth, in feet.

Each scour component that contributes to the toe-down depth as enumerated above would be briefly presented in the sub-sections that follow. The following sources were used for the information provided in this section:

i. Computing Degradation and Local Scour, Technical Guideline for Bureau of Reclamation by Pemberton and Lara (1984);

ii. Watercourse System Sediment Balance, State Standard Attachment SSA 5-96, Arizona Department of Water Resources, September 1994.

iii. Standards Manual for Drainage Design and Floodplain Management in Tucson, Arizona by Simons, Li & Associates, Inc. (SLA), December 1989.

iv. Design Manual for Engineering Analysis of Fluvial Systems by Simons, Li & Associates, Inc. (SLA), March 1985.

5.1.1.1 Local Scour Analysis

The design of any structure located either along the riverbank and flood plain or across the channel requires an evaluation of the response of the movable riverbed and banks to design floods. The methods that were presented and described in the Technical Guideline by the U.S. Bureau of Reclamation (Pemberton and Lara, 1984) are considered for this project to evaluate the local scour depths in the channel. The Technical Guideline has presented four scour types or classifications applicable for various structural designs. These classifications are described as follows:

Type A – Evaluation of scour depths for natural channels (restrictions and bends). Design applications include siphon crossing or any buried pipeline, stability study of a natural bank, and waterway for one-span bridge.

Type B – Evaluation of scour for bankline structures. Design applications include abutments to bridge or siphon crossing, bank slope protection such as riprap, spur dikes and groins, pumping plants, and canal headworks.

Type C – Evaluation of scour for midchannel structures. Design applications include piling for bridge, piers for flume over river, powerline footings, and riverbed water intake structures.

Type D – Evaluation of scour for hydraulic structures across channel. Design applications include dams and diversion dams, erosion controls, rock cascade drops, gabion controls, and concrete drops.

Only *Types A, B,* and *D* are considered in this project.

Types A and B – In the determination of scour depths for natural channels and bankline structures, five (5) equations are considered. They are:

a. USBR method I

b. Lacey method

c. Blench method

d. USBR method II

e. Neill method

The details for the above methods are provided in the Technical Guideline for U.S. Bureau of Reclamation (Pemberton and Lara, 1984). The average of the five approaches would be used to define the average local scour in the channel.

Type D - The riverbed immediately downstream of any hydraulic structure is subject to some erosive action due to significant change in flow hydraulics. Some type of stilling basin or energy dissipator as described by the U.S. Bureau of Reclamation (1974) is provided in the design of such structures to dissipate the energy thereby reducing the erosion potential. At most structures below the point where the structure ends and the natural riverbed material begin is a potential location for scour. The magnitude of this scour hole will depend on the combination of flow velocity, turbulence, and vortices generated by the structure. Simons and Senturk (1992) describe many of the available equations.

Methods adopted by the U.S. Bureau of Reclamation (USBR) for computing local scour below a hydraulic structure across the river channel are based on either the regime or rational approach. Scour computations should be made by several methods and engineering judgment used to select the most appropriate.

The most appropriate empirically developed rational methods for local scour below a structure are:

a. Schoklitsch (1932)

b. Veronese (1937)

c. Zimmerman and Maniak (1967)

The relations associated with the above methods are provided in the Technical Guideline for the U.S. Bureau of Reclamation (Pemberton and Lara, 1984). The average of the three approaches would be used to define the average local scour below grade control structures.

5.1.1.2 Long-Term Scour Analysis

The long-term response of the river bed can be evaluated using either the concept of equilibrium (or stable) slope or the concept of streambed armoring as presented in the Technical Guideline (Pemberton and Lara, 1984). The armoring concept in the streambed utilizes the critical tractive stress approach and the evaluated armor size.

For the equilibrium (or stable) slope concept, a number of sediment transport relationships are used that evaluate the stable or equilibrium slope of the bed associated with the gradation of the streambed sediments. The hydraulic information evaluated from backwater models such as HEC-2 or HEC-RAS models for the dominant discharge are used for the analysis. This dominant discharge has the characteristics that, if allowed to flow constantly, would have the same overall channel shaping effect as the natural fluctuating discharges. The dominant discharge is typically between a 5-year and 10-year event (SLA, 1994). The 10-year event is assumed applicable for the Middle New River.

The long-term bed degradation from bed armoring can be determined from the following relation according to Pemberton and Lara (1984):

$$Z_{ba} = y_a\left(\frac{1}{\Delta p} - 1.0)\right) \qquad (5.2)$$

Where: Z_{ba} = Degradation due to bed armoring, in feet;

y_a = Three-layer thickness of nontransportable material to form an armor which is equivalent to three times the computed armor size, in feet;

Δp = Fraction equivalent of materials coarser than the computed armor size.

The bed degradation associated with the computed equilibrium (or stable) slope in the channel can be determined from the following relation:

$$Z_{ss} = \frac{L_g \Delta S_g}{1.625} \qquad (5.3)$$

Where: Z_{ss} = Bed degradation due to stable slope, in feet;

L_g = Length of the degraded channel reach, in feet;

ΔS_g = Difference between the existing streambed slope and the stable slope, in ft/ft.

In order to evaluate the long-term degradation, either through bed armoring or stable slope, analysis on the potential armor size in the channel or the equilibrium slope should be made. The analysis associated with stable (or equilibrium) slope is

presented in Section 5.1.2. The procedure to evaluate the potential armor size along the reaches of the Middle New River is presented in Section 5.13.

5.1.1.3 General Scour Analysis

In the absence of a sediment transport modeling that would evaluate the general scour in the river, Zeller (1991) developed an equation that predicts the general degradation in the channel. It is expressed as follows:

$$Z_g = Y_{max}\left(\frac{0.0685V_m^{0.8}}{Y_h^{0.4}S_e^{0.3}} - 1.0\right) \qquad \textbf{(5.4)}$$

Where: Z_g = General scour depth, in feet;
V_m = Average velocity of flow, in fps;
Y_{max} = Maximum depth of flow, in feet;
Y_h = Hydraulic depth of flow, in feet; and,
S_e = Energy slope (or bed slope for uniform flow conditions), in ft/ft;

It is noted that should the computed Z_g become negative, the general scour is assumed to be zero.

5.1.1.4 Anti-Dune Trough Depth

Anti-dunes are estimated if flows in the channel are either transitional (i.e., between subcritical and supercritical) or supercritical. Simons, Li and Associates (1982) developed the relationship between the anti-dune scour depth and the average channel velocity, V_m. This relationship is expressed as:

$$Z_a = 0.0137V_m^2 \qquad (5.5)$$

A restriction that was provided on the equation is that the anti-dune through depth can never exceed one-half the flow depth. If the estimated Z_a is greater than one-half the flow depth, Z_a is taken as equal to one-half the flow depth.

5.1.1.5 Low-Flow Incisement

Simons, Li & Associates (1989) indicated that when the ratio of the flow width to the flow depth of a channel is greater than 1.15 times the average velocity of flow for the 100-year discharge, a low-flow incisement must be included in all scour calculations.

If low-flow incisement is predicted to be present in the channel, the following considerations can be used to estimate the value of Z_{li}:

For regional watercourses, Z_{li} = 2.0 ft (minimum)

For small watercourses, Z_{li} = 1.0 ft (minimum)

5.1.1.6 Bend Scour Analysis

Bend scour occurs along the outside of bends. Zeller (1983) has developed an equation that predicts the bend scour in sand-bed channels based on the assumption of the maintenance of constant stream power within the channel bend. This is expressed as:

$$Z_{bs} = \frac{0.0685 Y_{max} V_m^{0.8}}{Y_h^{0.4} S_e^{0.3}} \left(2.1 \left[\frac{\sin^2(\frac{\alpha}{2})}{\cos(\alpha)} \right]^{0.2} - 1.0 \right) \qquad (5.6)$$

Where: Z_{bs} = Bend scour component of total scour depth, in ft;
V_m = Average velocity of flow immediately upstream of bend, in ft;
Y_{max} = Maximum depth of flow immediately upstream of bend, in ft;
Y_h = Hydraulic depth of flow immediately upstream of bend, in ft;
S_e = Energy slope immediately upstream of bend (or bed slope for uniform-flow conditions), in ft per ft; and,
α = Angle formed by the projection of the channel centerline from the point of curvature to a point which meets a line tangent to the outer bank of the channel, in degrees.

Mathematically, for simple circular curves, it can be shown that,

$$\frac{r_c}{T} = \frac{\cos(\alpha)}{4\sin^2(\alpha/2)} \qquad (5.7)$$

Where: r_c = Radius of curvature along centerline of channel, in ft; and,
T = Channel top width, in ft.

5.1.1.7 Safety Factor

Simons, Li & Associates (1994) recommends the use of safety factors in the evaluation of total scour in the channel. Twenty to thirty percent factor of safety is

normally added to the estimated sum of all scour components to account for non-uniformity of hydraulic and sediment data in the channel.

5.1.2 Equilibrium (or Stable) Slope Analysis

A stable unlined channel constitutes a bed slope that is in equilibrium. This means that the inflowing sediment load and the sediment load exiting from the channel are equal making a zero net bed change in the channel. Evaluation of the equilibrium slope in the channel is made by employing four methods, namely:

a. Schoklitsch method

b. Meyer-Peter, Muller method

c. Shields diagram

d. Lane's tractive force method

The relations associated with the above methods are described and defined in the Technical Guideline for Bureau of Reclamation (Pemberton and Lara, 1984). The average of the results provided by the four methods is used as the equilibrium slope of the channel.

5.1.3 Bed Armoring Analysis

When the channel bed downstream from a dam contains more that 10 percent coarse material that cannot be transported under dominant flow conditions, armoring will develop in time. The formation of any armoring layer at the maximum depth of degradation will depend on such factors as reservoir operations, the amount of armoring material available in the scour depth zone below steambed, and the distance to which this material extends downstream.

There are several ways to compute the size of bed material required for armoring and each method is regarded as check on the others. Each method computes a different armoring size and some judgement may be required in selecting the lower size limitation of non-transportable material. The Bureau of Reclamation (Pemberton and Lara, 1984) recommends the following methods to determine armoring size:

a. Meyer-Peter, Muller (bedload transport equation)

b. Competent bottom velocity

c. Lane's tractive force theory

d. Shields diagram

e. Yang incipient motion

The relations associated with the above methods are described and defined in the Technical Guideline of Bureau of Reclamation (Pemberton and Lara, 1984). The average of the results provided by the four methods is used as the bed armoring size in the channel

5.1.4 Lateral Migration Analysis

ADWR (1996) presented three levels of analysis in the determination of recommended setback distances for developments in areas adjacent to watercourses. Level I analysis provides an estimate of safe setback distance based on minimum data on the channel reach and watershed hydrology. Level II analysis involves a number of developed approaches that evaluate the stability of the channel banks. Level III analysis, on the other hand, involves an in depth-evaluation of the potential bank migration by examining historical data such as aerial photos and topographic maps of the area and the development of sediment transport model of the river. The flowchart presented in Figure 5-1 outlines the three-level lateral migration analysis normally adopted for watercourse studies.

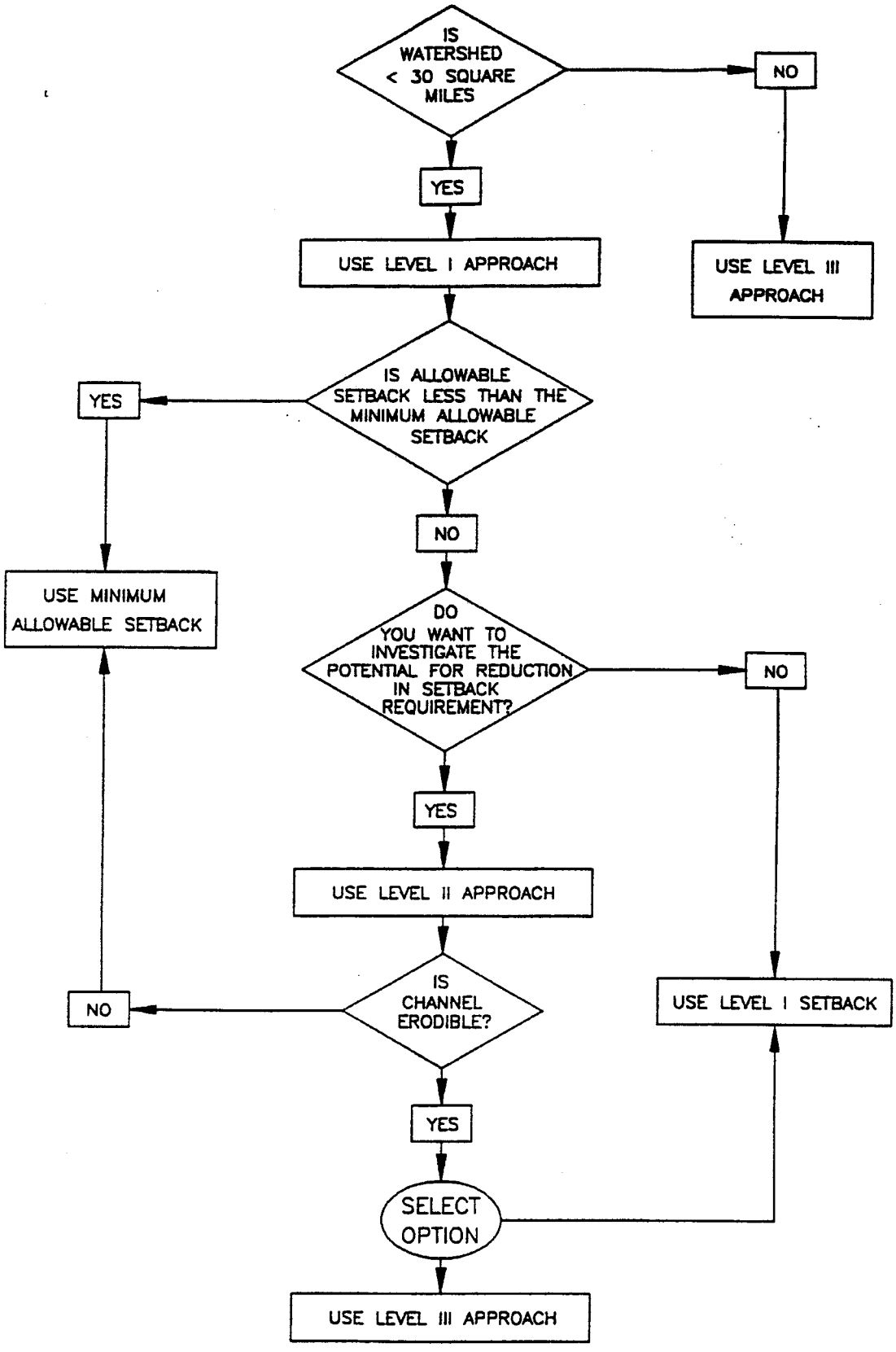


FIGURE 5-1

Erosion Setback Flow Chart

For the current project, only Levels I and II analyses will be performed. The relations recommended for these analyses are presented below:

5.1.4.1 Level I Analysis

For drainage areas of less than 30 square miles, the recommended setback distances for Level I can be estimated from the following relations:

For straight channel reaches or reaches with minor curvature:

$$D_{es} = 1.0(Q_{100})^{0.5} \quad (5.8)$$

For channels with obvious curvature or channel bend:

$$D_{es} = 2.5(Q_{100})^{0.5} \quad (5.9)$$

Where: D_{es} = Erosion setback distance, in ft;
Q_{100} = Design discharge, in cfs.

Minimum setback distances are 20 feet for straight channel reaches, and 50 feet for channels with obvious curvatures. ADWR (1996) defined obvious curvature as one when the channel has a radius of curvature less than 5 times the channel top width (i.e., $r_c < 5T$).

5.1.4.2 Level II Analysis

This approach is employed when a lesser setback requirement is being considered than the ones provided by Level I. The analyses that are involved in the procedure check the stability of the channel bank materials. The four approaches considered under Level II analysis are:

a. Allowable velocity analysis

b. Tractive stress analysis

c. Tractive power analysis

d. Bank lining adequacy analysis

The allowable velocity method compares the channel velocity within the watercourse adjacent to the site with the computed allowable velocity. This comparison

determines if the channel is erodible or not. For the tractive stress method, the tractive stress in the channel is compared with the computed allowable tractive stress. Similarly, this comparison determines if the channel is erodible or not. For the tractive power method, a plot involving unconfined compressive strength and tractive power is used. The channel is classified whether it is erosive (i.e., if data points are above the curve) or non-erosive (i.e., if data points are below the curve). For the bank lining adequacy analysis, existing bank protection measures are evaluated to assess their adequacy against potential lateral bank migration.

The channel classifications evaluated from at least two methods shall be used as a basis whether the erosion setback determined by Level I analysis could be reduced or not. The detailed procedures for the Level II analysis are provided in the State Standard Attachment No. SSA 5-96 (ADWR, 1996).

5.1.4.3 Level III Analysis

This level of analysis requires modeling of the hydraulic and sediment transport characteristics of the watercourse for the purpose of simulating the sedimentation and erosion processes in the area of concern. Any movable boundary river model such as HEC-6 (U.S. Army Corps of Engineers, 1993), or FLUVIAL 12 (Chang, 1988) can be used to establish the setback with consideration of other supplementary data such as: historical data that provide information on the historical trend; field evaluation and site investigation that provide qualitative information; and, quantitative analysis with application of geomorphic principles.

Level I and Level II of the lateral migration analysis are used for the Middle New River Master Plan Study.

5.2 PARAMETER ESTIMATION

There are a number of parameters under this section that are critical to the project as they impact the overall cost and provide important construction requirements for channel stability, public safety, and good drainage design. These parameters are:

a. Toe-down requirement for channel structures such as bankline and grade control structures

b. Channel resistance which is equivalent to the roughness coefficient or Manning's n

c. Stable or equilibrium slope

d. Potential armor size

e. Erosion setback

5.2.1 Toe-Down Depths

The depths of toe-down for the bankline and grade control structures are based on the bed degradation analysis presented in Section 5.1.

This parameter defines how deep the bank protection structures and grade control structures are extended and buried underneath the ground surface to make sure these structures would remain and stay in-place after the passage of the design flood. Estimation of toe-down depths for various structures along the river helps provide essential data for project cost evaluation.

5.2.2 Channel Resistance

A range of channel resistance in the form of roughness coefficient (Manning's n) should be identified to provide a safe operational range for the designed channel. This parameter defines what type of vegetation is permitted and the extent of channel obstruction that are allowed to maintain its design performance. The determination of the safe range of channel resistance should come from hydraulic modeling analysis that would be performed for the watercourse. Estimation of design value for the roughness coefficients is determined from optimization analysis. A range of permissible Manning's coefficients is defined for the channels, and the optimization model chooses the design value.

5.2.3 Equilibrium (or Stable) Slope

The identification of the equilibrium slope for any watercourse requires the understanding of the stream's geometry, flow hydraulics, and sediment characteristics. The importance of defining the stable slope for any watercourse is to assess the long-term bed degradation the stream would adjust until the stable slope is achieved. It is believed that once the stable slope or quasi-equilibrium slope is attained, the stream does not change significantly, except in response to the fluctuation of flood events.

5.2.4 Potential Armor Size

In order to evaluate the extent of long-term channel adjustments, bed armoring analysis should be performed side-by-side with equilibrium slope analysis. Evaluation of the bed armoring size determines whether the ultimate channel grade is dictated by the equilibrium slope or by bed armoring. The finer the composition of bed materials in the river, the more possible it is for the river to adjust to its equilibrium slope. On the other hand, the coarser the composition of the bed materials in the stream, the more likely that the river grade would be dictated by the armoring processes limiting the degradation only to the armoring depth. For the Middle New River, the extent of long-term degradation will be examined by employing both analyses.

5.2.5 Erosion Setback

Evaluation of setback distances for developments in areas adjacent to watercourses is for safety considerations of the community. Since watercourses constantly adjust vertically and laterally in response to the fluctuation of flood events in the river, erosion setback provides that corridor along the river that must not be touched by any developments. This is the natural buffer zone separating the river and the developed areas. Erosion setback can be estimated using one of the three analyses outlined in Section 5.1.3.

5.3 GEOTECHNICAL DATA AND ANALYSIS

There are six (6) sources of sediment data for the sediment transport analysis of the Middle New River project. They are listed as follows:

a. ATL (1988)

b. WPA (1994)

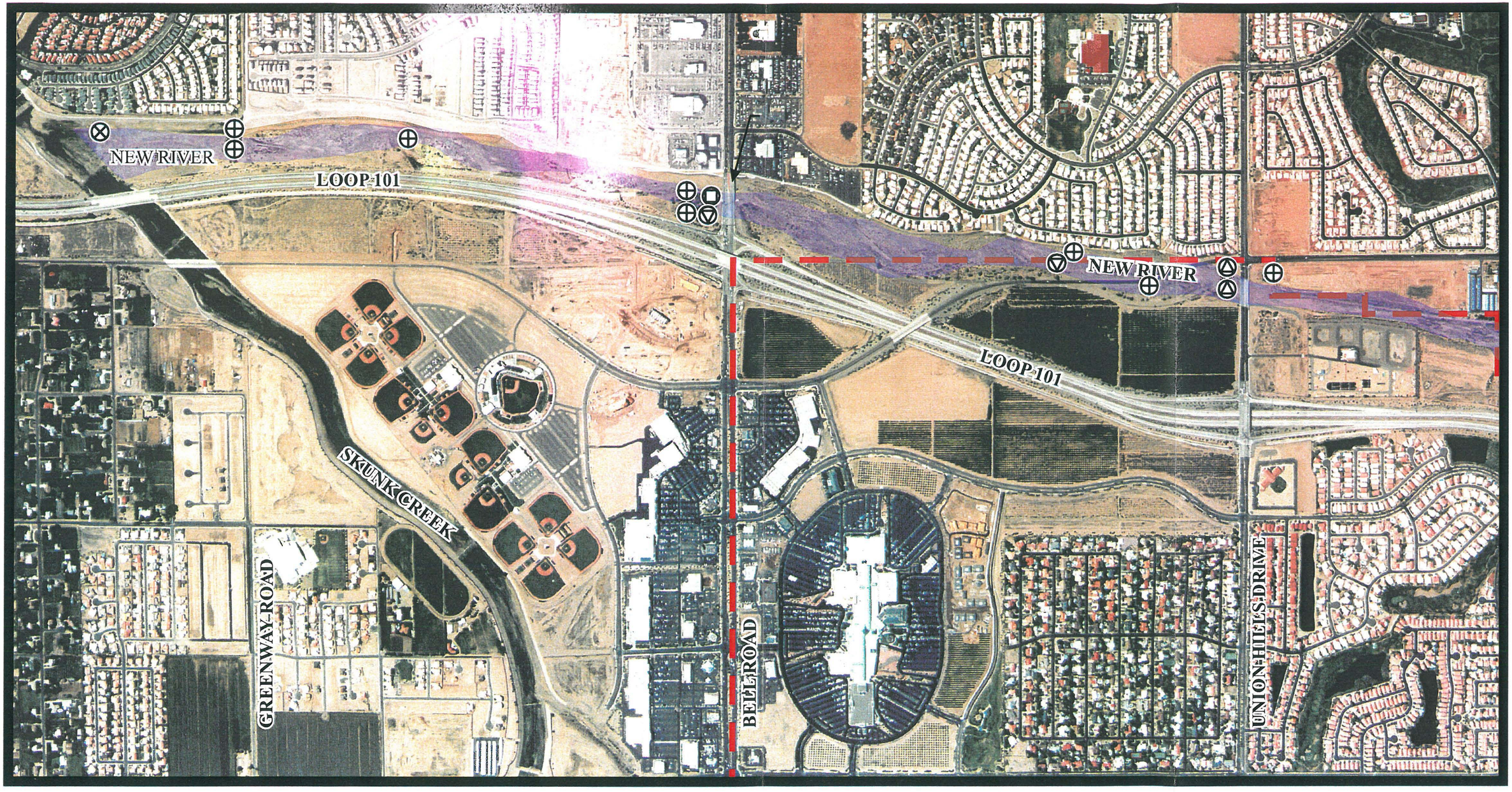
c. HDR (1995)

d. CVL (1998)

e. Stantec (1998)

f. RAM (1999)

The locations of sediment samples from these six sources are shown in Figures 5-2A, 5-2B and 5-2C. The sediment data collected from various locations in the river are briefly described in the following sections.



Legend

- DATA COLLECTED BY STANTEC CONSULTING INC. (1998)
- DATA COLLECTED BY WOOD PATEL INC. (1994)
- DATA COLLECTED BY HDR (1995)
- DATA COLLECTED BY ATL (1988)
- DATA COLLECTED BY FOREE & VANN (1995)
- DATA COLLECTED BY RAM (1999)

Stantec

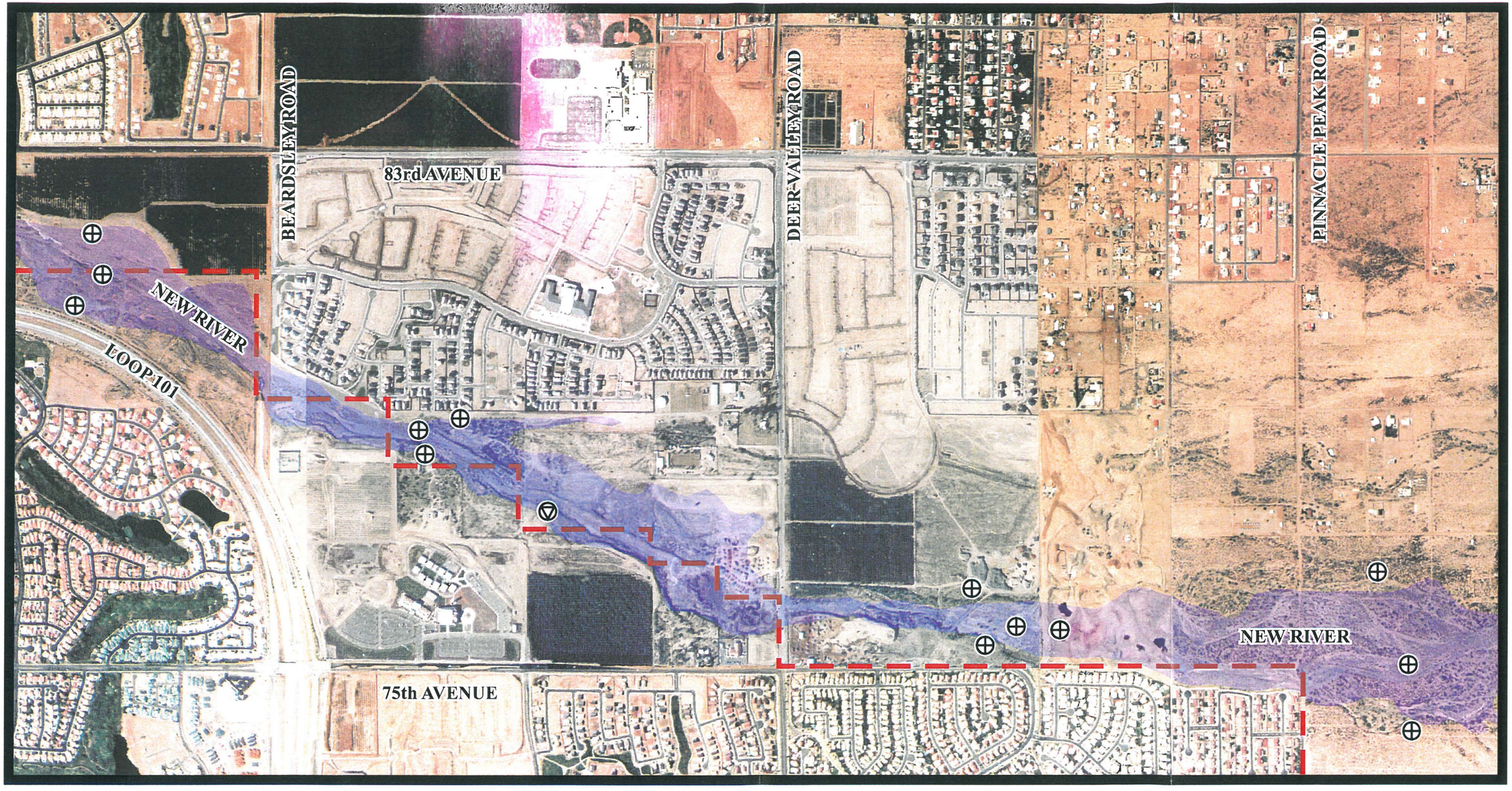
P:\28900058\mnr-technical data notebook-june 00-final\\SED5_2A.CDR

Client/Project
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
MIDDLE NEW RIVER WATERCOURSE MASTER PLAN

Figure No.
5.2A

Title
Sediment Data Location

Date: May 25, 1999
Project Number: 28900058



Legend

- DATA COLLECTED BY STANTEC CONSULTING INC. (1998)
- DATA COLLECTED BY WOOD PATEL INC. (1994)
- DATA COLLECTED BY HDR (1995)
- DATA COLLECTED BY ATL (1988)
- DATA COLLECTED BY FOREE & VANN. (1995)
- DATA COLLECTED BY RAM. (1999)

Stantec

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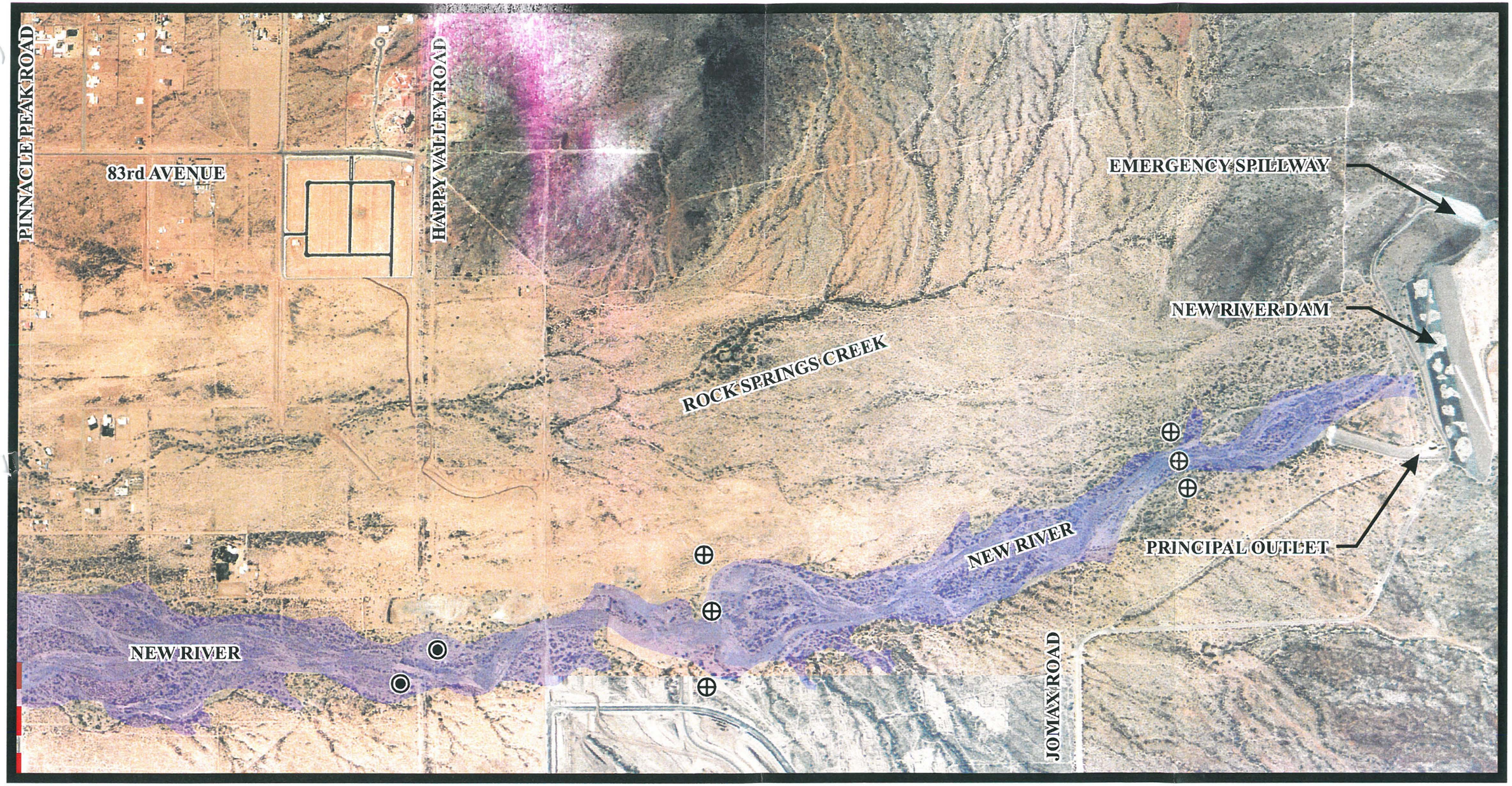
Client/Project
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
MIDDLE NEW RIVER WATERCOURSE MASTER PLAN

Figure No.
5.2B

Title
Sediment Data Location

Date: May 25, 1999
Project Number: 28900058



Legend

- DATA COLLECTED BY STANTEC CONSULTING INC. (1998)
- DATA COLLECTED BY WOOD PATEL INC. (1994)
- DATA COLLECTED BY HDR (1995)
- DATA COLLECTED BY ATL (1988)
- DATA COLLECTED BY FOREE & VANN. (1995)

Stantec

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Client/Project
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
MIDDLE NEW RIVER WATERCOURSE MASTER PLAN

Figure No.
5.2C

Title
Aerial Photo 3

Date: May 25, 1999
Project Number: 28900058

5.3.1 ATL (1988) Sediment Data

The sediment data collected by ATL in 1988 were from six boring sites for the Bell Road Bridge project at the New River by Burgess & Niple, Inc. (1988) (see Appendix C, ATL Sediment Data). Only four boring samples - all located in the river channel - were provided to determine the representative size gradation of the riverbed. These four boring samples are listed and described as follows:

Sample ID	Depth Range (ft)	Location
No. 3	10.0 – 14.0	Main Channel
No. 4	0.0 – 5.0	Main Channel
No. 4	5.0 – 10.0	Main Channel
No. 5	25.0 – 30.0	Main Channel

As shown in Appendix C (ATL Sediment Data), the data from the sieve analysis of the four samples were further analyzed and plotted. This set of sediment samples by ATL (1988) supplements other sediment data that have been collected for Reach No. 1 (i.e., the reach from Skunk Creek to Beardsley Road) of the Middle New River.

5.3.2 WPA (1994) Sediment Data

The sediment data collected by Wood, Patel & Associates (WPA) in 1994 were from twelve test pits that were made above Skunk Creek (see Appendix C, WPA Sediment Data). These samples were part of the subsurface investigation for the flood control improvements of the New River from Grand Avenue to Greenway Road. Of these 12 samples, only nine samples were used – five samples (Samples Nos. 37, 40, 43, 45, and 48) to determine the representative size gradation for the right bank, and four samples (Samples Nos. 38, 41, 44, and 46) for the river channel. The twelve sediment samples collected by WPA (1994) are listed and described as follows:

Sample ID	Depth Range (ft)	Location
No. 37	1.5 - 4.0	Right Bank
No. 38	1.0 - 5.0	Main Channel
No. 40	2.0 - 4.5	Right Bank
No. 41	0.0 - 3.0	Main Channel
No. 43	0.0 - 5.0	Right Bank
No. 44	0.0 - 5.0	Main Channel
No. 45	1.5 - 5.0	Right Bank

Sample ID	Depth Range (ft)	Location
No. 46	0.0 - 3.0	Main Channel
No. 48	3.5 - 5.0	Right Bank

As shown in Appendix C (WPA Sediment Data), the data from the sieve analysis of the nine samples were further analyzed and plotted. This set of sediment samples by WPA (1994) supplements other sediment data that have been collected for Reach No. 1 (i.e., the reach from Skunk Creek to Beardsley Road) of the Middle New River.

5.3.3 HDR (1995) Sediment Data

The sediment data collected by HDR in 1995 were from nine boring sites near Union Hills Drive for the bridge project in the New River (see Appendix C, HDR Sediment Data). Of the 9 samples, only 7 samples are used to evaluate the representative size gradations for the main river channel, the left and right banks. The nine sediment samples collected by HDR (1995) are listed and described as follows:

Sample ID	Depth Range (ft)	Location
No. 1	45.0 – 50.0	Left Bank
No. 2	0.0 – 10.0	Main Channel
No. 3	0.0 – 10.0	Main Channel
No. 4	10.0 – 20.0	Right Bank
No. 5	0.0 - 5.0	Right Bank
No. 6	0.0 - 5.0	Right Bank
No. 7	0.0 - 5.0	Left Bank

As shown in Appendix C (WPA Sediment Data), the data from the sieve analysis of the seven samples were further analyzed and plotted. This set of sediment samples by HDR (1995) supplements other sediment data that have been collected for Reach No. 1 (i.e., the reach from Skunk Creek to Beardsley Road) of the Middle New River.

5.3.4 Foree & Vann (1995) Sediment Data

The sediment data collected by Foree & Vann in 1995 (CVL, 1998) were from two test pits (Test Pits Nos. 1 and 2) made at the New River crossing Happy Valley Road. Soil samples were taken at 3.0-foot increments for both test pits up to a maximum depth of 12.0 ft. Only the sample data from Test Pit No. 2 (TP#2), however, were used to determine the representative size gradation for the river channel at Happy

Valley Road crossing. The eight sediment samples from two test pits collected by Foree and Vann, Inc. (CVL, 1998) are listed and described as follows:

Sample ID	Depth Range (ft)	Location
TP#1, No. 1	0.0 - 3.0	Main Channel
TP#1, No. 2	3.0 - 6.0	Main Channel
TP#1, No. 3	6.0 - 9.0	Main Channel
TP#1, No. 4	9.0 - 12.0	Main Channel
TP#2, No. 1	0.0 - 3.0	Main Channel
TP#2, No. 2	3.0 - 6.0	Main Channel
TP#2, No. 3	6.0 - 9.0	Main Channel
TP#2, No. 4	9.0 - 12.0	Main Channel

As shown in Appendix C (Foree & Vann Sediment Data), the data from the sieve analysis of the four samples from Test Pit No.2 (TP#2) were further analyzed and plotted. This set of sediment samples by Foree & Vann (CVL, 1998) supplements other sediment data that have been collected for Reach No. 3 (i.e., the reach from Pinnacle Peak Road to New River Dam) of the Middle New River.

5.3.5 Stantec (1998) Sediment Data

To supplement the existing sediment data collected by ATL (1988), Wood, Patel & Associates (1994), HDR (1995), and Foree & Vann (CVL, 1998) for the Middle New River, Stantec collected 24 more sediment data in September 1998. The new set of sediment samples comprises of 9 left bank samples, 9 main channel samples, and 6 right bank samples. These samples were collected from various depths that range from 8-inch or 0.67 feet (surface samples) to about 10.0-feet deep (see Appendix C, Stantec Sediment Data). Five of the surface samples were taken from the river thalweg where bed materials are relatively larger than those located somewhere else. The grid sampling technique (Pemberton and Lara, 1994) was used to collect riverbed samples at these five locations. The size gradations of these samples (Nos. 1C, 3C, 5C, 6C, and 7C) were evaluated from counting the materials that are within the grid enclosure. Conversion of rock counts from these samples was made to corresponding sieve analysis by weight. The other 19 samples – too refined to be evaluated by the count method - were sent to Laboratory Consultants, Ltd. in Phoenix, for size gradation evaluation and analysis.

In summary, the 24 sediment samples collected by Stantec Consulting, Inc. are listed and described as follows:

Sample ID	Depth Range (ft)	Location
No. 1L	0.0 - 3.0	Left Bank
No. 1C	0.0 - 0.67	Main Channel
No. 1R	0.0 - 3.0	Right Bank
No. 3L	0.0 - 2.5	Left Bank
No. 3C	0.0 - 0.67	Main Channel
No. 3R	0.0 - 3.0	Right Bank
No. 4L	0.0 - 1.0	Left Bank
No. 4C1	8.0 - 10.0	Main Channel
No. 4C2	0.0 - 3.0	Main Channel
No. 4R	0.0 - 2.0	Right Bank
No. 5L	0.0 - 1.0	Left Bank
No. 5C	0.0 - 0.67	Main Channel
No. 5R	0.0 - 4.0	Right Bank
No. 6L	0.0 - 5.0	Left Bank
No. 6C	0.0 - 0.67	Main Channel
No. 6R	0.0 - 2.5	Right Bank
No. 7L	0.0 - 2.0	Left Bank
No. 7C	0.0 - 0.67	Main Channel
No. 7R	0.0 - 1.0	Right Bank
No. 8L	0.0 - 1.5	Left Bank
No. 8C	0.0 -3.0	Main Channel
No. 9L1	0.0 - 4.0	Left Bank
No. 9L2	0.0 - 4.0	Left Bank
No. 9C	0.0 - 1.0	Main Channel

As shown in Appendix C (Stantec Sediment Data), the size gradation of the 24 samples were further analyzed. This bulk of sediment samples would supplement the other sediment data that have been collected earlier by other agencies.

5.3.6 RAM (1999) Sediment Data

Further supplementing the exiting sediment data for the Middle New River collected from 1988 to 1998, RAM Associates, Inc. was requested to perform field exploration and laboratory testing of additional sediment data. The services requested involve excavating 3 test pits to depths of 10 to 14.0 feet. Representative samples of minus 3-inch material were obtained at five-foot intervals from each tests pit and the percentage of plus 3-inch material estimated and shown on the test pit logs. These estimates are based on visual observation.

The seven (7) sediment samples collected are listed as follows:

Sample ID	Depth Range (ft)	Location
Pit #1, No. 1	0.0 –5.0	Main Channel
Pit #1, No. 2	5.0 – 10.0	Main Channel
Pit #1, No. 3	1.0 – 14.0	Main Channel
Pit #2, No. 1	0.0 – 5.0	Main Channel
Pit #2, No. 2	5.0 –10.0	Main Channel
Pit #3, No. 1	0.0 – 5.0	Main Channel
Pit #3, No. 2	5.0 – 10.0	Main Channel

As shown in Appendix C (RAM Sediment Data), the size gradation of the seven samples were further analyzed. These additional data would supplement the existing sediment data in the Middle New River, particularly for Reaches 1 and 2.

5.3.7 Summary of Sediment Data

From the crop of sediment data collected for the Middle New River Watercourse Master Plan study, representative sediment characteristics are required for the erosion and sediment transport analysis. For the lateral migration analysis, representative bank data for each reach are needed. For conservative evaluation of the erosion setback, the following data are recommended, which are entirely taken from the field samples collected by Stantec Consulting Inc., in September 1998.

Sample ID	Location	Reach No.
No. 3L	Left Bank	Reach No. 3
No. 3R	Right Bank	Reach No. 3
No. 4R	Right Bank	Reach No. 2
No. 5L	Left Bank	Reach No. 2
No. 7R	Right Bank	Reach No. 1
No. 8L	Left Bank	Reach No. 1

For each reach, the erosion setback analysis was based on the finer data between the left and right sediment bank materials.

Similarly, the equilibrium slope analysis, bed armoring, and bed degradation (or total scour) analyses would require some representative channel data for each reach. From the sediment data available for the project, a list of sediment data is prepared for the

evaluation of the representative data for the main channel (see Appendix C, Sediment Data Summary). For conservative evaluation of stable slopes, bed armoring sizes, and scour depths in the channel, the following data are recommended:

Sample ID	Depth Range (ft)	Reach No.
Pit#2, No.1	0.0 – 3.0	Reach No. 3
CJ_A	0.0 – 5.0	Reach No. 2
CJ_B	5.0 – 10.0	Reach No. 2
CJ_Average	0.0 – 10.0	Reach No. 2
4C2	0.0 - 3.0	Reach No. 2
83A/BR _Average	0.0-14.0	Reach No. 1
BR_B	5.0-10.0	Reach No. 1

The equilibrium slope, bed armoring and total scour analyses for the Middle New River were based on sediment data from the recommended list that would provide conservative estimates of the parameters.

5.4 MODELING CONSIDERATIONS

A number of considerations and assumptions are employed in the sediment transport modeling and analyses. They are listed as follows:

5.4.1 Geotechnical Data

The following assumptions were considered regarding the use of the geotechnical data for the erosion and sediment transport analysis:

1. Two representative size gradations were used for each reach in the river – one data for the bank (representing the left overbank and right overbank data), and one for the main channel. Since the Middle New River is subdivided into three distinct reaches (i.e., the upper reach, middle reach, and lower reach), six representative sediment data are used for the erosion and sediment transport analysis.

2. The lateral migration analysis for determining the erosion-setback along the river employs the three representative bank data. For conservative analysis of the natural buffer zone that separates the river and future development areas, the finer data between the left and right overbank data were used.

3. The equilibrium slope, bed armoring, and total scour analyses also considered three representative sediment data in the channel – one data for each reach. These data are determined from the recommended list presented in Section 5.3.7.

5.4.2 Hydrologic Data

Various assumptions are considered for the hydrologic data used for the erosion and sediment transport analysis. They are presented as follows:

1. The 10-year discharge was used as the dominant discharge, which is the basis of both the equilibrium slope, and bed armoring analyses. The dominant discharge, according to SLA (1994) is the discharge that, if allowed to flow constantly, would have the same overall channel shaping effect as the natural fluctuating discharges. The dominant discharge is typically between a 5-year and 10-year event. The 10-year event is assumed applicable for the Middle New River study.

2. The 100-year FEMA discharges are used as the design discharge for the hydraulic modeling of the existing and improved channels of the Middle New River. Flow hydraulics associated with the 100-year FEMA discharge determined from HEC-RAS model are used for the lateral migration and bed degradation (or total scour) analyses.

5.4.3 Lateral Migration Analysis

Various assumptions are considered for the erosion setback analysis. They are presented as follows:

1. The 100-year FEMA discharges (FEMA, 1995), and not those evaluated by U.S. Army Corps of Engineers (COE, 1983), are used in the Level I analysis to define the erosion setback from the riverbank.

2. Also the drainage areas used in Level I analysis were those determined from FEMA studies, and not the areas estimated by the U.S. Corps of Engineers.

3. For the allowable velocity approach in Level II analysis, sediment laden flows are considered for the Middle New River. This flow condition is typical for rivers in Arizona. For the case of the Middle New River where majority of

the upstream flows are the releases from the New River Dam, clear waters are expected from the dam. Assumptions of a sediment laden flow condition in the Middle New River is logically possible although the upstream dam expects to collect the incoming sediment load during flood events. A number of field investigation conducted during data collection indicates that both the left and right overbanks are rich sources of very fine sediments that could be easily caught by side flows and directed to the main channel.

4. The water temperature used in tractive stress approach of the Level II analysis is 68°F. This is the water temperature at normal condition for rivers in Arizona. The water temperature defines useful water properties such as kinematic viscosity and water density.

5. For the tractive power approach in Level II analysis, the unconfined compressive strength (UCS) of the soils is assumed to be zero because the sediment materials are generally non-cohesive and non-colloidal.

5.4.4 Equilibrium Slope Analysis

A number of assumptions were used in the determination of equilibrium slopes. They are presented as follows:

1. The 10-year discharge is used, as the dominant discharge required for equilibrium slope analysis. This is the discharge that, if allowed to flow constantly, would have the same overall channel shaping effect as the natural fluctuating discharges.

2. The four equations presented by Pemberton and Lara (1984) are all used to evaluate the average equilibrium slopes in the New River.

3. Fixed grade points are located in the channel for bed degradation analyses. Equilibrium slope analysis involves the identification of a reach that is subject to vertical adjustments (Pemberton and Lara, 1984). Ideally, these reaches are defined by fixed structures in the channel such as grade control and drops.

5.4.5 Bed Armoring Analysis

The assumptions that were considered for the bed armoring analysis of the Middle New River are as follows:

1. The dominant discharge is used to determine the flow hydraulics that is employed by the methodology.

2. The five equation presented by Pemberton and Lara (1984) as listed in Section 5.1.3 were all used to evaluate the average armor sizes in the Middle New River.

5.4.6 Bed Degradation or Total Scour Analysis

Various assumptions are considered in the evaluation of the total bed scour in the channel. These are:

1. Two-foot deep of low-flow incisement is assumed along the thalweg of the river channel. Because of the small drainage size involved (i.e., approx. 27.0 sq. miles), the Middle New River is considered a small regional watercourse that a 2.0-ft deep of low flow incisement is considered.

2. Anti-dune trough depths are only evaluated for transitional and supercritical flows (SLA, 1989) where Froude numbers are equal to 0.86 or more. Some locations are identified in the existing river condition where anti-dune trough may possibly occur. For the five alternatives, each channel is designed with subcritical flow condition in mind so that anti-dune trough depths are not accounted. With the consideration of grade control structures in the channel to decrease existing bed slopes, flow conditions go critical at crest locations identified in the model as cross-section 100.

3. Long-term degradation is evaluated from the estimated equilibrium slope of the channel. The worse scenario for the long-term scour is the consideration of the entire channel length between grade control structures as the reach that is subject to vertical adjustments.

4. The local scours evaluated are made for natural channels, bankline structures, and grade control structures. These considerations involved the use of Type A/B equations for natural channels and bankline structures and Type D equations for grade control structures.

5. Scours around bend in the channel were not evaluated because the are already integrated into the local scour analysis. The USBR Technical Guideline

(Pemberton and Lara, 1984) employs Z factors as multiplying factors that depend on the type or classification of bends or curvatures in the channel.

6. Thirty percent (30%) factor of safety is added to the sum of all scour components to account for the non-uniformity in flow hydraulic condition in the channel as well as the non-uniformity of the streambed material characteristics.

5.5 CALIBRATION

Model calibration is designed to verify that the model developed simulates and mimics real and actual physical conditions. For example, bed degradation in the channel could be simulated through sediment transport modeling but accuracy of model results could only be achieved by calibrating the model to behave exactly as its physical counterpart. No model calibration was performed under this section since no sediment transport modeling using HEC-6 or similar models was made for the Middle New River.

5.6 EXISTING CONDITION RESULTS

The existing condition of the Middle New River is used to evaluate prevailing hydraulic and sediment transport conditions. The results of both the hydraulic modeling and sediment transport analysis conducted for the Middle New River are to be compared with the results of future developed conditions. Existing conditions may exhibit inadequate channel capacity and show excessive flow hydraulic and sediment transport conditions that may not be the ideal situations desired. Various design alternatives are considered to improve both the existing hydraulic and sediment transport conditions in the river.

5.6.1 General

Results of the sediment transport analysis performed on the existing river condition include the erosion setback corridor along the river evaluated from lateral migration analysis, the extent of bed degradation from scour analysis, the stable slope of the river channel from equilibrium slope analysis, and the minimum bed material size that comprises the armored layer from armoring analysis. Although the analyses performed were made by cross-section stations, results are presented by reach since the data used are representative of each reach.

5.6.2 Erosion Setback

Table 5-1 lists the results of the Level I analysis on the entire Middle New River. Existing 100-year discharges and contributing drainage areas from FEMA FIS (FEMA, 1995) were used in the analysis with channel curvatures evaluated from 1998 topographic map developed by Aerial Mapping Inc.. Erosion setback limits are depicted on plates ES1 through ES6. In summary, the ranges of setback for the three reaches are provided as follows:

Reach 1 (Skunk Creek to Beardsley Rd.) – 100 ft to 110 ft
Reach 2 (Beardsley Rd. to Pinnacle Peak Rd.) – 80 ft to 100 ft
Reach 3 (Pinnacle Peak Rd. to New River Dam) – 50 ft to 160 ft.

Further in Table 5-2, an attempt to verify and refine the results of Level I analysis is made using two methods that include the allowable velocity approach and the tractive power approach (ADWR, 1996). Representative cross-sections for each reach were used for the Level II analysis involving the two methods. Sixteen cross-section stations were used for Reach 1 (out of 51 cross-section stations), 15 cross-section stations for Reach 2 (out of 24 cross-section stations), and 13 cross-section stations for Reach 3 (out of 32 cross-section stations). The flow hydraulic parameters and the geometric data used in Level II analysis were taken from the HEC-RAS model of the existing river condition. Each of the evaluations made for each cross-section in Table 5-2 reflects whether or not the river channel is erodible. For the allowable velocity approach, Reaches 1 and 3 are entirely erodible, as the computed channel velocities in column (5) are greater than the maximum allowable velocities in column (20).

TABLE 5-1
Level 1 Lateral Migration Analysis for Existing River Condition

Location	STATION	Existing FEMA 100-Year Discharge	Contributing Drainage Area [A]	Channel Curvature [B]	Computed Erosion Setback
	(River Miles)	(cfs)	(sq.miles)	(Straight or Obvious Bend)	(feet)
(1)	(2)	(3)	(4)	(5)	(6)
New River Dam		2350			
	15.966	2350		Bend	50.0
	15.533	4200	1.95	Obvious Bend	160.0
	14.945	4200		Bend	60.0
Pinnacle Peak Rd	14.197	6100	4.51	Straight	80.0
	14.013	6100		Straight	80.0
Deer Valley Rd	13.161	9800	6.9	Straight	100.0
	13.076	9800		Straight	100.0
	12.313	9800	<10.3>	Straight	100.0
Beardsley Rd	12.034	10350	13.77	Straight	100.0
	11.188	10350		Straight	100.0
Union Hills	10.996	10900	14.31	Straight	100.0
	10.271	10900		Straight	100.0
Bell Rd	9.960	11450	16.3	Straight	110.0
	9.492	11450		Straight	110.0
	8.807	12000		Straight	110.0
Skunk Creek	8.655	12000	27.0 <20.7>	Straight	110.0

NOTES:
(A) Drainage areas are taken from ACDC ADMS (FCDMC,199?); drainage areas in brackets (e.g., <20.7>) are from the study by Corps of Engineers (COE, 19??)..
(B) Determination of channel curvatures was based on the existing topographic map of the project area. Obvious curvature is used when the channel has a radius of curvature (rc) less than 5 times the channel top width (i.e., rc < 5T).
(C) Reach 1 is from Skunk Creek to Beardsley Rd., Reach 2 is from Beardsley Rd. to Pinnacle Peak Rd., and Reach 3 is from Pinnacle Peak Rd. to the New River Dam.

TABLE 5-2

Level 2 Lateral Migration Analysis for Existing River Condition

Item No.	Reach No.	Station No.	Discharge (cfs)	Channel Velocity (ft/s)	Flow Depth (ft)	Channel Manning's	E.G. Slope (ft/ft)	Reach Length (ft)	Channel Top Width (ft)	Channel Slope (ft/ft)	Radius of Curvature (ft)	Bank Slope (HOR:VER) (ft/ft)	Unconfined Compressive Strength (UCS)[1] (psf)	Grain Size D_{75} (ft)	Allowable Velocity Approach						Tractive Power Approach				
																Correction Factor			Maximum Velocity (ft/s)	Erosion Possible? (yes or no)					
															V_b[2] (ft/s)	C_a[3]	C_b[4]	C_d[5]			Computed r/b	τ_{sc}/τ_s	Computed Tractive Force	Allowable Tractive Force	Tractive Power Approach
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)			(22)	(23)	(24)
1	3	16.608	2350	4.86	4.39	0.038	0.00489	500.7	201.7	0.00373	27515	3.4	100	0.00115	2.00	1.00	0.84	1.09	1.83	yes	136.40	1.00	0.36	0.03	erodible
2	3	16.504	2350	4.34	4.40	0.038	0.00306	481.4	235.3	0.00501	27515	19.5	100	0.00115	2.00	1.00	0.84	1.09	1.83	yes	116.92	1.00	0.13	0.03	erodible
3	3	16.411	2350	6.17	4.39	0.038	0.00664	481.8	179.2	0.00376	27515	4.6	100	0.00115	2.00	1.00	0.84	1.09	1.83	yes	153.53	1.00	0.10	0.03	erodible
4	3	16.348	2350	4.33	4.10	0.038	0.00357	497.9	382.9	0.00478	27515	28.1	100	0.00115	2.00	1.00	0.84	1.07	1.81	yes	71.87	1.00	0.18	0.03	erodible
5	3	16.066	2350	4.11	4.18	0.038	0.00539	584.2	438.0	0.00442	27515	11.0	100	0.00115	2.00	1.00	0.84	1.08	1.81	yes	62.82	1.00	0.08	0.03	erodible
6	3	15.966	2350	3.43	5.11	0.038	0.00197	430.0	562.0	0.00800	27515	13.3	100	0.00115	2.00	1.00	0.84	1.12	1.88	yes	48.96	1.00	0.02	0.03	non-erodible
7	3	15.885	4200	6.74	6.34	0.038	0.00661	509.4	276.9	0.00628	27515	16.5	100	0.00115	2.00	1.00	0.84	1.16	1.96	yes	99.38	1.00	0.38	0.03	erodible
8	3	15.792	4200	6.73	6.56	0.038	0.00539	472.7	295.3	0.00104	27515	10.0	100	0.00115	2.00	1.00	0.84	1.17	1.97	yes	93.18	1.00	0.27	0.03	erodible
9	3	14.850	6100	5.55	4.85	0.038	0.00587	536.7	557.2	0.00613	27515	15.4	100	0.00115	2.00	1.00	0.84	1.11	1.87	yes	49.38	1.00	0.15	0.03	erodible
10	3	14.752	6100	4.14	5.71	0.038	0.00251	547.5	758.1	0.00342	27515	15.5	100	0.00115	2.00	1.00	0.84	1.14	1.92	yes	36.30	1.00	0.09	0.03	erodible
11	3	14.653	6100	6.93	4.89	0.038	0.00865	536.6	740.0	0.00527	27515	28.6	100	0.00115	2.00	1.00	0.84	1.11	1.87	yes	37.18	1.00	0.14	0.03	erodible
12	3	14.599	6100	4.77	4.73	0.038	0.00465	542.2	549.2	0.00537	27515	1.6	100	0.00115	2.00	1.00	0.56	1.10	1.23	yes	50.10	1.00	0.13	0.03	erodible
13	3	14.495	6100	6.07	5.36	0.038	0.00448	561.7	1022.7	0.00531	27515	15.6	100	0.00115	2.00	1.00	0.84	1.13	1.90	yes	26.90	1.00	0.08	0.03	erodible
14	2	13.619	7900	3.57	5.28	0.035	0.00107	505.6	534.6	0.00310	27515	14.0	100	0.03905	5.50	1.00	0.84	1.13	5.21	no	51.47	1.00	4.06	0.03	erodible
15	2	13.524	7900	6.30	5.52	0.035	0.00322	522.6	294.4	0.00855	27515	5.9	100	0.03905	5.50	1.00	0.84	1.14	5.25	yes	93.46	1.00	0.11	0.03	erodible
16	2	13.420	7900	7.83	7.67	0.035	0.00437	514.1	214.7	0.00142	27515	7.2	100	0.03905	5.50	1.00	0.84	1.20	5.54	yes	128.17	1.00	0.32	0.03	erodible
17	2	13.325	7900	7.80	6.00	0.035	0.00501	571.0	240.6	0.00317	27515	5.4	100	0.03905	5.50	1.00	0.84	1.15	5.33	yes	114.36	1.00	0.54	0.03	erodible
18	2	13.227	7900	6.77	5.59	0.035	0.00354	315.3	264.3	0.00000	27515	8.4	100	0.03905	5.50	1.00	0.84	1.14	5.26	yes	104.10	1.00	0.12	0.03	erodible
19	2	13.185	7900	6.57	4.28	0.035	0.00520	33.6	382.5	0.00715	27515	27.8	100	0.03905	5.50	1.00	0.84	1.08	5.01	yes	71.94	1.00	1.30	0.03	erodible
20	2	13.151	7900	3.33	9.13	0.035	0.00056	393.1	390.9	-0.00043	27515	10.1	100	0.03905	5.50	1.00	0.84	1.23	5.69	no	70.40	1.00	0.84	0.03	erodible
21	2	13.076	7900	2.80	8.82	0.035	0.00033	454.2	403.9	0.00000	27515	4.9	100	0.03905	5.50	1.00	0.84	1.22	5.66	no	68.13	1.00	0.85	0.03	erodible
22	2	12.991	9800	2.78	8.68	0.035	0.00031	527.0	514.9	-0.00025	27515	3.5	100	0.03905	5.50	1.00	0.84	1.22	5.64	no	53.44	1.00	2.36	0.03	erodible
23	2	12.896	9800	3.84	8.18	0.035	0.00084	508.2	569.8	0.00447	27515	6.4	100	0.03905	5.50	1.00	0.84	1.21	5.59	no	48.29	1.00	0.09	0.03	erodible
24	2	12.801	9800	4.05	9.83	0.035	0.00165	524.6	666.3	0.00025	27515	9.6	100	0.03905	5.50	1.00	0.84	1.24	5.74	no	41.29	1.00	0.05	0.03	erodible
25	2	12.701	9800	6.57	8.33	0.035	0.00325	505.6	429.8	0.00237	27515	26.8	100	0.03905	5.50	1.00	0.84	1.21	5.61	yes	64.01	1.00	0.05	0.03	erodible
26	2	12.606	9800	7.83	7.16	0.035	0.00559	582.3	479.9	0.00704	27515	33.4	100	0.03905	5.50	1.00	0.84	1.19	5.48	yes	57.34	1.00	0.15	0.03	erodible
27	2	12.511	9800	7.57	8.80	0.035	0.00336	467.6	458.1	0.00064	27515	13.1	100	0.03905	5.50	1.00	0.84	1.22	5.65	yes	60.07	1.00	0.18	0.03	erodible
28	2	12.420	9800	10.86	5.70	0.035	0.00848	578.1	276.4	0.00697	27515	19.7	100	0.03905	5.50	1.00	0.84	1.14	5.28	yes	99.54	1.00	0.65	0.03	erodible
29	1	11.949	10350	6.52	5.46	0.035	0.00323	452.3	576.9	0.00736	27515	12.5	100	0.00184	2.20	1.00	0.84	1.13	2.10	yes	47.69	1.00	0.18	0.03	erodible
30	1	11.864	10350	9.62	5.87	0.035	0.00705	615.3	535.5	0.00577	27515	10.9	100	0.00184	2.20	1.00	0.84	1.15	2.12	yes	51.38	1.00	0.62	0.03	erodible
31	1	11.759	10350	7.67	6.41	0.035	0.00455	501.2	502.4	0.00642	27515	2.0	100	0.00184	2.20	1.00	0.76	1.17	1.95	yes	54.77	1.00	0.57	0.03	erodible
32	1	11.664	10350	9.98	6.06	0.035	0.00776	513.8	345.6	0.00093	27515	22.2	100	0.00184	2.20	1.00	0.84	1.16	2.13	yes	79.62	1.00	0.59	0.03	erodible
33	1	11.566	10350	4.37	5.93	0.035	0.00131	468.9	493.6	0.00749	34770	7.1	100	0.00184	2.20	1.00	0.84	1.15	2.13	yes	70.44	1.00	0.08	0.03	erodible
34	1	10.917	10900	6.40	6.78	0.035	0.00292	292.2	364.6	0.00445	34770	17.2	100	0.00184	2.20	1.00	0.84	1.18	2.17	yes	95.36	1.00	0.25	0.03	erodible
35	1	10.862	10900	8.71	6.41	0.035	0.00474	313.2	241.1	0.00425	34770	3.4	100	0.00184	2.20	1.00	0.84	1.17	2.15	yes	144.21	1.00	0.59	0.03	erodible
36	1	10.803	10900	7.72	6.38	0.035	0.00509	567.3	533.2	0.00818	34770	19.7	100	0.00184	2.20	1.00	0.84	1.16	2.15	yes	65.21	1.00	0.41	0.03	erodible
37	1	10.699	10900	9.29	7.18	0.035	0.00706	462.2	276.4	0.00149	34770	13.9	100	0.00184	2.20	1.00	0.84	1.19	2.19	yes	125.79	1.00	0.79	0.03	erodible
38	1	10.612	10900	6.30	6.61	0.035	0.00241	504.9	326.2	0.00265	34770	2.7	100	0.00184	2.20	1.00	0.83	1.17	2.15	yes	106.60	1.00	0.23	0.03	erodible
39	1	10.517	10900	8.54	5.52	0.035	0.00660	519.3	528.1	0.00545	34770	2.9	100	0.00184	2.20	1.00	0.73	1.14	1.83	yes	65.84	1.00	0.15	0.03	erodible
40	1	9.692	11450	5.55	7.65	0.035	0.00174	565.2	369.6	0.00265	34770	2.1	100	0.00184	2.20	1.00	0.84	1.20	2.21	yes	94.08	1.00	0.97	0.03	erodible
41	1	9.592	11450	9.72	6.08	0.035	0.01043	606.9	349.0	0.00290	34770	2.8	100	0.00184	2.20	1.00	0.84	1.16	2.14	yes	99.63	1.00	0.21	0.03	erodible
42	1	9.492	11450	5.96	5.36	0.035	0.00305	463.5	472.6	0.00563	34770	5.2	100	0.00184	2.20	1.00	0.84	1.13	2.09	yes	73.58	1.00	0.08	0.03	erodible
43	1	9.367	12000	4.54	7.33	0.035	0.00113	489.7	464.9	0.00608	34770	8.9	100	0.00184	2.20	1.00	0.84	1.19	2.20	yes	74.80	1.00	0.13	0.03	erodible
44	1	9.318	12000	5.31	9.58	0.035	0.00133	155.6	353.8	0.00289	34770	5.0	100	0.00184	2.20	1.00	0.84	1.24	2.29	yes	98.29	1.00	0.13	0.03	erodible

NOTES:

(1) The unconfined compressive strength (UCS) in column (14) was assumed to be at most 100 psf for the sediment materials because the materials are predominately non-cohesive.

(2) The values for the basic allowable velocity, V_b in column (16) were taken from Figure 1 of the Arizona Department of Water Resources Manual (ADWR, 1996) using the sediment laden curve.

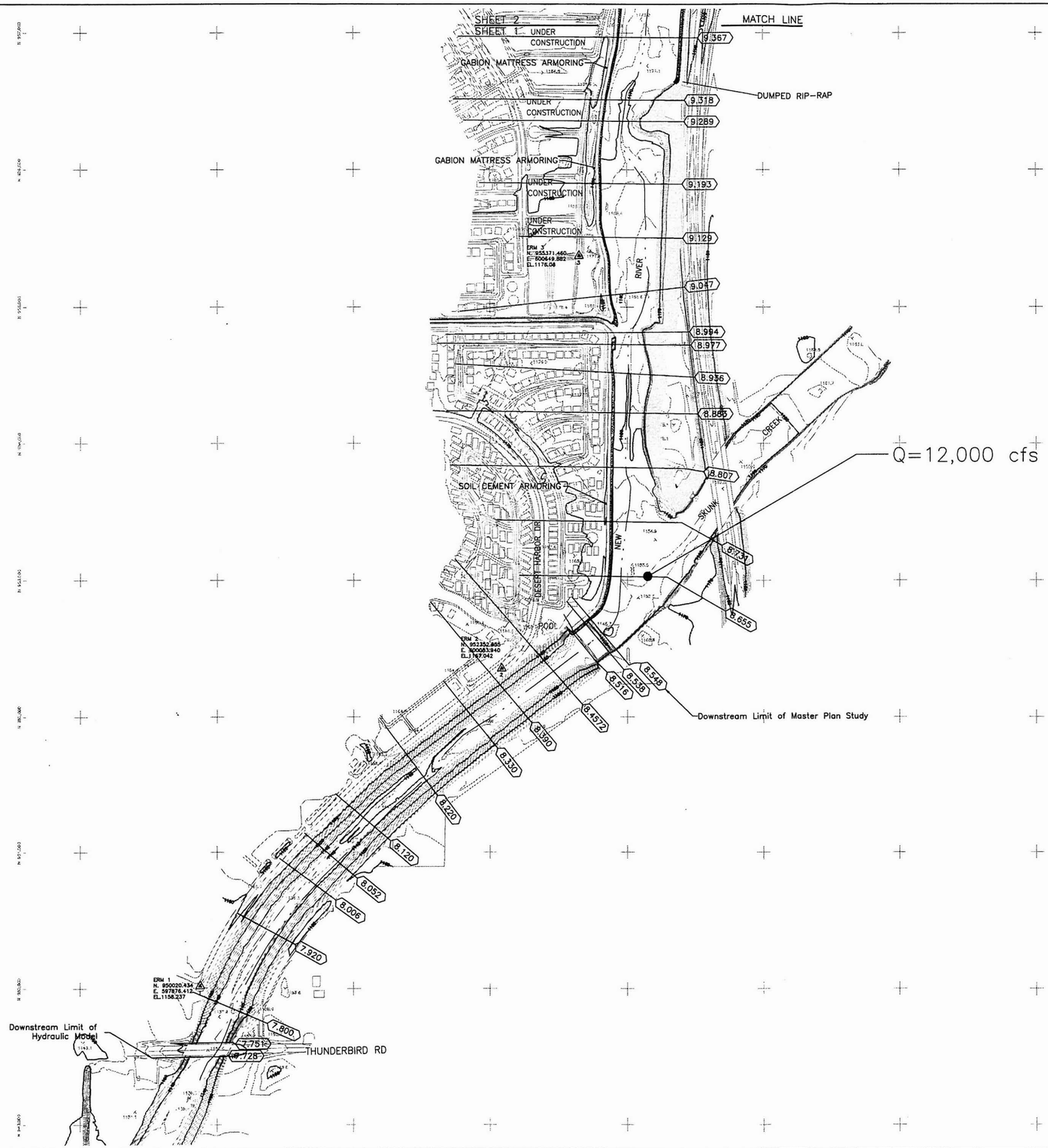
(3) The values of correction factor C_a for channel alignment in column (17) were taken from Figure 2 (ADWR, 1996). Since the computed ratio between radius of curvature (r_c) and the water surface width is greater than 16, a C_a value of 1.0 is used.

(4) The values of correction factor C_b for bank slope in column (18) were calculated from an equation that represents Figure 3 (ADWR, 1996). If the side slope was greater then 3:1, the extreme value of 0.84 was used.

(5) The values of correction factor C_d for depth of flow in column (19) were calculated from two equations that were created to represent Figure 4 (ADWR, 1996). The first equation represents the correction factor for depths less than 9.0 ft, and the second for depths greater than 9.0 ft.

(6) The side slopes were calculated from the HEC-RAS model for the main channel and then averaged to one number from the left and right slope.

(7) The data from columns (4) to (10) were taken from the HEC-RAS model of the river.



FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

MIDDLE NEW RIVER WATERCOURSE MASTER PLAN EROSION SETBACK MAP

F.C.D. CONTRACT NO. 97-04

LEGEND

- HYDRAULIC BASE LINE
- EROSION SETBACK
- EXISTING SOIL CEMENT ARMORING
- EXISTING GABION MATTRESS ARMORING
- 100-YEAR EXISTING CONDITION PEAK DISCHARGE — Q= 4200 cfs
- CROSS SECTION — 9.047
- ELEVATION REFERENCE MARK — 12
- CORPORATE LIMITS

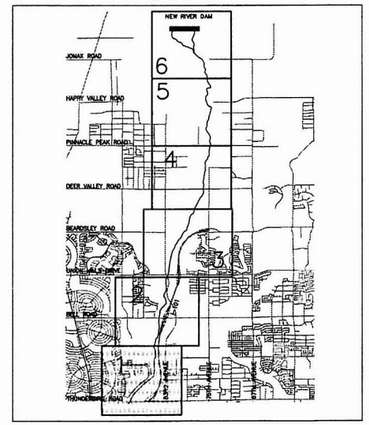
ELEVATION REFERENCE MARKS

ERM #1 – Elevation 1158.237
C.O.P. brass cap (flush) +/- 600' east of 91st Avenue on Desert Harbor Drive.

ERM #2 – Elevation 1167.042
C.O.P. brass cap in handhole ● centerline P.C. +/- 300' north of intersection of Acoma Drive & Desert Harbor Drive

ERM #3 – Elevation 1176.08
Top of brass cap (flush) at 86th Drive and Betty Elyse Lane.

INDEX MAP



400' 0' 400' 800'
SCALE: 1"=400'
CONTOUR INTERVAL: 2 FEET

Stantec JOB# 28900058

	BY	DATE
DESIGN	PAW	04/01/99
DESIGN CHK.	PJE	04/13/00
PLANS	PAW	04/20/99
PLANS CHK.	PJE	04/13/00

SUBMITTED BY: DATE:

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

APPROVED BY: DATE
CHIEF ENGINEER AND GENERAL MANAGER

PLATE ES-1 OF ES-6

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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

MIDDLE NEW RIVER WATERCOURSE MASTER PLAN EROSION SETBACK MAP

F.C.D. CONTRACT NO. 97-04

LEGEND

- HYDRAULIC BASE LINE
- EROSION SETBACK
- EXISTING SOIL CEMENT ARMORING
- EXISTING GABION MATTRESS ARMORING
- 100-YEAR EXISTING CONDITION PEAK DISCHARGE — Q= 4200 cfs
- CROSS SECTION — 9.047
- ELEVATION REFERENCE MARK — 12
- CORPORATE LIMITS

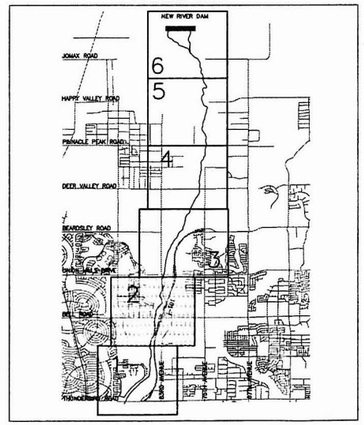
ELEVATION REFERENCE MARKS

ERM #4 - Elevation 1187.90
Top of brass cap (flush) at intersection of 86th Avenue and Paradise Lane.

ERM #5 - Elevation 1202.16
C.O.G. brass cap in handhole at intersection of 83rd Avenue and Bell Road.

ERM #6 - Elevation 1212.88
Top brass cap in handhole at 83rd Drive and 84th Avenue.

INDEX MAP



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SCALE: 1"=400'
CONTOUR INTERVAL: 2 FEET

Stantec JOB# 28900058

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DESIGN CHK.	PJE	04/13/00
PLANS	PAW	04/20/99
PLANS CHK.	PJE	04/13/00
SUBMITTED BY: DATE:		

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

PLATE ES-2 OF ES-6

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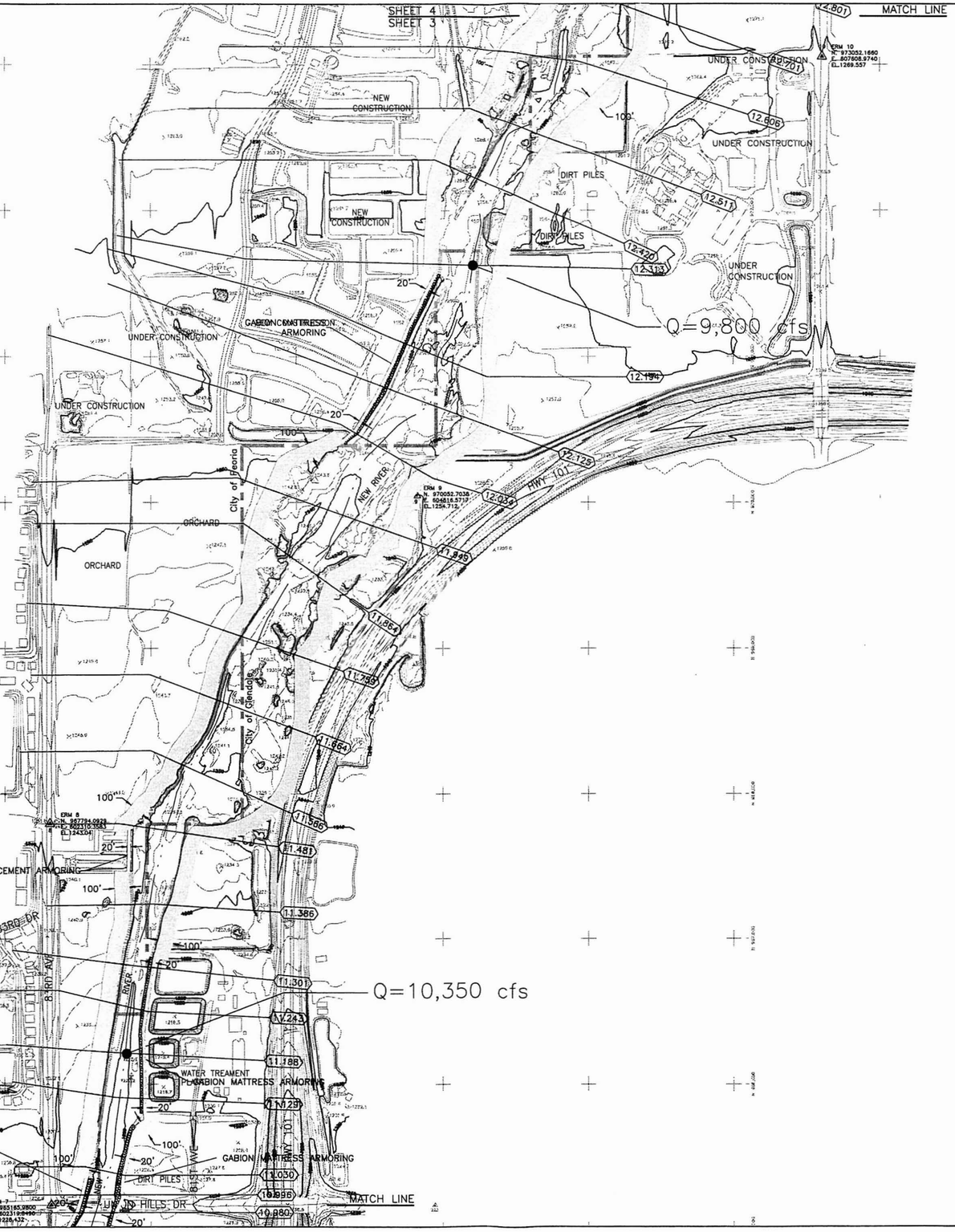


FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

MIDDLE NEW RIVER WATERCOURSE MASTER PLAN EROSION SETBACK MAP

F.C.D. CONTRACT NO. 97-04

LEGEND

- HYDRAULIC BASE LINE
- EROSION SETBACK
- EXISTING SOIL CEMENT ARMORING
- EXISTING GABION MATTRESS ARMORING
- 100-YEAR EXISTING CONDITION PEAK DISCHARGE — Q= 4200 cfs
- CROSS SECTION — 9.047
- ELEVATION REFERENCE MARK — 12
- CORPORATE LIMITS

ELEVATION REFERENCE MARKS

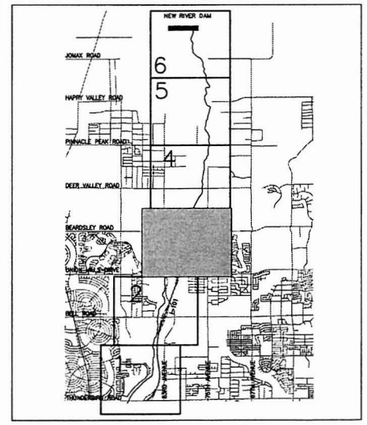
ERM #7 – Elevation 1228.432
C.O.P. brass cap in handhole at 83rd Avenue and Union Hills Drive.

ERM #8 – Elevation 1243.04
Top of 2" iron pipe in handhole at intersection of 83rd Avenue and Village Parkway.

ERM #9 – Elevation 1254.712
Top of ADOT aluminum cap along the north side of 101 Freeway, P.O.C. Sta 918+00.00.

ERM #10 – Elevation 1269.557
C.O.G. brass cap in handhole at intersection of 75th Avenue and Rose Garden Lane.

INDEX MAP



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400' 0' 400' 800'

SCALE: 1"=400'
CONTOUR INTERVAL: 2 FEET

Stantec JOB# 28900058

	BY	DATE	
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DESIGN CHK.	PJE	04/13/00	
PLANS	PAW	04/20/99	RECOMMENDED BY: DATE
PLANS CHK.	PJE	04/13/00	APPROVED BY: DATE
SUBMITTED BY: DATE:			CHIEF ENGINEER AND GENERAL MANAGER

PLATE ES-3 OF ES-6

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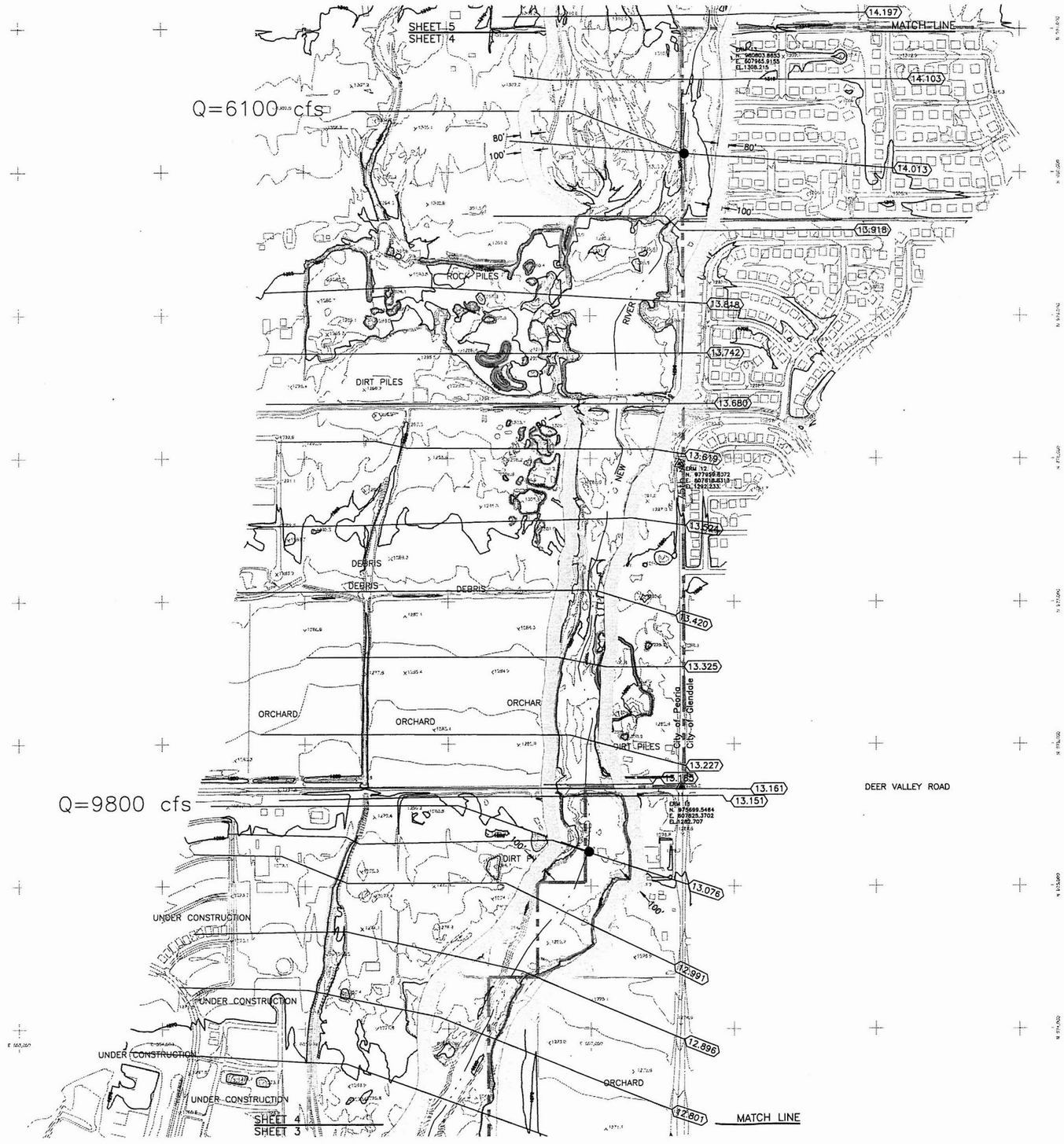


FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

MIDDLE NEW RIVER WATERCOURSE MASTER PLAN EROSION SETBACK MAP

F.C.D. CONTRACT NO. 97-04

LEGEND

- HYDRAULIC BASE LINE
- EROSION SETBACK
- EXISTING SOIL CEMENT ARMORING
- EXISTING GABION MATTRESS ARMORING
- 100-YEAR EXISTING CONDITION PEAK DISCHARGE — Q= 4200 cfs
- CROSS SECTION — 9.047
- ELEVATION REFERENCE MARK — 12
- CORPORATE LIMITS

ELEVATION REFERENCE MARKS

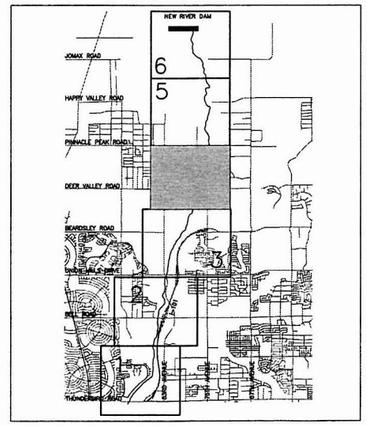
ERM #10 – Elevation 1269.557
C.O.G. brass cap in handhole at intersection of 75th Avenue and Rose Garden Lane.

ERM #11 – Elevation 1282.707
MC brass cap in handhole at intersection of 75th Avenue and Deer Valley Road.

ERM #12 – Elevation 1292.2328
Top of brass cap (flush) on 75th Avenue and Centerline P.C., +/-400' south of the East Quarter Corner of Section 14, T4N, R1E, G&SRBM.

ERM #13 – Elevation 1308.215
Top of brass cap (flush) at center of cul de sac at 7431 W. Monte Lindo.

INDEX MAP



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PLANS	PAW	04/20/99
PLANS CHK.	PJE	04/13/00

SUBMITTED BY: DATE:

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

PLATE ES-4 OF ES-6

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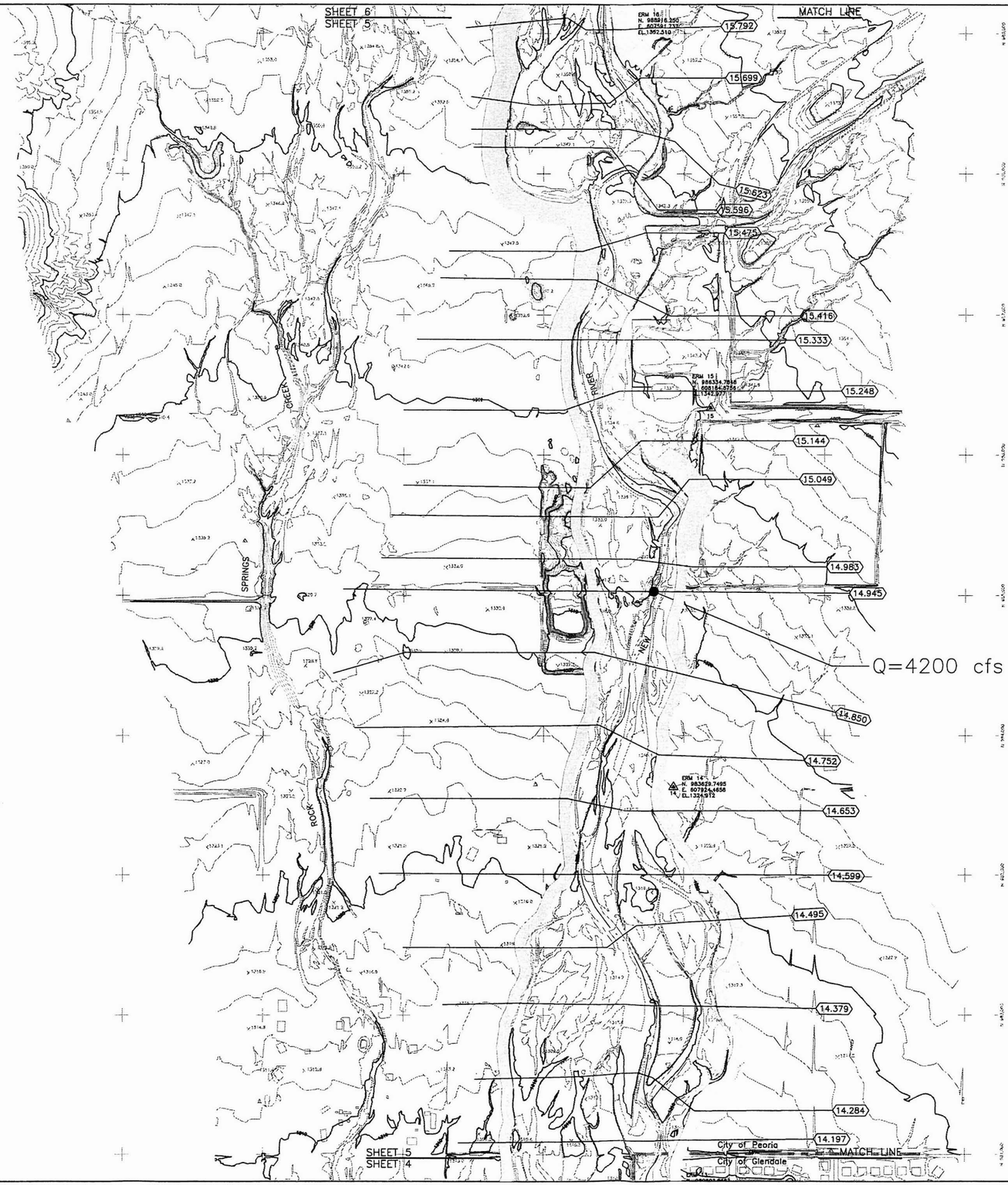


FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

MIDDLE NEW RIVER WATERCOURSE MASTER PLAN EROSION SETBACK MAP

F.C.D. CONTRACT NO. 97-04

LEGEND

- HYDRAULIC BASE LINE
- EROSION SETBACK
- EXISTING SOIL CEMENT ARMORING
- EXISTING GABION MATTRESS ARMORING
- 100-YEAR EXISTING CONDITION PEAK DISCHARGE — Q= 4200 cfs
- CROSS SECTION — 9.047
- ELEVATION REFERENCE MARK — 12
- CORPORATE LIMITS

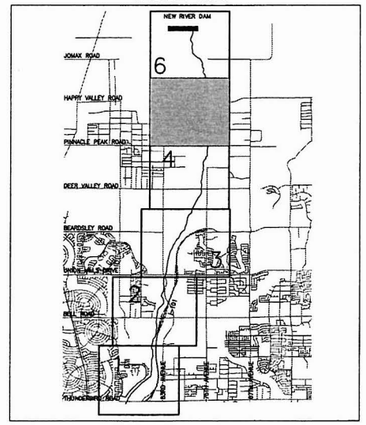
ELEVATION REFERENCE MARKS

ERM #14 – Elevation 1324.912
Chiseled 'X' on center of top of west end of 4' x 10' storm culvert +/- 300' east of the West Quarter Corner of Section 12, T4N, R1E, G&SRBM.

ERM #15 – Elevation 1342.977
Chiseled 'X' on center of top of west end of 4' x 10' storm culvert +/- 573' east of Southwest Corner of Section 1, T4N, R1E, G&SRBM.

ERM #16 – Elevation 1352.51
Set FCDMC brass cap in concrete, +/- 20' west of the East Quarter Corner of Section 2, T4N, R1E, G&SRBM.

INDEX MAP



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SCALE: 1"=400'
CONTOUR INTERVAL: 2 FEET

Stantec JOB# 28900058

	BY	DATE
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DESIGN CHK.	PJE	04/13/00
PLANS	PAW	04/20/99
PLANS CHK.	PJE	04/13/00
SUBMITTED BY:		DATE:

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

PLATE ES-5 OF ES-6

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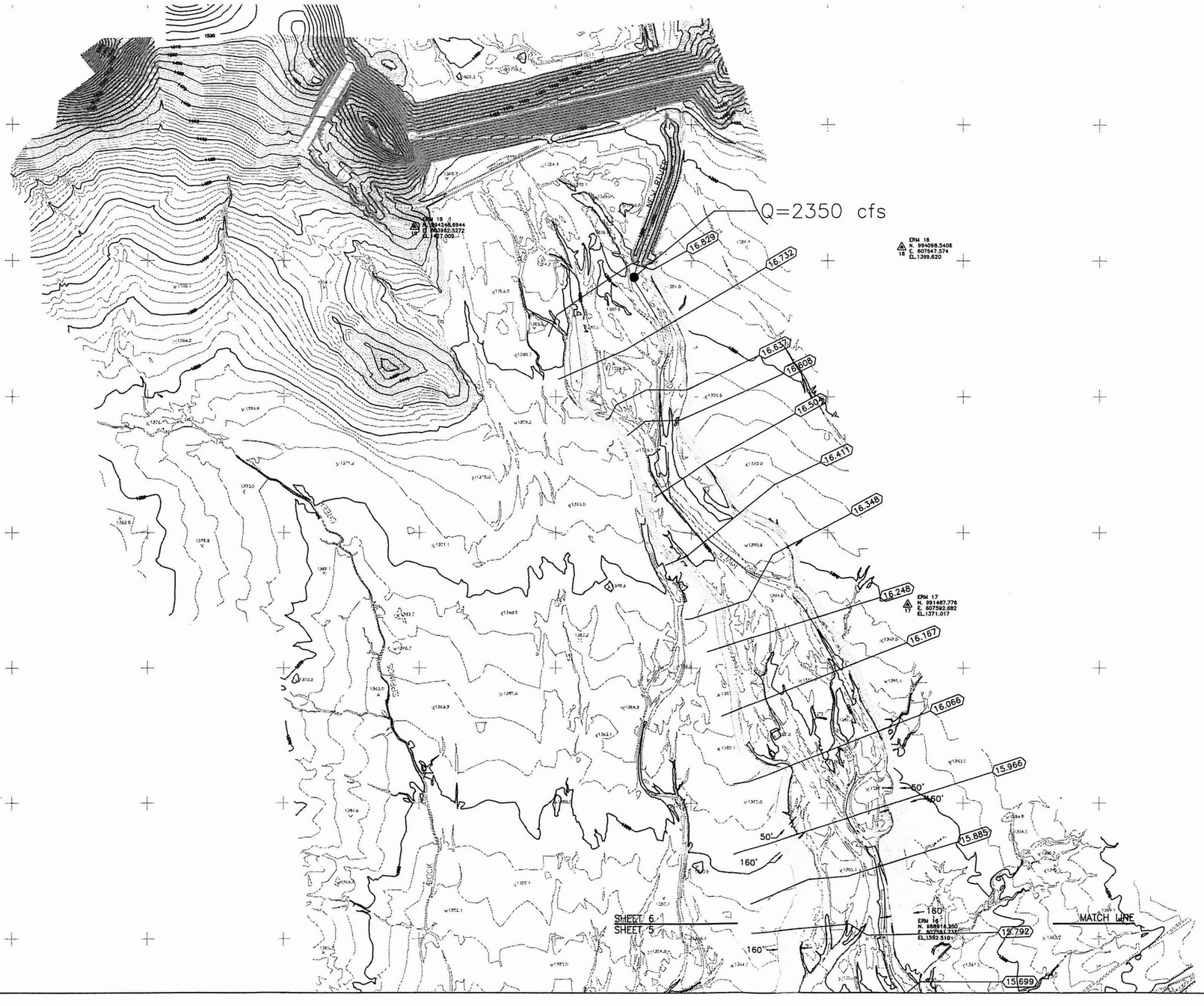
May 25 2000, 03:31 PM



FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

MIDDLE NEW RIVER WATERCOURSE MASTER PLAN EROSION SETBACK MAP

F.C.D. CONTRACT NO. 97-04

LEGEND

- HYDRAULIC BASE LINE
- EROSION SETBACK
- EXISTING SOIL CEMENT ARMORING
- EXISTING GABION MATTRESS ARMORING
- 100-YEAR EXISTING CONDITION PEAK DISCHARGE — Q= 4200 cfs
- CROSS SECTION — 9.047
- ELEVATION REFERENCE MARK — 12
- CORPORATE LIMITS

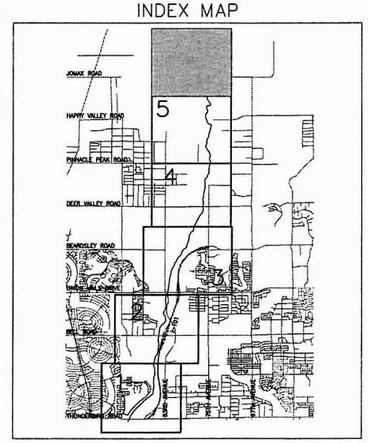
ELEVATION REFERENCE MARKS

ERM #17 - Elevation 1371.017
Top of ADOT Aluminum cap (BM517-6), Northeast Corner of Section 2,T4N, R1E, G&SRBM.

ERM #18 - Elevation 1399.62
Top of 1" aluminum cap (CBA), set in concrete at the East Quarter Corner of Section 35, T4N, R1E, G&SRBM.

ERM #19- Elevation 1427.002
Top of 3/4" rod with 2" copper cap, USCE NR3, at top of hill +/- 500' south of the west end of New River Dam.

INDEX MAP



N

400' 0' 400' 800'

SCALE: 1"=400'
CONTOUR INTERVAL: 2 FEET

Stantec JOB# 28900058

	BY	DATE
DESIGN	PAW	04/01/99
DESIGN CHK.	PJE	04/13/00
PLANS	PAW	04/20/99
PLANS CHK.	PJE	04/13/00

SUBMITTED BY: DATE:

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

PLATE ES-6 OF ES-6

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May 25, 2000, 02:45 PM

Some segments of Reach 2, however, are non-erodible which explains that the computed erosion setback in Level I could be possibly reduced. It is necessary, however, to use the tractive power approach to verify and validate the results of the allowable velocity approach. From the results of the analysis using the tractive power approach, it is shown that the river channel banks are generally erodible. This conclusion is based on the assumed unconfined compressive strength (UCS) of the bank materials of 100 psf. With the bank materials observed to be predominantly non-conhesive, the UCS design of 100 psf is very conservative. Overall, the Level II analysis provided the following results:

Reach 1 (Skunk Creek To Beardsley Rd.) – Erodible Channel
Reach 2 (Beardsley Rd. to Pinnacle Peak Rd.) – Erodible Channel
Reach 3 (Pinnacle Peak Rd. to New River Dam) – Erodible Channel

The two analytical approaches of Level II used to refine the results of the Level I analysis show that the existing channel bank conditions are generally erodible. This means that the erosion setbacks computed in Level I analysis are sufficient for the existing river conditions.

5.6.3 Equilibrium Slopes

In the evaluation of equilibrium slopes for the three reaches, representative cross-sections for each reach were used as in the lateral migration analysis. All the four equations presented in Section 5.1.2 above are used in the analysis. The flow hydraulic data and information required for the equilibrium slope analysis is based on the dominant discharge. These are evaluated from the HEC-RAS model run of the existing river model. As shown in Table 5-3, the average equilibrium slopes evaluated for the three reaches are:

Reach 1 (Skunk Creek to Beardsley Rd.) – 0.00105 ft/ft
Reach 2 (Beardsley Rd. to Pinnacle Peak Rd.) – 0.00125 ft/ft
Reach 3 (Pinnacle Peak Rd. to New River Dam) – 0.00129 ft/ft

From the analyses made, it is observed that equilibrium slopes are significantly impacted by the bed material characteristics in the channel. The relatively flat slopes for the equilibrium slopes in the Middle New River indicate that the river will continue to adjust laterally and change vertically until the stable or quasi-equilibrium slopes are attained.

TABLE 5-3
Stable Slope Analysis for Existing Condition
Middle New River Watercourse Master Plan

Item No.	Station No.	Reach No.	Dominant Discharge (cfs)	Reach Length (ft)	Channel Width (ft)	Flow Depth (ft)	Hydraulic Depth (ft)	Velocity Channel (ft/s)	E.G. Slope (ft/ft)	Manning's n (-)	Froude No.	Average Grain Size			Schoklitsch Method (ft/ft)	MPM Method (ft/ft)	Shields Diagram Method (ft/ft)	Lane's Tract. Force Method (ft/ft)	Average Stable Slope (ft/ft)	Sub-Reach Average Stable Slope (ft/ft)
												D_{50} (mm)	D_{50} (ft)	D_{90} (mm)						
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(17)	(18)	(19)	(20)	(21)	(22)
1	16.608	3	1700	500.72	198.61	3.94	1.98	4.32	0.00495	0.038	0.54	8.74	0.0287	82.06	0.00177	0.00104	0.00054	0.00060	0.00113	
2	16.504	3	1700	481.43	207.73	3.82	2.07	4.01	0.00338	0.038	0.48	8.74	0.0287	82.06	0.00183	0.00107	0.00062	0.00062	0.00103	
3	16.411	3	1700	481.78	160.84	3.96	2.07	5.34	0.00563	0.038	0.60	8.74	0.0287	82.06	0.00151	0.00103	0.00052	0.00060	0.00091	
4	16.348	3	1700	497.94	334.03	3.67	1.46	4.07	0.00384	0.038	0.49	8.74	0.0287	82.06	0.00261	0.00111	0.00063	0.00064	0.00145	
5	16.066	3	1700	584.23	409.48	4.01	1.31	3.35	0.00384	0.038	0.46	8.74	0.0287	82.06	0.00304	0.00102	0.00057	0.00059	0.00155	
6	15.966	3	1700	429.98	353.62	4.22	1.43	4.00	0.00442	0.038	0.51	8.74	0.0287	82.06	0.00272	0.00097	0.00051	0.00056	0.00142	
7	15.885	3	1874	509.42	195.25	4.89	1.83	5.41	0.00801	0.038	0.69	8.74	0.0287	82.06	0.00162	0.00084	0.00038	0.00048	0.00098	
8	15.792	3	1874	472.66	211.04	5.33	2.01	4.83	0.00415	0.038	0.52	8.74	0.0287	82.06	0.00172	0.00077	0.00039	0.00044	0.00098	
9	14.850	3	2052	536.65	468.78	3.54	1.11	4.51	0.00786	0.038	0.65	8.74	0.0287	82.06	0.00292	0.00115	0.00056	0.00067	0.00158	
10	14.752	3	2052	547.53	430.99	4.15	1.70	2.80	0.00255	0.038	0.38	8.74	0.0287	82.06	0.00274	0.00098	0.00060	0.00057	0.00143	
11	14.653	3	2052	536.63	326.81	3.54	1.35	5.07	0.00744	0.038	0.66	8.74	0.0287	82.06	0.00223	0.00115	0.00056	0.00067	0.00135	
12	14.599	3	2052	542.23	436.77	3.35	1.37	3.36	0.00510	0.038	0.51	8.74	0.0287	82.06	0.00277	0.00122	0.00066	0.00070	0.00156	
13	14.495	3	2052	561.68	405.23	3.98	1.44	4.41	0.00393	0.038	0.50	8.74	0.0287	82.06	0.00262	0.00103	0.00057	0.00059	0.00141	***0.00129***
14	13.619	2	2221	505.64	515.05	2.82	1.79	2.41	0.00149	0.035	0.32	9.83	0.0323	68.86	0.00323	0.00151	0.00113	0.00089	0.00187	
15	13.524	2	2221	522.56	276.6	2.84	1.77	4.54	0.00537	0.035	0.60	9.83	0.0323	68.86	0.00203	0.00150	0.00097	0.00088	0.00147	
16	13.420	2	2221	514.13	186.69	5.09	2.57	4.64	0.00341	0.035	0.51	9.83	0.0323	68.86	0.00151	0.00083	0.00053	0.00049	0.00095	
17	13.325	2	2221	571.01	209.88	3.44	2.02	5.24	0.00600	0.035	0.65	9.83	0.0323	68.86	0.00165	0.00123	0.00074	0.00073	0.00120	
18	13.227	2	2221	315.32	245.25	3.39	2.45	3.69	0.00230	0.035	0.42	9.83	0.0323	68.86	0.00185	0.00125	0.00094	0.00074	0.00128	
19	13.185	2	2221	33.56	300.62	2.32	1.75	4.22	0.00467	0.035	0.56	9.83	0.0323	68.86	0.00216	0.00183	0.00128	0.00108	0.00169	
20	13.151	2	2221	393.13	294.84	5.56	3.77	2.00	0.00038	0.035	0.18	9.83	0.0323	68.86	0.00212	0.00076	0.00057	0.00045	0.00111	
21	13.076	2	2221	454.21	384.55	5.29	3.70	1.56	0.00024	0.035	0.14	9.83	0.0323	68.86	0.00259	0.00080	0.00060	0.00047	0.00129	
22	12.991	2	2400	527.02	475.97	5.22	3.90	1.30	0.00015	0.035	0.11	9.83	0.0323	68.86	0.00287	0.00081	0.00061	0.00048	0.00139	
23	12.896	2	2400	508.24	407.16	4.90	2.87	2.11	0.00059	0.035	0.22	9.83	0.0323	68.86	0.00255	0.00087	0.00065	0.00051	0.00131	
24	12.801	2	2400	524.61	258.28	6.52	2.60	3.58	0.00201	0.035	0.39	9.83	0.0323	68.86	0.00182	0.00065	0.00044	0.00038	0.00095	
25	12.701	2	2400	505.60	232.76	5.43	2.58	4.00	0.00252	0.035	0.44	9.83	0.0323	68.86	0.00168	0.00078	0.00052	0.00046	0.00097	
26	12.606	2	2400	582.30	213.19	4.11	1.86	6.04	0.00885	0.035	0.78	9.83	0.0323	68.86	0.00157	0.00103	0.00054	0.00061	0.00107	
27	12.511	2	2400	467.59	195.43	5.31	2.61	4.70	0.00344	0.035	0.51	9.83	0.0323	68.86	0.00147	0.00080	0.00050	0.00047	0.00091	
28	12.420	2	2400	578.07	176.79	2.87	2.11	6.45	0.00860	0.035	0.78	9.83	0.0323	68.86	0.00137	0.00148	0.00085	0.00087	0.00124	***0.00125***
29	11.949	1	2529	452.25	295.98	2.48	1.78	4.81	0.00594	0.035	0.63	7.79	0.0256	65.83	0.00162	0.00137	0.00076	0.00090	0.00130	
30	11.864	1	2529	615.28	225.24	3.55	2.31	4.91	0.00421	0.035	0.56	7.79	0.0256	65.83	0.00132	0.00096	0.00053	0.00063	0.00097	
31	11.759	1	2529	501.24	426.52	3.66	1.34	5.45	0.00743	0.035	0.71	7.79	0.0256	65.83	0.00214	0.00093	0.00046	0.00061	0.00123	
32	11.664	1	2529	513.83	307.74	3.91	1.77	5.22	0.00495	0.035	0.60	7.79	0.0256	65.83	0.00167	0.00087	0.00045	0.00057	0.00104	
33	11.566	1	2529	468.92	453.92	2.54	1.66	3.35	0.00318	0.035	0.46	7.79	0.0256	65.83	0.00224	0.00134	0.00087	0.00088	0.00149	
34	10.917	1	2586	292.21	254.25	3.11	2.36	4.30	0.00327	0.035	0.49	7.79	0.0256	65.83	0.00142	0.00109	0.00067	0.00072	0.00108	
35	10.862	1	2586	313.15	220.62	3.41	2.57	4.56	0.00331	0.035	0.50	7.79	0.0256	65.83	0.00128	0.00100	0.00060	0.00066	0.00088	
36	10.803	1	2586	567.30	265.32	3.54	2.11	4.63	0.00442	0.035	0.56	7.79	0.0256	65.83	0.00147	0.00096	0.00052	0.00063	0.00090	
37	10.699	1	2586	462.24	214.29	4.24	1.88	6.41	0.00990	0.035	0.82	7.79	0.0256	65.83	0.00125	0.00080	0.00036	0.00053	0.00086	
38	10.612	1	2586	504.93	309.44	3.61	2.51	3.33	0.00181	0.035	0.37	7.79	0.0256	65.83	0.00165	0.00094	0.00064	0.00062	0.00107	
39	10.517	1	2586	519.30	310.21	3.30	1.80	4.63	0.00546	0.035	0.61	7.79	0.0256	65.83	0.00165	0.00103	0.00054	0.00068	0.00112	
40	9.692	1	2643	565.23	356.15	4.43	2.52	2.95	0.00142	0.035	0.33	7.79	0.0256	65.83	0.00180	0.00077	0.00053	0.00050	0.00090	
41	9.592	1	2643	606.90	340.08	4.48	1.85	4.20	0.004326	0.035	0.54	7.79	0.0256	65.83	0.00174	0.00076	0.00039	0.00050	0.00085	
42	9.492	1	2643	463.47	375.84	2.19	1.33	5.29	0.01065	0.035	0.81	7.79	0.0256	65.83	0.00188	0.00155	0.00079	0.00102	0.00131	
43	9.367	1	2700	489.74	408.02	3.35	2.19	3.02	0.001783	0.035	0.36	7.79	0.0256	65.83	0.00197	0.00102	0.00071	0.00067	0.00109	
44	9.318	1	2700	155.57	334.87	5.47	2.52	3.20	0.001657	0.035	0.36	7.79	0.0256	65.83	0.00170	0.00062	0.00039	0.00041	0.00078	***0.00105***

NOTES:
(1) The dominant discharges in column (4) correspond to the 10-year discharges.
(2) The data from columns (5) to (12) were taken from the 10-year HEC-RAS run of the river model.
(3) The average stable slope in column (21) is the average of the four methods.
(4) Column (22) shows the average equilibrium slopes by reach.

5.6.4 Bed Armoring Sizes

In the evaluation of bed armoring sizes for the three reaches, representatives' cross-sections for each reach were used. All the five equations presented in Section 5.1.3 above are used in the analysis. The flow hydraulic data and information required for the bed armoring analysis are based on the dominant discharge. These are evaluated from the HEC-RAS model run of the existing river model. As shown in Table 5-4, the average bed armoring sizes evaluated for the three reaches are:

Reach 1 (Skunk Creek to Beardsley Rd.) - 48.7 mm
Reach 2 (Beardsley Rd. to Pinnacle Peak Rd.) - 34.2 mm
Reach 3 (Pinnacle Peak Rd to New River Dam) - 48.2 mm

From the analyses made, it is observed that the bed armoring sizes are significantly impacted by energy slope. Comparing the bed armoring sizes evaluated for the reaches with their respective representative grain size gradations, more than 18 percent of the current bed materials will be retained in the channel to comprise the armored layer.

5.6.5 Long-Term Degradation

Having evaluated both the equilibrium slopes and bed armoring conditions in the river, corresponding bed gradation are determined from the procedures outlined by Pemberton and Lara (1984). The smaller of the two scour values evaluated would control the future channel grade of the three reaches. Assuming a reach length of 1000 feet that is subject for degradation for each reach, degradation values from equilibrium slopes are generally deeper than those determined from bed armoring conditions. Table 5-5 lists the results of the long-term degradation analysis for the Middle New River. In summary, the long-term degradation values by reach are:

Reach 1 (Skunk Creek to Beardsley Rd.) - 2.503 ft.
Reach 2 (Beardsley Rd. to Pinnacle Peak Rd.) - 1.315 ft.
Reach 3 (Pinnacle Peak Rd to New River Dam) - 1.644 ft.

TABLE 5-4
Bed Armoring Analysis for Existing Condition
Middle New River Watercourse Master Plan

Item No.	Station No.	Reach No.	Dominant Discharge (cfs)	Reach Length (ft)	Channel Width (ft)	Flow Depth (ft)	Hydraulic Depth (ft)	Velocity Channel (ft/s)	E.G. Slope (ft/ft)	Manning's n (-)	Froude No.	Average Grain Size D_{50} (mm)	Average Grain Size D_{50} (ft)	Average Grain Size D_{90} (mm)	Kinematic Viscosity of Water (ft^2/s)	Yang Incip. Motion Method (mm)	MPM Method (mm)	Shields Diagram Method (mm)	Lane's Tract. Force Method (mm)	Competent Bot.Velocity Method (mm)	Average Bed Armor Size (mm)	Sub-Reach Average Bed Armor Size (mm)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
1	16.608	3	1700	500.72	198.61	3.94	1.98	4.32	0.00495	0.038	0.54	8.74	0.0287	82.06	0.0000105	37.5	41.7	60.3	76.3	35.1	50.2	
2	16.504	3	1700	481.43	207.73	3.82	2.07	4.01	0.00338	0.038	0.48	8.74	0.0287	82.06	0.0000105	32.3	27.6	39.9	50.8	30.2	36.2	
3	16.411	3	1700	481.78	160.84	3.96	2.07	5.34	0.00563	0.038	0.60	8.74	0.0287	82.06	0.0000105	57.3	47.7	68.9	89.9	53.6	63.5	
4	16.348	3	1700	497.94	334.03	3.67	1.46	4.07	0.00384	0.038	0.49	8.74	0.0287	82.06	0.0000105	33.3	30.1	43.5	54.9	31.1	38.6	
5	16.066	3	1700	584.23	409.48	4.01	1.31	3.35	0.00384	0.038	0.46	8.74	0.0287	82.06	0.0000105	22.5	33.0	47.6	59.7	21.1	36.8	
6	15.966	3	1700	429.98	353.62	4.22	1.43	4.00	0.00442	0.038	0.51	8.74	0.0287	82.06	0.0000105	32.1	39.9	57.6	72.5	30.1	46.5	
7	15.885	3	1874	509.42	195.25	4.89	1.83	5.41	0.00801	0.038	0.69	8.74	0.0287	82.06	0.0000105	58.8	83.8	121.0	N/A	55.0	79.7	
8	15.792	3	1874	472.66	211.04	5.33	2.01	4.83	0.00415	0.038	0.52	8.74	0.0287	82.06	0.0000105	46.9	47.3	68.3	89.0	43.9	59.1	
9	14.850	3	2052	536.65	468.78	3.54	1.11	4.51	0.00786	0.038	0.65	8.74	0.0287	82.06	0.0000105	40.9	59.5	86.0	N/A	38.2	56.1	
10	14.752	3	2052	547.53	430.99	4.15	1.70	2.80	0.00255	0.038	0.38	8.74	0.0287	82.06	0.0000105	15.7	22.6	32.7	42.7	14.7	25.7	
11	14.653	3	2052	536.63	326.81	3.54	1.35	5.07	0.00744	0.038	0.66	8.74	0.0287	82.06	0.0000105	51.6	56.3	81.3	N/A	48.3	59.4	
12	14.599	3	2052	542.23	436.77	3.35	1.37	3.36	0.00510	0.038	0.51	8.74	0.0287	82.06	0.0000105	22.7	36.6	52.8	66.1	21.2	39.9	
13	14.495	3	2052	561.68	405.23	3.98	1.44	4.41	0.00393	0.038	0.50	8.74	0.0287	82.06	0.0000105	39.1	33.5	48.3	60.6	36.6	35.3	***48.2***
14	13.619	2	2221	505.64	515.05	2.82	1.79	2.41	0.00149	0.035	0.32	9.83	0.0323	68.86	0.0000105	11.7	9.8	13.0	17.4	10.9	12.5	
15	13.524	2	2221	522.56	276.60	2.84	1.77	4.54	0.00537	0.035	0.60	9.83	0.0323	68.86	0.0000105	41.4	35.3	47.1	59.1	38.7	44.3	
16	13.420	2	2221	514.13	186.69	5.09	2.57	4.64	0.00341	0.035	0.51	9.83	0.0323	68.86	0.0000105	43.2	40.2	53.7	67.2	40.5	49.0	
17	13.325	2	2221	571.01	209.88	3.44	2.02	5.24	0.00600	0.035	0.65	9.83	0.0323	68.86	0.0000105	55.2	47.8	63.8	81.6	51.6	60.0	
18	13.227	2	2221	315.32	245.25	3.39	2.45	3.69	0.00230	0.035	0.42	9.83	0.0323	68.86	0.0000105	27.3	18.0	24.1	32.3	25.6	25.5	
19	13.185	2	2221	33.56	300.62	2.32	1.75	4.22	0.00467	0.035	0.56	9.83	0.0323	68.86	0.0000105	35.8	25.1	33.5	43.6	33.5	34.3	
20	13.151	2	2221	393.13	294.84	5.56	3.77	2.00	0.00038	0.035	0.18	9.83	0.0323	68.86	0.0000105	8.0	4.9	6.5	8.2	7.5	7.0	
21	13.076	2	2221	454.21	384.55	5.29	3.70	1.56	0.00024	0.035	0.14	9.83	0.0323	68.86	0.0000105	4.9	2.9	3.9	4.6	4.6	4.2	
22	12.991	2	2400	527.02	475.97	5.22	3.90	1.30	0.00015	0.035	0.11	9.83	0.0323	68.86	0.0000105	3.4	1.8	2.4	2.8	3.2	2.7	
23	12.896	2	2400	508.24	407.16	4.90	2.87	2.11	0.00059	0.035	0.22	9.83	0.0323	68.86	0.0000105	8.9	6.7	8.9	11.5	8.4	8.9	
24	12.801	2	2400	524.61	258.28	6.52	2.60	3.58	0.00201	0.035	0.39	9.83	0.0323	68.86	0.0000105	25.7	30.3	40.4	51.4	24.1	34.4	
25	12.701	2	2400	505.60	232.76	5.43	2.58	4.00	0.00252	0.035	0.44	9.83	0.0323	68.86	0.0000105	32.1	31.6	42.2	53.4	30.1	37.9	
26	12.606	2	2400	582.30	213.19	4.11	1.86	6.04	0.00885	0.035	0.78	9.83	0.0323	68.86	0.0000105	73.3	84.2	112.3	N/A	68.6	84.6	
27	12.511	2	2400	467.59	195.43	5.31	2.61	4.70	0.00344	0.035	0.51	9.83	0.0323	68.86	0.0000105	44.4	42.3	56.5	70.9	41.5	27.8	
28	12.420	2	2400	578.07	176.79	2.87	2.11	6.45	0.00860	0.035	0.78	9.83	0.0323	68.86	0.0000105	83.6	57.1	76.2	103.7	78.2	79.8	***34.2***
29	11.949	1	2529	452.25	295.98	2.48	1.78	4.81	0.00594	0.035	0.63	7.79	0.0256	65.83	0.0000105	46.5	33.7	45.5	57.3	43.5	45.3	
30	11.864	1	2529	615.28	225.24	3.55	2.31	4.91	0.00421	0.035	0.56	7.79	0.0256	65.83	0.0000105	48.4	34.2	46.2	58.0	45.3	46.4	
31	11.759	1	2529	501.24	426.52	3.66	1.34	5.45	0.00743	0.035	0.71	7.79	0.0256	65.83	0.0000105	59.7	62.3	84.1	N/A	55.8	65.5	
32	11.664	1	2529	513.83	307.74	3.91	1.77	5.22	0.00495	0.035	0.60	7.79	0.0256	65.83	0.0000105	54.7	44.3	59.8	75.6	51.2	57.1	
33	11.566	1	2529	468.92	453.92	2.54	1.66	3.35	0.00318	0.035	0.46	7.79	0.0256	65.83	0.0000105	22.5	18.5	25.0	33.4	21.1	24.1	
34	10.917	1	2586	292.21	254.25	3.11	2.36	4.30	0.00327	0.035	0.49	7.79	0.0256	65.83	0.0000105	37.1	23.3	31.4	41.2	34.8	33.6	
35	10.862	1	2586	313.15	220.62	3.41	2.57	4.56	0.00331	0.035	0.50	7.79	0.0256	65.83	0.0000105	41.8	25.8	34.9	45.2	39.1	37.3	
36	10.803	1	2586	567.30	265.32	3.54	2.11	4.63	0.00442	0.035	0.56	7.79	0.0256	65.83	0.0000105	43.1	35.8	48.4	60.6	40.3	45.6	
37	10.699	1	2586	462.24	214.29	4.24	1.88	6.41	0.00990	0.035	0.82	7.79	0.0256	65.83	0.0000105	82.5	96.1	129.7	N/A	77.2	96.4	
38	10.612	1	2586	504.93	309.44	3.61	2.51	3.33	0.00181	0.035	0.37	7.79	0.0256	65.83	0.0000105	22.3	15.0	20.2	27.3	20.8	21.1	
39	10.517	1	2586	519.30	310.21	3.30	1.80	4.63	0.00546	0.035	0.61	7.79	0.0256	65.83	0.0000105	43.1	41.2	55.7	69.8	40.3	50.0	
40	9.692	1	2643	565.23	356.15	4.43	2.52	2.95	0.00142	0.035	0.33	7.79	0.0256	65.83	0.0000105	17.5	14.4	19.4	26.2	16.4	18.8	
41	9.592	1	2643	606.90	340.08	4.48	1.85	4.20	0.00433	0.035	0.54	7.79	0.0256	65.83	0.0000105	35.4	44.4	59.9	75.7	33.2	49.7	
42	9.492	1	2643	463.47	375.84	2.19	1.33	5.29	0.01065	0.035	0.81	7.79	0.0256	65.83	0.0000105	56.2	53.4	72.1	95.6	52.6	66.0	
43	9.367	1	2700	489.74	408.02	3.35	2.19	3.02	0.00178	0.035	0.36	7.79	0.0256	65.83	0.0000105	18.3	13.7	18.5	24.9	17.1	18.5	
44	9.318	1	2700	155.57	334.87	5.47	2.52	3.20	0.00166	0.035	0.36	7.79	0.0256	65.83	0.0000105	20.6	20.8	28.0	37.1	19.3	40.4	***44.7***

NOTES:
(1) The dominant discharges in column (3) correspond to the 10-year discharges.
(2) The data from columns (3) to (11) were taken from the 10-year HEC-RAS run of the river model.
(3) The kinematic viscosity in column (15) is associated with a water temperature of 68°F.
(4) The D_{50} and D_{90} in columns (12) and (14) are the representative sediment sizes for the three reaches.
(5) The average armor size in column (21) is the arithmetic average of the five methods.

TABLE 5-5
Long-Term Scour Analysis for Existing River Condition
Middle New River Watercourse Master Plan

Item No.	Station No.	Reach No.	Dominant Discharge (cfs)	Reach Length (ft)	Channel Width (ft)	Flow Depth (ft)	Hydraulic Depth (ft)	Velocity Channel (ft/s)	Bed Slope (ft/ft)	Recomm. Reach Length (ft)	Equilibrium Slope (ft/ft)	Degradation from Eq. Slope (ft)	Ave.Bed Armor Size (mm)	Degradation from B. Armoring (ft)	Long-Term Degradation (ft)	Long-Term Degradation by Reach (ft)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
1	16.608	3	1700	500.72	198.61	3.94	1.98	4.32	0.00373	1000	0.00129	1.503	48.9	1.301	1.301	
2	16.504	3	1700	481.43	207.73	3.82	2.07	4.01	0.00501	1000	0.00129	2.285	48.9	1.301	1.301	
3	16.411	3	1700	481.78	160.84	3.96	2.07	5.34	0.00376	1000	0.00129	1.517	48.9	1.301	1.301	
4	16.348	3	1700	497.94	334.03	3.67	1.46	4.07	0.00478	1000	0.00129	2.146	48.9	1.301	1.301	
5	16.066	3	1700	584.23	409.48	4.01	1.31	3.35	0.00442	1000	0.00129	1.922	48.9	1.301	1.301	
6	15.966	3	1700	429.98	353.62	4.22	1.43	4.00	0.00800	1000	0.00129	4.128	48.9	1.301	1.301	
7	15.885	3	1874	509.42	195.25	4.89	1.83	5.41	0.00628	1000	0.00129	3.071	48.9	1.301	1.301	
8	15.792	3	1874	472.66	211.04	5.33	2.01	4.83	0.00104	1000	0.00129	-0.157	48.9	1.301	1.301	
9	14.850	3	2052	536.65	468.78	3.54	1.11	4.51	0.00613	1000	0.00129	2.978	48.9	1.301	1.301	
10	14.752	3	2052	547.53	430.99	4.15	1.70	2.80	0.00342	1000	0.00129	1.307	48.9	1.301	1.301	
11	14.653	3	2052	536.63	326.81	3.54	1.35	5.07	0.00527	1000	0.00129	2.450	48.9	1.301	1.301	
12	14.599	3	2052	542.23	436.77	3.35	1.37	3.36	0.00537	1000	0.00129	2.507	48.9	1.301	1.301	
13	14.495	3	2052	561.68	405.23	3.98	1.44	4.41	0.00531	1000	0.00129	2.470	48.9	1.301	1.301	*1.692*
14	13.619	2	2221	505.64	515.05	2.82	1.79	2.41	0.00310	1000	0.00125	1.143	36.4	1.180	1.180	
15	13.524	2	2221	522.56	276.60	2.84	1.77	4.54	0.00855	1000	0.00125	4.496	36.4	1.180	1.180	
16	13.420	2	2221	514.13	186.69	5.09	2.57	4.64	0.00142	1000	0.00125	0.106	36.4	1.180	1.180	
17	13.325	2	2221	571.01	209.88	3.44	2.02	5.24	0.00317	1000	0.00125	1.183	36.4	1.180	1.180	
18	13.227	2	2221	315.32	245.25	3.39	2.45	3.69	0.00000	1000	0.00125	-0.768	36.4	1.180	1.180	
19	13.185	2	2221	33.56	300.62	2.32	1.75	4.22	0.00715	1000	0.00125	3.633	36.4	1.180	1.180	
20	13.151	2	2221	393.13	294.84	5.56	3.77	2.00	-0.00043	1000	0.00125	-1.034	36.4	1.180	1.180	
21	13.076	2	2221	454.21	384.55	5.29	3.70	1.56	0.00000	1000	0.00125	-0.768	36.4	1.180	1.180	
22	12.991	2	2400	527.02	475.97	5.22	3.90	1.30	-0.00025	1000	0.00125	-0.920	36.4	1.180	1.180	
23	12.896	2	2400	508.24	407.16	4.90	2.87	2.11	0.00447	1000	0.00125	1.981	36.4	1.180	1.180	
24	12.801	2	2400	524.61	258.28	6.52	2.60	3.58	0.00025	1000	0.00125	-0.615	36.4	1.180	1.180	
25	12.701	2	2400	505.60	232.76	5.43	2.58	4.00	0.00237	1000	0.00125	0.693	36.4	1.180	1.180	
26	12.606	2	2400	582.30	213.19	4.11	1.86	6.04	0.00704	1000	0.00125	3.565	36.4	1.180	1.180	
27	12.511	2	2400	467.59	195.43	5.31	2.61	4.70	0.00064	1000	0.00125	-0.373	36.4	1.180	1.180	
28	12.420	2	2400	578.07	176.79	2.87	2.11	6.45	0.00697	1000	0.00125	3.522	36.4	1.180	1.180	*1.534*
29	11.949	1	2529	452.25	295.98	2.48	1.78	4.81	0.00736	1000	0.00105	3.883	41.7	1.600	1.600	
30	11.864	1	2529	615.28	225.24	3.55	2.31	4.91	0.00577	1000	0.00105	2.902	41.7	1.600	1.600	
31	11.759	1	2529	501.24	426.52	3.66	1.34	5.45	0.00642	1000	0.00105	3.305	41.7	1.600	1.600	
32	11.664	1	2529	513.83	307.74	3.91	1.77	5.22	0.00093	1000	0.00105	-0.074	41.7	1.600	1.600	
33	11.566	1	2529	468.92	453.92	2.54	1.66	3.35	0.00749	1000	0.00105	3.958	41.7	1.600	1.600	
34	10.917	1	2586	292.21	254.25	3.11	2.36	4.30	0.00445	1000	0.00105	2.089	41.7	1.600	1.600	
35	10.862	1	2586	313.15	220.62	3.41	2.57	4.56	0.00425	1000	0.00105	1.965	41.7	1.600	1.600	
36	10.803	1	2586	567.30	265.32	3.54	2.11	4.63	0.00818	1000	0.00105	4.385	41.7	1.600	1.600	
37	10.699	1	2586	462.24	214.29	4.24	1.88	6.41	0.00149	1000	0.00105	0.270	41.7	1.600	1.600	
38	10.612	1	2586	504.93	309.44	3.61	2.51	3.33	0.00265	1000	0.00105	0.985	41.7	1.600	1.600	
39	10.517	1	2586	519.30	310.21	3.30	1.80	4.63	0.00545	1000	0.00105	2.705	41.7	1.600	1.600	
40	9.692	1	2643	565.23	356.15	4.43	2.52	2.95	0.00265	1000	0.00105	0.985	41.7	1.600	1.600	
41	9.592	1	2643	606.90	340.08	4.48	1.85	4.2	0.00290	1000	0.00105	1.136	41.7	1.600	1.600	
42	9.492	1	2643	463.47	375.84	2.19	1.33	5.29	0.00563	1000	0.00105	2.817	41.7	1.600	1.600	
43	9.367	1	2700	489.74	408.02	3.35	2.19	3.02	0.00608	1000	0.00105	3.096	41.7	1.600	1.600	
44	9.318	1	2700	155.57	334.87	5.47	2.52	3.2	0.00289	1000	0.00105	1.132	41.7	1.600	1.600	*2.079*

NOTES:
(1) The dominant discharges in column (4) correspond to the 10-year discharges.
(2) The data from columns (4) to (10) were taken from the 10-year HEC-RAS run of the river model.
(3) The reach lengths in column (11) are the assumed lengths that are subject to long-term degradation.
(4) The equilibrium slopes used in the calculation of the long-term scour are the average equilibrium slopes by reach.
(5) The bed armor sizes used in the calculation of long-term scour are the average armor sizes by reach.
(6) The recommended long-term scour is the lower degradation depth between the equilibrium slope and bed armoring.
(7) The evaluated long-term degradation in column (17) includes an additional 30% safety factor to account for the non-uniformity of hydraulic condition and sediment characteristics.

Conclusively from Table 5-5, the long-term degradation in the Middle New River will be controlled by bed armoring. This indicates that equilibrium slopes will only be attained locally at some locations but not for the entire river.

5.6.6 Total Scour

For the existing river condition, evaluation of total scour is made to determine the extent of toe-down requirements for channel structures such as bank protection and grade control structures. Also, the evaluated depths of scour are used to check if existing utility lines crossing the river underneath are impacted by the degradation. Table 5-6 lists the results of the total scour analysis involving the six scour components presented in Section 5.1.1. The considerations made to evaluate the total scour by station identified are as follows:

1. The anti-dune trough depth is only evaluated for supercritical and transitional flows when the evaluated Froude Number are at least equal to 0.86.

2. The local scour for each station is evaluated from four methods that include Lacey's equation, Blench, USBR Method II, and the Neill's equation. The values shown reflect the computed average of three or four equations used. If the value evaluated from one method is odd and significantly different from the values evaluated from the other methods, that method is dropped from the computation of the average value.

3. The river sinuosity in the Middle New River is generally straight and the bend scour is seldom evaluated. Scour computations due to slight bends at some locations in the river are considered in the local scour evaluation.

4. A low-flow incisement of 2.0 ft is assumed for the Middle New River. This represents the thalweg depression in the channel.

5. In the evaluation of the long-term scour, a reach length of 1000 ft is used as the length exposed to bed degradation and scour. The reach lengths between stations are not used in the analysis but instead a representative length that is typically observed in the river.

TABLE 5-6
Total Scour Analysis for Existing River Condition
Middle New River Watercourse Master Plan

Item No.	Station No.	Reach No.	Design Discharge (cfs)	Reach Length (ft)	Channel Width (ft)	Flow Depth (ft)	Hydraulic Depth (ft)	Channel Velocity (ft/s)	Scour Components							Total Scour (ft)	Remarks
									Long-Term Scour (ft)	Local Scour (ft)	Bend Scour (ft)	General Scour (ft)	Anti-Dune Trough (ft)	Low-Flow Thalweg (ft)	Safety Factor (ft)		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
1	16.608	3	2350	500.72	201.73	4.39	2.40	4.86	1.30	1.11	0.00	0.00	0.00	2.00	1.32	5.74	
2	16.504	3	2350	481.43	235.33	4.40	2.37	4.34	1.30	1.30	0.00	0.00	0.00	2.00	1.38	5.98	
3	16.411	3	2350	481.78	179.22	4.39	2.26	6.17	1.30	1.48	0.00	0.00	0.00	2.00	1.43	6.21	
4	16.348	3	2350	497.94	382.85	4.10	1.68	4.33	1.30	1.74	0.00	0.00	0.00	2.00	1.51	6.56	
5	16.066	3	2350	584.23	438.00	4.18	1.38	4.11	1.30	1.07	0.00	0.00	0.00	2.00	1.31	5.68	
6	15.966	3	2350	429.98	562.01	5.11	1.64	3.43	1.30	1.08	0.00	0.00	0.00	2.00	1.31	5.70	Min. = 5.68
7	15.885	3	4200	509.42	276.88	6.34	2.47	6.74	1.30	1.94	0.00	0.00	0.00	2.00	1.57	6.82	Max.= 8.07
8	15.792	3	4200	472.66	295.30	6.56	2.48	6.73	1.30	1.93	0.00	0.32	0.00	2.00	1.67	7.23	Rec. = 8.50
9	14.850	3	6100	536.65	557.24	4.85	2.16	5.55	1.30	1.99	0.00	0.00	0.00	2.00	1.59	6.88	
10	14.752	3	6100	547.53	758.08	5.71	2.13	4.14	1.30	1.44	0.00	0.00	0.00	2.00	1.42	6.16	
11	14.653	3	6100	536.63	740.00	4.89	1.49	6.93	1.30	1.66	0.00	0.70	0.00	2.00	1.70	7.36	
12	14.599	3	6100	542.23	549.24	4.73	2.31	4.77	1.30	1.17	0.00	0.00	0.00	2.00	1.34	5.81	
13	14.495	3	6100	561.68	1022.70	5.36	1.50	6.07	1.30	1.57	0.00	1.33	0.00	2.00	1.86	8.07	
14	13.619	2	7900	505.64	534.55	5.28	4.14	3.57	1.18	2.58	0.00	0.00	0.00	2.00	1.73	7.48	
15	13.524	2	7900	522.56	294.41	5.52	4.26	6.30	1.18	2.02	0.00	0.00	0.00	2.00	1.56	6.76	
16	13.420	2	7900	514.13	214.68	7.67	4.70	7.83	1.18	2.91	0.00	0.00	0.00	2.00	1.83	7.92	
17	13.325	2	7900	571.01	240.59	6.00	4.21	7.80	1.18	2.64	0.00	0.00	0.00	2.00	1.75	7.57	
18	13.227	2	7900	315.32	264.32	5.59	4.41	6.77	1.18	2.23	0.00	0.00	0.00	2.00	1.62	7.03	
19	13.185	2	7900	33.56	382.47	4.28	3.14	6.57	1.18	1.82	0.00	0.00	0.00	2.00	1.50	6.50	Min. = 6.50
20	13.151	2	7900	393.13	390.86	9.13	6.07	3.33	1.18	2.20	0.00	0.00	0.00	2.00	1.62	7.00	Max. = 13.18
21	13.076	2	7900	454.21	403.86	8.82	6.97	2.80	1.18	3.33	0.00	0.00	0.00	2.00	1.95	8.47	Rec. = 13.50
22	12.991	2	9800	527.02	514.86	8.68	6.95	2.78	1.18	3.36	0.00	0.00	0.00	2.00	1.96	8.50	
23	12.896	2	9800	508.24	569.80	8.18	4.77	3.84	1.18	3.21	0.00	0.00	0.00	2.00	1.92	8.31	
24	12.801	2	9800	524.61	666.34	9.83	3.63	4.05	1.18	2.10	0.00	0.00	0.00	2.00	1.59	6.87	
25	12.701	2	9800	505.60	429.83	8.33	3.58	6.57	1.18	2.19	0.00	0.29	0.00	2.00	1.70	7.36	
26	12.606	2	9800	582.30	479.88	7.16	2.94	7.83	1.18	3.33	0.00	0.68	0.00	2.00	2.16	9.34	
27	12.511	2	9800	467.59	458.08	8.80	3.11	7.57	1.18	2.85	0.00	1.88	0.00	2.00	2.37	10.28	
28	12.420	2	9800	578.07	276.41	5.70	3.40	10.86	1.18	4.30	0.00	1.05	1.62	2.00	3.04	13.18	
29	11.949	1	10350	452.25	576.94	5.46	3.17	6.52	1.60	2.81	0.00	0.44	0.00	2.00	2.05	8.90	
30	11.864	1	10350	615.28	535.51	5.87	2.41	9.62	1.60	3.93	0.00	1.78	0.00	2.00	2.79	12.10	
31	11.759	1	10350	501.24	502.37	6.41	3.72	7.67	1.60	2.65	0.00	0.27	0.00	2.00	1.95	8.47	
32	11.664	1	10350	513.83	345.58	6.06	3.61	9.98	1.60	3.60	0.00	0.66	0.00	2.00	2.36	10.22	
33	11.566	1	10350	468.92	493.59	5.93	4.80	4.37	1.60	2.04	0.00	0.00	0.00	2.00	1.69	7.33	
34	10.917	1	10900	292.21	364.60	6.78	4.67	6.40	1.60	2.45	0.00	0.00	0.00	2.00	1.82	7.87	Min. = 7.33
35	10.862	1	10900	313.15	241.11	6.41	5.19	8.71	1.60	3.55	0.00	0.00	0.00	2.00	2.15	9.30	Max. = 12.10
36	10.803	1	10900	567.30	533.21	6.38	2.71	7.72	1.60	2.66	0.00	0.96	0.00	2.00	2.17	9.38	Rec. = 12.50
37	10.699	1	10900	462.24	276.42	7.18	4.24	9.29	1.60	3.78	0.00	0.08	0.00	2.00	2.24	9.70	
38	10.612	1	10900	504.93	326.17	6.61	5.30	6.30	1.60	3.28	0.00	0.00	0.00	2.00	2.06	8.94	
39	10.517	1	10900	519.30	528.08	5.52	2.59	8.54	1.60	3.53	0.00	0.96	0.00	2.00	2.43	10.52	
40	9.692	1	11450	565.23	369.57	7.65	5.59	5.55	1.60	2.19	0.00	0.00	0.00	2.00	1.74	7.53	
41	9.592	1	11450	606.90	348.98	6.08	3.37	9.72	1.60	3.59	0.00	0.13	1.29	2.00	2.58	11.20	
42	9.492	1	11450	463.47	472.55	5.36	4.07	5.96	1.60	2.08	0.00	0.00	0.00	2.00	1.70	7.38	
43	9.367	1	12000	489.74	464.86	7.33	5.69	4.54	1.60	2.34	0.00	0.00	0.00	2.00	1.78	7.72	
44	9.318	1	12000	155.57	353.76	9.58	6.38	5.31	1.60	4.44	0.00	0.00	0.00	2.00	2.41	10.45	

NOTES:
(1) Long-term scour values in column (10) are based on bed armoring and stable slope analyses. The values reflect the scour depth associated with bed armoring condition in the channel.
(2) Local scour values in column (11) are evaluated from four equations provided by Pemberton and Lara (1984).
(3) Bend scour values in column (12) are zero because scour around bends are already incorporated in the evaluation of local scour in column (9).
(4) General scour values in column (13) are generally zero based on the equation provided by SLA (1989).
(5) Anti-dune trough depth values in column (14) are generally zero because anti-dune trough only occurs when flow conditions are either transitional or supercritical.
(6) Low-flow thalweg of 2.0 ft is used (see column 15) since the wash is classified as a regional watercourse (SLA, 1989).
(7) Thirty percent safety factor is used (see column 16) to account for non-uniformity of flow hydraulics and sediment characteristics in the channel.

The range of scour depths evaluated for each reach in the channel are provided as follows:

Reach 1 (Skunk Creek to Beardsley Rd.) – from 7.33 ft to 12.10 ft.
Reach 2 (Beardsley Rd. to Pinnacle Peak Rd.) – from 6.50 ft to13.18 ft.
Reach 3 (Pinnacle Peak Rd. to New River Dam) – from 5.68 ft to 8.07 ft.

The degrees by which the channel bed degrades are a function of the flow hydraulics and the bed material characteristics considered. If the flow hydraulics are changed or modified as the result of new channel design configuration, the extent of bed degradation will also change. For the existing river conditions, bank toe-down depths used for built bank structures must be checked against the evaluated bed degradation in Table 5-6. Also, all utility lines crossing the river underneath must be checked for adequate depth of installation.

5.6.8 Verification of Results

Results from various analyses for the existing river condition should be verified from field check and actual field data. Since the conditions considered were based on two hydraulic events (i.e., 10-year and 100-year peak discharges), verification of the results could be made ideally if such flow events would occur in the river. Although all the procedures used in the sediment transport analysis are standard procedures recommended by Federal and State agencies, verification works on the results presented are left to be done.

5.7 RESULTS OF MASTER PLAN ALTERNATIVES

As presented in Section 6, five structural design alternatives and or non-structural alternatives are considered for the master plan study. These alternatives have design configurations that adequately meet various channel design criteria – the most important of which is having adequate channel capacity to contain the 100-year discharges by the U.S. Corps of Engineers. The 100-year discharges estimated by the U.S. Corps of Engineers for the Middle New River are significantly greater than the 100-year discharges recommended by FEMA for floodplain delineation studies. The designs provided for the five alternatives are evaluated using the 100-year FEMA discharges but adequate freeboard are used to fully convey the 100-year discharges by U.S. Corps of Engineers without bank overtopping. These design configurations of the alternatives are modeled by HEC-RAS to evaluate the flow hydraulics involved.

These flow hydraulics generated from HEC-RAS together with the bed material characteristics in the channel provide the needed input for the lateral migration, equilibrium slope, bed armoring, and the scour analyses.

5.7.1 General

Briefly, the five structural design alternatives considered for the Middle New River Watercourse Master Plan are identified as follows:

a. Alternative 1 – Trapezoidal with Soil Cement Bank Protection

b. Alternative 2 – Trapezoidal with Gabion-Mattress Bank Protection

c. Alternative 3 – Sacrificial Trapezoidal Channel

d. Alternative 4 – Trapezoidal Channel with Benched Trail

e. Alternative 5 – Trapezoidal Channel with Low-Flow Sub-Channel

A non-structural alternative was considered for the Middle New River Watercourse Master Plan. Existing bankline stabilization and encroachment into the flood fringe made this a non-feasible alternative for Reaches 1 and 2 (Skunk Creek to Pinnacle Peak Road). A non-structural alternative is feasible in Reach 3 (Pinnacle Peak Road to New River Dam).

Although both the equilibrium slope and total scour parameters in the channel are evaluated from optimization analysis, refinement of these parameter values was necessary to provide a more accurate project cost estimate. Refinement of these parameters by involving the equations listed in the procedure will not, however, impact the evaluated design configuration of the channel. Such analysis, however, affect the depths of toe-down for the grade control and bank protection structures, which in turn impact the cost of the project. The results presented below are from two model scenarios considered for the optimization analysis of the five alternative improvement projects.

Model B of the optimization analysis is formulated based on the following conditions.

1. The numbers of grade control structures and sub-channels in the reach are allowed to take fractional values.

2. The future channel profile can be higher than the existing river profile.

3. The future channel configuration can be narrower than existing channel configuration.

Model C of the optimization analysis are formulated based on the following conditions:

1. The numbers of grade control structures and sub-channels in the reach only take integer values.
2. The future channel profile cannot be higher than existing river profile.

5.7.2 Equilibrium Slopes

Tables 5-7 and 5-8 list the summary of the equilibrium slope analysis performed for the five structural alternative channel designs. Results of Models B and C of the optimization analyses using GAMS-MINOS (Brooke et al., 1996) are also presented alongside the refined parameter values for comparison purposes. Refinement of the results was made because the optimization analysis has only considered one equilibrium slope equation in the problem formulation. The refined design values are the product of considering four methods in evaluating equilibrium slopes.

Although the equilibrium slopes were evaluated for the three reaches in the river, the recommended design bed slopes in the channel are sometimes greater. This could be explained by the fact that it is sometimes economical to build a steeper channel than a channel that adopts the evaluated equilibrium slope.

5.7.3 Total Depths of Scour

Tables 5-9 and 5-10 list the summary of the scour analysis performed for the five structural alternative channel designs. Results of Models B and C of the optimization analyses using GAMS-MINOS (Brooke et al., 1996) are also presented alongside the refined parameter values for comparison purposes. These evaluated total scour for each reach are used to determine the extent of toe-down required for the grade control and the bank protection structures for channel stability considerations.

TABLE 5-7
Computed Equilibrium Slopes for the Design Alternatives (Optimization Models B)

Alternative No.	Channel Description	REACH 1		REACH 2		REACH 3	
		Optimization	Design Values	Optimization	Design Values	Optimization	Design Values
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Trapezoidal (Soil Cement)	0.00100	0.001075	0.00027	0.000215	0.00200	0.001241
2	Trapezoidal (Gabion-Mattress)	0.00100	0.000921	0.00023	0.000195	0.00200	0.001203
3	Sacrificial (Gabion-Mattress)	0.00100	0.000921	0.00031	0.000195	0.00200	0.001138
4	Benched Channel (Soil Cement)	0.00100	0.001074	0.00029	0.000241	0.00200	0.001366
5	Low-Flow Channel	0.00100	0.001075	0.00028	0.000231	0.00200	0.001319

NOTES:
(1) The values from the optimization analysis are evaluated from one equation (i.e., Schoklitsch equation) while the design values were evaluated from four equations.
(2) GAMS-MINOS code (Brooke, et al., 1996) was the tool used to solve the optimization problems formulated for each reach.
(3) Models B of the optimization analysis involved fractional values for the numbers of grade control structures and sub-channels.

TABLE 5-8
Computed Equilibrium Slopes for the Design Alternatives (Optimization Model C)

Alternative No.	Channel Description	REACH 1		REACH 2		REACH 3	
		Optimization	Design Values	Optimization	Design Values	Optimization	Design Values
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Trapezoidal (Soil Cement)	0.00100	0.000947	0.00031	0.000211	0.00100	0.000941
2	Trapezoidal (Gabion-Mattress)	0.00100	0.000963	0.00031	0.000210	0.00100	0.000891
3	Sacrificial (Gabion-Mattress)	0.00100	0.000813	0.00028	0.000200	0.00100	0.000926
4	Benched Channel (Soil Cement)	0.00081	0.000653	0.00023	0.000168	0.00100	0.000973
5	Low-Flow Channel	0.00100	0.001075	0.00026	0.000231	0.00200	0.001319

NOTES:
(1) The values from the optimization analysis are evaluated from one equation (i.e., Schoklitsch equation) while the design values were evaluated from four equations.
(2) GAMS-MINOS code (Brooke, et al., 1996) was the tool used to solve the optimization problems formulated for each reach.
(3) Models C of the optimization analysis are based on integer values only allowed for the numbers of grade control structures and sub-channels.

TABLE 5-9
Computed Total Scour for the Design Alternatives (Optimization Models B)

Alternative No.	Channel Description	REACH 1		REACH 2		REACH 3	
		Optimization	Design Values	Optimization	Design Values	Optimization	Design Values
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Trapezoidal (Soil Cement)	6.77	7.46	8.28	10.93	5.12	5.90
2	Trapezoidal (Gabion-Mattress)	7.50	8.71	8.94	13.14	5.58	6.61
3	Sacrificial (Gabion-Mattress)	8.30	8.72	9.58	12.66	6.32	6.46
4	Benched Channel (Soil Cement)	7.10	7.76	8.62	11.04	5.30	5.95
5	Low-Flow Channel	7.40	7.89	9.05	11.82	5.40	6.12

NOTES:
(1) The values from the optimization analysis are evaluated from the use of one representative equations for the equlibrium slope and local scour analysis while the design values are based on a number of equations.
(2) GAMS-MINOS code (Brooke, et al., 1996) was the tool used to solve the optimization problems formulated for each reach.
(3) Models B of the optimization analysis involved fractional values for the numbers of grade control structures and sub-channels.

TABLE 5-10
Computed Total Scour for the Design Alternatives (Optimization Models C)

Alternative No.	Channel Description	REACH 1		REACH 2		REACH 3	
		Optimization	Design Values	Optimization	Design Values	Optimization	Design Values
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Trapezoidal (Soil Cement)	5.266	6.09	5.452	9.98	4.513	6.72
2	Trapezoidal (Gabion-Mattress)	5.436	6.20	5.507	7.71	4.225	5.49
3	Sacrificial (Gabion-Mattress)	4.781	5.88	6.191	8.99	4.576	5.82
4	Benched Channel (Soil Cement)	5.577	7.46	6.180	9.96	4.485	5.45
5	Low-Flow Channel	5.176	7.89	7.001	11.82	7.938	6.12

NOTES:
(1) The values from the optimization analysis are evaluated from the use of one representative equations for the equlibrium slope and local scour analysis while the design values are based on a number of equations.
(2) GAMS-MINOS code (Brooke, et al., 1996) was the tool used to solve the optimization problems formulated for each reach.
(3) Models C of the optimization analysis are based on integer values only allowed for the numbers of grade control structures and sub-channels.

5.8 PROPOSED CONDITION RESULTS

Based on cost, Alternative 2 (i.e., trapezoidal channel with gabion-mattress bank protection) is adopted for Reaches 1 and 2 while non-structural alternative is suggested for Reach 3. Currently, bankline stabilization in Reaches 1 and 2 is primarily made up of gabion-mattresses. Improvement of existing channel conditions requires the adoption of viable channel configurations evaluated by the optimization analysis. Overall, the channel improvements considered in the river, particularly for Reaches 1 and 2, take into consideration the full containment of 100-year peak discharges that were estimated for the Middle New River by the Army Corps of Engineers (COE, 1983). The new hydraulic model developed for the Middle New River, therefore, involves various retrofitted and improved cross-sections for Reaches 1 and 2. Flow hydraulics associated with the New River model for both the 100-year design discharges and the 10-year dominant flow discharges were used for the sediment transport analysis. The results are presented in the sections that follow.

5.8.1 Equilibrium Slopes

In the evaluation of equilibrium slopes for the improved channel conditions of the three reaches, the same representative cross-section stations were used for comparison purposes. All the four equations presented in Section 5.1.2 are used in the analysis. The flow hydraulic data and information required for the analysis are based on the 10-year dominant discharges. These are evaluated from the HEC-RAS model run of the new hydraulic model. As shown in Table 5-11, the average equilibrium slopes evaluated for the two improved reaches are:

Reach 1 (Skunk Creek to Beardsley Rd.	-	0.00141 ft/ft
Reach 2 (Beardsley Rd to Pinnacle Peak Rd.)	-	0.00129 ft/ft

Since non-structural improvements are proposed for Reach 3, no channel modifications were considered. The results of the sediment transport analysis performed for the existing river condition are adopted for Reach 3.

TABLE 5-11
Stable Slope Analysis
Middle New River Watercourse Master Plan

Item No.	Station No.	Reach No.	Dominant Discharge (cfs)	Reach Length (ft)	Channel Width (ft)	Flow Depth (ft)	Velocity Channel (ft/s)	E.G. Slope (ft/ft)	Manning's n (-)	Froude No.	Average Grain Size			Schoklitsch Method (ft/ft)	MPM Method (ft/ft)	Shields Diagram Method (ft/ft)	Lane's Tract. Force Method (ft/ft)	Average Stable Slope (ft/ft)	Sub-Reach Average Stable Slope (ft/ft)
											D_{50} (mm)	D_{50} (ft)	D_{90} (mm)						
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
1	13.619	2	2400	500.33	190.40	2.60	4.98	0.00404	0.035	0.55	9.83	0.0323	68.86	0.00144	0.00163	0.00115	0.00096	0.00135	
2	13.524	2	2400	499.65	190.27	2.57	5.05	0.00420	0.035	0.56	9.83	0.0323	68.86	0.00144	0.00165	0.00116	0.00098	0.00136	
3	13.420	2	2400	506.43	190.25	2.59	5.01	0.00410	0.035	0.56	9.83	0.0323	68.86	0.00144	0.00164	0.00115	0.00097	0.00135	
4	13.325	2	2400	532.87	190.26	2.57	5.05	0.00422	0.035	0.56	9.83	0.0323	68.86	0.00144	0.00165	0.00116	0.00098	0.00136	
5	13.227	2	2400	240.04	190.43	2.61	4.97	0.00400	0.035	0.55	9.83	0.0323	68.86	0.00144	0.00163	0.00115	0.00096	0.00130	
6	13.183	2	2400	20.00	189.29	2.24	5.80	0.00661	0.035	0.69	9.83	0.0323	68.86	0.00144	0.00190	0.00124	0.00112	0.00142	
7	13.151	2	2400	385.89	192.08	3.02	4.27	0.00245	0.035	0.44	9.83	0.0323	68.86	0.00145	0.00141	0.00104	0.00083	0.00123	
8	13.076	2	2400	450.81	192.41	3.13	4.15	0.00223	0.035	0.42	9.83	0.0323	68.86	0.00146	0.00136	0.00101	0.00080	0.00120	
9	12.991	2	2400	550.48	192.99	3.37	3.96	0.00192	0.035	0.39	9.83	0.0323	68.86	0.00146	0.00126	0.00095	0.00074	0.00115	
10	12.896	2	2400	500.68	192.37	3.23	4.17	0.00226	0.035	0.42	9.83	0.0323	68.86	0.00146	0.00131	0.00098	0.00078	0.00118	
11	12.801	2	2400	522.71	192.26	3.16	4.20	0.00232	0.035	0.43	9.83	0.0323	68.86	0.00145	0.00134	0.00100	0.00079	0.00120	
12	12.701	2	2400	499.01	192.29	3.16	4.19	0.00230	0.035	0.43	9.83	0.0323	68.86	0.00146	0.00134	0.00100	0.00079	0.00120	
13	12.606	2	2400	529.88	192.26	3.16	4.20	0.00232	0.035	0.43	9.83	0.0323	68.86	0.00145	0.00134	0.00100	0.00079	0.00120	
14	12.511	2	2400	445.76	189.41	2.35	5.52	0.00563	0.035	0.64	9.83	0.0323	68.86	0.00144	0.00181	0.00122	0.00107	0.00144	
15	12.420	2	2400	580.01	195.01	2.33	5.40	0.00543	0.035	0.63	9.83	0.0323	68.86	0.00147	0.00182	0.00124	0.00108	0.00146	***0.00129***
16	11.949	1	2529	426.33	259.24	2.04	4.86	0.00521	0.035	0.60	7.79	0.0256	65.83	0.00147	0.00167	0.00101	0.00110	0.00141	
17	11.864	1	2529	596.49	256.76	1.99	5.03	0.00577	0.035	0.63	7.79	0.0256	65.83	0.00146	0.00171	0.00102	0.00112	0.00143	
18	11.759	1	2529	475.92	254.18	2.12	4.77	0.00475	0.035	0.58	7.79	0.0256	65.83	0.00145	0.00161	0.00099	0.00105	0.00137	
19	11.664	1	2529	512.96	218.46	2.29	5.16	0.00507	0.035	0.61	7.79	0.0256	65.83	0.00129	0.00149	0.00088	0.00098	0.00125	
20	11.566	1	2529	454.44	194.92	2.51	5.31	0.00479	0.035	0.60	7.79	0.0256	65.83	0.00119	0.00136	0.00080	0.00089	0.00114	
21	10.917	1	2586	276.24	223.20	3.21	3.74	0.00174	0.035	0.37	7.79	0.0256	65.83	0.00129	0.00106	0.00075	0.00070	0.00102	
22	10.862	1	2586	286.29	219.01	3.08	5.25	0.00522	0.035	0.62	7.79	0.0256	65.83	0.00127	0.00110	0.00060	0.00073	0.00103	
23	10.803	1	2586	50.00	231.06	0.53	21.76	0.63801	0.035	5.35	7.79	0.0256	65.83	0.00133	0.00642	0.00312	0.00422	0.00399	
24	10.699	1	2586	459.22	221.97	2.82	4.31	0.00276	0.035	0.46	7.79	0.0256	65.83	0.00129	0.00121	0.00079	0.00079	0.00110	
25	10.612	1	2586	456.66	267.87	2.35	4.23	0.00332	0.035	0.49	7.79	0.0256	65.83	0.00148	0.00145	0.00095	0.00095	0.00129	
26	10.517	1	2586	438.21	378.41	2.28	3.06	0.00179	0.035	0.36	7.79	0.0256	65.83	0.00192	0.00149	0.00110	0.00098	0.00146	
27	9.692	1	2643	526.34	299.12	4.52	2.99	0.00118	0.035	0.31	7.79	0.0256	65.83	0.00158	0.00075	0.00053	0.00049	0.00094	
28	9.592	1	2643	557.60	330.67	4.21	5.14	0.00816	0.035	0.73	7.79	0.0256	65.83	0.00171	0.00081	0.00038	0.00053	0.00102	
29	9.492	1	2643	433.72	471.44	2.65	3.91	0.00526	0.035	0.58	7.79	0.0256	65.83	0.00223	0.00128	0.00072	0.00084	0.00145	
30	9.367	1	2700	459.27	390.22	2.66	4.35	0.00568	0.035	0.61	7.79	0.0256	65.83	0.00190	0.00128	0.00071	0.00084	0.00134	
31	9.318	1	2700	154.63	464.04	3.61	3.54	0.00361	0.035	0.49	7.79	0.0256	65.83	0.00217	0.00094	0.00054	0.00062	0.00124	***0.00141***

NOTES:
(1) The dominant discharges in column (4) correspond to the 10-year discharges.
(2) The data from columns (5) to (11) were taken from the 10-year HEC-RAS run of the river model.
(3) The average stable slopes in column (19) are the computed average of the four methods.
(4) Column (20) shows the average equilibrium slopes by reach.

5.8.2 Bed Armoring Sizes

In the evaluation of bed armoring for the improved channel conditions of the Middle New River, the same representative cross-section stations were used. All the five equations presented in Section 5.1.3 were used in the analysis. The flow hydraulic data and information required for the analysis are based on the 10-year dominant discharges. These are evaluated from the HEC-RAS model run of the new hydraulic model. As shown in Table 5-12, the average bed armoring sizes evaluated for the two improved reaches are:

Reach 1 (Skunk Creek to Beardsley Rd.)	–	38.5 mm
Reach 2 (Beardsley Rd. to Pinnacle Peak Rd.)	–	35.8 mm

5.8.3 Long-Term Bed Degradation

In the evaluation of both the equilibrium slopes and potential bed armoring for the improved channel conditions, long-term degradations are assessed from the equations defined by Pemberton and Lara (1984). Comparison between these two scour evaluations provides information which scenario would control the long-term behavior of the channel grade. Similar to the results evaluated from the existing river conditions, the long-term degradation in the channel for the improved conditions would be dictated by bed armoring (see Table 5-13). Results of the extent of the long-term degradation for the two reaches are:

Reach 1 (Skunk Creek to Beardsley Rd.	–	1.64 ft
Reach 2 (Beardsley Rd. to Pinnacle Peak Rd.)	–	1.49 ft

TABLE 5-12
Bed Armoring Analysis
Middle New River Watercourse Master Plan

Item No.	Station No.	Reach No.	Dominant Discharge (cfs)	Reach Length (ft)	Channel Width (ft)	Flow Depth (ft)	Hydr. Depth (ft)	Velocity Channel (ft/s)	E.G. Slope (ft/ft)	Manning's n (-)	Froude No.	Average Grain Size			Yang Incip. Motion Method (mm)	MPM Method (mm)	Shields Diagram Method (mm)	Lane's Tract. Force Method (mm)	Competent Bot.Velocity Method (mm)	Average Bed Armor Size (mm)	Sub-Reach Average Bed Armor (mm)
												D_{50} (mm)	D_{50} (ft)	D_{90} (mm)							
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
1	13.619	2	2400	500.33	190.40	2.60	2.53	4.98	0.00404	0.035	0.55	9.83	0.0323	68.86	49.8	24.3	32.4	42.3	46.6	39.1	
2	13.524	2	2400	499.65	190.27	2.57	2.50	5.05	0.00420	0.035	0.56	9.83	0.0323	68.86	51.2	25.0	33.4	43.5	47.9	40.2	
3	13.420	2	2400	506.43	190.25	2.59	2.52	5.01	0.00410	0.035	0.56	9.83	0.0323	68.86	50.4	24.6	32.8	42.8	47.2	39.6	
4	13.325	2	2400	532.87	190.26	2.57	2.50	5.05	0.00422	0.035	0.56	9.83	0.0323	68.86	51.2	25.1	33.5	43.6	47.9	40.3	
5	13.227	2	2400	240.04	190.43	2.61	2.54	4.97	0.00400	0.035	0.55	9.83	0.0323	68.86	49.6	24.2	32.3	42.2	46.4	38.9	
6	13.183	2	2400	20.00	189.29	2.24	2.19	5.80	0.00661	0.035	0.69	9.83	0.0323	68.86	67.6	34.3	45.7	57.5	63.2	53.7	
7	13.151	2	2400	385.89	192.08	3.02	2.92	4.27	0.00245	0.035	0.44	9.83	0.0323	68.86	36.6	17.1	22.8	30.7	34.3	28.3	
8	13.076	2	2400	450.81	192.41	3.13	3.00	4.15	0.00223	0.035	0.42	9.83	0.0323	68.86	34.6	16.2	21.6	29.1	32.4	26.8	
9	12.991	2	2400	550.48	192.99	3.37	3.14	3.96	0.00192	0.035	0.39	9.83	0.0323	68.86	31.5	15.0	20.0	27.0	29.5	24.6	
10	12.896	2	2400	500.68	192.37	3.23	2.99	4.17	0.00226	0.035	0.42	9.83	0.0323	68.86	34.9	16.9	22.5	30.3	32.7	27.5	
11	12.801	2	2400	522.71	192.26	3.16	2.97	4.20	0.00232	0.035	0.43	9.83	0.0323	68.86	35.4	16.9	22.6	30.4	33.2	27.7	
12	12.701	2	2400	499.01	192.29	3.16	2.98	4.19	0.00230	0.035	0.43	9.83	0.0323	68.86	35.3	16.9	22.5	30.3	33.0	27.6	
13	12.606	2	2400	529.88	192.26	3.16	2.97	4.20	0.00232	0.035	0.43	9.83	0.0323	68.86	35.4	17.0	22.6	30.5	33.2	27.7	
14	12.511	2	2400	445.76	189.41	2.35	2.30	5.52	0.00563	0.035	0.64	9.83	0.0323	68.86	61.2	30.6	40.9	51.9	57.3	48.4	
15	12.420	2	2400	580.01	195.01	2.33	2.28	5.40	0.00543	0.035	0.63	9.83	0.0323	68.86	58.6	29.3	39.1	49.9	54.8	46.3	***35.8***
16	11.949	1	2529	426.33	259.24	2.04	2.01	4.86	0.00521	0.035	0.60	7.79	0.0256	65.83	47.4	24.3	32.8	42.8	44.4	38.4	
17	11.864	1	2529	596.49	256.76	1.99	1.96	5.03	0.00577	0.035	0.63	7.79	0.0256	65.83	50.8	26.3	35.5	45.8	47.6	41.2	
18	11.759	1	2529	475.92	254.18	2.12	2.09	4.77	0.00475	0.035	0.58	7.79	0.0256	65.83	45.7	23.1	31.1	40.8	42.8	36.7	
19	11.664	1	2529	512.96	218.46	2.29	2.24	5.16	0.00507	0.035	0.61	7.79	0.0256	65.83	53.5	26.6	35.9	46.3	50.1	42.5	
20	11.566	1	2529	454.44	194.92	2.51	2.44	5.31	0.00479	0.035	0.60	7.79	0.0256	65.83	56.6	27.5	37.1	47.7	53.0	44.4	
21	10.917	1	2586	276.24	223.20	3.21	3.10	3.74	0.00174	0.035	0.37	7.79	0.0256	65.83	28.1	12.8	17.2	23.2	26.3	21.5	
22	10.862	1	2586	286.29	219.01	3.08	2.25	5.25	0.00522	0.035	0.62	7.79	0.0256	65.83	55.4	36.8	49.6	62.2	51.8	51.2	
23	10.803	1	2586	50.00	231.06	0.53	0.51	21.76	0.63801	0.035	5.35	7.79	0.0256	65.83	N/A	N/A	N/A	N/A	N/A	N/A	
24	10.699	1	2586	459.22	221.97	2.82	2.70	4.31	0.00276	0.035	0.46	7.79	0.0256	65.83	37.3	17.8	24.1	32.3	34.9	29.3	
25	10.612	1	2586	456.66	267.87	2.35	2.28	4.23	0.00332	0.035	0.49	7.79	0.0256	65.83	35.9	17.9	24.1	32.4	33.6	28.8	
26	10.517	1	2586	438.21	378.41	2.28	2.23	3.06	0.00179	0.035	0.36	7.79	0.0256	65.83	18.8	9.3	12.6	16.7	17.6	15.0	
27	9.692	1	2643	526.34	299.12	4.52	2.96	2.99	0.00118	0.035	0.31	7.79	0.0256	65.83	18.0	12.2	16.4	22.1	16.8	17.1	
28	9.592	1	2643	557.60	330.67	4.21	1.56	5.14	0.00816	0.035	0.73	7.79	0.0256	65.83	53.1	78.6	106.1	201.1	49.7	97.7	
29	9.492	1	2643	433.72	471.44	2.65	1.43	3.91	0.00526	0.035	0.58	7.79	0.0256	65.83	30.7	31.9	43.1	54.4	28.7	37.8	
30	9.367	1	2700	459.27	390.22	2.66	1.59	4.35	0.00568	0.035	0.61	7.79	0.0256	65.83	38.0	34.6	46.6	58.6	35.6	42.7	
31	9.318	1	2700	154.63	464.04	3.61	1.64	3.54	0.00361	0.035	0.49	7.79	0.0256	65.83	25.2	29.8	40.2	51.2	23.6	34.0	***38.5***

NOTES:
(1) The dominant discharges in column (4) correspond to the 10-year discharges.
(2) The data from columns (5) to (12) were taken from the 10-year HEC-RAS run of the river model.
(3) The kinematic viscosity in column (15) is associated with a water temperature of 68°F.
(4) The D_{50} and D_{90} in columns (13) and (15) are the representative sediment sizes for the three reaches.
(5) The average armor size in column (21) is the computed average of the five methods.

TABLE 5-13
Long-Term Scour Analysis
Middle New River Watercourse Master Plan

Item No.	Station No.	Reach No.	Dominant Discharge (cfs)	Reach Length (ft)	Channel Width (ft)	Flow Depth (ft)	Hydr. Depth (ft)	Velocity Channel (ft/s)	Bed Slope (ft/ft)	Recomm. Reach Length (ft)	Equilibrium Slope (ft/ft)	Degradation from Eq. Slope (ft)	Average Armor Size (mm)	Degradation from B. Armoring (ft)	Long-Term Degradation (ft)	Long-Term Degradation by Reach (ft)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(17)
1	13.619	2	2400	500.33	190.40	2.60	2.53	4.98	0.00408	1000	0.00129	1.714	35.8	1.146	1.146	
2	13.524	2	2400	499.65	190.27	2.57	2.50	5.05	0.00418	1000	0.00129	1.779	35.8	1.146	1.146	
3	13.420	2	2400	506.43	190.25	2.59	2.52	5.01	0.00413	1000	0.00129	1.744	35.8	1.146	1.146	
4	13.325	2	2400	532.87	190.26	2.57	2.50	5.05	0.00417	1000	0.00129	1.768	35.8	1.146	1.146	
5	13.227	2	2400	240.04	190.43	2.61	2.54	4.97	0.00417	1000	0.00129	1.768	35.8	1.146	1.146	
6	13.183	2	2400	20.00	189.29	2.24	2.19	5.80	0.00400	1000	0.00129	1.666	35.8	1.146	1.146	
7	13.151	2	2400	385.89	192.08	3.02	2.92	4.27	0.00257	1000	0.00129	0.783	35.8	1.146	1.146	
8	13.076	2	2400	450.81	192.41	3.13	3.00	4.15	0.00257	1000	0.00129	0.788	35.8	1.146	1.146	
9	12.991	2	2400	550.48	192.99	3.37	3.14	3.96	0.00187	1000	0.00129	0.356	35.8	1.146	1.146	
10	12.896	2	2400	500.68	192.37	3.23	2.99	4.17	0.00214	1000	0.00129	0.520	35.8	1.146	1.146	
11	12.801	2	2400	522.71	192.26	3.16	2.97	4.20	0.00231	1000	0.00129	0.629	35.8	1.146	1.146	
12	12.701	2	2400	499.01	192.29	3.16	2.98	4.19	0.00230	1000	0.00129	0.623	35.8	1.146	1.146	
13	12.606	2	2400	529.88	192.26	3.16	2.97	4.20	0.00234	1000	0.00129	0.645	35.8	1.146	1.146	
14	12.511	2	2400	445.76	189.41	2.35	2.30	5.52	0.00545	1000	0.00129	2.559	35.8	1.146	1.146	
15	12.420	2	2400	580.01	195.01	2.33	2.28	5.40	0.00552	1000	0.00129	2.600	35.8	1.146	1.146	***1.49***
16	11.949	1	2529	426.33	259.24	2.04	2.01	4.86	0.00542	1000	0.00141	2.469	38.5	1.262	1.262	
17	11.864	1	2529	596.49	256.76	1.99	1.96	5.03	0.00540	1000	0.00141	2.457	38.5	1.262	1.262	
18	11.759	1	2529	475.92	254.18	2.12	2.09	4.77	0.00540	1000	0.00141	2.458	38.5	1.262	1.262	
19	11.664	1	2529	512.96	218.46	2.29	2.24	5.16	0.00540	1000	0.00141	2.458	38.5	1.262	1.262	
20	11.566	1	2529	454.44	194.92	2.51	2.44	5.31	0.00552	1000	0.00141	2.534	38.5	1.262	1.262	
21	10.917	1	2586	276.24	223.20	3.21	3.10	3.74	0.00315	1000	0.00141	1.073	38.5	1.262	1.262	
22	10.862	1	2586	286.29	219.01	3.08	2.25	5.25	0.00140	1000	0.00141	-0.005	38.5	1.262	1.262	
23	10.803	1	2586	50.00	231.06	0.53	0.51	21.76	0.00200	1000	0.00141	0.366	N/A	N/A	N/A	
24	10.699	1	2586	459.22	221.97	2.82	2.70	4.31	0.00198	1000	0.00141	0.354	38.5	1.262	1.262	
25	10.612	1	2586	456.66	267.87	2.35	2.28	4.23	0.00201	1000	0.00141	0.375	38.5	1.262	1.262	
26	10.517	1	2586	438.21	378.41	2.28	2.23	3.06	0.00212	1000	0.00141	0.441	38.5	1.262	1.262	
27	9.692	1	2643	526.34	299.12	4.52	2.96	2.99	0.00245	1000	0.00141	0.643	38.5	1.262	1.262	
28	9.592	1	2643	557.60	330.67	4.21	1.56	5.14	0.00346	1000	0.00141	1.265	38.5	1.262	1.262	
29	9.492	1	2643	433.72	471.44	2.65	1.43	3.91	0.00563	1000	0.00141	2.597	38.5	1.262	1.262	
30	9.367	1	2700	459.27	390.22	2.66	1.59	4.35	0.00636	1000	0.00141	3.048	38.5	1.262	1.262	
31	9.318	1	2700	154.63	464.04	3.61	1.64	3.54	0.00310	1000	0.00141	1.045	38.5	1.262	1.262	***1.64***

NOTES:
(1) The dominant discharges in column (4) correspond to the 10-year discharges.
(2) The data from columns (5) to (9) were taken from the 10-year HEC-RAS run of the river model.
(3) The reach lengths in column (10) are the assumed lengths that are subject to long-term degradation.
(4) The equilibrium slopes used in the calculation of the long-term scour are the average equilibrium slopes by reach.
(5) The bed armor sizes used in the calculation of long-term scour are the average armor sizes by reach.
(6) The recommended long-term scour is the lower degradation depth between the equilibrium slope and bed armoring.
(7) The evaluated long-term degradation in column (17) includes an additional 30% safety factor to account for the non-uniformity of hydraulic condition and sediment characteristics

5.8.4 Total Depths of Scour

For the improved river conditions, evaluation of total scour is made to determine the extent of toe-down requirements for channel structures such as bank protection and grade control structures. Also, the evaluated depths of scour are used to check if existing utility lines crossing the river underneath would be impacted by the degradation. Tables 5-14 and 5-15 list the results of the total scour analysis for bank protection structures and grade control structures, respectively.

The range of scour depths evaluated for bank protection structures for each reach in the channel are provided as follows:

Reach 1 (Skunk Creek to Beardsley Rd.) – from 7.07 ft to 10.04 ft.
Reach 2 (Beardsley Rd. to Pinnacle Peak Rd.) – from 7.78 ft to 9.19 ft.

For the grade control structures evaluated at three locations, the scour depths are provided as follows:

Union Hills (Station 10.806, Reach 1) – 9.79 ft.
Deer Valley Road (Station 13.179, Reach 2) – 12.27 ft.
Happy Valley Road (Station 14.162, Reach 2) – 11.09 ft.

Also, all utility lines crossing the river underneath must be checked for adequate depth of installation.

TABLE 5-14
Total Scour Analysis
Middle New River Watercourse Master Plan

Item No.	Station No.	Sub Reach No.	Design Discharge (cfs)	Channel Width (ft)	Flow Depth (ft)	Hydraulic Depth (ft)	Velocity Channel (ft/s)	Scour Components							Total Scour (ft)	Remarks
								Long-Term Scour (ft)	Local Scour (ft)	Bend Scour (ft)	General Scour (ft)	Anti-Dune Trough (ft)	Low-Flow Thalweg (ft)	Safety Factor (ft)		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
1	13.619	2	9800	204.0	6.00	5.64	8.51	1.15	3.19	0.00	0.00	0.00	2.00	1.90	8.24	
2	13.524	2	9800	203.8	5.95	5.61	8.58	1.15	3.21	0.00	0.00	0.00	2.00	1.91	8.26	
3	13.420	2	9800	203.8	5.98	5.63	8.55	1.15	3.20	0.00	0.00	0.00	2.00	1.90	8.25	
4	13.325	2	9800	203.9	5.97	5.62	8.56	1.15	3.20	0.00	0.00	0.00	2.00	1.90	8.25	
5	13.227	2	9800	203.4	5.85	5.51	8.74	1.15	3.24	0.00	0.00	0.00	2.00	1.92	8.30	
6	13.183	2	9800	201.0	5.18	4.91	9.93	1.15	3.46	0.00	0.12	0.00	2.00	2.02	8.74	
7	13.151	2	9800	208.4	7.10	6.61	7.11	1.15	2.84	0.00	0.00	0.00	2.00	1.79	7.78	Min. = 7.78
8	13.076	2	9800	208.9	7.24	6.72	6.98	1.15	3.92	0.00	0.00	0.00	2.00	2.12	9.19	Max. = 9.19
9	12.991	2	9800	209.4	7.47	6.83	6.86	1.15	3.59	0.00	0.00	0.00	2.00	2.02	8.76	Rec. = 9.50
10	12.896	2	9800	208.4	7.24	6.62	7.11	1.15	3.65	0.00	0.00	0.00	2.00	2.04	8.84	
11	12.801	2	9800	208.1	7.12	6.56	7.18	1.15	2.86	0.00	0.00	0.00	2.00	1.80	7.81	
12	12.701	2	9800	207.8	7.03	6.48	7.29	1.15	2.90	0.00	0.00	0.00	2.00	1.81	7.85	
13	12.606	2	9800	206.8	6.79	6.27	7.56	1.15	2.97	0.00	0.00	0.00	2.00	1.84	7.95	
14	12.511	2	9800	201.7	5.43	5.14	9.46	1.15	3.38	0.00	0.07	0.00	2.00	1.98	8.57	
15	12.420	2	9800	206.8	5.29	5.02	9.44	1.15	2.69	0.00	0.06	0.00	2.00	1.77	7.67	
16	11.949	1	10350	270.0	4.73	4.56	8.41	1.26	3.00	0.00	0.00	0.00	2.00	1.88	8.14	
17	11.864	1	10350	267.4	4.64	4.48	8.64	1.26	3.05	0.00	0.00	0.00	2.00	1.89	8.21	
18	11.759	1	10350	266.3	5.16	4.96	7.83	1.26	2.92	0.00	0.00	0.00	2.00	1.86	8.04	
19	11.664	1	10350	231.7	5.58	5.31	8.41	1.26	3.29	0.00	0.00	0.00	2.00	1.97	8.52	
20	11.566	1	10350	207.7	5.71	5.39	9.24	1.26	4.41	0.00	0.05	0.00	2.00	2.32	10.04	
21	10.917	1	10900	289.8	6.78	5.41	7.12	1.26	2.88	0.00	0.13	0.00	2.00	1.88	8.16	
22	10.862	1	10900	233.3	5.75	4.69	9.96	1.26	3.87	0.00	0.14	0.00	2.00	2.18	9.46	Min. = 7.07
23	10.803	1	10900	237.8	1.88	1.83	25.11	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Max. = 10.04
24	10.699	1	10900	237.9	6.00	5.60	8.18	1.26	3.31	0.00	0.00	0.00	2.00	1.97	8.55	Rec. = 10.50
25	10.612	1	10900	281.1	5.05	4.82	8.05	1.26	2.97	0.00	0.00	0.00	2.00	1.87	8.11	
26	10.517	1	10900	390.5	4.58	4.43	6.30	1.26	2.18	0.00	0.00	0.00	2.00	1.63	7.07	
27	9.692	1	11450	365.2	7.76	5.59	5.61	1.26	2.23	0.00	0.00	0.00	2.00	1.65	7.14	
28	9.592	1	11450	365.3	6.03	3.20	9.80	1.26	3.58	0.00	0.00	0.00	2.00	2.05	8.89	
29	9.492	1	11450	480.9	4.93	3.66	6.50	1.26	2.19	0.00	0.00	0.00	2.00	1.63	7.08	
30	9.367	1	12000	433.9	4.96	3.62	7.64	1.26	2.61	0.00	0.00	0.00	2.00	1.76	7.64	
31	9.318	1	12000	494.4	5.96	3.83	6.33	1.26	2.25	0.00	0.00	0.00	2.00	1.65	7.17	

NOTES:
(1) Long-term scour values in column (9) are based on bed armoring and stable slope analyses. The values reflect the scour depth associated with bed armoring condition in the channel.
(2) Local scour values in column (10) are evaluated from four equations provided by Pemberton and Lara (1984).
(3) Bend scour values in column (11) are zero because scour around bends are already incorporated in the evaluation of local scour in column (9).
(4) General scour values in column (12) are generally zero based on the equation provided by SLA (1989).
(5) Anti-dune trough depth values in column (13) are generally zero because anti-dune trough only occurs when flow conditions are either transitional or supercritical.
(6) Low-flow thalweg of 2.0 ft is used (see column 14) since the wash is classified as a regional watercourse (SLA, 1989).
(7) Thirty percent safety factor is used (see column 15) to account for non-uniformity of flow hydraulics and sediment characteristics in the channel.

TABLE 5-15
Computation of Scour at Grade Control Structures and Drop Step Length Requirement
Middle New River Watercourse Master Plan

Station No.	Sub Reach No.	Design Discharge (cfs)	Ave. Channel Width (ft)	Unit Discharge (cfs/ft)	Tailwater Depth (ft)	Head Difference (ft)	Froude No. (-)	WSE Difference (ft)	Total Drop Height (ft)	Critical Depth (ft)	Average Grain Size		Scour Components										
											Grain Size D_{85} (mm)	Grain Size D_{90} (mm)	Long-Term Scour (ft)	Local Scour				Low-Flow Thalweg (ft)	Safety Factor (ft)	Total Scour (ft)	Proposed Toe-Down (ft)	Trajectory Length (ft)	Length of Jump (ft)	Protected Length (ft)
														Schoklitsch (ft)	Veronese (ft)	Zimmerman (ft)	Average (ft)						
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)
14.162	2	6100	185.0	33.0	4.65	8.10	3.74	6.95	7.50	3.31	47.12	68.86	1.47	4.14	9.31	1.74	5.06	2.00	2.56	11.09	11.5	16.63	26.74	43.36
13.179	2	9800	180.0	54.4	7.04	8.10	3.56	7.40	9.00	4.43	47.12	68.86	0.95	4.80	11.26	3.41	6.49	2.00	2.83	12.27	12.5	21.80	39.56	61.36
10.806	1	10900	270.0	40.4	6.79	5.56	3.27	5.03	7.50	3.70	49.98	65.83	1.26	2.59	7.52	2.70	4.27	2.00	2.26	9.79	10.0	18.20	36.80	55.00

NOTES:
(1) Hydraulic data from columns (3) to (11) were obtained from hydraulic modeling of the Middle New River using HEC-RAS.
(2) Sediment data in columns (12) and (13) are the representative bed material data for reaches no. 1 and 2 (RAM, 1999) of the Middle New River.
(3) Long-term scour values in column (14) are from bed armoring analysis. The future channel bed grade would be limited by bed armoring and not by equilibrium slope.
(4) Local scour evaluations at drop structures in columns (15), (16) and (17) are from the application of three methods recommended by Pemberton and Lara (1984).
(5) Average local scour values in column (18) are the evaluated arithmetic average of the three methods.
(6) Low-flow thalweg of 2.0 ft is used (see column 19) since the wash is classified as a regional watercourse (SLA, 1989).
(7) Thirty percent safety factor is used (see column 20) to account for non-uniformity of flow hydraulics and sediment characteristics in the channel.
(8) Trajectory lengths in columns (23) describe the extent of flow trajectory for the design discharges from the drop face to the ground. Proposed protected lengths in column (25) include the jump lengths.

5.9 SPECIAL PROBLEMS AND SOLUTIONS

A list of problems encountered under this section are presented as follows:

1. A trial-and-error effort was being considered to determine viable design configurations for the five channel alternatives for Middle New River that meet all the required design criteria. Formulation of the design problem by optimization approach has eliminated the tedious process of the trial-and-error effort to evaluate desired channel design information. The formulated optimization problems were solved by GAMS (Brooke et al., 1996), a non-linear optimization code.

2. The optimization models developed for the five channel alternative configurations only considered one representative equation for the analysis of equilibrium slopes and local scours. A more representative and a much refined design values of the average equilibrium slopes and local scours in the channel are determined by involving all the listed equations after the optimization analysis.

3. The results of the sediment transport analysis that includes the equilibrium slopes, bed armor sizes, total scour, and lateral migration cannot be checked or verified for accuracy. Validation of the equations used, however, could be made by examining their sources, derivations and formulations, and their suggested applications. Very importantly, most of the methodologies used in the analysis are considered as standard procedures. Federal and State agencies that include the U.S. Bureau of Reclamation (USBR) and the Arizona Department of Water Resources (ADWR) recommend the application and use of these methodologies.

4. The existing sand and gravel mining pit in the river near Hillcrest Boulevard and 75th Avenue is identified to pose a potential problem to the nearby properties and to various hydraulic structures nearby. Preliminary impact assessment of the mining pit could be summarized as follows:

    a. The existing pit of about 40 to 45 feet deep is located approximately 300 feet from the nearby housing development.

    b. The existing neighborhood storm drain channel is under serious degradation. Headcutting has undermined the bottom of the channel at the outlet.

c. Proposed grade control structures downstream and upstream of the existing pit are exposed to possible failure as the pits could trigger the formation of head-cuts that could propagate in both directions during flood events.

An in-depth assessment study of the mining pit is essential to verify and check the long-term impact of the pit to the area when the final engineering design is occurring for this portion of the Master Plan.

5.10 LIST OF REFERENCES

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6.0 WATERCOURSE MASTER PLAN ALTERNATIVES FORMULATION

6.1 INTRODUCTION

The Watercourse Master Plan development consists of identification of existing channel physical and hydraulic characteristics, evaluation of project alternatives and construction cost estimates of each alternative being considered. The analysis also includes presentation of project alternatives to residents from the City of Glendale and the City of Peoria. The project is presented to the public so that the public is aware of the project alternatives and to obtain public input concerning the alternatives formulation. A preferred alternative is selected and incorporated as part of the Watercourse Master Plan.

The formulation of all channel alternatives included coordination between the objectives of this study and other projects within the study area. In particular, recreational trail elements of the City of Peoria's Rivers Master Plan and the City of Glendale's Trial Plan are accommodated in the development of alternatives. Proposed channel alternatives accommodate trail and access points, however, trails are not considered an element for the Watercourse Master Plan.

6.2 EXISTING CHANNEL

6.2.1 Existing Channel Physical Characteristics

The Middle New River Watercourse Master Plan study reach of New River commences at the confluence and extends approximately 8.5 miles north to the New River Dam. The study reach is sub-divided into three sub-reaches, which have similar physical and hydraulic characteristics. Reach numbering is from downstream to upstream. Reach location nomenclature is in river miles above the confluence with the Aqua Fria River. Figure 1.1 displays reach location and identification.

Reach 1 extends from River Mile (RM) 8.655 to RM 11.949 (confluence with Skunk Creek to Beardsley Road alignment) and is characterized by a trapezoidal shaped section with the majority of the west channel side slope being armored with wire-tied rock gabions. The trapezoidal section is a result of encroachment of the natural channel/floodplain by development. The channel side slopes for portions of the lower segment of Reach 1 are armored with soil cement. The east channel side slope of

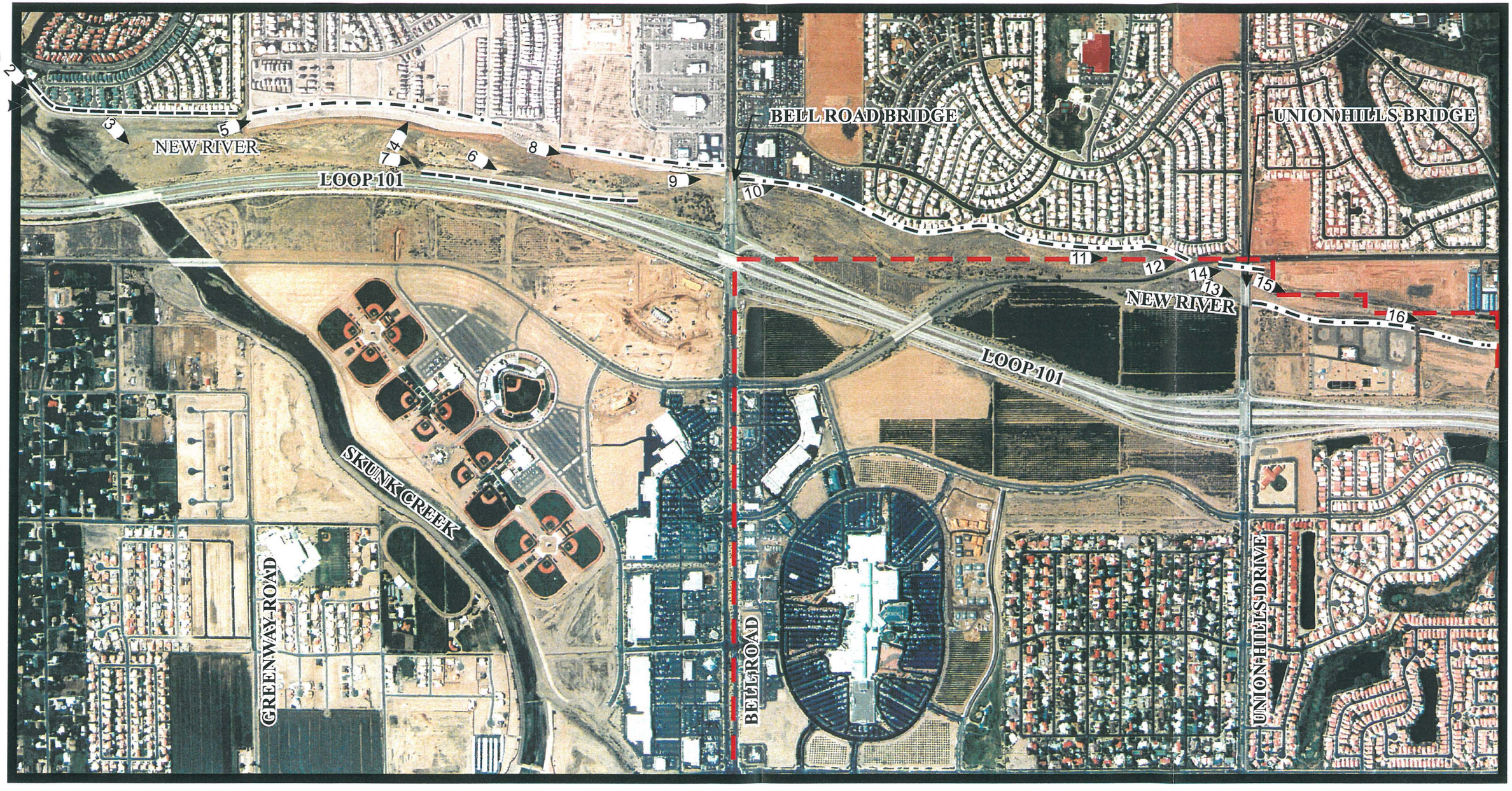
Reach 1 is typically not armored. The channel bed material consists of cobbles and sand.

Reach 2 extends from RM 11.949 to RM 13.918 (Beardsley Road alignment to approximately 1400 feet south of the Pinnacle Peak Road alignment). Reach 2 has similar characteristic as Reach 1, with the exception of approximately 1500 linear feet of wire-tied rock gabions along the west bank upstream of Beardsley Road, channel side slopes are unlined.

Reach 3 extends from RM 13.918 (1400 feet south of Pinnacle Peak Road alignment) to the New River Dam. Reach 3 is a natural channel segment with overbanks floodplain areas. The channel is braided in various locations. Varying vegetation densities are noted in channel and floodplain areas. Channel bed material predominately consists of cobbles. Outside of the channel areas base material consists of a combination of firm soil, coarse sand and fine gravel's.

6.2.2 Inventory of Existing Bank Armoring

An inventory of existing bank protection is conducted to determine the type and distribution of existing bank protection materials utilized in the study area. Figure 6-1 displays types and locations of bank protection identified in the study area. Figure 6-2 through Figure 6-22 are photographs depicting bank material types.



Legend

- CITY OF PEORIA/GLENDALE BOUNDARY
- ◄01 PHOTOGRAPH VIEW DIRECTION AND LOCATION
- SOIL CEMENT
- GABIONS
- DUMPED RIPRAP

Stantec

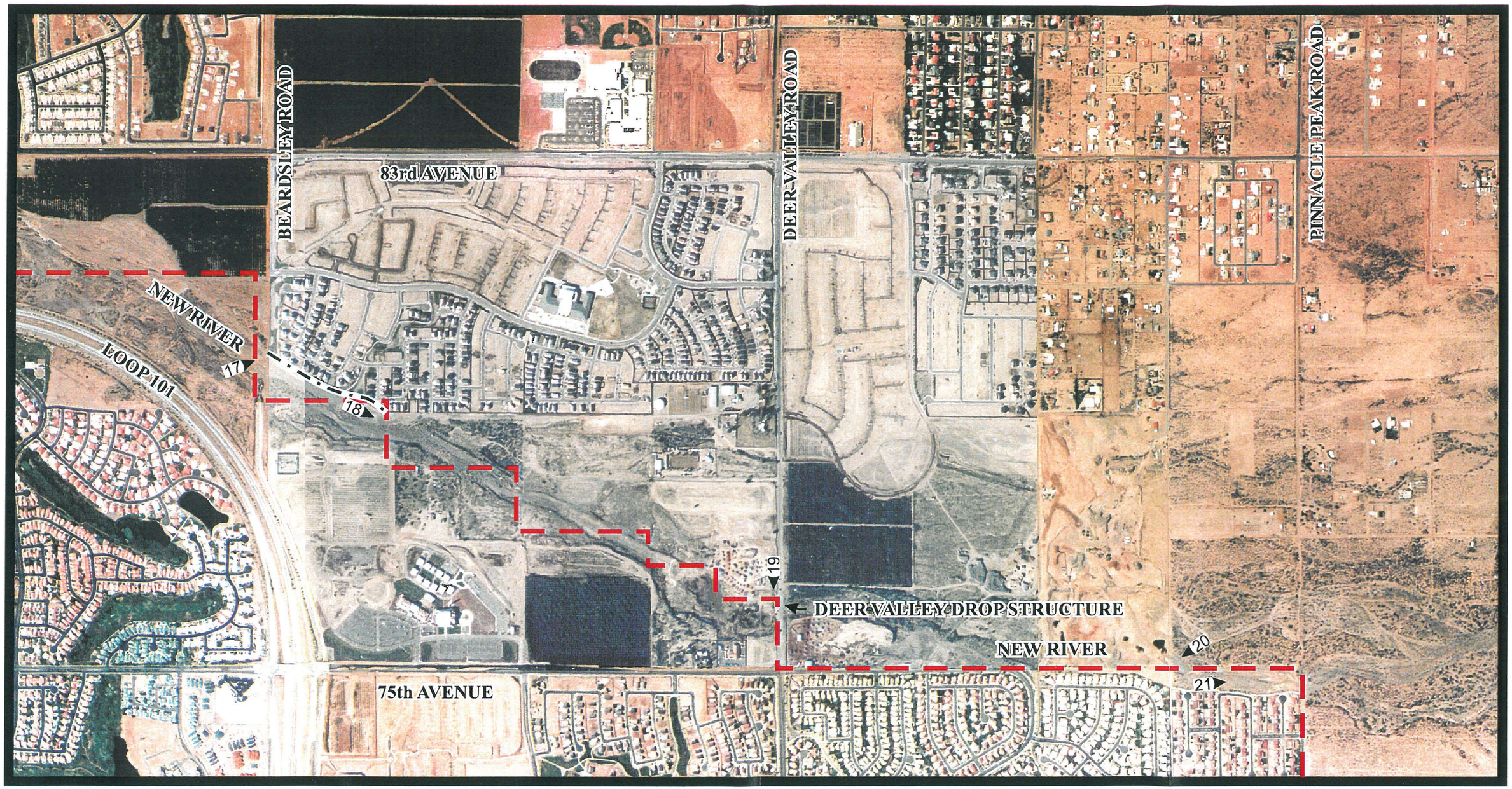
P:\28900058\mnr-technical data notebook-June 00-Final\FIG6_1A.CDR

Client/Project
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
MIDDLE NEW RIVER WATERCOURSE
MASTER PLAN

Figure No.
6-1A

Title
Existing Bank Armoring Location Map

Date: May 25, 1999
Project Number: 28900058



Legend

CITY OF PEORIA/GLENDALE BOUNDARY

◀01 PHOTOGRAPH VIEW DIRECTION AND LOCATION

GABIONS

Stantec

N

Client/Project
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
MIDDLE NEW RIVER WATERCOURSE
MASTER PLAN

Figure No.
6-1B

Title
Existing Bank Armoring Location Map

Date: May 25, 1999
Project Number: 28900058

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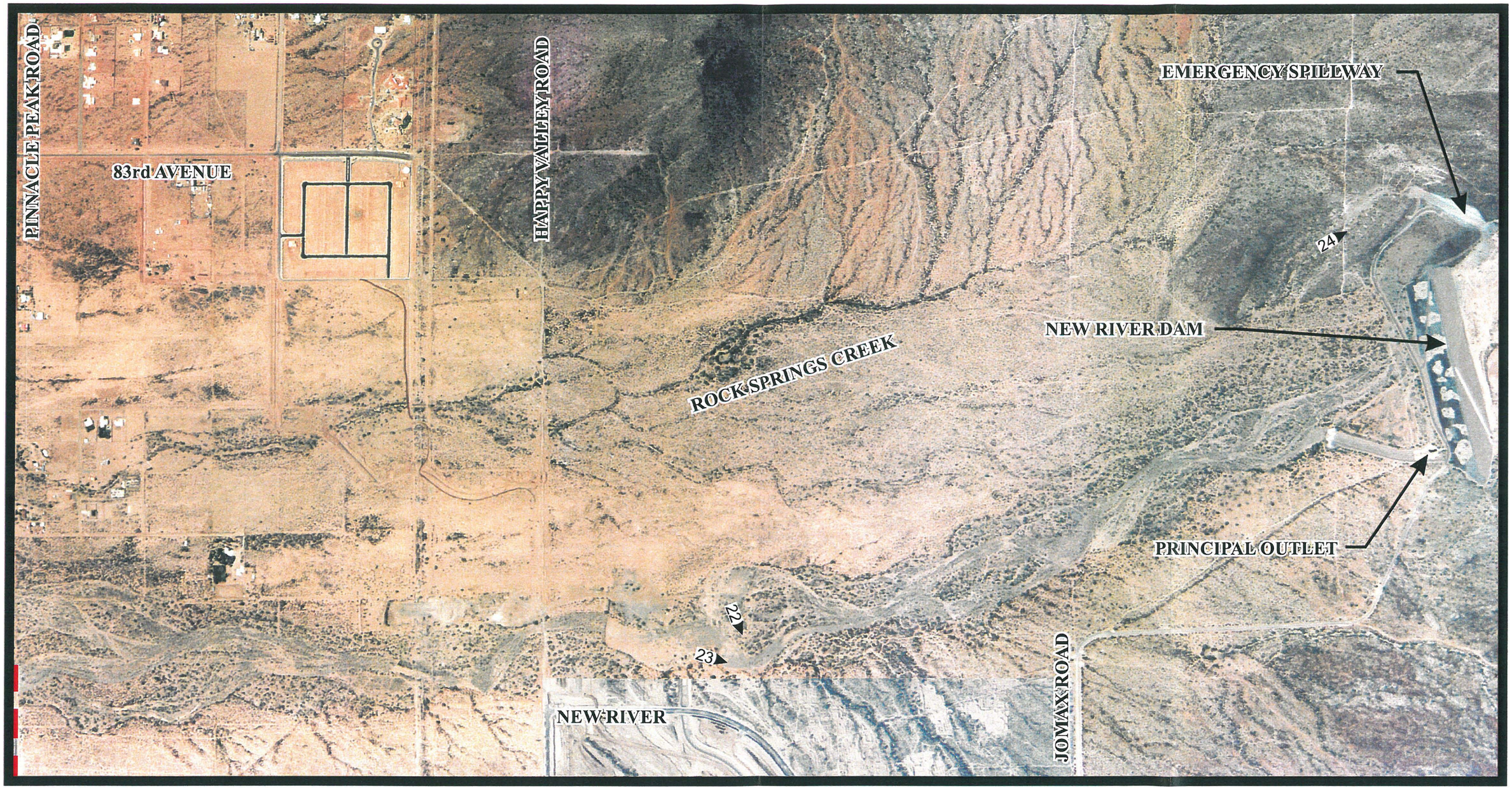

Legend

CITY OF PEORIA/GLENDALE BOUNDARY

◀01 PHOTOGRAPH VIEW DIRECTION AND LOCATION

GABIONS

Stantec

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Client/Project

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

MIDDLE NEW RIVER WATERCOURSE MASTER PLAN AND MANNINGS "n" VALUE PHOTO LOCATIONS

Figure No.

6-1C

Title

Existing Bank Armoring Location Map

Date: May 25, 1999

Project Number: 28900058

P:\28900058\mnr-technical data notebook-June 00-Final\FIG6_1C.CDR

PHOTO 1

Figure 6-2
Roller compacted concrete grade control structure below confluence of New River with Skunk Creek. Channel side slopes are armored with soil cement.

PHOTO 2

Figure 6-3
South bank of New River below confluence with Skunk Creek. Channel side slopes are armored with soil cement.

PHOTO 3

Figure 6-4
East bank of New River upstream of confluence with Skunk Creek. No armoring on channel side slopes.

PHOTO 4

Figure 6-5
Gabion mattress channel side slope armoring along west bank of New River between Bell Road and the confluence of New River with Skunk Creek

PHOTO 5

Figure 6-6
Gabion mattress channel side slope armoring along west bank of New River between Bell Road and the confluence with New River with Skunk Creek

PHOTO 6

Figure 6-7
Soil cement side slope armoring along east bank of New River adjacent to Loop 101 between Bell Road and the New River confluence with Skunk Creek

PHOTO 7

Figure 6-8
Soil cement side slope armoring along east bank of New River adjacent to Loop 101 between Bell Road and the New River confluence with Skunk Creek

PHOTO 8

Figure 6-9
Gabion mattress channel side slope armoring along west bank of New River downstream of Bell Road

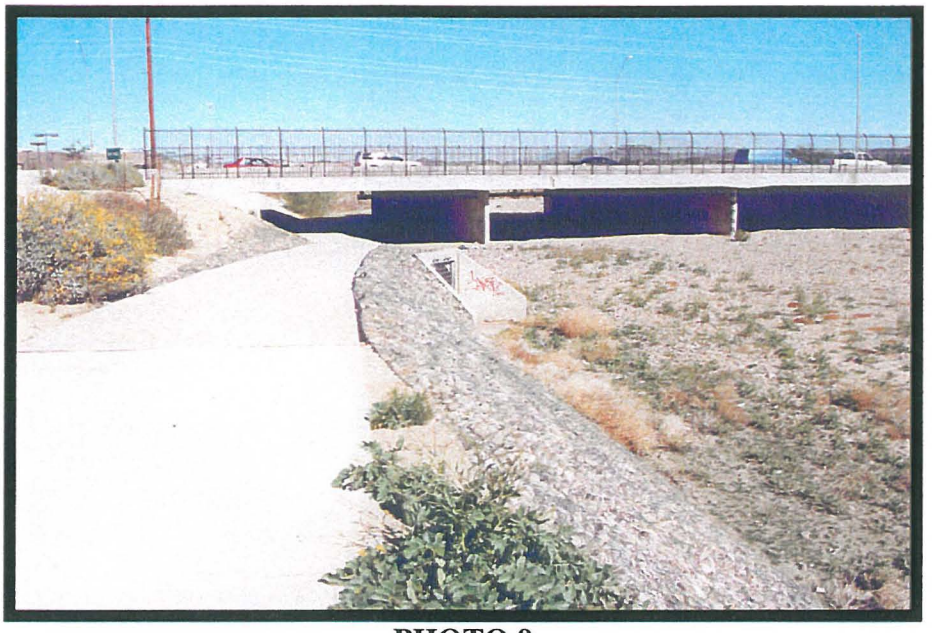


PHOTO 9

Figure 6-10
Gabion mattress channel side slope armoring and sidewalk along west bank of New River upstream of Bell Road

PHOTO 10

Figure 6-11
Gabion mattress channel side slope armoring and local concrete spillway along west bank of New River upstream of Bell Road Bridge

PHOTO 11

Figure 6-12
Gabion mattress channel side slope armoring along west bank of New River between Bell Road and Union Hills Drive

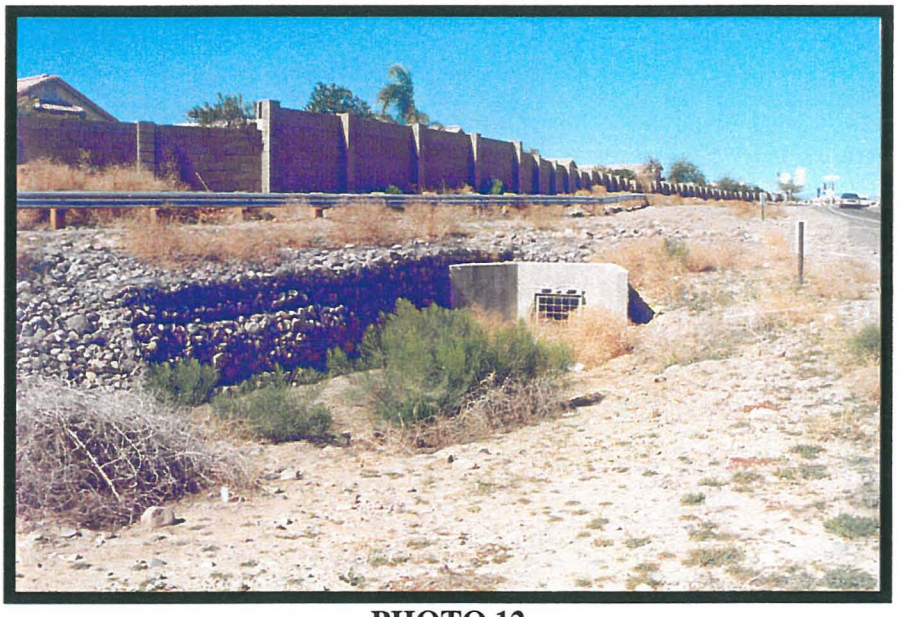


PHOTO 12

Figure 6-13
Stacked gabion baskets at storm drain outlet, west bank of New River downstream of Union Hills Drive

PHOTO 13

Figure 6-14
Gabion mattress armoring east bank of New River, downstream of Union Hills Bridge

PHOTO 14

Figure 6-15
Gabion mattress armoring west bank of New River, downstream of Union Hills Bridge

PHOTO 15

Figure 6-16
Gabion mattress channel side slope armoring, west and east bank of New River, upstream of Union Hills Bridge

PHOTO 16

Figure 6-17
Transition from gabion mattress channel side slope armoring to unprotected channel side slope, east bank upstream of Arrowhead Waste Water Treatment Facility

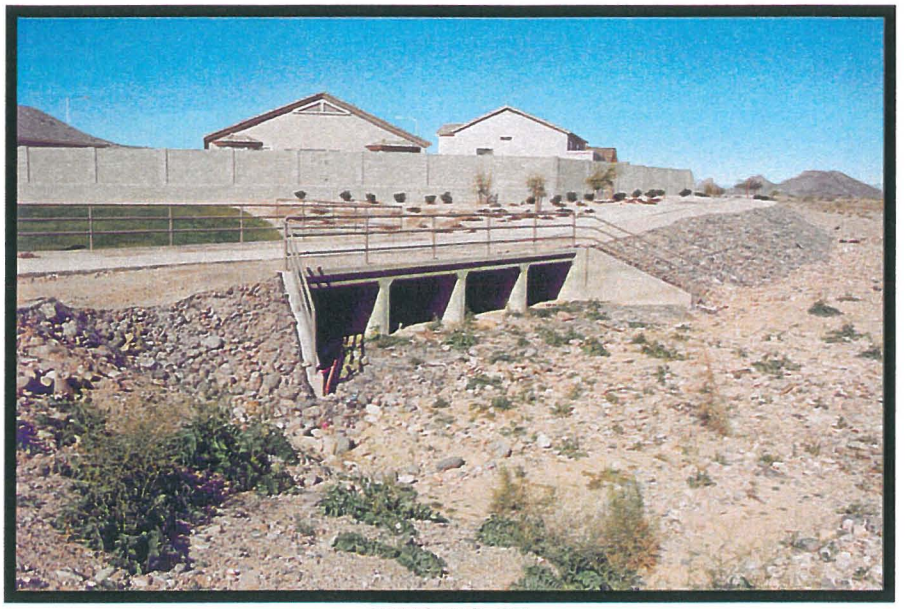


PHOTO 17

Figure 6-18
Gabion mattress channel side slope armoring, west bank of New River upstream of Beardsley Road

PHOTO 18

Figure 6-19
Gabion mattress channel side slope armoring west bank of New River upstream of Beardsley Road

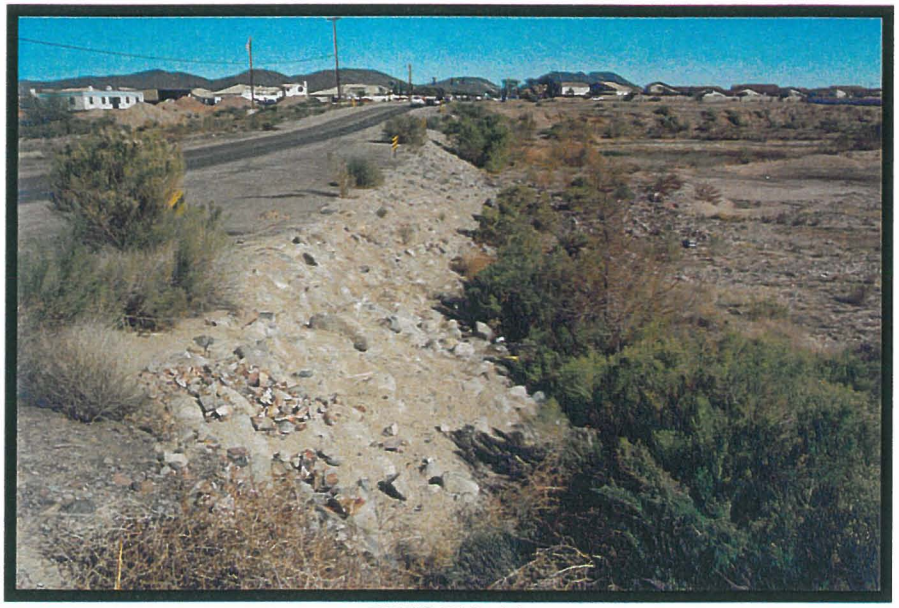


PHOTO 19

Figure 6-20
Grouted rip-rap drop structure, Deer Valley Road crossing of New River

PHOTO 20

Figure 6-21
Drainage outlet channel to New River, downstream of Pinnacle Peak Road

PHOTO 21

Figure 6-22
New River channel looking upstream near Pinnacle Peak Road

6.3 MASTER PLAN ALTERNATIVES FORMULATION

6.3.1 Introduction

As part of the Watercourse Master Plan initial channel alternatives are formulated for the study reach of New River. The channel alternatives are developed using input from public and steering committee meetings. A total of over 20 initial channel cross-section combinations were considered during early phases of the alternatives evaluation. Some initial alternatives were eliminated from further consideration based on hydraulic performance, social/environmental impacts and practicality of implementation.

As an example, during the initial channel alternative formulation, an alternative referred to as an Indian Bend Wash type alternative was evaluated. The Indian Bend Wash type alternative provided a channel that conveyed floodwaters at a shallow depth and a flow rate of 5 fps or less. The channel minimizes the need for armoring and provides the potential for a multi-use flood conveyance corridor similar to Indian Bend Wash in Scottsdale, Arizona. However, the channel width required to provide an Indian Bend type alternative is significant and would require the removal and/or relocations of numerous existing residences and businesses along the study reach. The Steering Committee determined that this alternative was not practical for Middle New River Watercourse Master Plan.

6.3.2 Master Plan Alternatives Hydraulic Evaluation

Hydraulic evaluations of project alternatives are conducted to evaluate the flow capacity of each alternative. The flow conveyance of proposed channel alternatives are developed utilizing criteria developed for the Watercourse Master Plan. The criteria are:

1. Structural alternatives will consist of an alluvial channel bottom and armored channel side slopes. Top widths of proposed channel improvement will be restricted to floodway widths for a given reach to allow for full development in floodplain fringes.

2. Non-structural alternatives avoids construction within the floodplain and erosion zone, leaving the river in its natural state. Erosion setback limits shall be provided. Channel bank stabilization may be allowed at selected locations.

3. Average channel physical elements (slope, bottom width, top width, side slope, etc.) are used for each reach.

4. Channel grade control structures will be considered.

5. Proposed channel improvements shall convey FEMA's 100-year peak discharge. The COE future condition peak discharges shall be conveyed within the limits defined by the calculated channel freeboard.

Average evaluation parameters are determined from topographic mapping and the Updated Existing Condition HEC-RAS hydraulic model. Average physical channel parameters utilized in the hydraulic evaluation for each reach are summarized in Table 6-1. Due to existing channel improvements and/or encroachments, the average regulatory floodway width at some locations is greater than the average channel top width. At many of these locations, the effective 100-year peak discharge is conveyed within the channel banks, indicating that the width of the floodway could be reduced at some locations. The average channel top width for each alternative is estimated by taking the average of the regulatory floodway width and existing channel top width for a given reach.

TABLE 6-1
Existing Condition Model Input Parameters

Reach	Existing Condition Q_{10} (cfs)	Existing Condition Q_{100} (cfs)	Future Condition Q_{100} (cfs)	Reach Length (ft)	Existing Average Channel Top Width (ft)	Existing Average Depth of Channel (ft)	Existing Average Bottom Width of Channel (ft)	Existing Average Side Slope (x:1)	Existing Average Channel Slope (ft/ft)
1	2	3	4	5	6	7	8	9	10
1	2700	12000	19000	18435	350	12.2	291	2	0.0048
2	2529	10350	13400	11340	450	10.1	313	2	0.0050
3	2052	6100	6600	16002	300	7.6	158	3	0.0049

6.3.3 Preliminary Channel Alternatives

Engineering analysis for each channel alternative is conducted to ensure that the proposed channel will have adequate flow capacity to contain the 100-year flood and can be implemented within the average existing FEMA floodway for each subject reach. As a result, six preliminary channel alternative concepts are being considered

as a planning tool to guide new development and construction activities within the three defined reach areas of New River. The selection of a preferred channel alternative will be based on public and community preference, engineering feasibility and cost of construction.

The preliminary channel alternatives formulated for the Middle New River Watercourse Master are:

Alternative 1: Structural Type Trapezoidal Section. This section provides a natural channel bottom with soil cement armoring material type for channel side slopes. This channel section is appropriate for reaches 1, 2 and 3.

Alternative 2: Structural Type Trapezoidal Section. This section provides a natural channel bottom with wire tied gabion mattress armoring material type for channel side slopes. This channel section is appropriate for reaches 1, 2 and 3.

Alternative 3: Structural Type Trapezoidal Section With Landscape Enhancement. This channel section provides a uniform natural bottom with bank armoring consisting of gabions and adds a cover of earthen material to provide for landscape enhancement. This channel section is appropriate for reaches 1, 2 and 3.

Alternative 4: Structural Type Trapezoidal Section With Trail Bench. This section is similar to Alternative 1, but with an offset recreation trail. This channel section is appropriate for reaches 1, 2 and 3.

Alternative 5: Low Flow Channel Section. This channel section provides a low-flow channel with a natural bottom and over-bank area. Flow conditions in the overbank area are such that in either natural or landscape enhanced conditions, minimal impact would occur in the area during a flood event. The low flow channel element will have bank armoring consisting of gabions mattress. This channel section is appropriate for reaches 1, 2 and 3.

Alternative 6: Non-Structural Channel Section. This channel section provides a non-structural approach that includes enhancements to the channel capacity and the bank erosion buffer. Opportunities would exist for passive recreation and trails within this type of buffer area. Establishment of an erosion buffer could be accomplished through proactive Floodplain

Management and, possibly, development density transfer credits. This channel section is appropriate for Reach 3 only.

Preliminary channel alternative cross-sections that are considered viable and were presented to the Steering Committee and public are depicted on Figures 6-23 through Figure 6-27.

MIDDLE NEW RIVER WATERCOURSE MASTER PLAN

STRUCTURAL TYPE TRAPEZOIDAL SECTION

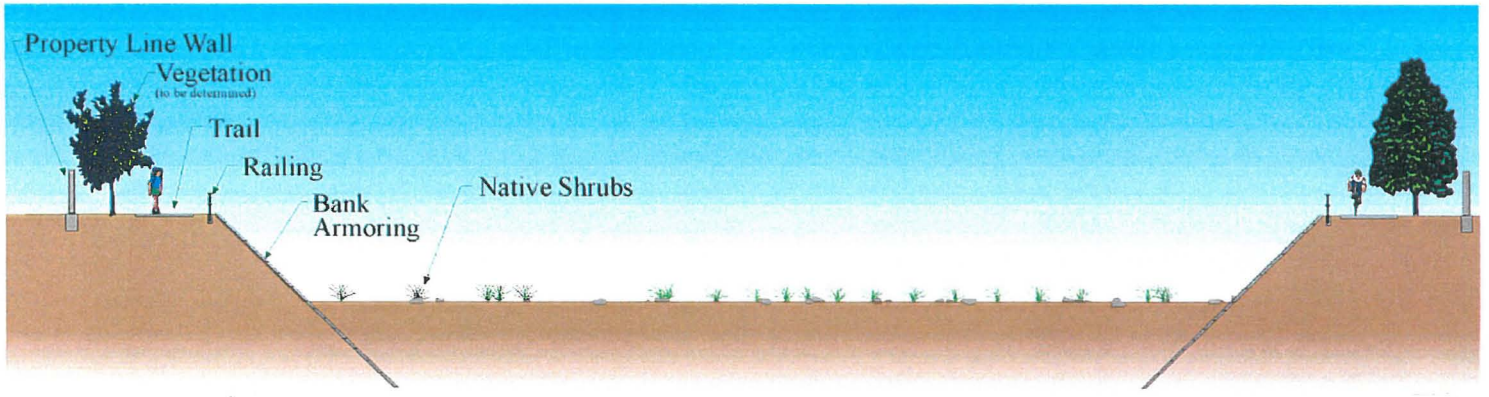


Figure 6-23

Typical Channel Section for Alternatives 1 and 2

MIDDLE NEW RIVER WATERCOURSE MASTER PLAN

STRUCTURAL TYPE TRAPEZOIDAL SECTION WITH LANDSCAPE ENHANCEMENT

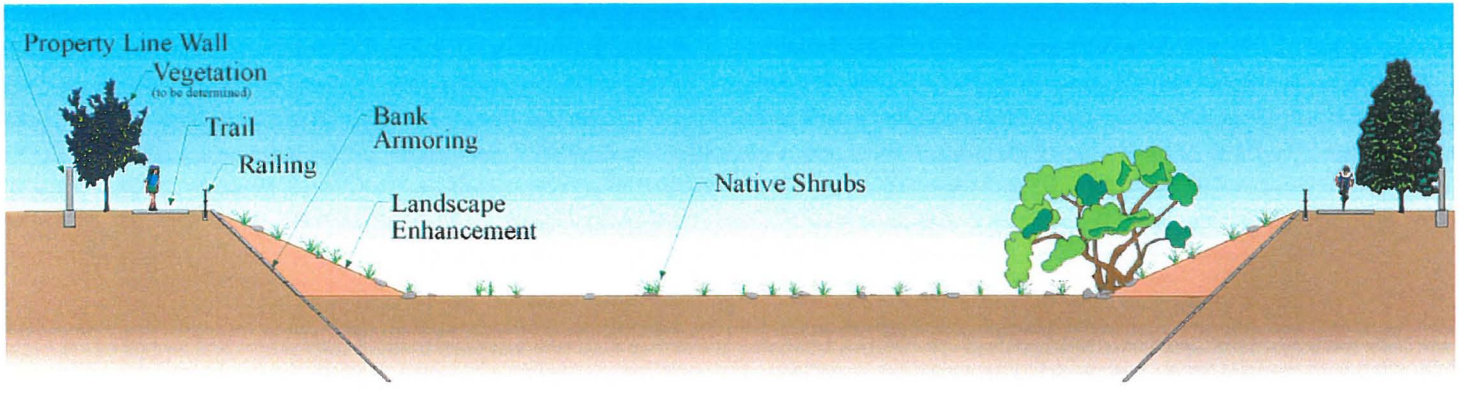


Figure 6-24

Typical Channel Section for Alternative 3

MIDDLE NEW RIVER WATERCOURSE MASTER PLAN

STRUCTURAL TYPE TRAPEZOIDAL SECTION WITH TRAIL BENCH

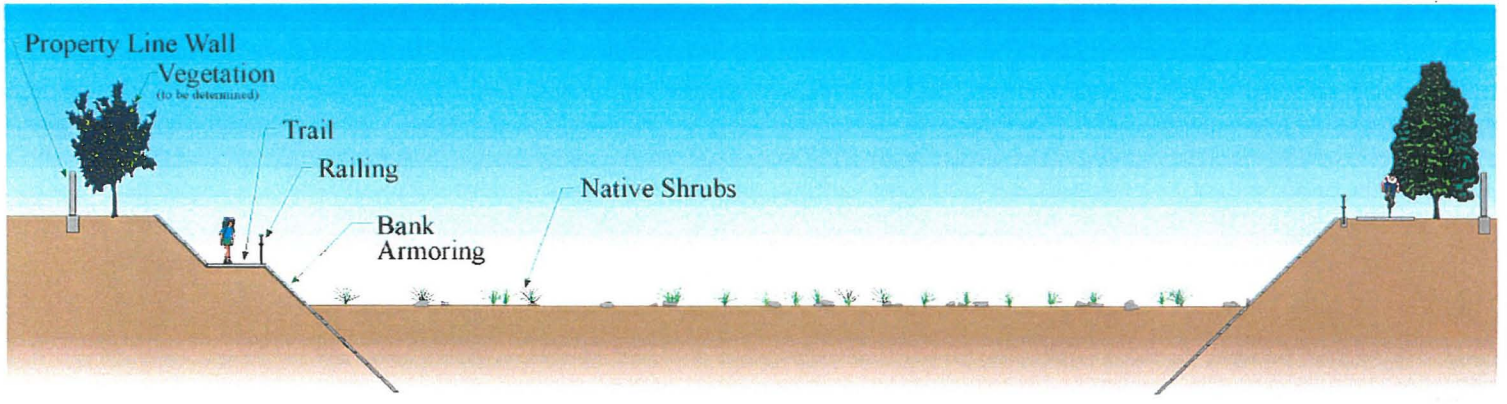


Figure 6-25

Typical Channel Section for Alternative 4

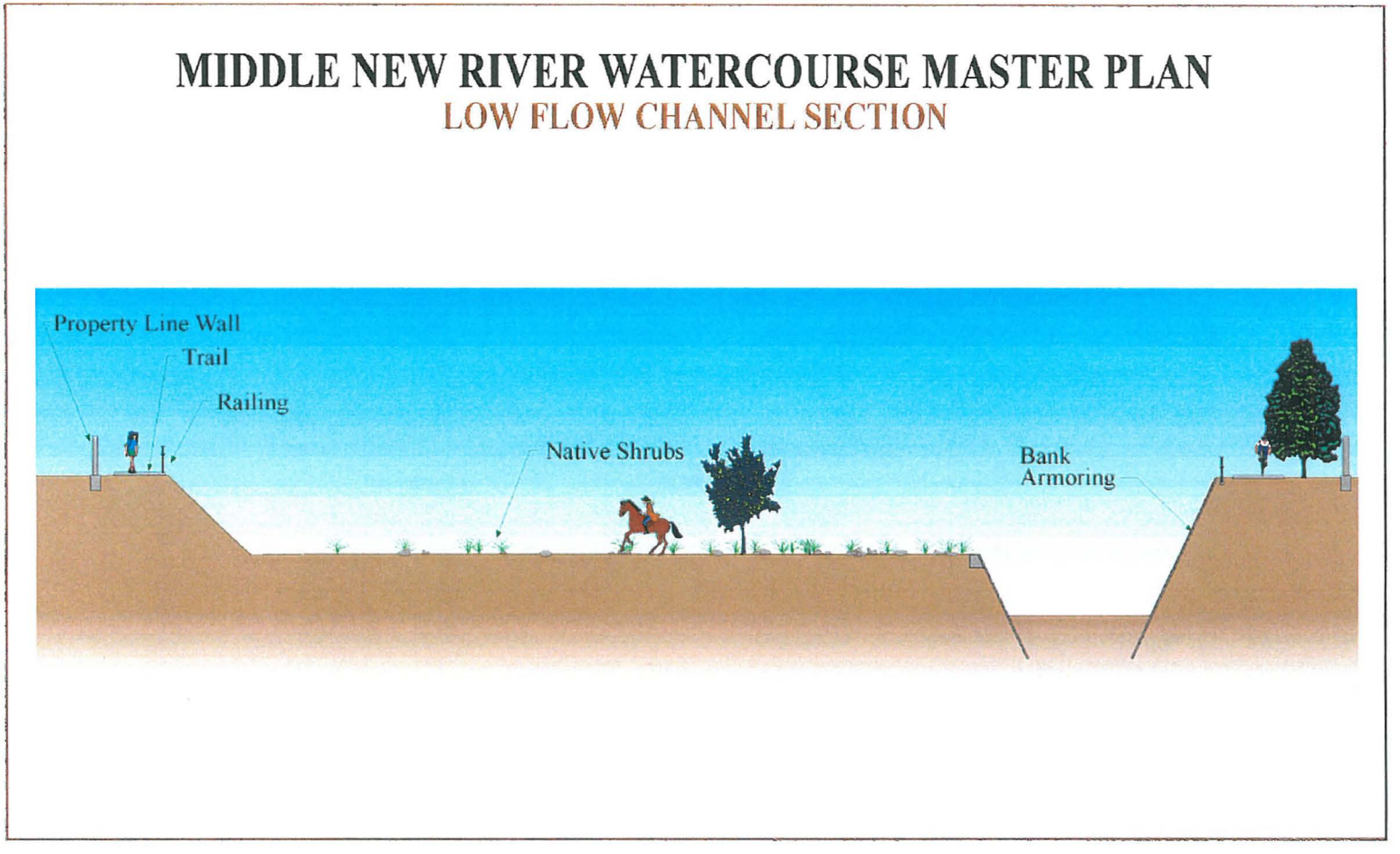


Figure 6-26

Typical Channel Section for Alternative 5

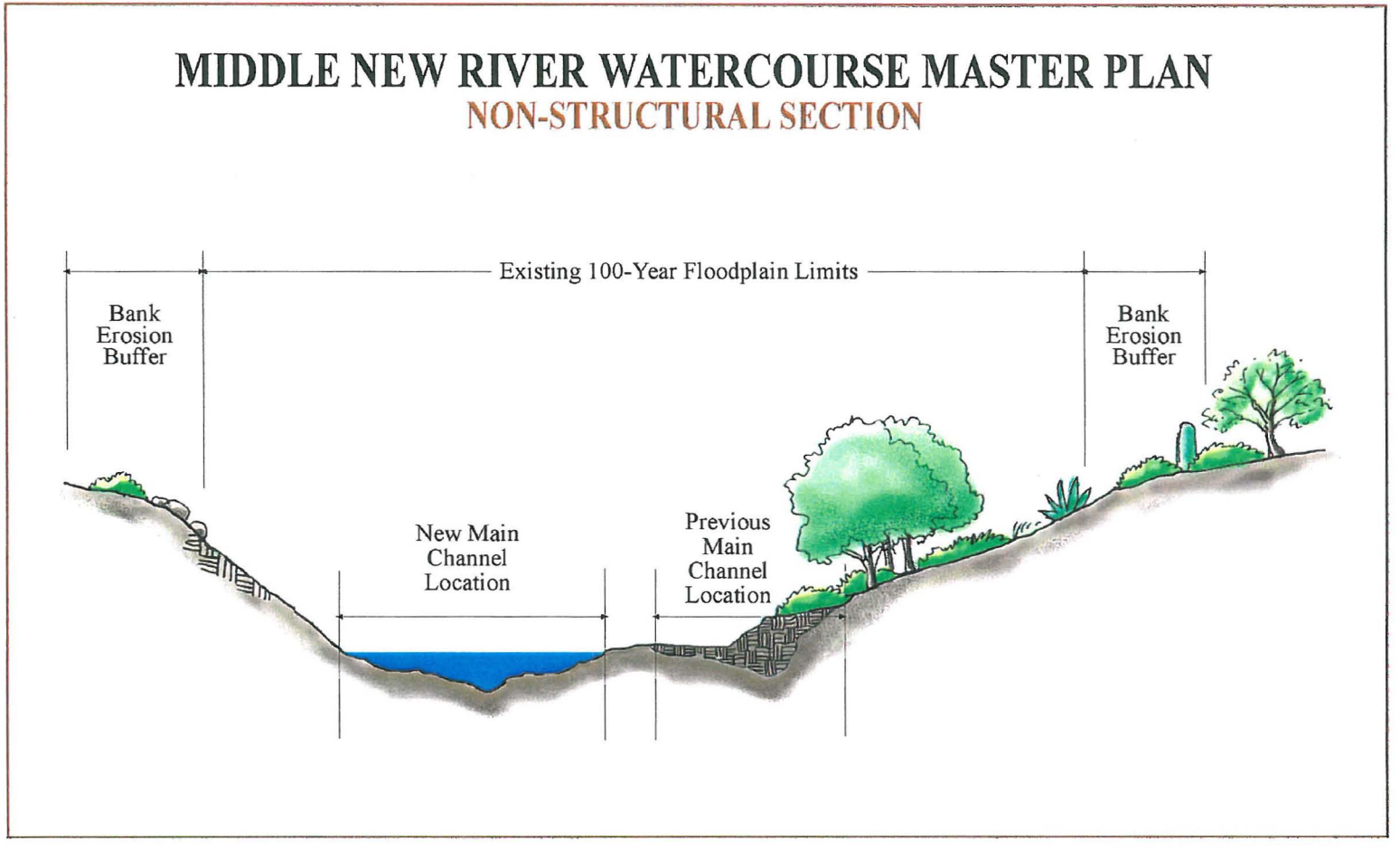


Figure 6-27

Typical Channel Section for Alternative 6

6.3.4 General Algebraic Modeling System (GAMS)

The initial evaluation of a preliminary channel alternative is conducted by developing a General Algebraic Modeling System (GAMS) model. GAMS-MINOS (Brooke et, al., 1996) is an optimizer code developed to solve both linear and non-linear optimization problems. The model formulation involves the definition of an objective function and set of constraints that mathematically describes the channel flow hydraulics, sediment transport dynamics, and various design criteria.

6.3.4.1 Model Formulation

The optimization problem involving channel design with economic performance as the objective function can be expressed mathematically as follows:

$$Minimize\ C = Min\ (\sum_{i=1}^{N} c_i(\boldsymbol{u},\boldsymbol{x})) \tag{6.1}$$

subject to:

$$p_{min} \leq p(u, x) \leq p_{max} \tag{6.2}$$

$$p(u, x) = 0 \tag{6.3}$$

$$u, x \geq 0 \tag{6.4}$$

The $c_i(u,x)$ parameter in equation (6.1) represents the various cost components included in the project. These N cost components may include all or some of the following items: channel excavation and earthwork, grade control and other hydraulic structures, acquisition cost of right-of-way or drainage easement, revegetation works necessary, salvage, mobilization and engineering, contingency, and operation, maintenance & repair (OMR). Each cost considered should reflect a uniform cost expression, i.e., either convert all costs involve into their annual cost equivalent or to their present cost.

The set of system constraints defined by equation (6.2) involves hydraulic and physical requirements such as maximum permissible velocity and critical shear stress that set the stability criteria in the channel, flow regime requirements that dictate the flow condition desired, drainage easement considerations that set the limits of drainage development, drop height requirements for grade control structures, channel roughness, and channel configuration criteria. Constraints involving equation (6.3) are the definition of cost components as a function of decision variables ($\boldsymbol{u}$) and state

variables (x). Other relations include velocity equation, scour depth computations, continuity, and energy equations.

The non-negativity requirement defined by equation (6.4) requires that all decision and state variables are restricted to be equal to or greater than zero. The decision and state variables include the flow depth, channel design configuration (such as bottom width and side slope), channel bed slope, channel roughness, height of drop structures, number of drops, flow velocity, bed shear stress, depth of scour, etc.

Application of the above model formulation to the Middle New River involves the explicit definition of the objective function and the enumeration of all constraints. These are presented as follows:

Objective Function

$$Minimize\ C = Min\ (\sum_{i=1}^{N} c_i(u,x)) \qquad (6.5)$$

The above expression is used as the basis of solving the optimization problem. For an objective function that minimizes the project cost, the optimizer code will search and evaluate the best economic performance possible (i.e., the least project cost) that satisfies and meets all the system requirements. The cost components included in the objective function for the Middle New River are:

a. Excavation and earthwork

b. Cost of hydraulic structures such as bank protection and drop structures

c. Salvage and revegetation

d. Engineering and contingencies

The optimizer code that solves the design problem searches the best solution providing design information on the channel configuration, bed slope, channel roughness, flow velocity, and depth.

System Constraints

Three sets of constraints are used to describe the design conditions required for the channel. They are:

(a) $p_{min} \leq p(u,x) \leq p_{max}$

The relations that are included here are the maximum permissible velocity, channel roughness, side slope range, drainage easement, channel slope, freeboard requirement, and flow regime range. These relations are presented below:

Maximum permissible velocity. The computed velocity (V_j) for any j-th section in the channel must not exceed the maximum permissible velocity (V_{max}) described as follows:

$$V_j \leq V_{max} \qquad for\ j = 1, 2, ..., J. \qquad (6.6)$$

Channel roughness. The channel resistance in the channel depends on the desired type of bed materials or vegetation in the channel. A range of channel roughness (n_{max}, n_{min}) is used providing freedom for the model to choose the best Manning's n.

$$n_{min} \leq n \leq n_{max} \qquad (6.7)$$

Side slope of channel bank. For bank side slopes, a range from the steepest side slope (z_{min}) to the flattest permissible side slope (z_{max}) is provided for channel stability.

$$z_{min} \leq z \leq z_{max} \qquad (6.8)$$

Channel top width. The corridor width represented by the channel top width (B) must not exceed the provided drainage easement (DE).

$$B \leq DE \qquad (6.9)$$

Channel slope. The channel bed slope could be determined from the permissible range of values provided, i.e., from the flattest equilibrium (or stable) slope (S_{eq}) to the steepest existing ground slope (S_g).

$$S_{eq} \leq S_c \leq S_g \qquad (6.10)$$

Freeboard requirement. A number of hydraulic design manuals and references recommend a minimum freeboard of 1.0 foot for unlined channels with subcritical flow conditions (Chow, 1959; FCDMC, 1992).

$$FB_j \geq 1.00 \qquad \text{for } j = 1, 2, \ldots, J. \qquad (6.11)$$

Froude number (Flow regime range). For unlined channels, a subcritical flow condition is recommended. A range of Froude Numbers (F_{min} and F_{max}) is often helpful so that the flow condition in the channel must be within the corridor of the desired range.

$$F_{min} \leq F_j \leq F_{max} \qquad \text{for } j = 1, 2, \ldots, J. \qquad (6.12)$$

Drop height. For public safety considerations, grade control structures must have drop heights (H_d) that do not exceed a maximum permissible value (DH_{max}) as recommended by UDFCD (1969, 1990, 1991), FCDMC (1992) and Taggart et. al. (1996).

$$H_d \leq DH_{max} \qquad (6.13)$$

(b) $p(u,x) = \mathbf{0}$.

The relations included here are the scour equations for the toe-down depth, Manning's equation for flow velocity, continuity equation, equilibrium slope, and energy equation.

Total scour evaluation. The total scour, Z_t, is the summation of local scour (Z_{ls}), general scour (Z_g), bend scour (Z_{bs}), low-flow incisement (Z_{li}), long-term scour (Z_{lt}), and anti-dune trough depth (Z_a). The total scour, which includes a 30% safety factor to account for non-uniformity of hydraulic conditions, is determined as follows:

$$Z_t = 1.3\,[Z_{ls} + Z_g + Z_{bs} + Z_{li} + Z_{lt} + Z_a] \qquad (6.14)$$

The local and long-term scour components are estimated from the procedures described by Pemberton and Lara (1984). The general scour is estimated from the Zeller equation (Zeller, 1991), while the bend scour, low-flow incisement, and anti-dune trough depths from SLA (1985, 1989).

Manning's equation. The equation to estimate the average velocity in the channel is estimated by the following relation:

$$V_j = (1/n)R_j^{2/3} S_c^{1/2} \qquad for\ j = 1, 2, ..., J. \qquad (6.15)$$

Continuity equation for the conservation of mass. The design discharge (Q) is equal to the product of the flow area (A_j) and velocity (V_j).

$$Q = A_j V_j \qquad for\ j = 1, 2, ..., J. \qquad (6.16)$$

Equilibrium slope. The equilibrium slope (S_{eq}) according to Schoklistch (Pemberton and Lara, 1984) is a function of the dominant discharge (Q_{10}), the mean bed material size (D_m), and the channel width (b).

$$S_{eq} = 0.000293\left(\frac{D_m b}{Q_{10}}\right)^{3/4} \qquad (6.17)$$

Bernoulli's equation for the conservation of energy. The energy loss between intermediate stations (j) and ($j+1$) span by a distance of L_j could be estimated as follows:

$$\left(E_{j+1} - E_j\right) + \left(d_{j+1} - d_j\right) + \left(\frac{V_{j+1}^2 - V_j^2}{2g}\right) = L_j S_c \qquad (6.18)$$

Project components. Established equations or relations to evaluate cost components must be provided as part of the system equations. These project components include excavation and earthwork, cost of channel structures such as grade control structures, salvage, revegetation, drainage easement, mobilization and engineering, and contingency. The more realistic the relations are considered for these components, the more accurate the model results would be.

(c) $u,x \geq 0$.

The $\boldsymbol{u}$ and $\boldsymbol{x}$ are the decision and state variables of the optimization problem. It is required that all decision and state variables must have values that are non-negative; otherwise, their meaning will not have any physical significance. The decision and state variables are presented below:

Flow hydraulics. The hydraulic variables are the flow depth (d_j), flow velocity (V_j), flow area (A_j), shear stress (τ_j), Froude number ($\boldsymbol{F}_j$), and channel roughness (n).

Channel geometry and profile. The variables are the channel bed elevation (E_j), side slope (z), bottom width (b), channel slope (S_c), freeboard $(FB)_j$ number of sub-channels (N_c), and length of sub-channel reaches (L_c).

Scour analysis. The variables are the local scour (Z_{ls}), general scour (Z_g), bend scour (Z_{bs}), anti-dune trough depth (Z_a), long-term scour (Z_{lt}), low-flow incisement (Z_{li}), equilibrium slope (S_{eq}), and, total scour depth (Z_t).

Hydraulic structures (grade control structure). The variables are the number of drops (N_d), drop height (H_d), and toe-down depth, (D_t).

The decision variables ($\boldsymbol{u}$) of the optimization problem are the flow depth, channel roughness, side slope, bottom width, bed slope, and the drop height of grade control structures. The remaining variables are the state variables ($\boldsymbol{x}$) as their values are dependent upon the values of the decision variables (e.g., flow velocity, bed shear stress, toe-down depth, etc.).

6.3.5 GAMS Modeling Descriptions

Two GAMS models were developed for each alternative, Model B and Model C. The difference between the models is that in Model B, the elevation of proposed grade control structures can exceed the existing channel invert elevation and the number of structures is not limited to a integer number (one grade control structure within the reach will have a shorter height than the others). In Model C, the maximum elevation of a grade control structure is set at the existing channel invert elevation and the number of structures is set at a whole number. Tables 6-2 through 6-11 summarizes the results of various GAMS modeling performed. Channel parameter description for each alternative is depicted on Figures 6-28 through 6-32.

Hydraulic results of the GAMS modeling are verified by developing HEC-RAS hydraulic models. The results of a GAMS model are for a sub-reach of the total reach analyzed. The results for the sub-reach are applicable for all sub-reaches within the reach study. HEC-RAS models are developed for a sub-reach, utilizing 5 cross sections to define the sub-reach. Channel bottom width and slope, determined in the GAMS model, effective 100-year peak discharges and 10-year peak discharges are utilized in the HEC-RAS models. Starting water surface elevations are set at critical depth. Summary of HEC-RAS models for each alternative are located in Appendix D. Flow depths and velocities determined the HEC-RAS models compare well with results form the GAMS models.

TABLE 6-2
Design Parameters for Alternative 1, Trapezoidal Section Model B
(Soil Cement Option)

Item No. (1)	Design Parameters (2)	Parameter Description (3)	Units (4)	REACH No. 1 (5)	REACH No. 2 (6)	REACH No. 3 (7)
1	ZN	bank side slope (ZN:1)	ft/ft	2.0	2.0	2.0
2	MAXDN	flow depth	ft	6.667	6.15	4.4
3	FBR	freeboard	ft	2.039	1.694	1.218
4	HN	channel height	ft	8.706	7.84	5.618
5	W	bottom width	ft	250.0	252.098	242.329
6	T	top width	ft	284.8	283.5	264.8
7	BWB	bank material width	ft	8.0	8.0	8.0
8	TOED	toe-down depth	ft	6.768	8.28	5.118
9	SC	channel slope	ft/ft	0.00220	0.00208	0.00246

TABLE 6-3
Design Parameters for Alternative 2, Trapezoidal Section Model B
(Gabion-Mattress Option)

Item No. (1)	Design Parameters (2)	Parameter Description (3)	Units (4)	REACH No. 1 (5)	REACH No. 2 (6)	REACH No. 3 (7)
1	ZN	bank side slope (ZN:1)	ft/ft	2.00	2.00	2.00
2	MAXDN	flow depth	ft	6.619	6.918	4.775
3	FBR	freeboard	ft	2.049	1.912	1.326
4	HN	channel height	ft	8.668	8.83	6.102
5	W	bottom width	ft	241.335	204.408	209.081
6	T	top width	ft	276.0	239.7	233.5
7	GMW	mattress thickness	inches	1.0	1.0	1.0
8	TOED	toe-down depth	ft	7.495	8.942	5.579
9	SC	channel slope	ft/ft	0.00244	0.00213	0.00251

TABLE 6-4
Design Parameters for Alternative 3, Trapezoidal Section with Sacrificial Cover Model B
(Gabion-Mattress Option)

Item No. (1)	Design Parameters (2)	Parameter Description (3)	Units (4)	REACH No. 1 (5)	REACH No. 2 (6)	REACH No. 3 (7)
1	ZN	bank side slope (ZN:1)	ft/ft	2.00	2.00	2.00
2	ZF	fill side slope	ft/ft	4.00	4.00	4.00
3	MAXDN	flow depth	ft	5.557	4.98	4.372
4	FBR	freeboard	ft	1.858	1.403	1.227
5	HN	channel height	ft	7.415	6.383	5.598
6	W	bottom width	ft	290.0	305.863	220.242
7	T	top width	ft	349.3	356.9	265.0
8	GMW	mattress thickness	inches	1	1	1
9	TOED	toe-down depth	ft	8.299	9.583	6.323
10	SC	channel slope	ft/ft	0.00297	0.00288	0.00295

TABLE 6-5
Design Parameters for Alternative 4, Trapezoidal Section with Bench Model B
(Soil Cement Option)

Item No. (1)	Design Parameters (2)	Parameter Description (3)	Units (4)	REACH No. 1 (5)	REACH No. 2 (6)	REACH No. 3 (7)
1	ZN	bank side slope (ZN:1)	ft/ft	2.00	2.00	2.00
2	MAXDN	flow depth	ft	5.626	5.429	4.089
3	FBR	freeboard	ft	1.72	1.43	1.081
4	HN	channel height	ft	7.343	6.859	5.170
5	W	bottom width	ft	305.000	288.882	260.0
6	T	top width	ft	349.4	331.3	295.7
7	BWB	bank material width	ft	8.00	8.00	8.00
8	TOED	toe-down depth	ft	7.103	8.619	5.304
9	SC	channel slope	ft/ft	0.00261	0.00242	0.00269
10	TH	trail height	ft	2.813	2.714	2.044
11	BO	trail bench width	ft	15	15	15

TABLE 6-6
Design Parameters for Alternative 5, Low-Flow Channel Section Model B (Gabion-Mattress)

Item No. (1)	Design Parameters (2)	Parameter Description (3)	Units (4)	REACH No. 1 (5)	REACH No. 2 (6)	REACH No. 3 (7)
1	ZN	side slope (ZN:1), bank lining	ft/ft	2.00	2.00	2.00
2	MAXDN	flow depth, low-flow channel	Ft	7.153	6.771	5.243
3	MAXDM	flow depth, side channel	Ft	4.025	3.981	2.691
4	FBR	freeboard	Ft	2.302	1.613	1.220
5	HN	channel height, low-flow channel	Ft	9.455	8.384	6.463
6	HM	channel height, side channel	Ft	6.327	5.594	3.911
7	W	bottom width, low-flow channel	Ft	245.000	226.097	200.000
8	WM	bottom width, side channel	Ft	50.0	50.0	50.0
9	T	top width	Ft	345.5	315.2	283.7
10	GMW	mattress thickness	Inches	1.0	1.0	1.0
11	TOED	toe down	Ft	7.401	9.047	5.402
12	SC	channel slope	ft/ft	0.00245	0.00224	0.00254
13	DC	low-flow channel height	Ft	3.129	2.79	2.552
14	ZM	unlined bank side slope (ZM:1)	ft/ft	4.00	3.00	4.00
15	TD	side toe-down depth	Ft	6.00	6.00	6.00
16	TC	side anchor width	Ft	3.00	6.00	3.00

TABLE 6-7
Design Parameters for Alternative 1, Trapezoidal Section Model C (Soil Cement Option)

Item No. (1)	Design Parameters (2)	Parameter Description (3)	Units (4)	REACH No. 1 (5)	REACH No. 2 (6)	REACH No. 3 (7)
1	ZN	bank side slope (ZN:1)	ft/ft	2.0	2.0	2.0
2	MAXDN	flow depth	ft	7.650	6.667	6.011
3	FBR	freeboard	ft	4.550	3.433	1.624
4	HN	channel height	ft	12.200	10.10	7.635
5	W	bottom width	ft	290.0	310.000	169.866
6	T	top width	ft	338.8	350.4	200.4
7	BWB	bank material thickness	ft	8.0	8.0	8.0
8	TOED	toe-down depth	ft	5.266	5.45	4.513
9	SC	channel slope	ft/ft	0.00153	0.00031	0.00158

TABLE 6-8
Design Parameters for Alternative 2, Trapezoidal Section Model C (Gabion-Mattress Option)

Item No. (1)	Design Parameters (2)	Parameter Description (3)	Units (4)	REACH No. 1 (5)	REACH No. 2 (6)	REACH No. 3 (7)
1	ZN	bank side slope (ZN:1)	ft/ft	2.00	2.00	2.00
2	MAXDN	flow depth	ft	6.516	6.599	6.421
3	FBR	freeboard	ft	5.684	3.501	1.722
4	HN	channel height	ft	12.200	10.10	8.143
5	W	bottom width	ft	290.000	310.000	160.000
6	T	top width	ft	338.8	350.4	192.6
7	GMW	mattress thickness	inches	1.0	1.0	1.0
8	TOED	toe-down depth	ft	5.436	5.507	4.225
9	SC	channel slope	ft/ft	0.00167	0.00036	0.00131

TABLE 6-9
Design Parameters for Alternative 3, Trapezoidal Section with Sacrificial Cover Model C (Gabion-Mattress Option)

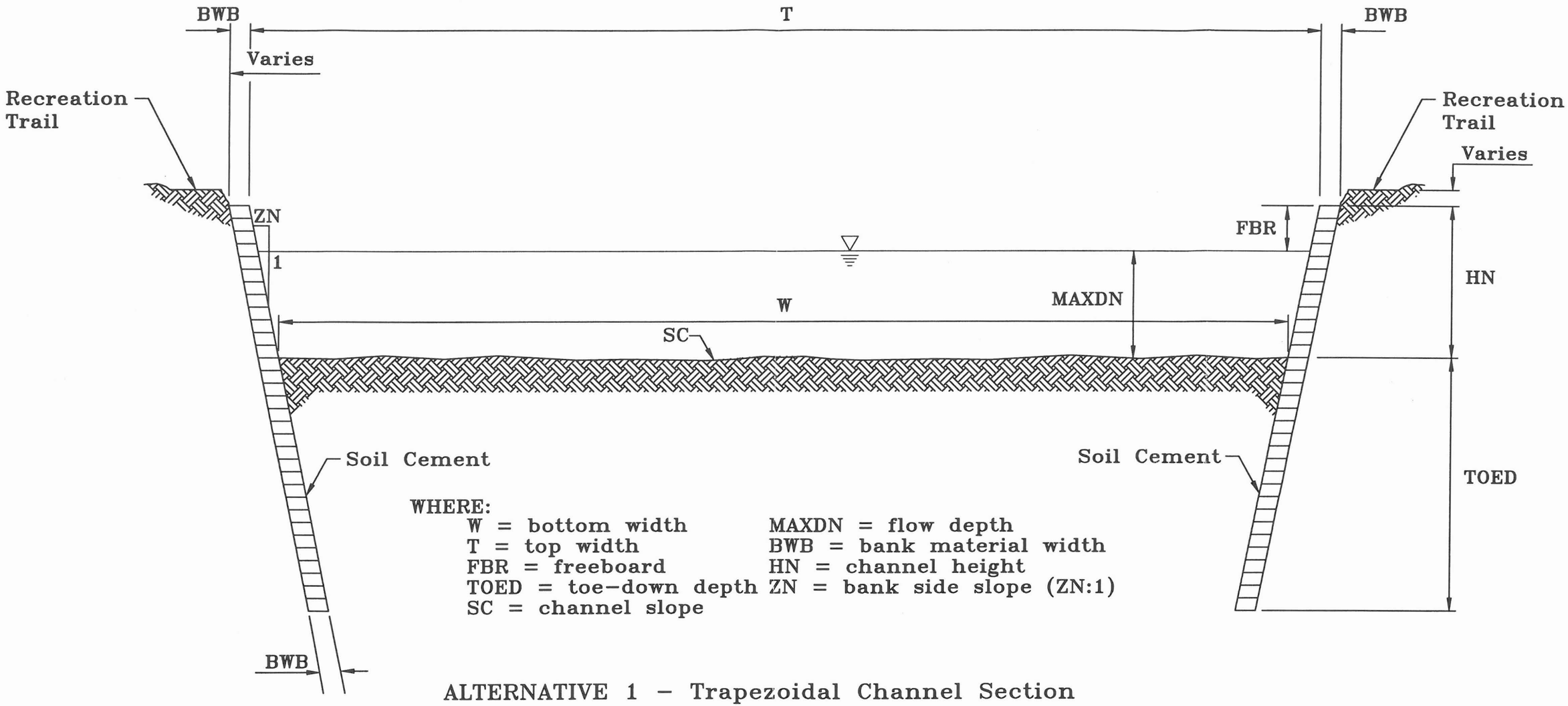
Item No. (1)	Design Parameters (2)	Parameter Description (3)	Units (4)	REACH No. 1 (5)	REACH No. 2 (6)	REACH No. 3 (7)
1	ZN	bank side slope (ZN:1)	ft/ft	2.00	2.00	2.00
2	ZF	fill side slope	ft/ft	4.00	4.00	4.00
3	MAXDN	flow depth	ft	7.678	6.75	5.990
4	FBR	freeboard	ft	4.522	3.352	1.610
5	HN	channel height	ft	12.200	10.100	7.600
6	W	bottom width	ft	239.0	267.600	164.760
7	T	top width	ft	336.6	348.4	225.6
8	GMW	mattress thickness	inches	1	1	1
9	TOED	toe-down depth	ft	4.781	6.191	4.576
10	SC	channel slope	ft/ft	0.00110	0.00085	0.00159

TABLE 6-10
Design Parameters for Alternative 4, Trapezoidal Section with Bench Model C (Soil Cement Option)

Item No. (1)	Design Parameters (2)	Parameter Description (3)	Units (4)	REACH No. 1 (5)	REACH No. 2 (6)	REACH No. 3 (7)
1	ZN	bank side slope (ZN:1)	ft/ft	2.00	2.00	2.00
2	MAXDN	flow depth	ft	9.606	8.137	6.107
3	FBR	freeboard	ft	2.59	1.96	1.493
4	HN	channel height	ft	12.200	10.100	7.600
5	W	bottom width	ft	161.744	202.976	164.5
6	T	top width	ft	225.5	258.4	209.9
7	BWB	bank material thickness	ft	8.00	8.00	8.00
8	TOED	toe-down depth	ft	5.577	6.180	4.485
9	SC	channel slope	ft/ft	0.00120	0.00071	0.00153
10	TH	trail height	ft	4.803	4.068	3.053
11	BO	trail bench width	ft	15	15	15

TABLE 6-11
Design Parameters for Alternative 5, Low-Flow Channel Section Model C (Gabion-Mattress)

Item No. (1)	Design Parameters (2)	Parameter Description (3)	Units (4)	REACH No. 1 (5)	REACH No. 2 (6)	REACH No. 3 (7)
1	ZN	side slope (ZN:1), bank lining	ft/ft	2.00	2.00	2.00
2	MAXDN	flow depth, low-flow channel	ft	9.355	8.734	6.267
3	MAXDM	flow depth, side channel	ft	4.996	4.386	2.924
4	FBR	freeboard	ft	2.845	1.908	1.333
5	HN	channel height, low-flow channel	ft	12.200	10.642	7.600
6	HM	channel height, side channel	ft	7.841	6.294	4.257
7	W	bottom width, low-flow channel	ft	192.950	195.430	150.000
8	WM	bottom width, side channel	ft	50.0	50.0	50.0
9	T	top width	ft	307.4	300.6	238.9
10	GMW	mattress thickness	inches	1.0	1.0	1.0
11	TOED	toe down	ft	5.176	7.001	7.938
12	SC	channel slope	ft/ft	0.00130	0.00112	0.00300
13	DC	low-flow channel height	ft	4.359	4.35	3.343
14	ZM	unlined bank side slope (ZM:1)	ft/ft	4.00	4.00	4.00
15	TD	side toe-down depth	ft	6.00	6.00	6.00
16	TC	side anchor width	ft	3.00	3.00	3.00



WHERE:

W = bottom width	MAXDN = flow depth
T = top width	BWB = bank material width
FBR = freeboard	HN = channel height
TOED = toe-down depth	ZN = bank side slope (ZN:1)
SC = channel slope	

ALTERNATIVE 1 – Trapezoidal Channel Section
(Soil Cement Option)

Stantec

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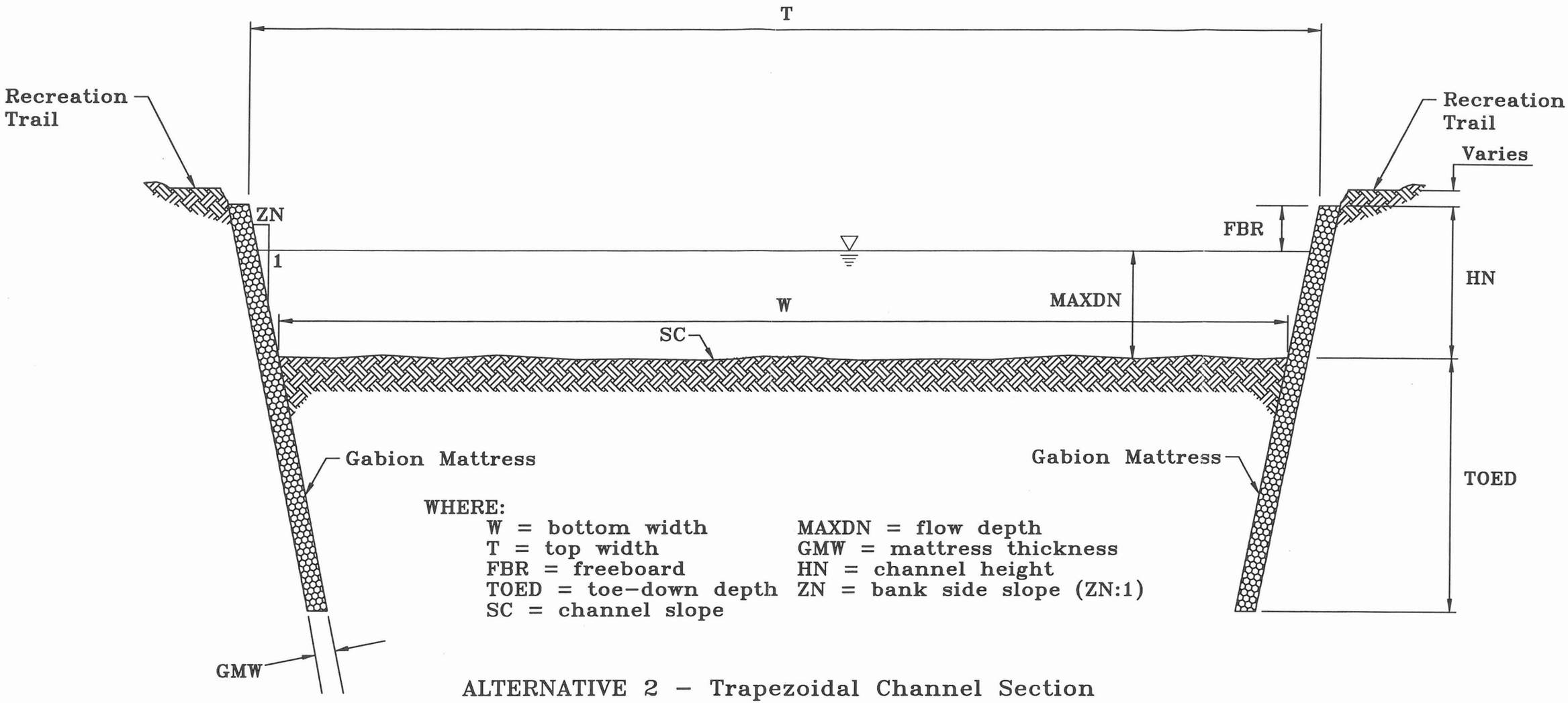
Client/Project
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
MIIDLE NEW RIVER WATERCOURSE
MASTER PLAN

Figure No.
6-28

Title
Channel Parameter Description
Alternative 1
Date: February 26, 1999
Project Number: 28900058



WHERE:

W = bottom width	MAXDN = flow depth
T = top width	GMW = mattress thickness
FBR = freeboard	HN = channel height
TOED = toe-down depth	ZN = bank side slope (ZN:1)
SC = channel slope	

ALTERNATIVE 2 – Trapezoidal Channel Section
(Gabion-Mattress Option)

Stantec

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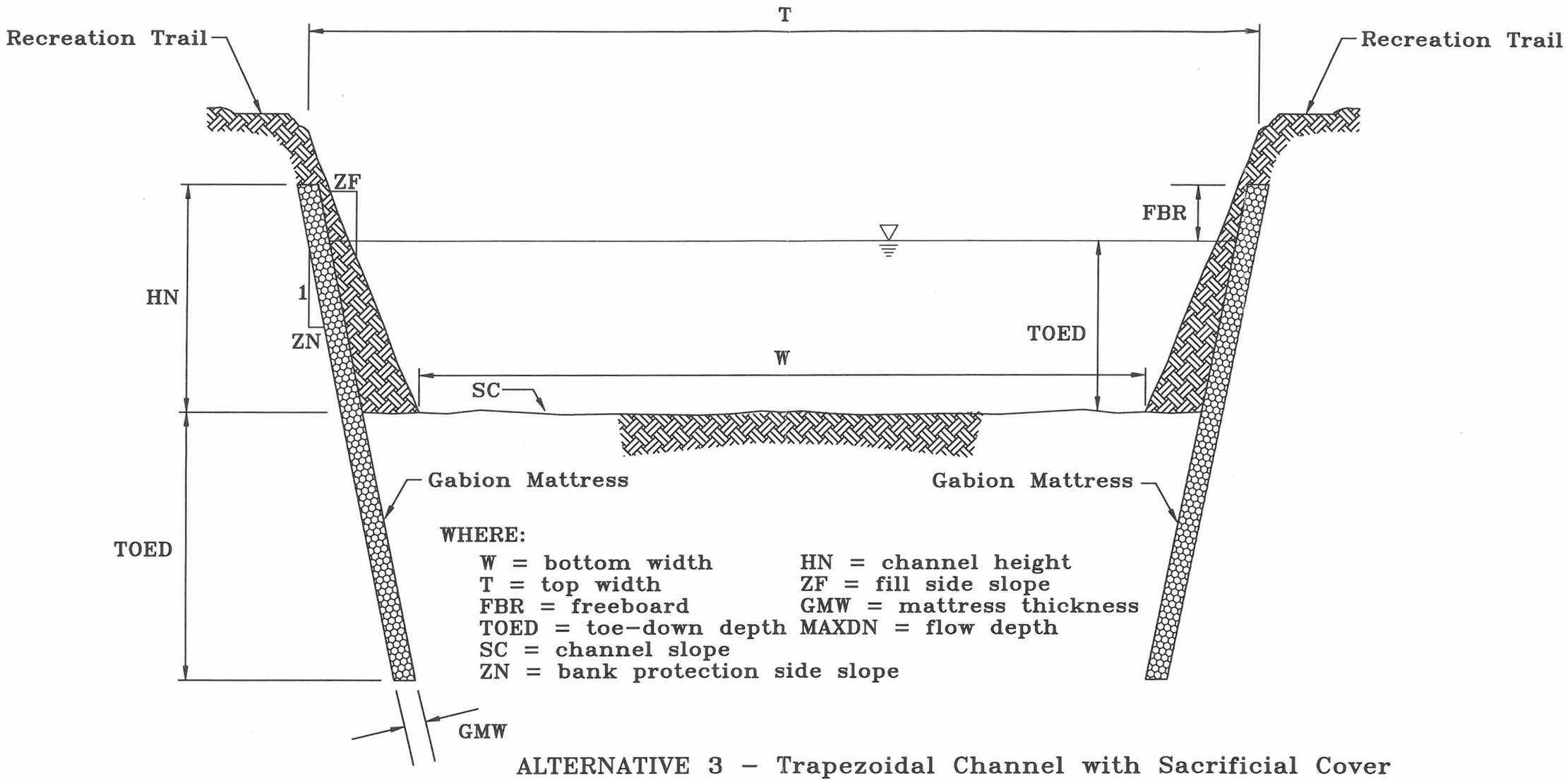
Client/Project
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
MIDDLE NEW RIVER WATERCOURSE
MASTER PLAN

Figure No.
6-29

Title
Channel Parameter Description
Alternative 2

Date: February 26, 1999
Project Number: 28900058



ALTERNATIVE 3 – Trapezoidal Channel with Sacrificial Cover
(Gabion-Mattress)

Stantec

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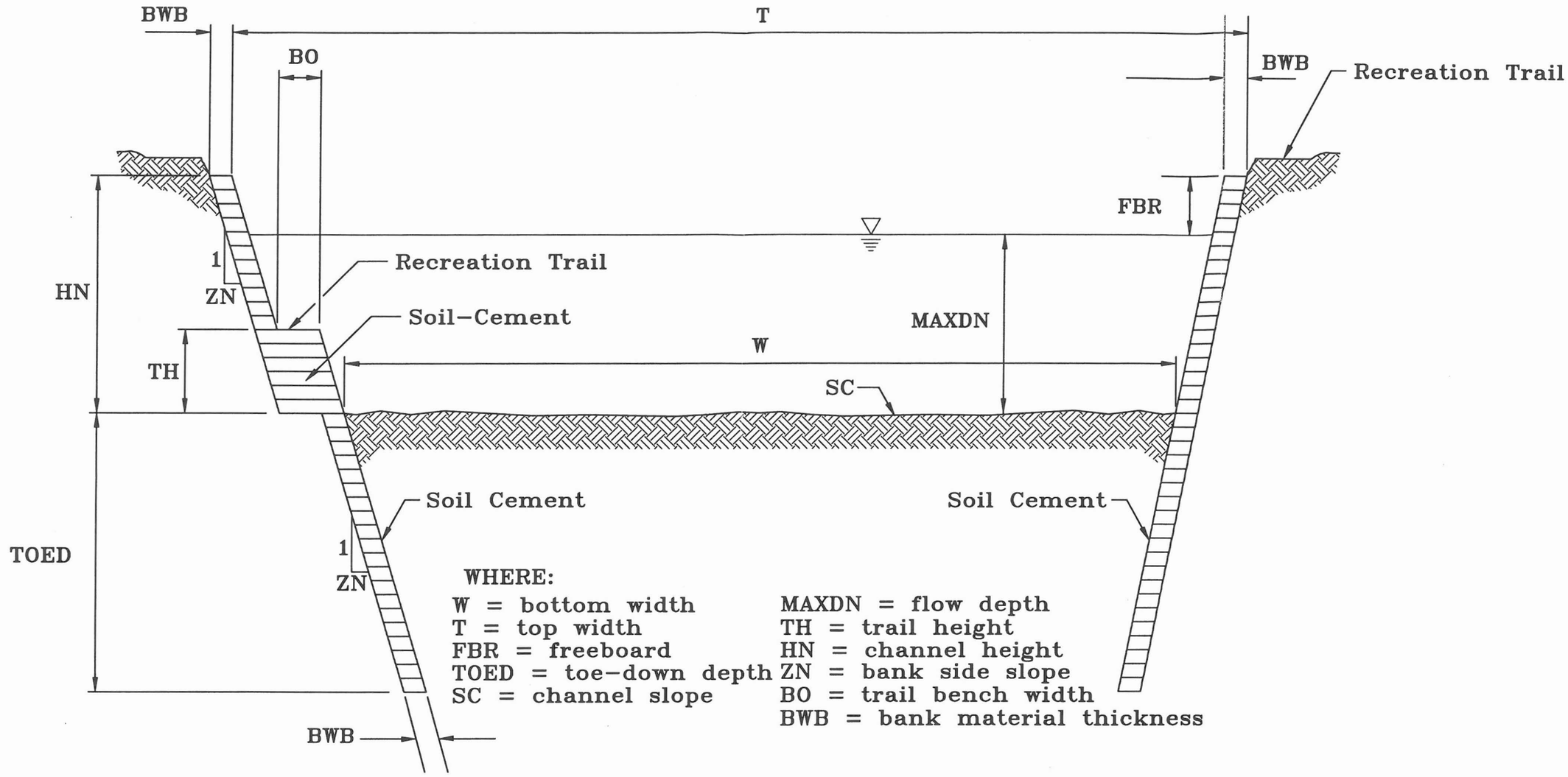
Client/Project
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
MIDDLE NEW RIVER WATERCOURSE
MASTER PLAN

Figure No.
6-30

Title
Channel Parameter Description
Alternative 3
Date: February 26, 1999
Project Number: 28900058



ALTERNATIVE NO. 4 – Trapezoidal Channel w/Trails Bench
(Soil Cement)

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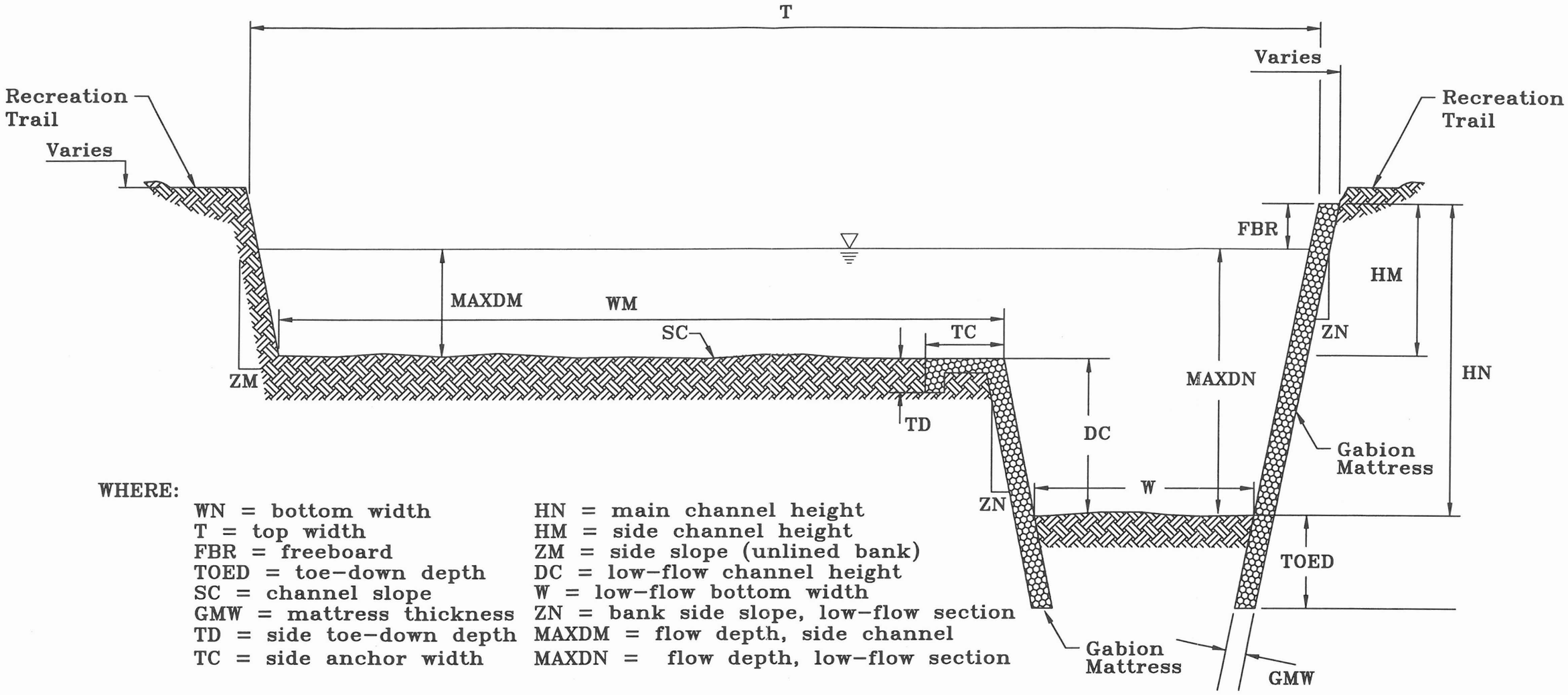
Client/Project
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
MIDDLE NEW RIVER WATERCOURSE
MASTER PLAN

Figure No.
6-31

Title
Channel Parameter Description
Alternative 4
Date: February 26, 1999
Project Number: 28900058



WHERE:

WN = bottom width	HN = main channel height
T = top width	HM = side channel height
FBR = freeboard	ZM = side slope (unlined bank)
TOED = toe-down depth	DC = low-flow channel height
SC = channel slope	W = low-flow bottom width
GMW = mattress thickness	ZN = bank side slope, low-flow section
TD = side toe-down depth	MAXDM = flow depth, side channel
TC = side anchor width	MAXDN = flow depth, low-flow section

ALTERNATIVE 5 - Low-Flow Channel Section
(Gabion-Mattress)

Stantec

P:\28900058\ACADR13\DWGS\FIGURES

Client/Project
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
MIDDLE NEW RIVER WATERCOURSE
MASTER PLAN

Figure No.
6-32

Title
Channel Parameter Description
Alternative 5
Date: February 26, 1999
Project Number: 28900058

6.4 PREFERRED ALTERNATIVE SELECTION

Selection of a preferred, comprehensive channel improvement alternative for Middle New River involved consideration by the Steering Committee members of the various alternative evaluation parameters. Some of these quantitative and qualitative parameters include: existing and future hydrology and hydraulics of the river, public comments, safety and aesthetics, social and environmental impacts, advantages and disadvantages, construction cost, existing infrastructure (bank armoring and bridges), and practicality of implementation

6.4.1 Steering Committee and Public Input

Proposed alternatives and associated cost estimates are presented to the Steering Committee and public to obtain input to the selection of a preferred alternative. Comments obtained from the general public from two public meetings held, primarily pertained to recreational and safety issues associated with recreational trails. Recreational trails are only a component of this study to a degree that accesses for trails are accommodated into the Master Plan alternatives. Specific details concerning trial amenities and safety will be addressed by the Cities of Glendale and Peoria in other projects. A summary of public comments is located in Appendix E. Comments about the typical cross-sections presented to define each alternative generally lend themselves to the following themes:

1. The use of native shrubs for landscaping is good.
2. Provide a buffer zone between trail and residences. Keep trail away from residences.
3. For Alternatives 1 and 2, a sidewalk on top of the bank is not desirable.
4. The gentler slope depicted for the landscaped enhanced area in Alternative 3 is desirable.
5. The trail bench depicted in Alternative 4 is desirable, however, the cost is not. For some the trail would be more desirable if it was located on the east side of the channel.
6. Appearance of Alternative 4 is sterile.
7. A combination of Alternatives 3 and 5 and Alternatives 3 and 4 is desirable.

8. Trees should not be located close to adjacent property.

9. Guardrail should be considered along both banks for Alternative 5.

10. Low flow channel depicted in Alternative 5 should be bridged.

11. Alternative 6 was listed as a favorite.

6.4.2 Alternatives' Cost Estimates

Preliminary estimates of probable construction cost are prepared for each alternative. Cost estimates are used as an aid in the selection process of a preferred alternative. Quantities are calculated for earthwork (channel excavation and/or fill or back fill) volume of bank armoring material required, volume of drop structure material required and re-vegetation (landscape treatment) if applicable, for each alternative. Spread sheets are developed to refine quantities estimated determined with the GAMS models.

Unit costs were compiled form a Stantec database, including bid tabs for the City of Phoenix, the City of Scottsdale and the Arizona Department of Transportation construction projects for 1998. Table 6-12 lists a summary of unit cost utilized to determine cost estimates for each alternative.

TABLE 6-12
SUMMARY OF UNIT COST

Item	Unit	Cost
Earth Work	Cubic Yards (cy)	$3.00/cy
Soil Cement	Cubic Yards (cy)	$35.00/cy
Roller Compacted Cement	Cubic Yards (cy)	$50.00/cy
Gabion Mattress	Cubic Yards (cy)	$70.00/cy
Revegetation and Irrigation	Square Foot (sf)	$1.50/sf

Given the level of design (design concept) of the proposed alternatives, a cost contingency is applied to account for design details that is not undertaken at this stage. Contingency cost is estimated at 15 percent of the cost of the proposed channel improvements. Contingency cost also includes relocation of utilities.

Cost estimates developed for each alternative reflect the proposed channel elements over the length of a given reach. However, channel elements (slope, bottom width and depth) may vary within in a given reach at the time of final engineering design. Cost estimates will be further refined for the selected alternative to account for

varying channel elements. Table 6-13 lists cost estimates for the proposed alternatives.

TABLE 6-13
PROJECT COST PER MILE

Alternative No. 1	Decription of Alternatives (Bank Material) 2	Cost Per Mile In Millions Of Dollars		
		Reach # 1 ($/mile) 3	Reach # 2 ($/mile) 4	Reach # 3 ($/mile) 5
1	Trapezoidal Channel (Soil Cement Option)	$3.24M	$4.20M	$2.68M
2	Trapezoidal Channel (Gabion-Mattress Option)	$2.45M	$3.39M	$1.75M
3	Landscape Enhanced Trapezoidal Channel (Gabion-Mattress)	$4.53M	$4.08M	$2.85M
4	Benched Trapezoidal Channel (Soil Cement)	$4.12M	$4.44M	$3.52M
5	Low-Flow Channel (Gabion Mattress)	$2.34M	$2.72M	$1.99M

6.4.3 Advantages and Disadvantages

Each preliminary channel alternatives have advantages and disadvantages. Table 6-14 lists and initial evaluation of each alternative.

TABLE 6-14
Summary of Alternatives Advantages and Disadvantages

ALTERNATIVE	ADVANTAGES	DISADVANTAGES
Alternative 1 (Soil Cement Bank Armoring)	• 100-year peak discharges conveyed within floodway limits. • Low maintenance. • Long life cycle	• Expensive option relative to other alternatives. • Type of armoring is only consistent with existing armoring types at specific locations below Bell Road. • Armoring type precludes vegetation growth on channel side slopes.

TABLE 6-14 (cont.)
Summary of Alternatives Advantages and Disadvantages

ALTERNATIVE	ADVANTAGES	DISADVANTAGES
Alternative 2 (Gabion Mattress Bank Armoring)	• 100-year peak discharges conveyed within floodway limits. • Low maintenance relative to Alternative 3. • Type of proposed armoring is consistent with existing channel side slope armoring. • Growth of natural volunteer vegetation will not be prevented along channel side slopes. • One of the least costly alternatives.	• Precludes a benched trail as displayed in Alternative 4.
Alternative 3 (Gabion Mattress Bank Armoring with Landscape Enhancement).	• 100-year peak discharges conveyed within floodway limits. • Provides unique opportunities for landscape enhancement of channel side slopes.	• Expensive relative to other alternatives. • High maintenance relative to other alternatives.
Alternative 4 (Trail Bench)	• 100-year peak discharges conveyed within floodway limits. • Low maintenance relative to Alternative 3. • Good alternative for transitioning a trail form top of bank to channel bottom.	• Most expensive option relative to other alternatives. • Type of armoring is only consistent with existing armoring types at specific locations below Bell Road. • Armoring type precludes vegetation growth on channel side slopes.
Alternative 5 (low Flow channel Section)	• 100-year peak discharges conveyed within floodway limits. • Provides unique opportunities for landscape enhancement of overbank areas. • One of the least costly alternatives however landscape enhancement costs have not been included in cost estimates. • Type of proposed armoring is consistent with existing. channel side slope armoring. • Growth of natural volunteer vegetation will not be prevented along channel side slopes.	• Precludes a benched trail as displayed in Alternative 4. • Maintenance cost in overbank areas could be costly. • Providing a dry crossing over the low flow channel would be expensive and would reduce hydraulic capacity of channel during high flow runoff events.
Alternative 6 (Non Structural)	• Maintains natural channel appearance.	• Floodplain fringe is not developable. • Unknown long term maintenance costs.

6.4.4 Preferred Alternative Selection

Public interest and comments for the project have been positive. However, no clear understanding of a "preferred" alternative was gained from the public regarding a structural channel type. Five viable structural channel alternatives were presented. During one-on-one discussions with the public at the meetings, people tended to have an individual prioritization and preference with regard to the channel alternatives presented. However, when presented with cost and other factors in in-depth discussions, some tended to modify their understanding and adjust their initial preferences. Utilization of existing bank armoring versus the cost for constructing entirely new bank armoring weighed heavily in considering the alternatives within Reach 1 and Reach 2. A large investment has been made in the existing bank armoring that for the most part presently conveys the 100-year peak discharges that FEMA has established for New River. Also, viable alternatives for these two reaches are structural so one would only be changing the material type. The majority of existing bank armoring is rock filled wire baskets.

Non-structural flood protection, by way of establishing an erosion setback buffer zone along the 100-year floodplain, was a popular alternative amongst the Steering Committee and the public alike. However, because of the rapid pace of development within Reach 1 and Reach 2, it was determined that a non-structural alternative was only viable in Reach 3 (north of Pinnacle Peak Road).

One thing is clear from the public meetings; safety, property and access issues related to the potential provision of paths and trails along the River's bank raised concern. While this Watercourse Master Plan accommodates paths and trails, it was relayed to the public that paths and trails would be implemented by the Cities of Glendale and Peoria in the future as part of recreation oriented projects.

The Watercourse Master Plan Preferred Alternative includes the following:

- Reach 1 and Reach 2 (Skunk Creek Confluence to Pinnacle Peak Road) – New channel bank improvements will consist of, rock filled wire baskets for new bank armoring being proposed. The plan utilizes as much of the existing bank armoring as possible. It evaluates and protects existing bridges at Bell Road and Union Hills Road.

- Reach 3 (Pinnacle Peak Road to New River Dam) – Non-structural approach utilizing an erosion setback buffer zone along the 100-year floodplain. (Except approximately 700 lineal foot section of new back armoring near Terramar subdivision.)

6.5 PREFERRED ALTERNATIVE

Table 6-15 lists a summary of proposed improvements depicted on the plans. Improvements summarized in the table are categorized in Improvement Segments with each segment being defined by the type and extent of the improvement. Master Plan improvements are limited to channel improvements only. Earthwork for channel improvements was estimated using a computer model. Development improvements necessary to property adjacent to the channel were not evaluated. At locations where the proposed channel banks are to be filled, banks are set with a fifteen foot top width, 2:1 (horizontal/vertical) slope on the channel side and a 4:1 side slopes on the overbank side to tie to existing ground. It is inferred that the overbank area will be reclaimed in the future by fill for development purposes.

TABLE 6-15

PROPOSED IMPROVEMENT SUMMARY

Improvement Segment	Station (along construction line)	Proposed Improvements
1	26+30 to 55+00	Realign and grade east bank, provide rock filled wire armoring. Minor earthwork within channel.

TABLE 6-15, (cont.)

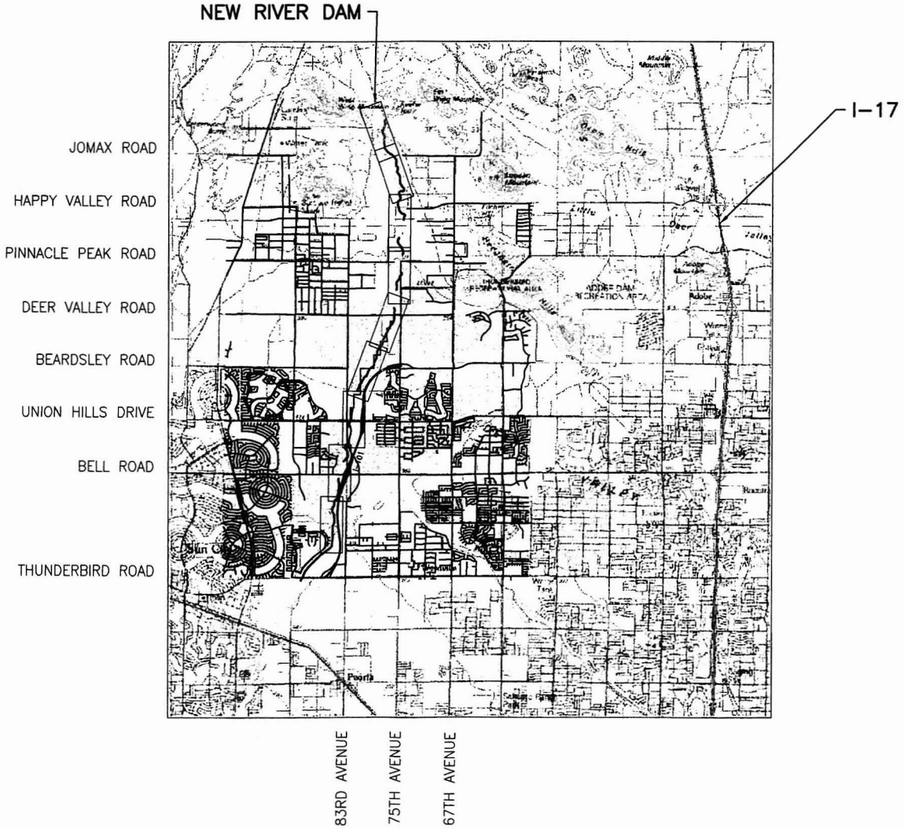
PROPOSED IMPROVEMENT SUMMARY

Improvement Segment	Station (along construction line)	Proposed Improvements
2	61+50 to 69+50	Realign and grade west bank, provide rock filled wire armoring. Minor earthwork within channel.
3	78+50 to 86+50	Realign and grade east bank, provide rock filled wire armoring. Minor earthwork within channel.
4	88+50 to 140+90	Realign and grade east bank, provide rock filled wire armoring. Minor earthwork within channel from stations 88+50 to 109+00. Channel excavation from stations 109+00 to 133+00 and 136+00 to 140+90. Provide grade control structure and river bottom access /maintenance ramp at Station 133+00.
5	144+80 to 159+500	Realign and grade west bank, provide rock filled wire armoring. Minor earthwork within channel.
6	159+50 to 314+00	Realign and grade east and west bank, provide rock filled wire armoring, excavate channel. Provide grade control structure and river bottom access /maintenance ramp at Stations258+18 and 311+00.
7	314+00 to 460+00	Erosion setback limits are utilized to define development limits. Some minor channelization and/or bank armoring at bend locations in the channel are proposed. Approximately 700lf of bank armoring near Terramar subdivision. The need for grade control structures at proposed roadway crossings of New River would need to be evaluated in the future.

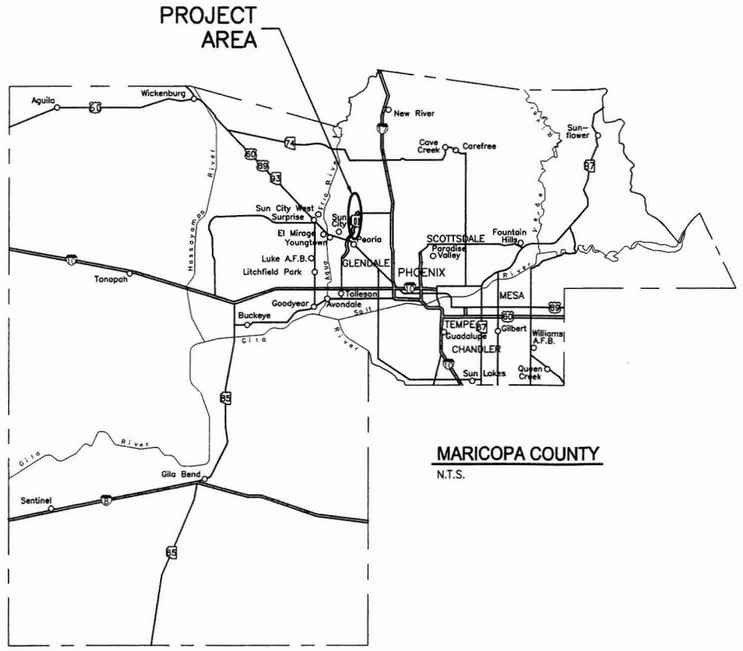
Conceptual construction plans depicting the preferred alternative for each reach are prepared at a scale of 1"=200'. The purpose of the plans are present the intent of the proposed improvements and to aid in the development of construction cost estimates for improvements. Location of existing channel features and proposed improvements depicted on the conceptual construction plans are approximate and are referenced to a construction line. The Conceptual Construction Plans for the Middle New River Watercourse Master Plan improvements are presented as Plan and Profile Sheets 1 through 23.

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

CONCEPTUAL PLANS FOR THE MIDDLE NEW RIVER WATERCOURSE MASTER PLAN IMPROVEMENTS



LOCATION PLAN - GLENDALE/PEORIA, AZ.
MIDDLE NEW RIVER AND SKUNK CREEK
N.T.S.



MARICOPA COUNTY
N.T.S.

THE MIDDLE NEW RIVER WATERCOURSE MASTER PLAN ACCOMODATES RECREATIONAL TRAILS.
FOR A DESCRIPTION AND LOCATION OF RECREATIONAL TRAILS OR MULTI-USE TRAILS, CONTACT THE PLANNING DEPARTMENTS FOR THE CITIES OF PEORIA AND GLENDALE

PRELIMINARY PLAN
NOT FOR CONSTRUCTION OR RECORDING
ARIZONA TECH. BOARD OF REGISTRATION R4-30-304

Stantec Consulting Inc.
7776 POINTE PARKWAY W, STE 290
Phoenix AZ 85044 U.S.A.
Tel. 602.438.2200
Fax. 602.431.9562
www.stantec.com

MARICOPA COUNTY FLOOD CONTROL DISTRICT

ISSUED FOR PUBLIC BIDDING BY:

N/A — PROJECT MANAGER
N/A — DATE

COUNTY BOARD OF SUPERVISORS

JIM BRUNER - CHAIRMAN

DISTRICT 1	FULTON BROCK
DISTRICT 2	DON STAPLEY
DISTRICT 3	ANDREW KUMASEK
DISTRICT 4	JANICE BREWER
DISTRICT 5	MARY ROSE WILCOX

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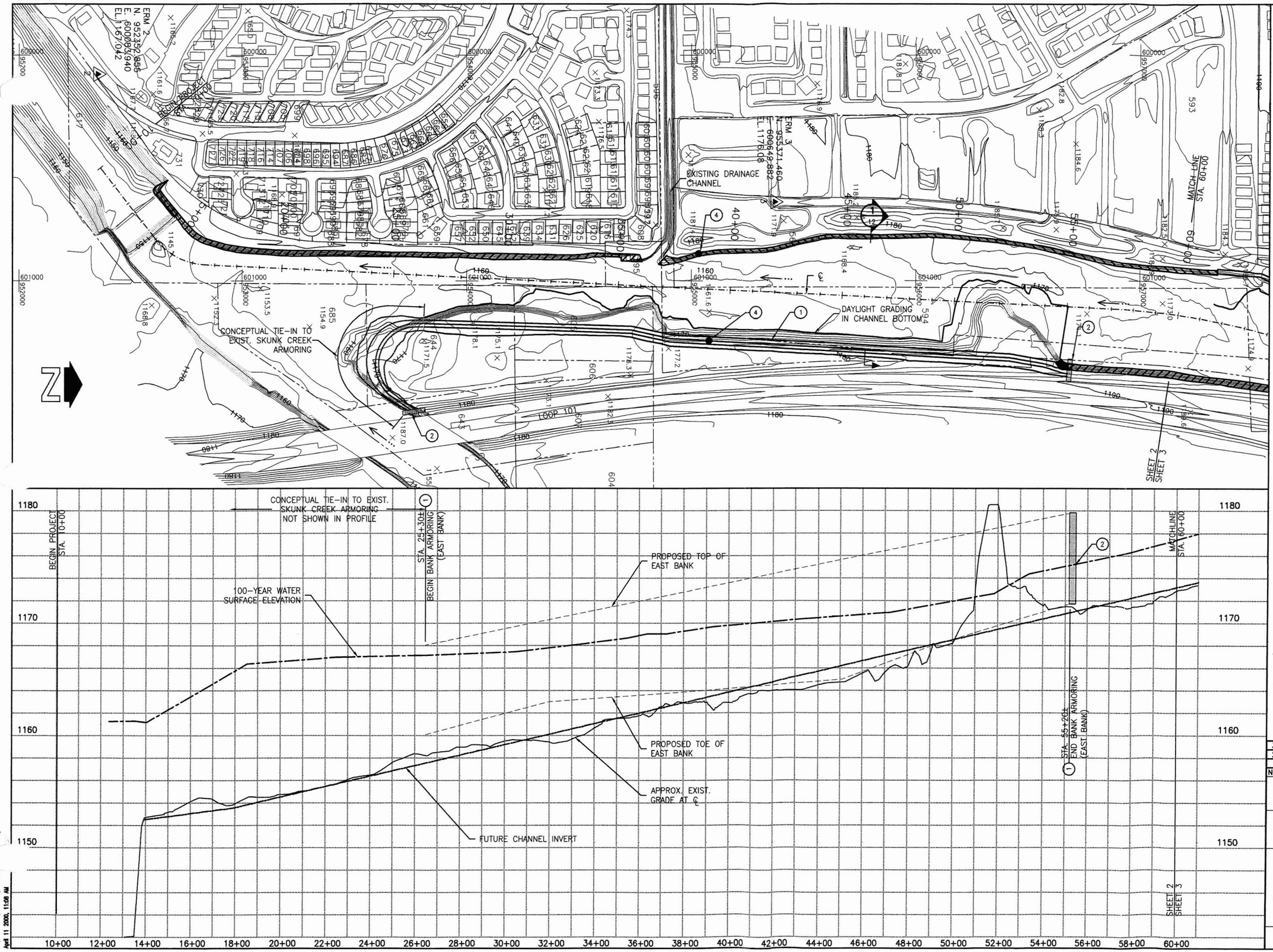

CONSTRUCTION NOTES

1. PROVIDE ROCK FILLED WIRE BASKETS TYPE BANK PROTECTION ON GRADED CHANNEL SLOPES.
2. TIE INTO EXISTING BANK PROTECTION. SIDE SLOPE TRANSITION MAY BE REQUIRED.
3. PROVIDE RCC STEPPED DROP STRUCTURE WITH RIP-RAP INLET/OUTLET PROTECTION.
4. PROVIDE CHANNEL ACCESS RAMP PER DETAIL (LOCATION APPROXIMATE) 2/13.
5. EXCAVATE CHANNEL BOTTOM.
6. MATCH EXISTING CHANNEL INVERT ELEVATION.
7. ALIGNMENT OF LOW FLOW CHANNEL TO MINIMIZE BANK EROSION.
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12. PROPOSED GABION EMBANKMENT (BY OTHERS).
13. PROVIDE COLLECTOR CHANNEL.

LEGEND

- EROSION SETBACK
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- TIE-IN TO EXISTING SLOPE CONDITIONS SEE (2).
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- EXISTING UTILITY POLE.
- FLOW DIRECTION

200' 0' 200' 400'

CONTOUR INTERVAL:2 FEET

NO.	REVISION	BY	DATE
3			
2	RED LINE CORRECTIONS	P.J.E.	04/10/00
1	RED LINE CORRECTIONS	P.J.E.	01/10/00

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

MIDDLE NEW RIVER WATERCOURSE MASTER PLAN
PROJECT NO. 28900058

	BY	DATE
DESIGNED	P.J.E./C.A.S.	05/21/99
DRAWN	P.W./P.R.	05/21/99
CHECKED	S.S.S./P.J.E.	05/21/99

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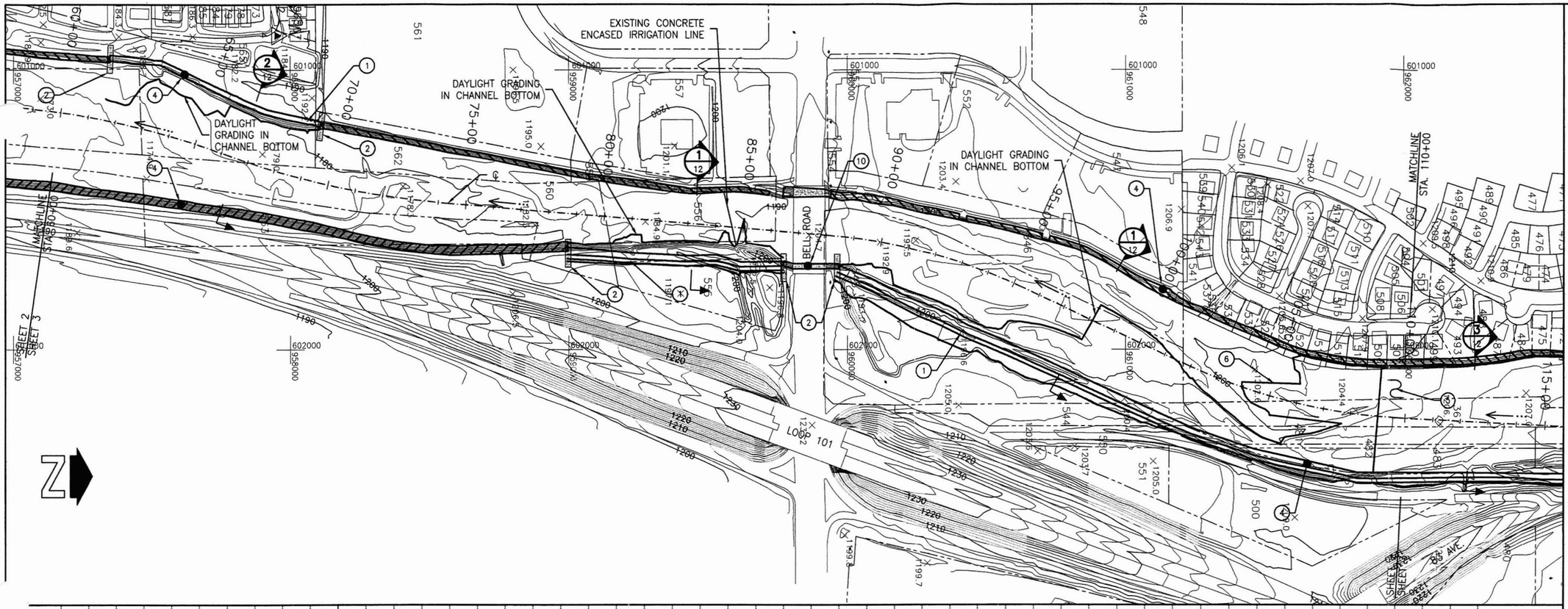

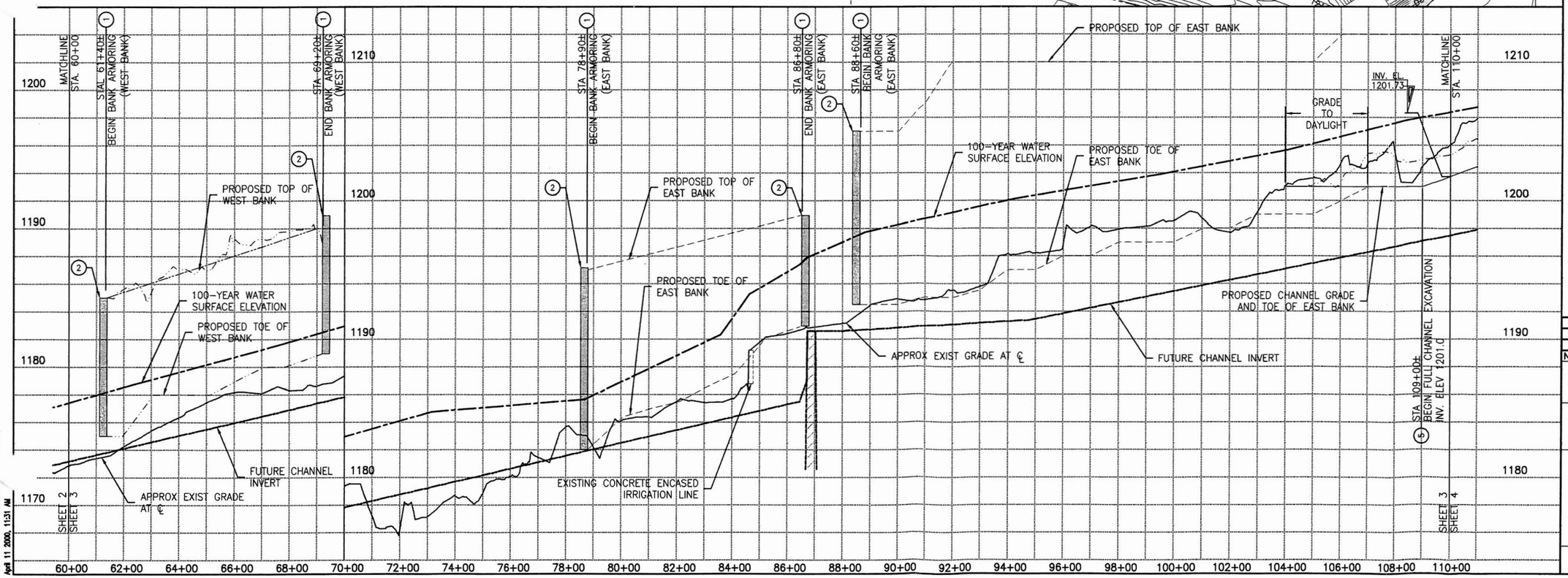

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200' 0' 200' 400'

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CONSTRUCTION NOTES

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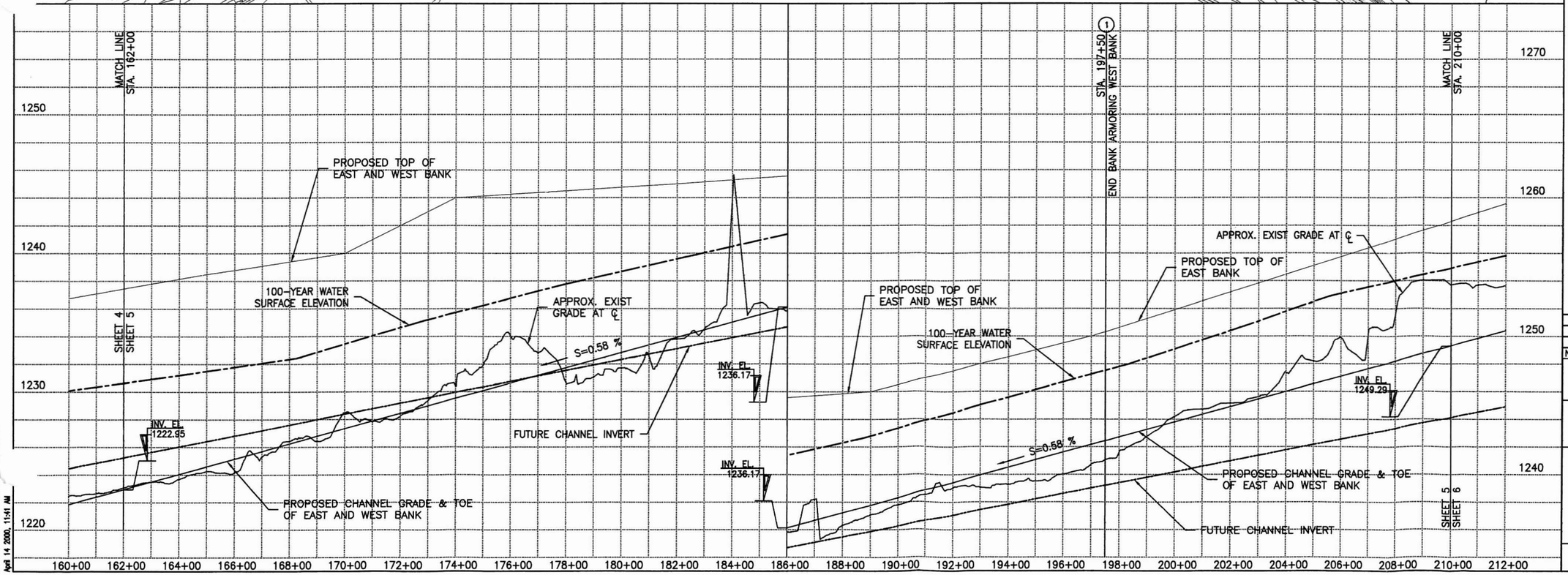

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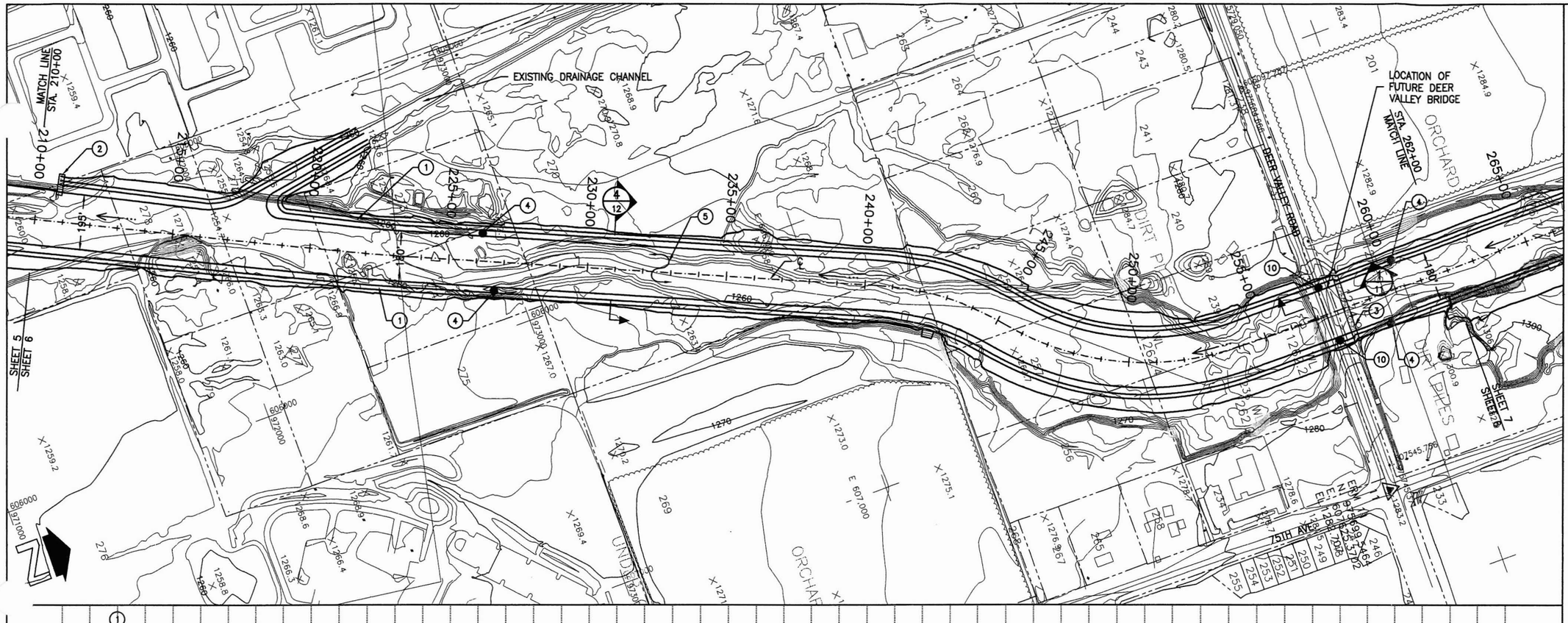

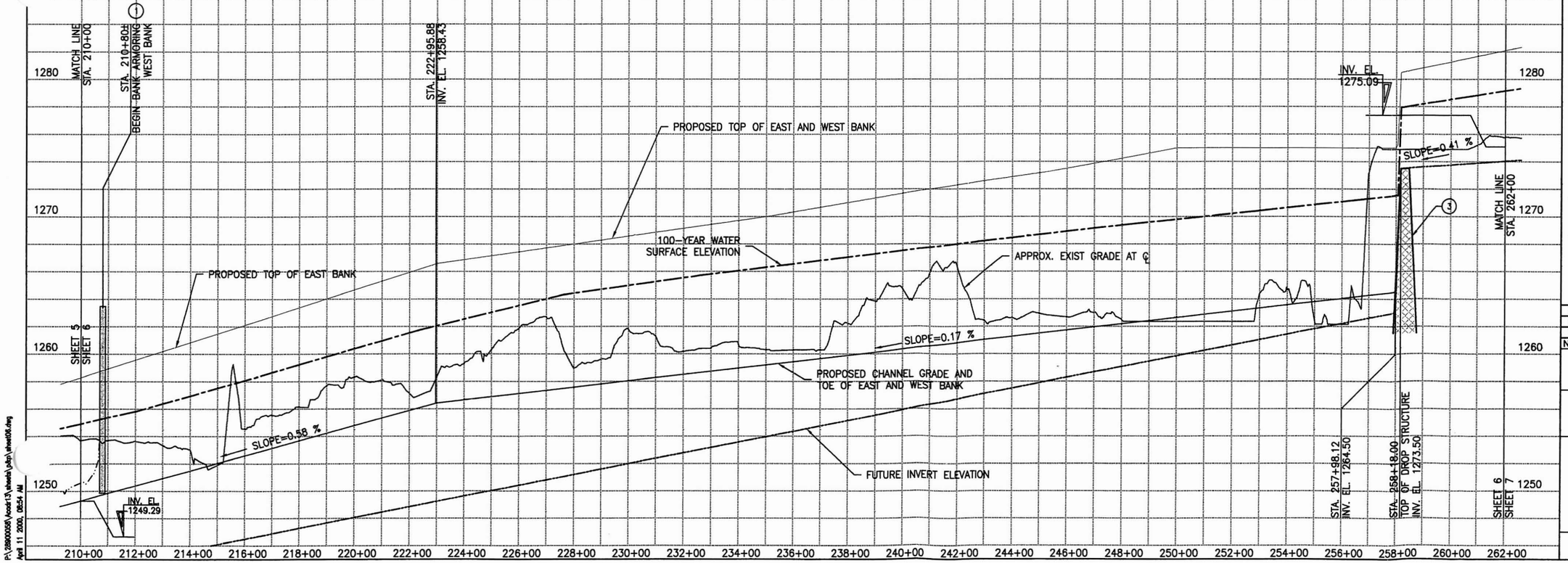

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PLAN AND PROFILE
STA. 210+00 TO 262+00

SHEET OF 6 23

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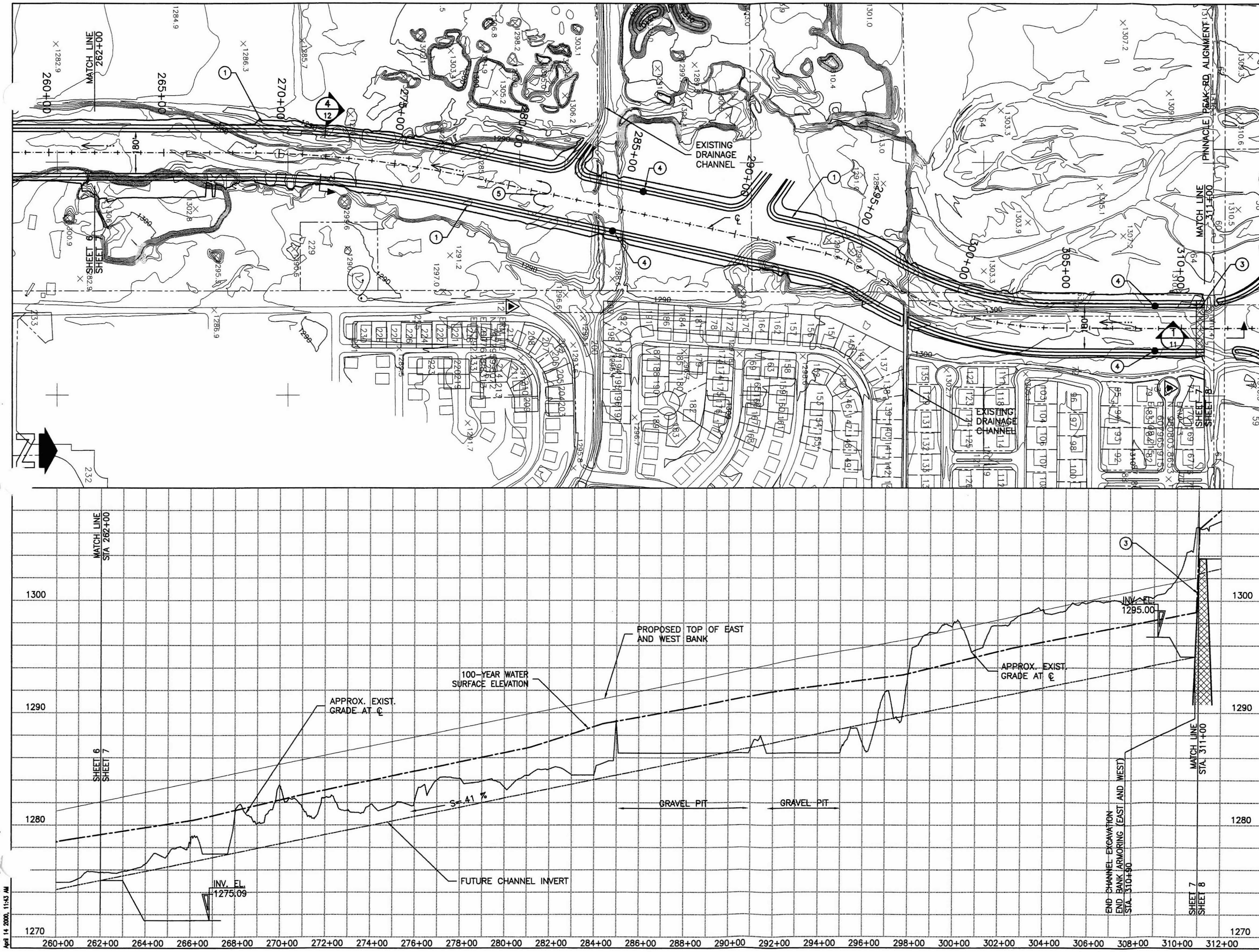

CONSTRUCTION NOTES

1. PROVIDE ROCK FILLED WIRE BASKETS TYPE BANK PROTECTION ON GRADED CHANNEL SLOPES.
2. TIE INTO EXISTING BANK PROTECTION. SIDE SLOPE TRANSITION MAY BE REQUIRED.
3. PROVIDE RCC STEPPED DROP STRUCTURE WITH RIP-RAP INLET/OUTLET PROTECTION.
4. PROVIDE CHANNEL ACCESS RAMP PER DETAIL (LOCATION APPROXIMATE) 2/13.
5. EXCAVATE CHANNEL BOTTOM.
6. MATCH EXISTING CHANNEL INVERT ELEVATION.
7. ALIGNMENT OF LOW FLOW CHANNEL TO MINIMIZE BANK EROSION.
8. RE-GRADE AND PROVIDE NATIVE VEGETATION. FINISH GRADING AND VEGETATION SHOULD APPEAR NATURAL.
9. EROSION SETBACK LIMITS. FOR CHANNEL SEGMENTS WITH OBVIOUS BENDS EROSION SETBACK IS EQUAL TO 2.5 TIMES THE VALUE CALCULATED FOR RELATIVELY STRAIGHT CHANNEL REACHES.
10. PROVIDE MULTI-USE TRAIL CROSSING AT BRIDGES PER DETAIL 1/13.
11. PROPOSED FLOOD WALL OR CONCRETE WALL (BY OTHERS).
12. PROPOSED GABION EMBANKMENT (BY OTHERS).
13. PROVIDE COLLECTOR CHANNEL.

LEGEND

- EROSION SETBACK
- EXISTING SOIL CEMENT BANK ARMORING.
- EXISTING ROCK FILLED WIRE TIED MATTRESS TYPE ARMORING.
- EXISTING CONCRETE ARMORING.
- TIE-IN TO EXISTING SLOPE CONDITIONS SEE (2).
- PROPOSED RCC STEPPED DROP STRUCTURE. SEE (3).
- EXISTING DUMPED RIP-RAP.
- AREA OF REGRADING AND REVEGETATION.
- PROPERTY LINE (LOCATION APPROXIMATE)
- EXISTING UTILITY POLE.
- FLOW DIRECTION

200' 0' 200' 400'

CONTOUR INTERVAL:2 FEET

NO.	REVISION	BY	DATE
3			
2	RED LINE CORRECTIONS	P.J.E.	04/10/00
1	RED LINE CORRECTIONS	P.J.E.	01/10/00

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

MIDDLE NEW RIVER WATERCOURSE MASTER PLAN
PROJECT NO. 28900058

PRELIMINARY NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	P.J.E./C.A.S.	05/21/99
DRAWN	P.W./P.R.	05/21/99
CHECKED	S.S.S./P.J.E.	05/21/99

Stantec

PLAN AND PROFILE
STA. 262+00 TO 311+00

SHEET 7 OF 23

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April 14 2000, 11:43 AM

CONSTRUCTION NOTES

1. PROVIDE ROCK FILLED WIRE BASKETS TYPE BANK PROTECTION ON GRADED CHANNEL SLOPES.
2. TIE INTO EXISTING BANK PROTECTION. SIDE SLOPE TRANSITION MAY BE REQUIRED.
3. PROVIDE RCC STEPPED DROP STRUCTURE WITH RIP-RAP INLET/OUTLET PROTECTION.
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LEGEND

- EROSION SETBACK
- EXISTING SOIL CEMENT BANK ARMORING.
- EXISTING ROCK FILLED WIRE TIED MATTRESS TYPE ARMORING.
- EXISTING CONCRETE ARMORING.
- TIE-IN TO EXISTING SLOPE CONDITIONS SEE (2).
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- EXISTING DUMPED RIP-RAP.
- AREA OF REGRADING AND REVEGETATION.
- PROPERTY LINE (LOCATION APPROXIMATE)
- EXISTING UTILITY POLE.
- FLOW DIRECTION

200' 0' 200' 400'

CONTOUR INTERVAL:2 FEET

NO.	REVISION	BY	DATE
3			
2	RED LINE CORRECTIONS	P.J.E.	04/10/00
1	RED LINE CORRECTIONS	P.J.E.	01/10/00

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

MIDDLE NEW RIVER
WATERCOURSE MASTER PLAN
PROJECT NO. 28900058

	BY	DATE
DESIGNED	P.J.E./C.A.S.	05/21/99
DRAWN	P.W./P.R.	05/21/99
CHECKED	S.S.S./P.J.E.	05/21/99

PRELIMINARY NOT FOR CONSTRUCTION

Stantec

PLAN AND PROFILE
STA. 311+00 TO 362+00

SHEET 8 OF 23

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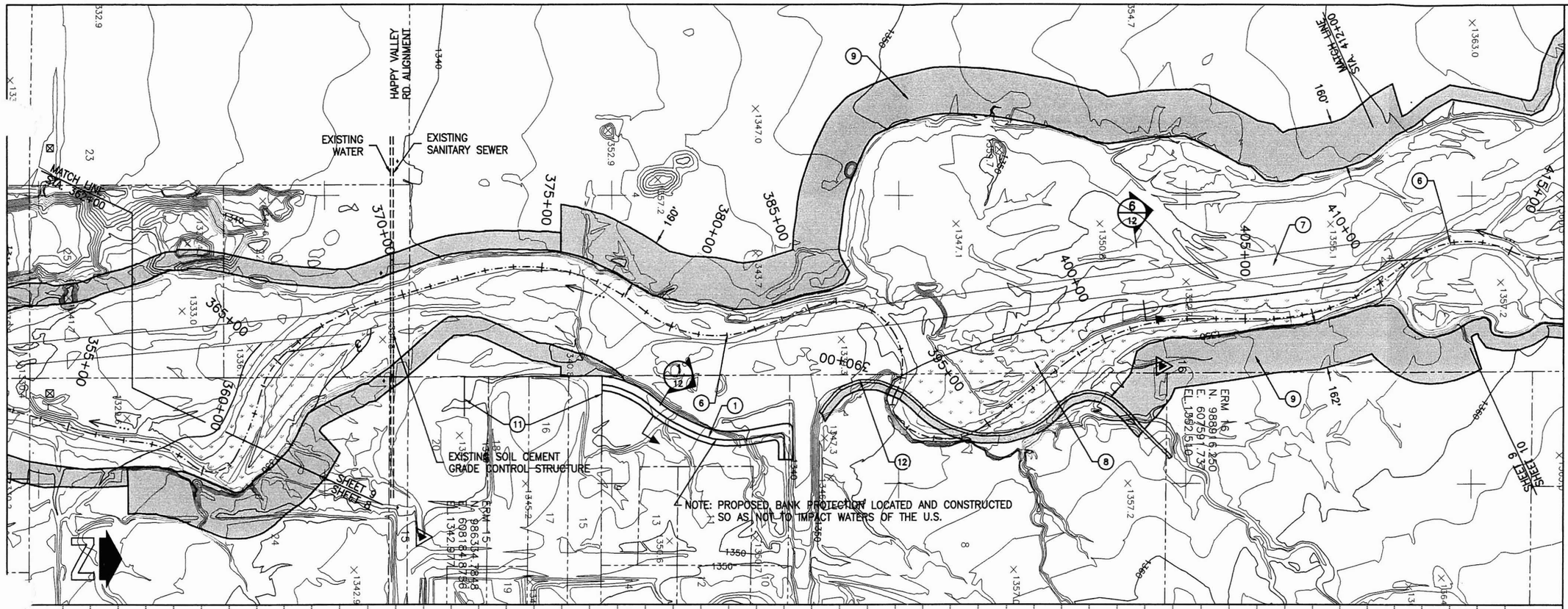

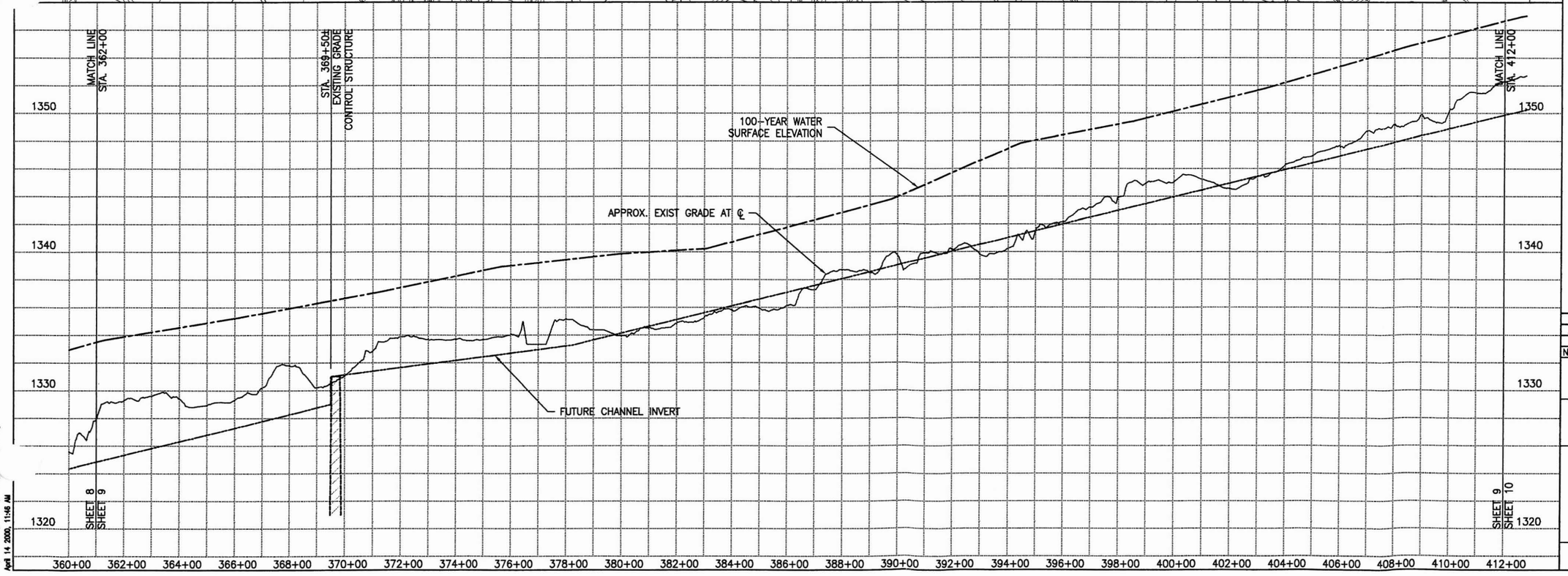

CONSTRUCTION NOTES

1. PROVIDE ROCK FILLED WIRE BASKETS TYPE BANK PROTECTION ON GRADED CHANNEL SLOPES.
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13. PROVIDE COLLECTOR CHANNEL.

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- EXISTING DUMPED RIP-RAP.
- AREA OF REGRADING AND REVEGETATION.
- PROPERTY LINE (LOCATION APPROXIMATE)
- EXISTING UTILITY POLE.
- FLOW DIRECTION

200' 0' 200' 400'

CONTOUR INTERVAL:2 FEET

NO.	REVISION	BY	DATE
3	RED LINE CORRECTIONS	P.J.E.	05/22/00
2	RED LINE CORRECTIONS	P.J.E.	04/10/00
1	RED LINE CORRECTIONS	P.J.E.	01/10/00

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

MIDDLE NEW RIVER
WATERCOURSE MASTER PLAN
PROJECT NO. 28900058

	BY	DATE
DESIGNED	P.J.E./C.A.S.	05/21/99
DRAWN	P.W./P.R.	05/21/99
CHECKED	S.S.S./P.J.E.	05/21/99

PRELIMINARY NOT FOR CONSTRUCTION

Stantec

PLAN AND PROFILE
STA. 362+00 TO 412+00

SHEET OF 9 23

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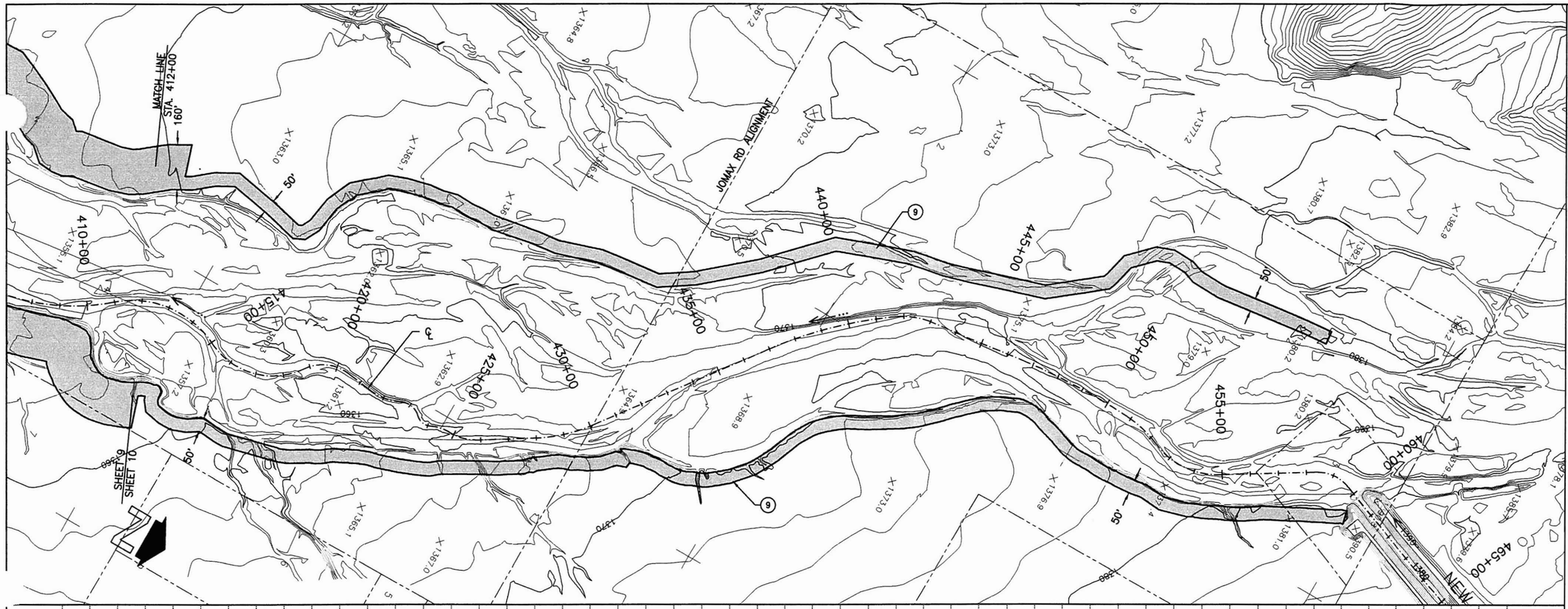

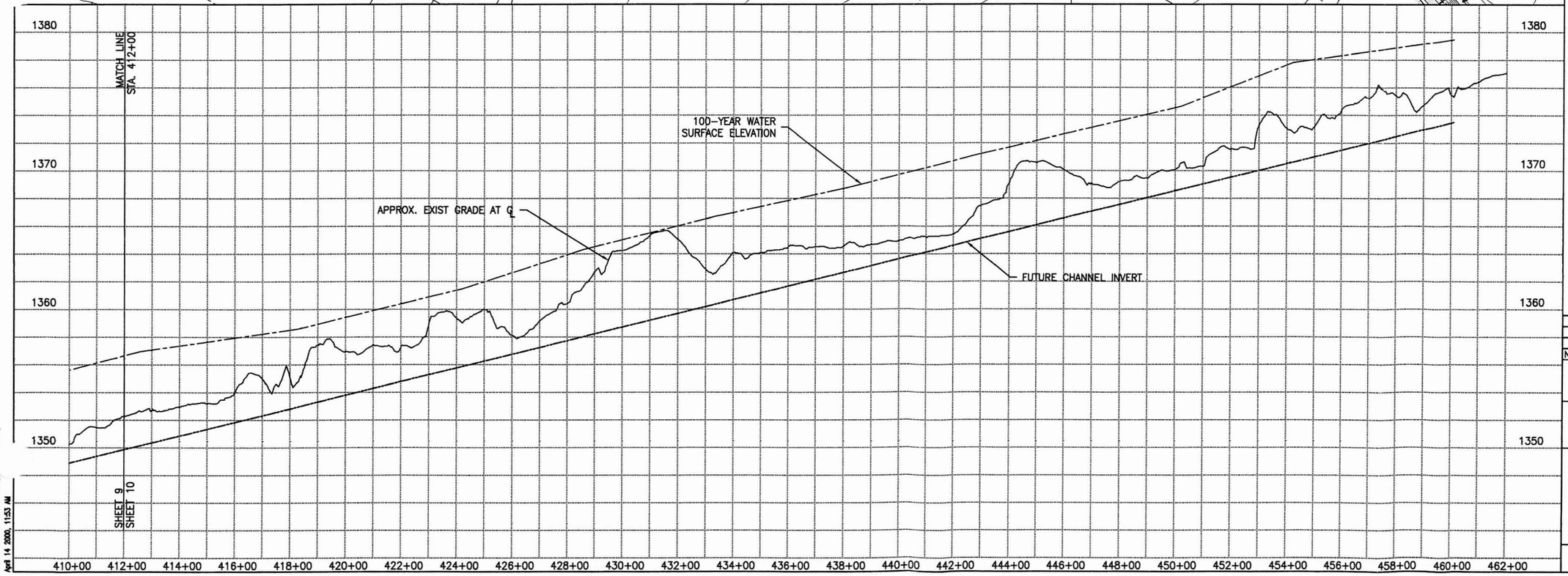

CONSTRUCTION NOTES

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13. PROVIDE COLLECTOR CHANNEL.

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- EXISTING ROCK FILLED WIRE TIED MATTRESS TYPE ARMORING.
- EXISTING CONCRETE ARMORING.
- TIE-IN TO EXISTING SLOPE CONDITIONS SEE (2).
- PROPOSED RCC STEPPED DROP STRUCTURE. SEE (3).
- EXISTING DUMPED RIP-RAP.
- AREA OF REGRADING AND REVEGETATION.
- PROPERTY LINE (LOCATION APPROXIMATE)
- EXISTING UTILITY POLE.
- FLOW DIRECTION

200' 0' 200' 400'

CONTOUR INTERVAL:2 FEET

NO.	REVISION	BY	DATE
3			
2	RED LINE CORRECTIONS	P.J.E.	04/10/00
1	RED LINE CORRECTIONS	P.J.E.	01/10/00

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

MIDDLE NEW RIVER
WATERCOURSE MASTER PLAN
PROJECT NO. 28900058

	BY	DATE
DESIGNED	P.J.E./C.A.S.	05/21/99
DRAWN	P.W./P.R.	05/21/99
CHECKED	S.S.S./P.J.E.	05/21/99

PRELIMINARY
NOT FOR
CONSTRUCTION

Stantec

PLAN AND PROFILE
STA. 412+00 TO 462+00

SHEET OF 10 23

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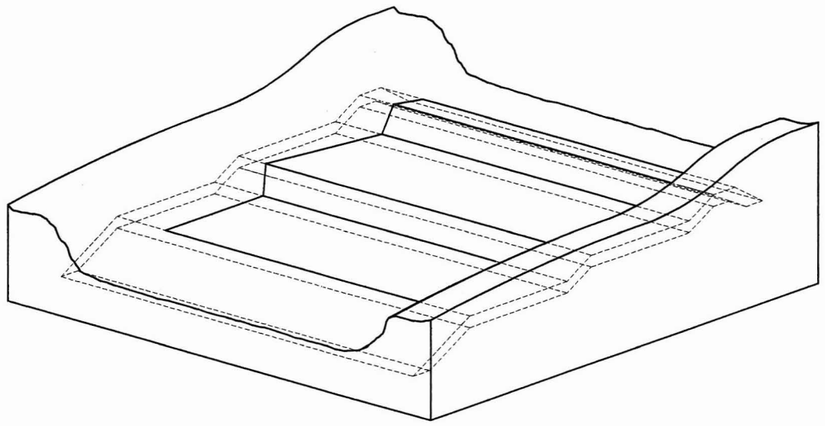
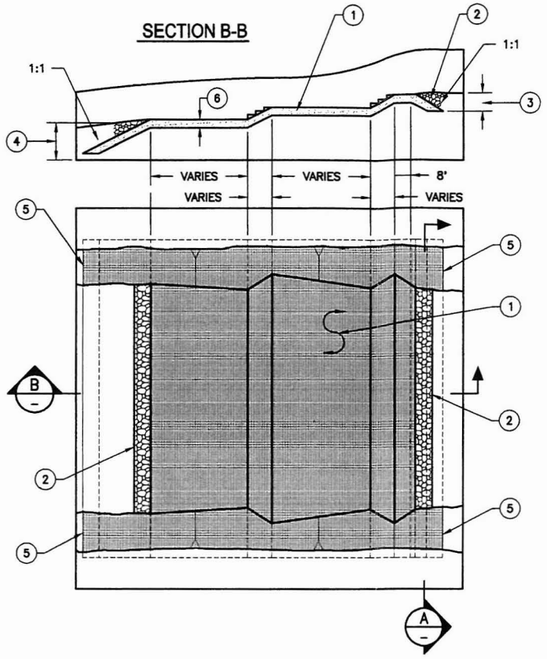
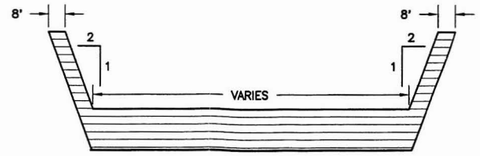
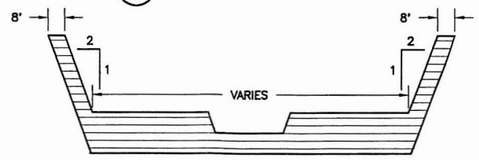




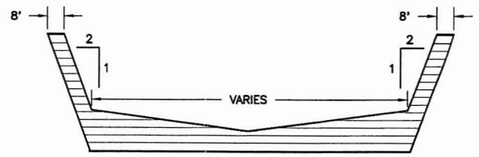
DOUBLE STAGE DROP STRUCTURE (ALTERNATE)
N.T.S.



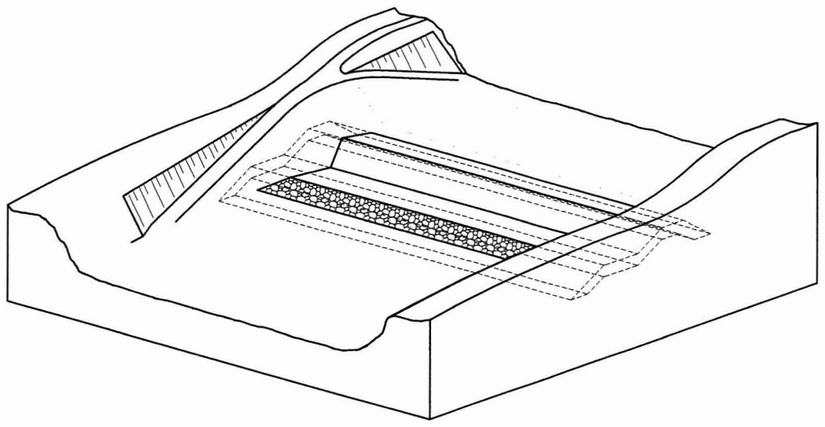
A LEVEL BOTTOM OPTION

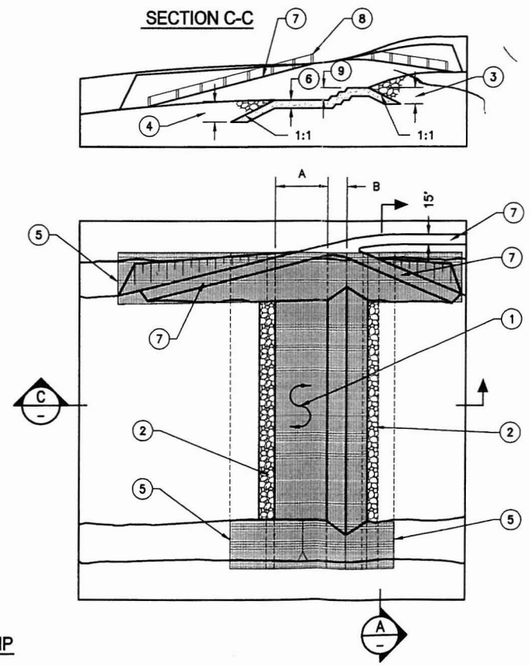


A LOW FLOW CHANNEL NOTCH OPTION



A "V" SHAPED CHANNEL OPTION





1 SINGLE STAGE DROP STRUCTURE W/ BANK RAMP
N.T.S.

ROLLER COMPACTED CONCRETE DROP STRUCTURE DIMENSIONS SINGLE STAGE DROP STRUCTURE						
STATION	DIMENSION ③ (ft)	DIMENSION ④ (ft)	DIMENSION ⑥ (ft)	DIMENSION ⑨ (ft)	DIMENSION A (ft)	DIMENSION B (ft)
1	2	3	4	5	6	7
132+00	10	10	5	7.5	55	15
258+18	10.5	12.5	5	9	62	18
311+10	10	11.5	5	7.5	44	15

DOUBLE STAGE DROP STRUCTURE

1 ROLLER COMPACTED CONCRETE (RCC) STEPPED DROP STRUCTURE
2 DUMPED RIP-RAP
3 UPSTREAM DROP STRUCTURE TOE DOWN
4 DOWNSTREAM DROP STRUCTURE TOE DOWN
5 TIE RCC ARMORING INTO ROCK FILLED WIRE BASKETS
6 DROP STRUCTURE FLOOR THICKNESS

SINGLE STAGE DROP STRUCTURE

1 ROLLER COMPACTED CONCRETE STEPPED DROP STRUCTURE
2 DUMPED RIP-RAP
3 UPSTREAM DROP STRUCTURE TOE DOWN
4 DOWNSTREAM DROP STRUCTURE TOE DOWN
5 TIE RCC ARMORING INTO ROCK FILLED WIRE BASKETS
6 DROP STRUCTURE FLOOR THICKNESS
7 ACCESS RAMP. RAMP SLOPE NOT TO EXCEED 10%
8 PROVIDE SAFETY RAIL

NO.	REVISION	BY	DATE
3	RED LINE CORRECTIONS	P.J.E.	05/25/00
2	RED LINE CORRECTIONS	P.J.E.	04/10/00
1	RED LINE CORRECTIONS	P.J.E.	01/10/00

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

MIDDLE NEW RIVER
WATERCOURSE MASTER PLAN
PROJECT NO. 28900058

	BY	DATE
DESIGNED	P.J.E.	05/21/99
DRAWN	C.A.S.	05/21/99
CHECKED	S.S.S./P.J.E.	05/21/99

PRELIMINARY
NOT FOR
CONSTRUCTION

Stantec

DETAIL SHEET
DROP STRUCTURE ALTERNATIVES

SHEET OF 11 23

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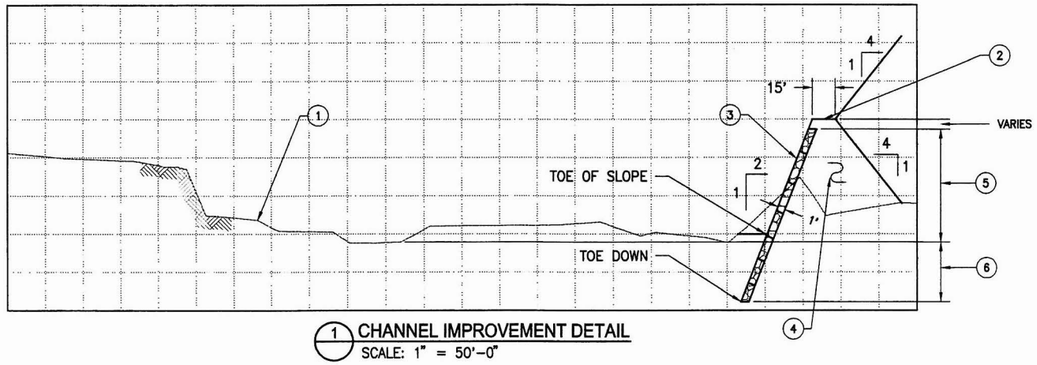
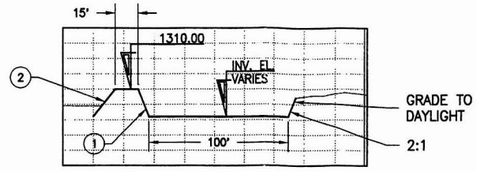
April 14 2000, 12:07 PM



1 CHANNEL IMPROVEMENT DETAIL
SCALE: 1" = 50'-0"

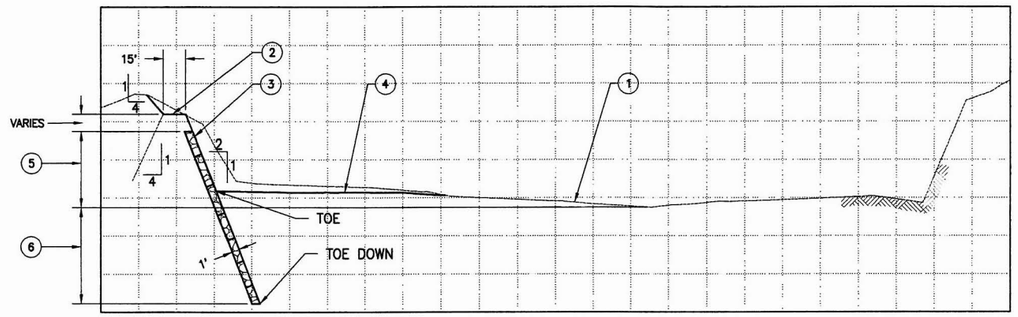
KEYNOTES:

1 EXISTING GROUND
2 15 FOOT WIDE CORRIDOR TO ACCOMMODATE RECREATIONAL TRAIL SYSTEM AND/OR MAINTENANCE ACCESS
3 1 FOOT THICK ROCK FILLED WIRE BASKET BANK ARMORING
4 EARTHEN FILL MATERIAL
5 ARMORED CHANNEL HEIGHT, SEE TABLE D-1
6 TOE-DOWN DEPTH, SEE TABLE D-1



5 COLLECTOR CHANNEL SECTION

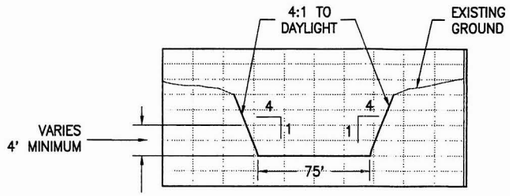
1 2:1 SIDE SLOPES
2 4:1 SIDE SLOPE TO EXISTING GROUND



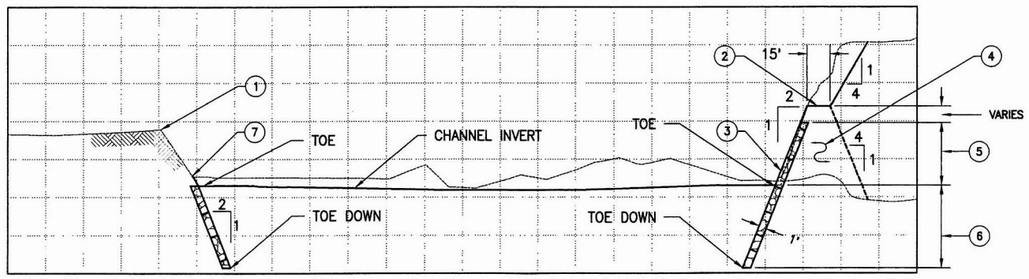
2 CHANNEL IMPROVEMENT DETAIL
SCALE: 1" = 50'-0"

KEYNOTES:

1 EXISTING GROUND
2 15 FOOT WIDE CORRIDOR TO ACCOMMODATE RECREATIONAL TRAIL SYSTEM AND/OR MAINTENANCE ACCESS
3 1 FOOT THICK ROCK FILLED WIRE BASKET BANK ARMORING
4 GRADE FROM TOE OF SLOPE TO CHANNEL DAYLIGHT
5 ARMORED CHANNEL HEIGHT, SEE TABLE D-1
6 TOE-DOWN DEPTH, SEE TABLE D-1



6 LOW FLOW CHANNEL SECTION



3 CHANNEL IMPROVEMENT DETAIL
SCALE: 1" = 50'-0"

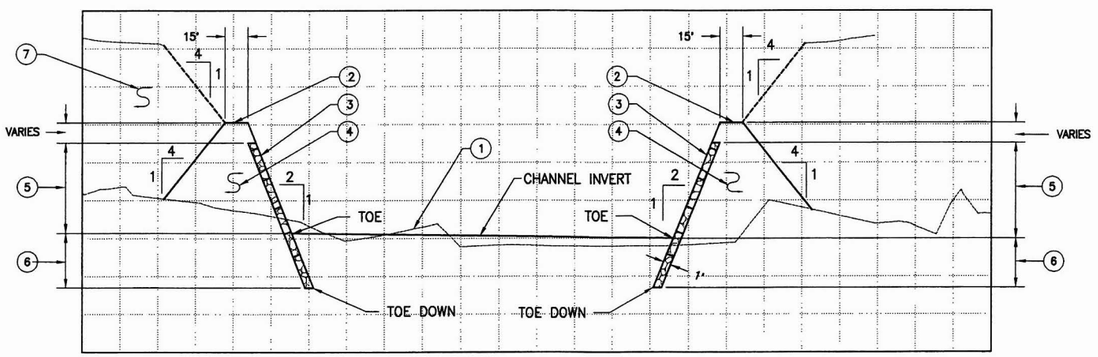
KEYNOTES:

1 EXISTING GROUND
2 15 FOOT WIDE CORRIDOR TO ACCOMMODATE RECREATIONAL TRAIL SYSTEM AND/OR MAINTENANCE ACCESS
3 1 FOOT THICK ROCK FILLED WIRE BASKET BANK ARMORING
4 EARTHEN FILL MATERIAL
5 ARMORED CHANNEL HEIGHT
6 TOE-DOWN DEPTH
7 TIE IN TO EXISTING BANK PROTECTION, TOE DOWN MAY NEED TO BE EXTENDED, POT HOLE FOR FINAL DESIGN

ARMORED CHANNEL HEIGHT AND TOW DOWN DEPTH				
BEGINNING STA	ENDING STA	AVERAGE ARMORED CHANNEL HEIGHT (ft)	AVERAGE TOE DOWN DEPTH (z:1)	AVERAGE ARMORED CHANNEL HEIGHT +TOE DOWN DEPTH (ft)
1	2	3	4	5
26+30	43+00	10.5	10	20.50
43+00	55+00	8	10	18.00
61+50	69+50	11	10	21.00
78+50	86+50	7	10	17.00
88+50	108+50	8	13	21.00
108+50	126+60	7.5	13	20.50
126+60	132+00	7.5	10.5	18.00
135+00	140+90	9.5	10.5	20.00
143+80	163+00	11	10.5	21.50
163+00	182+70	7.5	10.5	18.00
182+70	222+50	7	14	21.00
222+50	248+50	9.5	14	23.50
248+50	258+00	9.5	10.5	20.00
258+00	311+00	8	12	20.00
379+00	384+50	7	8.5	15.50

COLUMN 3 – AS MEASURED FROM MINIMUM CHANNEL INVERT ELEVATION TO FREEBOARD ELEVATION.

COLUMN 4 – AS MEASURED FROM CHANNEL INVERT.



4 CHANNEL IMPROVEMENT DETAIL
SCALE: 1" = 50'-0"

KEYNOTES:

1 EXISTING GROUND
2 15 FOOT WIDE CORRIDOR TO ACCOMMODATE RECREATIONAL TRAIL SYSTEM AND/OR MAINTENANCE ACCESS
3 1 FOOT THICK ROCK FILLED WIRE BASKET BANK ARMORING
4 EARTHEN FILL MATERIAL
5 ARMORED CHANNEL HEIGHT
6 TOE-DOWN DEPTH

NO.	REVISION	BY	DATE
3	ADDED STATION 379+00 TO 384+50	P.J.E.	05/25/00
2	RED LINE CORRECTIONS	P.J.E.	04/10/00
1	RED LINE CORRECTIONS	P.J.E.	01/10/00

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

MIDDLE NEW RIVER
WATERCOURSE MASTER PLAN
PROJECT NO. 28900058

	BY	DATE
DESIGNED	P.J.E./C.A.S.	05/05/99
DRAWN	P.W./P.R.	05/05/99
CHECKED	S.S.S./P.J.E.	05/05/99

PRELIMINARY
NOT FOR
CONSTRUCTION

Stantec

PLAN AND PROFILE
TYPICAL ARMORING DETAILS

SHEET OF
12 23

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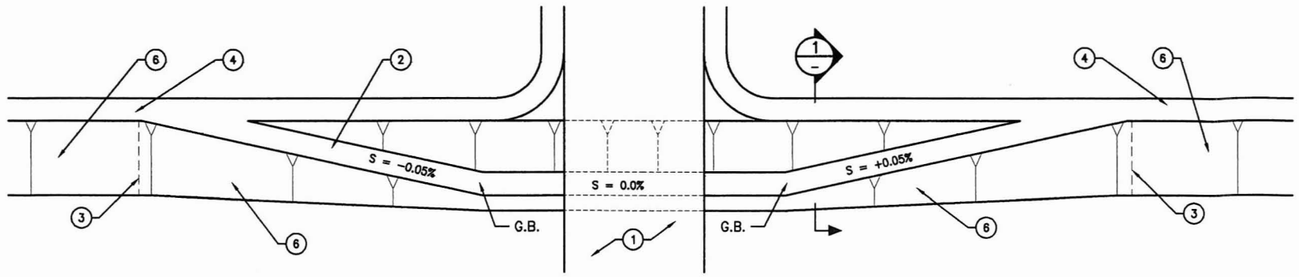
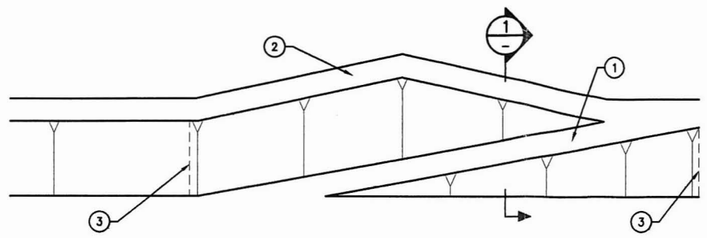
April 14 2000, 12:09 PM



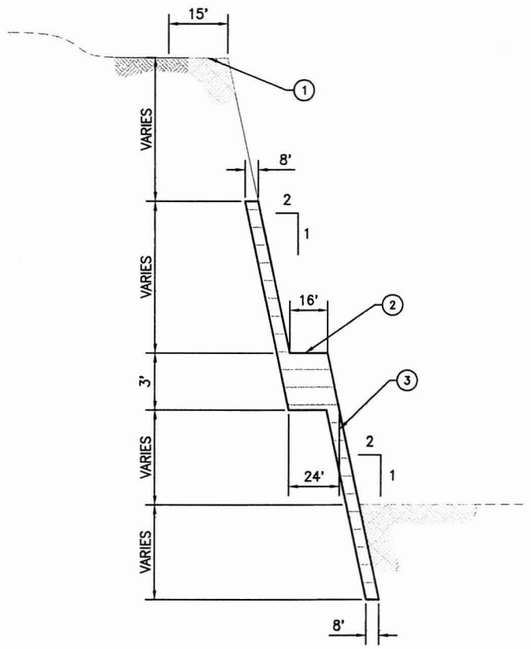
1. BRIDGE DECK
2. TRAIL/ACCESS RAMP
3. TIE SOIL CEMENT ARMORING TO ROCK FILLED WIRE BASKETS
4. AREA TO ACCOMMODATE MULTI-USE RECREATIONAL TRAIL
5. SOIL CEMENT ARMORING
6. ROCK FILLED WIRE BASKETS

1/- MULTI-USE TRAIL CROSSING DETAIL AT BRIDGES
SCALE: 1" = 50'

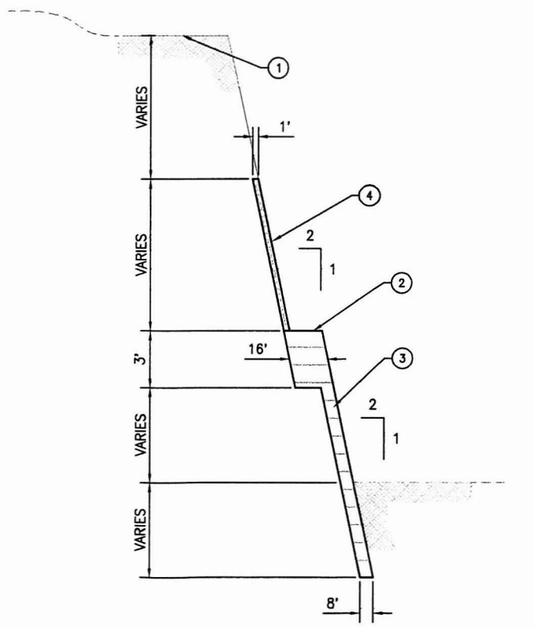


1. TRAIL/ACCESS RAMP. MAXIMUM RAMP GRADE =10%
2. AREA TO ACCOMMODATE MULTI-USE USE RECREATIONAL TRAIL
3. TIE SOIL CEMENT ARMORING TO ROCK FILLED WIRE BASKETS

2/- ACCESS RAMP DETAIL
SCALE: 1" = 50'



SOIL CEMENT OPTION



SOIL CEMENT AND ROCK FILLED WIRE BASKETS OPTION

1/- MULTI-USE TRAIL CROSSING OR RAMP DETAILS

(1) AREA TO ACCOMMODATE MULTI-USE RECREATIONAL TRAIL
(2) TRAIL/ACCESS RAMP
(3) SOIL CEMENT ARMORING
(4) ROCK FILLED WIRE BASKETS

NO.	REVISION	BY	DATE
3			
2	RED LINE CORRECTIONS	P.J.E.	04/10/00
1	RED LINE CORRECTIONS	P.J.E.	01/10/00

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

MIDDLE NEW RIVER
WATERCOURSE MASTER PLAN
PROJECT NO. 28900058

	BY	DATE
DESIGNED	P.J.E./C.A.S.	05/24/99
DRAWN	P.J.R.	05/24/99
CHECKED	S.S.S./P.J.E.	05/24/99

PRELIMINARY
NOT FOR
CONSTRUCTION

Stantec

DETAIL SHEET
MULTI-USE TRAIL CROSSING

SHEET OF
13 23

P:\28900058\Acad\13\sheet13.dwg
April 14 2000, 12:09 PM

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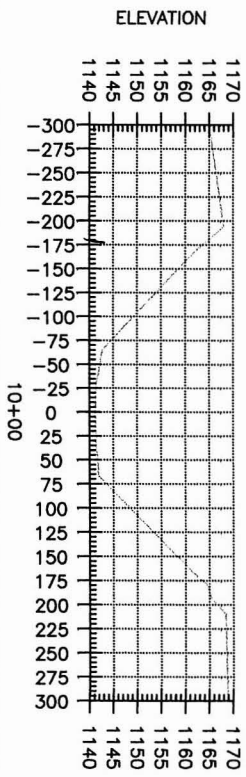
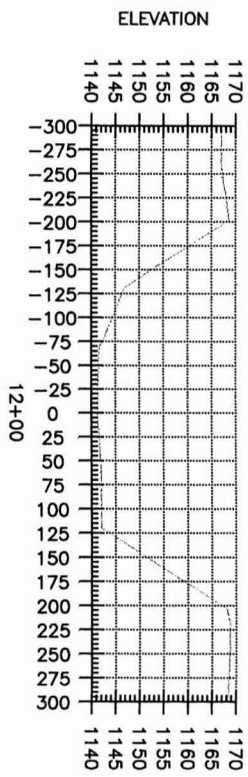
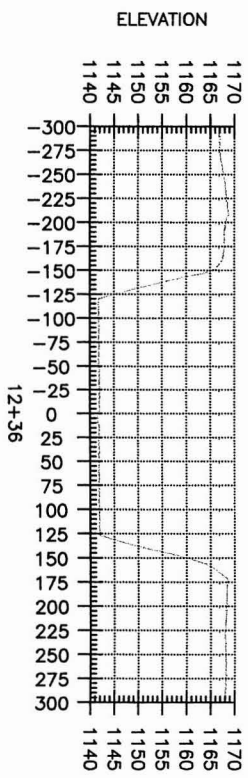
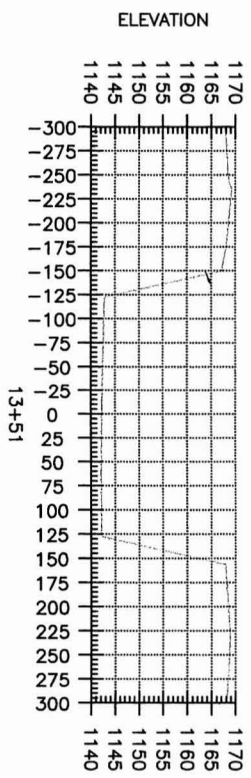
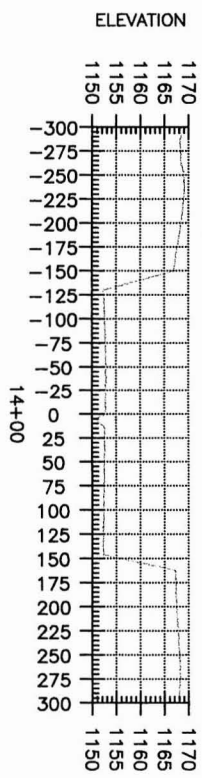
March 16 2000, 02:29 PM

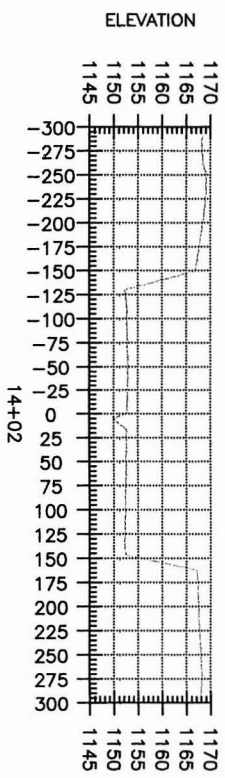


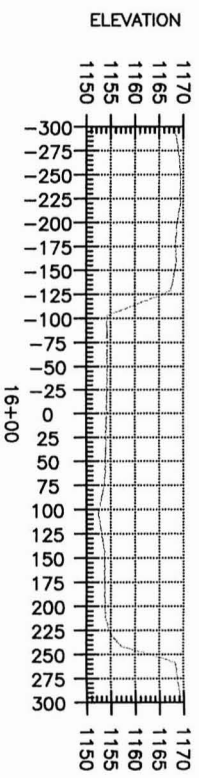


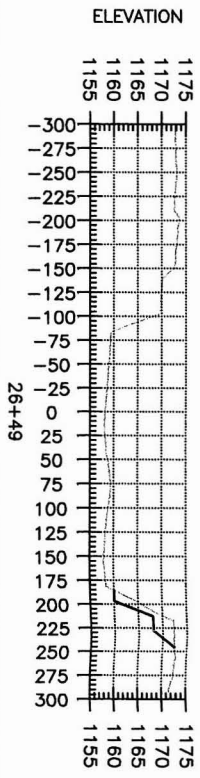


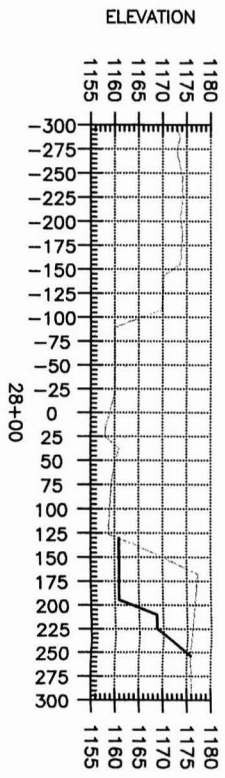


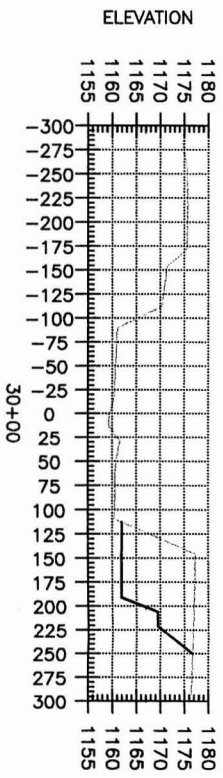


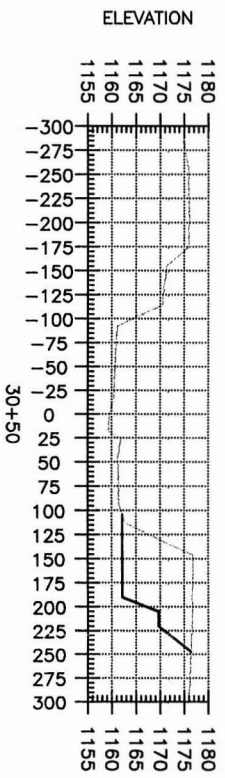


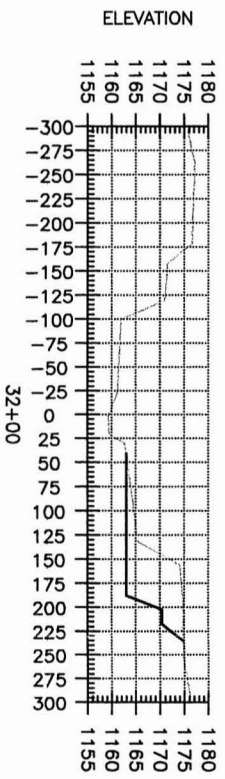


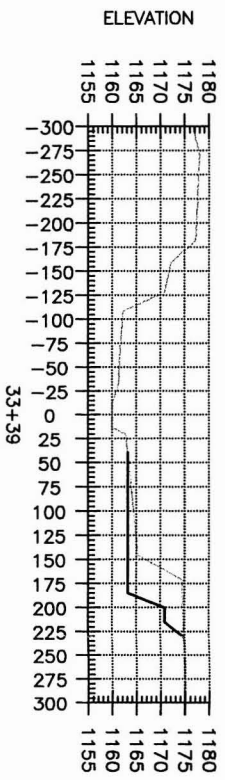


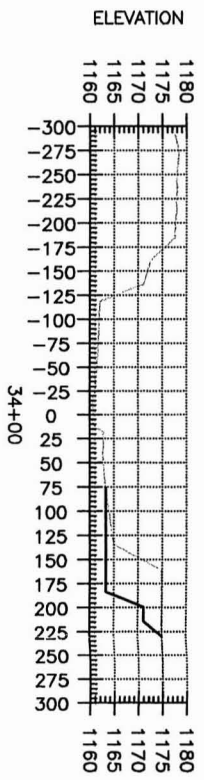


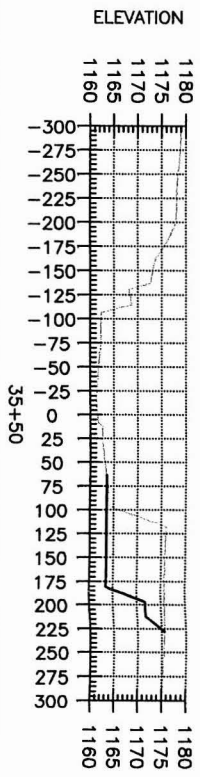


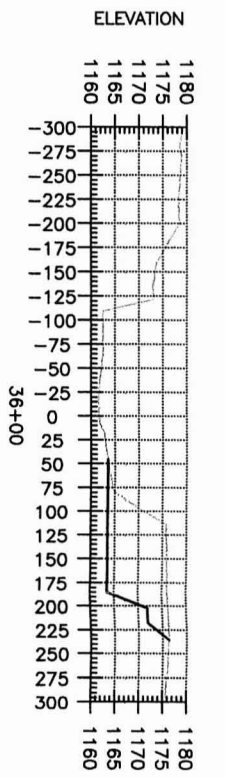


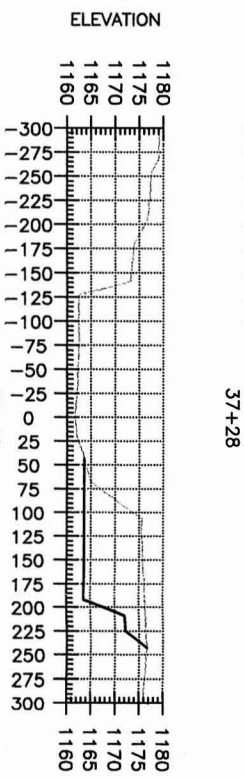


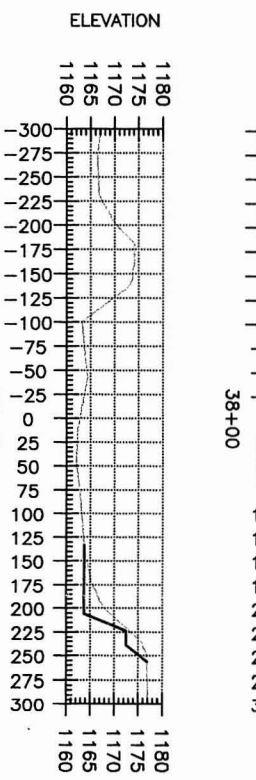


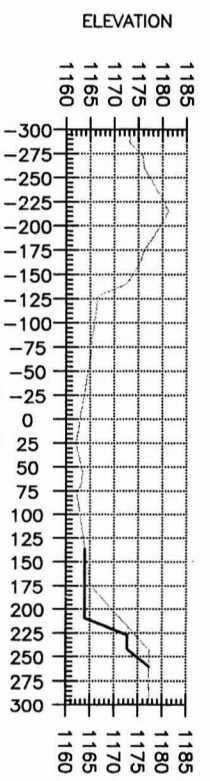


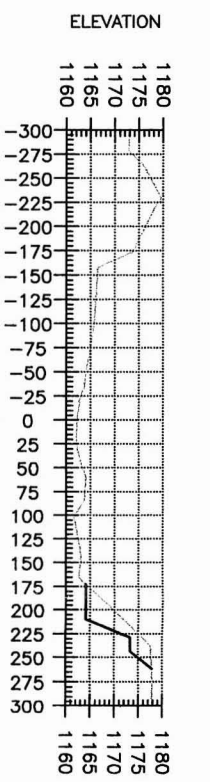


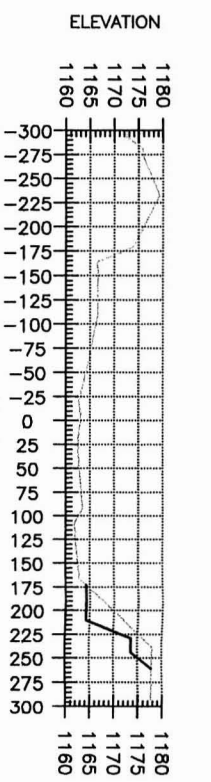


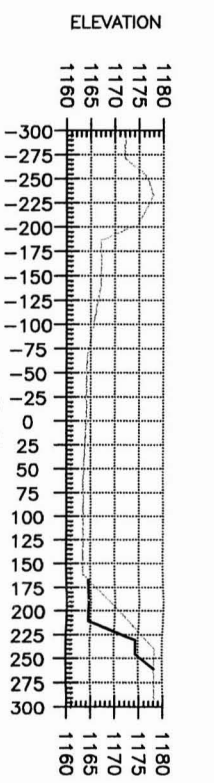












NO.	REVISION	BY	DATE
3			
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

MIDDLE NEW RIVER
WATERCOURSE MASTER PLAN
PROJECT NO. 28900058

	BY	DATE
DESIGNED	C.A.S.	05/18/99
DRAWN	C.A.S.	05/18/99
CHECKED	S.S.S./P.J.E.	05/18/99

PRELIMINARY
NOT FOR
CONSTRUCTION

Stantec

CROSS SECTIONS
STA. 10+00 TO 42+00

SHEET 14 OF 23

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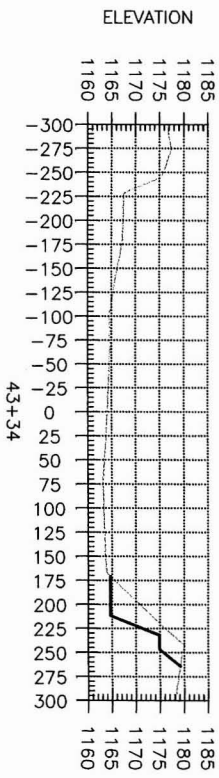

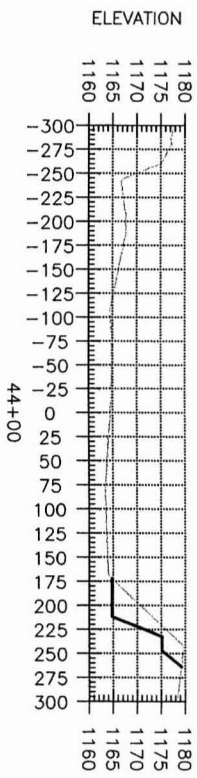

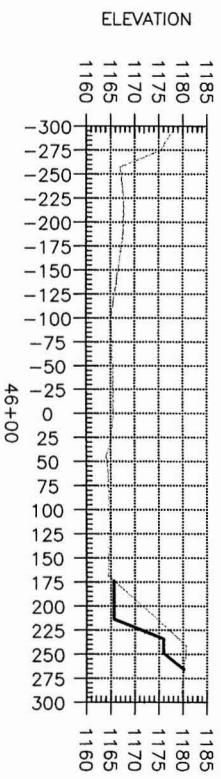

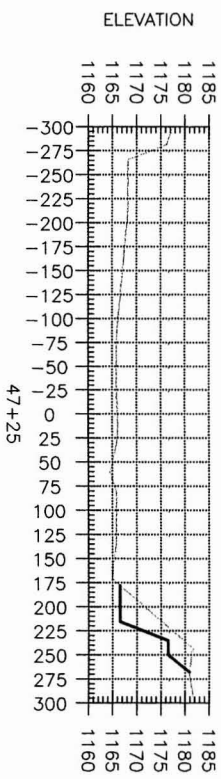

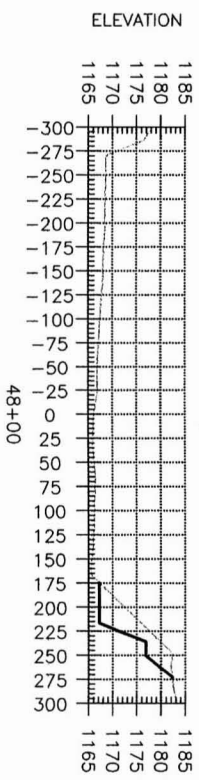

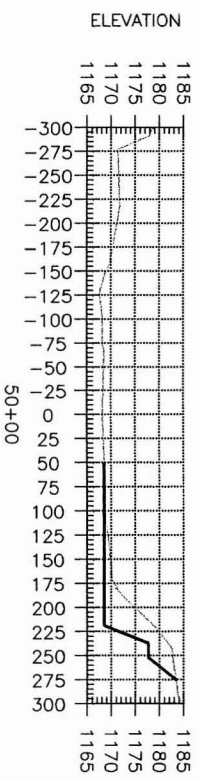

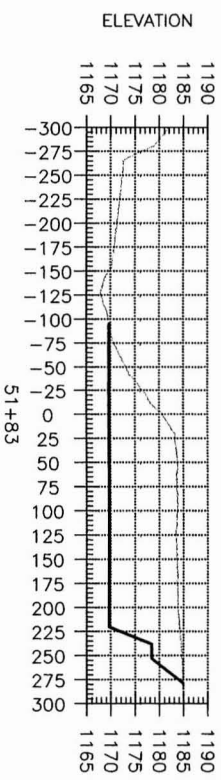

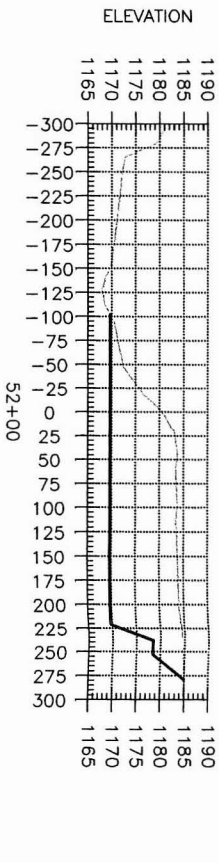

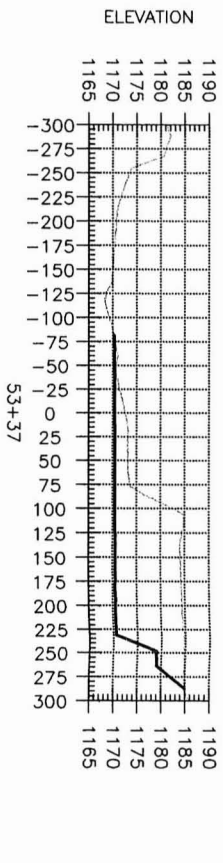

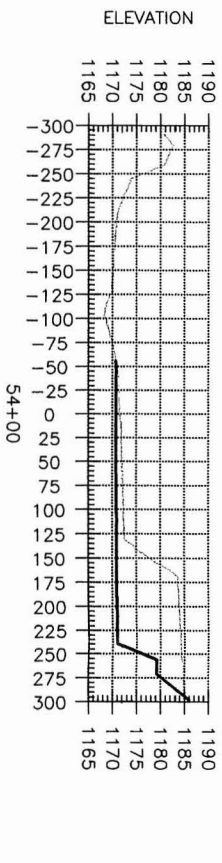

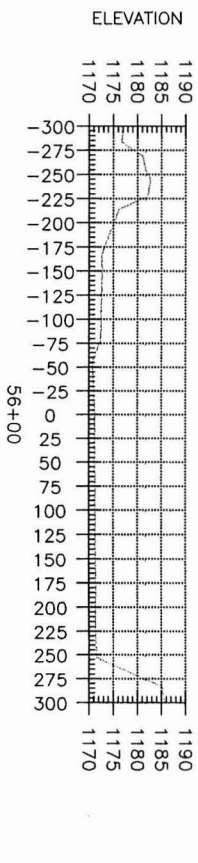

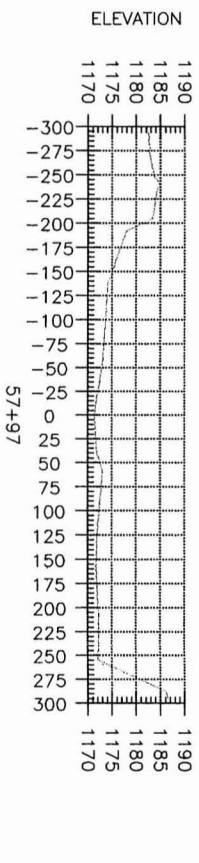

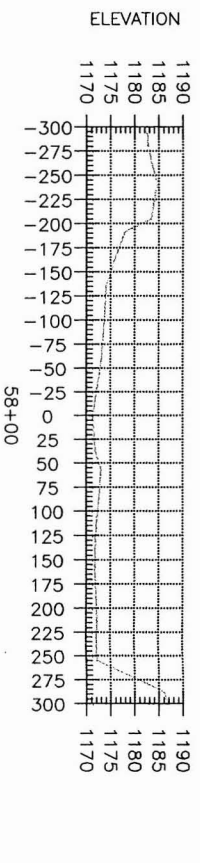

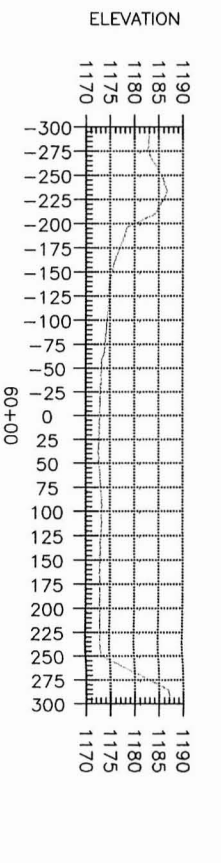

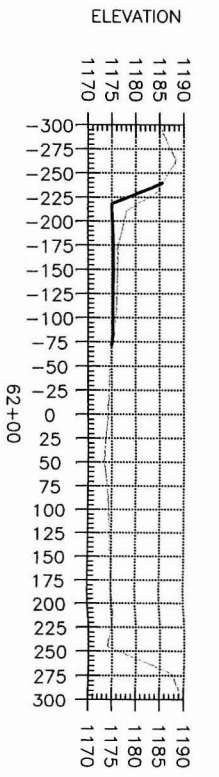

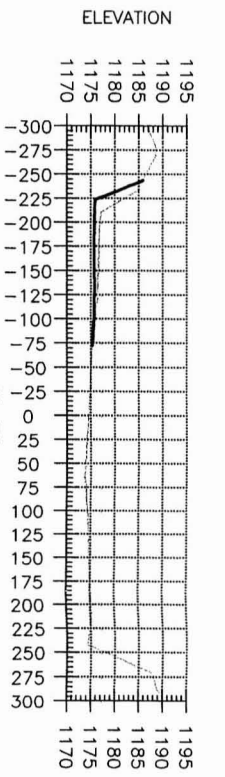

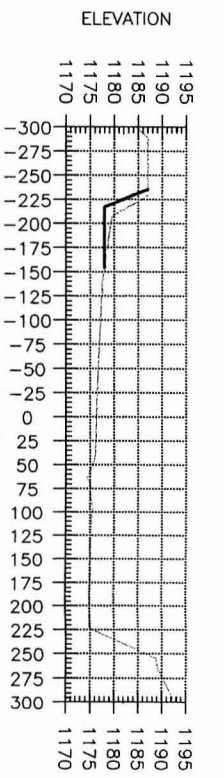

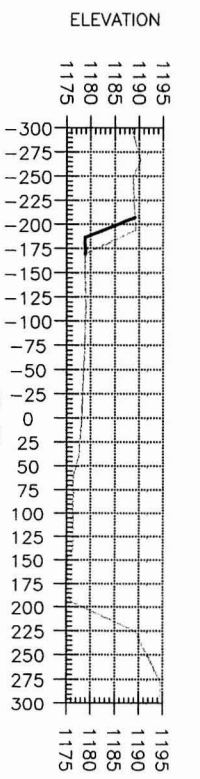

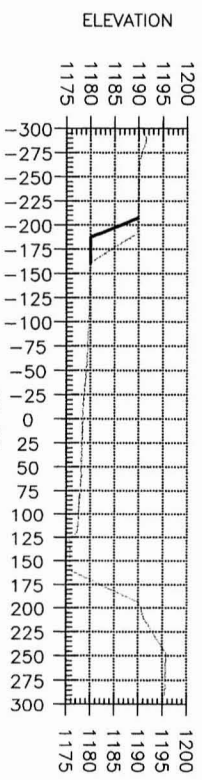

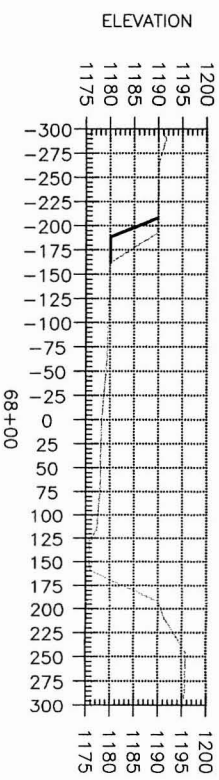

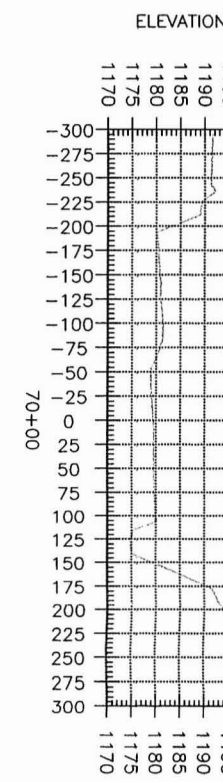

NO.	REVISION	BY	DATE
3			
2			
1			

FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY
ENGINEERING DIVISION

MIDDLE NEW RIVER
WATERCOURSE MASTER PLAN
PROJECT NO. 28900058

	BY	DATE
DESIGNED	C.A.S.	05/18/99
DRAWN	C.A.S.	05/18/99
CHECKED	S.S.S./P.J.E.	05/18/99

PRELIMINARY
NOT FOR
CONSTRUCTION

Stantec

CROSS SECTIONS
STA. 43+34 TO 70+00

SHEET 15 OF 23

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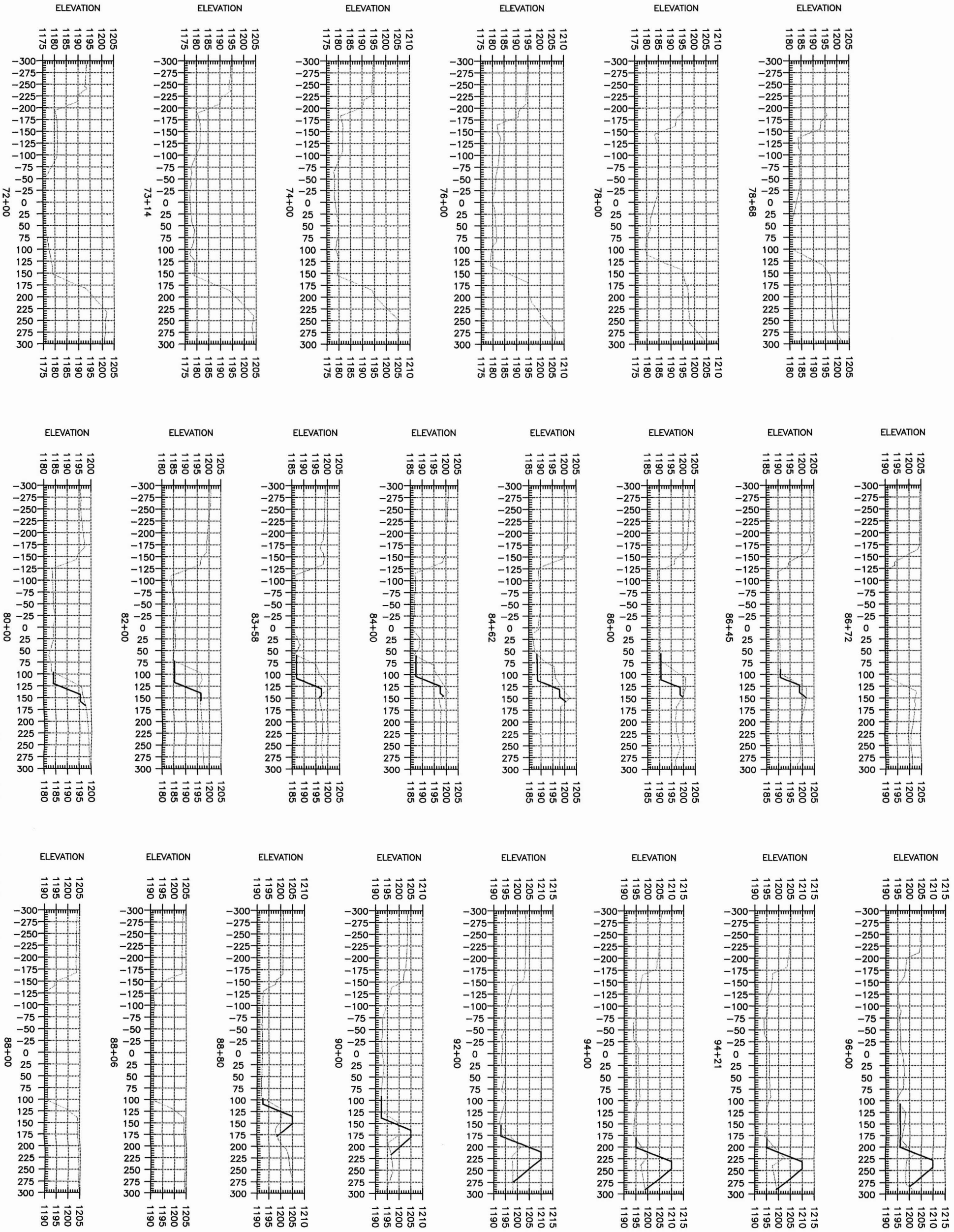

NO.	REVISION	BY	DATE	

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

MIDDLE NEW RIVER
WATERCOURSE MASTER PLAN
PROJECT NO. 28900058

	BY	DATE
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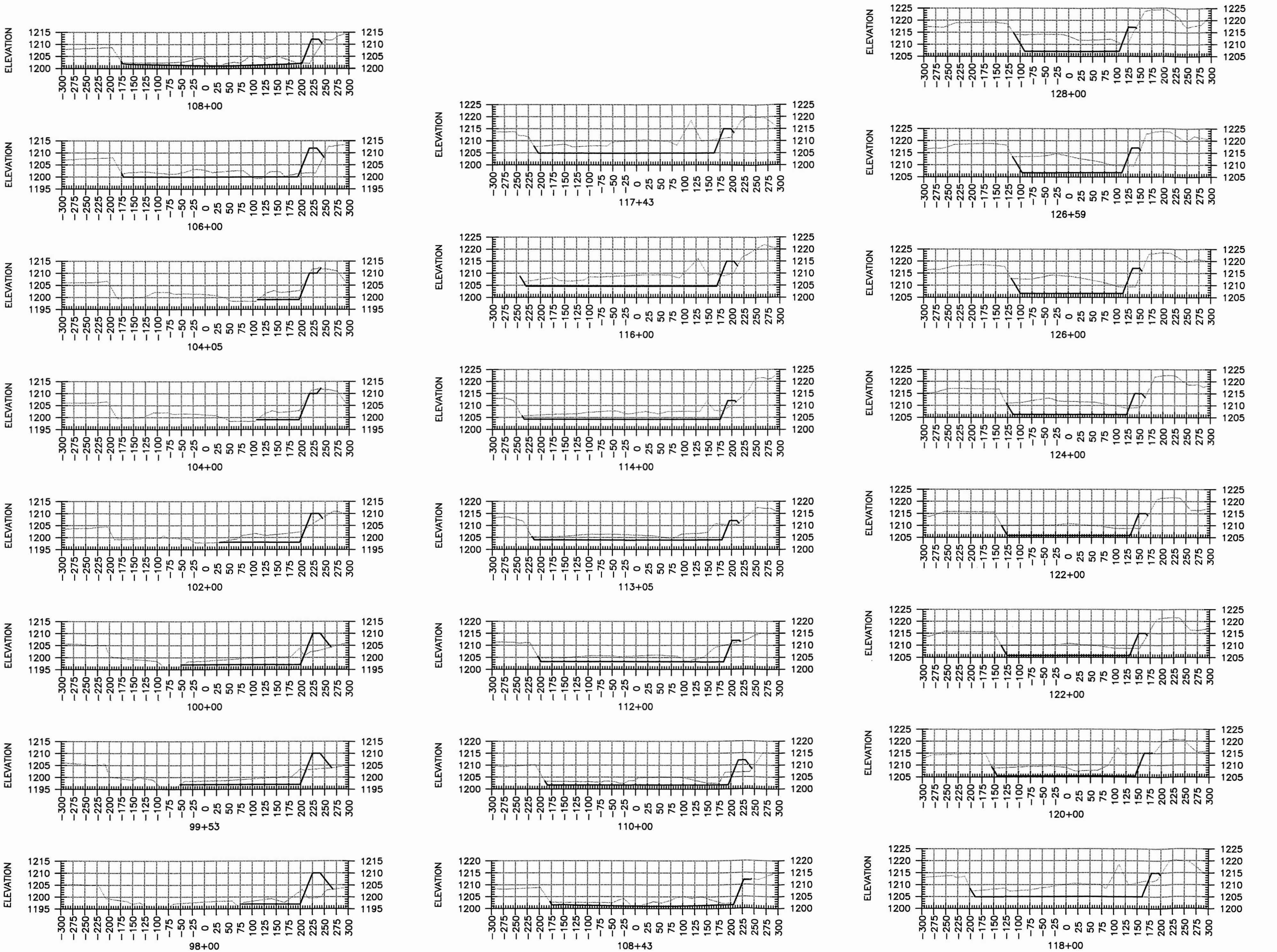
DRAWN	C.A.S.	05/18/99
CHECKED	S.S.S./P.J.E.	05/18/99

PRELIMINARY
NOT FOR
CONSTRUCTION

Stantec

CROSS SECTIONS
STA. 72+00 TO 96+00

SHEET 16 OF 23



NO.	REVISION	BY	DATE
3			
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

MIDDLE NEW RIVER WATERCOURSE MASTER PLAN
PROJECT NO. 28900058

	BY	DATE
DESIGNED	C.A.S.	05/18/99
DRAWN	C.A.S.	05/18/99
CHECKED	S.S.S./P.J.E.	05/18/99

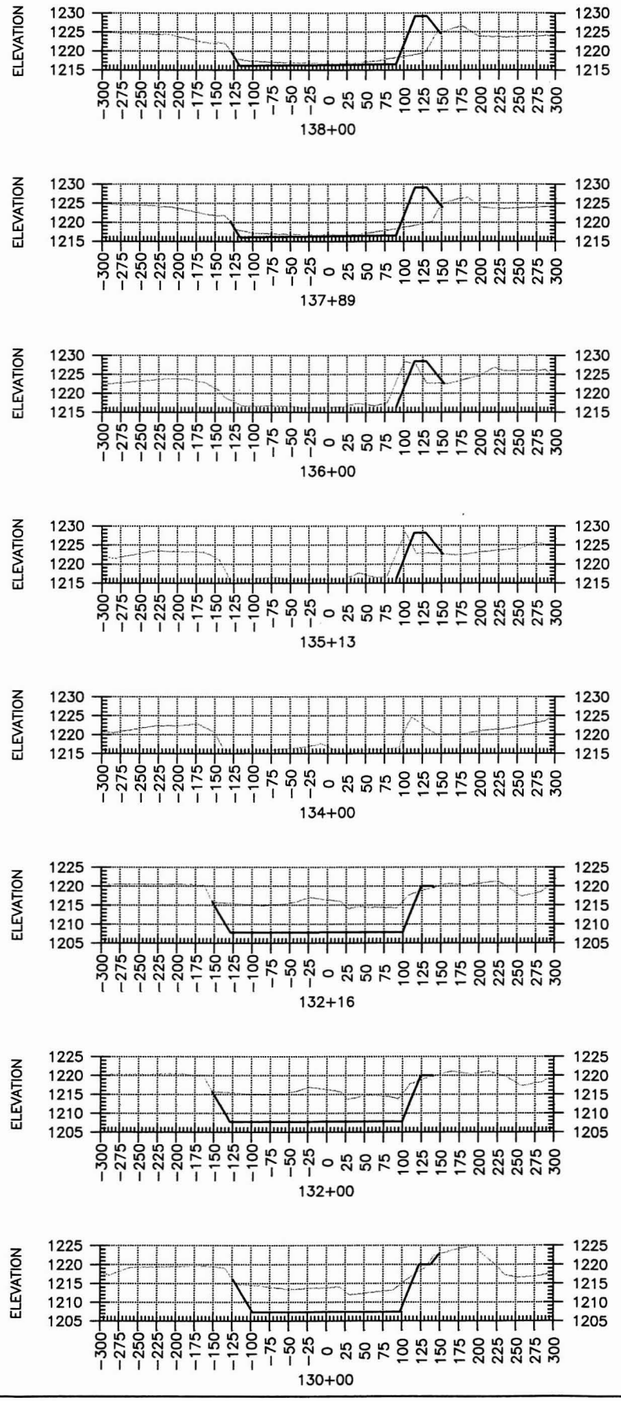
PRELIMINARY NOT FOR CONSTRUCTION

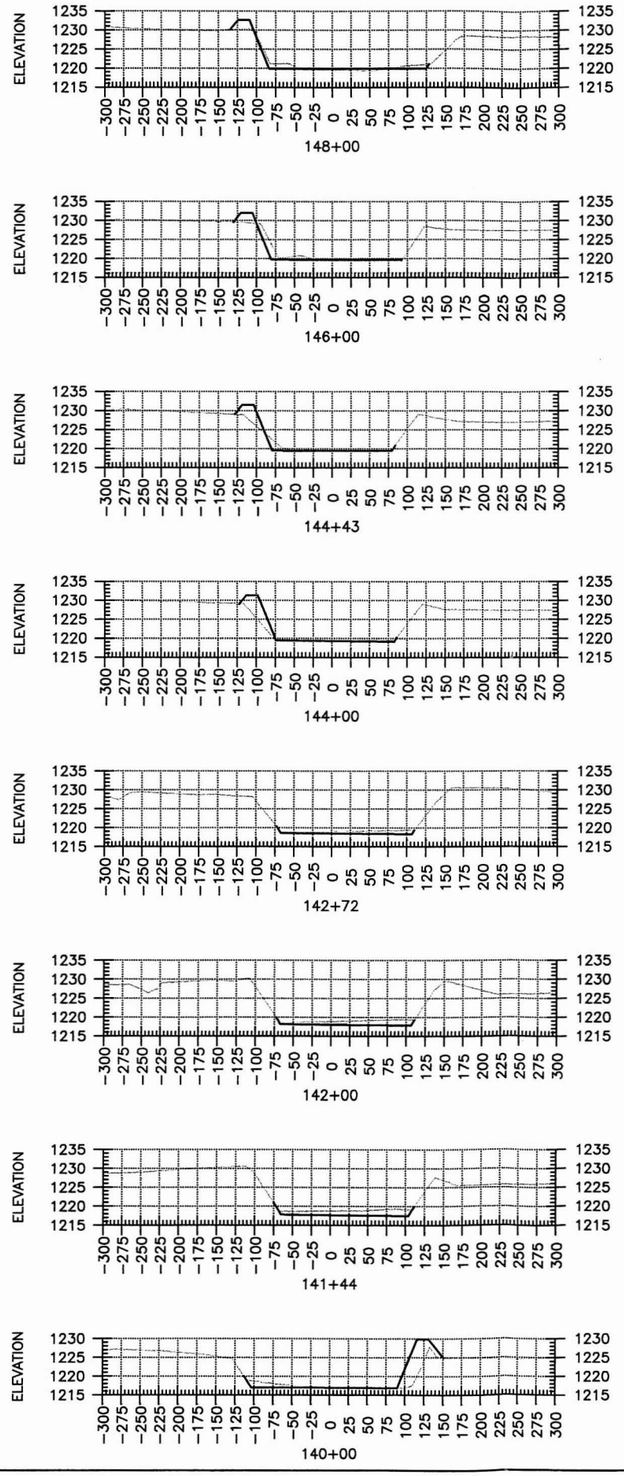
Stantec

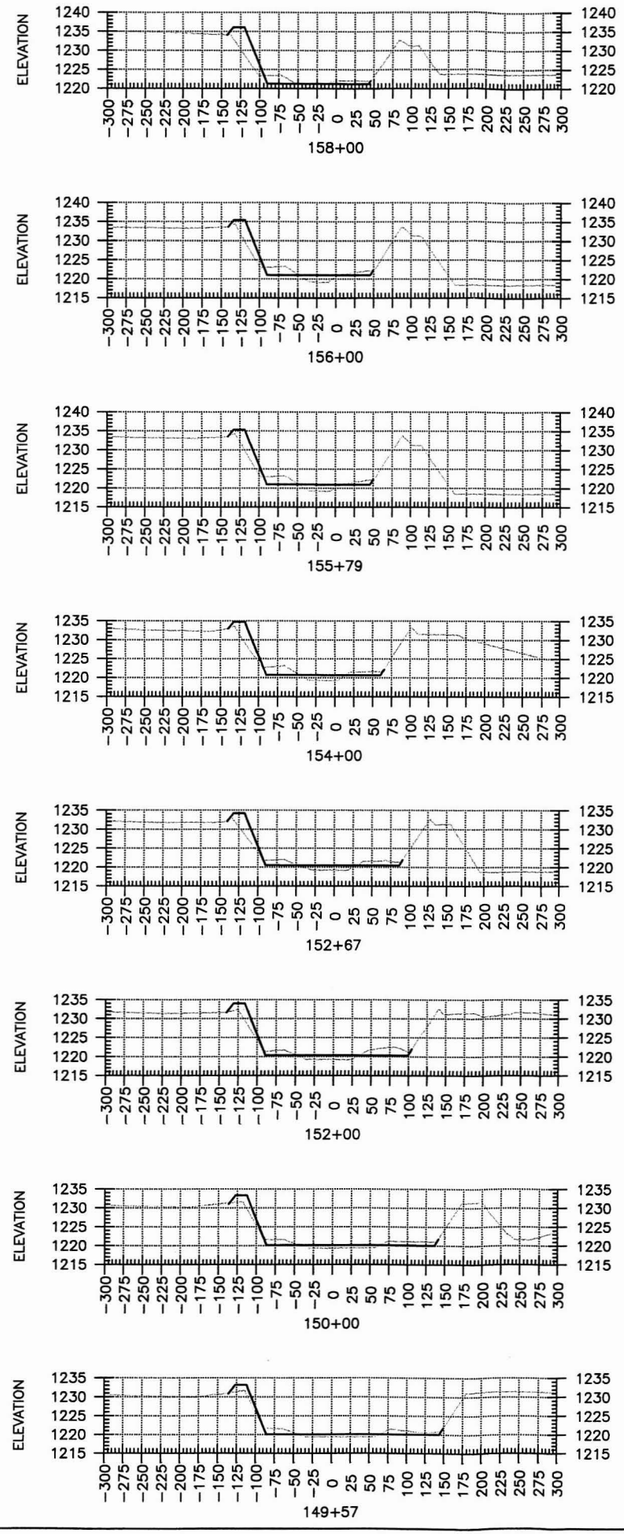
CROSS SECTIONS
STA. 98+00 TO 128+00

SHEET 17 OF 23

March 16 2000, 02:34 PM







3			
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1			
NO.	REVISION	BY	DATE

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

MIDDLE NEW RIVER
WATERCOURSE MASTER PLAN
PROJECT NO. 28900058

PRELIMINARY
NOT FOR
CONSTRUCTION

	BY	DATE
DESIGNED	C.A.S.	05/18/99
DRAWN	C.A.S.	05/18/99
CHECKED	S.S.S./P.J.E.	05/18/99

Stantec

CROSS SECTIONS
STA. 130+00 TO 158+00

SHEET OF
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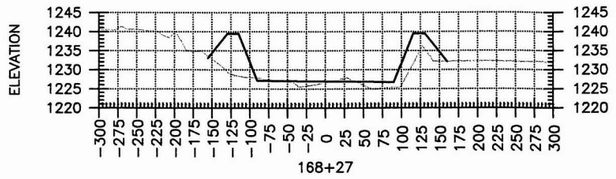

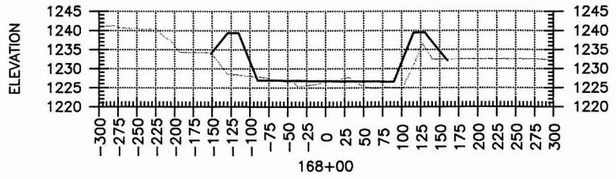

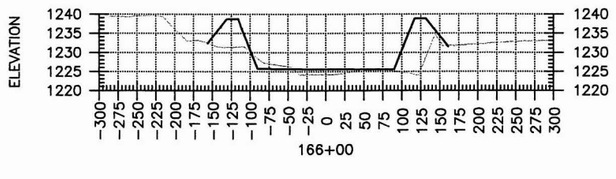

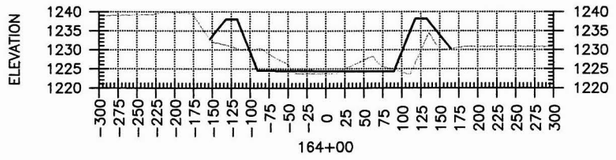

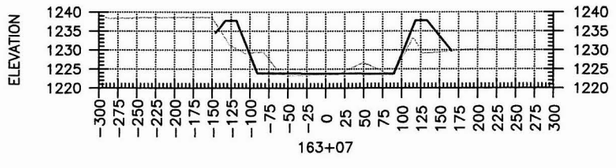

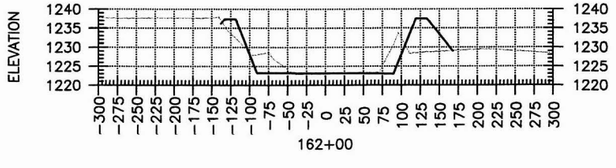

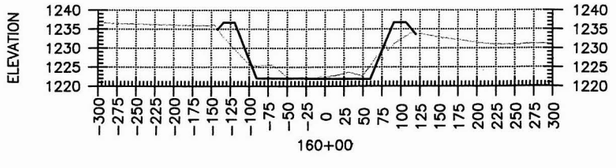

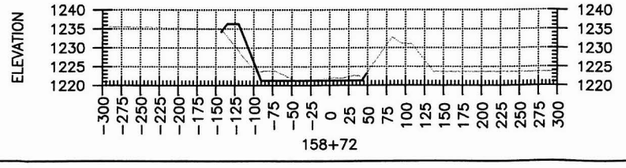

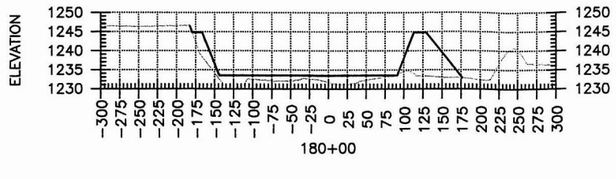

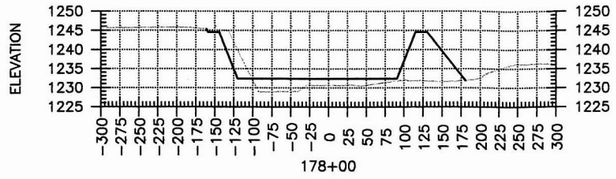

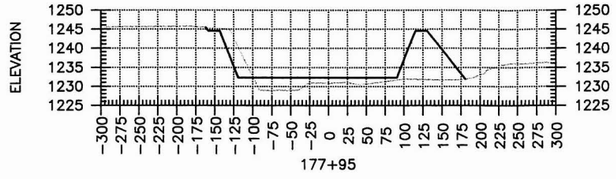

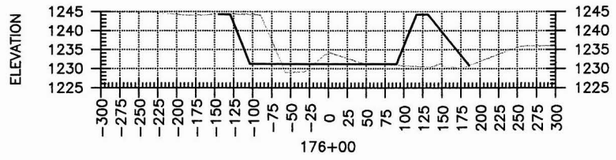

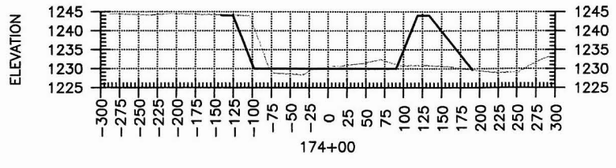

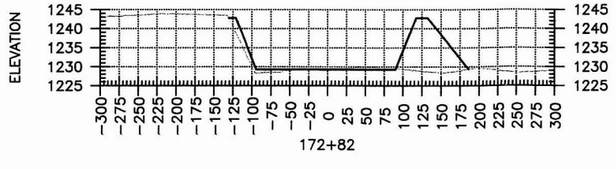

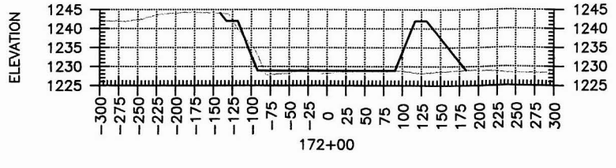

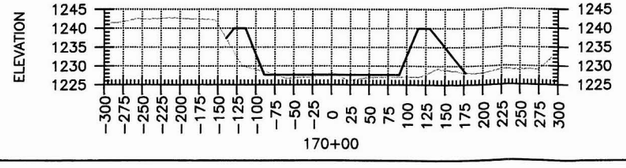

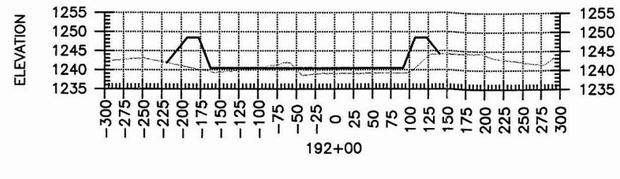

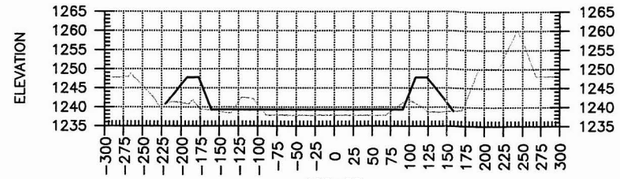

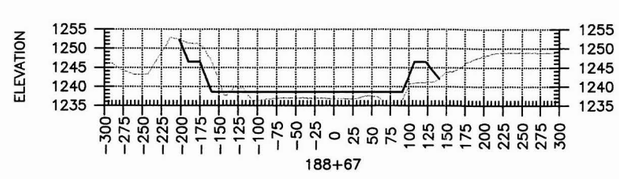

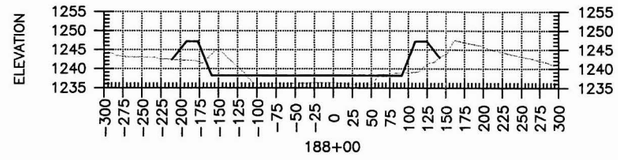

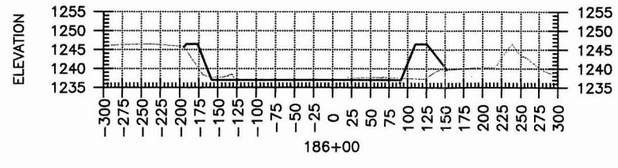

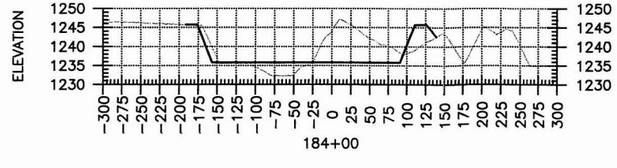

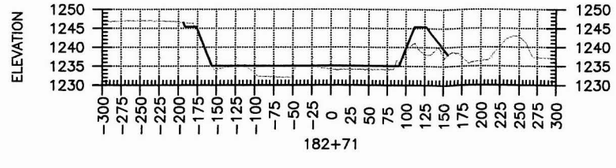

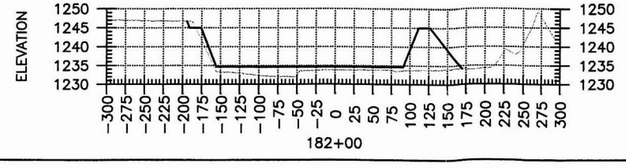

NO.	REVISION	BY	DATE
3			
2			
1	RED LINE CORRECTIONS	P.J.E.	01/10/00

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

MIDDLE NEW RIVER
WATERCOURSE MASTER PLAN
PROJECT NO. 28900058

	BY	DATE
DESIGNED	C.A.S.	05/18/99
DRAWN	C.A.S.	05/18/99
CHECKED	S.S.S./P.J.E.	05/18/99

PRELIMINARY
NOT FOR
CONSTRUCTION

Stantec

CROSS SECTIONS
STA. 158+72 TO 192+00

SHEET OF
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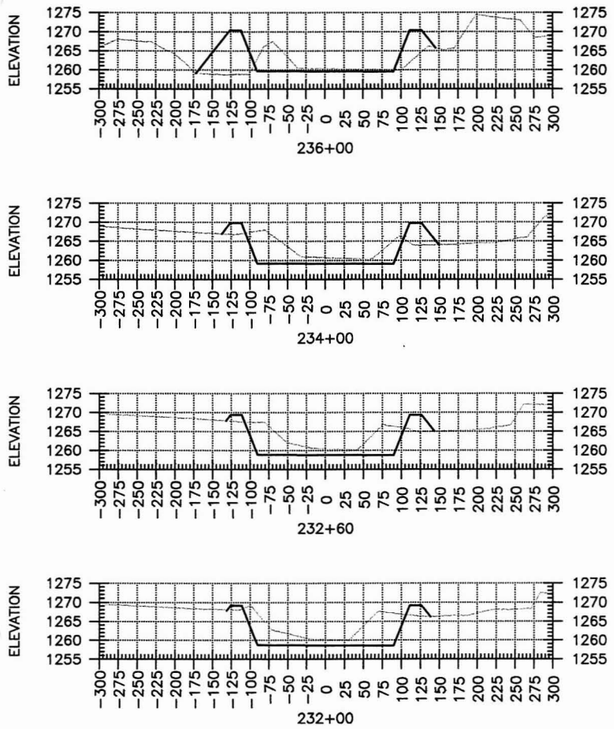

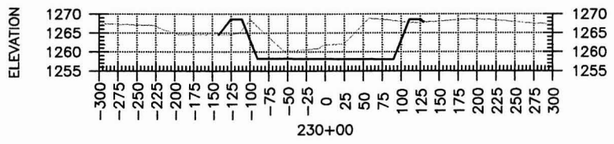

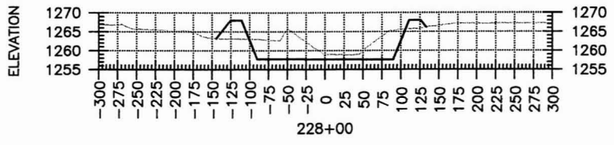

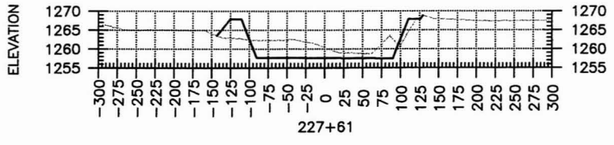

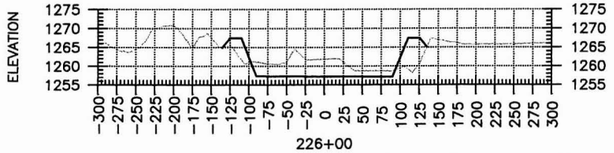

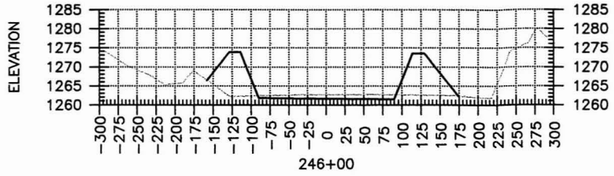

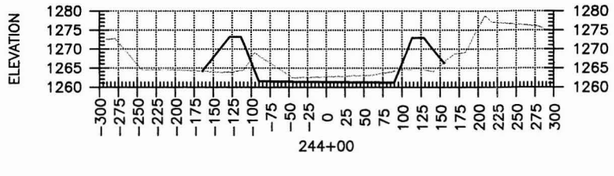

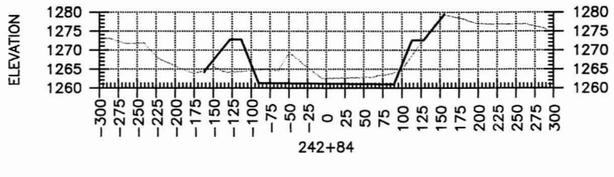

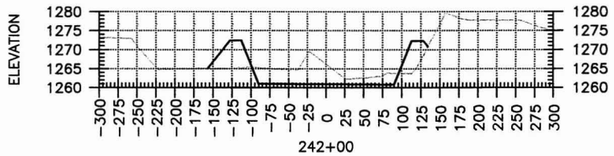

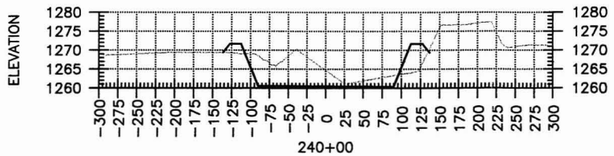

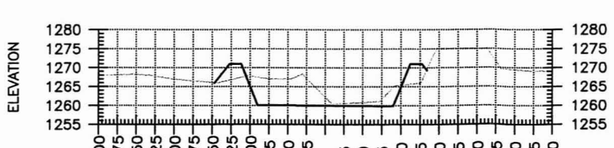

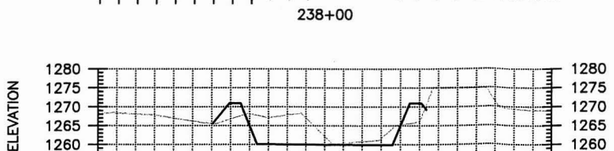

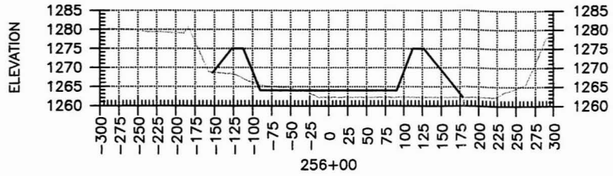

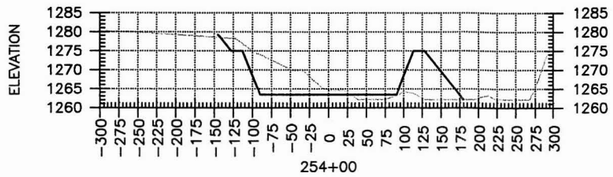

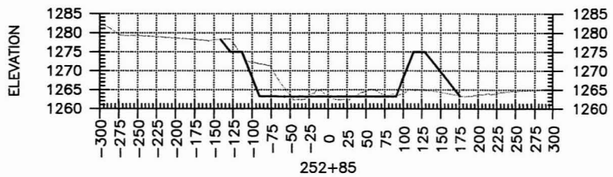

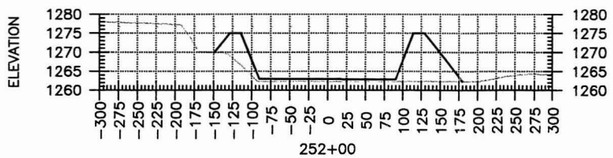

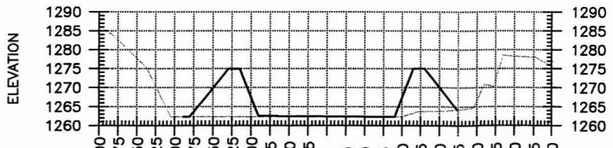

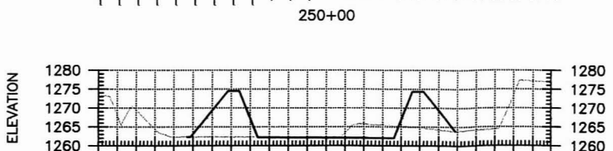

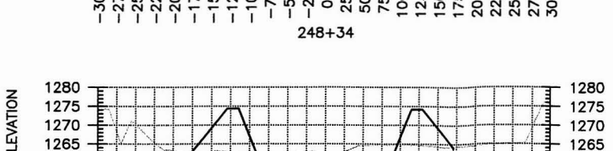

NO.	REVISION	BY	DATE
3			
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

MIDDLE NEW RIVER
WATERCOURSE MASTER PLAN
PROJECT NO. 28900058

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DRAWN	C.A.S.	05/18/99
CHECKED	S.S.S./P.J.E.	05/18/99

Stantec

CROSS SECTIONS
STA. 226+00 TO 256+00

SHEET OF
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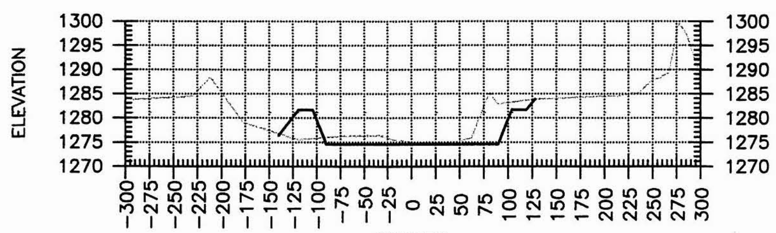

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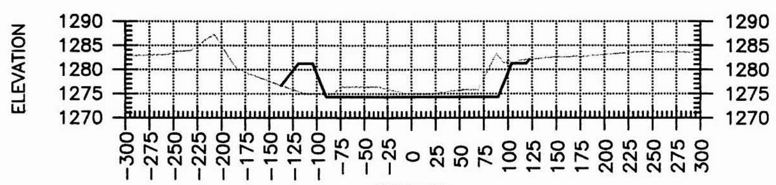

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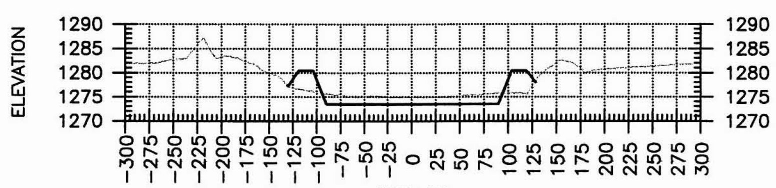

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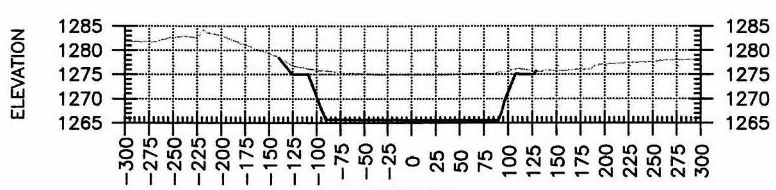

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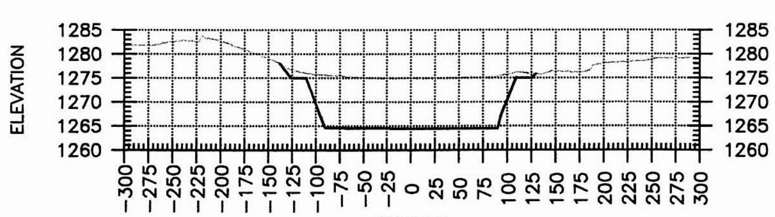

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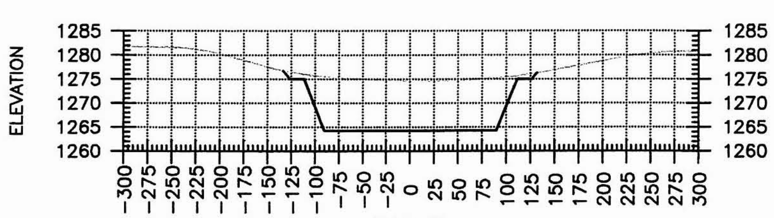

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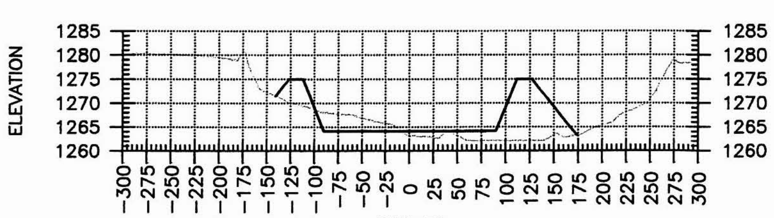

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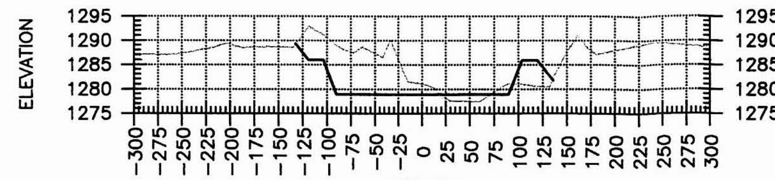

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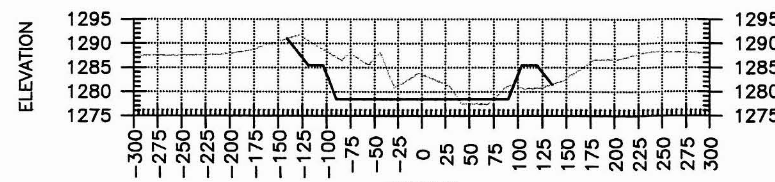

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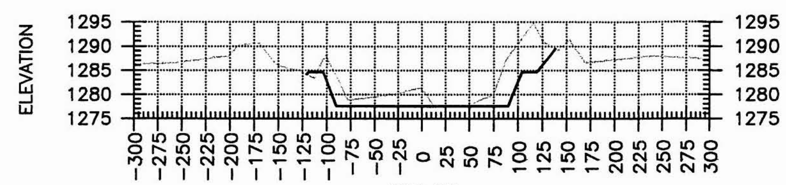

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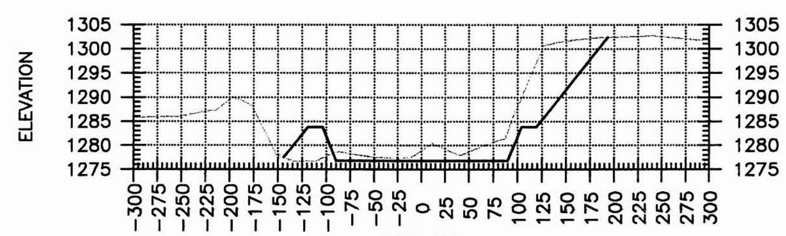

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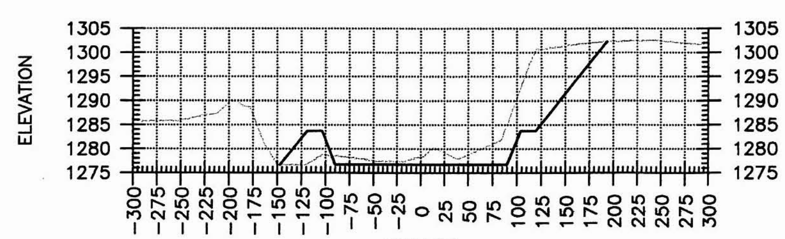

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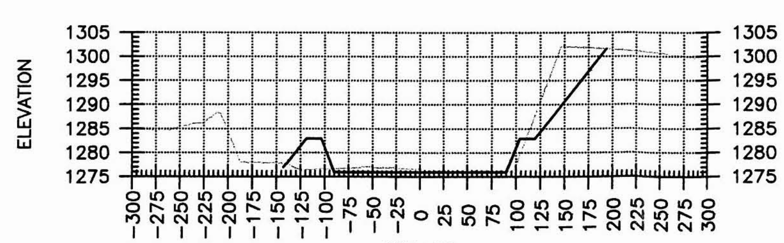

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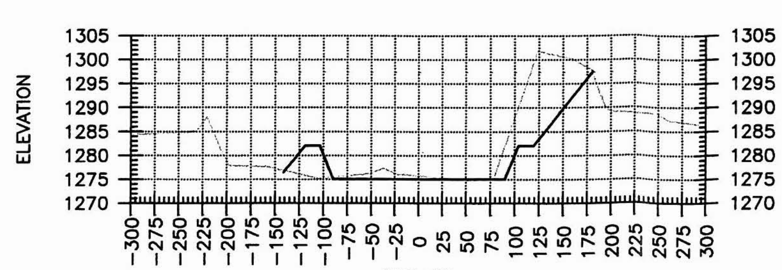

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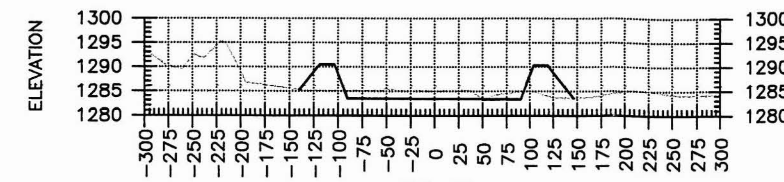

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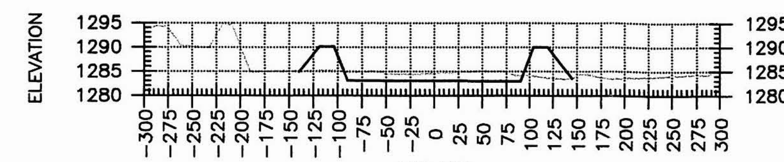

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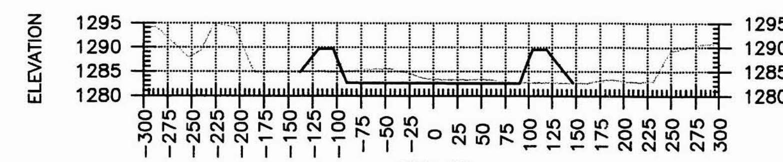

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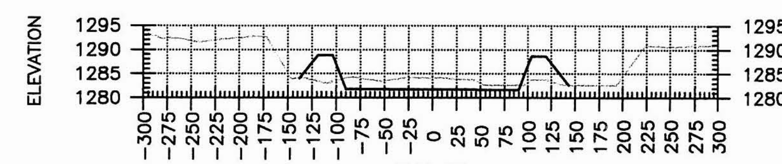

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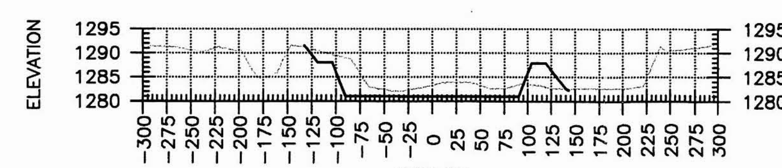

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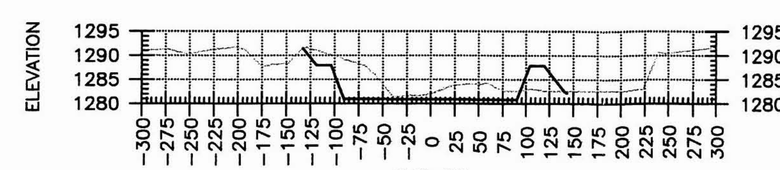

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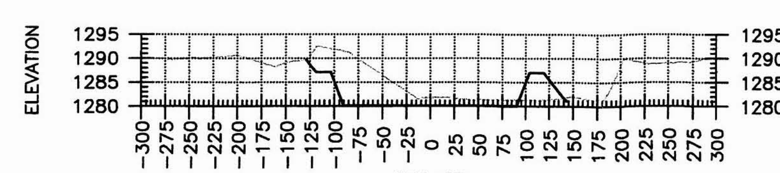

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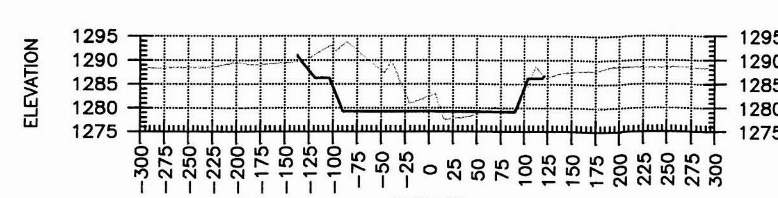

272+00

NO.	REVISION	BY	DATE
3			
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

MIDDLE NEW RIVER WATERCOURSE MASTER PLAN
PROJECT NO. 28900058

		BY	DATE
PRELIMINARY NOT FOR CONSTRUCTION	DESIGNED	C.A.S.	05/18/99
	DRAWN	C.A.S.	05/18/99
	CHECKED	S.S.S./P.J.E.	05/18/99

Stantec

CROSS SECTIONS
STA. 256+70 TO 282+00

SHEET 22 OF 23

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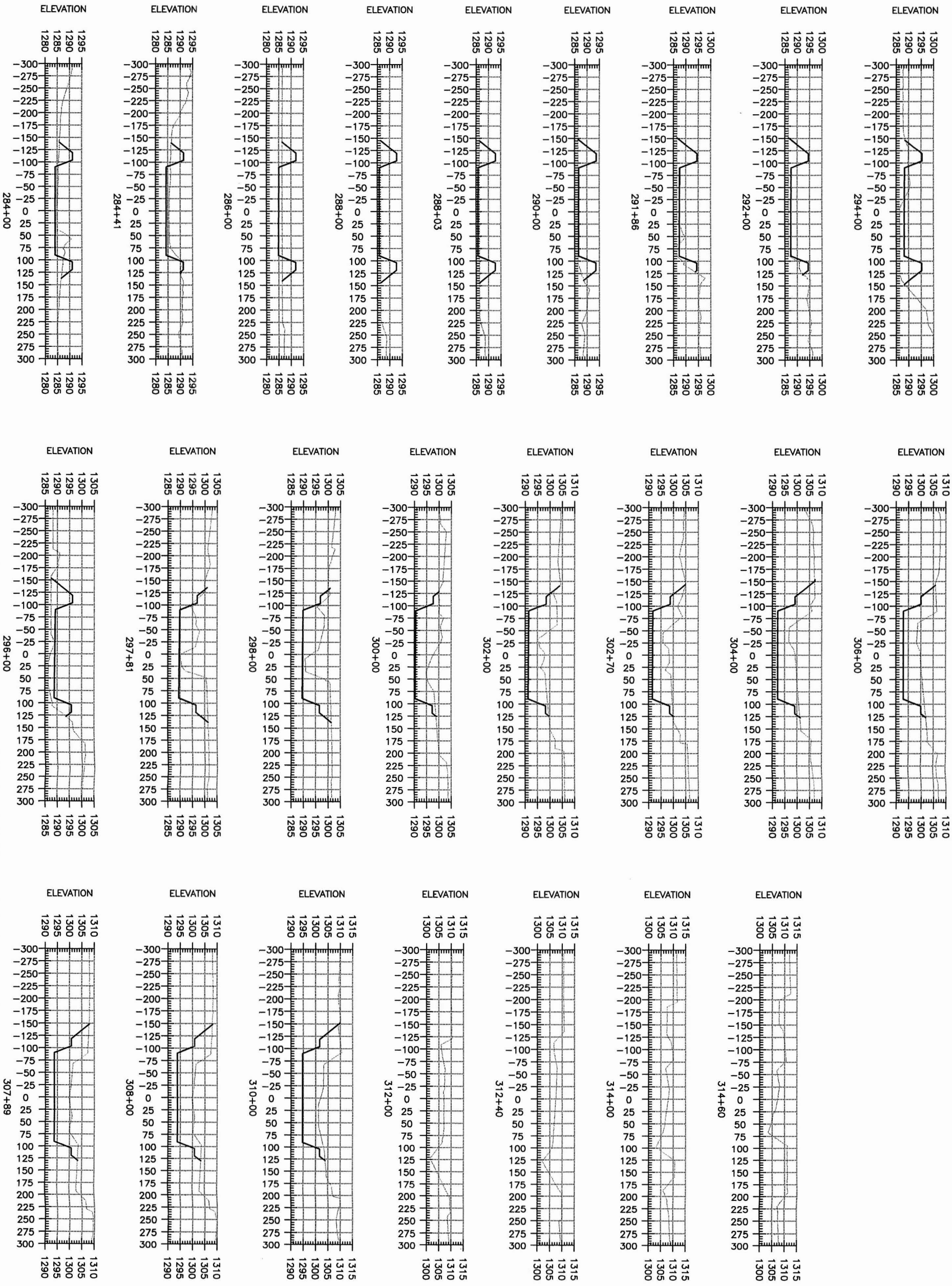

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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

MIDDLE NEW RIVER
WATERCOURSE MASTER PLAN
PROJECT NO. 28900058

	BY	DATE
DESIGNED	C.A.S.	05/18/99
DRAWN	C.A.S.	05/18/99
CHECKED	S.S.S./P.J.E.	05/18/99

PRELIMINARY
NOT FOR
CONSTRUCTION

Stantec

CROSS SECTIONS
STA. 264+00 TO 314+60

SHEET 23 OF 23

6.5.1 Preferred Alternative Construction Cost Estimates

Estimates of probable construction cost were prepared for the preferred alternative. Quantities are calculated for earthwork (channel excavation and/or fill or back fill) volume of bank armoring material required, volume of drop structure material required (if applicable) for each Improvement Segment.

Unit costs were compiled from a Stantec database, including bid tabs for the City of Phoenix, the City of Scottsdale and the Arizona Department of Transportation construction projects for 1998. Table 6-16 lists a summary of unit cost utilized to determine cost estimates for each alternative.

TABLE 6-16
SUMMARY OF UNIT COST
PREFERRED ALTERNATIVE

Item	Unit	Cost
Earth Work	Cubic Yards (cy)	$3.00/cy
Soil Cement	Cubic Yards (cy)	$35.00/cy
Roller Compacted Cement	Cubic Yards (cy)	$50.00/cy
Gabion Mattress	Cubic Yards (cy)	$70.00/cy

Given the level of design (conceptual) of the preferred alternative, a contingency cost is applied to account for design detail that is not undertaken at this stage. Contingency cost is estimated at 15 percent of the cost of the proposed channel improvements. Contingency cost also includes relocation of utilities.

Cost estimates developed for each Improvement Segment reflect the proposed channel elements over the length of a given segment. Cost estimates do not include construction activities associated with development adjacent to proposed improvements. The overall total for proposed master plan improvements is approximately $12,163,000.00. Table 6-17 through Table 6-23 provides cost estimates for the preferred alternative improvements.

TABLE 6-17
IMPROVEMENT SEGMENT 1 STA 26+30 TO STA 55+00
COST ESTIMATE

Pay Item No.	Description	Quantity	Unit	Engineer's Estimate Unit Price	Amount
	Earth Work (Excavation)	99,213	CY	$3.00	$297,639.00
	Earth Work(Fill)	5	CY	$3.00	$15.00
	Gabion Mattress	4249	CY	$70.00	$297,430.00
	Access Ramp	2	LS	$96,500.00	$193,000.00
	Misc. Work (15%)	1	LS	$135,012.60	$135,012.60
	SUBTOTAL OF BID ITEMS				**$1,035,096.60**

TABLE 6-18
IMPROVEMENT SEGMENT 2 STA 61+50 TO STA 69+50
COST ESTIMATE

Pay Item No.	Description	Quantity	Unit	Engineer's Estimate Unit Price	Amount
	Earth Work (Excavation)	5,294	CY	$3.00	$15,882.00
	Earth Work(Fill)	1	CY	$3.00	$3.00
	Gabion Mattress	1016	CY	$70.00	$71,120.00
	Access Ramp	2	LS	$96,500.00	$193,000.00
	Misc. Work (15%)	1	LS	$42,000.75	$42,000.75
	SUBTOTAL OF BID ITEMS				**$322,005.75**

TABLE 6-19
IMPROVEMENT SEGMENT 3 STA 78+50 TO STA 86+50
COST ESTIMATE

Pay Item No.	Description	Quantity	Unit	Engineer's Estimate Unit Price	Amount
	Earth Work (Excavation)	11,371	CY	$3.00	$34,113.00
	Earth Work(Fill)	139	CY	$3.00	$417.00
	Gabion Mattress	1126	CY	$70.00	$78,820.00
	Trail Crossing at Bridge	1	LS	$157,000.00	$157,000.00
	Misc. Work (15%)	1	LS	$40,552.50	$40,552.50
	SUBTOTAL OF BID ITEMS				**$310,902.50**

TABLE 6-20
IMPROVEMENT SEGMENT 4 STA 88+50 TO STA 140+90
COST ESTIMATE

Pay Item No.	Description	Quantity	Unit	Engineer's Estimate Unit Price	Amount
	Earth Work (Excavation)	141,123	CY	$3.00	$423,369.00
	Earth Work(Fill)	29,137	CY	$3.00	$87,411.00
	Gabion Mattress	7,209	CY	$70.00	$504,630.00
	Roller Compacted Cement	6,135	CY	$50.00	$306,750.00
	Access Ramp	2	LS	$96,500.00	$193,00.00
	Trail Crossing at Bridge	2	LS	$157,000.00	$314,000.00
	Misc. Work (15%)	1	LS	$274,374.00	$274,374.00
	SUBTOTAL OF BID ITEMS				**$2,103,534.00**

TABLE 6-21
IMPROVEMENT SEGMENT 5 STA 144+80 TO STA 159+50
COST ESTIMATE

Pay Item No.	Description	Quantity	Unit	Engineer's Estimate Unit Price	Amount
	Earth Work (Excavation)	6,324	CY	$3.00	$18,972.00
	Earth Work(Fill)	9,330	CY	$3.00	$27,990.00
	Gabion Mattress	2,617	CY	$70.00	$183,190.00
	Trail Crossing at Bridge	2	LS	$157,000.00	$314,000.00
	Misc. Work (15%)	1	LS	$81,622.80	$81,622.80
	SUBTOTAL OF BID ITEMS				**$625,774.80**

TABLE 6-22
IMPROVEMENT SEGMENT 6 STA 159+50 TO STA 311+00
COST ESTIMATE

Pay Item No.	Description	Quantity	Unit	Engineer's Estimate Unit Price	Amount
	Earth Work (Excavation)	224,062	CY	$3.00	$672,186.00
	Earth Work(Fill)	187,734	CY	$3.00	$563,202.00
	Gabion Mattress	43,725	CY	$70.00	$3,060,750.00
	Roller Compacted Cement	11,172	CY	$50.00	$558,600.00
	Access Ramp	10	LS	$96,500.00	$965,000.00
	Trail Crossing at Bridge	2	LS	$157,000.00	$314,000.00
	Misc. Work (15%)	1	LS	$920,060.70	$920,060.70
	SUBTOTAL OF BID ITEMS				**$7,053,798.70**

TABLE 6-23
IMPROVEMENT SEGMENT 7 STA 346+00 TO STA 413+00
COST ESTIMATE

Pay Item No.	Description	Quantity	Unit	Engineer's Estimate Unit Price	Amount
	Earth Work (Excavation)	82,000	CY	$3.00	$246,000.00
	Earth Work(Fill)	82,000	CY	$3.00	$246,000.00
	Gabion Mattress	1,412	CY	$70.00	$98,840.00
	Revegetation (hydroseed)	1	LS	$28,000.00	$28,000.00
	Misc. Work (15%)	1	LS	$92,826.00	$92,826.00
	SUBTOTAL OF BID ITEMS				**$711,666.00**

6.5.2 Prioritization of Proposed Improvements

Proposed improvements have been prioritized based on their significance to mitigate potential flood damage from a major storm event or to insure that the river reach will convey the existing and future condition 100-year discharge. The priority categories are defined as follows:

1) High The channel does not have the capacity to convey the 100-year peak discharge and/or during a major storm event there is risk of significant damage to structures and/or major roadways.

2) Medium During a major storm event there is a potential for some loss of land without structures and/or damage to roadways. However, the potential for loss of structures or significant damage to major roadways is minimal.

3) Low Some loss of land without structures will occur in a major storm event. No loss of structures or damage to major roadways is expected.

Table 6-24 lists the priority ranking and a description summary of proposed improvements.

TABLE 6-24

Prioritization of Proposed Improvements

Improvement Segment	Priority Rating	Station (along construction line)	Proposed Improvements
1	Low	26+30 to 55+00	Realign and grade east bank, provide rock filled wire armoring. Minor earthwork within channel.
2	Medium	61+50 to 69+50	Realign and grade west bank, provide rock filled wire armoring. Minor earthwork within channel.
3	Low	78+50 to 86+50	Realign and grade east bank, provide rock filled wire armoring. Minor earthwork within channel.
4	Low	88+50 to 109+00	Realign and grade east bank, provide rock filled wire armoring. Minor earthwork within channel from stations 88+50 to 109+00.
4	High	109+00 to140+90	Channel excavation from stations 109+00 to 133+00 and 136+00 to 140+90. Provide grade control structure and river bottom access /maintenance ramp at Station 133+00.
5	Low	144+80 to 159+50	Realign and grade west bank, provide rock filled wire armoring. Minor earthwork within channel.
6	Low	159+50 to 255+00	Realign and grade east and west bank, provide rock filled wire armoring, excavate channel.
6	High	255+00 to 260+00	Realign and grade east and west bank, provide rock filled wire armoring, excavate channel. Provide grade control structure and river bottom access /maintenance ramp at Station 258+18.
6	Low	260+00 to 298+00	Realign and grade east and west bank, provide rock filled wire armoring, excavate channel.
6	Medium	298+00 to 314+00	Realign and grade east and west bank, provide rock filled wire armoring, excavate channel. Provide grade control structure and river bottom access /maintenance ramp at Station 311+00.
7	Low	314+00 to 460+00	Erosion setback limits are utilized to define development limits. Some minor channelization and/or bank armoring at bend locations in the channel are proposed. Approximately 700lf of bank armoring near Terramar subdivision. The need for grade control structures at proposed roadway crossings of New River would need to be evaluated in the future.

6.5.3 Compatibility of Preferred Alternative with Other Planning Efforts

Compatibility of the preferred alternative with other planning type efforts within the Cities of Glendale and Peoria, and Maricopa County are discussed in this section. The City of Glendale's General Plan, Arrowhead Ranch Specific Plan and Circulation Plan, and the City of Peoria's Comprehensive Plan, Transportation Plan and Rivers and Trails Master Plan were consulted. Discussions with each City's staff at Steering Committee meetings also aided the evaluation with respect to the Watercourse Master Plan.

6.5.3.1 Transportation

There are seven major roads that are aligned to cross New River within the study area that are classified with an Arterial designation. These roadways are typically located on section lines and are expected to carry large volumes of traffic flow. All are oriented in an east-west direction with the exception of 83rd Avenue that is oriented north-south. Information was compiled from the City of Glendale's Circulation Plan and the City of Peoria's Transportation Plan. Below is a list of the arterial roads and their current or future method (bridged or at-grade) of crossing New River.

- Bell Road - Existing Bridge
- 83rd Avenue - Existing At-Grade
- Union Hills Drive - Existing Bridge
- Deer Valley Road - Existing At-Grade, Future Bridge
- Pinnacle Peak Road - None Existing, Future At-Grade
- Happy Valley Road - None Existing, Future Bridge
- Jomax Road - None Existing, Future At-Grade

Beardsley Road, that is in the study area, is not anticipated to cross New River since there is an alignment conflict with the Loop 101 Freeway to the east.

The Master Plan has evaluated existing bridge and at-grade crossings and did not discover any hydraulic deficiencies. The existing at-grade crossing at Deer Valley

Road is currently undergoing an engineering evaluation for structure selection to construct a bridge crossing and grade control structure.

The future bridge crossing anticipated at Happy Valley Road is located in the non-structural section of the Watercourse Master Plan. Since this portion of New River is intended to remain in a natural state, the future bridge should not be allowed to encroach into the 100-year floodplain. Bridge encroachment into the 100-year floodplain typically disrupts a river's state of equilibrium by rapidly changing the hydraulic conditions for some distance upstream and downstream of the bridge. This could have adverse impacts on adjacent property owners. Bridges shall be designed to pass the 100-year future peak discharge identified in this Master Plan and will not be allowed to effect the sediment transport of the river. This is also the case with any bridge crossings in the non-structural section.

Future at-grade crossings anticipated at Pinnacle Peak and Jomax Roads are also located in the non-structural section of the Watercourse Master Plan. The crossings are required to allow the river to remain in a natural state and must span the 100-year floodplain. Hydraulic and sediment transport analyses is required to ensure adequate scour protection is provided for the roadway crossing. This is also the case with any at-grade crossings in the non-structural section.

6.5.3.2 Recreation

Recreational path and trails have been accommodated by the Watercourse Master Plan. The following discussion is intend to identify to the reader existing planning efforts by others with regard to trails. The Master Plan does not recommended paved or permanent trails be place in the channel bottom of New River because of erosive forces. Trails on top of the channel banks are recommended. Along certain locations where right-of way is limited (i.e., Bell Park Subdivision), the trails can be integrated (benched) into the channel bank armoring. This application is also proposed for trails at all bridge crossings to allow pedestrians to cross beneath the bridge and not cross the heavily traveled roads.

The Maricopa Association of Government's "West Valley Recreation Corridor" project will link 17 West Valley recreation trails. The proposed recreation trail system will include hiking trails, equestrian trails, pedestrian trails and bikeways. In addition to providing trails that linking existing and proposed trails within the cities Phoenix, Peoria, Glendale and Avondale the trails the project would provide parks,

picnic areas, and possibly golf courses. The West Valley Recreation Corridor project area includes the Middle New River Watercourse Master Plan study area.

The City of Glendale's "Arrowhead Ranch Specific Plan" and the City of Peoria's "Rivers and Trails Master Plan" call for a multi-use trail along New River. The Watercourse Master Plan accommodates a trail system and identifies locations where access ramps into and out of the river channel could be provided. A fifteen-foot wide trail or path is recommended for channel access for safety and maintenance vehicles. These issues shall be addressed by future development along New River and developers are required to contact staff at the City of Glendale and the City of Peoria regarding the design of multi-use trails along the river.

6.5.3.3 Land Use

Approximately 4 miles of the City of Glendale's corporate limits fall immediately adjacent or within the Watercourse Master Plan for New River. Channel banks within the City of Glendale are typically not armored with the exception of a segment adjacent to the Arrowhead Wastewater Treatment Plant. Improvements proposed along the 4 miles consists of providing a trapezoidal shaped channel with rock filled wire basket bank armoring.

Most of the 8.5-mile long study reach for the Watercourse Master Plan for New River is in the City of Peoria. Channel banks within the City of Peoria where development has occurred are typically armored. However, many areas still require bank armoring. Improvements proposed by the Master Plan consist of providing a trapezoidal shaped channel with rock filled wire bank armoring, grade control structures, channel excavation, and a non-structural erosion set-back buffer for the area north of Pinnacle Peak Road.

Land use within the Watercourse Master Plan study area does not conflict with City of Glendale's or the City of Peoria's current land use plans. Some private property is affected in the non-structural erosion setback buffer located from Pinnacle Peak to the New River Dam.

Density transfer credits may be considered for land that lay within the erosion setback buffer.

6.5.4 Potential Permits Required for Implementation of the Preferred Alternative

Permitting requirements for the Middle New River Watercourse improvements cannot be accurately determined at this time. It is currently unknown who the responsible parties will be for construction. If the recommended improvements occur during numerous, separate projects, it will have an effect upon permitting requirements. The following are the major permits which will most likely be required, regardless of construction schedules or responsibilities.

6.5.4.1 Army Corps of Engineers

Permit: Section 404 permit under the Clean Water Act (Dredging and Filling waters of the U.S.)

How to Obtain:

- Meet with the Corps to discuss the project with existing aerial photos and preliminary plans.
- Conduct a jurisdictional delineation of the project area.
- Acquire aerial photos at a scale of 1 x 100 or 1 x 200 to check and revise the Jurisdictional Delineation of Waters of the U.S. utilizing field determination.
- Contact U.S. Fish and Wildlife Service or obtain County species list by Internet.
- Contact SHPO, or document the completion of the cultural resource survey.
- Work with the project engineers to minimize the impact to jurisdictional washes.
- Map the necessary jurisdictional impact and compute the ground measurements, acreage and cubic yards of fill impacts.
- Develop a detailed Alternatives Analysis (if an Individual permit is required) per Corps requirements.
- Prepare maps for submission, the application form, a detailed narrative regarding the project and the impact and tables indicating the measurements for each impact area.

- If required by the Corps, prepare and submit an additional application package to the Arizona Department of Environmental Quality for Sec. 401 Water Quality Certification.

Time Required: In addition to preparation of the application, the review time for a Nationwide permit is two to three months. Review time for an Individual Permit is six months to a year.

Life of Permit: Single application, as long as impact remains the same.

6.5.4.2 Arizona Department of Environmental Quality

Permit: Section 401 permit under the Clean Water Act (Water Quality)

How to Obtain: Contact should be made with ADEQ early in the project planning process in order to determine if water quality certification is required. If it is needed, a form must be completed which provides ADEQ with information regarding location of the proposed work and a detail regarding what is proposed. Required information usually includes, contact name, project description, fill material description, elevations, site revegetation plan, photographs, dates of construction, etc. It normally helps to provide ADEQ with a copy of the 404 application to assist them in their review.

Time Required: Time of review is variable, depending on the complexity of the proposed project. Minimum review time is 20 days; some applications can take up to a year.

Life of Permit: Permanent, unless project changes occur.

Permit: Aquifer Protection Permit

How to Obtain: In the event that groundwater recharge is planned, an aquifer protection permit (APP) will be required. The application procedure is a complex, iterative process, but basically includes a pre-application meeting, a pre-application proposal, an application, a hydrologic study, as well as other data which may be requested by ADEQ. Of particular importance, the applicant must demonstrate that the best available demonstrated control technology (BADCT) is employed, that water quality standards will not be violated and that the applicant has the financial and technical capability to implement the project. Public review is a component of the permitting process.

Time Required: Variable; can range from six months to over two years depending upon the complexity of the proposed project. Substantial fees are required for review of the application and writing of the permit by ADEQ.

Life of Permit: Individual permits are issued for the operational life of the facility.

6.5.4.3 Environmental Protection Agency

Permit: Section 402 permit under the Clean Water Act – National Pollutant Discharge Elimination System – Storm Water Permits (NPDES for Construction)

How to Obtain: Submittal of Notice of Intent form, which includes information related to the facility operator, site activity description, the site location, project start and completion dates and areas of proposed disturbance. If the application is made by an individual, additional required information includes outfall locations(s), site drainage map, all proposed improvements, a description of any pollutant sources, and information related to storm discharge.

A specific requirement of the NPDES program is the formulation and implementation of a storm water pollution prevention plan.

Time Required: The Notice of Intent form must be submitted a minimum of 48 hours prior to start of activity. Actual processing time is dependent upon the type of project.

Life of Permit: Relates to construction period for projects disturbing over five acres of land.

6.5.4.4 Maricopa County Environmental Services Department

Permit: Earth Moving Permit, Demolition & Dust Control Plan

How to Obtain: This permit is required of all persons planning to disturb a total surface area of .10 acre or more. It consists of filling out an application which requires information such as location, size of project, acreage to be disturbed, a plot plan, etc. In addition, the application requires that a dust control plan be included.

Time Required: Application review requires 14 days. Fees are required based upon amount of acreage to be disturbed.

Life of Permit: The permit term is one year from date of issue.

6.6 GROUNDWATER RECHARGE

Groundwater recharge potential was evaluated in this study in accordance with the requirement of Arizona Revised Statutes §48-3609.01 for watercourse master plans. Research was conducted to determine the feasibility of groundwater recharge of the aquifer in the study area of the Watercourse Master Plan. Research considered several elements: recharge objectives, water supply, hydrogeology, and recharge technology. Recharge technology can be incorporated with the preferred alternative presented in this Master Plan. Chapter 7 - Groundwater Recharge addresses specific findings and recommendations required for implementation of recharge within the Master Plan area.

7.0 GROUNDWATER RECHARGE

GENERAL

Groundwater recharge potential was evaluated in this study in accordance with the requirement of Arizona Revised Statutes §48-3609.01 for watercourse master plans. The focus of this work task was to perform a reconnaissance level assessment of the conceptual viability of groundwater recharge of the aquifer in the New River study reach. Assessment of groundwater recharge potential included several tasks, as follows: literature search/review, definition of recharge objectives, identification of water supply sources, evaluation of area hydrogeology, and proposed recharge technology.

The work product presented in this section is a summation of the research findings, including a concept overview of groundwater recharge potential in the study reach. Costs associated with the implementation of any of proposed recharge technologies are not computed.

AREA DESCRIPTION

Currently, the area is a mixture of urban development, agricultural land and undeveloped land. Urban development occupies the greatest amount of area in Reaches 1 and 2. Formerly, the area was occupied by agricultural land, mostly consisting of orchards. Reach 3 is mostly undeveloped, but soon to be developed.

OBJECTIVES

The main objective of evaluating recharge is to determine the potential to enhance the water supplies of the Cities of Peoria and Glendale. Other outside groups, such as Central Arizona Groundwater Replenishment District (CAGRD), WESTCAPS, and the Arizona Water Banking Authority (AWBA) could also be interested in using New River for groundwater recharge. The aquifer can be recharged during the winter months when municipal and other water demand is relatively low and surface water supplies are potentially higher. Similarly, the recharged aquifer can be pumped to augment water from other supply sources during the summer months when water user demands are highest. The water could also be stored long term to meet the Arizona

Department of Water Resources (ADWR) 100-year assured water supply requirement.

Other objectives include recreational, wildlife and aesthetic benefits. The recharge technology could include using a "live stream" within the New River floodplain. The recharge channel could be graded to provide access by users to the "live" stream, and the channel itself could be graded and contoured to provide a more natural pool and riffle appearance. The channel could potentially be stocked with fish. The area around the stream could include bike paths, playgrounds, and natural areas with trees.

The following sections only identify potential recharge water sources and technologies. Final decisions regarding the development and implementation of a groundwater recharge strategy for the New River study reach are predicated upon collective input from the stakeholders identified above.

WATER SUPPLY

Recharge can be accomplished by using stormwater runoff, reuse water from a wastewater treatment plant, or Central Arizona Project (CAP) water. The majority of the water would come from reuse or CAP water. Stormwaters are random events, and the magnitude and timing of the water can not be predicted. Often the flow rate is rapid through the river, providing little time for infiltration.

The availability of reuse water would depend on the seasonal demand. Currently, Peoria does not have any reuse water available for recharge in the New River. The amount of reuse water from Glendale is unknown at the time of this study. Prior to recharge into the aquifer via injection wells, the water would need to meet drinking water standards. Pretreatment could include lime precipitation, activated carbon filtration, and/or membrane filtration such as microfiltration and reverse osmosis. Another treatment option is soil treatment, where municipal wastewater is infiltrated into the overlying alluvium and receives treatment as it moves to the aquifer. Treatment processes include filtration of suspended solids and bacteria, absorption of bacteria and viruses, precipitation of phosphates and trace metals, biological degradation of organic species, recarbonation of high pH effluents, and denitrification (Asano, 1985).

The major source of recharge water is likely to be from the CAP. Peoria is allotted approximately 18,709 acre-feet per year (ac-ft/yr) and Glendale is allotted

approximately 14,183 ac-ft/yr of CAP water (CAP, 1998). Also, the Arizona Water Banking Authority (AWBA) has estimated 229,675 acre-feet (ac-ft) of unused CAP water for the 1999 operating year (AWBA, 1998). The amount of water available for recharge would depend on the seasonal demand of CAP water and amount of water available to the AWBA. Water for the project could be transferred from the Hayden Rhodes Aqueduct CAP canal, located approximately 3.5 miles north of New River Dam, to the recharge site using a pipe line. Another method may include releasing water from the canal into the reach of New River located north of New River Dam and then releasing the recharge water from the dam.

KEY AGENCIES

Currently, Peoria and Glendale have jurisdiction over land surrounding New River. These cities are members of WESTCAPS, a coalition of CAP water subcontractors. WESTCAPS was formed to help the west Salt River Valley CAP water users to develop a plan to more fully use CAP water. WESTCAPS is composed of the following agencies: Arizona State Land Department, Arizona Water Company, Town of Buckeye, Citizens Utilities Company, Litchfield Park Water Service Company, Sunrise and Westend Water Companies, West Maricopa Combine, and the cities of Glendale, Goodyear, Peoria, Phoenix, and Surprise. The current director is Harold W. Thomas Jr. (Thomas, 1997).

If the cities desire to bank additional CAP water above their allotment they would contact the AWBA. The AWBA was created to help Arizona water users maximize use of the State's 2.8 million acre feet allotment of CAP water (AWBA, 1998). The authority also helps manage water supplies, set water aside for droughts, and provides a pool of water for Indian water rights settlements. The current chairperson is Rita Pearson, the Director of ADWR.

Another key agency is Central Arizona Groundwater Replenishment District (CAGRD). CAGRD provides a mechanism for developers and water providers to demonstrate an assured water supply under the new Assured Water Supply Rules. The CAGRD is an operational subdivision of the Central Arizona Water Conservation District (CAWCD). It is governed by CAWCD's Board of Directors and covers the same three-county service area as that served by CAWCD.

The following agencies would have to be contacted regarding permitting and approvals to recharge in New River:

- Flood Control District of Maricopa County
- U.S. Army Corps of Engineers
- Arizona Department of Environmental Quality
- Arizona Department of Water Resources.

HYDROGEOLOGY

Regional Geology

The west Salt River Valley basin is composed of three units; the upper alluvial unit, middle alluvial unit, and lower alluvial unit. These units are similar to the US Geological Survey's (USGS) upper, middle, and lower units. The upper alluvial unit includes deposits from channel, floodplain, and alluvial fans, and mainly consists of silt, sand, and gravel. The middle alluvial unit includes sediments from playa, alluvial-fan, and fluvial deposits, and mainly consists of clay, silt, mudstone, and gypsiferous mudstone with some interbedded sand and gravel. The lower alluvial unit includes sediments from alluvial, fluvial, playa and evaporite deposits and mainly consists of fine-grained material (Corell and Corkhill, 1994 and Brown and Pool, 1989).

Local Geology

The geology beneath New River was evaluated using ADWR drilling records, previous soil borings located near the study area, and the ADWR regional groundwater flow model. An approximate cross-section is shown on Figure 7-1. Little is known about the conditions in the northern part of the study area because little drilling has been conducted. Perched groundwater conditions were not reported in the records studied.

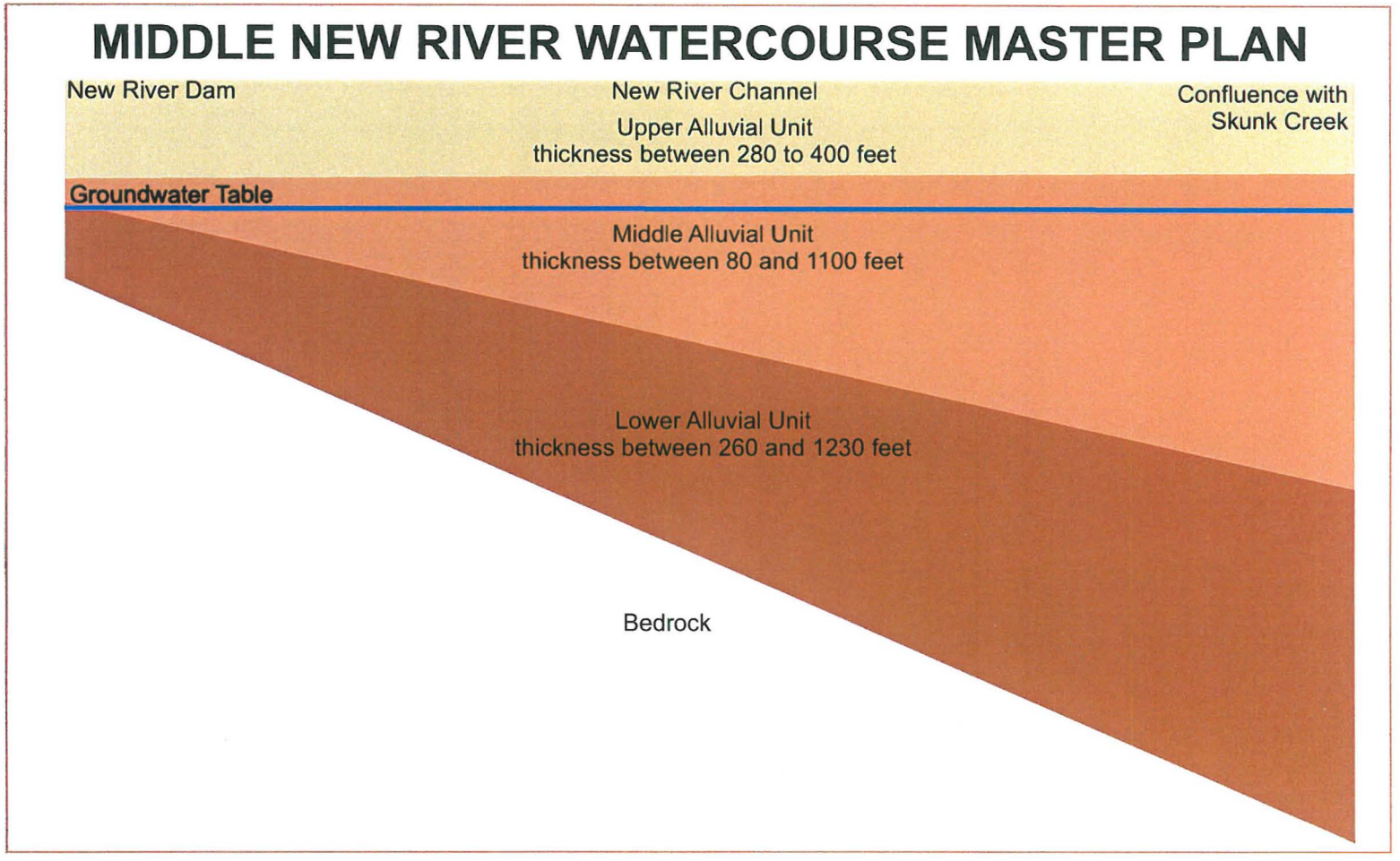


Figure 7-1

Approximate Cross-Section Along New River

300' 0' 300' 600'

Approximate Vertical Scale
Not to Scale Hortizontally

Stantec

MIDDLE NEW RIVER WATER COURSE MASTER PLAN
Flood Control District of Maricopa County

Groundwater Recharge

05/21/99
28900058

Specific yield is defined as the volume of water that an unconfined aquifer releases from storage per unit surface area of aquifer per unit decline in water table (Freeze and Cherry, 1979). It is used as a measure for the amount of available water that can be extracted from an aquifer. Aquifers consisting of sand will have a higher specific yield than aquifers consisting of silts and clays.

The thickness of the upper alluvial unit ranges between 280 and 400 feet (Corell and Corkhill, 1994). According to the drilling records the unit consists of sandy gravel with clay lenses. Previous drilling activities have defined a clay layer with interbedded sands and gravels near the confluence of Skunk Creek and New River at 9 to 16 feet below the top of the channel bed. The results of the investigation indicated that the clay layer is approximately 5 to 11 feet thick (Hydrosystems, Inc., 1998). Information concerning the extent of the clay north of the confluence was not available. The regional groundwater flow model reports the specific yield to be 0.10 (Corell and Corkhill, 1994).

The thickness of the middle alluvial unit ranges between 80 feet at the northern section and 1100 feet at the southern section (Corell and Corkhill, 1994). The drilling records indicate the unit consists of clay with interbedded sands and gravels. The regional groundwater flow model reports the transmissivity and specific yield of the unit to be approximately 2500 $feet^2$/day and 0.9, respectively (Corell and Corkhill, 1994). Transmissivity is a measure of the aquifer's ability to transmit water. An aquifer consisting of sands and gravels will have a higher transmissivity than an aquifer consisting of silts and clays (Freeze and Cherry, 1979).

The thickness of the lower alluvial unit ranges from 260 to 1230 feet (Corell and Corkhill, 1994). The drilling records indicated the unit consists of gravel, sand and clay. The regional groundwater flow model reports the transmissivity and specific yield of the unit to be approximately 2700 $feet^2$/day and 0.9, respectively (Corell and Corkhill, 1994). Note that actual transmissivity and storage capacity can be impacted by local conditions; therefore, regional values should be interpreted accordingly. If the local transmissivity and storage capacity are lower than the regional values less water can be recharged.

Groundwater

Most of the upper alluvial unit is dewatered in the study area by previous irrigation and municipal pumping activities. The depth to water in the middle alluvial unit ranges between 470 feet below ground surface (bgs) near the northern end of the study area and 280 feet bgs near the southern end of the study area. The unit is partially dewatered in the northern section. The depth to water in the lower alluvial unit ranged between 470 feet bgs at the northern end to 270 feet bgs near the southern end (Corell and Corkhill, 1994). The groundwater generally flows to the south. The groundwater level has changed between a decrease of 21 ft and an increase of 23 feet during the period 1982-1983 to 1991-1992 (Hammett and Herther, 1995). The document did not indicate which unit has experienced the increases. A cone of depression is located roughly between the White Tank Mountains and the Agua Fria River. The depression is caused by extensive groundwater withdrawals that have greatly exceeded replenishment over time (Hammett and Herther, 1995).

Subsidence

The downward movement of land where groundwater pumping has exceeded natural or artificial recharge of the aquifer characterizes subsidence in the Phoenix Metropolitan area. It is greatest in areas where there is a large amount of pumping, and where the aquifer is the thickest and most compressible. Non-uniform subsidence can produce cracks or fissures in the earth. The cracks or fissures can damage buildings, tunnels, streets, highways, railroads, water and sewer lines, and power lines. Subsidence may be stopped or small rebounds may occur when pumpage is reduced to the safe yield. Long-term subsidence is essentially irreversible (Bouwer, 1978).

According to the ADWR, subsidence in the southern portion of the New River study area ranges between 3 to 8 cm/year (1 to 3 inches/year). The data were collected using satellite imagery and a single spot measurement. They currently do not provide information on the northern portion of the study area (Tatlow, 1999).

While subsidence is irreversible, decreasing groundwater withdrawals and/or implementing recharge technologies can reduce the rate at which it occurs. This fact is significant in consideration of the high cost of infrastructure damage as a result of subsidence.

Water Quality

Available water quality results have been gathered from the Arizona Department of Environmental Quality (ADEQ) and Peoria. Little data were found for the northern part of the study area because there are very few wells in this area. Water quality results have indicated concentrations of dibromochloropropane (DBCP) greater than the maximum contaminate level (MCL) of 0.2 mg/L for the south part of the study area (ADEQ, 1994). DBCP was used to exterminate nematodes in citrus groves. One water quality analysis result indicated a concentration of nitrate greater than the MCL of 10 mg/L of nitrate nitrogen (ADEQ, 1994). The water quality results did not indicate concentrations of arsenic, cadmium, or fluoride greater than the MCLs (ADEQ, 1994 and Peoria, 1998). The upper alluvial unit groundwater is probably of poor quality due to deep perculation of irrigation water. Irrigation water will have elevated levels of salt and nitrates, and possibly pesticides.

Groundwater Mounding Analysis

Broad assumptions were made to estimate a recharge project's impact to the aquifer from New River Dam to the confluence with Skunk Creek. A schematic cross-section of the resultant groundwater mound is shown on Figure 7-2. Additional information is required to more accurately estimate the impact (see Section Information Requirements). The height of the groundwater mound was analyzed using the equation developed by Hantush for various infiltration rates and channel bottom widths (Bouwer, 1978).

$$h_{x,y,t} - H = \frac{v_a t}{4f}\{F[(W/2+x)n,(L/2+y)n] + F[(W/2+x)n,(L/2-y)n] + F[(W/2-x)n,(L/2+y)n] + F[(W/2-x)n,(L/2-y)n]$$

Where:

$h_{x,y,t}$ = height of water table above impermeable layer at x, y, and time t
H = original height of water table above impermeable layer
v_a = arrival rate at water table of water from infiltration basin
t = time since start of recharge
f = fillable porosity ($1>f>0$)
L = length of recharge basin (in y direction)
W = width of recharge basin (in x direction)

$$F(\alpha,\beta) = \int_0^t erf(\alpha\tau^{-1/2}) \cdot erf(\beta\tau^{-1/2}) d\tau$$

$n = (4tT/f)^{-1/2}$

The function $F(\alpha,\beta)$ was tabulated by Hantush and is included in *Groundwater Hydrology* on pages 284 and 285 (Bouwer, 1978). The calculation assumed constant flow for one year with no changes in infiltration rates, transmissivity, and specific yield with time or location within the study area. An infiltration rate of 2.5 feet/day was assumed for the study area (CDM, 1986). The mounding was limited to 30 feet bgs. An average evaporation rate of 72 inches/year was added to the recharge rate to calculate the inflow of water in the channel (Soil Conservation Service, 1977).

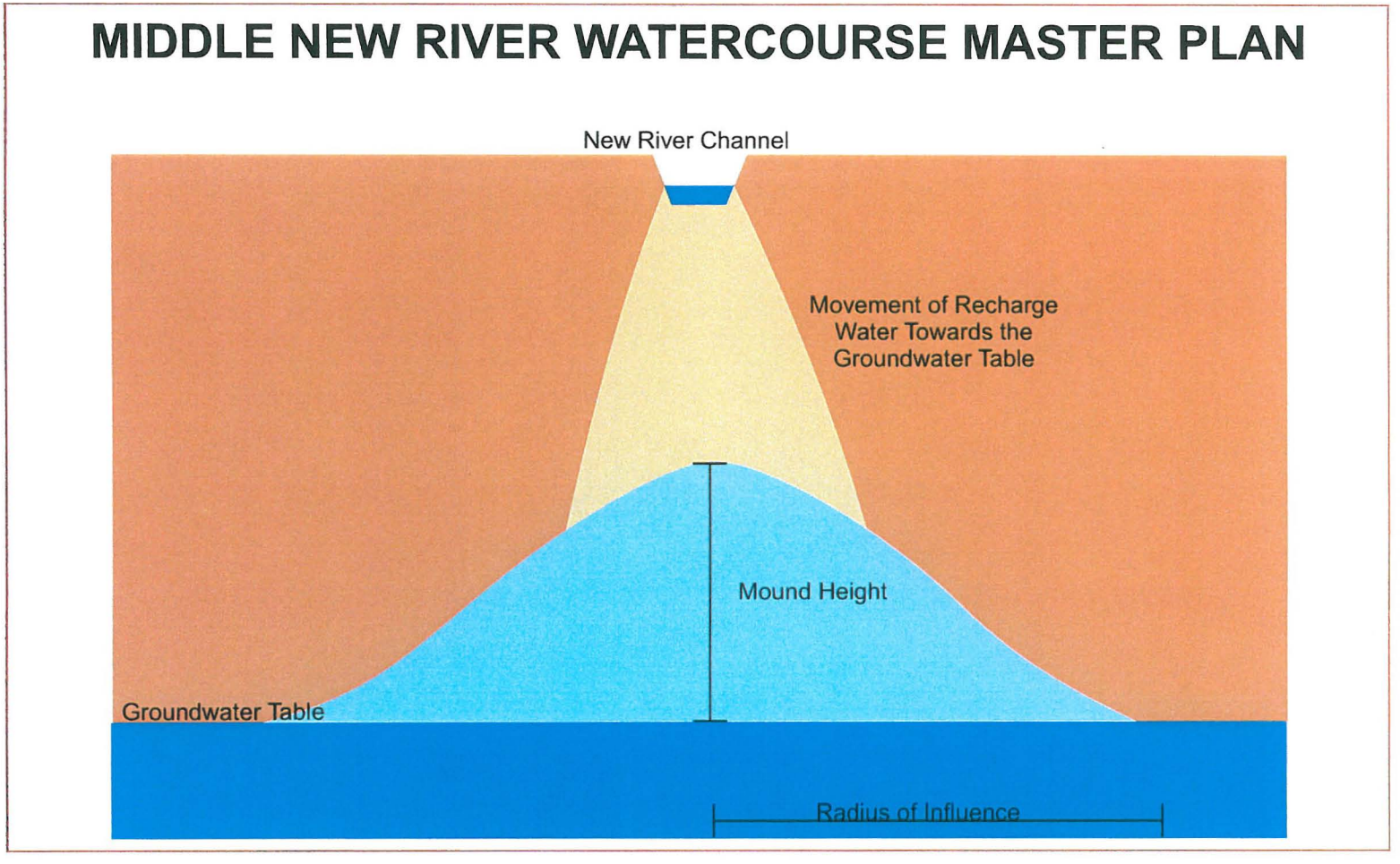


Figure 7-2

Groundwater Mound and Radius of Influence Schematic

The flow rates in the channel ranged between 4,000 and 234,000 ac-ft/yr for widths ranging between 20 and 1180 feet (see Figures 7-3 and 7-4). At these flow rates, all the water should be recharged by the time it reaches the confluence with Skunk Creek. For instance, for a channel width of 40 feet and assuming an infiltration rate of 1.5 feet/day, the channel could potentially infiltrate approximately 32 cfs (23,000 ac-ft/yr) (see Figure 7-3). Of the 32 cfs inflow in the channel, only slightly less (approximately 31.5 cfs) will be recharged because of evaporation. With the same set of values the groundwater table could potentially rise 9 feet above the original elevation (see Figure 7-4). The inflow in the channel is limited by the height of the groundwater mound of 30 feet bgs. If the groundwater mound was allowed to rise further it could begin to seep into basements, kill trees, and rise into depressed areas. Figure 7-5 shows the combination of infiltration rate and channel width that would result in a maximum groundwater table rise of 30 feet bgs. For instance, for an infiltration rate of 1 feet/day the maximum channel width is approximately 780 feet and channel flow rate is approximately 305,000 ac-ft/yr. The tabular data for the Figures are included at the end of this section.

Figure 7-3

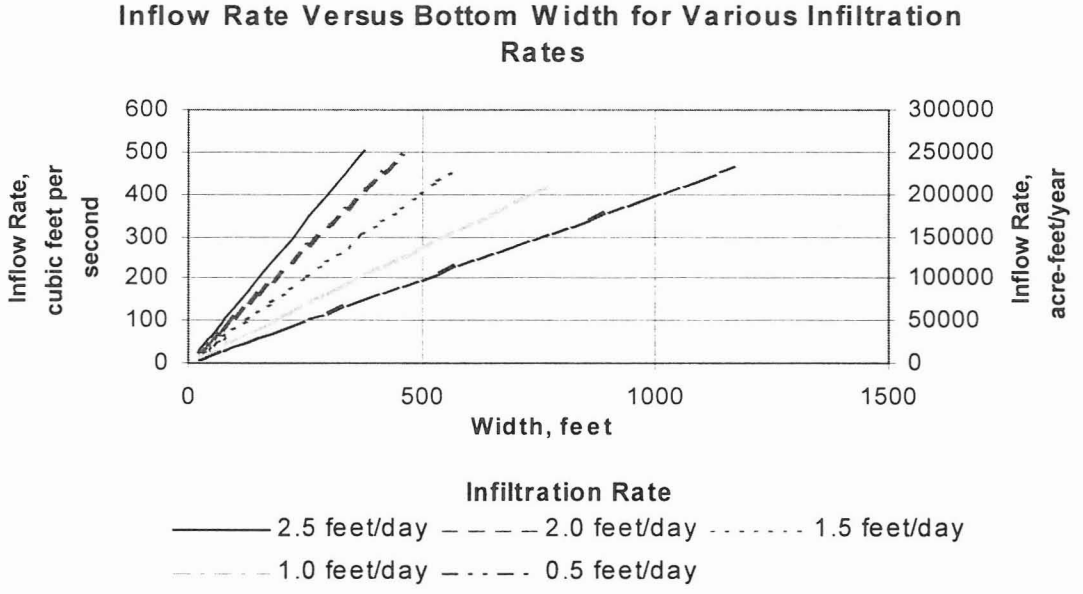


Figure 7-4

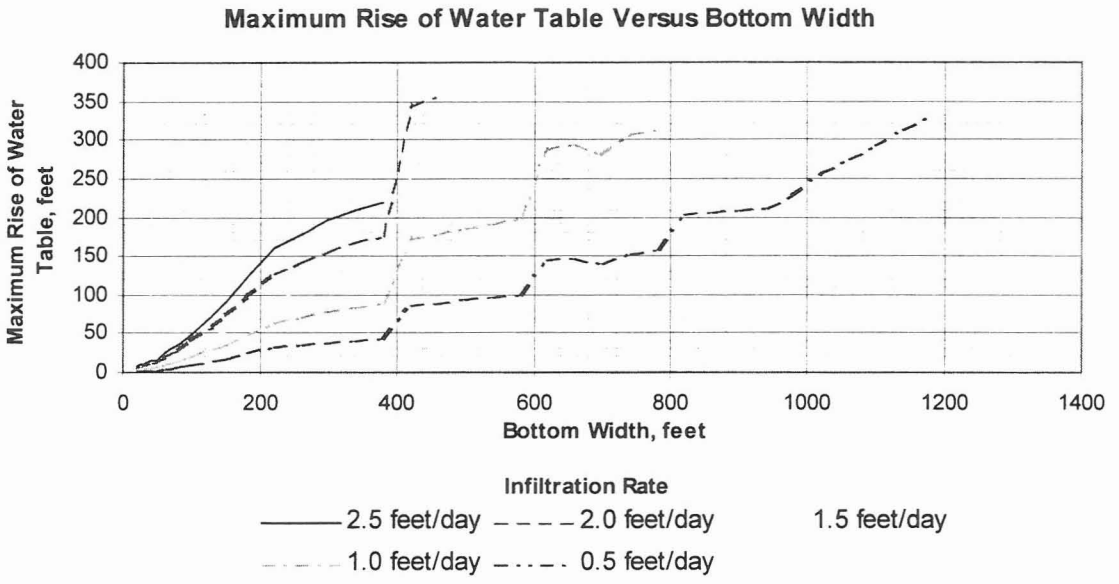
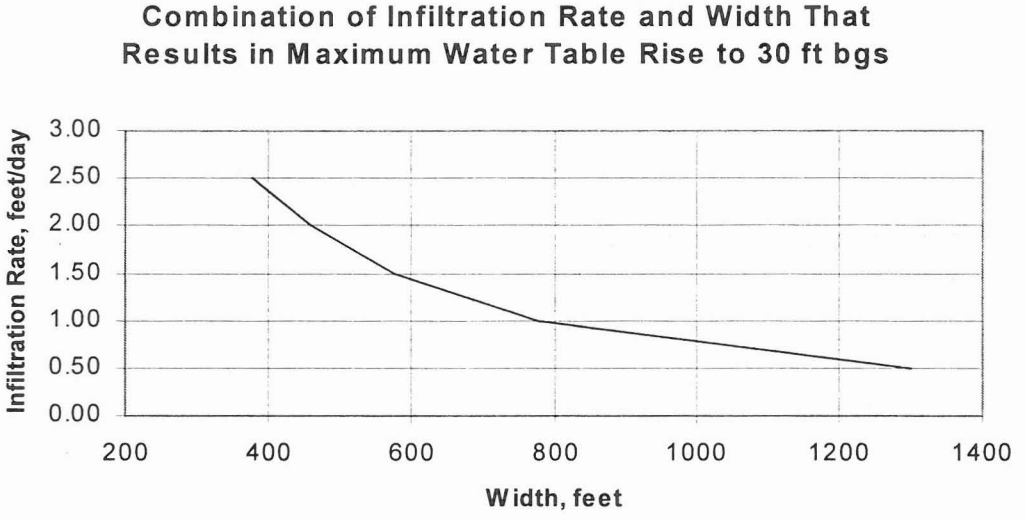


Figure 7-5



The radius of influence was analyzed using the following equation for the same infiltration rates.

$$\frac{q}{2} = T\left(\frac{h_s - h_1}{L}\right)$$

Where:

Q = discharge rate per unit length

H_2 = mound height

H_1 = 1 foot

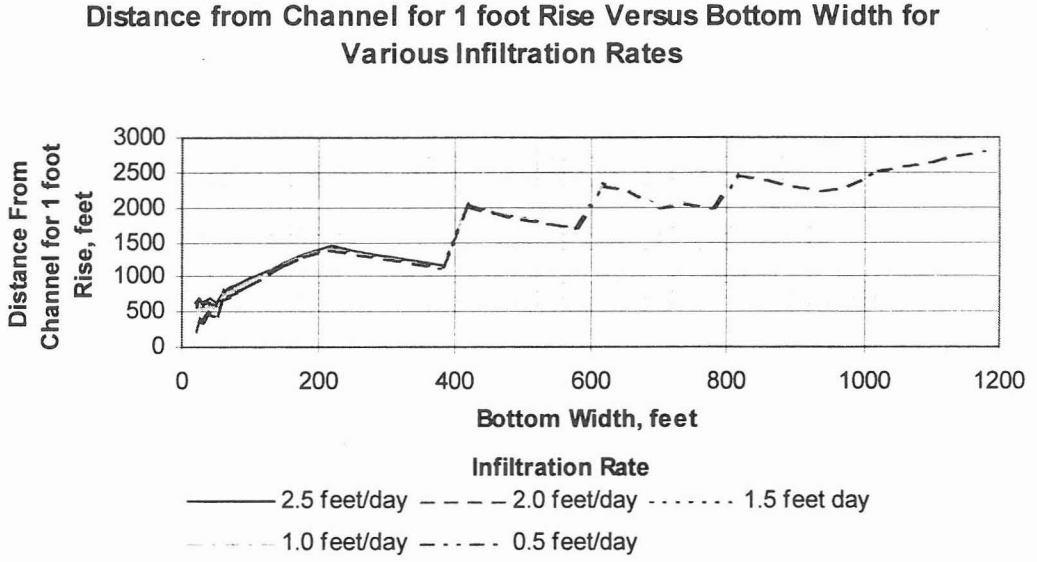
T= transmissivity

L = radius of influence

The calculation assumed constant flow for one year with no changes in infiltration rates, transmissivity, and specific yield with time or location within the study area. The maximum amount of water recharged was limited by a groundwater mound of 30 feet bgs and zero flow past the confluence with Skunk Creek.

Figure 7-6 shows the distance from the channel for a one foot rise in groundwater elevation. The radius of influence ranged from approximately 230 to 2,800 feet. For instance, for an infiltration rate of 1 feet/day and a channel width of 40 feet, the radius of influence is approximately 600 feet and the flow in the channel is approximately 22 cfs. The radius of influence is important in determining effects of recharge to the current private and municipal production wells. Also, it is important in determining if any new wells are necessary to recover the recharge water for future use.

Figure 7-6



Effective Recharge Transmissivity:

The effective transmissivity of the aquifer for recharge systems is less than the transmissivity of the entire aquifer. The deeper portions of the aquifer contribute very little to the flow and are stagnate or "passive" (Bouwer, 1978). The following figures show the effects of using a value of transmissivity that is approximately 20 percent less the transmissivity used in the previous section. The flow rate in the channel ranged between 4,000 and 142,000 ac-ft/yr for widths ranging between 20 and 740 feet. The maximum flow rate is approximately 40 percent less than the previous flow rates calculated. Conducting a pilot recharge project can assess the actual transmissivity of the system.

Figure 7-7

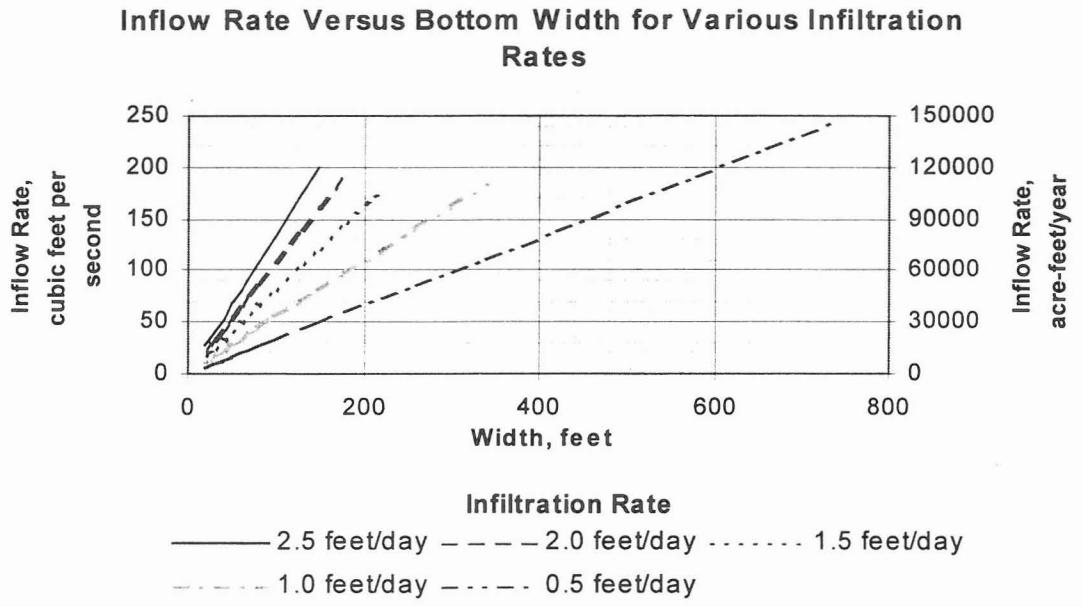


Figure 7-8

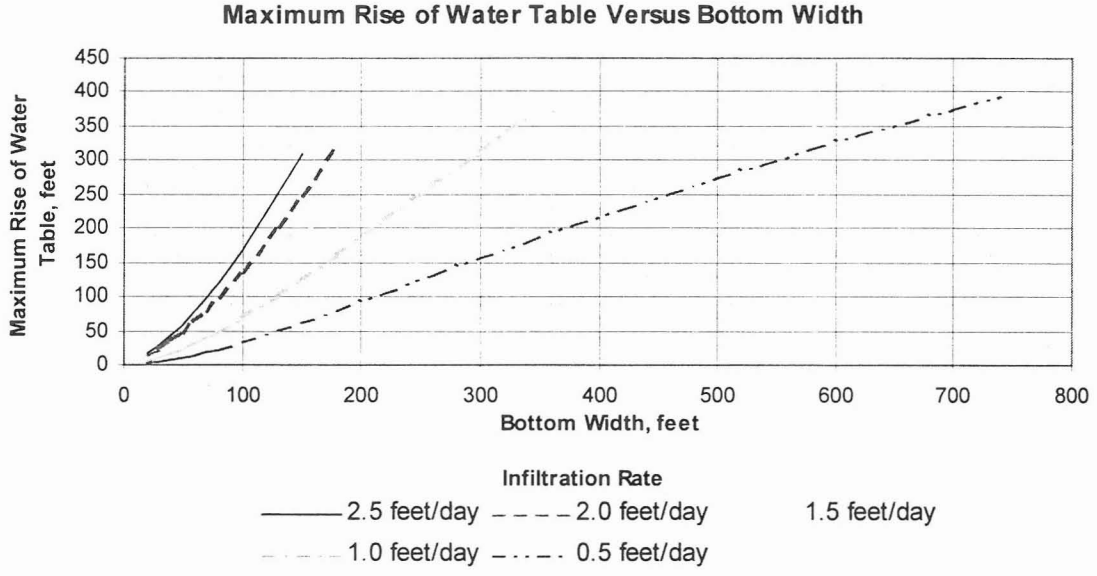


Figure 7-9

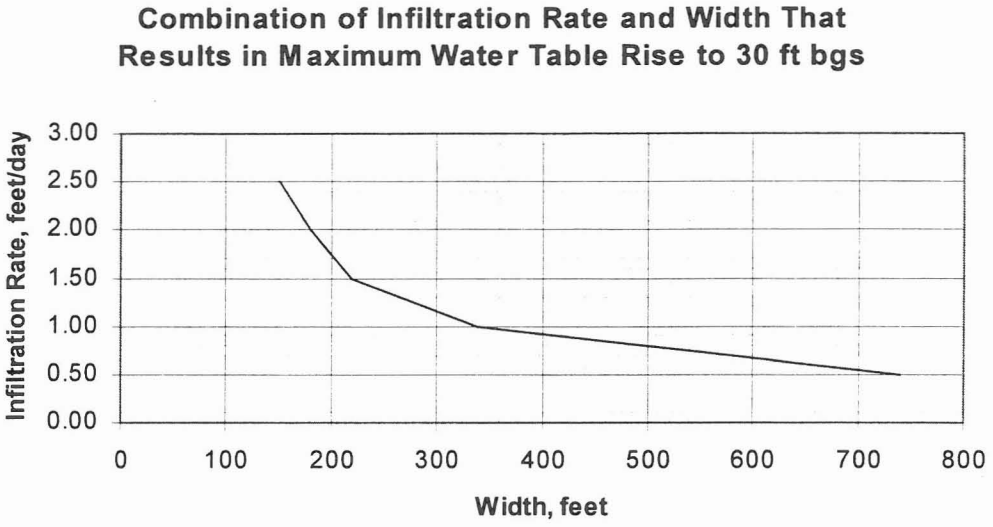
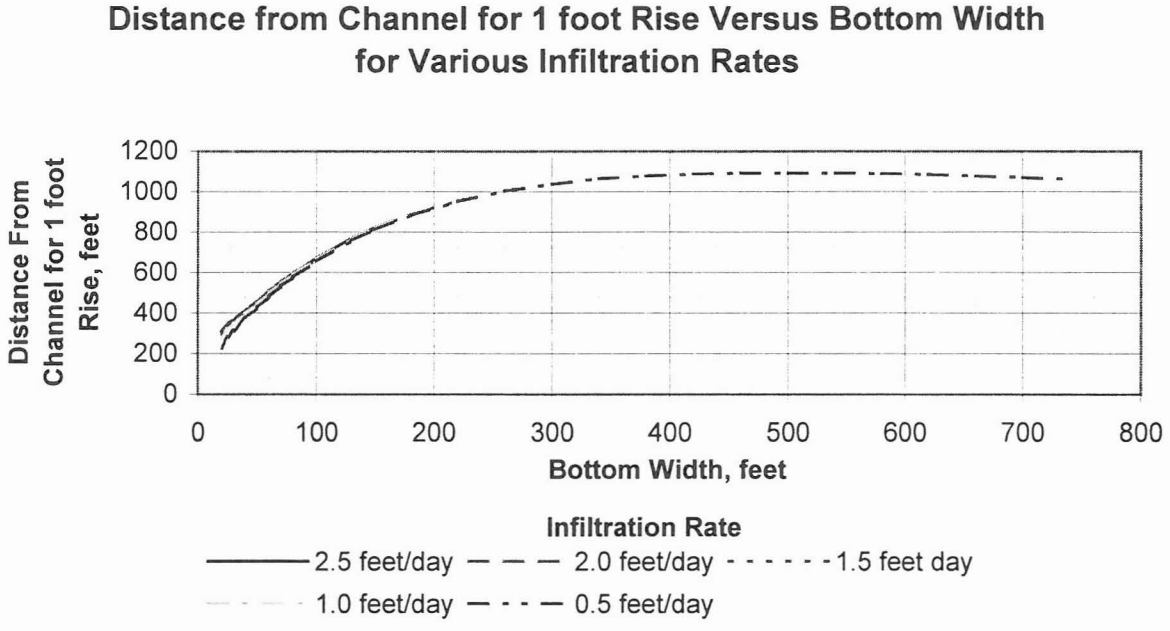


Figure 7-10



Recharge to Confluence with Aqua Fria River

The Hantush's equation and Neuman's solution of the Theis equation was also used to estimate recharge from New River Dam to the confluence with the Aqua Fria River. The analysis assumed the transmissivity, storativity, fillable porosity, and groundwater elevation did not change from the calculations in the previous section. This estimate should only be used for rough comparison purposes only. The flow rates in the channel ranged between 8,000 and 61,000 ac-ft/yr for widths ranging between 20 and 150 feet (see Figures 7-11, 7-12, 7-13 and 7-14). This is approximately twice the amount of water required to recharge to the confluence of Skunk Creek.

Figure 7-11

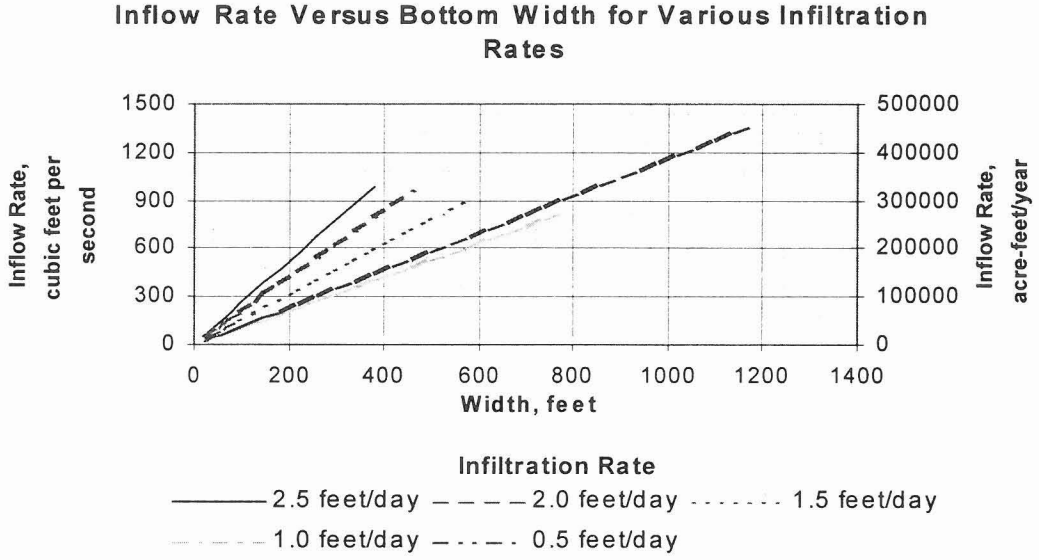


Figure 7-12

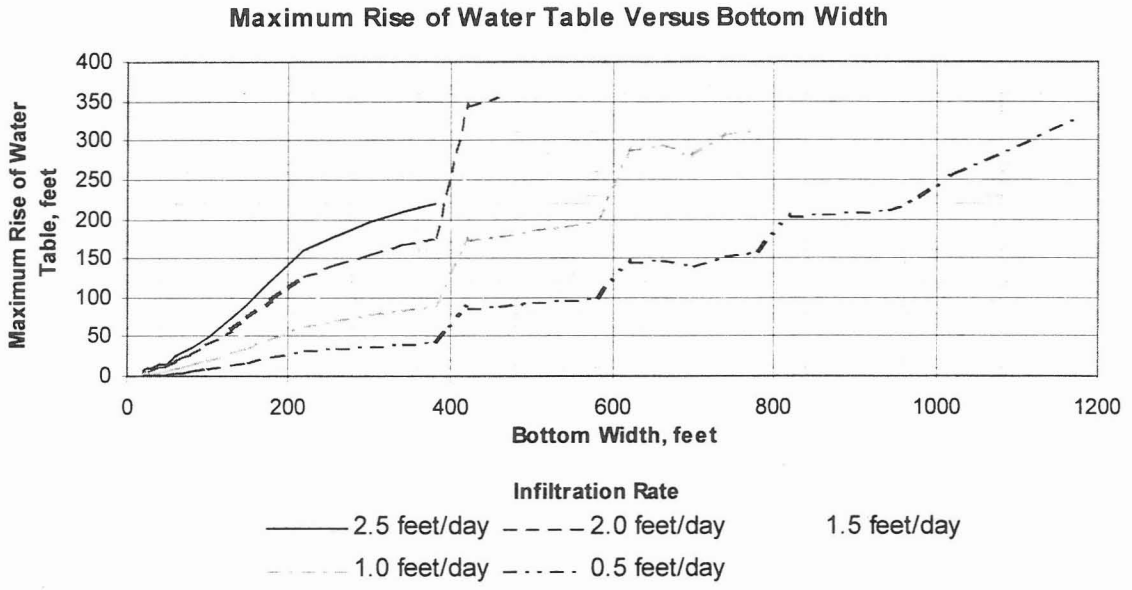


Figure 7-13

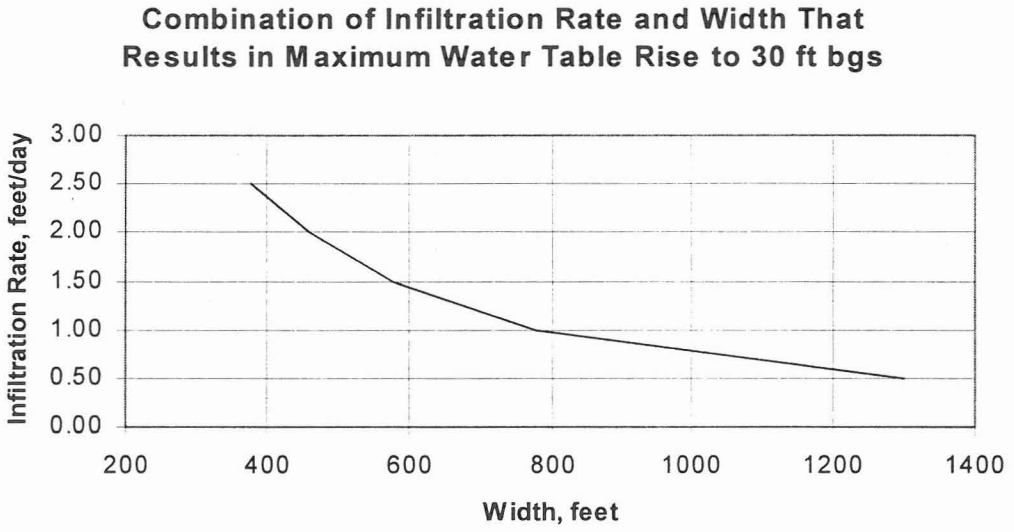
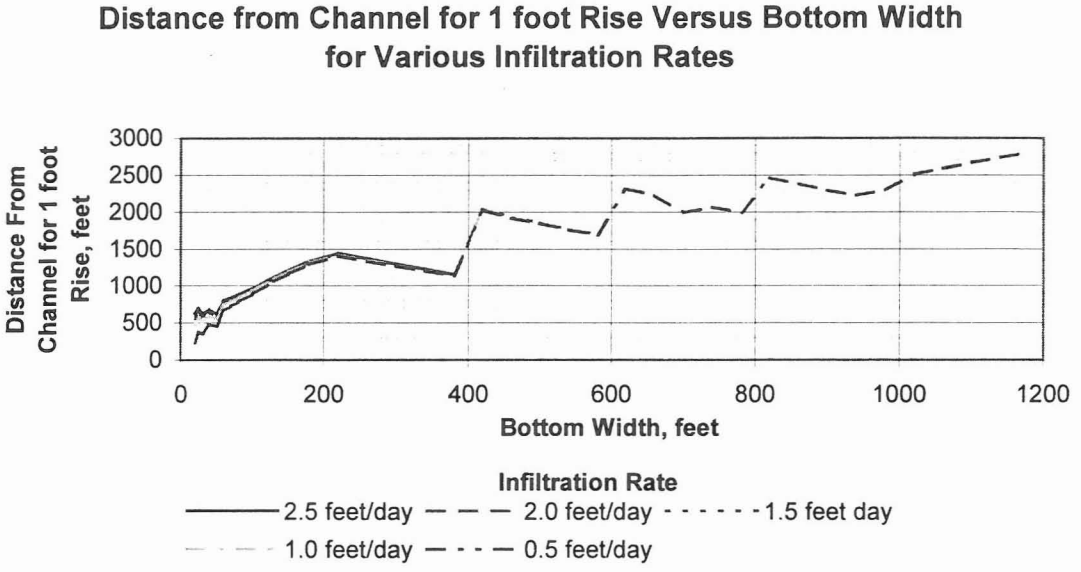


Figure 7-14



Summary of Mounding Analysis

Table A shows a summary of the mounding analysis calculations. Condition 1 is a summary of Figures 7-3 through 7.6. Condition 2 is a summary of the calculations using the effective recharge transmissivity (Figures 7-7 through 7-10). Condition 3 is a summary of the additional flows to the confluence to Aqua Fria River confluence (Figures 7-11 through 7-14). The table includes a range of what is "realistic" or potentially viable based on available data. Tighter numbers can only be validated by in depth hydrogeologic testing for the reach being evaluated.

Table A

Summary of Mounding Analysis

	Condition 1	Condition 2	Condition 3
Inflow Rate Range (cfs) [a]	5 to 500	5 to 200	10 to 980
Infiltration Rate Range (feet/day)	0.5 to 2.5	0.5 to 2.5	0.5 to 2.5
Bottom Width Range (feet)	20 to 1180	20 to 740	20 to 1180
Maximum Rise of Water Table (feet)	1 to 350	3 to 400	1 to 330
Radius of Influence Range (in feet) [b]	230 to 2510	230 to 1060	230 to 2510

[a] Inflow rate in New River from New River Dam

[b] Radius of influence is defined as the distance from New River to one foot rise in water table

RECHARGE TECHNOLOGY

The recharge technology could include using a "live stream" within the New River floodplain. A low flow channel could be excavated in the floodplain of the river to accommodate and direct "live stream" flow. Figures 7-15 and 7-16 show the low flow channel with the various alternatives. The width of the channel would depend on the desired flow rate, infiltration rate, and other objectives. The flow rate would depend on the availability of water and the length of the "live stream." The channel could meander between the banks of New River with cascades or waterfalls at grade control structures, providing a more natural appearance.

The infiltration rate of the channel could be improved by adding a layer of sand to the bottom of the channel to filter out the fine sediments (see Figure 7-17). Periodic maintenance would include replacement of the sand filter to keep the rate of recharge constant. Vadose zone wells or trenches filled with medium to coarse sand could be used to bypass areas with clay lenses. Clay lenses can slow the downward movement of the recharge water.

A "live stream" could also be developed by the use of spreader dikes and T-dikes (see Figure 7-18). These structures spread the water along the width of New River, increasing the infiltration volume. Small downstream detention basins and off-channel basins could be constructed in parts of the study area. The basins could also be used for recreation benefits, such as fishing. The type of technology should take into consideration economics, damage during flood events, and amount of potential recharge.

In lieu of an engineered live steam, the channel's natural thalweg could be utilized for recharge. Using this natural low flow channel may not be as efficient as an engineered system, however, long term maintenance costs would likely be significantly less. This approach may also be more practical if water is not always available to provide a "live stream."

MIDDLE NEW RIVER WATERCOURSE MASTER PLAN

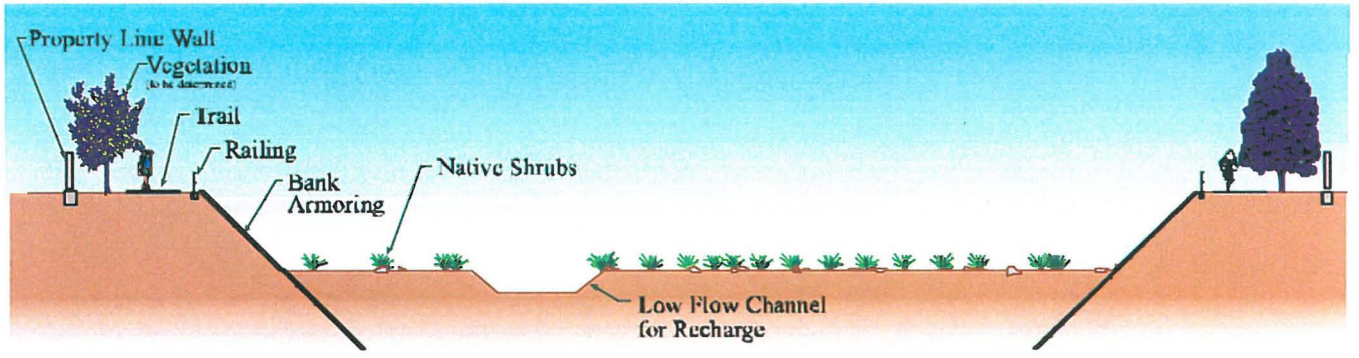


Figure 7-15

Typical Channel Section for Alternative 1 with Low Flow Channel

MIDDLE NEW RIVER WATERCOURSE MASTER PLAN

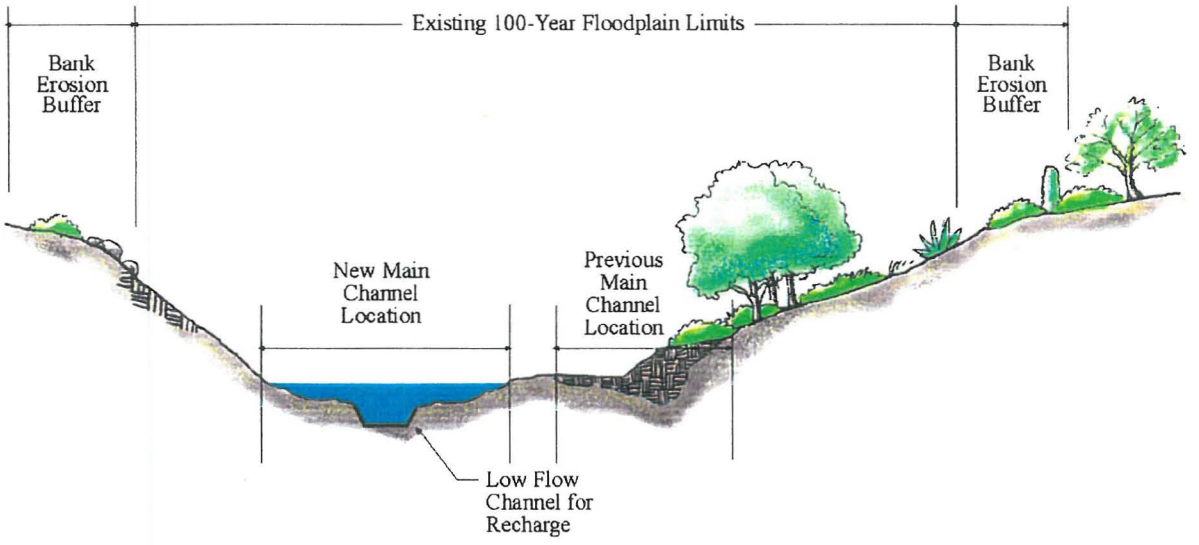


Figure 7-16

Typical Channel Section for Alternative 2 with Low Flow Channel

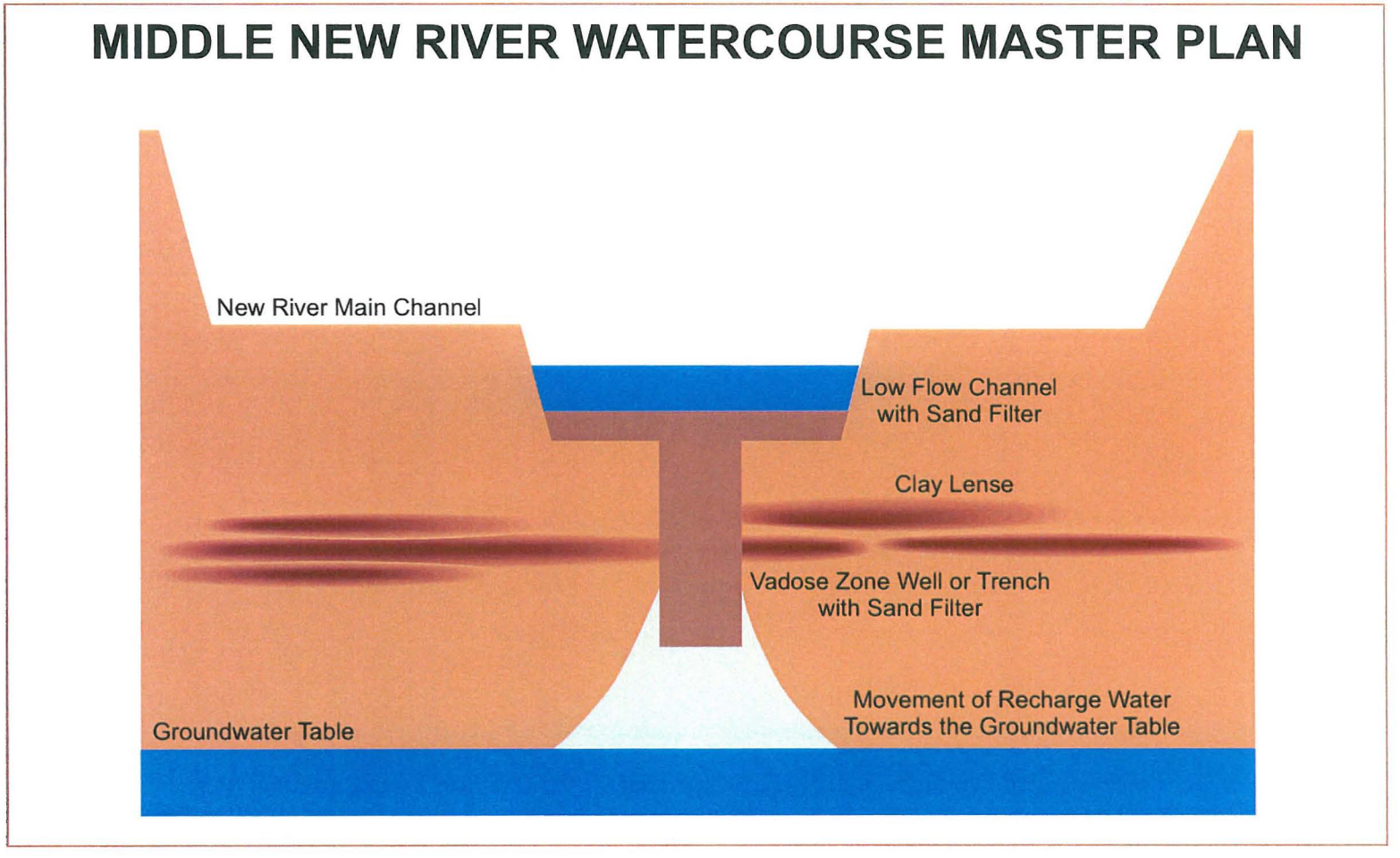


Figure 7-17

Low Flow Channel and Dry Well Cross Section

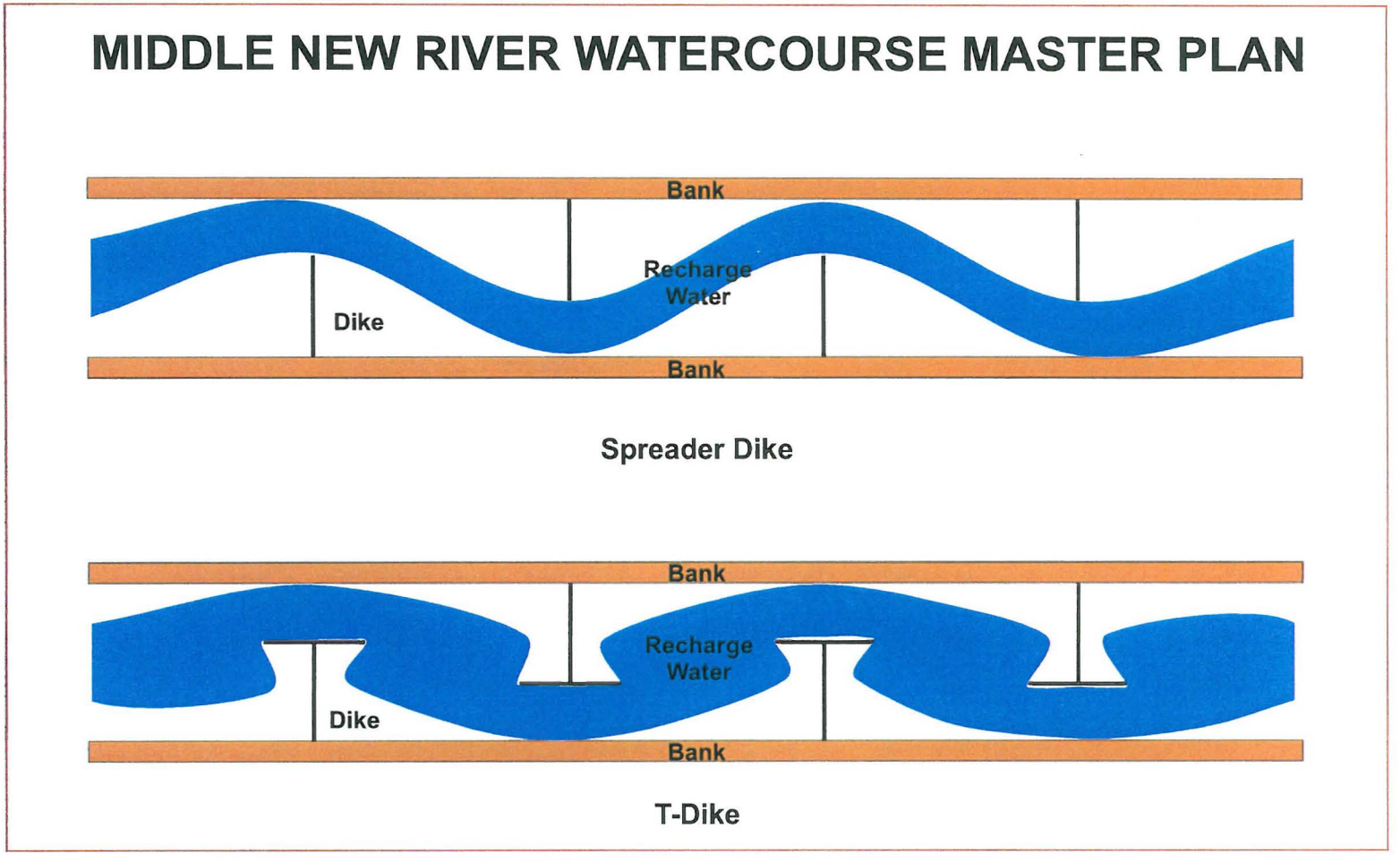


Figure 7-18

Spreader and T-Dike Plan View

SUMMARY AND RECOMMENDATIONS

The objective of the study was to evaluate the potential for groundwater recharge in New River between New River Dam and the confluence with Skunk Creek. The study included a literature search/review, definition of recharge objectives, identification of water supply sources, evaluation of area hydrogeology, and proposed recharge technology.

Based on a literature review and the mounding analysis, the site can be considered as a feasible recharge site on a technical basis. The site has a reasonable recharge rate and no problems with groundwater mounding (see Table 1). Recharging in New River may reduce subsidence and raise the groundwater table in the cone of depression. One drawback is the possibility of DBCP contamination for the southern part of the study area. The downstream portion could be shortened to avoid the contamination.

Prior to considering a full scale recharge project several major activities would have to be implemented. The activities include identification of the stakeholders, water supply availability, and hydrogeology. The cities of Peoria and Glendale, and any other stakeholders involved, would have to decide how to operate the recharge project. The discussions should also include division of any AWBA banking credits.

Detailed information regarding the amount of water available for recharge would have to be gathered, including the distribution of supply water on an annual basis and contingency plans for surplus and drought years. Also, a detailed plan would need to be developed for addressing the means by which the water will be delivered to the recharge site.

Additional information would be required concerning the lithology above and below the groundwater table, infiltration rates, hydraulic conductivity and soil and groundwater quality. This could include drilling soil borings in or near New River, conducting slug and well tests, and submitting soil and water samples for analysis of chemicals of concern. Data from the drilling events would be used to more accurately estimate the hydrologic parameters. Additionally, some of the soil borings could be converted into wells to monitor the impact of the recharge project on the aquifer. The data collected could be used to conduct a pilot recharge project on a selected reach of New River. Prior to conducting a pilot recharge project various

permits would have to be obtained from federal, state, and local agencies. These permits include, among others:

- Aquifer recharge and recovery permit from the ADWR,
- 404 permit from the U.S. Army Corps of Engineers,
- Aquifer protection permit from ADEQ, if municipal waste water is used.

Table 7-1

Inflow Rate and Mound Height for Various Infiltration Rates to Skunk Creek Confluence

Width	Inflow Rate and Mound Height for Various Infiltration Rates														
	Va = 2.5 ft/day			Va=2.0 ft/day			Va=1.5 ft/day			Va=1.0 ft/day			Va=0.5 ft/day		
	Inflow		H	Inflow		H	Inflow		H	Inflow		H	Inflow		H
ft	cfs	ac-ft/yr	ft	cfs	ac-ft/yr	ft	cfs	ac-ft/yr	ft	cfs	ac-ft/yr	ft	cfs	ac-ft/yr	ft
20	27	19,000	7	21	15,000	6	16	12,000	4	11	8,000	3	5	4,000	1
25	33	24,000	10	27	19,000	8	20	15,000	6	13	10,000	4	7	5,000	2
30	40	29,000	10	32	23,000	8	24	17,000	6	16	12,000	4	8	6,000	2
40	53	39,000	15	43	31,000	12	32	23,000	9	22	16,000	6	11	8,000	3
50	67	48,000	16	53	39,000	13	40	29,000	10	27	19,000	7	14	10,000	3
60	80	58,000	25	64	46,000	20	48	35,000	15	32	23,000	10	16	12,000	5
70	93	68,000	30	75	54,000	24	56	41,000	18	38	27,000	12	19	14,000	6
80	107	77,000	36	85	62,000	29	64	47,000	22	43	31,000	14	22	16,000	7
100	133	97,000	49	107	77,000	40	80	58,000	30	54	39,000	20	27	20,000	10
130	173	126,000	74	139	101,000	59	104	76,000	44	70	51,000	29	36	26,000	15
150	200	145,000	92	160	116,000	73	121	87,000	55	81	58,000	37	41	30,000	18
180	240	174,000	121	192	139,000	97	145	105,000	73	97	70,000	48	49	36,000	24
220	293	212,000	159	235	170,000	127	177	128,000	96	118	86,000	64	60	44,000	32
260	347	251,000	179	278	201,000	143	209	151,000	107	140	101,000	72	71	52,000	36
300	400	290,000	195	321	232,000	156	241	175,000	117	162	117,000	78	82	59,000	39
340	453	328,000	210	363	263,000	168	273	198,000	126	183	133,000	84	93	67,000	42
380	507	367,000	220	406	294,000	176	305	221,000	132	205	148,000	88	104	75,000	44
420				449	325,000	344	337	244,000	258	226	164,000	172	115	83,000	86
460				491	356,000	357	370	268,000	268	248	179,000	179	126	91,000	89
500							402	291,000	280	269	195,000	187	137	99,000	93
540							434	314,000	288	291	211,000	192	148	107,000	96
580							466	337,000	298	312	226,000	199	159	115,000	99
620										334	242,000	289	170	123,000	145
660										355	257,000	297	181	131,000	148
700										377	273,000	281	192	139,000	141
740										399	289,000	308	202	147,000	154
780										420	304,000	314	213	155,000	157
820													224	162,000	203
860													235	170,000	206
900													246	178,000	208
940													257	186,000	210
980													268	194,000	226
1020													279	202,000	257
1060													290	210,000	275
1100													301	218,000	294
1140													312	226,000	313
1180													323	234,000	332

Va = Infiltration Rate
Inflow = Inflow rate in New River from New River Dam to the confluence with Skunk Creek
H = Mound Height cfs = cubic feet per second
ac-ft/yr = acre-feet per year ft/day = feet per day

Table 7-2

Inflow and Recharge Rates for Various Infiltration Rates to Skunk Creek Confluence

Width	Inflow and Recharge Rate for Various Infiltration Rates									
	Va = 2.5 ft/day		Va=2.0 ft/day		Va=1.5 ft/day		Va=1.0 ft/day		Va=0.5 ft/day	
	I	R	I	R	I	R	I	R	I	R
Ft	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs
20	27	26	21	21	16	16	11	11	5	5
25	33	33	27	26	20	20	13	13	7	7
30	40	40	32	32	24	24	16	16	8	8
40	53	53	43	42	32	32	22	21	11	11
50	67	66	53	53	40	40	27	26	14	13
60	80	79	64	64	48	48	32	32	16	16
70	93	93	75	74	56	56	38	37	19	19
80	107	106	85	85	64	64	43	42	22	21
100	133	132	107	106	80	79	54	53	27	26
130	173	172	139	138	104	103	70	69	36	34
150	200	199	160	159	121	119	81	79	41	40
180	240	238	192	191	145	143	97	95	49	48
220	293	291	235	233	177	175	118	117	60	58
260	347	344	278	276	209	207	140	138	71	69
300	400	397	321	318	241	238	162	159	82	79
340	453	450	363	360	273	270	183	180	93	90
380	507	503	406	403	305	302	205	201	104	101
420			449	445	337	334	226	223	115	111
460			491	487	370	366	248	244	126	122
500					402	397	269	265	137	132
540					434	429	291	286	148	143
580					466	461	312	307	159	154
620							334	328	170	164
660							355	350	181	175
700							377	371	192	185
740							399	392	202	196
780							420	413	213	207
820									224	217
860									235	228
900									246	238
940									257	249
980									268	260
1020									279	270

Table 7-2 (cont.)

Inflow and Recharge Rates for Various Infiltration Rates to Skunk Creek Confluence

	Inflow and Recharge Rate for Various Infiltration Rates									
Width	Va = 2.5 ft/day		Va – 2.0 ft/day		Va = 1.5 ft.day		Va = 1.0 ft/day		Va = 0.5 ft/day	
	I	R	I	R	I	R	I	R	I	R
ft	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs
1060									290	281
1100									301	291
1140									312	302
1180									232	313

Va = Infiltration Rate
I = Inflow rate in New River from New River Dam to the confluence with Skunk Creek
R = Recharge rate in New River from New River Dam to the confluence with Skunk Creek
cfs = cubic feet per second ft/day = feet per day

Table 7-3

Combination of Infiltration Rate and Width that Results in Maximum Water Table Rise of 30 feet bgs to the Skunk Creek Confluence

Infiltration Rate	Channel Width	Depth to Water	Channel Flow Rate	
ft/day	ft	ft	cfs	ac-ft/yr
2.50	380	175	507	367,000
2.00	460	38	491	356,000
1.50	580	97	466	338,000
1.00	780	81	420	305,000
0.50	1300	95	356	258,000

ft/day = feet per day
cfs = cubic feet per second
ac-ft/yr = acre-feet per year
Channel Flow Rate assumes water will be introduced at New River Dam and zero flow past the confluence with Skunk Creek.

Table 7-4

Radius of Influence for Flows to the Skunk Creek Confluence

	Inflow and Radius of Influence for Various Infiltration Rates									
Width	Va = 2.5 ft/day		Va=2.0 ft/day		Va=1.5 ft/day		Va=1.0 ft/day		Va=0.5 ft/day	
	I	ROI	I	ROI	I	ROI	I	ROI	I	ROI
ft	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs
20	27	630	21	605	16	563	11	480	5	230
25	33	699	27	679	20	645	13	579	7	379
30	40	623	32	606	24	578	16	523	8	356
40	53	680	43	668	32	647	22	605	11	480
50	67	617	53	607	40	590	27	557	14	457
60	80	798	64	790	48	776	32	748	16	665
70	93	840	75	833	56	821	38	798	19	726
80	107	878	85	872	64	862	43	841	22	778
100	133	968	107	963	80	955	54	938	27	888
130	173	1117	139	1113	104	1107	70	1094	36	1056
150	200	1211	160	1208	121	1203	81	1191	41	1158
180	240	1334	192	1331	145	1327	97	1317	49	1290
220	293	1440	235	1437	177	1434	118	1426	60	1403
260	347	1368	278	1366	209	1363	140	1357	71	1337
300	400	1295	321	1294	241	1291	162	1285	82	1269
340	453	1229	363	1227	273	1225	183	1220	93	1205
380	507	1154	406	1152	305	1150	205	1146	104	1133
420			449	2042	337	2040	226	2036	115	2024
460			491	1936	370	1934	248	1931	126	1920
500					402	1860	269	1856	137	1846
540					434	1769	291	1766	148	1757
580					466	1706	312	1703	159	1694
620							334	2323	170	2315
660							355	2240	181	2232
700							377	2000	192	1993
740							399	2073	202	2066
780							420	2004	213	1998
820									224	2464
860									235	2385
900									246	2297
940									257	2227
980									268	2298
1020									279	2513

Table 7-4 (cont.)

Radius of Influence for Flows to the Skunk Creek Confluence

Width	In flow and Radius of Influence for Various Infiltration Rates									
	Va = 2.5 ft/day		Va = 2.0 ft/day		Va = 1.5 ft/day		Va = 1.0 ft/day		Va = 0.5 ft/day	
	I	ROI	I	ROI	1	ROI	I	ROI	I	ROI
ft	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs
1060									290	2589
1100									301	2664
1140									312	2736
1180									323	2801

Va = Infiltration Rate
I = Inflow rate in New River from New River Dam to the confluence with Skunk Creek
ROI = Radius of Influence
The inflow rate assumes water will be introduced at New River Dam and zero flow past the confluence with Skunk Creek.
cfs = cubic feet per second ft/day = feet per day

Table 7-5

Flow Rate and Mound Height for Various Infiltration Rates Using Effective Transmissivity

Width	Inflow Rate and Mound Height for Various Infiltration Rates														
	Va = 2.5 ft/day			Va=2.0 ft/day			Va=1.5 ft/day			Va=1.0 ft/day			Va=0.5 ft/day		
	Inflow		H	Inflow		H	Inflow		H	Inflow		H	Inflow		H
Ft	cfs	ac-ft/yr	ft	cfs	ac-ft/yr	ft	cfs	ac-ft/yr	ft	cfs	ac-ft/yr	ft	cfs	ac-ft/yr	ft
20	27	19,000	16	21	15,000	13	16	12,000	10	11	8,000	7	5	4,000	3
25	33	24,000	23	27	19,000	18	20	15,000	14	13	10,000	9	7	5,000	5
30	40	29,000	28	32	23,000	23	24	17,000	17	16	12,000	11	8	6,000	6
40	53	39,000	42	43	31,000	34	32	23,000	25	22	16,000	17	11	8,000	8
50	67	48,000	58	53	39,000	47	40	29,000	35	27	19,000	23	14	10,000	12
60	80	58,000	77	64	46,000	62	48	35,000	46	32	23,000	31	16	12,000	15
70	93	68,000	98	75	54,000	79	56	41,000	59	38	27,000	39	19	14,000	20
80	107	77,000	120	85	62,000	96	64	47,000	72	43	31,000	48	22	16,000	24
100	133	97,000	169	107	77,000	135	80	58,000	101	54	39,000	68	27	20,000	34
130	173	126,000	251	139	101,000	201	104	76,000	151	70	51,000	100	36	26,000	50
150	200	145,000	310	160	116,000	248	121	87,000	186	81	58,000	124	41	30,000	62
180				192	139,000	321	145	105,000	241	97	70,000	161	49	36,000	80
220							177	128,000	317	118	86,000	211	60	44,000	106
260										140	101,000	263	71	52,000	131
300										162	117,000	313	82	59,000	156
340										183	133,000	364	93	67,000	182
380													104	75,000	206
420													115	83,000	230
460													126	91,000	252
500													137	99,000	274
540													148	107,000	296
580													159	115,000	317
620													170	123,000	338
660													181	131,000	357
700													192	139,000	376
740													202	147,000	394

Va = Infiltration Rate
Inflow = Inflow rate in New River from New River Dam to the confluence with Skunk Creek
H = Mound Height cfs = cubic feet per second
ac-ft/yr = acre-feet per year ft/day = feet per day

Table 7-6

Inflow and Recharge Rates for Various Infiltration Rates Using Effective Transmissivity

	Inflow and Recharge Rate for Various Infiltration Rates									
Width	Va = 2.5 ft/day		Va=2.0 ft/day		Va=1.5 ft/day		Va=1.0 ft/day		Va=0.5 ft/day	
	I	R	I	R	I	R	I	R	I	R
ft	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs
20	27	26	21	21	16	16	11	11	5	5
25	33	33	27	26	20	20	13	13	7	7
30	40	40	32	32	24	24	16	16	8	8
40	53	53	43	42	32	32	22	21	11	11
50	67	66	53	53	40	40	27	26	14	13
60	80	79	64	64	48	48	32	32	16	16
70	93	93	75	74	56	56	38	37	19	19
80	107	106	85	85	64	64	43	42	22	21
100	133	132	107	106	80	79	54	53	27	26
130	173	172	139	138	104	103	70	69	36	34
150	200	199	160	159	121	119	81	79	41	40
180			192	191	145	143	97	95	49	48
220					177	175	118	117	60	58
260							140	138	71	69
300							162	159	82	79
340							183	180	93	90
380									104	101
420									115	111
460									126	122
500									137	132
540									148	143
580									159	154
620									170	164
660									181	175
700									192	185
740									202	196

Va = Infiltration Rate
I = Inflow rate in New River from New River Dam to the confluence with Skunk Creek
R = Recharge rate in New River from New River Dam to the confluence with Skunk Creek
cfs = cubic feet per second ft/day = feet per day

Table 7-7

Combination of Infiltration Rate and Width that Results in Maximum Water Table Rise of 30 feet bgs Using Effective Transmissivity

Infiltration Rate	Channel Width	Depth to Water	Channel Flow Rate	
ft/day	ft	Ft	cfs	ac-ft/yr
2.50	150	85	200	145,000
2.00	180	74	192	139,000
1.50	220	78	177	128,000
1.00	340	31	183	133,000
0.50	740	30	202	147,000

ft/day = feet per day
cfs = cubic feet per second
ac-ft/yr = acre-feet per year
Channel Flow Rate assumes water will be introduced at New River Dam and zero flow past the confluence with Skunk Creek.

Table 7-8

Radius of Influence for Flows Using Effective Transmissivity

	Inflow and Radius of Influence for Various Infiltration Rates									
Width	Va = 2.5 ft/day		Va=2.0 ft/day		Va=1.5 ft/day		Va=1.0 ft/day		Va=0.5 ft/day	
	I	ROI	I	ROI	I	ROI	I	ROI	I	ROI
ft	cfs	cfs	cfs	cfs	Cfs	cfs	cfs	cfs	cfs	cfs
20	27	310	21	305	16	297	11	280	5	230
25	33	347	27	343	20	336	13	323	7	283
30	40	367	32	363	24	358	16	347	8	313
40	53	414	43	412	32	408	22	399	11	374
50	67	458	53	456	40	452	27	446	14	426
60	80	510	64	508	48	505	32	500	16	483
70	93	556	75	554	56	552	38	547	19	533
80	107	596	85	595	64	593	43	589	22	576
100	133	672	107	671	80	670	54	666	27	656
130	173	770	139	769	104	768	70	765	36	758
150	200	823	160	822	121	821	81	819	41	812
180			192	889	145	889	97	887	49	881
220					177	957	118	956	60	951
260							140	1007	71	1003
300							162	1040	82	1036
340							183	1067	93	1064
380									104	1078
420									115	1089
460									126	1093
500									137	1091
540									148	1091
580									159	1089
620									170	1086
660									181	1078
700									192	1070
740									202	1063

Va = Infiltration Rate
I = Inflow rate in New River from New River Dam to the confluence with Skunk Creek
ROI = Radius of Influence
The inflow rate assumes water will be introduced at New River Dam and zero flow past the confluence with Skunk Creek.
cfs = cubic feet per second ft/day = feet per day

Table 7-9

Inflow Rate and Mound Height for Various Infiltration Rates to the Aqua Fria Confluence

Width	Inflow Rate and Mound Height for Various Infiltration Rates														
	Va = 2.5 ft/day			Va=2.0 ft/day			Va=1.5 ft/day			Va=1.0 ft/day			Va=0.5 ft/day		
	Inflow		H	Inflow		H	Inflow		H	Inflow		H	Inflow		H
ft	cfs	ac-ft/yr	ft	cfs	ac-ft/yr	ft	cfs	ac-ft/yr	ft	cfs	ac-ft/yr	ft	cfs	ac-ft/yr	ft
20	52	38,000	7	42	30,000	6	31	23,000	4	21	15,000	3	11	8,000	1
25	65	47,000	10	52	38,000	8	39	28,000	6	26	19,000	4	13	10,000	2
30	78	56,000	10	62	45,000	8	47	34,000	6	31	23,000	4	16	12,000	2
40	104	75,000	15	83	60,000	12	63	45,000	9	42	30,000	6	21	15,000	3
50	130	94,000	16	104	75,000	13	78	57,000	10	52	38,000	7	27	19,000	3
60	156	113,000	25	125	90,000	20	94	68,000	15	63	46,000	10	32	23,000	5
70	182	132,000	30	146	105,000	24	109	79,000	18	73	53,000	12	37	27,000	6
80	208	150,000	36	166	120,000	29	125	91,000	22	84	61,000	14	43	31,000	7
100	259	188,000	49	208	151,000	40	156	113,000	30	105	76,000	20	53	39,000	10
130	337	244,000	74	270	196,000	59	203	147,000	44	136	99,000	29	69	50,000	15
150	389	282,000	92	312	226,000	73	235	170,000	55	157	114,000	37	80	58,000	18
180	467	338,000	121	374	271,000	97	281	204,000	73	189	137,000	48	96	69,000	24
220	571	413,000	159	457	331,000	127	344	249,000	96	231	167,000	64	117	85,000	32
260	675	488,000	179	540	391,000	143	406	294,000	107	272	197,000	72	138	100,000	36
300	778	564,000	195	624	452,000	156	469	340,000	117	314	228,000	78	160	116,000	39
340	882	639,000	210	707	512,000	168	532	385,000	126	356	258,000	84	181	131,000	42
380	986	714,000	220	790	572,000	176	594	430,000	132	398	288,000	88	202	147,000	44
420				873	632,000	344	657	475,000	258	440	319,000	172	224	162,000	86
460				956	692,000	357	719	521,000	268	482	349,000	179	245	177,000	89
500							782	566,000	280	524	379,000	187	266	193,000	93
540							844	611,000	288	566	410,000	192	288	208,000	96
580							907	657,000	298	608	440,000	199	309	224,000	99
620										650	470,000	289	330	239,000	145
660										692	501,000	297	351	254,000	148
700										734	531,000	281	373	270,000	141
740										775	562,000	308	394	285,000	154
780										817	592,000	314	415	301,000	157
820													437	316,000	203
860													458	332,000	206
900													479	347,000	208
940													500	362,000	210
980													522	378,000	226
1020													543	393,000	257
1060													564	409,000	275
1100													586	424,000	294
1140													607	440,000	313
1180													628	455,000	332

Va = Infiltration Rate
Inflow = Inflow rate in New River from New River Dam to the confluence with Aqua Fria River
H = Mound Height cfs = cubic feet per second
ac-ft/yr = acre-feet per year ft/day = feet per day

Table 7-10

Inflow and Recharge Rates for Various Infiltration Rates to the Aqua Fria Confluence

Width	Inflow and Recharge Rate for Various Infiltration Rates									
	Va = 2.5 ft/day		Va=2.0 ft/day		Va=1.5 ft/day		Va=1.0 ft/day		Va=0.5 ft/day	
	I	R	I	R	I	R	I	R	I	R
ft	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs
20	52	52	42	41	31	31	21	21	11	10
25	65	64	52	52	39	39	26	26	13	13
30	78	77	62	62	47	46	31	31	16	15
40	104	103	83	82	63	62	42	41	21	21
50	130	129	104	103	78	77	52	52	27	26
60	156	155	125	124	94	93	63	62	32	31
70	182	180	146	144	109	108	73	72	37	36
80	208	206	166	165	125	124	84	82	43	41
100	259	258	208	206	156	155	105	103	53	52
130	337	335	270	268	203	201	136	134	69	67
150	389	387	312	309	235	232	157	155	80	77
180	467	464	374	371	281	278	189	186	96	93
220	571	567	457	454	344	340	231	227	117	113
260	675	670	540	536	406	402	272	268	138	134
300	778	773	624	619	469	464	314	309	160	155
340	882	876	707	701	532	526	356	351	181	175
380	986	979	790	784	594	588	398	392	202	196
420			873	866	657	649	440	433	224	216
460			956	948	719	711	482	474	245	237
500					782	773	524	515	266	258
540					844	835	566	557	288	278
580					907	897	608	598	309	299
620							650	639	330	320
660							692	680	351	340
700							734	722	373	361
740							775	763	394	381
780							817	804	415	402
820									437	423
860									458	443
900									479	464
940									500	485
980									522	505
1020									543	526

Table 10 (cont)

Inflow and Recharge Rates for Various Infiltration Rates to the Agua Fria Confluence

	Inflow and Recharge Rate for Various Infiltration Rates									
Width	Va = 2.5 ft/day		Va = 2.0 ft/day		Va=1.5 ft/day		Va = 1.0 ft/day		Va = 0.5 ft/day	
	I	R	I	R	I	R	I	R	I	RFT
ft	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs
1060									564	546
1100									586	567
1140									607	588
1180									628	608

Va = Infiltration Rate
I = Inflow rate in New River from New River Dam to the confluence with Aqua Fria River
R = Recharge rate in New River from New River Dam to the confluence with Aqua Fria River
cfs = cubic feet per second ft/day = feet per day

Table 7-11

Combination of Infiltration Rate and Width that Results in Maximum Water Table Rise of 30 feet bgs to the Aqua Fria Confluence

Infiltration Rate	Channel Width	Depth to Water	Channel Flow Rate	
ft/day	ft	ft	cfs	ac-ft/yr
2.50	380	175	986	715,000
2.00	460	38	956	694,000
1.50	580	97	907	658,000
1.00	780	81	817	593,000
0.50	1300	95	692	502,000

ft/day = feet per day
cfs = cubic feet per second
ac-ft/yr = acre-feet per year
Channel Flow Rate assumes water will be introduced at New River Dam and zero flow past the confluence with Aqua Fria River.

Table 7-12

Radius of Influence for Flows to the Aqua Fria Confluence

Width	Inflow and Radius of Influence for Various Infiltration Rates									
	Va = 2.5 ft/day		Va=2.0 ft/day		Va=1.5 ft/day		Va=1.0 ft/day		Va=0.5 ft/day	
	I	ROI	I	ROI	I	ROI	I	ROI	I	ROI
ft	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs
20	52	630	42	605	31	563	21	480	11	230
25	65	699	52	679	39	645	26	579	13	379
30	78	623	62	606	47	578	31	523	16	356
40	104	680	83	668	63	647	42	605	21	480
50	130	617	104	607	78	590	52	557	27	457
60	156	798	125	790	94	776	63	748	32	665
70	182	840	146	833	109	821	73	798	37	726
80	208	878	166	872	125	862	84	841	43	778
100	259	968	208	963	156	955	105	938	53	888
130	337	1117	270	1113	203	1107	136	1094	69	1056
150	389	1211	312	1208	235	1203	157	1191	80	1158
180	467	1334	374	1331	281	1327	189	1317	96	1290
220	571	1440	457	1437	344	1434	231	1426	117	1403
260	675	1368	540	1366	406	1363	272	1357	138	1337
300	778	1295	624	1294	469	1291	314	1285	160	1269
340	882	1229	707	1227	532	1225	356	1220	181	1205
380	986	1154	790	1152	594	1150	398	1146	202	1133
420			873	2042	657	2040	440	2036	224	2024
460			956	1936	719	1934	482	1931	245	1920
500					782	1860	524	1856	266	1846
540					844	1769	566	1766	288	1757
580					907	1706	608	1703	309	1694
620							650	2323	330	2315
660							692	2240	351	2232
700							734	2000	373	1993
740							775	2073	394	2066
780							817	2004	415	1998
820									437	2464
860									458	2385
900									479	2297
940									500	2227
980									522	2298
1020									543	2513

Table 12 (cont)

Radius of Influence for Flows to the Aqua Fria Confluence

	Inflow and Radius of Influence to th Aqua Fria Confluence									
Width	Va = 2.5 ft/day		Va = 2.0 ft/day		Va = 1.5 ft/day		Va = 1.0 ft/day		Va = 0.5 ft/day	
	I	ROI	I	ROI	I	ROI	I	ROI	I	ROI
ft	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs	cfs
1060									564	2589
1100									586	2664
1140									607	2736
1180									628	2801

Va = Infiltration Rate
I = Inflow rate in New River from New River Dam to the confluence with Aqua Fria River
ROI = Radius of Influence
The inflow rate assumes water will be introduced at New River Dam and zero flow past the confluence with Aqua Fria River.
cfs = cubic feet per second ft/day = feet per day

APPENDIX A

HEC-2 FILE NRIVER –2.DAT

```
1*****************************************
*  HEC-2 WATER SURFACE PROFILES           *
*                                         *
*  Version   4.6.2;  May 1991             *
*                                         *
*  RUN DATE    01MAY98    TIME   13:43:45  *
*****************************************
```

```
*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616-4687     *
*          (916) 756-1104           *
*************************************
```

```
X     X  XXXXXXX   XXXXX            XXXXX
X     X  X       X     X         X     X
X     X  X       X                     X
XXXXXXX  XXXX    X          XXXXX   XXXXX
X     X  X       X                X
X     X  X       X     X          X
X     X  XXXXXXX  XXXXX            XXXXXXX
```

1

THIS RUN EXECUTED 01MAY98 13:43:45

```
************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
************************************
```

File NRIVER-2.DAT

```
T1      NEW RIVER ABOVE SKUNK CREEK, PHOENIX, ARIZ., SEPT 1985
T2      MARICOPA COUNTY FIS
T3      FLOOD BOUNDARY

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                2                                                           1162.8

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

                        -1                                                            15


J3  VARIABLE CODES FOR SUMMARY PRINTOUT

     38        43        53        21        55        26        56        22        54         4
      1        50       200

NC     .045      .045      .035      .200      .400
QT        2    21000     21000
        1985 TOPO - DIGITIZED DATA SEC.8.655 THRU SEC.9.129
        DOWNSTREAM STUDY LIMIT
        NEW RIVER-SKUNK CREEK CONFLUENCE
X1    8.655        36    9581.4   10224.3       750       150       400
X3       10
GR   1173.9    8649.5    1172.8    8725.6    1173.6    8761.4    1172.8    8805.7    1171.9    8882.4
GR   1171.9    8973.3    1171.7    9029.3    1170.9    9157.1    1170.5      9250    1170.8      9322
GR   1170.3    9369.5    1169.5    9443.6    1169.3    9488.5    1171.5    9503.3    1167.1    9548.1
GR   1171.6    9581.4    1166.9    9605.5    1161.4      9624    1157.9      9660    1156.6    9716.3
GR   1155.1    9744.7    1156.1    9761.1    1155.3    9864.2    1155.3    9905.7    1156.2    9954.8
GR   1156.3     10000    1156.3     10071    1156.7   10091.4    1155.7   10121.5    1155.7   10154.7
GR   1164.5   10193.7    1171.2   10224.3    1172.3   10244.2    1171.2     10247    1171.1   10299.3
GR   1170.6   10403.3

NC                                    .100      .300
QT        2    12000     12000
ET                        9.1                                                 9762.5    10213.5
        BEGIN DISCHARGE FOR NEW RIVER ONLY
X1    8.731        45    9762.5   10213.5       400       400       400
X3       10
GR   1174.8      8627    1174.1    8663.6    1172.6    8666.7    1174.4    8670.4    1172.1    8683.8
GR   1170.8    8831.8    1170.4      9040      1170    9196.9    1168.3    9265.9      1167    9305.7
GR   1166.8      9321    1173.5      9346    1167.4    9377.8    1160.3    9401.7    1156.9    9425.5
GR   1157.6      9463    1156.3    9473.2    1158.8    9489.1      1166    9510.2    1169.2    9519.8
GR   1168.9    9553.9    1169.2    9595.9    1168.6    9640.2    1168.3    9678.4    1173.6    9692.1
```

1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GR   1171.9    9727.6    1171.4    9748.3    1172.8    9762.5    1172.6      9771    1167.8    9795.5
GR      1160    9831.2    1157.1      9844    1156.1    9894.9    1156.9     10000    1157.8   10055.6
GR   1157.3   10089.1    1156.7   10123.2    1157.3     10151    1164.7   10183.1    1170.6   10206.7
GR   1172.2   10213.5    1173.3   10246.5      1172   10250.5    1171.9   10342.2    1171.3     10403

      REVISED THE ELEVATION OF STATION 9478.8 FROM 117039 TO 1170.9 (TMM 3-94)

ET                        9.1                                                 9771.3    10219.2
X1    8.807        58    9771.3   10219.2       400       390       400
X3       10
```

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GR   1174.2      8591     1174.2     8613.7     1174.8     8626.5     1174.6     8637.8     1173.1     8640.4
GR   1174.2    8644.4     1172.8     8658.6     1172.4     8867.9       1172     9015.9     1171.9     9044.3
GR   1172.4    9063.6     1170.8     9080.6     1170.8     9093.1     1174.4     9117.5       1175     9131.2
GR   1172.2    9150.5     1164.2     9172.6     1160.1     9193.9     1158.6     9221.8     1157.7     9249.9
GR   1159.2    9261.8     1157.9     9281.7     1159.2     9293.1     1164.6     9312.1     1171.3     9327.1
GR   1170.8      9359     1170.5     9382.8     1171.1     9406.1     1170.6     9448.1     1170.9     9478.8
GR   1171.6      9539     1171.9     9588.1     1172.4     9618.2     1172.2     9646.1     1172.1     9673.9
GR   1178.4    9688.1     1187.7     9701.7     1193.4     9715.9     1194.1     9729.6     1186.6     9749.4
GR   1174.7    9771.3     1169.2       9792     1162.1     9826.7     1159.7       9848     1158.4     9918.7
GR   1158.3    9957.1     1158.8      10000     1158.6    10069.8     1158.4    10113.6     1158.5    10146.5
GR   1163.7   10172.1     1170.8    10201.6     1173.9    10219.2     1174.4    10248.2     1173.2    10258.1
GR   1173.9   10328.3     1173.6    10380.5       1173    10402.7

ET                            9.1                                                                  9824.7    10216.9
X1    8.883         55     9824.7    10216.9        280        400        400
X3       10
GR   1176.2    8580.8     1175.3     8595.6     1173.7     8597.9     1174.9     8600.1     1173.5     8625.1
GR   1174.4    8705.8     1174.1     8768.8     1175.2     8824.2     1179.5     8846.4     1180.4     8864.3
GR   1177.5    8878.5     1167.9     8905.2     1162.9     8926.2     1159.6     8943.8     1159.9     8977.9
GR   1158.5    8985.3     1161.3     9000.6     1158.4     9027.9     1158.8     9040.4     1162.1     9058.5
GR   1169.4    9075.9     1173.3     9086.9       1174     9126.4       1173     9140.3       1173     9167.6
GR   1172.7    9204.5     1174.4     9252.2     1173.6     9288.3     1173.9       9325     1173.7     9357.3
GR   1174.3    9422.7     1174.7     9473.8     1173.9     9529.7     1173.9     9563.4     1175.1     9610.3
GR   1174.9    9680.1     1175.9     9745.5     1174.9     9824.7     1169.4     9860.8     1166.1     9911.3
GR   1163.8    9955.6     1163.1     9984.3     1163.1      10000     1160.2    10004.5     1160.9    10056.5
GR   1160.1   10106.7     1160.4    10145.4     1163.8    10164.1     1171.6    10191.4     1176.3    10216.9
GR     1177   10247.6     1175.5    10249.9     1176.3    10292.2     1176.1    10347.6     1175.3    10404.7

ET                            9.1                                                                  9809.4    10213.2
          OLD CORP STATION NO. 8.95=0.6
X1    8.936         60     9809.4    10213.2        300        300        290
X3       10
GR     1180    8590.6     1174.5     8616.4     1165.7     8644.6     1162.8     8656.8     1162.9     8675.8
GR   1163.3    8691.1       1163     8713.3     1162.3       8740     1166.9     8754.2     1173.7     8779.8
GR     1179    8797.9     1177.6     8810.7     1177.4     8832.3     1175.7     8843.9     1174.6     8913.5
GR   1175.6    8920.6     1174.6     8947.9     1175.5     9022.3     1175.5       9091     1175.9     9152.4
GR   1176.4    9222.8       1177     9261.2     1177.8       9274     1177.1       9322     1177.8     9335.9
GR   1178.2    9360.6     1175.8     9370.5     1176.9     9389.9     1177.8     9408.3     1175.5     9452.4
GR     1177    9483.3     1176.2     9535.9     1175.6     9543.2     1176.6     9575.3       1176     9615.4
GR   1177.8    9634.7     1176.7     9680.7     1177.8       9708     1176.9       9754       1176     9785.5
GR   1176.1    9797.7     1177.3     9809.4       1176       9817     1167.6     9825.6     1166.8     9858.6
GR   1166.7      9894     1165.7     9939.7     1165.3     9959.9     1165.7     9994.3     1162.2      10000
GR   1162.3   10069.8     1161.8    10110.7     1162.1    10143.1     1167.9    10169.2       1174    10192.8
1
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GR   1178.2   10213.2     1178.2    10244.2     1177.7    10247.6     1177.1    10309.8     1176.6    10402.1

      REVISED THE ELEVATION OF STATION 8934.8 FROM 1744.7 TO 1174.7 (TMM 3-94)
         "     "     "     "     "    9747.2  "   117732 "  1177.2    "
         "     "     "     "     "    9765.9  "   117835 "  1178.5    "
         "     "     "     "     "    9792    "   117838 "  1178.8    "
         "     "     "     "     "    9802.3  "   117936 "  1179.6    "
         "     "     "     "     "   10000.0  "   116535 "  1165.5    "

ET                            9.1                                                                  9886.1    10212.7
X1    8.977         58     9886.1    10212.7        220        200        210
X3       10
GR   1177.7    8605.6     1175.6     8628.1     1174.7     8658.4     1174.4     8712.7     1174.6     8744.5
GR   1175.6    8767.2     1174.1     8802.4     1175.6     8841.6     1174.9     8864.9       1175     8878.6
GR   1174.7    8934.8     1174.7     8953.5     1175.5     8991.6     1175.7     9030.5     1176.4       9064
GR   1178.2    9075.1     1176.8     9084.2     1176.6     9130.2     1176.8     9179.1     1177.1     9252.3
GR     1176    9330.2     1176.4     9370.6     1177.8     9377.4     1176.8     9385.9     1176.8     9448.7
GR   1177.3      9491     1176.4       9537     1176.4     9556.3     1176.9     9609.7     1176.8     9662.3
GR   1176.3    9713.1     1177.2     9747.2     1178.5     9765.9     1178.8       9792     1179.6     9802.3
GR   1178.3      9821     1180.8     9828.4     1176.5     9836.1     1176.5     9867.6     1177.2     9886.1
GR   1168.4      9900     1167.1     9909.3     1165.7       9938     1164.9     9976.1     1165.5      10000
GR   1163.6   10007.3     1163.7    10066.4       1164    10103.3     1163.5    10128.9     1163.5    10137.4
GR   1168.4   10163.5     1173.3      10188     1178.5      10209     1179.3    10212.7     1180.9    10243.9
GR   1180.1   10248.2     1179.7    10281.7     1179.8    10401.6

ET                            9.1                                                                  9764.5      10207
          GREENWAY ROAD AREA
X1    9.009         34     9764.5      10207        330        180        180
X3       10
GR     1177      8740     1176.9     8817.3       1177     8883.2     1177.1     8937.1     1177.2     9008.7
GR   1177.5    9075.7     1177.5     9150.2     1177.5     9213.2     1177.7     9285.6     1177.7     9368.3
GR   1177.9      9462     1178.2     9547.2     1178.2     9614.3     1178.3     9675.6     1178.3     9725.9
GR     1178    9764.5     1174.2     9786.1     1167.1     9821.6       1164     9852.3       1166     9886.3
GR   1164.6      9921     1163.6     9960.8     1162.9      10000     1164.1    10055.9     1164.8    10109.6
GR   1164.8   10149.3     1169.2    10162.4     1178.6    10177.2     1179.9      10207     1180.3    10253.3
GR   1179.5   10304.1     1180.2    10353.8     1179.8    10424.8     1179.3    10475.4

ET                            9.1                                                                  9689.8    10113.8
X1    9.047         44     9689.8    10113.8        280        160        200
X3       10
GR   1179.8    8601.2     1179.8       8619    1180.63       8633     1179.4     8721.9     1179.5     8798.8
GR   1179.2    8858.5     1178.9     8933.2     1178.7     9004.2     1173.2     9070.4     1178.8     9154.1
GR   1178.8    9233.1     1178.8     9306.9       1179     9377.9     1179.1     9475.6     1178.6     9532.5
GR   1178.7    9570.5     1180.6     9579.9       1180     9593.2     1181.6     9616.5     1180.5       9660
GR   1177.5    9689.8     1171.4     9715.9     1166.4     9742.1     1166.2     9751.1     1166.9     9756.8
GR   1162.3    9762.5       1162       9781     1163.2     9794.9     1163.3     9845.4       1164     9880.4
GR   1162.9    9904.5     1161.7     9907.9     1161.2     9937.7     1161.9     9971.5     1162.6      10000
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GR     1165    10050.5     1165.7    10084.6       1171     10101.3      1177.6     10113.8      1178.2     10168.4
GR   1178.2    10218.1     1178.1    10298.2     1178.7     10354.4      1178.2     10401.6
1
   01MAY98      13:43:45                                                                                    PAGE    4


NC                .060
ET                              9.1                                                                      9641.2       10090
          OLD CORP STATION NO. 9.15=9.8
          END 1985 TOPO DIGITIZED SECTIONS, END C/L = 10000
X1    9.129          51      9641.2       10090         290          460          420
X3       10
GR   1182.2      8558.3      1182.2      8569.9        1183       8580.4       1183.8      8652.3      1181.8      8719.9
GR   1182.2      8785.2      1181.7      8844.6      1181.3       8932.3       1180.6      8995.9      1180.5      9075.5
GR     1181        9134        1181      9205.5      1181.5       9271.4       1181.2      9370.8      1180.3      9477.1
GR   1180.3      9499.5      1180.1      9524.8      1180.8       9562.3       1180.3      9599.2      1180.9      9629.9
GR   1180.6      9641.2      1176.6      9662.3        1173       9666.8       1173.4        9673      1164.9      9688.4
GR   1165.5      9712.2      1166.2      9768.2      1166.3       9795.2       1167.5      9799.7      1164.8      9814.5
GR   1164.2      9836.1      1165.2      9889.5      1165.1       9919.9       1166.3      9971.3      1167.1      9982.6
GR   1168.1      9987.7      1167.9       10000      1168.9      10061.6       1171.8     10079.8      1178.7       10090
GR     1179     10117.8        1179     10195.1      1178.6      10241.7       1178.5     10245.1      1179.7     10304.1
GR   1179.2     10370.6      1179.6     10407.5      1179.9      10429.4       1178.7     10432.2      1180.1     10433.6
GR   1179.5     10439.6

      REVISED THE ELEVATION OF STATION 18380 FROM  185.2 TO 1185.2 (TMM 3-94)
        "     "      "     "     "    20015  "   118135 " 1181.5     "


NC      .050        .060        .035        .100        .300
ET                                9.1                                                                     19660       20015
          BEGIN STATION C/L = 20000
X1    9.318          39      19660       20015        1000         1000         1000
X3       10
GR     1192       16150        1170       16210        1170        16310       1194.6       16420        1186       16465
GR   1186.8       16560        1184       16830      1185.2        16920         1184       17065        1184       17120
GR     1186       17130        1186       17150        1184        17160       1183.7       17360        1184       17470
GR     1185       17855      1185.2       18380      1185.3        18430         1185       18460      1185.1       19440
GR     1186       19660        1184       19685        1178        19710         1178       19865        1176       19945
GR     1174       19985      1173.2       20000        1174        20010       1181.5       20015      1181.3       20105
GR     1182       20360        1184       20370        1186        21110         1186       21150        1184       21595
GR     1182       22220        1180       22940        1180        23725       1181.2       23740

QT        2       11450       11450
ET                                9.1                                                                     19770       20235
X1    9.492          40      19770       20235         910          890          920
X3       10
GR   1197.2       16090        1178       16135        1178        16185       1193.2       16240        1192       16258
GR     1190       16470        1188       17185        1187        17360         1188       17710      1188.6       17900
GR   1189.3       18260        1189       18870      1188.8        18885         1190       18900        1150       18920
GR   1189.2       19030      1189.5       19300        1188        19610         1185       19635        1186       19650
GR     1188       19700        1188       19770        1186        19905         1184       19930        1184       19950
GR     1180       19970        1179       20000        1180        20055         1182       20160        1184       20195
GR   1193.9       20235        1186       20255      1185.4        20310         1186       20785        1188       20800
GR   1188.8       21100        1190       21450        1190        22860         1188       23130        1188       24248
1
   01MAY98      13:43:45                                                                                    PAGE    5


NC      .040        .060        .035
ET                                9.1                                                                     19840       20060
X1    9.692          31      19840       20060        1050         1040         1056
X3       10
GR     1194        1593        1192       16660        1190        17050       1189.8       17130        1190       17448
GR     1192       18040        1194       18880        1195        19040       1194.4       19150        1194       19280
GR     1194       19680        1192       19790        1192        19830         1195       19840        1186       19880
GR   1184.1       20000        1186       20015        1188        20020         1190       20040        1196       20060
GR     1194       20060      1193.2       20090        1194        20195         1194       21315        1196       21690
GR     1196       21725        1194       22305        1192        24380         1190       24790        1190       25100
GR     1192       25440

NC      .060        .060        .035        .300        .500
ET                                9.1                                                                     19840       20080
X1    9.889          31      19840       20080        1100         1050         1040
X3       10
GR     1200       14530        1198       15330        1196        17370         1198       17830        1200       18628
GR   1201.6       19190        1200       19460        1198        19490         1196       19510        1196       19570
GR     1198       19590        1198       19810        1200        19820         1200       19840        1198       19850
GR     1196       19870        1190       19890        1188        19900         1190       19920        1190       19965
GR   1188.2       20000        1190       20050        1200        20080         1200       20970      1198.6       21620
GR     1200       21710        1200       21730        1198        22710       1196.1       23410        1198       24490
GR     1198       26950

      REVISED THE ELEVATION OF STATION 15520 FROM 120034 TO 1200.4 (TMM 3-94)


NC      .060        .060        .030        .300        .500
ET                                9.1                                                                     19790       20032
          BELL ROAD
X1    9.953          27      19790       20032         225          225          225
X3       10
GR     1202       15050      1200.4       15520        1200        16550         1200       16890      1200.5       17285
GR     1200       17540        1200       17610        1202        18770         1202       18860      1202.4       19045
GR     1200       19515        1200       19790        1194        19805         1192       19840        1192       19910
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GR     1190      19990     1188.6     20010      1200      20030      1202      20032      1202      20050
GR     1200      21475      1200      21785      1198      22680      1198      24780      1200      25390
GR     1200      26215     1200.6     26810

ET                         9.110                                                            19825      20010
SB     .900      1.560       2.6                   213         20       2800      1.880    1188.61    1188.6
          SPECIAL BRIDGE
X1    9.967         29      19825      20110        75         75         75
X2                             1       1200.9     1207.5
X3       10
BT       21      15025       1204                 15450      1203.5                 16410      1202
BT    16635     1201.4                 16805       1202                 17990       1204                 18530
BT   1205.6                 19065       1204                 19325       1204                 19800      1205
BT                19825     1207.5     1200.9      20110      1207.5     1200.9      20110     1205.8
BT    20635       1204                 21810       1202                 22850       1200                 24300
BT     1198                 24630       1198                 25270       1200                 26275      1202
BT                27010     1202.1
GR     1204      15025     1203.5      15450       1202      16410      1201.4      16635      1202      16805
1
   01MAY98      13:43:45                                                                                  PAGE     6

GR     1204      17990     1205.6      18530       1204      19065       1204      19325      1205      19800
GR     1204      19825      1196       19845       1194      19860       1192      19890      1192      19980
GR     1190      20015     1188.6      20025       1190      20035       1194      20060      1204      20110
GR   1205.8      20130      1204       20635       1202      21810       1200      22850      1198      24300
GR     1198      24630      1200       25270       1202      26275     1202.1      27010

      REVISED THE ELEVATION OF STATION 23690 FROM 199.6 TO 1199.6 (TMM 3-94)

NC                                      .100       .300
ET                         9.1                                                              19635      20055
X1   10.096         38      19635      20055        610        650        645
X3       10
GR     1206      14890      1204       14935       1203      15070       1204      16230     1204.8     16600
GR   1204.4      17760     1205.1      18700       1205      19025       1204      19260      1204      19275
GR     1206      19285      1208       19335       1208      19435       1206      19545      1202      19555
GR     1201      19635      1198       19665       1196      19970     1195.7      20000      1196      20010
GR     1198      20020      1200       20040       1206      20055       1206      20090      1206      20675
GR     1204      21060      1202       22510       1200      23200     1199.6      23690      1200      24210
GR     1202      24600      1202       24615       1200      24890       1199      25180      1200      25545
GR     1202      25900      1206       25910       1206      26020

QT        2      10900     10900
ET                         9.1                                                              19820      20320
X1   10.271         40      19820      20320        920        925        925
X3       10
GR     1208      14700      1206       15620       1206      16020       1208      16520      1208      16790
GR   1209.6      17725     1209.7      18290       1208      19090       1208      19750     1212.5     19820
GR     1204      19870      1202       19930       1200      19980     1198.2      20000      1200      20020
GR     1202      20230      1204       20295       1208      20320       1208      20365      1206      20375
GR     1206      20680      1208       20685     1208.4      21370       1208      22660      1206      22930
GR     1204      23700      1204       24115       1206      25190       1206      25220      1204      25230
GR     1204      26490      1206       26520       1206      26865       1207      26870      1207      26880
GR     1206      26895      1204       26930       1204      27050       1206      27210      1208      27230

ET                         9.1                                                              19655      20110
X1   10.443         34      19655      20110        930        900        910
X3       10
GR   1213.5      14830      1212       15205     1210.5      15830       1212      16220     1213.9     17660
GR     1212      19220      1211       19560       1212      19590       1216      19605      1216      19655
GR     1210      19670      1210       19740       1208      19750       1206      19950     1205.6     20000
GR     1206      20100      1210       20110       1212      20600       1212      22030      1210      22740
GR     1208      23440     1207.8      23780       1208      24260     1208.6      25120      1208      25140
GR     1206      25145      1206       26400       1208      26810       1208      27000      1206      27080
GR     1206      27180      1208       27190       1212      27205       1214      27415

      REVISED THE ELEVATION OF STATION 16705 FROM 1318    TO 1218    (TMM 3-94)
         "     "      "     "     "    18050  "   121935 "  1219.5     "

1
   01MAY98      13:43:45                                                                                  PAGE     7

ET                         9.1                                                              19955      20300
X1   10.612         34      19955      20300        880        900        890
GR     1217      15010      1216       16240       1216      16325       1218      16705     1219.5     18050
GR     1219      18420      1218       19580       1216      19885       1216      19895      1222      19910
GR     1222      19955      1210       19985     1209.6      20000       1210      20010      1212      20295
GR     1218      20300      1218       20325       1216      20330       1216      20740      1218      20760
GR     1218      21655      1216       22770       1214      23050     1212.4      23730      1214      24140
GR     1214      24250      1214       25455       1212      25530       1210      26540      1212      26790
GR     1212      27110      1214       27420       1214      28550       1216      28650

ET                         9.1                                                              19750      20015
X1   10.803         52      19750      20015       1020       1010       1010
X3       10
GR   1225.5      14775      1225       15010       1225      15545       1224      15710      1223      16085
GR     1224      16185     1223.8      16830       1222      16900       1222      16920      1224      16955
GR     1224      17030     1223.2      17280       1224      17460       1224      19160      1224      19288
GR     1223      19435      1224       19450       1230      19465       1230      19530      1220      19565
GR     1220      19575      1220       19585       1220      19595       1220      19750      1216      19768
GR     1216      19888     1214.1      20000       1216      20010       1220      20015      1220      20190
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GR     1222      20405       1224      20480       1224      20555       1222      21230       1220      22410
GR     1218      23155     1217.8      23290       1218      23405       1220      23875       1220      23910
GR     1218      25030       1218      25155       1220      25180       1220      25210       1220      25248
GR     1218      25935       1218      27130       1220      27370       1220      27690       1222      28035
GR     1222      28610       1223      28690

ET                             9.1                                                               19905      20250
          UNION HILLS DRIVE
X1   10.989         37      19905      20250        920       1000        980
X3       10
GR     1232      15130       1231      15330       1231      15900       1230      16280     1228.3      16485
GR     1228      16700       1227      16970     1227.7      17355       1228      18930       1228      19575
GR     1226      19780       1226      19850       1226      19905       1220      19955     1218.2      20000
GR     1220      20080       1222      20175       1224      20200       1226      20250       1226      20251
GR     1226      20252       1228      20295     1228.2      20530     1228.6      20910       1228      21640
GR     1226      22470       1225      22630     1224.6      22820     1224.2      23230       1226      24300
GR     1226      24490       1224      24995       1222      25830     1221.2      26800       1222      27800
GR     1224      28070       1226      28380

ET                             9.1                                                               19820      20115
NC      .045       .045
          NEW SECTION - LEFT BANK TAKEN FROM ARROWHEAD RANCH
          WASTEWATER TREATMENT PLANT GRADING PLAN-DIBBLE & ASSOC.
X1   11.129          7      19820      20115        710        710        710
X3       10
GR     1232      19820       1225      19840       1222      19850     1221.7      20000       1222      20090
GR     1225      20100       1230      20115

QT        2      10350      10350
ET                             9.1                                                               19830      20055
1
    01MAY98      13:43:45                                                                                    PAGE     8


X1   11.188         23      19830      20055        310        310        320
X3       10
GR     1232      19830       1225      19850       1222      19860       1222      19975       1222      20000
GR     1224      20020       1232      20055       1232      20080       1234      20420       1234      20770
GR   1234.4      21080       1234      21335       1232      22210       1230      23060     1229.5      23110
GR     1230      23225       1232      24360       1232      24390       1230      25130       1228      25580
GR     1226      26990       1226      27460       1228      28315

ET                             9.1                                                               19900      20120
X1   11.301         10      19900      20120        600        600        600
X3       10
GR     1232      19890       1235      19900       1235      19905       1232      19915       1226      19930
GR     1224      19938       1222      20000       1226      20070       1230      20100       1236      20120

NC      .045       .060       .035
ET                             9.1                                                               19900      20175
X1   11.386         32      19900      20175        440        420        450
X3       10
GR     1240      16820       1238      17220       1238      18760       1240      18800       1244      18850
GR     1244      18915       1238      18950       1238      19040       1236      19280       1236      19420
GR     1233      19430       1233      19890       1233      19892       1233      19900       1228      19905
GR     1228      19912       1226      19975       1223      20000       1226      20030       1228      20085
GR     1230      20115       1232      20150       1238      20175     1239.5      20820       1238      22925
GR   1238.8      23655       1240      24780       1240      24805       1238      25705     1236.8      26140
GR     1238      26800       1240      27485

ET                             9.1                                                               19780      20170
X1   11.481         15      19780      20170        480        540        520
X3       10
GR     1240      19130       1238      19305       1230      19320       1228      19380       1228      19550
GR     1230      19710       1236      19780       1230      19800       1232      19860       1230      19900
GR     1228      19950     1227.4      20000       1230      20060       1234      20140       1240      20170

ET                             9.1                                                               19470      20310
X1   11.566         37      19470      20310        280        530        460
X3       10
GR     1241      17270       1240      18790       1242      18940       1242      19140       1240      19170
GR     1240      19470       1236      19480       1234      19550       1234      19760       1230      19775
GR     1230      19790       1232      19810       1234      19820       1234      19855       1232      19860
GR     1232      19940       1230      19980     1229.7      20000       1230      20010       1230      20180
GR     1232      20295       1240      20310       1240      20335       1242      20780       1244      21030
GR   1244.2      21620     1244.2      21960       1244      22190     1243.6      23225       1244      23470
GR   1244.9      24495       1246      25220       1245      25570       1244      26550       1244      26660
GR     1246      27240     1246.7      27420

ET                             9.1                                                               19925      20510
X1   11.759         35      19925      20510       1050        980       1020
X3       10
GR     1246      17890       1245      18190       1246      18510       1246      18920     1246.5      18930
GR     1246      18950       1246      19120       1244      19230       1244      19255       1244      19880
GR     1244      19900       1244      19925       1236      19940       1235      20000       1236      20040
GR     1236      20455       1242      20465       1244      20495       1248      20510       1248      20525
GR     1246      20540       1246      20620       1246      20760       1246      20800       1246      20820
GR     1246      21070       1248      21460       1250      21630       1250      21870     1219.6      22350
1
    01MAY98      13:43:45                                                                                    PAGE     9


GR     1249      22980     1249.2      23620       1250      25015       1250      25960     1250.4      27420

NC      .060       .060       .035
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ET			9.1						19865	20510
X1	11.949	35	19865	20510	990	1000	1000			
X3	10									
X4	1	1247.4	20700							
GR	1250.8	18670	1250.4	18895	1250.4	19275	1251	19500	1251	19535
GR	1250	19865	1248	19920	1246	19974	1244	19976	1243	20000
GR	1244	20045	1244	20215	1242	20280	1242	20470	1244	20480
GR	1246	20510	1246	20520	1246	20530	1246	20590	1246	20600
GR	1248	20925	1250	20940	1252	21660	1254	22180	1254	22280
GR	1252.8	22630	1254	22985	1252.5	23380	1254	23685	1244	23750
GR	1252.4	24515	1254	25865	1254	26540	1256	27550	1256.5	27760
ET			9.1						19890	20680
X1	12.125	37	19890	20680	910	1000	930			
X3	10									
GR	1256	19305	1256.1	19430	1256	19805	1256	19860	1258	19875
GR	1258	19890	1256	19920	1254	19923	1250	19930	1248.2	19950
GR	1248.5	20000	1250	20025	1250	20090	1248	20140	1248	20160
GR	1250	20230	1250	20320	1248	20330	1248	20440	1250	20565
GR	1252	20600	1254	20640	1258	20680	1258	20710	1254	20730
GR	1254	20800	1254	20810	1254	20860	1253	21155	1254	21455
GR	1256	22190	1258	22395	1258	22940	1259	24160	1260	26290
GR	1260	27215	1261.7	27800						
QT	2	9800	9800							
ET			9.1						19830	20240
X1	12.313	28	19830	20240	1010	980	990			
X3	10									
GR	1261	18650	1260	19080	1260	19800	1262	19810	1262	19830
GR	1260	19835	1258	19840	1256	19935	1254	19950	1252.2	20000
GR	1254	20220	1260	20240	1260	20260	1258	20300	1258	20320
GR	1258	20360	1258	20362	1258	20440	1258	20450	1258	20455
GR	1258.6	21090	1259	21610	1260	22140	1261.5	22890	1261.9	23990
GR	1262	24500	1262	27100	1263.3	27570				
ET			9.1						19810	20280
X1	12.511	35	19810	20280	1000	1020	1056			
X3	10									
GR	1266	18920	1266	19115	1266	19240	1264	19385	1263	19600
GR	1262	19700	1262	19710	1262	19720	1263.6	19810	1260	19865
GR	1258	19905	1257.3	20000	1258	20070	1264	20110	1264	20140
GR	1262	20210	1260	20220	1260	20265	1264	20280	1264	20350
GR	1262	20365	1260	20400	1260	20440	1264	20460	1264	20610
GR	1263.6	20830	1264	20995	1265	21585	1265	22640	1266	23100
GR	1266	24600	1265.7	24880	1266	26000	1265.7	26670	1266	27380

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ET		4.1	9.1		20980				19810	20330
X1	12.701	34	19810	20330	1030	1020	1000			
X3	10									
X4	1	1269.6	20500							
GR	1270.6	19190	1270	19700	1270	19810	1268	19820	1266	19985
GR	1264.7	20000	1265	20070	1266	20290	1268	20330	1270	20600
GR	1269	20660	1270	20740	1270	20980	1266	20990	1266	21090
GR	1268	21100	1268	21150	1262	21190	1262	21200	1270	21230
GR	1270	21260	1269.6	21510	1270	21770	1271.4	23220	1270.6	23800
GR	1270	23910	1270	23920	1270.7	24130	1268.8	24900	1269.1	26070
GR	1269.6	26710	1270	27000	1270	27650	1270.7	27740		
ET		4.1	9.1		21135				19845	20360
X1	12.896	40	19845	20360	1010	1010	1030			
X3	10									
X4	1	1274	20420							
GR	1276	18670	1274	18750	1275.6	19330	1274	19845	1272	19850
GR	1270	19965	1268.8	20000	1270	20020	1270	20350	1273	20360
GR	1274	20585	1276	20620	1276	20670	1274	20675	1274	21135
GR	1270	21165	1270	21180	1274	21200	1274	21250	1270	21260
GR	1270	21350	1264	21365	1264	21390	1274	21410	1274	21495
GR	1276	21560	1277.2	21900	1276	22520	1275.6	22660	1276	23015
GR	1277	23610	1276	24190	1276	24280	1274.9	24440	1275.7	25428
GR	1274.2	25910	1274.9	26740	1274	26945	1274	27000	1276	27660
QT	2	7900	7900							
ET		4.1	9.1		21645				19930	20350
X1	13.076	32	19930	20350	950	980	950			
X3	10									
GR	1280	19510	1278	19930	1274	19940	1272.6	20000	1274	20050
GR	1276	20090	1276	20210	1274	20260	1272	20270	1272	20315
GR	1274	20335	1278	20350	1279	20480	1278	21020	1278	21150
GR	1280	21645	1280	21660	1278.6	21740	1278.6	21760	1278	21780
GR	1278	21800	1280	21960	1280	22825	1279.6	23250	1280	23630
GR	1280	24220	1278	24835	1278.6	25040	1278.6	26370	1278	26740
GR	1278	26920	1280	27585						
ET		4.1	9.1		21410				19810	20120
X1	13.227	26	19810	20120	800	670	800			
X3	10									
GR	1284	18690	1282	19260	1282	19690	1281.5	19810	1276	19845
GR	1274	19970	1273.9	20000	1274	20030	1278	20090	1280	20100
GR	1282	20120	1282	21410	1276	21425	1276	21440	1282	21455
GR	1282.2	21900	1284	22160	1282.6	22860	1284	23350	1284.7	23820
GR	1284	24080	1282	24510	1282	24580	1281.8	24730	1281.5	25780

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GR     1282      27300

ET               4.1       9.1              21425                                        19870       20170
X1   13.420        33     19870      20170      970       1000       1020
X3       10
X4        2    1187.2     19750       1186    19700
GR     1290     18215      1288      19350     1288      19490       1286      19560     1287.5      19870
GR     1284     19880      1282      19975   1281.8      20000       1282      20040       1282      20080
1
   01MAY98      13:43:45                                                                                PAGE   11

GR     1286     20100      1288      20150     1290      20170       1290      20185       1288      20195
GR     1288     20315      1288      20490     1288      20780       1287      20840       1286      21425
GR     1284     21570      1282      21580     1282      21610       1286      21650       1286      21760
GR     1288     21875      1297      21900     1288      21940       1288      23570     1288.7      23780
GR   1289.6     25395      1290      26450   1290.7      26525

NC      .050      .050      .035
ET               4.1       9.1              21380                                        19870       20455
X1   13.619        39     19870      20455     1090       1020       1056
X3       10
GR     1296     18690      1294      19490     1294      19835       1294      19870       1294      19890
GR     1286     19910      1286      19995     1285      20000       1286      20005       1290      20105
GR     1290     20315      1292      20360     1292      20445       1290      20450       1292      20455
GR     1293     20456      1292      20457     1292      20470       1290      20480       1290      20520
GR     1294     20540      1294      20600     1294      21380       1292      21680       1290      21690
GR     1290     21710      1292      21755     1294      21780       1294      21850       1290      21880
GR     1290     21895      1292      21905     1294      22680     1295.4      23340     1295.7      24310
GR     1294     24400      1294      25040   1294.8      25580       1296      26565

ET               4.1       9.1              21430                                        19890       20340
X1   13.818        33     19890      20340     1050       1050       1056
GR     1302     18660      1300      19320     1300      19890       1298      19895       1296      19970
GR   1295.5     20000      1296      20015     1296      20130       1294      20250       1294      20325
GR     1298     20340      1298      20450     1296      20460       1296      20630       1298      20740
GR     1300     20750      1300      20870   1299.2      21160       1300      21305     1300.3      21430
GR     1300     21580      1298      21820     1294      21840       1294      21850       1296      21860
GR     1296     22050      1298      22060     1300      22865       1300      23030     1300.6      23470
GR   1300.8     23985      1300      24550     1300      26150

      REVISED THE ELEVATION OF STATION 22245 FROM 2300 TO 1300 (TMM 3-94)

QT        2      6100      6100
ET               4.1       9.1              22160                                        19915       20270
X1   14.013        39     19915      20270     1020       1055       1030
X4        5      1304     20900     1302.3    20930       1304      20960       1304      21100        1302
X4    21170
GR     1306     19285      1304      19690     1304      19915       1302      19940       1302      19960
GR     1300     19962      1299      20000     1300      20010       1302      20035       1300      20120
GR     1302     20190      1302      20250     1303      20270       1302      20300       1302      20625
GR     1300     20645      1300      20660     1302      20720       1305      20725       1304      21145
GR     1306     21170      1306      22160     1304      22225       1300      22245       1298      22255
GR     1298     22270      1302      22285     1302      22350       1304      22390       1304      22460
GR     1302     22480      1304      22505     1306      22680       1306      23465     1307.7      24010
GR   1306.2     24750      1306      25400     1306      25520     1306.3      26000

ET               4.1       9.1              21710                                        19715       20015
X1   14.197        36     19715      20015      990       920        970
GR     1316     18385      1314      18590     1312      19130       1310      19550       1308      19565
GR   1308.5     19715      1306      19730     1304      19732       1304      19755       1306      19800
GR     1307     19850      1306      20000     1310      20015       1310      20240       1308      20242
GR     1308     20310      1310      20330     1310      20460       1308      20465       1308      20745
GR     1310     20780      1310      20810     1308      20815       1308      20830       1310      20832
GR     1310     21710      1308      21930     1306      21970       1306      22035       1308      22060
1
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GR     1310     22550      1310      22640   1310.6      22800       1310      22910       1310      25290
GR     1311     25560

ET               4.1       9.1              21420                                        19540       20250
X1   14.379        38     19540      20095      940      1000        960
X4        3      1316     21150      1315     21030    1315.3      20970
GR     1324     18115      1322      18320     1320      18550       1318      19100       1316      19540
GR     1314     19550      1314      19635     1312      19655       1310      19665       1310      19690
GR     1316     19705      1316      19950     1312      19960     1310.4      20000       1312      20020
GR     1314     20095      1314      20430     1316      20535       1316      20580       1314      20750
GR     1314     20820      1314      20860     1312      20900       1312      20945       1314      20950
GR     1316     21420      1316      22060     1314      22065       1312      22075       1312      22150
GR     1314     22180      1316      22385     1316      23115       1318      23325       1318      23600
GR     1316     24180      1316      24290     1318      25135

ET               4.1       9.1              20045                                        19220       20045
X1   14.559        39     19220      20045      950       915        950
X4        2      1320     20035     1320.8    20045
GR     1326     18225      1324      18540     1322      18690       1322      19220       1318      19225
GR     1316     19230      1318      19300     1320      19360       1320      19415       1318      19425
GR     1318     19450      1320      19550     1320      19740       1318      19760       1318      19780
GR     1318     19940      1316      19960   1315.4      20000       1316      20020       1318      20025
GR     1320     20065      1320      20210   1320.6      20375       1320      20875     1319.9      21150
GR     1320     21220    1320.4      21370     1320      21515       1320      21790       1318      21792
GR     1318     21820      1320      21840     1320      22190       1322      22800       1322      23050
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GR     1320      23620      1320      23650      1322      23970     1322.4      24200
ET                 4.1        9.1                22000                                    19670      20170
X1    14.752        36      19670      20170      1010       1010       1020
X3        10
GR     1336      17740      1334      18200      1332      18480      1330      18820      1328      19010
GR     1326      19300      1326      19670      1322      19680      1322      19910      1320      19988
GR   1318.8      20000      1320      20010      1322      20015      1322      20080      1324      20090
GR     1324      20125      1326      20170      1326      20580      1324      21260      1324      21550
GR     1326      21780      1328      21820      1328      22005      1326      22060      1322      22070
GR     1322      22120      1324      22190      1326      22230      1328      22580      1328      23035
GR   1236.4      23615      1328      24120      1330      24470      1332      24710      1334      24950
GR     1336      25220

QT        2       4200       4200
ET                 4.1        9.1                20720                                    19865      20050
X1    14.945        49      19865      20050      1005       1000       1020
GR     1350      17110      1348      17265      1346      17660      1344      18190      1342      18415
GR     1340      18830      1338      19040      1336      19350      1334      19650      1332      19770
GR     1330      19865      1328      19940      1326      19950      1324      19970    1322.5      20000
GR     1324      20020      1330      20050      1330      20245      1328      20370      1328      20400
GR     1330      20420      1332      20615    1332.8      20720      1332      21050      1332      21960
GR     1330      22110      1330      22200    1331.3      22400      1330      22550      1330      22750
GR     1324      22770      1324      22790      1328      22800      1330      22845      1332      22875
GR     1332      23060      1333      23245      1333      23450      1334      23850      1336      24040
GR     1338      24310      1338      24610      1340      24915      1342      25050      1344      25120
GR     1346      25270      1348      25480      1348      26190      1350      26250
1
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ET                 4.1        9.1                21800                                    19955      20382
X1    15.144        55      19955      20382       900        890       1056         .9
X3        10
GR     1360      16750      1358      16880      1356      17180      1354      17540      1352      17750
GR     1350      17905      1350      18105      1348      18410      1346      18630      1344      18950
GR     1342      19115      1342      19250      1340      19555      1338      19660      1338      19720
GR     1334      19724      1334      19830      1334      19832      1332      19850      1336      19865
GR     1336      19900      1336      19955      1330      19975      1329      20000      1330      20070
GR     1332      20080      1334      20315      1334      20350      1332      20380      1336      20382
GR     1338      21510      1338      21800      1336      22035      1336      22315      1334      22350
GR     1334      22370      1336      22390      1336      22470      1334      22515      1332      22530
GR     1332      22570      1334      22625      1336      22640      1336      22700      1334      22810
GR     1332      22820      1332      22840      1334      22880      1336      22960      1338      23815
GR     1340      23960      1342      24145      1344      24305      1350      24455      1360      24660

ET                 4.1        9.1                21750                                    19770      20100
X1    15.333        53      19770      20100       900        890       1000
X3        10
GR     1358      17825      1356      18010      1354      18370      1352      18530      1350      18570
GR     1348      18605      1348      18620      1350      18630      1350      18725      1348      18900
GR     1346      18930      1346      19010      1348      19040      1348      19060      1344      19070
GR     1344      19080      1346      19090      1346      19305      1344      19335      1340      19350
GR     1340      19770      1338      19790      1336      19880      1336      19980      1335      20000
GR     1336      20010      1338      20090      1342      20100      1342      21750      1338      21765
GR     1338      21790      1340      21810      1340      22045      1340      22046      1338      22060
GR     1338      22080      1340      22120      1340      22150      1336      22170      1336      22180
GR     1340      22190      1342      22270      1342      22300      1340      22540      1340      22590
GR     1342      22760      1342      23065      1344      23360      1345      23420      1348      23530
GR     1348      23690      1350      23710      1360      23930

ET                 4.1        9.1                20960                                    19950      20320
X1    15.519        48      19950      20320       940        960        980
X3        10
X4         1       1345      20320
GR     1360      18730      1358      18760      1358      18965      1356      19050      1354      19115
GR     1354      19390      1352      19460      1352      19515      1350      19540      1350      19680
GR     1348      19950      1342      19970      1340      19995      1340      20005      1342      20015
GR     1342      20130      1340      20215      1340      20225      1344      20250    1344.5      20338
GR     1346      20595      1350      20960      1350      21080      1348      21965      1344      21985
GR     1344      22005      1346      22020      1348      22080      1346      22110      1346      22135
GR     1348      22145      1346      22275      1346      22530      1342      22545      1344      22560
GR     1346      22630      1346      22855      1344      22860      1344      22875      1346      22895
GR     1346      22925      1342      22930      1346      22945      1348      23615      1348      23765
GR     1350      23950      1352      24140      1360      24300

ET                 4.1        9.1                20900                                    19870      20085
X1    15.699        37      19870      20085       935        920        950
GR     1364      18850      1362      18960      1360      19070      1358      19220      1356      19230
GR     1356      19260      1358      19270      1358      19345      1356      19490      1354      19870
GR     1352      19880      1350      19885      1348      19950      1346      19980      1345      20000
GR     1346      20030      1346      20065      1348      20075      1350      20085      1350      20700
GR     1348      20760      1348      20885      1354      20900      1354      21715      1348      21790
GR     1348      21880      1352      21930      1352      23430      1350      23435      1350      23445
1
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GR     1352      23450      1352      23550      1356      23920      1360      24120      1362      24170
GR     1362      24470      1364      24650

QT        2       2350       2350
ET                 4.1        9.1                2690                                     1985       2430
X1    15.966        40       1985       2430      1450       1200       1410
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X4        9      1359      1900      1352      2280      1354      2300      1356      2325      1356
X4     2400      1357      2430    1357.3      2530      1352      2600      1354      2620
GR     1364      1080      1362      1180      1360      1585      1360      1725      1358      1985
GR     1356      1990      1354      1995      1354      2005      1356      2010      1356      2040
GR     1355      2060      1354      2150      1354      2250      1356      2560      1356      2670
GR     1358      2675      1360      2690      1360      3205      1358      3505      1358      4225
GR     1356      4415      1356      5380      1354      5381      1354      5395      1356      5405
GR     1356      5495      1358      5610      1358      5745      1360      5850      1362      5925
GR     1362      6150      1364      6270      1366      6410      1368      6580      1370      6615
GR     1372      6755      1374      6795      1376      6835      1376      6965      1378      7010

ET                 4.1       9.1                2865                                          1970      2350
X1   16.066        48      1970      2350       565       480       570
X4        3    1360.4      1970    1356.2      2560      1358      2580
GR     1368      1090      1368      1150      1366      1305      1364      1560      1362      1650
GR     1362      1780      1360      1820      1360      1980      1356      2000      1358      2060
GR     1360      2150      1360      2210      1358      2240      1358      2280      1360      2350
GR     1360      2435      1358      2465      1358      2690      1360      2710      1362      2760
GR     1364      2865      1364      2915      1362      3310      1360      3545      1358      3550
GR     1358      3730      1360      3745      1360      4670      1358      4920      1358      5145
GR     1356      5355      1354      5356      1354      5365      1356      5368      1358      5375
GR     1358      5570      1360      5720      1362      5800      1364      5915      1364      6005
GR     1366      6110      1368      6380      1368      6570      1370      6680      1372      6780
GR     1374      6830      1374      6870      1376      6920

ET                 4.1       9.1                3030                                          1950      2200
X1   16.167        22      1950      2130       530       530       530
X4        2    1359.7      2030      1362      2130
GR     1370      1020      1370      1095      1368      1245      1366      1255      1366      1270
GR     1368      1290      1368      1420      1366      1665    1364.8      1950      1360      1955
GR     1360      2040      1362      2110      1362      2170      1362      2250      1362      2370
GR     1360      2550      1360      2590      1358      2600      1360      2610      1362      2620
GR     1364      2630      1365      2650

ET                 4.1       9.1                2645                                          1925      2030
X1   16.248        40      1925      2030       450       340       430
GR     1372      1090      1370      1100      1370      1115      1370      1120      1370      1130
GR     1370      1365      1368      1590      1366      1660      1367      1925      1362      1940
GR     1362      1985      1361      2000      1362      2013      1364      2030      1364      2230
GR     1362      2240      1362      2250      1364      2300      1364      2630      1366      2645
GR     1366      2943      1364      2950      1364      3045      1366      3055      1366      3690
GR     1364      3755      1364      3770      1365      4105      1364      4218      1362      4765
GR     1360      5045      1358      5055    1356.1      5095      1358      5105      1360      5115
GR     1362      5328      1364      5485      1366      5755      1368      5810      1370      6160
1
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ET                 4.1       9.1                2665                                          1915      2240
X1   16.328        45      1915      2240       440       250       410
X4        1    1367.4      2240
GR     1374       980      1372       990      1372      1010      1372      1015      1372      1020
GR     1372      1250      1370      1520      1368      1790      1367      1835      1366      1915
GR     1364      1940    1362.8      2000      1364      2050      1366      2150      1366      2335
GR     1364      2339      1364      2370      1366      2397      1366      2403      1368      2665
GR     1366      2680      1366      2715      1368      2735      1368      3345      1366      3530
GR     1366      3730      1367      3890      1366      4145      1366      4310      1364      4355
GR     1364      4505      1362      4760      1362      4885      1360      4910      1358      4920
GR   1357.5      4925      1358      4937      1360      4947      1362      5050      1362      5278
GR     1364      5335      1366      5455      1368      5645      1370      5695      1370      5780

ET                 4.1       9.1                2460                                          1885      2055
X1   16.411        46      1885      2055       510       350       450
X3       10
X4        1    1369.2      1885
GR     1378       610      1376       760      1376       761      1376       762      1376       763
GR     1374      1090      1372      1370      1370      1500      1370      1650      1368      1665
GR     1368      1920      1366      1948    1364.3      2000      1366      2048      1370      2055
GR     1370      2210      1368      2223      1368      2240      1370      2260      1370      2390
GR     1368      2425      1368      2450      1370      2460      1370      2980      1368      3125
GR     1368      3390      1369      3520      1369      3580      1369      3645      1368      3830
GR     1366      4025      1366      4200      1364      4520      1362      4545      1360      4545
GR   1359.5      4555      1360      4561      1362      4565      1362      4588      1360      4594
GR     1360      4600      1362      4601      1364      4758      1366      4885      1368      4995
GR     1370      5185

      REVISED THE ELEVATION OF STATION 2000 FROM 1365 TO 1365.8 (TMM 3-94)
        "     "     "     "     "     3560  "   1970 "  1370      "
        "     "     "     "     "     3960  "   1398 "  1368      "


ET                                    9.1                                                    1835      2035
X1   16.504        33      1835      2035       460       300       490
X3       10
GR     1380       680      1378       695      1378       712      1378       720      1378       743
GR     1376       980      1374      1180      1374      1315      1372      1625      1370      1630
GR     1370      1665      1372      1670      1372      1770      1370      1780      1370      1835
GR     1368      1915      1366      1980    1365.8      2000      1366      2018      1372      2035
GR     1372      2110      1370      2140      1370      2160      1372      2195      1372      2390
GR   1370.7      2880    1371.8      3295      1370      3560      1368      3960      1366      4225
GR     1364      4310      1364      4340      1390      4340

ET                                    9.1                                                    1910      2110
X1   16.608        30      1910      2110       485       450       530
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X3        10
X4         2     1376.5        1910      1374.2        2110
GR      1382        920        1380        1000        1380        1050        1380        1150        1380        1151
GR      1378       1280        1376        1520        1376        1920        1374        1925        1372        1930
GR      1370       1935        1370        1980        1368        1995      1367.8        2000        1368        2015
GR      1370       2020        1370        2080        1372        2090        1372        2200        1370        2210
GR      1369       2220        1370        2235        1372        2270        1374        2310        1374        2375
1
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GR      1372       2385        1372        2395        1374        2400        1376        2410        1376        2550

ET                  4.1         9.1                    2300                                                    1950        2110
X1    16.732         18        1950        2115         640         420         685
X3        10
X4         4        1375        2000        1380        1950        1376        2040        1379        2300
GR      1382       1650        1376        1960        1376        2110        1378        2115        1378        2370
GR      1376       2470        1376        2480        1378        2490        1378        2550        1376        2570
GR      1376       2620        1378        2630        1378        2850        1376        2880        1375        2885
GR      1376       2890        1378        2910        1380        2920

ET                              9.1                                                                         1935        2045
X1    16.818         14        1935        2045         430         750         455
X4         1     1381.2        2240
GR      1390       1145        1388        1340        1386        1490        1384        1640        1382        1935
GR      1376       1980      1375.7        2000        1376        2030      1380.4        2045        1380        2097
GR      1378       2105        1378        2190        1380        2210        1382        2350
1
    01MAY98      13:43:45                                                                                          PAGE   17

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


 *PROF 1
0

 CCHV=      .200 CEHV=      .400
 *SECNO 8.655

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1171.60 ELREA=      1171.20

          1985 TOPO - DIGITIZED DATA SEC.8.655 THRU SEC.9.129
          DOWNSTREAM STUDY LIMIT
          NEW RIVER-SKUNK CREEK CONFLUENCE
      8.655       7.70    1162.80        .00    1162.80    1163.34        .54        .00        .00    1171.60
    21000.0         .0    21000.0         .0         .0     3566.2         .0         .0         .0    1171.20
       .00         .00       5.89        .00        .000       .035       .000       .000    1155.10    9619.29
    .001661       750.       400.       150.          0          0          0        .00     566.88   10186.17


 FLOW DISTRIBUTION FOR SECNO=       8.65          CWSEL=    1162.80

 STA=     9619.    10224.
   PER Q=     100.0
    AREA=    3566.2
     VEL=       5.9
   DEPTH=       6.3

 CCHV=      .100 CEHV=      .300
 *SECNO 8.731

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =    .61


 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1172.80 ELREA=      1172.20

          BEGIN DISCHARGE FOR NEW RIVER ONLY
      8.731       7.43    1163.53        .00    1163.98        .46        .63        .01    1172.80
    12000.0         .0    12000.0         .0         .0     2214.6         .0       26.5        4.3    1172.20
       .02         .00       5.42        .00        .000       .035       .000       .000    1156.10    9815.06
    .001468       400.       400.       400.          2          0          0        .00     362.94   10178.01


 FLOW DISTRIBUTION FOR SECNO=       8.73          CWSEL=    1163.53

1
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     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


 STA=     9815.    10214.
   PER Q=     100.0
    AREA=    2214.6
     VEL=       5.4
   DEPTH=       6.1
```

```
*SECNO 8.807

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1174.70 ELREA=      1173.90

     8.807      5.86   1164.16       .00       .00   1164.85       .69       .80       .07   1174.70
   12000.0        .0   12000.0        .0        .0   1797.9         .0      45.0       7.6   1173.90
       .04       .00      6.67       .00      .000      .035      .000      .000   1158.30   9816.67
   .002876      400.      400.      390.         1         0         0       .00    357.31  10173.98


FLOW DISTRIBUTION FOR SECNO=      8.81          CWSEL=   1164.16

STA=    9817.   10219.
  PER Q=    100.0
   AREA=   1797.9
    VEL=      6.7
  DEPTH=      5.0

*SECNO 8.883

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1174.90 ELREA=      1176.30

     8.883      5.89   1165.99   1165.99       .00   1168.03      2.04      2.04       .40   1174.90
   12000.0        .0   12000.0        .0        .0   1046.6         .0      58.0      10.4   1176.30
       .05       .00     11.47       .00      .000      .035      .000      .000   1160.10   9913.36
   .011387      280.      400.      400.        20         5         0       .00    258.42  10171.78


1
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


FLOW DISTRIBUTION FOR SECNO=      8.88          CWSEL=   1165.99

STA=    9913.   10217.
  PER Q=    100.0
   AREA=   1046.6
    VEL=     11.5
  DEPTH=      4.0

*SECNO 8.936

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.69


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1177.30 ELREA=      1178.20

        OLD CORP STATION NO. 8.95=0.6
     8.936      7.32   1169.12       .00       .00   1169.97       .85      1.82       .12   1177.30
   12000.0        .0   12000.0        .0        .0   1621.2         .0      66.9      12.4   1178.20
       .06       .00      7.40       .00      .000      .035      .000      .000   1161.80   9824.04
   .003971      300.      290.      300.         2         0         0       .00    349.89  10173.93


FLOW DISTRIBUTION FOR SECNO=      8.94          CWSEL=   1169.12

STA=    9824.   10213.
  PER Q=    100.0
   AREA=   1621.2
    VEL=      7.4
  DEPTH=      4.6

*SECNO 8.977

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1177.20 ELREA=      1179.30

     8.977      6.31   1169.81       .00       .00   1171.06      1.25       .97       .12   1177.20
   12000.0        .0   12000.0        .0        .0   1337.8         .0      74.0      13.9   1179.30
       .06       .00      8.97       .00      .000      .035      .000      .000   1163.50   9897.77
   .005393      220.      210.      200.         3         0         0       .00    272.79  10170.56


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   01MAY98      13:43:45                                                                        PAGE   20

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
```

```
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

FLOW DISTRIBUTION FOR SECNO=       8.98          CWSEL=    1169.81

STA=     9898.    10213.
  PER Q=     100.0
   AREA=    1337.8
    VEL=       9.0
  DEPTH=       4.9

*SECNO 9.009

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.05

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1178.00 ELREA=      1179.90

         GREENWAY ROAD AREA
     9.009       8.24    1171.14        .00        .00    1171.56        .42        .42        .08    1178.00
   12000.0          .0    12000.0         .0         .0     2309.2         .0       81.6       15.2    1179.90
       .07         .00       5.20        .00       .000       .035       .000       .000    1162.90    9801.39
   .001285       330.       180.       180.          2          0          0        .00     364.07   10165.46

FLOW DISTRIBUTION FOR SECNO=       9.01          CWSEL=    1171.14

STA=     9801.    10207.
  PER Q=     100.0
   AREA=    2309.2
    VEL=       5.2
  DEPTH=       6.3

*SECNO 9.047

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.44

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1177.50 ELREA=      1177.60

     9.047      10.29    1171.49        .00        .00    1171.75        .26        .17        .02    1177.50
   12000.0          .0    12000.0         .0         .0     2943.9         .0       93.6       17.0    1177.60
       .09         .00       4.08        .00       .000       .035       .000       .000    1161.20    9715.50
   .000623       280.       200.       160.          2          0          0        .00     386.73   10102.23


1
   01MAY98      13:43:45                                                                                    PAGE   21

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

FLOW DISTRIBUTION FOR SECNO=       9.05          CWSEL=    1171.49

STA=     9716.    10114.
  PER Q=     100.0
   AREA=    2943.9
    VEL=       4.1
  DEPTH=       7.6

*SECNO 9.129

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .59

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1180.60 ELREA=      1178.70

         OLD CORP STATION NO. 9.15=9.8
         END 1985 TOPO DIGITIZED SECTIONS, END C/L = 10000
     9.129       7.56    1171.76        .00        .00    1172.23        .47        .41        .06    1180.60
   12000.0          .0    12000.0         .0         .0     2186.1         .0       118.4       20.8    1178.70
       .11         .00       5.49        .00       .000       .035       .000       .000    1164.20    9675.97
   .001772       290.       420.       460.          2          0          0        .00     403.56   10079.54

FLOW DISTRIBUTION FOR SECNO=       9.13          CWSEL=    1171.76

STA=     9676.    10090.
  PER Q=     100.0
   AREA=    2186.1
    VEL=       5.5
  DEPTH=       5.4

CCHV=      .100 CEHV=      .300
*SECNO 9.318

3301 HV CHANGED MORE THAN HVINS
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3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
1
    01MAY98      13:43:45                                                                                    PAGE   22

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1186.00 ELREA=      1181.50

         BEGIN STATION C/L = 20000
      9.318       7.46   1180.66   1180.66       .00   1182.39       1.73       3.65        .38   1186.00
    12000.0         .0   12000.0         .0        .0    1136.2         .0      156.5       29.0   1181.50
       .14         .00     10.56        .00       .000      .035       .000       .000    1173.20  19698.93
    .011400     1000.      1000.     1000.         20         8          0        .00     315.50  20014.44


FLOW DISTRIBUTION FOR SECNO=       9.32          CWSEL=    1180.66

STA=    19699.    20015.
  PER Q=     100.0
   AREA=    1136.2
    VEL=      10.6
  DEPTH=       3.6

*SECNO 9.492

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.75


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1188.00 ELREA=      1193.90

      9.492       8.07   1187.07        .00        .00   1187.78        .71       5.29        .10   1188.00
    11450.0         .0   11450.0         .0         .0    1697.1         .0      186.4       36.3   1193.90
       .17         .00      6.75        .00       .000      .035       .000       .000    1179.00  19832.48
    .003384      910.       920.      890.          3         0          0        .00     374.94  20207.42


FLOW DISTRIBUTION FOR SECNO=       9.49          CWSEL=    1187.07

STA=    19832.    20235.
  PER Q=     100.0
   AREA=    1697.1
    VEL=       6.7
  DEPTH=       4.5

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    01MAY98      13:43:45                                                                                    PAGE   23

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


*SECNO 9.692

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .65


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1195.00 ELREA=      1196.00

      9.692       7.30   1191.40        .00        .00   1193.45       2.06       5.27        .40   1195.00
    11450.0         .0   11450.0         .0         .0     995.0         .0      219.1       43.2   1196.00
       .20         .00     11.51        .00       .000      .035       .000       .000    1184.10  19856.01
    .008082     1050.      1056.     1040.          3         0          0        .00     188.65  20044.66


FLOW DISTRIBUTION FOR SECNO=       9.69          CWSEL=    1191.40

STA=    19856.    20060.
  PER Q=     100.0
   AREA=     995.0
    VEL=      11.5
  DEPTH=       5.3

CCHV=      .300 CEHV=      .500
*SECNO 9.889

3301 HV CHANGED MORE THAN HVINS
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3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.73

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1200.00 ELREA=      1200.00

     9.889      9.35   1197.35       .00       .00   1198.30       .96      4.52       .33   1200.00
   11450.0        .0   11450.0        .0        .0   1459.2         .0     248.3      48.0   1200.00
       .24       .00      7.85       .00      .000      .035      .000      .000   1188.00  19856.52
   .002708     1100.     1040.     1050.         2         0         0       .00    215.52  20072.04


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   01MAY98      13:43:45                                                                          PAGE   24

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=      9.89          CWSEL=   1197.35

STA=   19857.   20080.
  PER Q=     100.0
   AREA=    1459.2
    VEL=       7.8
  DEPTH=       6.8

CCHV=      .300 CEHV=      .500
*SECNO 9.953

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1200.00 ELREA=      1202.00

         BELL ROAD
     9.953      9.29   1197.89       .00       .00   1198.93      1.03       .58       .04   1200.00
   11450.0        .0   11450.0        .0        .0   1402.9         .0     255.7      49.1   1202.00
       .24       .00      8.16       .00      .000      .030      .000      .000   1188.60  19795.25
   .002498      225.      225.      225.         3         0         0       .00    231.06  20026.31


FLOW DISTRIBUTION FOR SECNO=      9.95          CWSEL=   1197.89

STA=   19795.   20032.
  PER Q=     100.0
   AREA=    1402.9
    VEL=       8.2
  DEPTH=       6.1


SPECIAL BRIDGE

SB  XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
      .90       1.56       2.60         .00     213.00      20.00    2800.00       1.88    1188.61    1188.60

*SECNO 9.967
CLASS A LOW FLOW

3420 BRIDGE W.S.=     1197.79 BRIDGE VELOCITY=        5.93     CALCULATED CHANNEL AREA=       1931.
1
   01MAY98      13:43:45                                                                          PAGE   25

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


 EGPRS       EGLWC       H3         QWEIR      QLOW       BAREA    TRAPEZOID      ELLC       ELTRD      WEIRLN
                                                                      AREA
       .00   1199.19        .23         0.     11450.      2800.     2656.      1200.90    1207.50          0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1204.00 ELREA=      1204.00

         SPECIAL BRIDGE
     9.967      9.52   1198.12       .00       .00   1199.19      1.07       .27       .00   1204.00
   11450.0        .0   11450.0        .0        .0   1378.9         .0     258.1      49.5   1204.00
       .25       .00      8.30       .00      .000      .030      .000      .000   1188.60  19839.69
   .002769       75.       75.       75.         0         0         0       .00    240.93  20080.62


FLOW DISTRIBUTION FOR SECNO=      9.97          CWSEL=   1198.12

STA=   19840.   20110.
  PER Q=     100.0
   AREA=    1378.9
    VEL=       8.3
  DEPTH=       5.7

CCHV=      .100 CEHV=      .300
*SECNO 10.096
```

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1201.00 ELREA= 1206.00

10.096	4.86	1200.56	.00	.00	1201.64	1.08	2.44	.00	1201.00
11450.0	.0	11450.0	.0	.0	1375.5	.0	278.5	54.3	1206.00
.27	.00	8.32	.00	.000	.030	.000	.000	1195.70	19639.37
.005488	610.	645.	650.	3	0	0	.00	402.04	20041.41

FLOW DISTRIBUTION FOR SECNO= 10.10 CWSEL= 1200.56

STA= 19639. 20055.
PER Q= 100.0
AREA= 1375.5
VEL= 8.3
DEPTH= 3.4

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 10.271

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1212.50 ELREA= 1208.00

10.271	6.85	1205.05	.00	.00	1205.82	.76	4.15	.03	1212.50
10900.0	.0	10900.0	.0	.0	1554.9	.0	309.6	63.2	1208.00
.30	.00	7.01	.00	.000	.030	.000	.000	1198.20	19863.81
.003700	920.	925.	925.	3	0	0	.00	437.77	20301.58

FLOW DISTRIBUTION FOR SECNO= 10.27 CWSEL= 1205.05

STA= 19864. 20320.
PER Q= 100.0
AREA= 1554.9
VEL= 7.0
DEPTH= 3.6

*SECNO 10.443

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1216.00 ELREA= 1210.00

10.443	3.98	1209.58	1209.58	.00	1211.09	1.51	5.02	.22	1216.00
10900.0	.0	10900.0	.0	.0	1106.2	.0	337.4	71.6	1210.00
.33	.00	9.85	.00	.000	.030	.000	.000	1205.60	19742.09
.009111	930.	910.	900.	2	11	0	.00	366.87	20108.96

FLOW DISTRIBUTION FOR SECNO= 10.44 CWSEL= 1209.58

STA= 19742. 20110.
PER Q= 100.0
AREA= 1106.2
VEL= 9.9
DEPTH= 3.0

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 10.612

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.55

10.612	4.13	1213.73	.00	.00	1213.82	.09	2.58	.14	1222.00
10900.0	.0	3274.4	7625.6	.0	894.3	4878.1	408.3	107.7	1218.00
.44	.00	3.66	1.56	.000	.030	.060	.000	1209.60	19975.68
.001401	880.	890.	900.	6	0	0	.00	3138.02	27377.83

FLOW DISTRIBUTION FOR SECNO= 10.61 CWSEL= 1213.73

```
STA=   19976.   20300.   23730.   24070.   25530.   26540.   26790.   27110.   27378.
  PER Q=     30.0      2.4      1.5       .4     45.8     11.3      6.8      1.8
   AREA=   894.3    374.7    225.9     56.0   2755.2    682.0    552.9    231.4
    VEL=     3.7       .7       .7       .8      1.8      1.8      1.3       .8
  DEPTH=     2.8       .1       .7       .0      2.7      2.7      1.7       .9

*SECNO 10.803

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1220.00 ELREA=      1220.00

    10.803      5.34   1219.44   1219.44       .00   1221.35      1.91      2.88       .55   1220.00
   10900.0        .0   10900.0        .0        .0     983.0        .0     486.6     147.2   1220.00
      .47       .00     11.09       .00      .000      .030      .000      .000   1214.10  19752.51
   .008663     1020.     1010.     1010.        20        11         0       .00    261.79  20014.30


FLOW DISTRIBUTION FOR SECNO=     10.80          CWSEL=   1219.44

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   01MAY98      13:43:45                                                                          PAGE   28

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


STA=   19753.   20015.
  PER Q=    100.0
   AREA=    983.0
    VEL=     11.1
  DEPTH=      3.8

*SECNO 10.989

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.63


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1226.00 ELREA=      1226.00

         UNION HILLS DRIVE
   10.989      7.28   1225.48       .00        .00   1226.37       .89      4.92       .10   1226.00
   10900.0        .0   10900.0        .0        .0    1437.3        .0     513.8     153.8   1226.00
      .50       .00      7.58       .00       .000      .030      .000      .000   1218.20  19909.34
   .003271      920.      980.     1000.         2         0         0       .00    327.63  20236.97


FLOW DISTRIBUTION FOR SECNO=     10.99          CWSEL=   1225.48

STA=   19909.   20250.
  PER Q=    100.0
   AREA=   1437.3
    VEL=      7.6
  DEPTH=      4.4

*SECNO 11.129

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1232.00 ELREA=      1230.00

         NEW SECTION - LEFT BANK TAKEN FROM ARROWHEAD RANCH
         WASTEWATER TREATMENT PLANT GRADING PLAN-DIBBLE & ASSOC.
   11.129      5.82   1227.52       .00        .00   1228.38       .87      2.01       .00   1232.00
   10900.0        .0   10900.0        .0        .0    1459.5        .0     537.4     158.7   1230.00
      .53       .00      7.47       .00       .000      .030      .000      .000   1221.70  19832.80
   .002473      710.      710.      710.         3         0         0       .00    274.75  20107.56


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   01MAY98      13:43:45                                                                          PAGE   29

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=     11.13          CWSEL=   1227.52

STA=   19833.   20115.
  PER Q=    100.0
   AREA=   1459.5
    VEL=      7.5
  DEPTH=      5.3
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*SECNO 11.188
3280 CROSS SECTION     11.19 EXTENDED       .09 FEET

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1232.00 ELREA=      1232.00

    11.188      6.08   1228.08       .00       .00   1229.59      1.51      1.02       .19   1232.00
   10350.0        .0   10350.0        .0        .0   1050.0         .0     546.6     160.4   1232.00
       .54       .00      9.86       .00      .000      .030      .000      .000   1222.00  19841.18
   .004288      310.      320.      310.         2         0         0       .00    196.71  20037.88

FLOW DISTRIBUTION FOR SECNO=     11.19          CWSEL=   1228.08

STA=   19841.   20055.
  PER Q=    100.0
   AREA=   1050.0
    VEL=      9.9
  DEPTH=      5.3

*SECNO 11.301

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1235.00 ELREA=      1236.00

    11.301      8.52   1230.52       .00       .00   1231.98      1.46      2.38       .01   1235.00
   10350.0        .0   10350.0        .0        .0   1068.3         .0     561.2     163.1   1236.00
       .56       .00      9.69       .00      .000      .030      .000      .000   1222.00  19918.70
   .003683      600.      600.      600.         3         0         0       .00    183.03  20101.73


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   01MAY98      13:43:45                                                                          PAGE   30

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

FLOW DISTRIBUTION FOR SECNO=     11.30          CWSEL=   1230.52

STA=   19919.   20120.
  PER Q=    100.0
   AREA=   1068.3
    VEL=      9.7
  DEPTH=      5.8

*SECNO 11.386

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1233.00 ELREA=      1238.00

    11.386      9.74   1232.74       .00       .00   1233.66       .91      1.62       .05   1233.00
   10350.0        .0   10350.0        .0        .0   1351.2         .0     573.7     165.3   1238.00
       .57       .00      7.66       .00      .000      .035      .000      .000   1223.00  19900.25
   .003531      440.      450.      420.         2         0         0       .00    252.87  20153.12

FLOW DISTRIBUTION FOR SECNO=     11.39          CWSEL=   1232.74

STA=   19900.   20175.
  PER Q=    100.0
   AREA=   1351.2
    VEL=      7.7
  DEPTH=      5.3

*SECNO 11.481

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1236.00 ELREA=      1240.00

    11.481      7.34   1234.74       .00       .00   1235.36       .62      1.68       .03   1236.00
   10350.0        .0   10350.0        .0        .0   1633.9         .0     591.5     169.0   1240.00
       .60       .00      6.33       .00      .000      .035      .000      .000   1227.40  19784.20
   .002969      480.      520.      540.         2         0         0       .00    359.51  20143.71

FLOW DISTRIBUTION FOR SECNO=     11.48          CWSEL=   1234.74

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST
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STA=   19784.   20170.
  PER Q=    100.0
   AREA=   1633.9
    VEL=      6.3
  DEPTH=      4.5

*SECNO 11.566

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.72


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1240.00 ELREA=      1240.00

    11.566      6.28   1235.98       .00       .00   1236.15       .17       .74       .05   1240.00
   10350.0        .0   10350.0        .0        .0   3152.2         .0     616.8     175.2   1240.00
       .63       .00      3.28       .00      .000      .035      .000      .000   1229.70  19480.73
   .001000      280.      460.      530.         2         0         0       .00    821.73  20302.46


FLOW DISTRIBUTION FOR SECNO=     11.57          CWSEL=   1235.98

STA=   19481.   20310.
  PER Q=    100.0
   AREA=   3152.2
    VEL=      3.3
  DEPTH=      3.8

*SECNO 11.759

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1244.00 ELREA=      1248.00

    11.759      3.20   1238.20   1238.20       .00   1239.37      1.17      2.54       .30   1244.00
   10350.0        .0   10350.0        .0        .0   1194.1         .0     667.7     190.9   1248.00
       .67       .00      8.67       .00      .000      .035      .000      .000   1235.00  19935.87
   .013897     1050.     1020.      980.         3        11         0       .00    522.81  20458.67


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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

FLOW DISTRIBUTION FOR SECNO=     11.76          CWSEL=   1238.20

STA=   19936.   20510.
  PER Q=    100.0
   AREA=   1194.1
    VEL=      8.7
  DEPTH=      2.3

*SECNO 11.949

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.75


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1250.00 ELREA=      1246.00

    11.949      4.23   1246.23       .00       .00   1246.76       .54      7.33       .06   1250.00
   10350.0        .0    9903.0     447.0        .0   1652.9      264.8     703.4     206.9   1246.00
       .71       .00      5.99      1.69      .000      .035      .060      .000   1242.00  19967.82
   .004517      990.     1000.     1000.         6         0         0       .00    866.00  23952.99


FLOW DISTRIBUTION FOR SECNO=     11.95          CWSEL=   1246.23

STA=   19968.   20510.   20520.   20530.   20590.   20600.   23750.   23953.
  PER Q=     95.7       .0       .0       .1       .0       .3      3.9
   AREA=   1652.9      2.3      2.3     13.7      2.3     18.0    226.2
    VEL=      6.0       .6       .6       .6       .6      1.6      1.8
  DEPTH=      3.0       .2       .2       .2       .2        .0      1.1

*SECNO 12.125

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1258.00 ELREA=      1258.00

    12.125      3.46   1251.46       .00       .00   1252.12       .66      5.32       .04   1258.00
   10350.0        .0   10350.0        .0        .0   1582.3         .0     741.0     223.5   1258.00
       .75       .00      6.54       .00      .000      .035      .000      .000   1248.00  19927.44
   .007456      910.      930.     1000.         3         0         0       .00    663.12  20590.56
```

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 12.13 CWSEL= 1251.46

STA= 19927. 20680.
PER Q= 100.0
AREA= 1582.3
VEL= 6.5
DEPTH= 2.4

*SECNO 12.313

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1262.00 ELREA= 1260.00

12.313	5.41	1257.61	.00	.00	1258.44	.83	6.26	.05	1262.00
9800.0	.0	9800.0	.0	.0	1342.5	.0	774.2	235.2	1260.00
.79	.00	7.30	.00	.000	.035	.000	.000	1252.20	19858.22
.005389	1010.	990.	980.	2	0	0	.00	373.83	20232.05

FLOW DISTRIBUTION FOR SECNO= 12.31 CWSEL= 1257.61

STA= 19858. 20240.
PER Q= 100.0
AREA= 1342.5
VEL= 7.3
DEPTH= 3.6

*SECNO 12.511

3265 DIVIDED FLOW

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1263.60 ELREA= 1264.00

12.511	5.78	1263.08	.00	.00	1263.83	.75	5.38	.01	1263.60
9800.0	.0	9800.0	.0	.0	1410.7	.0	807.6	244.5	1264.00
.83	.00	6.95	.00	.000	.035	.000	.000	1257.30	19818.12
.004833	1000.	1056.	1020.	2	0	0	.00	389.57	20276.51

FLOW DISTRIBUTION FOR SECNO= 12.51 CWSEL= 1263.08

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

STA= 19818. 20280.
PER Q= 100.0
AREA= 1410.7
VEL= 6.9
DEPTH= 3.6

*SECNO 12.701

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1270.00 ELREA= 1268.00

12.701	4.09	1268.79	.00	.00	1269.52	.73	5.69	.00	1270.00
9800.0	.0	9763.9	36.1	.0	1418.0	32.9	840.5	255.8	1268.00
.87	.00	6.89	1.10	.000	.035	.060	.000	1264.70	19816.07
.006799	1030.	1000.	1020.	4	0	0	.00	597.53	20413.59

FLOW DISTRIBUTION FOR SECNO= 12.70 CWSEL= 1268.79

STA= 19816. 20330. 20414.
PER Q= 99.6 .4
AREA= 1418.0 32.9
VEL= 6.9 1.1
DEPTH= 2.8 .4

*SECNO 12.896

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.47

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1274.00 ELREA= 1273.00

12.896	4.89	1273.69	.00	.00	1274.15	.47	4.61	.03	1274.00

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    9800.0        .0    9790.3       9.7        .0    1787.9      14.2     878.9     269.5   1273.00
      .93        .00       5.48       .68      .000      .035      .060      .000   1268.80  19845.78
   .003165     1010.     1030.     1010.         4         0         0       .00    555.55  20401.33


FLOW DISTRIBUTION FOR SECNO=     12.90          CWSEL=    1273.69

STA=   19846.   20360.   20401.
  PER Q=      99.9        .1
   AREA=    1787.9      14.2
    VEL=       5.5        .7
  DEPTH=       3.5        .3

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


*SECNO 13.076

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .61


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1278.00 ELREA=      1278.00

    13.076       5.34   1277.34        .00        .00   1277.99        .65       3.78        .05   1278.00
    7900.0         .0    7900.0         .0         .0    1224.1         .0      911.9      280.1   1278.00
       .97        .00       6.45       .00       .000      .035      .000       .000   1272.00  19931.63
   .005504      950.      950.      980.         2         0         0       .00    415.92  20347.55


FLOW DISTRIBUTION FOR SECNO=     13.08          CWSEL=    1277.34

STA=   19932.   20350.
  PER Q=     100.0
   AREA=    1224.1
    VEL=       6.5
  DEPTH=       2.9

*SECNO 13.227

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.53


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1281.50 ELREA=      1282.00

    13.227       6.33   1280.23        .00        .00   1280.76        .53       2.76        .01   1281.50
    7900.0         .0    7900.0         .0         .0    1353.4         .0      935.6      286.5   1282.00
      1.01        .00       5.84       .00       .000      .035      .000       .000   1273.90  19818.09
   .002366      800.      800.      670.         2         0         0       .00    284.19  20102.29


FLOW DISTRIBUTION FOR SECNO=     13.23          CWSEL=    1280.23

STA=   19818.   20120.
  PER Q=     100.0
   AREA=    1353.4
    VEL=       5.8
  DEPTH=       4.8

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   01MAY98      13:43:45                                                                    PAGE   36

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


*SECNO 13.420
3840 SECTION NOT HIGH ENOUGH  1403.800  1340.000  1281.800  1340.000  1331.200        10

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1287.50 ELREA=      1290.00

    13.420       4.19   1285.99   1285.99        .00   1287.69       1.70       4.65        .35   1287.50
    7900.0         .0    7900.0         .0         .0     755.8         .0      960.3      292.5   1290.00
      1.03        .00      10.45       .00       .000      .035      .000       .000   1281.80  19874.30
   .012148      970.     1020.     1000.        12        19         0       .00    225.67  20099.97


FLOW DISTRIBUTION FOR SECNO=     13.42          CWSEL=    1285.99

STA=   19874.   20170.
  PER Q=     100.0
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   AREA=     755.8
    VEL=      10.5
  DEPTH=       3.3

*SECNO 13.619

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.24


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1294.00 ELREA=      1292.00

    13.619      7.41   1292.41       .00       .00   1292.70       .29      4.87       .14   1294.00
    7900.0        .0    7593.0     307.0        .0    1725.9     130.7     991.9     302.9   1292.00
      1.10       .00      4.40      2.35      .000      .035      .050      .000   1285.00  19893.97
   .002413     1090.     1056.     1020.         6         0         0       .00    636.91  20532.06


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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

FLOW DISTRIBUTION FOR SECNO=      13.62          CWSEL=    1292.41

STA=   19894.   20455.   20470.   20480.   20520.   20532.
  PER Q=     96.1       .1       .3      3.2       .3
   AREA=   1725.9      5.4     14.1     96.5     14.5
    VEL=      4.4       .8      1.8      2.6      1.6
  DEPTH=      3.1       .4      1.4      2.4      1.2

*SECNO 13.818

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    13.818      3.44   1297.44   1297.44       .00   1298.28       .84      5.01       .16   1300.00
    7900.0        .0    6663.8    1236.2        .0     852.2     306.2    1028.4     318.8   1298.00
      1.14       .00      7.82      4.04      .000      .035      .050      .000   1294.00  19916.12
   .013299     1050.     1056.     1050.         3        15         0       .00    677.98  20709.03

FLOW DISTRIBUTION FOR SECNO=      13.82          CWSEL=    1297.44

STA=   19916.   20340.   20460.   20630.   20709.
  PER Q=     84.4       .2     13.5      2.0
   AREA=    852.2      5.2    244.3     56.8
    VEL=      7.8      2.7      4.4      2.7
  DEPTH=      2.0       .0      1.4       .7

*SECNO 14.013

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.79

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


    14.013      5.74   1303.74       .00       .00   1303.91       .16      5.56       .07   1304.00
    6100.0        .0    3447.2    2652.8        .0     884.9    1291.1    1068.3     342.4   1303.00
      1.23       .00      3.90      2.05      .000      .035      .050      .000   1298.00  19918.26
   .002471     1020.     1030.     1055.         6         0         0       .00   1285.90  21600.47

FLOW DISTRIBUTION FOR SECNO=      14.01          CWSEL=    1303.74

STA=   19918.   20270.   20300.   20625.   20645.   20660.   20720.   20723.   20930.   20955.   21600.
  PER Q=     56.5      1.0     19.8      2.6      3.3      7.8       .1       .4       .4       8.2
   AREA=    884.9     37.2    565.3     54.8     56.1    164.4      2.5     18.3     18.3    374.3
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   VEL=      3.9      1.7      2.1      2.9      3.6      2.9      1.2      1.2      1.2      1.3
 DEPTH=      2.5      1.2      1.7      2.7      3.7      2.7       .9       .1       .7       .6

*SECNO 14.197

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    14.197     4.77  1308.77  1308.77      .00  1309.43      .65     3.77      .15  1308.50
    6100.0    131.3   5358.7    610.1     80.4    778.5    290.2   1104.4    365.3  1310.00
      1.28     1.63     6.88     2.10      .050     .035     .050     .000  1304.00 19559.21
   .007269     990.     970.     920.         3       10        0      .00   840.79 20830.77


FLOW DISTRIBUTION FOR SECNO=     14.20          CWSEL=   1308.77

STA=   19559.   19565.   19715.   20015.   20310.   20318.   20465.   20745.   20758.   20815.   20830.   20831.
 PER Q=      .0      2.1     87.8      1.8       .1       .0      7.5       .1       .0       .4       .0
  AREA=     2.2     78.2    778.5     52.7      3.0       .7    215.9      5.2       .7     11.6       .3
   VEL=     1.3      1.6      6.9      2.1      1.3      1.3      2.1      1.3      1.3      2.1      1.1
 DEPTH=      .4       .5      2.6       .2       .4       .0       .8       .4       .0       .8       .4

*SECNO 14.379

3265 DIVIDED FLOW

    14.379     5.05  1315.05      .00      .00  1315.40      .35     5.94      .03  1316.00
    6100.0       .0   4010.9   2089.1       .0    727.1    779.4   1134.1    386.2  1314.00
      1.34      .00     5.52     2.68      .000     .035     .050     .000  1310.00 19544.76
   .005243     940.     960.    1000.         5        0        0      .00  1010.64 21035.65


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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

FLOW DISTRIBUTION FOR SECNO=     14.38          CWSEL=   1315.05

STA=   19545.   20095.   20430.   20485.   20750.   20820.   20860.   20900.   20945.   20950.   20966.   21036.
 PER Q=     65.8     12.8       .7      1.1      2.7      1.5      4.7     10.2       .6       .2       .0
  AREA=    727.1    350.8     28.8     46.6     73.3     41.9     81.9    137.1     10.2      8.4       .4
   VEL=      5.5      2.2      1.4      1.4      2.2      2.2      3.5      4.5      3.3      1.4       .2
 DEPTH=      2.4      1.0       .5       .2      1.0      1.0      2.0      3.0      2.0       .5       .0

*SECNO 14.559
    14.559     4.83  1320.23      .00      .00  1320.54      .31     5.14      .00  1322.00
    6100.0       .0   6100.0       .0       .0   1360.7       .0   1165.1    405.8  1320.80
      1.39      .00     4.48      .00      .000     .035     .000     .000  1315.40 19222.21
   .005656     950.     950.     915.         4        0        0      .00   815.71 20037.92


FLOW DISTRIBUTION FOR SECNO=     14.56          CWSEL=   1320.23

STA=   19222.   20045.
 PER Q=    100.0
  AREA=   1360.7
   VEL=      4.5
 DEPTH=      1.7

*SECNO 14.752

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1326.00 ELREA=      1326.00

    14.752     5.86  1324.66      .00      .00  1325.03      .37     4.47      .02  1326.00
    6100.0       .0   6100.0       .0       .0   1256.8       .0   1195.7    420.8  1326.00
      1.45      .00     4.85      .00      .000     .035     .000     .000  1318.80 19673.36
   .003498    1010.    1020.    1010.         4        0        0      .00   466.45 20139.81


FLOW DISTRIBUTION FOR SECNO=     14.75          CWSEL=   1324.66

STA=   19673.   20170.
 PER Q=    100.0
  AREA=   1256.8
   VEL=      4.9
 DEPTH=      2.7

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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*SECNO 14.945
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3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .44

14.945	6.52	1329.02	1328.80	.00	1330.12	1.10	4.88	.22	1330.00
4200.0	.0	4048.7	151.3	.0	472.2	68.7	1216.8	429.2	1330.00
1.49	.00	8.57	2.20	.000	.035	.050	.000	1322.50	19901.60
.008405	1005.	1020.	1000.	4	8	0	.00	247.75	20410.24

FLOW DISTRIBUTION FOR SECNO= 14.94 CWSEL= 1329.02

STA=	19902.	20050.	20370.	20400.	20410.
PER Q=	96.4	1.4	2.0	.2	
AREA=	472.2	32.8	30.7	5.2	
VEL=	8.6	1.7	2.8	1.7	
DEPTH=	3.3	.1	1.0	.5	

*SECNO 15.144

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.69

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1336.00 ELREA= 1336.00

15.144	5.80	1334.80	.00	.00	1335.09	.29	4.88	.08	1336.00
4200.0	.0	4200.0	.0	.0	977.7	.0	1235.1	436.6	1336.00
1.55	.00	4.30	.00	.000	.035	.000	.000	1329.00	19638.10
.002935	900.	1056.	890.	3	0	0	.00	380.16	20018.26

FLOW DISTRIBUTION FOR SECNO= 15.14 CWSEL= 1334.80

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

STA=	19638.	20019.
PER Q=	100.0	
AREA=	977.7	
VEL=	4.3	
DEPTH=	2.6	

*SECNO 15.333

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .67

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1340.00 ELREA= 1342.00

15.333	3.84	1338.84	.00	.00	1339.39	.55	4.23	.08	1340.00
4200.0	.0	4200.0	.0	.0	705.2	.0	1254.4	444.5	1342.00
1.60	.00	5.96	.00	.000	.035	.000	.000	1335.00	19781.48
.006606	900.	1000.	890.	3	0	0	.00	310.65	20092.13

FLOW DISTRIBUTION FOR SECNO= 15.33 CWSEL= 1338.84

STA=	19781.	20100.
PER Q=	100.0	
AREA=	705.2	
VEL=	6.0	
DEPTH=	2.3	

*SECNO 15.519

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1348.00 ELREA= 1345.00

15.519	4.20	1344.20	.00	.00	1344.65	.44	5.24	.01	1348.00
4200.0	.0	4200.0	.0	.0	787.1	.0	1271.2	451.4	1345.00
1.65	.00	5.34	.00	.000	.035	.000	.000	1340.00	19962.65
.004417	940.	980.	960.	4	0	0	.00	301.73	20264.38

FLOW DISTRIBUTION FOR SECNO= 15.52 CWSEL= 1344.20

STA=	19963.	20320.
PER Q=	100.0	
AREA=	787.1	
VEL=	5.3	
DEPTH=	2.6	

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 15.699

3265 DIVIDED FLOW

15.699	4.55	1349.55	.00	.00	1350.24	.68	5.52	.07	1354.00
4200.0	.0	3411.4	788.6	.0	475.8	234.7	1287.4	458.5	1350.00
1.69	.00	7.17	3.36	.000	.035	.050	.000	1345.00	19899.27
.008035	935.	950.	920.	2	0	0	.00	359.27	20888.90

FLOW DISTRIBUTION FOR SECNO= 15.70 CWSEL= 1349.55

STA=	19899.	20085.	20760.	20885.	20889.
PER Q=	81.2	2.0	16.7	.2	
AREA=	475.8	36.6	195.1	3.0	
VEL=	7.2	2.3	3.6	2.1	
DEPTH=	2.6	.1	1.6	.8	

*SECNO 15.966

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

15.966	4.31	1356.31	.00	.00	1356.41	.11	6.12	.06	1358.00
2350.0	.0	1821.8	528.2	.0	678.1	225.2	1312.4	472.4	1357.00
1.84	.00	2.69	2.35	.000	.035	.050	.000	1352.00	1989.23
.002122	1450.	1410.	1200.	5	0	0	.00	537.92	2670.77

FLOW DISTRIBUTION FOR SECNO= 15.97 CWSEL= 1356.31

STA=	1989.	2430.	2560.	2600.	2620.	2670.	2671.
PER Q=	77.5	.0	9.4	8.5	4.6	.0	
AREA=	678.1	1.1	92.3	66.2	65.4	.1	
VEL=	2.7	.4	2.4	3.0	1.6	.4	
DEPTH=	1.6	.0	2.3	3.3	1.3	.2	

*SECNO 16.066

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .31

16.066	4.68	1358.68	.00	.00	1359.16	.47	2.63	.11	1360.40
2350.0	.0	1007.6	1342.4	.0	167.7	262.0	1320.6	478.2	1360.00
1.87	.00	6.01	5.12	.000	.035	.050	.000	1354.00	1986.61
.021721	565.	570.	480.	2	0	0	.00	419.84	2696.79

FLOW DISTRIBUTION FOR SECNO= 16.07 CWSEL= 1358.68

STA=	1987.	2350.	2465.	2560.	2580.	2690.	2697.
PER Q=	42.9	.3	37.9	8.0	10.7	.2	
AREA=	167.7	3.5	150.0	31.6	74.7	2.3	
VEL=	6.0	2.1	5.9	5.9	3.4	2.1	
DEPTH=	.9	.0	1.6	1.6	.7	.3	

*SECNO 16.167

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.70

16.167	4.43	1362.43	.00	.00	1362.56	.13	3.37	.03	1364.80
2350.0	.0	1159.2	1190.8	.0	331.1	541.2	1328.6	484.9	1362.00
1.92	.00	3.50	2.20	.000	.035	.050	.000	1358.00	1952.47
.002984	530.	530.	530.	5	0	0	.00	669.68	2622.15

FLOW DISTRIBUTION FOR SECNO= 16.17 CWSEL= 1362.43

STA=	1952.	2130.	2170.	2250.	2370.	2550.	2590.	2600.	2610.	2620.	2622.
PER Q=	49.3	.7	1.4	2.0	22.6	12.1	5.3	5.3	1.2	.0	

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   AREA=    331.1     17.2     34.4     51.6    257.4     97.2     34.3     34.3     14.3      .5
    VEL=      3.5       .9       .9       .9      2.1      2.9      3.6      3.6      2.0      .6
  DEPTH=      1.9       .4       .4       .4      1.4      2.4      3.4      3.4      1.4      .2

*SECNO 16.248
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
1
   01MAY98      13:43:45                                                                    PAGE   44

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

    16.248     8.34  1364.44   1364.44       .00  1364.95       .51      1.85       .11  1367.00
    2350.0       .0    1548.5     801.5        .0     225.9     346.8    1334.8     490.5  1364.00
      1.94      .00      6.86      2.31      .000      .035      .050      .000  1356.10  1932.67
   .008556     450.      430.      340.         6        15         0       .00   700.66  2633.33

FLOW DISTRIBUTION FOR SECNO=     16.25          CWSEL=   1364.44

STA=    1933.    2030.    2230.    2240.    2250.    2300.    2630.    2633.
  PER Q=     65.9      6.0      2.1      5.2     10.8     10.0       .0
   AREA=    225.9     88.7     14.4     24.4     72.2    146.3       .7
    VEL=      6.9      1.6      3.5      5.0      3.5      1.6      1.0
  DEPTH=      2.3       .4      1.4      2.4      1.4       .4       .2

*SECNO 16.328

3265 DIVIDED FLOW

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.71

    16.328     9.02  1366.52       .00       .00  1366.71       .19      1.73       .03  1366.00
    2350.0       7.2    1989.6     353.2      10.9     542.6     155.7    1339.9     494.7  1367.40
      1.97       .66      3.67      2.27      .050      .035      .050      .000  1357.50  1873.19
   .002923     440.      410.      250.         3         0         0       .00   482.32  2471.46

FLOW DISTRIBUTION FOR SECNO=     16.33          CWSEL=   1366.52

STA=    1873.    1915.    2240.    2335.    2339.    2370.    2397.    2403.    2471.
  PER Q=       .3     84.7       .3       .5      9.9      3.7       .1       .5
   AREA=     10.9    542.6      9.3      6.1     78.2     41.1      3.1     17.9
    VEL=       .7      3.7       .7      2.0      3.0      2.1      1.0       .7
  DEPTH=       .3      2.0       .1      1.5      2.5      1.5       .5       .3

*SECNO 16.411

3301 HV CHANGED MORE THAN HVINS

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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .60

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1369.20 ELREA=      1370.00

    16.411     3.85  1368.15       .00       .00  1368.90       .75      2.02       .17  1369.20
    2350.0       .0    2350.0       .0        .0     337.3       .0    1345.1     497.7  1370.00
      1.99       .00      6.97      .00      .000      .035      .000      .000  1364.30  1915.48
   .008103     510.      450.      350.         2         0         0       .00   136.29  2051.77

FLOW DISTRIBUTION FOR SECNO=     16.41          CWSEL=   1368.15

STA=    1915.    2055.
  PER Q=    100.0
   AREA=    337.3
    VEL=      7.0
  DEPTH=      2.5

*SECNO 16.504

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.91
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3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1370.00 ELREA=      1372.00

    16.504      6.58   1370.58       .00       .00   1370.83       .25      1.88       .05   1370.00
    2350.0      51.9    2298.1        .0      53.9     566.7        .0    1350.5     500.1   1372.00
      2.02       .96      4.06       .00       .050      .035      .000      .000   1364.00   1628.55
   .002227      460.      490.      300.         2         0         0       .00    291.78   2030.98


FLOW DISTRIBUTION FOR SECNO=     16.50          CWSEL=   1370.58

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


STA=    1629.    1630.    1665.    1666.    1780.    1835.    2035.
  PER Q=      .0       .8       .0       .0      1.3     97.8
   AREA=      .4     20.3       .4       .8     31.9    566.7
    VEL=      .6      1.0       .6       .6      1.0      4.1
  DEPTH=      .3       .6       .3       .0       .6      2.9

*SECNO 16.608

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .61


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1376.50 ELREA=      1374.20

    16.608      4.39   1372.19       .00       .00   1372.73       .54      1.81       .09   1376.50
    2350.0        .0    2350.0        .0        .0     397.2        .0    1356.6     502.8   1374.20
      2.04       .00      5.92       .00       .000      .035      .000      .000   1367.80   1929.53
   .005938      485.      530.      450.         3         0         0       .00    162.17   2091.70


FLOW DISTRIBUTION FOR SECNO=     16.61          CWSEL=   1372.19

STA=    1930.    2110.
  PER Q=    100.0
   AREA=    397.2
    VEL=      5.9
  DEPTH=      2.4

*SECNO 16.732

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .67


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1380.00 ELREA=      1378.00

    16.732      2.75   1377.75   1377.68       .00   1378.64       .89      5.80       .10   1380.00
    2350.0        .0    2350.0        .0        .0     310.6        .0    1362.2     505.3   1378.00
      2.07       .00      7.57       .00       .000      .035      .000      .000   1375.00   1955.62
   .013052      640.      685.      420.        12        14         0       .00    158.76   2114.38


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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=     16.73          CWSEL=   1377.75

STA=    1956.    2115.
  PER Q=    100.0
   AREA=    310.6
    VEL=      7.6
  DEPTH=      2.0

*SECNO 16.818

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.44

    16.818      4.94   1380.64       .00       .00   1380.90       .26      2.20       .06   1382.00
    2350.0        .0    1645.0     705.0        .0     356.8     298.3    1368.3     508.2   1380.40
      2.10       .00      4.61      2.36       .000      .035      .050      .000   1375.70   1945.20
   .002183      430.      455.      750.         4         0         0       .00    280.80   2226.00


FLOW DISTRIBUTION FOR SECNO=     16.82          CWSEL=   1380.64
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 STA=    1945.    2045.    2097.    2105.    2190.    2210.    2226.
   PER Q=     70.0       .8      1.1     25.3      2.7       .1
    AREA=    356.8     22.9     13.1    224.4     32.8      5.1
     VEL=      4.6       .8      1.9      2.7      1.9       .6
   DEPTH=      3.6       .4      1.6      2.6      1.6       .3

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    01MAY98      13:43:45                                                                    PAGE   48

 T1      NEW RIVER ABOVE SKUNK CREEK, PHOENIX, ARIZ., APRIL 1981
 T2      100 YEAR FLOOD
 T3      FLOODWAY

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 3                                                                   1162.8

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      15                                                                                        15



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     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 2
0

 CCHV=     .200 CEHV=     .400
 *SECNO 8.655

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1171.60 ELREA=      1171.20

          1985 TOPO - DIGITIZED DATA SEC.8.655 THRU SEC.9.129
          DOWNSTREAM STUDY LIMIT
          NEW RIVER-SKUNK CREEK CONFLUENCE
      8.655      7.70   1162.80       .00   1162.80   1163.34       .54       .00       .00   1171.60
    21000.0        .0   21000.0        .0        .0    3566.2        .0        .0        .0   1171.20
        .00       .00      5.89       .00       .000      .035      .000      .000   1155.10   9619.29
    .001661      750.      400.      150.         0         0         0       .00    566.88  10186.17


 FLOW DISTRIBUTION FOR SECNO=      8.65          CWSEL=   1162.80

 STA=    9619.   10224.
   PER Q=    100.0
    AREA=   3566.2
     VEL=      5.9
   DEPTH=      6.3

 CCHV=     .100 CEHV=     .300
 *SECNO 8.731

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .61


 3470 ENCROACHMENT STATIONS=     9762.5   10213.5  TYPE=       1  TARGET=      451.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1172.80 ELREA=    100000.00

          BEGIN DISCHARGE FOR NEW RIVER ONLY
      8.731      7.43   1163.53       .00   1163.53   1163.98       .46       .63       .01   1172.80
    12000.0        .0   12000.0        .0        .0    2214.6        .0      26.5       4.3 100000.00
        .02       .00      5.42       .00       .000      .035      .000      .000   1156.10   9815.06
    .001468      400.      400.      400.         2         0         0       .00    362.94  10178.01


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    01MAY98      13:43:45                                                                    PAGE   50

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 FLOW DISTRIBUTION FOR SECNO=      8.73          CWSEL=   1163.53

 STA=    9815.   10214.
   PER Q=    100.0
    AREA=   2214.6
     VEL=      5.4
   DEPTH=      6.1
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*SECNO 8.807

3470 ENCROACHMENT STATIONS=     9771.3   10219.2  TYPE=       1  TARGET=      447.900

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1174.70 ELREA=    100000.00

     8.807      5.86   1164.16       .00   1164.16   1164.85       .69       .80       .07   1174.70
   12000.0        .0   12000.0        .0        .0    1797.9        .0      45.0       7.6 100000.00
       .04       .00      6.67       .00      .000      .035      .000      .000   1158.30   9816.67
   .002876      400.      400.      390.         1         0         0       .00    357.31  10173.98


FLOW DISTRIBUTION FOR SECNO=      8.81          CWSEL=   1164.16

STA=    9817.   10219.
  PER Q=    100.0
   AREA=   1797.9
    VEL=      6.7
  DEPTH=      5.0

*SECNO 8.883

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9824.7   10216.9  TYPE=       1  TARGET=      392.200

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1174.90 ELREA=    100000.00

     8.883      5.89   1165.99   1165.99   1165.99   1168.03      2.04      2.04       .40   1174.90
   12000.0        .0   12000.0        .0        .0    1046.6        .0      58.0      10.4 100000.00
       .05       .00     11.47       .00      .000      .035      .000      .000   1160.10   9913.36
   .011387      280.      400.      400.        20         5         0       .00    258.42  10171.78


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   01MAY98      13:43:45                                                                        PAGE   51

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

FLOW DISTRIBUTION FOR SECNO=      8.88          CWSEL=   1165.99

STA=    9913.   10217.
  PER Q=    100.0
   AREA=   1046.6
    VEL=      11.5
  DEPTH=       4.0

*SECNO 8.936

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.69


3470 ENCROACHMENT STATIONS=     9809.4   10213.2  TYPE=       1  TARGET=      403.800

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1177.30 ELREA=    100000.00

         OLD CORP STATION NO. 8.95=0.6
     8.936      7.32   1169.12       .00   1169.12   1169.97       .85      1.82       .12   1177.30
   12000.0        .0   12000.0        .0        .0    1621.2        .0      66.9      12.4 100000.00
       .06       .00      7.40       .00      .000      .035      .000      .000   1161.80   9824.04
   .003971      300.      290.      300.         2         0         0       .00    349.89  10173.93


FLOW DISTRIBUTION FOR SECNO=      8.94          CWSEL=   1169.12

STA=    9824.   10213.
  PER Q=    100.0
   AREA=   1621.2
    VEL=       7.4
  DEPTH=       4.6

*SECNO 8.977

3470 ENCROACHMENT STATIONS=     9886.1   10212.7  TYPE=       1  TARGET=      326.601

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1177.20 ELREA=    100000.00

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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
```

TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
8.977	6.31	1169.81	.00	1169.81	1171.06	1.25	.97	.12	1177.20
12000.0	.0	12000.0	.0	.0	1337.8	.0	74.0	13.9	100000.00
.06	.00	8.97	.00	.000	.035	.000	.000	1163.50	9897.77
.005393	220.	210.	200.	3	0	0	.00	272.79	10170.56

FLOW DISTRIBUTION FOR SECNO= 8.98 CWSEL= 1169.81

STA= 9898. 10213.
PER Q= 100.0
AREA= 1337.8
VEL= 9.0
DEPTH= 4.9

*SECNO 9.009

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.05

3470 ENCROACHMENT STATIONS= 9764.5 10207.0 TYPE= 1 TARGET= 442.500

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1178.00 ELREA= 100000.00

GREENWAY ROAD AREA

9.009	8.24	1171.14	.00	1171.14	1171.56	.42	.42	.08	1178.00
12000.0	.0	12000.0	.0	.0	2309.2	.0	81.6	15.2	100000.00
.07	.00	5.20	.00	.000	.035	.000	.000	1162.90	9801.39
.001285	330.	180.	180.	2	0	0	.00	364.07	10165.46

FLOW DISTRIBUTION FOR SECNO= 9.01 CWSEL= 1171.14

STA= 9801. 10207.
PER Q= 100.0
AREA= 2309.2
VEL= 5.2
DEPTH= 6.3

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 9.047

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.44

3470 ENCROACHMENT STATIONS= 9689.8 10113.8 TYPE= 1 TARGET= 424.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1177.50 ELREA= 100000.00

9.047	10.29	1171.49	.00	1171.49	1171.75	.26	.17	.02	1177.50
12000.0	.0	12000.0	.0	.0	2943.9	.0	93.6	17.0	100000.00
.09	.00	4.08	.00	.000	.035	.000	.000	1161.20	9715.50
.000623	280.	200.	160.	2	0	0	.00	386.73	10102.23

FLOW DISTRIBUTION FOR SECNO= 9.05 CWSEL= 1171.49

STA= 9716. 10114.
PER Q= 100.0
AREA= 2943.9
VEL= 4.1
DEPTH= 7.6

*SECNO 9.129

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .59

3470 ENCROACHMENT STATIONS= 9641.2 10090.0 TYPE= 1 TARGET= 448.800

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1180.60 ELREA= 100000.00

OLD CORP STATION NO. 9.15=9.8
END 1985 TOPO DIGITIZED SECTIONS, END C/L = 10000

9.129	7.56	1171.76	.00	1171.76	1172.23	.47	.41	.06	1180.60
12000.0	.0	12000.0	.0	.0	2186.1	.0	118.4	20.8	100000.00
.11	.00	5.49	.00	.000	.035	.000	.000	1164.20	9675.97
.001772	290.	420.	460.	2	0	0	.00	403.56	10079.54

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 FLOW DISTRIBUTION FOR SECNO=       9.13          CWSEL=    1171.76

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     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


 STA=     9676.    10090.
   PER Q=     100.0
    AREA=    2186.1
     VEL=       5.5
   DEPTH=       5.4

 CCHV=      .100 CEHV=      .300
 *SECNO 9.318

 3301 HV CHANGED MORE THAN HVINS

 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3470 ENCROACHMENT STATIONS=     19660.0    20015.0  TYPE=       1  TARGET=       355.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       1186.00 ELREA=     100000.00

          BEGIN STATION C/L = 20000
      9.318       7.41    1180.61    1180.61    1180.66    1182.39       1.78       3.69        .39    1186.00
    12000.0         .0    12000.0         .0         .0     1120.4         .0      156.3       29.0  100000.00
        .13        .00      10.71        .00       .000       .035       .000       .000    1173.20   19699.14
    .011929     1000.      1000.      1000.         20          8          0        .00     315.26   20014.40


 FLOW DISTRIBUTION FOR SECNO=       9.32          CWSEL=    1180.61

 STA=    19699.    20015.
   PER Q=     100.0
    AREA=    1120.4
     VEL=      10.7
   DEPTH=       3.6

 *SECNO 9.492

 3301 HV CHANGED MORE THAN HVINS


 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.81

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     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


 3470 ENCROACHMENT STATIONS=     19770.0    20235.0  TYPE=       1  TARGET=       465.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       1188.00 ELREA=     100000.00

      9.492       8.11    1187.11        .00    1187.07    1187.81        .69       5.31        .11    1188.00
    11450.0         .0    11450.0         .0         .0     1712.2         .0      186.2       36.3  100000.00
        .17        .00       6.69        .00       .000       .035       .000       .000    1179.00   19829.78
    .003319      910.       920.       890.          3          0          0        .00     377.80   20207.58


 FLOW DISTRIBUTION FOR SECNO=       9.49          CWSEL=    1187.11

 STA=    19830.    20235.
   PER Q=     100.0
    AREA=    1712.2
     VEL=       6.7
   DEPTH=       4.5

 *SECNO 9.692

 3301 HV CHANGED MORE THAN HVINS


 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .64


 3470 ENCROACHMENT STATIONS=     19840.0    20060.0  TYPE=       1  TARGET=       220.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       1195.00 ELREA=     100000.00

      9.692       7.28    1191.38        .00    1191.40    1193.45       2.07       5.23        .41    1195.00
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  11450.0        .0   11450.0        .0        .0     991.3        .0     219.0      43.2 100000.00
      .20        .00     11.55       .00       .000      .035       .000      .000   1184.10  19856.10
   .008174     1050.     1056.     1040.         3         0         0       .00    188.50  20044.60

FLOW DISTRIBUTION FOR SECNO=      9.69          CWSEL=   1191.38

STA=   19856.   20060.
  PER Q=    100.0
   AREA=    991.3
    VEL=     11.6
  DEPTH=      5.3

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

CCHV=     .300 CEHV=     .500
*SECNO 9.889

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.74

3470 ENCROACHMENT STATIONS=    19840.0   20080.0  TYPE=       1  TARGET=      240.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1200.00 ELREA=    100000.00

     9.889      9.36   1197.36        .00   1197.35   1198.31        .95      4.53       .34   1200.00
   11450.0        .0   11450.0        .0        .0    1461.5        .0     248.3      48.0 100000.00
      .24        .00      7.83       .00       .000      .035       .000      .000   1188.00  19856.42
   .002696     1100.     1040.     1050.         2         0         0       .00    215.66  20072.07

FLOW DISTRIBUTION FOR SECNO=      9.89          CWSEL=   1197.36

STA=   19856.   20080.
  PER Q=    100.0
   AREA=   1461.5
    VEL=      7.8
  DEPTH=      6.8

CCHV=     .300 CEHV=     .500
*SECNO 9.953

3470 ENCROACHMENT STATIONS=    19790.0   20032.0  TYPE=       1  TARGET=      242.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1200.00 ELREA=    100000.00

        BELL ROAD
     9.953      9.30   1197.90        .00   1197.89   1198.93       1.03       .58       .04   1200.00
   11450.0        .0   11450.0        .0        .0    1404.8        .0     255.7      49.2 100000.00
      .24        .00      8.15       .00       .000      .030       .000      .000   1188.60  19795.23
   .002488     225.      225.      225.         3         0         0       .00    231.09  20026.33

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

FLOW DISTRIBUTION FOR SECNO=      9.95          CWSEL=   1197.90

STA=   19795.   20032.
  PER Q=    100.0
   AREA=   1404.8
    VEL=      8.2
  DEPTH=      6.1

SPECIAL BRIDGE

SB  XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
      .90       1.56       2.60        .00     213.00      20.00    2800.00       1.88    1188.61    1188.60

*SECNO 9.967
BTCARD, BRIDGE STENCL=   19825.00   STENCR=   20010.00

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .64
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CLASS A LOW FLOW

3420 BRIDGE W.S.= 1197.80 BRIDGE VELOCITY= 5.92 CALCULATED CHANNEL AREA= 1932.

EGPRS	EGLWC	H3	QWEIR	QLOW	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
.00	1200.30	.23	0.	11450.	2800.	2656.	1200.90	1207.50	0.

3470 ENCROACHMENT STATIONS= 19825.0 20010.0 TYPE= 1 TARGET= 185.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1204.00 ELREA= 100000.00

SPECIAL BRIDGE									
9.967	7.85	1198.13	.00	1198.12	1200.30	2.17	1.37	.00	1204.00
11450.0	.0	11450.0	.0	.0	968.0	.0	257.7	49.5	100000.00
.24	.00	11.83	.00	.000	.030	.000	.000	1190.29	19839.67
.006000	75.	75.	75.	0	0	0	.00	170.33	20010.00

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 9.97 CWSEL= 1198.13

STA= 19840. 20110.
PER Q= 100.0
AREA= 968.0
VEL= 11.8
DEPTH= 5.7

CCHV= .100 CEHV= .300
*SECNO 10.096

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.79

3470 ENCROACHMENT STATIONS= 19635.0 20055.0 TYPE= 1 TARGET= 420.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1201.00 ELREA= 100000.00

10.096	6.20	1201.90	.00	1200.56	1202.45	.55	1.98	.16	1201.00
11450.0	.0	11450.0	.0	.0	1918.1	.0	279.1	53.8	100000.00
.27	.00	5.97	.00	.000	.030	.000	.000	1195.70	19635.00
.001865	610.	645.	650.	3	0	0	.00	409.74	20044.74

FLOW DISTRIBUTION FOR SECNO= 10.10 CWSEL= 1201.90

STA= 19635. 20055.
PER Q= 100.0
AREA= 1918.1
VEL= 6.0
DEPTH= 4.7

*SECNO 10.271

3301 HV CHANGED MORE THAN HVINS

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .50

3470 ENCROACHMENT STATIONS= 19820.0 20320.0 TYPE= 1 TARGET= 500.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1212.50 ELREA= 100000.00

10.271	6.23	1204.43	.00	1205.05	1205.55	1.12	2.93	.17	1212.50
10900.0	.0	10900.0	.0	.0	1285.0	.0	313.1	62.7	100000.00
.30	.00	8.48	.00	.000	.030	.000	.000	1198.20	19867.47
.006824	920.	925.	925.	2	0	0	.00	430.22	20297.69

FLOW DISTRIBUTION FOR SECNO= 10.27 CWSEL= 1204.43

STA= 19867. 20320.
PER Q= 100.0
AREA= 1285.0
VEL= 8.5
DEPTH= 3.0

*SECNO 10.443

3470 ENCROACHMENT STATIONS= 19655.0 20110.0 TYPE= 1 TARGET= 455.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1216.00 ELREA= 100000.00

10.443	4.65	1210.25	.00	1209.58	1211.23	.98	5.67	.01	1216.00
10900.0	.0	10900.0	.0	.0	1369.9	.0	340.8	71.8	100000.00
.34	.00	7.96	.00	.000	.030	.000	.000	1205.60	19669.38
.005709	930.	910.	900.	6	0	0	.00	440.62	20110.00

FLOW DISTRIBUTION FOR SECNO= 10.44 CWSEL= 1210.25

STA= 19669. 20110.
PER Q= 100.0
AREA= 1369.9
VEL= 8.0
DEPTH= 3.1

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 10.612

3470 ENCROACHMENT STATIONS= 19955.0 20300.0 TYPE= 1 TARGET= 345.000

10.612	5.27	1214.87	.00	1213.73	1216.03	1.15	4.75	.05	1222.00
10900.0	.0	10900.0	.0	.0	1264.0	.0	367.7	79.7	100000.00
.37	.00	8.62	.00	.000	.030	.000	.000	1209.60	19972.81
.004993	880.	890.	900.	3	0	0	.00	324.58	20297.39

FLOW DISTRIBUTION FOR SECNO= 10.61 CWSEL= 1214.87

STA= 19973. 20300.
PER Q= 100.0
AREA= 1264.0
VEL= 8.6
DEPTH= 3.9

*SECNO 10.803

3470 ENCROACHMENT STATIONS= 19750.0 20015.0 TYPE= 1 TARGET= 265.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1220.00 ELREA= 100000.00

10.803	5.89	1219.99	.00	1219.44	1221.44	1.45	5.32	.09	1220.00
10900.0	.0	10900.0	.0	.0	1127.8	.0	395.5	86.5	100000.00
.39	.00	9.66	.00	.000	.030	.000	.000	1214.10	19750.04
.005574	1020.	1010.	1010.	2	0	0	.00	264.95	20014.99

FLOW DISTRIBUTION FOR SECNO= 10.80 CWSEL= 1219.99

STA= 19750. 20015.
PER Q= 100.0
AREA= 1127.8
VEL= 9.7
DEPTH= 4.3

*SECNO 10.989

3470 ENCROACHMENT STATIONS= 19905.0 20250.0 TYPE= 1 TARGET= 345.000

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1226.00 ELREA= 100000.00

UNION HILLS DRIVE

10.989	6.91	1225.11	.00	1225.48	1226.17	1.06	4.69	.04	1226.00
10900.0	.0	10900.0	.0	.0	1317.5	.0	423.0	93.0	100000.00
.43	.00	8.27	.00	.000	.030	.000	.000	1218.20	19912.45

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   .004152      920.      980.     1000.         1         0         0       .00    315.21  20227.66

FLOW DISTRIBUTION FOR SECNO=     10.99          CWSEL=   1225.11

STA=   19912.   20250.
  PER Q=    100.0
   AREA=   1317.5
    VEL=      8.3
  DEPTH=      4.2

*SECNO 11.129

3470 ENCROACHMENT STATIONS=    19820.0   20115.0  TYPE=      1  TARGET=      295.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1282.00 ELREA=    100000.00

         NEW SECTION - LEFT BANK TAKEN FROM ARROWHEAD RANCH
         WASTEWATER TREATMENT PLANT GRADING PLAN-DIBBLE & ASSOC.
   11.129       5.85   1227.55       .00   1227.52   1228.40       .86      2.22       .02   1282.00
   10900.0         .0   10900.0         .0         .0    1467.5         .0     445.7      97.8 100000.00
       .45        .00      7.43       .00       .000       .030       .000       .000   1221.70  19832.72
   .002431      710.      710.      710.         3         0         0       .00    274.92  20107.64


FLOW DISTRIBUTION FOR SECNO=     11.13          CWSEL=   1227.55

STA=   19833.   20115.
  PER Q=    100.0
   AREA=   1467.5
    VEL=      7.4
  DEPTH=      5.3

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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


*SECNO 11.188
3280 CROSS SECTION     11.19 EXTENDED       .11 FEET

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=    19830.0   20055.0  TYPE=      1  TARGET=      225.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1282.00 ELREA=    100000.00

    11.188       6.10   1228.10       .00   1228.08   1229.60      1.50      1.00       .19   1282.00
   10350.0         .0   10350.0         .0         .0    1053.9         .0     454.9      99.6 100000.00
       .46        .00      9.82       .00       .000       .030       .000       .000   1222.00  19841.12
   .004240      310.      320.      310.         2         0         0       .00    196.84  20037.97


FLOW DISTRIBUTION FOR SECNO=     11.19          CWSEL=   1228.10

STA=   19841.   20055.
  PER Q=    100.0
   AREA=   1053.9
    VEL=      9.8
  DEPTH=      5.4

*SECNO 11.301

3470 ENCROACHMENT STATIONS=    19900.0   20120.0  TYPE=      1  TARGET=      220.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1235.00 ELREA=    100000.00

    11.301       8.51   1230.51       .00   1230.52   1231.97      1.46      2.37       .00   1235.00
   10350.0         .0   10350.0         .0         .0    1066.8         .0     469.5     102.2 100000.00
       .48        .00      9.70       .00       .000       .030       .000       .000   1222.00  19918.72
   .003699      600.      600.      600.         3         0         0       .00    182.98  20101.70


FLOW DISTRIBUTION FOR SECNO=     11.30          CWSEL=   1230.51

STA=   19919.   20120.
  PER Q=    100.0
   AREA=   1066.8
    VEL=      9.7
  DEPTH=      5.8

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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
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    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*SECNO 11.386

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=    19900.0   20175.0  TYPE=       1  TARGET=      275.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1233.00 ELREA=    100000.00

    11.386      9.74   1232.74       .00   1232.74   1233.66       .91      1.63       .06   1233.00
   10350.0        .0   10350.0        .0        .0    1351.2        .0     482.0     104.4 100000.00
       .50       .00      7.66       .00      .000      .035      .000      .000   1223.00  19900.25
   .003531      440.      450.      420.         2         0         0       .00    252.87  20153.12


FLOW DISTRIBUTION FOR SECNO=     11.39          CWSEL=   1232.74

STA=   19900.   20175.
  PER Q=    100.0
   AREA=   1351.2
    VEL=      7.7
  DEPTH=      5.3

*SECNO 11.481

3470 ENCROACHMENT STATIONS=    19780.0   20170.0  TYPE=       1  TARGET=      390.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1236.00 ELREA=    100000.00

    11.481      7.34   1234.74       .00   1234.74   1235.36       .62      1.68       .03   1236.00
   10350.0        .0   10350.0        .0        .0    1633.8        .0     499.8     108.1 100000.00
       .52       .00      6.33       .00      .000      .035      .000      .000   1227.40  19784.20
   .002969      480.      520.      540.         2         0         0       .00    359.51  20143.71


FLOW DISTRIBUTION FOR SECNO=     11.48          CWSEL=   1234.74

STA=   19784.   20170.
  PER Q=    100.0
   AREA=   1633.8
    VEL=      6.3
  DEPTH=      4.5

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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


*SECNO 11.566

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.72


3470 ENCROACHMENT STATIONS=    19470.0   20310.0  TYPE=       1  TARGET=      840.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1240.00 ELREA=    100000.00

    11.566      6.28   1235.98       .00   1235.98   1236.15       .17       .74       .05   1240.00
   10350.0        .0   10350.0        .0        .0    3152.2        .0     525.1     114.3 100000.00
       .56       .00      3.28       .00      .000      .035      .000      .000   1229.72  19480.73
   .001000      280.      460.      530.         2         0         0       .00    821.72  20302.46


FLOW DISTRIBUTION FOR SECNO=     11.57          CWSEL=   1235.98

STA=   19481.   20310.
  PER Q=    100.0
   AREA=   3152.2
    VEL=      3.3
  DEPTH=      3.8

*SECNO 11.759

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=    19925.0   20510.0  TYPE=       1  TARGET=      585.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1244.00 ELREA=    100000.00

    11.759      3.20   1238.20   1238.20   1238.20   1239.37      1.17      2.54       .30   1244.00
   10350.0        .0   10350.0        .0        .0    1194.1        .0     576.0     130.1 100000.00
       .59       .00      8.67       .00      .000      .035      .000      .000   1235.00  19935.87
   .013897     1050.     1020.      980.         3        11         0       .00    522.81  20458.67
```

FLOW DISTRIBUTION FOR SECNO= 11.76 CWSEL= 1238.20

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

STA= 19936. 20510.
PER Q= 100.0
AREA= 1194.1
VEL= 8.7
DEPTH= 2.3

*SECNO 11.949

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.73

3470 ENCROACHMENT STATIONS= 19865.0 20510.0 TYPE= 1 TARGET= 645.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1250.00 ELREA= 100000.00

11.949	4.29	1246.29	.00	1246.23	1246.88	.58	7.45	.06	1250.00
10350.0	.0	10350.0	.0	.0	1687.1	.0	609.1	142.3	100000.00
.64	.00	6.13	.00	.000	.035	.000	.000	1242.00	19966.12
.004631	990.	1000.	1000.	6	0	0	.00	543.88	20510.00

FLOW DISTRIBUTION FOR SECNO= 11.95 CWSEL= 1246.29

STA= 19966. 20510.
PER Q= 100.0
AREA= 1687.1
VEL= 6.1
DEPTH= 3.1

*SECNO 12.125

3470 ENCROACHMENT STATIONS= 19890.0 20680.0 TYPE= 1 TARGET= 790.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1258.00 ELREA= 100000.00

12.125	3.50	1251.50	.00	1251.46	1252.14	.64	5.25	.02	1258.00
10350.0	.0	10350.0	.0	.0	1610.8	.0	644.3	155.2	100000.00
.68	.00	6.43	.00	.000	.035	.000	.000	1248.00	19927.37
.007037	910.	930.	1000.	3	0	0	.00	663.95	20591.31

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 12.13 CWSEL= 1251.50

STA= 19927. 20680.
PER Q= 100.0
AREA= 1610.8
VEL= 6.4
DEPTH= 2.4

*SECNO 12.313

3470 ENCROACHMENT STATIONS= 19830.0 20240.0 TYPE= 1 TARGET= 410.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1262.00 ELREA= 100000.00

12.313	5.37	1257.57	.00	1257.61	1258.42	.85	6.21	.06	1262.00
9800.0	.0	9800.0	.0	.0	1323.9	.0	677.6	167.0	100000.00
.71	.00	7.40	.00	.000	.035	.000	.000	1252.20	19860.59
.005593	1010.	990.	980.	3	0	0	.00	371.30	20231.89

FLOW DISTRIBUTION FOR SECNO= 12.31 CWSEL= 1257.57

STA= 19861. 20240.
PER Q= 100.0
AREA= 1323.9
VEL= 7.4
DEPTH= 3.6

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*SECNO 12.511

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=    19810.0   20280.0  TYPE=      1  TARGET=      470.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1263.60 ELREA=    100000.00

    12.511      5.80   1263.10       .00   1263.08   1263.84       .73      5.41       .01   1263.60
    9800.0        .0    9800.0        .0        .0    1424.9        .0     711.0     176.2 100000.00
       .76       .00      6.88       .00      .000      .035      .000      .000   1257.30  19817.57
   .004710     1000.     1056.     1020.         3         0         0       .00    391.77  20276.64


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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


FLOW DISTRIBUTION FOR SECNO=     12.51          CWSEL=   1263.10

STA=   19818.   20280.
  PER Q=    100.0
   AREA=   1424.9
    VEL=      6.9
  DEPTH=      3.6

*SECNO 12.701

3470 ENCROACHMENT STATIONS=    19810.0   20330.0  TYPE=      1  TARGET=      520.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1270.00 ELREA=    100000.00

    12.701      4.07   1268.77       .00   1268.79   1269.52       .75      5.68       .00   1270.00
    9800.0        .0    9800.0        .0        .0    1410.9        .0     743.5     186.6 100000.00
       .80       .00      6.95       .00      .000      .035      .000      .000   1264.70  19816.14
   .006979     1030.     1000.     1020.         4         0         0       .00    513.86  20330.00


FLOW DISTRIBUTION FOR SECNO=     12.70          CWSEL=   1268.77

STA=   19816.   20330.
  PER Q=    100.0
   AREA=   1410.9
    VEL=      6.9
  DEPTH=      2.7

*SECNO 12.896

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.49


3470 ENCROACHMENT STATIONS=    19845.0   20360.0  TYPE=      1  TARGET=      515.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1274.00 ELREA=    100000.00

    12.896      4.91   1273.71       .00   1273.69   1274.17       .46      4.62       .03   1274.00
    9800.0        .0    9800.0        .0        .0    1797.2        .0     781.4     198.8 100000.00
       .85       .00      5.45       .00      .000      .035      .000      .000   1268.80  19845.73
   .003123     1010.     1030.     1010.         4         0         0       .00    514.27  20360.00


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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


FLOW DISTRIBUTION FOR SECNO=     12.90          CWSEL=   1273.71

STA=   19846.   20360.
  PER Q=    100.0
   AREA=   1797.2
    VEL=      5.5
  DEPTH=      3.5

*SECNO 13.076

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .60


3470 ENCROACHMENT STATIONS=    19930.0   20350.0  TYPE=      1  TARGET=      420.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1278.00 ELREA=    100000.00
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    13.076      5.34   1277.34       .00   1277.34   1277.99       .65      3.77       .06   1278.00
    7900.0        .0    7900.0        .0        .0    1219.0        .0     814.3     208.9 100000.00
       .89       .00      6.48       .00      .000      .035      .000      .000   1272.00  19931.66
   .005581      950.      950.      980.         1         0         0       .00    415.84  20347.50


FLOW DISTRIBUTION FOR SECNO=     13.08          CWSEL=   1277.34

STA=   19932.   20350.
  PER Q=    100.0
   AREA=   1219.0
    VEL=      6.5
  DEPTH=      2.9

*SECNO 13.227

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.54


3470 ENCROACHMENT STATIONS=    19810.0   20120.0  TYPE=       1  TARGET=      310.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1281.50 ELREA=    100000.00

    13.227      6.34   1280.24       .00   1280.23   1280.77       .53      2.76       .01   1281.50
    7900.0        .0    7900.0        .0        .0    1356.9        .0     838.0     215.3 100000.00
       .93       .00      5.82       .00      .000      .035      .000      .000   1273.90  19818.01
   .002349      800.      800.      670.         2         0         0       .00    284.39  20102.41


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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


FLOW DISTRIBUTION FOR SECNO=     13.23          CWSEL=   1280.24

STA=   19818.   20120.
  PER Q=    100.0
   AREA=   1356.9
    VEL=      5.8
  DEPTH=      4.8

*SECNO 13.420

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=    19870.0   20170.0  TYPE=       1  TARGET=      300.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1287.50 ELREA=    100000.00

    13.420      4.20   1286.00   1286.00   1285.99   1287.69      1.69      4.62       .35   1287.50
    7900.0        .0    7900.0        .0        .0     756.8        .0     862.7     221.3 100000.00
       .95       .00     10.44       .00      .000      .035      .000      .000   1281.80  19874.29
   .012099      970.     1020.     1000.        20        14         0       .00    225.70  20099.99


FLOW DISTRIBUTION FOR SECNO=     13.42          CWSEL=   1286.00

STA=   19874.   20170.
  PER Q=    100.0
   AREA=    756.8
    VEL=     10.4
  DEPTH=      3.4

*SECNO 13.619

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.21

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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


3470 ENCROACHMENT STATIONS=    19870.0   20455.0  TYPE=       1  TARGET=      585.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1294.00 ELREA=    100000.00
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    13.619       7.47   1292.47       .00   1292.41   1292.79       .31      4.96       .14   1294.00
    7900.0         .0    7900.0        .0        .0    1754.4        .0     893.2     230.9 100000.00
      1.02        .00      4.50       .00      .000      .035      .000      .000   1285.00  19893.84
   .002477     1090.     1056.     1020.         5         0         0       .00    561.15  20455.00


FLOW DISTRIBUTION FOR SECNO=     13.62          CWSEL=   1292.47

STA=   19894.   20455.
  PER Q=    100.0
   AREA=   1754.4
    VEL=      4.5
  DEPTH=      3.1

*SECNO 13.818

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=    19890.0   20340.0  TYPE=      1  TARGET=      450.000
    13.818       3.64   1297.64   1297.64   1297.44   1298.74      1.10      5.17       .23   1300.00
    7900.0         .0    7900.0        .0        .0     939.9        .0     925.8     242.9 100000.00
      1.05        .00      8.41       .00      .000      .035      .000      .000   1294.00  19908.40
   .013850     1050.     1056.     1050.         3        11         0       .00    430.26  20338.66


FLOW DISTRIBUTION FOR SECNO=     13.82          CWSEL=   1297.64

STA=   19908.   20340.
  PER Q=    100.0
   AREA=    939.9
    VEL=      8.4
  DEPTH=      2.2

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*SECNO 14.013

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.69

3470 ENCROACHMENT STATIONS=    19915.0   20270.0  TYPE=      1  TARGET=      355.000
    14.013       6.61   1304.61       .00   1303.74   1305.02       .40      6.21       .07   1304.00
    6100.0         .0    6100.0        .0        .0    1194.7        .0     951.1     252.2 100000.00
      1.11        .00      5.11       .00      .000      .035      .000      .000   1298.00  19915.00
   .002904     1020.     1030.     1055.         6         0         0       .00    355.00  20270.00


FLOW DISTRIBUTION FOR SECNO=     14.01          CWSEL=   1304.61

STA=   19915.   20270.
  PER Q=    100.0
   AREA=   1194.7
    VEL=      5.1
  DEPTH=      3.4

*SECNO 14.197

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .57

3470 ENCROACHMENT STATIONS=    19715.0   20015.0  TYPE=      1  TARGET=      300.000
    14.197       4.82   1308.82       .00   1308.77   1309.74       .92      4.57       .15   1308.50
    6100.0         .0    6100.0        .0        .0     791.9        .0     973.2     259.4 100000.00
      1.15        .00      7.70       .00      .000      .035      .000      .000   1304.00  19715.00
   .008914      990.      970.      920.         4         0         0       .00    295.56  20010.56


FLOW DISTRIBUTION FOR SECNO=     14.20          CWSEL=   1308.82

STA=   19715.   20015.
  PER Q=    100.0
   AREA=    791.9
    VEL=      7.7
  DEPTH=      2.7

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 14.379

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 19540.0 20250.0 TYPE= 1 TARGET= 710.000

14.379	6.05	1316.05	.00	1315.05	1316.37	.32	6.58	.06	1316.00
6100.0	.0	4985.2	1114.8	.0	1049.2	318.7	997.1	270.5	1314.00
1.20	.00	4.75	3.50	.000	.035	.050	.000	1310.00	19540.00
.005391	940.	960.	1000.	4	0	0	.00	710.00	20250.00

FLOW DISTRIBUTION FOR SECNO= 14.38 CWSEL= 1316.05

STA=	19540.	20095.	20250.
PER Q=	81.7	18.3	
AREA=	1049.2	318.7	
VEL=	4.8	3.5	
DEPTH=	1.9	2.1	

*SECNO 14.559

3470 ENCROACHMENT STATIONS= 19220.0 20045.0 TYPE= 1 TARGET= 825.000

14.559	5.03	1320.43	.00	1320.23	1320.68	.25	4.29	.01	1322.00
6100.0	.0	6100.0	.0	.0	1527.1	.0	1028.6	287.2	100000.00
1.27	.00	3.99	.00	.000	.035	.000	.000	1315.40	19221.95
.003869	950.	950.	915.	4	0	0	.00	818.51	20040.46

FLOW DISTRIBUTION FOR SECNO= 14.56 CWSEL= 1320.43

STA=	19222.	20045.
PER Q=	100.0	
AREA=	1527.1	
VEL=	4.0	
DEPTH=	1.9	

*SECNO 14.752

3470 ENCROACHMENT STATIONS= 19670.0 20170.0 TYPE= 1 TARGET= 500.000

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1326.00 ELREA= 100000.00

14.752	5.68	1324.48	.00	1324.66	1324.89	.42	4.17	.05	1326.00
6100.0	.0	6100.0	.0	.0	1175.1	.0	1060.2	302.1	100000.00
1.33	.00	5.19	.00	.000	.035	.000	.000	1318.80	19673.79
.004321	1010.	1020.	1010.	3	0	0	.00	462.05	20135.85

FLOW DISTRIBUTION FOR SECNO= 14.75 CWSEL= 1324.48

STA=	19674.	20170.
PER Q=	100.0	
AREA=	1175.1	
VEL=	5.2	
DEPTH=	2.5	

*SECNO 14.945

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .54

3470 ENCROACHMENT STATIONS= 19865.0 20050.0 TYPE= 1 TARGET= 185.000

14.945	6.90	1329.40	.00	1329.02	1330.38	.98	5.32	.17	1330.00
4200.0	.0	4200.0	.0	.0	529.7	.0	1080.2	309.4	100000.00
1.36	.00	7.93	.00	.000	.035	.000	.000	1322.50	19887.37
.007102	1005.	1020.	1000.	3	0	0	.00	159.65	20047.02

FLOW DISTRIBUTION FOR SECNO= 14.94 CWSEL= 1329.40

STA=	19887.	20050.
PER Q=	100.0	
AREA=	529.7	
VEL=	7.9	

```
  DEPTH=      3.3

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     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


*SECNO 15.144
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=    19955.0   20382.0  TYPE=      1  TARGET=      427.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=      1336.00

    15.144      5.76   1337.76   1337.76   1334.80   1338.63       .87      7.75       .01 100000.00
    4200.0        .0    2488.5    1711.5        .0     267.2     510.6    1095.0     315.8   1336.00
      1.40       .00      9.31      3.35       .000      .035      .050      .000   1332.00  19955.00
   .008107      900.      1056.      890.         7         9         0       .00    427.00  20382.00


FLOW DISTRIBUTION FOR SECNO=     15.14          CWSEL=   1337.76

STA=   19955.   20019.   20382.
  PER Q=     59.3     40.7
   AREA=    267.2    510.6
    VEL=      9.3      3.4
  DEPTH=      4.2      1.4

*SECNO 15.333

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.88


3470 ENCROACHMENT STATIONS=    19770.0   20100.0  TYPE=      1  TARGET=      330.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1340.00 ELREA=    100000.00

    15.333      5.64   1340.64       .00   1338.84   1340.81       .17      2.11       .07   1340.00
    4200.0        .0    4200.0        .0        .0    1277.9        .0    1118.0     324.0 100000.00
      1.48       .00      3.29       .00       .000      .035      .000      .000   1335.00  19770.00
   .000977      900.      1000.      890.         5         0         0       .00    326.59  20096.59


FLOW DISTRIBUTION FOR SECNO=     15.33          CWSEL=   1340.64

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     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


STA=   19770.   20100.
  PER Q=    100.0
   AREA=   1277.9
    VEL=      3.3
  DEPTH=      3.9

*SECNO 15.519

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=    19950.0   20320.0  TYPE=      1  TARGET=      370.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1348.00 ELREA=    100000.00

    15.519      3.30   1343.30   1343.30   1344.20   1344.28       .98      2.43       .24   1348.00
    4200.0        .0    4200.0        .0        .0     529.4        .0    1138.3     330.9 100000.00
      1.52       .00      7.93       .00       .000      .035      .000      .000   1340.00  19965.65
   .014985      940.      980.       960.        20        14         0       .00    279.99  20245.65


FLOW DISTRIBUTION FOR SECNO=     15.52          CWSEL=   1343.30

STA=   19966.   20320.
  PER Q=    100.0
   AREA=    529.4
    VEL=      7.9
  DEPTH=      1.9
```

*SECNO 15.699

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.88

3470 ENCROACHMENT STATIONS= 19870.0 20085.0 TYPE= 1 TARGET= 215.000

15.699	5.59	1350.59	.00	1349.55	1351.19	.59	6.87	.04	1354.00
4200.0	.0	4200.0	.0	.0	678.5	.0	1151.5	336.1	100000.00
1.56	.00	6.19	.00	.000	.035	.000	.000	1345.00	19883.52
.004244	935.	950.	920.	5	0	0	.00	201.47	20085.00

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 15.70 CWSEL= 1350.59

STA= 19884. 20085.
PER Q= 100.0
AREA= 678.5
VEL= 6.2
DEPTH= 3.4

*SECNO 15.966

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .65

3470 ENCROACHMENT STATIONS= 1985.0 2430.0 TYPE= 1 TARGET= 445.000

15.966	4.38	1356.38	.00	1356.31	1356.55	.17	5.32	.04	1358.00
2350.0	.0	2350.0	.0	.0	706.5	.0	1173.9	346.2	100000.00
1.68	.00	3.33	.00	.000	.035	.000	.000	1352.00	1989.06
.003103	1450.	1410.	1200.	5	0	0	.00	422.22	2411.28

FLOW DISTRIBUTION FOR SECNO= 15.97 CWSEL= 1356.38

STA= 1989. 2430.
PER Q= 100.0
AREA= 706.5
VEL= 3.3
DEPTH= 1.7

*SECNO 16.066

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 1970.0 2350.0 TYPE= 1 TARGET= 380.000

16.066	5.53	1359.53	1359.53	1358.68	1360.21	.68	3.43	.15	1360.40
2350.0	.0	2350.0	.0	.0	355.4	.0	1180.8	350.7	100000.00
1.70	.00	6.61	.00	.000	.035	.000	.000	1354.00	1982.35
.016277	565.	570.	480.	4	11	0	.00	263.01	2333.55

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 16.07 CWSEL= 1359.53

STA= 1982. 2350.
PER Q= 100.0
AREA= 355.4
VEL= 6.6
DEPTH= 1.4

*SECNO 16.167

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.24

3470 ENCROACHMENT STATIONS= 1950.0 2200.0 TYPE= 1 TARGET= 250.000

16.167	5.23	1363.23	.00	1362.43	1363.54	.31	3.29	.04	1364.80
2350.0	.0	2184.7	165.3	.0	473.1	86.0	1186.4	353.8	1362.00
1.74	.00	4.62	1.92	.000	.035	.050	.000	1358.00	1951.64

```
   .003254      530.      530.      530.         7         0         0       .00    248.36   2200.00

FLOW DISTRIBUTION FOR SECNO=     16.17          CWSEL=   1363.23

STA=    1952.    2130.    2170.    2200.
  PER Q=     93.0       4.1       3.0
   AREA=    473.1      49.1      36.8
    VEL=      4.6       1.9       1.9
  DEPTH=      2.7       1.2       1.2

*SECNO 16.248

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .56

3470 ENCROACHMENT STATIONS=     1925.0    2030.0  TYPE=      1  TARGET=      105.000
    16.248       8.85   1364.95        .00   1364.44   1366.08       1.13       2.29        .25   1367.00
    2350.0         .0    2350.0         .0        .0     275.4         .0     1190.4      355.4 100000.00
      1.75        .00       8.53        .00      .000      .035       .000       .000    1356.10   1931.16
   .010530      450.      430.      340.         3         0         0       .00     98.84   2030.00


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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

FLOW DISTRIBUTION FOR SECNO=     16.25          CWSEL=   1364.95

STA=    1931.    2030.
  PER Q=     100.0
   AREA=    275.4
    VEL=      8.5
  DEPTH=      2.8

*SECNO 16.328

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.64

3470 ENCROACHMENT STATIONS=     1915.0    2240.0  TYPE=      1  TARGET=      325.000
    16.328       9.85   1367.35        .00   1366.52   1367.49        .14       1.31        .10   1366.00
    2350.0         .0    2350.0         .0        .0     786.2         .0     1195.4      357.4 100000.00
      1.79        .00       2.99        .00      .000      .035       .000       .000    1357.50   1915.00
   .001515      440.      410.      250.         1         0         0       .00    321.65   2236.65

FLOW DISTRIBUTION FOR SECNO=     16.33          CWSEL=   1367.35

STA=    1915.    2240.
  PER Q=     100.0
   AREA=    786.2
    VEL=      3.0
  DEPTH=      2.4

*SECNO 16.411

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .45

3470 ENCROACHMENT STATIONS=     1885.0    2055.0  TYPE=      1  TARGET=      170.000
1
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=     1369.20 ELREA=    100000.00

    16.411       3.94   1368.24        .00   1368.15   1368.94        .70       1.29        .17   1369.20
    2350.0         .0    2350.0         .0        .0     350.2         .0     1201.3      359.8 100000.00
      1.81        .00       6.71        .00      .000      .035       .000       .000    1364.30   1912.73
   .007350      510.      450.      350.         3         0         0       .00    139.20   2051.94
```

FLOW DISTRIBUTION FOR SECNO= 16.41 CWSEL= 1368.24

STA= 1913. 2055.
PER Q= 100.0
AREA= 350.2
VEL= 6.7
DEPTH= 2.5

*SECNO 16.504

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.78

3470 ENCROACHMENT STATIONS= 1835.0 2035.0 TYPE= 1 TARGET= 200.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1370.00 ELREA= 100000.00

16.504	6.59	1370.59	.00	1370.58	1370.85	.27	1.87	.04	1370.00
2350.0	.0	2350.0	.0	.0	567.8	.0	1206.5	361.7	100000.00
1.84	.00	4.14	.00	.000	.035	.000	.000	1364.00	1835.00
.002323	460.	490.	300.	3	0	0	.00	195.99	2030.99

FLOW DISTRIBUTION FOR SECNO= 16.50 CWSEL= 1370.59

STA= 1835. 2035.
PER Q= 100.0
AREA= 567.8
VEL= 4.1
DEPTH= 2.9

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 16.608

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .64

3470 ENCROACHMENT STATIONS= 1910.0 2110.0 TYPE= 1 TARGET= 200.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1376.50 ELREA= 100000.00

16.608	4.43	1372.23	.00	1372.19	1372.76	.53	1.83	.08	1376.50
2350.0	.0	2350.0	.0	.0	403.2	.0	1212.4	363.9	100000.00
1.87	.00	5.83	.00	.000	.035	.000	.000	1367.80	1929.44
.005666	485.	530.	450.	2	0	0	.00	162.60	2092.04

FLOW DISTRIBUTION FOR SECNO= 16.61 CWSEL= 1372.23

STA= 1929. 2110.
PER Q= 100.0
AREA= 403.2
VEL= 5.8
DEPTH= 2.5

*SECNO 16.732

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .64

3470 ENCROACHMENT STATIONS= 1950.0 2110.0 TYPE= 1 TARGET= 160.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1380.00 ELREA= 100000.00

16.732	2.72	1377.72	1377.68	1377.75	1378.66	.94	5.78	.12	1380.00
2350.0	.0	2350.0	.0	.0	302.7	.0	1217.9	366.4	100000.00
1.89	.00	7.76	.00	.000	.035	.000	.000	1375.00	1955.68
.013866	640.	685.	420.	12	14	0	.00	154.31	2110.00

FLOW DISTRIBUTION FOR SECNO= 16.73 CWSEL= 1377.72

STA= 1956. 2115.
PER Q= 100.0
AREA= 302.7
VEL= 7.8
DEPTH= 2.0

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 16.818

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.99

3470 ENCROACHMENT STATIONS= 1935.0 2045.0 TYPE= 1 TARGET= 110.000

16.818	5.25	1380.95	.00	1380.64	1381.51	.57	2.82	.04	1382.00
2350.0	.0	2350.0	.0	.0	388.5	.0	1221.5	367.7	100000.00
1.91	.00	6.05	.00	.000	.035	.000	.000	1375.70	1942.85
.003488	430.	455.	750.	3	0	0	.00	102.15	2045.00

FLOW DISTRIBUTION FOR SECNO= 16.82 CWSEL= 1380.95

STA=	1943.	2045.
PER Q=	100.0	
AREA=	388.5	
VEL=	6.0	
DEPTH=	3.8	

1
PROFILE FOR STREAM FLOODWAY

PLOTTED POINTS (BY PRIORITY) E-ENERGY,W-WATER SURFACE,I-INVERT,C-CRITICAL W.S.,L-LEFT BANK,R-RIGHT BANK,M-LOWER END STA

ELEVATION	1155.	1205.	1255.	1305.	1355.	1405.	1455.	1505.	1555.	1605.
SECNO	CUMDIS									
8.65	0.	I EL	.	.	.	.	.	.	.	.	.
	100.	I EL	.	.	.	.	.	.	.	.	R
	200.	I EL	.	.	.	.	.	.	.	.	R
	300.	I EL	.	.	.	.	.	.	.	.	R
8.73	400.	I EML	.	.	.	.	.	.	.	.	R
	500.	I EML	.	.	.	.	.	.	.	.	R
	600.	I EML	.	.	.	.	.	.	.	.	R
	700.	CIEML	.	.	.	.	.	.	.	.	R
8.81	800.	CIE L	.	.	.	.	.	.	.	.	R
	900.	CIE L	.	.	.	.	.	.	.	.	R
	1000.	CIE L	.	.	.	.	.	.	.	.	R
	1100.	CIE L	.	.	.	.	.	.	.	.	R
8.88	1200.	.IWEL	.	.	.	.	.	.	.	.	R
	1300.	CIWEL	.	.	.	.	.	.	.	.	R
	1400.	CI EL	.	.	.	.	.	.	.	.	R
8.94	1500.	CI EL	.	.	.	.	.	.	.	.	R
	1600.	C IELM	.	.	.	.	.	.	.	.	R
8.98	1700.	C IELM	.	.	.	.	.	.	.	.	R
	1800.	C IE L	.	.	.	.	.	.	.	.	R
9.01	1900.	C IE L	.	.	.	.	.	.	.	.	R
	2000.	CI E L	.	.	.	.	.	.	.	.	R
9.05	2100.	CI ELM	.	.	.	.	.	.	.	.	R
	2200.	CI E L	.	.	.	.	.	.	.	.	R
	2300.	C IE L	.	.	.	.	.	.	.	.	R
	2400.	C IE L	.	.	.	.	.	.	.	.	R
9.13	2500.	C IE L	.	.	.	.	.	.	.	.	R
	2600.	C I EL	.	.	.	.	.	.	.	.	R
	2700.	C I EL	.	.	.	.	.	.	.	.	R
	2800.	C I EL	.	.	.	.	.	.	.	.	R
	2900.	C IEML	.	.	.	.	.	.	.	.	R
	3000.	C IEML	.	.	.	.	.	.	.	.	R
	3100.	C IWEL	.	.	.	.	.	.	.	.	R
	3200.	C I EL	.	.	.	.	.	.	.	.	R
	3300.	C I EL	.	.	.	.	.	.	.	.	R
	3400.	C I EL	.	.	.	.	.	.	.	.	R
9.32	3500.	. IEL	.	.	.	.	.	.	.	.	R
	3600.	C IWE	.	.	.	.	.	.	.	.	R
	3700.	C IWE	.	.	.	.	.	.	.	.	R
	3800.	C I E	.	.	.	.	.	.	.	.	R
	3900.	C I E	.	.	.	.	.	.	.	.	R
	4000.	C I E	.	.	.	.	.	.	.	.	R
	4100.	C I E	.	.	.	.	.	.	.	.	R
	4200.	C IE	.	.	.	.	.	.	.	.	R
	4300.	C IEL	.	.	.	.	.	.	.	.	R
	4400.	C IWE	.	.	.	.	.	.	.	.	R
9.49	4500.	C IWE	.	.	.	.	.	.	.	.	R
	4600.	C IWE	.	.	.	.	.	.	.	.	R
	4700.	C I E	.	.	.	.	.	.	.	.	R
	4800.	C I E	.	.	.	.	.	.	.	.	R
	4900.	C I E	.	.	.	.	.	.	.	.	R
	5000.	C I E	.	.	.	.	.	.	.	.	R
	5100.	C I E	.	.	.	.	.	.	.	.	R
	5200.	C I EL	.	.	.	.	.	.	.	.	R
	5300.	C IEL	.	.	.	.	.	.	.	.	R
	5400.	C IWE	.	.	.	.	.	.	.	.	R
9.69	5500.	C IWE	.	.	.	.	.	.	.	.	R
	5600.	C IWE	.	.	.	.	.	.	.	.	R
	5700.	C IWE	.	.	.	.	.	.	.	.	R
	5800.	C I E	.	.	.	.	.	.	.	.	R
	5900.	C I E	.	.	.	.	.	.	.	.	R
	6000.	C I E	.	.	.	.	.	.	.	.	R

```
       6100.  C     I EL.         .         .         .         .         .         .         .         .        R
       6200.  C     I EL.         .         .         .         .         .         .         .         .        R
       6300.  C     I EL.         .         .         .         .         .         .         .         .        R
       6400.  C     I WE.         .         .         .         .         .         .         .         .        R
       6500.  C      IWE.         .         .         .         .         .         .         .         .        R
 9.89  6600.  C      IWE.         .         .         .         .         .         .         .         .        R
       6700.  C      I E.         .         .         .         .         .         .         .         .        R
 9.95  6800.  C      I E.         .         .         .         .         .         .         .         .        R
 9.97  6900.  C      I EL         .         .         .         .         .         .         .         .        R
       7000.  C      I EL         .         .         .         .         .         .         .         .        R
       7100.  C      I EL         .         .         .         .         .         .         .         .        R
       7200.  C       IEL         .         .         .         .         .         .         .         .        R
       7300.  C       IEM         .         .         .         .         .         .         .         .        R
       7400.  C       IEM         .         .         .         .         .         .         .         .        R
10.10  7500.  C       IEM         .         .         .         .         .         .         .         .        R
       7600.  C       IWE         .         .         .         .         .         .         .         .        R
       7700.  C       IWE         .         .         .         .         .         .         .         .        R
       7800.  C       I E         .         .         .         .         .         .         .         .        R
       7900.  C       I E         .         .         .         .         .         .         .         .        R
       8000.  C       I E         .         .         .         .         .         .         .         .        R
       8100.  C       I EL        .         .         .         .         .         .         .         .        R
       8200.  C       I EL        .         .         .         .         .         .         .         .        R
       8300.  C        IEL        .         .         .         .         .         .         .         .        R
10.27  8400.  C        IEL        .         .         .         .         .         .         .         .        R
       8500.  C        IEML       .         .         .         .         .         .         .         .        R
       8600.  C        IEML       .         .         .         .         .         .         .         .        R
       8700.  C        IEML       .         .         .         .         .         .         .         .        R
       8800.  C        IWEL       .         .         .         .         .         .         .         .        R
       8900.  C        I.EL       .         .         .         .         .         .         .         .        R
       9000.  C         IEL       .         .         .         .         .         .         .         .        R
       9100.  C         IEL       .         .         .         .         .         .         .         .        R
       9200.  C         IEL       .         .         .         .         .         .         .         .        R
10.44  9300.  C         IEL       .         .         .         .         .         .         .         .        R
       9400.  C         IEL       .         .         .         .         .         .         .         .        R
       9500.  C         IEL       .         .         .         .         .         .         .         .        R
       9600.  C         IWEL      .         .         .         .         .         .         .         .        R
       9700.  C         IWEL      .         .         .         .         .         .         .         .        R
       9800.  C         .IEL      .         .         .         .         .         .         .         .        R
       9900.  C         .IEL      .         .         .         .         .         .         .         .        R
      10000.  C         .IEL      .         .         .         .         .         .         .         .        R
      10100.  C         .IEL      .         .         .         .         .         .         .         .        R
10.61 10200.  C         .IEL      .         .         .         .         .         .         .         .        R
      10300.  C         .IEL      .         .         .         .         .         .         .         .        R
      10400.  C         .IEL      .         .         .         .         .         .         .         .        R
      10500.  C         .IWE      .         .         .         .         .         .         .         .        R
      10600.  C         .IWE      .         .         .         .         .         .         .         .        R
      10700.  C         .IWE      .         .         .         .         .         .         .         .        R
      10800.  C         .I E      .         .         .         .         .         .         .         .        R
      10900.  C         . IE      .         .         .         .         .         .         .         .        R
      11000.  C         . IE      .         .         .         .         .         .         .         .        R
      11100.  C         . IE      .         .         .         .         .         .         .         .        R
10.80 11200.  C         . IEM     .         .         .         .         .         .         .         .        R
      11300.  C         . IEM     .         .         .         .         .         .         .         .        R
      11400.  C         . IEM     .         .         .         .         .         .         .         .        R
      11500.  C         . IWE     .         .         .         .         .         .         .         .        R
      11600.  C         . IWE     .         .         .         .         .         .         .         .        R
      11700.  C         . I E     .         .         .         .         .         .         .         .        R
      11800.  C         . I E     .         .         .         .         .         .         .         .        R
      11900.  C         . I E     .         .         .         .         .         .         .         .        R
      12000.  C         . I E     .         .         .         .         .         .         .         .        R
      12100.  C         .  IE     .         .         .         .         .         .         .         .        R
10.99 12200.  C         .  IE     .         .         .         .         .         .         .         .        R
      12300.  C         .  IE L   .         .         .         .         .         .         .         .        R
      12400.  C         .  IE  L  .         .         .         .         .         .         .         .        R
      12500.  C         .  IEM   L.         .         .         .         .         .         .         .        R
      12600.  C         .  IEM    L         .         .         .         .         .         .         .        R
      12700.  C         .  IWE    . L       .         .         .         .         .         .         .        R
      12800.  C         .  IWE    .   L     .         .         .         .         .         .         .        R
11.13 12900.  C         .  IWE    .    L    .         .         .         .         .         .         .        R
      13000.  C         .  I E    .    L    .         .         .         .         .         .         .        R
      13100.  C         .  I E    .    L    .         .         .         .         .         .         .        R
      13200.  C         .  I E    .    L    .         .         .         .         .         .         .        R
11.19 13300.  C         .  I E    .    L    .         .         .         .         .         .         .        R
      13400.  C         .  I E    .   L     .         .         .         .         .         .         .        R
      13500.  C         .  I E    . L       .         .         .         .         .         .         .        R
      13600.  C         .  I E    .L        .         .         .         .         .         .         .        R
      13700.  C         .  I EM  L.         .         .         .         .         .         .         .        R
      13800.  C         .  I EM L .         .         .         .         .         .         .         .        R
11.30 13900.  C         .  I EL   .         .         .         .         .         .         .         .        R
      14000.  C         .  I EL   .         .         .         .         .         .         .         .        R
      14100.  C         .  I WEM  .         .         .         .         .         .         .         .        R
      14200.  C         .   IWEM  .         .         .         .         .         .         .         .        R
11.39 14300.  C         .   I EM  .         .         .         .         .         .         .         .        R
      14400.  C         .   I EM  .         .         .         .         .         .         .         .        R
      14500.  C         .   I EM  .         .         .         .         .         .         .         .        R
      14600.  C         .   I EM  .         .         .         .         .         .         .         .        R
      14700.  C         .   I EM  .         .         .         .         .         .         .         .        R
11.48 14800.  C         .   I EM  .         .         .         .         .         .         .         .        R
      14900.  C         .    IEM  .         .         .         .         .         .         .         .        R
      15000.  C         .    IELM .         .         .         .         .         .         .         .        R
      15100.  C         .    IELM .         .         .         .         .         .         .         .        R
      15200.  C         .    IELM .         .         .         .         .         .         .         .        R
11.57 15300.  C         .    IELM .         .         .         .         .         .         .         .        R
      15400.  C         .    IELM .         .         .         .         .         .         .         .        R
      15500.  C         .    IELM .         .         .         .         .         .         .         .        R
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	15600.	C	.	IEL M.	.	.	.	.	.	.	.		R
	15700.	C	.	IEL M.	.	.	.	.	.	.	.		R
	15800.	C	.	IWE M.	.	.	.	.	.	.	.		R
	15900.	C	.	WE M.	.	.	.	.	.	.	.		R
	16000.	C	.	WELM.	.	.	.	.	.	.	.		R
	16100.	C	.	IELM.	.	.	.	.	.	.	.		R
	16200.	C	.	IELM.	.	.	.	.	.	.	.		R
11.76	16300.	.	.	IELM.	.	.	.	.	.	.	.		R
	16400.	C	.	IELM.	.	.	.	.	.	.	.		R
	16500.	C	.	IELM.	.	.	.	.	.	.	.		R
	16600.	C	.	IELM.	.	.	.	.	.	.	.		R
	16700.	C	.	EL M	.	.	.	.	.	.	.		R
	16800.	C	.	WE M	.	.	.	.	.	.	.		R
	16900.	C	.	IELM	.	.	.	.	.	.	.		R
	17000.	C	.	IELM	.	.	.	.	.	.	.		R
	17100.	C	.	IELM	.	.	.	.	.	.	.		R
	17200.	C	.	IELM	.	.	.	.	.	.	.		R
11.95	17300.	C	.	IELM	.	.	.	.	.	.	.		R
	17400.	C	.	ELM	.	.	.	.	.	.	.		R
	17500.	C	.	WE.M	.	.	.	.	.	.	.		R
	17600.	C	.	IE.M	.	.	.	.	.	.	.		R
	17700.	C	.	IELM	.	.	.	.	.	.	.		R
	17800.	C	.	IELM	.	.	.	.	.	.	.		R
	17900.	C	.	IELM	.	.	.	.	.	.	.		R
	18000.	C	.	IELM	.	.	.	.	.	.	.		R
	18100.	C	.	IELM	.	.	.	.	.	.	.		R
12.13	18200.	C	.	E.L	.	.	.	.	.	.	.		R
	18300.	C	.	WEL	.	.	.	.	.	.	.		R
	18400.	C	.	IEL	.	.	.	.	.	.	.		R
	18500.	C	.	IEL	.	.	.	.	.	.	.		R
	18600.	C	.	IEL	.	.	.	.	.	.	.		R
	18700.	C	.	IEL	.	.	.	.	.	.	.		R
	18800.	C	.	IELM	.	.	.	.	.	.	.		R
	18900.	C	.	IELM	.	.	.	.	.	.	.		R
	19000.	C	.	IELM	.	.	.	.	.	.	.		R
	19100.	C	.	IWEM	.	.	.	.	.	.	.		R
12.31	19200.	C	.	IWEM	.	.	.	.	.	.	.		R
	19300.	C	.	IEM	.	.	.	.	.	.	.		R
	19400.	C	.	IEM	.	.	.	.	.	.	.		R
	19500.	C	.	IEM	.	.	.	.	.	.	.		R
	19600.	C	.	IEL	.	.	.	.	.	.	.		R
	19700.	C	.	IEL	.	.	.	.	.	.	.		R
	19800.	C	.	IEL	.	.	.	.	.	.	.		R
	19900.	C	.	IEL	.	.	.	.	.	.	.		R
	20000.	C	.	IEL	.	.	.	.	.	.	.		R
	20100.	C	.	IWE	.	.	.	.	.	.	.		R
	20200.	C	.	I E	.	.	.	.	.	.	.		R
12.51	20300.	C	.	I E	.	.	.	.	.	.	.		R
	20400.	C	.	.IE	.	.	.	.	.	.	.		R
	20500.	C	.	.IE	.	.	.	.	.	.	.		R
	20600.	C	.	.IE	.	.	.	.	.	.	.		R
	20700.	C	.	.IEM	.	.	.	.	.	.	.		R
	20800.	C	.	.IEM	.	.	.	.	.	.	.		R
	20900.	C	.	.IEM	.	.	.	.	.	.	.		R
	21000.	C	.	.IWE	.	.	.	.	.	.	.		R
	21100.	C	.	. IE	.	.	.	.	.	.	.		R
	21200.	C	.	. IE	.	.	.	.	.	.	.		R
12.70	21300.	C	.	. IE	.	.	.	.	.	.	.		R
	21400.	C	.	. IE	.	.	.	.	.	.	.		R
	21500.	C	.	. IE	.	.	.	.	.	.	.		R
	21600.	C	.	. IE	.	.	.	.	.	.	.		R
	21700.	C	.	. IEM	.	.	.	.	.	.	.		R
	21800.	C	.	. IEM	.	.	.	.	.	.	.		R
	21900.	C	.	. IEM	.	.	.	.	.	.	.		R
	22000.	C	.	. IWE	.	.	.	.	.	.	.		R
	22100.	C	.	. IE	.	.	.	.	.	.	.		R
	22200.	C	.	. IE	.	.	.	.	.	.	.		R
12.90	22300.	C	.	. IE	.	.	.	.	.	.	.		R
	22400.	C	.	. IE	.	.	.	.	.	.	.		R
	22500.	C	.	. IE	.	.	.	.	.	.	.		R
	22600.	C	.	. IE	.	.	.	.	.	.	.		R
	22700.	C	.	. IEM	.	.	.	.	.	.	.		R
	22800.	C	.	. IEM	.	.	.	.	.	.	.		R
	22900.	C	.	. IEM	.	.	.	.	.	.	.		R
	23000.	C	.	. IEM	.	.	.	.	.	.	.		R
	23100.	C	.	. IEM	.	.	.	.	.	.	.		R
	23200.	C	.	. IWE	.	.	.	.	.	.	.		R
13.08	23300.	C	.	. IWE	.	.	.	.	.	.	.		R
	23400.	C	.	. I E	.	.	.	.	.	.	.		R
	23500.	C	.	. I E	.	.	.	.	.	.	.		R
	23600.	C	.	. IE	.	.	.	.	.	.	.		R
	23700.	C	.	. IE	.	.	.	.	.	.	.		R
	23800.	C	.	. IE	.	.	.	.	.	.	.		R
	23900.	C	.	. IE	.	.	.	.	.	.	.		R
	24000.	C	.	. IE	.	.	.	.	.	.	.		R
13.23	24100.	C	.	. IE	.	.	.	.	.	.	.		R
	24200.	C	.	. IEM	.	.	.	.	.	.	.		R
	24300.	C	.	. IEL	.	.	.	.	.	.	.		R
	24400.	C	.	. IWE	.	.	.	.	.	.	.		R
	24500.	C	.	. IWE	.	.	.	.	.	.	.		R
	24600.	C	.	. IE	.	.	.	.	.	.	.		R
	24700.	C	.	. IE	.	.	.	.	.	.	.		R
	24800.	C	.	. IEM	.	.	.	.	.	.	.		R
	24900.	C	.	. IEM	.	.	.	.	.	.	.		R
	25000.	C	.	. IEM	.	.	.	.	.	.	.		R

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13.42 25100.   .         .         .    IWE  .         .         .         .         .         .         .         R
      25200.   . C       .         .    IWE  .         .         .         .         .         .         .         R
      25300.   C         .         .    IWE  .         .         .         .         .         .         .         R
      25400.   C         .         .     IE  .         .         .         .         .         .         .         R
      25500.   C         .         .     IEM .         .         .         .         .         .         .         R
      25600.   C         .         .     IEM .         .         .         .         .         .         .         R
      25700.   C         .         .     IEM .         .         .         .         .         .         .         R
      25800.   C         .         .     IEM .         .         .         .         .         .         .         R
      25900.   C         .         .     IEM .         .         .         .         .         .         .         R
      26000.   C         .         .     IEL .         .         .         .         .         .         .         R
13.62 26100.   C         .         .     IWE .         .         .         .         .         .         .         R
      26200.   C         .         .     I E .         .         .         .         .         .         .         R
      26300.   C         .         .     I E .         .         .         .         .         .         .         R
      26400.   C         .         .     I E .         .         .         .         .         .         .         R
      26500.   C         .         .      IE .         .         .         .         .         .         .         R
      26600.   C         .         .      IEM.         .         .         .         .         .         .         R
      26700.   C         .         .      IEM.         .         .         .         .         .         .         R
      26800.   C         .         .      IEL.         .         .         .         .         .         .         R
      26900.   C         .         .      IEL.         .         .         .         .         .         .         R
      27000.   C         .         .       WE.         .         .         .         .         .         .         R
      27100.   .         .    C    .       WE.         .         .         .         .         .         .         R
13.82 27200.   .         .         .       IE.         .         .         .         .         .         .         R
      27300.   .  C      .         .       IE.         .         .         .         .         .         .         R
      27400.   C         .         .       IE.         .         .         .         .         .         .         R
      27500.   C         .         .       IE.         .         .         .         .         .         .         R
      27600.   C         .         .       IE.         .         .         .         .         .         .         R
      27700.   C         .         .       IEM         .         .         .         .         .         .         R
      27800.   C         .         .       IEM         .         .         .         .         .         .         R
      27900.   C         .         .       IWE         .         .         .         .         .         .         R
      28000.   C         .         .       I E         .         .         .         .         .         .         R
      28100.   C         .         .       I E         .         .         .         .         .         .         R
14.01 28200.   C         .         .        IE         .         .         .         .         .         .         R
      28300.   C         .         .        IE         .         .         .         .         .         .         R
      28400.   C         .         .        IE         .         .         .         .         .         .         R
      28500.   C         .         .        IEM        .         .         .         .         .         .         R
      28600.   C         .         .        IEM        .         .         .         .         .         .         R
      28700.   C         .         .        IEM        .         .         .         .         .         .         R
      28800.   C         .         .        IWE        .         .         .         .         .         .         R
      28900.   C         .         .        ILE        .         .         .         .         .         .         R
      29000.   C         .         .         IE        .         .         .         .         .         .         R
      29100.   C         .         .         IE        .         .         .         .         .         .         R
14.20 29200.   C         .         .         IE        .         .         .         .         .         .         R
      29300.   C         .         .         IE        .         .         .         .         .         .         R
      29400.   C         .         .         IE        .         .         .         .         .         .         R
      29500.   C         .         .         IEM       .         .         .         .         .         .         R
      29600.   C         .         .         IEM       .         .         .         .         .         .         R
      29700.   C         .         .         IWE       .         .         .         .         .         .         R
      29800.   C         .         .         .IE       .         .         .         .         .         .         R
      29900.   C         .         .         .IE       .         .         .         .         .         .         R
      30000.   C         .         .         .IE       .         .         .         .         .         .         R
      30100.   C         .         .         .IE       .         .         .         .         .         .         R
14.38 30200.   C         .         .         .IEM      .         .         .         .         .         .         .
      30300.   C         .         .         .IEM      .         .         .         .         .         .         R
      30400.   C         .         .         .IEM      .         .         .         .         .         .         R
      30500.   C         .         .         .IWE      .         .         .         .         .         .         R
      30600.   C         .         .         .I E      .         .         .         .         .         .         R
      30700.   C         .         .         . IE      .         .         .         .         .         .         R
      30800.   C         .         .         . IE      .         .         .         .         .         .         R
      30900.   C         .         .         . IE      .         .         .         .         .         .         R
      31000.   C         .         .         . IE      .         .         .         .         .         .         R
14.56 31100.   C         .         .         . IE      .         .         .         .         .         .         R
      31200.   C         .         .         . IEM     .         .         .         .         .         .         R
      31300.   C         .         .         . IEL     .         .         .         .         .         .         R
      31400.   C         .         .         . IEL     .         .         .         .         .         .         R
      31500.   C         .         .         . IELM    .         .         .         .         .         .         R
      31600.   C         .         .         . IWEM    .         .         .         .         .         .         R
      31700.   C         .         .         . I EM    .         .         .         .         .         .         R
      31800.   C         .         .         .  IEM    .         .         .         .         .         .         R
      31900.   C         .         .         .  IE M   .         .         .         .         .         .         R
      32000.   C         .         .         .  IE M   .         .         .         .         .         .         R
14.75 32100.   C         .         .         .  IE M   .         .         .         .         .         .         R
      32200.   C         .         .         .  IE M   .         .         .         .         .         .         R
      32300.   C         .         .         .  IE  M  .         .         .         .         .         .         R
      32400.   C         .         .         .  IE  M  .         .         .         .         .         .         R
      32500.   C         .         .         .  IE  M  .         .         .         .         .         .         R
      32600.   C         .         .         .  IEL  M .         .         .         .         .         .         R
      32700.   C         .         .         .  IWE  M .         .         .         .         .         .         R
      32800.   C         .         .         .  I E  M .         .         .         .         .         .         R
      32900.   C         .         .         .  I E  M .         .         .         .         .         .         R
      33000.   C         .         .         .  I E   M.         .         .         .         .         .         R
14.94 33100.   C         .         .         .  I E   M.         .         .         .         .         .         R
      33200.   C         .         .         .   IE   M.         .         .         .         .         .         L
      33300.   C         .         .         .   IE   M.         .         .         .         .         .         L
      33400.   C         .         .         .   IWE   M         .         .         .         .         .         L
      33500.   C         .         .         .   IWE   M         .         .         .         .         .         L
      33600.   C         .         .         .   I E   M         .         .         .         .         .         L
      33700.   C         .         .         .    IE   M         .         .         .         .         .         L
      33800.   C         .         .         .    IE   M         .         .         .         .         .         L
      33900.   C         .         .         .    IE   M         .         .         .         .         .         L
      34000.   C         .         .         .    IE   .M        .         .         .         .         .         L
      34100.   .         .         . C       .    IWE  .M        .         .         .         .         .         L
15.14 34200.   .         .         .         .    IRE  .M        .         .         .         .         .         L
      34300.   .         C         .         .    I E  .M        .         .         .         .         .         L
      34400.   C         .         .         .     IE  .M        .         .         .         .         .         L
      34500.   C         .         .         .     IE  .M        .         .         .         .         .         L
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      34600.   C         .         .         .    IE   .M        .         .         .         .         .        L
      34700.   C         .         .         .    IE   .M        .         .         .         .         .        L
      34800.   C         .         .         .    IE   .M        .         .         .         .         .        L
      34900.   C         .         .         .    IE   .M        .         .         .         .         .        L
      35000.   C         .         .         .    IE   .M        .         .         .         .         .        L
      35100.   C         .         .         .    IE   .M        .         .         .         .         .        L
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      35300.   C         .         .         .    IE   .M        .         .         .         .         .        R
      35400.   C         .         .         .    IE   .M        .         .         .         .         .        R
      35500.   C         .         .         .    IE   .M        .         .         .         .         .        R
      35600.   C         .         .         .    IEL  .M        .         .         .         .         .        R
      35700.   C         .         .         .    IEL  .M        .         .         .         .         .        R
      35800.   C         .         .         .     WE  .M        .         .         .         .         .        R
      35900.   C         .         .         .     WE  .M        .         .         .         .         .        R
      36000.   C         .         .         .     IE  .M        .         .         .         .         .        R
      36100.   .         .     C   .         .     IE  .M        .         .         .         .         .        R
15.52 36200.   .         .         .         .     IEL.M         .         .         .         .         .        R
      36300.   .        C.         .         .     IEL.M         .         .         .         .         .        R
      36400.   C         .         .         .     IEL.M         .         .         .         .         .        R
      36500.   C         .         .         .     IEL.M         .         .         .         .         .        R
      36600.   C         .         .         .     IEL.M         .         .         .         .         .        R
      36700.   C         .         .         .      WE.M         .         .         .         .         .        R
      36800.   C         .         .         .      IE.M         .         .         .         .         .        R
      36900.   C         .         .         .      IE. M        .         .         .         .         .        R
      37000.   C         .         .         .      IEL M        .         .         .         .         .        R
15.70 37100.   C         .         .         .      IEL M        .         .         .         .         .        R
      37200.   C         .         .         .      IEL M        .         .         .         .         .        R
      37300.   C         .         .         .      IEL M        .         .         .         .         .        R
      37400.   C         .         .         .      IEL M        .         .         .         .         .        R
      37500.   C         .         .         .      IWE  M       .         .         .         .         .        R
      37600.   C         .         .         .      I E  M       .         .         .         .         .        R
      37700.   C         .         .         .       IE  M       .         .         .         .         .        R
      37800.   C         .         .         .       IE  M       .         .         .         .         .        R
      37900.   C         .         .         .       IE  M       .         .         .         .         .        R
      38000.   C         .         .         .       IE   M      .         .         .         .         .        R
      38100.   C         .         .         .       IE   M      .         .         .         .         .        R
      38200.   C         .         .         .       IE   M      .         .         .         .         .        R
      38300.   C         .         .         .       IE   M      .         .         .         .         .        R
      38400.   C         .         .         .       IEL  M      .         .         .         .         .        R
15.97 38500.   C         .         .         .       IEL   M     .         .         .         .         .        R
      38600.   C         .         .         .       IEL   M     .         .         .         .         .        R
      38700.   C         .         .         .        WE  M      .         .         .         .         .        R
      38800.   C         .         .         .        IE  M      .         .         .         .         .        R
      38900.   C         .         .         .        IE  M      .         .         .         .         .        R
      39000.   .      C  .         .         .        IE  M      .         .         .         .         .        R
16.07 39100.   .         .         .         .        IE  M      .         .         .         .         .        R
      39200.   C         .         .         .        IE  M      .         .         .         .         .        R
      39300.   C         .         .         .        IE M       .         .         .         .         .        R
      39400.   C         .         .         .        IELM       .         .         .         .         .        R
      39500.   C         .         .         .        IWEM       .         .         .         .         .        R
16.17 39600.   C         .         .         .        .IE        .         .         .         .         .        .
      39700.   C         .         .         .        I E        .         .         .         .         .        R
      39800.   C         .         .         .        I E        .         .         .         .         .        R
      39900.   C         .         .         .        I EM       .         .         .         .         .        R
      40000.   C         .         .         .        I EM       .         .         .         .         .        R
16.25 40100.   C         .         .         .        I EM       .         .         .         .         .        R
      40200.   C         .         .         .        I EM       .         .         .         .         .        R
      40300.   C         .         .         .        I EM       .         .         .         .         .        R
      40400.   C         .         .         .        I EM       .         .         .         .         .        R
16.33 40500.   C         .         .         .        I EM       .         .         .         .         .        R
      40600.   C         .         .         .        .IWE       .         .         .         .         .        R
      40700.   C         .         .         .        .ILE       .         .         .         .         .        R
      40800.   C         .         .         .        .I E       .         .         .         .         .        R
16.41 40900.   C         .         .         .        . IE       .         .         .         .         .        R
      41000.   C         .         .         .        . IEM      .         .         .         .         .        R
      41100.   C         .         .         .        . IE M     .         .         .         .         .        R
      41200.   C         .         .         .        . IE M     .         .         .         .         .        R
      41300.   C         .         .         .        . IE  M    .         .         .         .         .        R
16.50 41400.   C         .         .         .        . IE   M   .         .         .         .         .        R
      41500.   C         .         .         .        . IE  M    .         .         .         .         .        R
      41600.   C         .         .         .        . IE  M    .         .         .         .         .        R
      41700.   C         .         .         .        . IELM     .         .         .         .         .        R
      41800.   C         .         .         .        . IELM     .         .         .         .         .        R
16.61 41900.   C         .         .         .        .  WE      .         .         .         .         .        R
      42000.   C         .         .         .        .  IE      .         .         .         .         .        R
      42100.   C         .         .         .        .  IE      .         .         .         .         .        R
      42200.   C         .         .         .        .  IEL     .         .         .         .         .        R
      42300.   C         .         .         .        .  IEL     .         .         .         .         .        R
      42400.   C         .         .         .        .   EL     .         .         .         .         .        R
      42500.   .         C         .         .        .   WE     .         .         .         .         .        R
16.73 42600.   .         .         .         .        .   IE     .         .         .         .         .        R
      42700.   C         .         .         .        .   IE     .         .         .         .         .        R
      42800.   C         .         .         .        .   IE     .         .         .         .         .        R
      42900.   C         .         .         .        .   IE     .         .         .         .         .        R
      43000.   C         .         .         .        .   IE     .         .         .         .         .        R
16.82 43100.   C         .         .         .        .   IE     .         .         .         .         .        R
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THIS RUN EXECUTED 01MAY98 13:43:48

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HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

FLOOD BOUNDARY

SUMMARY PRINTOUT

	SECNO	Q	SSTA	STCHL	VLOB	VCH	VROB	STCHR	ENDST	TOPWID	CWSEL	DIFWSP
	8.655	21000.00	9619.29	9581.40	.00	5.89	.00	10224.30	10186.17	566.88	1162.80	.00
	8.655	21000.00	9619.29	9581.40	.00	5.89	.00	10224.30	10186.17	566.88	1162.80	.00
*	8.731	12000.00	9815.06	9762.50	.00	5.42	.00	10213.50	10178.01	362.94	1163.53	.00
*	8.731	12000.00	9815.06	9762.50	.00	5.42	.00	10213.50	10178.01	362.94	1163.53	.00
	8.807	12000.00	9816.67	9771.30	.00	6.67	.00	10219.20	10173.98	357.31	1164.16	.00
	8.807	12000.00	9816.67	9771.30	.00	6.67	.00	10219.20	10173.98	357.31	1164.16	.00
*	8.883	12000.00	9913.36	9824.70	.00	11.47	.00	10216.90	10171.78	258.42	1165.99	.00
*	8.883	12000.00	9913.36	9824.70	.00	11.47	.00	10216.90	10171.78	258.42	1165.99	.00
*	8.936	12000.00	9824.04	9809.40	.00	7.40	.00	10213.20	10173.93	349.89	1169.12	.00
*	8.936	12000.00	9824.04	9809.40	.00	7.40	.00	10213.20	10173.93	349.89	1169.12	.00
	8.977	12000.00	9897.77	9886.10	.00	8.97	.00	10212.70	10170.56	272.79	1169.81	.00
	8.977	12000.00	9897.77	9886.10	.00	8.97	.00	10212.70	10170.56	272.79	1169.81	.00
*	9.009	12000.00	9801.39	9764.50	.00	5.20	.00	10207.00	10165.46	364.07	1171.14	.00
*	9.009	12000.00	9801.39	9764.50	.00	5.20	.00	10207.00	10165.46	364.07	1171.14	.00
*	9.047	12000.00	9715.50	9689.80	.00	4.08	.00	10113.80	10102.23	386.73	1171.49	.00
*	9.047	12000.00	9715.50	9689.80	.00	4.08	.00	10113.80	10102.23	386.73	1171.49	.00
*	9.129	12000.00	9675.97	9641.20	.00	5.49	.00	10090.00	10079.54	403.56	1171.76	.00
*	9.129	12000.00	9675.97	9641.20	.00	5.49	.00	10090.00	10079.54	403.56	1171.76	.00
*	9.318	12000.00	19698.93	19660.00	.00	10.56	.00	20015.00	20014.44	315.50	1180.66	.00
*	9.318	12000.00	19699.14	19660.00	.00	10.71	.00	20015.00	20014.40	315.26	1180.61	-.05
*	9.492	11450.00	19832.48	19770.00	.00	6.75	.00	20235.00	20207.42	374.94	1187.07	.00
*	9.492	11450.00	19829.78	19770.00	.00	6.69	.00	20235.00	20207.58	377.80	1187.11	.04

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	SECNO	Q	SSTA	STCHL	VLOB	VCH	VROB	STCHR	ENDST	TOPWID	CWSEL	DIFWSP
*	9.692	11450.00	19856.01	19840.00	.00	11.51	.00	20060.00	20044.66	188.65	1191.40	.00
*	9.692	11450.00	19856.10	19840.00	.00	11.55	.00	20060.00	20044.60	188.50	1191.38	-.02
*	9.889	11450.00	19856.52	19840.00	.00	7.85	.00	20080.00	20072.04	215.52	1197.35	.00
*	9.889	11450.00	19856.42	19840.00	.00	7.83	.00	20080.00	20072.07	215.66	1197.36	.01
	9.953	11450.00	19795.25	19790.00	.00	8.16	.00	20032.00	20026.31	231.06	1197.89	.00
	9.953	11450.00	19795.23	19790.00	.00	8.15	.00	20032.00	20026.33	231.09	1197.90	.01
	9.967	11450.00	19839.69	19825.00	.00	8.30	.00	20110.00	20080.62	240.93	1198.12	.00
*	9.967	11450.00	19839.67	19825.00	.00	11.83	.00	20110.00	20010.00	170.33	1198.13	.01
	10.096	11450.00	19639.37	19635.00	.00	8.32	.00	20055.00	20041.41	402.04	1200.56	.00
*	10.096	11450.00	19635.00	19635.00	.00	5.97	.00	20055.00	20044.74	409.74	1201.90	1.33
	10.271	10900.00	19863.81	19820.00	.00	7.01	.00	20320.00	20301.58	437.77	1205.05	.00
*	10.271	10900.00	19867.47	19820.00	.00	8.48	.00	20320.00	20297.69	430.22	1204.43	-.62
*	10.443	10900.00	19743.09	19655.00	.00	9.85	.00	20110.00	20108.96	366.87	1209.58	.00
	10.443	10900.00	19689.38	19655.00	.00	7.96	.00	20110.00	20110.00	440.62	1210.25	.66
*	10.612	10900.00	19975.68	19955.00	.00	3.66	1.56	20300.00	27377.83	3138.02	1213.73	.00
	10.612	10900.00	19972.81	19955.00	.00	8.62	.00	20300.00	20297.39	324.58	1214.87	1.15
*	10.803	10900.00	19752.51	19750.00	.00	11.09	.00	20015.00	20014.30	261.79	1219.44	.00
	10.803	10900.00	19750.04	19750.00	.00	9.66	.00	20015.00	20014.99	264.95	1219.99	.55
*	10.989	10900.00	19909.34	19905.00	.00	7.58	.00	20250.00	20236.97	327.63	1225.48	.00
	10.989	10900.00	19912.45	19905.00	.00	8.27	.00	20250.00	20227.66	315.21	1225.11	-.37
	11.129	10900.00	19832.80	19820.00	.00	7.47	.00	20115.00	20107.56	274.75	1227.52	.00
	11.129	10900.00	19832.72	19820.00	.00	7.43	.00	20115.00	20107.64	274.92	1227.55	.03
	11.188	10350.00	19841.18	19830.00	.00	9.86	.00	20055.00	20037.88	196.71	1228.08	.00
	11.188	10350.00	19841.12	19830.00	.00	9.82	.00	20055.00	20037.97	196.84	1228.10	.02
	11.301	10350.00	19918.70	19900.00	.00	9.69	.00	20120.00	20101.73	183.03	1230.52	.00
	11.301	10350.00	19918.72	19900.00	.00	9.70	.00	20120.00	20101.70	182.98	1230.51	-.01
	11.386	10350.00	19900.25	19900.00	.00	7.66	.00	20175.00	20153.12	252.87	1232.74	.00
	11.386	10350.00	19900.25	19900.00	.00	7.66	.00	20175.00	20153.12	252.87	1232.74	.00

	11.481	10350.00	19784.20	19780.00	.00	6.33	.00	20170.00	20143.71	359.51	1234.74	.00
	11.481	10350.00	19784.20	19780.00	.00	6.33	.00	20170.00	20143.71	359.51	1234.74	.00
*	11.566	10350.00	19480.73	19470.00	.00	3.28	.00	20310.00	20302.46	821.73	1235.98	.00
*	11.566	10350.00	19480.73	19470.00	.00	3.28	.00	20310.00	20302.46	821.72	1235.98	.00
*	11.759	10350.00	19935.87	19925.00	.00	8.67	.00	20510.00	20458.67	522.81	1238.20	.00
*	11.759	10350.00	19935.87	19925.00	.00	8.67	.00	20510.00	20458.67	522.81	1238.20	.00

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	SECNO	Q	SSTA	STCHL	VLOB	VCH	VROB	STCHR	ENDST	TOPWID	CWSEL	DIFWSP
*	11.949	10350.00	19967.82	19865.00	.00	5.99	1.69	20510.00	23952.99	866.00	1246.23	.00
*	11.949	10350.00	19966.12	19865.00	.00	6.13	.00	20510.00	20510.00	543.88	1246.29	.06
	12.125	10350.00	19927.44	19890.00	.00	6.54	.00	20680.00	20590.56	663.12	1251.46	.00
	12.125	10350.00	19927.37	19890.00	.00	6.43	.00	20680.00	20591.31	663.95	1251.50	.04
	12.313	9800.00	19858.22	19830.00	.00	7.30	.00	20240.00	20232.05	373.83	1257.61	.00
	12.313	9800.00	19860.59	19830.00	.00	7.40	.00	20240.00	20231.89	371.30	1257.57	-.04
	12.511	9800.00	19818.12	19810.00	.00	6.95	.00	20280.00	20276.51	389.57	1263.08	.00
	12.511	9800.00	19817.57	19810.00	.00	6.88	.00	20280.00	20276.64	391.77	1263.10	.03
	12.701	9800.00	19816.07	19810.00	.00	6.89	1.10	20330.00	20413.59	597.53	1268.79	.00
	12.701	9800.00	19816.14	19810.00	.00	6.95	.00	20330.00	20330.00	513.86	1268.77	-.01
*	12.896	9800.00	19845.78	19845.00	.00	5.48	.68	20360.00	20401.33	555.55	1273.69	.00
*	12.896	9800.00	19845.73	19845.00	.00	5.45	.00	20360.00	20360.00	514.27	1273.71	.02
*	13.076	7900.00	19931.63	19930.00	.00	6.45	.00	20350.00	20347.55	415.92	1277.34	.00
*	13.076	7900.00	19931.66	19930.00	.00	6.48	.00	20350.00	20347.50	415.84	1277.34	.00
*	13.227	7900.00	19818.09	19810.00	.00	5.84	.00	20120.00	20102.29	284.19	1280.23	.00
*	13.227	7900.00	19818.01	19810.00	.00	5.82	.00	20120.00	20102.41	284.39	1280.24	.01
*	13.420	7900.00	19874.30	19870.00	.00	10.45	.00	20170.00	20099.97	225.67	1285.99	.00
*	13.420	7900.00	19874.29	19870.00	.00	10.44	.00	20170.00	20099.99	225.70	1286.00	.00
*	13.619	7900.00	19893.97	19870.00	.00	4.40	2.35	20455.00	20532.06	636.91	1292.41	.00
*	13.619	7900.00	19893.84	19870.00	.00	4.50	.00	20455.00	20455.00	561.15	1292.47	.06
*	13.818	7900.00	19916.12	19890.00	.00	7.82	4.04	20340.00	20709.03	677.98	1297.44	.00
*	13.818	7900.00	19908.40	19890.00	.00	8.41	.00	20340.00	20338.66	430.26	1297.64	.21
*	14.013	6100.00	19918.26	19915.00	.00	3.90	2.05	20270.00	21600.47	1285.90	1303.74	.00
*	14.013	6100.00	19915.00	19915.00	.00	5.11	.00	20270.00	20270.00	355.00	1304.61	.87
*	14.197	6100.00	19559.21	19715.00	1.63	6.88	2.10	20015.00	20830.77	840.79	1308.77	.00
*	14.197	6100.00	19715.00	19715.00	.00	7.70	.00	20015.00	20010.56	295.56	1308.82	.05
	14.379	6100.00	19544.76	19540.00	.00	5.52	2.68	20095.00	21035.65	1010.64	1315.05	.00
	14.379	6100.00	19540.00	19540.00	.00	4.75	3.50	20095.00	20250.00	710.00	1316.05	1.01
	14.559	6100.00	19222.21	19220.00	.00	4.48	.00	20045.00	20037.92	815.71	1320.23	.00
	14.559	6100.00	19221.95	19220.00	.00	3.99	.00	20045.00	20040.46	818.51	1320.43	.20
	14.752	6100.00	19673.36	19670.00	.00	4.85	.00	20170.00	20139.81	466.45	1324.66	.00
	14.752	6100.00	19673.79	19670.00	.00	5.19	.00	20170.00	20135.85	462.05	1324.48	-.19
*	14.945	4200.00	19901.60	19865.00	.00	8.57	2.20	20050.00	20410.24	247.75	1329.02	.00
*	14.945	4200.00	19887.37	19865.00	.00	7.93	.00	20050.00	20047.02	159.65	1329.40	.38

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	SECNO	Q	SSTA	STCHL	VLOB	VCH	VROB	STCHR	ENDST	TOPWID	CWSEL	DIFWSP
*	15.144	4200.00	19638.10	19634.50	.00	4.30	.00	20018.80	20018.26	380.16	1334.80	.00
*	15.144	4200.00	19955.00	19634.50	.00	9.31	3.35	20018.80	20382.00	427.00	1337.76	2.96
*	15.333	4200.00	19781.48	19770.00	.00	5.96	.00	20100.00	20092.13	310.65	1338.84	.00
*	15.333	4200.00	19770.00	19770.00	.00	3.29	.00	20100.00	20096.59	326.59	1340.64	1.80
	15.519	4200.00	19962.65	19950.00	.00	5.34	.00	20320.00	20264.38	301.73	1344.20	.00
*	15.519	4200.00	19965.65	19950.00	.00	7.93	.00	20320.00	20245.65	279.99	1343.30	-.90
	15.699	4200.00	19899.27	19870.00	.00	7.17	3.36	20085.00	20888.90	359.27	1349.55	.00
*	15.699	4200.00	19883.52	19870.00	.00	6.19	.00	20085.00	20085.00	201.47	1350.59	1.04
	15.966	2350.00	1989.23	1985.00	.00	2.69	2.35	2430.00	2670.77	537.92	1356.31	.00
*	15.966	2350.00	1989.06	1985.00	.00	3.33	.00	2430.00	2411.28	422.22	1356.38	.07
*	16.066	2350.00	1986.61	1970.00	.00	6.01	5.12	2350.00	2696.79	419.84	1358.68	.00
*	16.066	2350.00	1982.35	1970.00	.00	6.61	.00	2350.00	2333.55	263.01	1359.53	.85
*	16.167	2350.00	1952.47	1950.00	.00	3.50	2.20	2130.00	2622.15	669.68	1362.43	.00
*	16.167	2350.00	1951.64	1950.00	.00	4.62	1.92	2130.00	2200.00	248.36	1363.23	.80
*	16.248	2350.00	1932.67	1925.00	.00	6.86	2.31	2030.00	2633.33	700.66	1364.44	.00

*	16.248	2350.00	1931.16	1925.00	.00	8.53	.00	2030.00	2030.00	98.84	1364.95	.51
*	16.328	2350.00	1873.19	1915.00	.66	3.67	2.27	2240.00	2471.46	482.32	1366.52	.00
*	16.328	2350.00	1915.00	1915.00	.00	2.99	.00	2240.00	2236.65	321.65	1367.35	.82
*	16.411	2350.00	1915.48	1885.00	.00	6.97	.00	2055.00	2051.77	136.29	1368.15	.00
*	16.411	2350.00	1912.73	1885.00	.00	6.71	.00	2055.00	2051.94	139.20	1368.24	.10
*	16.504	2350.00	1628.55	1835.00	.96	4.06	.00	2035.00	2030.98	291.78	1370.58	.00
*	16.504	2350.00	1835.00	1835.00	.00	4.14	.00	2035.00	2030.99	195.99	1370.59	.01
*	16.608	2350.00	1929.53	1910.00	.00	5.92	.00	2110.00	2091.70	162.17	1372.19	.00
*	16.608	2350.00	1929.44	1910.00	.00	5.83	.00	2110.00	2092.04	162.60	1372.23	.05
*	16.732	2350.00	1955.62	1950.00	.00	7.57	.00	2115.00	2114.38	158.76	1377.75	.00
*	16.732	2350.00	1955.68	1950.00	.00	7.76	.00	2115.00	2110.00	154.31	1377.72	-.02
*	16.818	2350.00	1945.20	1935.00	.00	4.61	2.36	2045.00	2226.00	280.80	1380.64	.00
*	16.818	2350.00	1942.85	1935.00	.00	6.05	.00	2045.00	2045.00	102.15	1380.95	.31

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SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO= 8.731 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 8.731 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO= 8.883 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 8.883 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 8.883 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 8.883 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 8.883 PROFILE= 2 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 8.883 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO= 8.936 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 8.936 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 9.009 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 9.009 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 9.047 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 9.047 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 9.129 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 9.129 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO= 9.318 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 9.318 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 9.318 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 9.318 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 9.318 PROFILE= 2 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 9.318 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO= 9.492 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 9.492 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 9.692 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 9.692 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 9.889 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 9.889 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 9.967 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 10.096 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 10.271 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO= 10.443 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 10.443 PROFILE= 1 MINIMUM SPECIFIC ENERGY

WARNING SECNO= 10.612 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO= 10.803 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 10.803 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY

1

CAUTION SECNO= 10.803 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO= 10.989 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 11.566 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 11.566 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO= 11.759 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 11.759 PROFILE= 1 MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 11.759 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 11.759 PROFILE= 2 MINIMUM SPECIFIC ENERGY

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 WARNING SECNO=     11.949  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     11.949  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     12.896  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     12.896  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     13.076  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     13.076  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     13.227  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     13.227  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=     13.420  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=     13.420  PROFILE=  1  MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=     13.420  PROFILE=  2  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=     13.420  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=     13.420  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

 WARNING SECNO=     13.619  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     13.619  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=     13.818  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=     13.818  PROFILE=  1  MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=     13.818  PROFILE=  2  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=     13.818  PROFILE=  2  MINIMUM SPECIFIC ENERGY

 WARNING SECNO=     14.013  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     14.013  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=     14.197  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=     14.197  PROFILE=  1  MINIMUM SPECIFIC ENERGY
 WARNING SECNO=     14.197  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     14.945  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     14.945  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     15.144  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 CAUTION SECNO=     15.144  PROFILE=  2  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=     15.144  PROFILE=  2  MINIMUM SPECIFIC ENERGY

 WARNING SECNO=     15.333  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     15.333  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
1
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 CAUTION SECNO=     15.519  PROFILE=  2  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=     15.519  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=     15.519  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

 WARNING SECNO=     15.699  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     15.966  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     16.066  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 CAUTION SECNO=     16.066  PROFILE=  2  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=     16.066  PROFILE=  2  MINIMUM SPECIFIC ENERGY

 WARNING SECNO=     16.167  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     16.167  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=     16.248  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=     16.248  PROFILE=  1  MINIMUM SPECIFIC ENERGY
 WARNING SECNO=     16.248  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     16.328  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     16.328  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     16.411  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     16.411  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     16.504  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     16.504  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     16.608  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     16.608  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     16.732  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     16.732  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     16.818  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     16.818  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

1
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 FLOODWAY DATA,   FLOOD BOUNDARY
 PROFILE NO.  2

              ------- FLOODWAY -------      WATER SURFACE ELEVATION
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STATION	WIDTH	SECTION AREA	MEAN VELOCITY	WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
8.655	567.	3566.	5.9	1162.8	1162.8	.0
8.731	363.	2215.	5.4	1163.5	1163.5	.0
8.807	357.	1798.	6.7	1164.2	1164.2	.0
8.883	258.	1047.	11.5	1166.0	1166.0	.0
8.936	350.	1621.	7.4	1169.1	1169.1	.0
8.977	273.	1338.	9.0	1169.8	1169.8	.0
9.009	364.	2309.	5.2	1171.1	1171.1	.0
9.047	387.	2944.	4.1	1171.5	1171.5	.0
9.129	404.	2186.	5.5	1171.8	1171.8	.0
9.318	315.	1120.	10.7	1180.7	1180.7	.0
9.492	378.	1712.	6.7	1187.1	1187.1	.0
9.692	189.	991.	11.6	1191.4	1191.4	.0
9.889	216.	1461.	7.8	1197.3	1197.3	.0
9.953	231.	1405.	8.2	1197.9	1197.9	.0
9.967	170.	968.	11.8	1198.1	1198.1	.0
10.096	410.	1918.	6.0	1201.9	1200.6	1.3
10.271	430.	1285.	8.5	1204.5	1205.1	-.6
10.443	441.	1370.	8.0	1210.3	1209.6	.7
10.612	325.	1264.	8.6	1214.8	1213.7	1.1
10.803	265.	1128.	9.7	1219.9	1219.4	.5
10.989	315.	1317.	8.3	1225.1	1225.5	-.4
11.129	275.	1467.	7.4	1227.5	1227.5	.0
11.188	197.	1054.	9.8	1228.1	1228.1	.0
11.301	183.	1067.	9.7	1230.5	1230.5	.0
11.386	253.	1351.	7.7	1232.7	1232.7	.0
11.481	360.	1634.	6.3	1234.7	1234.7	.0
11.566	822.	3152.	3.3	1236.0	1236.0	.0
11.759	523.	1194.	8.7	1238.2	1238.2	.0
11.949	544.	1687.	6.1	1246.3	1246.2	.1
12.125	664.	1611.	6.4	1251.5	1251.5	.0
12.313	371.	1324.	7.4	1257.6	1257.6	.0
12.511	459.	1425.	6.9	1263.1	1263.1	.0
12.701	514.	1411.	6.9	1268.8	1268.8	.0
12.896	514.	1797.	5.5	1273.7	1273.7	.0
13.076	416.	1219.	6.5	1277.3	1277.3	.0
13.227	284.	1357.	5.8	1280.2	1280.2	.0
13.420	226.	757.	10.4	1286.0	1286.0	.0
13.619	561.	1754.	4.5	1292.5	1292.4	.1
13.818	430.	940.	8.4	1297.6	1297.4	.2
14.013	355.	1195.	5.1	1304.6	1303.7	.9
14.197	296.	792.	7.7	1308.8	1308.8	.0
14.379	710.	1368.	4.5	1316.0	1315.0	1.0

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FLOODWAY DATA, FLOOD BOUNDARY
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
14.559	819.	1527.	4.0	1320.4	1320.2	.2
14.752	462.	1175.	5.2	1324.5	1324.7	-.2
14.945	160.	530.	7.9	1329.4	1329.0	.4
15.144	427.	778.	5.4	1337.8	1334.8	3.0
15.333	327.	1278.	3.3	1340.6	1338.8	1.8
15.519	280.	529.	7.9	1343.3	1344.2	-.9
15.699	201.	679.	6.2	1350.6	1349.6	1.0
15.966	422.	706.	3.3	1356.4	1356.3	.1
16.066	351.	355.	6.6	1359.5	1358.7	.8
16.167	248.	559.	4.2	1363.2	1362.4	.8
16.248	99.	275.	8.5	1364.9	1364.4	.5
16.328	322.	786.	3.0	1367.3	1366.5	.8
16.411	139.	350.	6.7	1368.2	1368.1	.1
16.504	196.	568.	4.1	1370.6	1370.6	.0
16.608	163.	403.	5.8	1372.2	1372.2	.0
16.732	154.	303.	7.8	1377.7	1377.7	.0
16.818	102.	388.	6.0	1380.9	1380.6	.3

HEC-2 FILE REVSB

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1*******************************************
*  HEC-2 WATER SURFACE PROFILES             *
*                                           *
*  Version   4.6.2;  May 1991               *
*                                           *
*  RUN DATE    17FEB99    TIME   13:41:30   *
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*****************************************
*  U.S. ARMY CORPS OF ENGINEERS         *
*  HYDROLOGIC ENGINEERING CENTER        *
*  609 SECOND STREET, SUITE D           *
*  DAVIS, CALIFORNIA 95616-4687         *
*          (916) 756-1104               *
*****************************************
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X     X  XXXXXXX   XXXXX             XXXXX
X     X  X       X     X          X     X
X     X  X       X                      X
XXXXXXX  XXXX    X          XXXXX   XXXXX
X     X  X       X                X
X     X  X       X     X          X
X     X  XXXXXXX   XXXXX          XXXXXXX
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1
   17FEB99      13:41:30                                                    PAGE    1


                                                    THIS RUN EXECUTED 17FEB99    13:41:30

 ************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
 ************************************

T1      FCDMC NEW RIVER FLOODWAY ANALYSIS
T2      100-YEAR FLOWS
T3      NEW RIVER-A.F.R. TO S.C.

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0        4                             .001                                 1027.5

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

       1        0        -1        10      67.67                 -1                            0


J3  VARIABLE CODES FOR SUMMARY PRINTOUT

      38        43         1         8         3        26        12        53         4        54
     150       105       200

NC     .045      .045      .035       0.1       0.3
QT        5     12500     29000     39000     39000     70000
ET   501.45                                     9.1       9.1                                 9300      12150
         LAST AGUA FRIA X-SECT.  USED AS STARTING WSEL FOR NEW RIVER W/O
         PHASING AS REQUESTED PER DAVE JOHNSON OF MCFCD ON 10/20/86 FOR THEIR
         FIS STUDY.  FILE LNRSPFQS CONVERTED TO LNRMCFCD ON 10/21/86 FOR
         NEW RIVER FIS BASE.
X1   501.45        74      9150     11440
GR     1034      5420      1032      5520      1030      6550    1029.3      7130    1028.5      8140
GR     1028      8260      1027      8530      1027      9080    1027.7      9150      1026      9220
GR   1025.3      9240      1026      9260      1027      9300      1026      9315      1020      9335
GR     1020      9445      1022      9450      1022      9560      1020      9615    1019.2      9640
GR     1020      9650      1022      9665      1023      9675      1022      9685    1021.7      9860
GR   1020.9     10000    1020.5     10050      1022     10200    1022.3     10300      1022     10390
GR     1022     10480      1026     10520      1026     10600    1027.5     10720      1026     10965
GR     1024     10975      1026     11000    1026.3     11130      1026     11260      1026     11370
GR     1028     11440    1029.2     11470      1028     11500      1026     11750      1024     11800
GR     1024     11830      1026     11920      1026     11950    1025.6     12070      1024     12140
GR   1024.5     12210      1024     12270      1022     12280    1020.4     12320      1022     12360
GR     1024     12435      1026     12480      1026     12565      1024     12600      1024     12650
GR     1026     12720      1025     12820      1026     12900      1024     12960      1026     13000
GR     1027     13070      1026     13135      1026     13580    1025.8     14080      1026     14550
GR   1026.5     15000    1027.3     15150      1030     15250    1030.5     15270
1
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ET       10                                 7.1       9.1       9.1      8600     11510      9050     10370
X1       10        24      9730     10260       700      1700      1000
GR     1035      6900      1024      6950    1024.7      7370    1024.8      8000    1025.2      8430
GR     1026      8470    1027.1      8700    1026.3      9070      1028      9660    1028.3      9730
GR     1028      9800    1027.7      9890      1026      9940      1024      9960      1024     10050
GR     1026     10230      1028     10260      1028     10380    1029.8     10570    1028.5     10750
GR     1030     11000      1030     11500      1032     11510    1033.5     11630

ET       13                                 7.1       9.1       9.1      8600     11720      9050     10374
         AP PLAN STA. 15+30  CROSS SECTIONS 13.0 THRU 70.5 HAVE BEEN UPDATED
         PER GLENDALE AIRPORT CHANNEL PLANS AND HAVE BEEN ADJUSTED TO COE
         DATUM.  COE B.M.=1074.25  A.P. B.M.=1074.71.  A.P. CROSS SECTION
         DATA ADJUSTED -0.46 FT(USED -0.50).
X1       13        34      9846     10374       100       300       300
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File: ~~REVSB~~ REVSB

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GR     1034       5200       1032       5345       1030       5430     1028.7       5460       1026       5770
GR   1024.9       6360     1025.4       6405     1025.3       7135     1025.5       8210       1027       8260
GR   1025.5       8290       1027       8580       1026       8605       1026       9115       1028       9360
GR   1030.0       9827     1030.0       9846     1029.0       9849     1029.0       9872     1029.8       9900
GR   1029.0       9914       1024       9930       1023       9955     1022.2       9960     1022.4      10000
GR   1022.5      10014    1022.8      10060     1023.4      10150     1024.9      10369     1027.5      10374
GR   1029.5      10414     1030.7      10800       1032      11300     1033.5      11720

ET        20                             7.1        9.1        9.1       8800      11360       9100      10445
                AP PLAN STA. 22+30
X1        20         35       9630      10445        960        700        700
GR    1034.3       5570       1034       5730     1032.3       5765       1032       5880       1030       6095
GR      1028       6170       1026       6460     1025.7       7160     1027.2       7220     1027.4       7530
GR      1027       7610     1027.2       7630       1028       7870     1028.3       8750       1030       9460
GR    1031.3       9500       1032       9600       1033       9630       1032       9645       1030       9750
GR    1029.3       9890       1028       9905       1026       9910       1024       9960     1023.6      10025
GR    1024.5      10165     1025.5      10310     1025.5      10378     1024.5      10429     1028.5      10445
GR    1029.5      10457       1030      10690     1031.2      10900       1032      11060       1034      11360

ET      26.8                             7.1        9.1        9.1       8000      11740       9150      10400
                AP PLAN STA. 29+10
X1      26.8         37       9793      10400       1000        680        680
GR      1036       5980     1035.7       6080     1035.2       6235       1034       6400       1033       6480
GR      1032       6530       1030       6640     1030.2       6750       1030       7200       1030       7830
GR      1031       8160       1032       8660     1033.2       8700       1032       8740       1032       9520
GR      1033       9793     1032.5       9809     1031.5       9825     1030.5       9845     1029.5       9866
GR    1028.5       9886     1027.5       9908     1025.5       9946     1024.9       9957       1026      10044
GR    1026.5      10193     1027.5      10342     1027.6      10362     1029.5      10366     1030.5      10381
GR    1031.5      10400     1033.2      10540     1033.4      10710     1033.6      10895     1033.8      11090
GR      1034      11260     1035.3      11740

ET      32.6                             7.1        9.1        9.1       8500      10233       9000      10233
                AP PLAN STA. 35+40
X1      32.6         48       9565      10233        660        580        580
GR      1038       6020     1037.8       6155       1036       6300       1035       6650       1034       6760
GR    1032.3       6930       1032       7035       1032       7190       1032       7800       1033       7830
GR      1034       7860     1034.2       8080       1035       8500       1035       8670     1035.7       8695
GR      1035       8730       1034       8970       1034       9480     1035.1       9532     1035.3       9547
GR    1034.5       9550     1034.5       9558     1034.5       9565     1033.5       9644     1032.5       9670
1
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GR    1031.5       9691     1030.5       9711     1029.5       9722     1028.5       9747     1027.5       9774
GR    1026.5       9794     1026.2       9800     1026.5       9847     1027.5       9997     1028.5      10147
GR    1027.5      10207     1028.5      10209     1032.5      10217     1036.5      10225     1040.5      10233
GR    1041.2      10320     1041.8      10520     1042.3      10670     1043.2      10975     1043.8      11160
GR    1044.0      11480     1044.5      11750     1045.0      11920

ET        38                             7.1        9.1        9.1       8900      10073       8900      10073
                AP PLAN STA. 40+30
X1        38         40       9420   10072.6        440        500        540
GR    1040.6       5895       1040       6065       1040       6067     1039.7       6275       1038       6368
GR      1038       6370       1036       6635       1034       6920     1033.8       7280       1034       7365
GR    1032.9       7385     1034.3       7660     1034.5       7940     1035.3       8245       1036       8640
GR    1035.5       9365     1035.6       9420     1034.5       9492     1033.5       9512     1032.5       9532
GR    1031.5       9552     1030.5       9572     1029.5       9592     1028.5       9612     1027.5       9632
GR    1027.2       9646       1028       9698       1029       9846       1030       9997     1030.4      10051.4
GR    1041.0      10072.6   1041.4      10160     1041.5      10165     1041.6      10190     1041.6      10200
GR    1041.7      10250     1044.2      10880     1044.4      10920     1045.7      11500     1045.9      11630

ET        45                             7.1        9.1        9.1       9150      10136       9150      10136
                AP PLAN STA. 45+80
X1        45         44       9375   10135.8        440        680        700
GR      1042       5925     1043.2       6000     1042.3       6220       1042       6395       1042       6397
GR      1040       6425     1039.3       6530       1038       6575     1037.7       6730     1037.3       6925
GR      1036       6975     1035.7       7225     1034.6       7570     1034.7       8000     1035.5       8350
GR      1036       8510     1036.3       8850     1036.5       9060     1036.3       9255       1038       9368
GR    1038.7       9375       1038       9395     1036.8       9460       1036       9525     1036.3       9538
GR    1035.5       9558     1034.5       9578     1033.5       9598     1032.5       9618     1031.5       9638
GR    1030.5       9658     1029.5       9678     1028.5       9698     1028.3       9710     1028.5       9748
GR    1029.5       9888     1030.5      10047     1031.0     10115.4     1041.2     10135.8     1041.4      10252
GR    1041.5      10390     1041.9      10590     1042.2      10710     1043.1      11000

ET      51.7                             7.1        9.1        9.1       9799      10599       9799      10599
                AP PLAN STA. 53+70
X1      51.7         43       9800   10598.2        600        510        670
GR      1042       7015       1040       7060     1039.7       7175     1038.5       7270       1038       7320
GR    1037.7       7470       1036       7545     1035.2       7800       1035       8110     1034.8       8265
GR    1034.7       8480       1036       8820     1036.5       8860     1037.4       9090     1037.8       9510
GR      1038       9660     1039.1       9680       1038       9695       1038       9755       1040       9760
GR      1041       9765       1041       9770       1041       9780       1041       9790       1041       9800
GR      1040       9820     1044.5       9832     1044.5       9840     1034.5       9875       1030       9910
GR    1028.0       9915     1027.4       9970     1027.5      10000     1029.5      10090     1029.8      10172
GR    1030.5      10271     1031.5      10420     1032.5      10570     1032.6     10577.4     1043.0     10598.2
GR    1043.5      10675     1043.8      10685     1044.5      10705

ET        54                             7.1        9.1        9.1       9854      10696       9854      10696
                AP PLAN STA. 55+65
X1        54         55       9855      10695        270        200        230
GR      1045       5965     1045.6       6005     1045.7       6090       1045       6360       1044       6775
GR      1042       6900       1041       7020       1040       7125     1038.7       7230       1038       7385
GR    1036.8       7475     1037.3       7825     1036.3       8165     1036.4       8460     1036.4       8635
GR    1036.5       8790       1037       9055     1037.7       9260       1038       9540     1039.2       9635
GR      1038       9705       1034       9712     1033.3       9750       1034       9780       1036       9785
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GR     1038       9800       1040       9810       1042       9815     1042.5       9835     1042.5       9855
GR     1036       9862       1034       9868       1032       9875       1030       9890       1028       9915
1
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GR     1029      10000       1030      10035       1030      10115       1032      10140       1034      10160
GR   1033.5      10180     1032.5      10219     1031.5      10242     1030.5      10263     1030.2      10269
GR   1030.5      10311     1031.5      10459     1032.5      10610     1032.9    10674.4     1043.2      10695
GR   1044.1      11215     1044.2      11525     1044.5      11780       1045      11840       1046      13150

ET       59                                    7.1        9.1        9.1       9744      10701       9744      10701
                AP PLAN STA. 60+00
X1       59         43       9745    10700.2        760        490        500
GR     1046       6900     1045.5       7000       1045       7100       1044       7305     1042.7       7410
GR     1042       7525     1041.7       7640     1041.5       7875       1041       8170     1041.5       8560
GR     1040       8720       1040       8800     1040.8       9085       1041       9500       1042       9585
GR     1044       9600       1042       9615     1040.3       9630       1044       9700       1044       9720
GR     1044       9745       1042       9765       1040       9770       1038       9800       1036       9805
GR     1034       9815       1032       9865     1030.7       9880       1032       9890       1034       9915
GR     1032       9945     1031.6      10000       1035      10204       1034      10224       1033      10245
GR     1032      10266     1031.1      10274     1031.5      10335     1032.5      10484     1033.5      10632
GR   1033.8    10679.4     1044.2    10700.2       1046      12750

ET       63                                    7.1        9.1        9.1       9669      10572       9669      10572
                AP PLAN STA. 63+00
X1       63         37       9670    10571.6        460        380        400
GR     1050       6725       1049       6950       1048       7040     1047.2       7190       1046       7330
GR     1044       7710     1043.4       8020     1043.2       8470     1043.1       8630     1043.1       8865
GR   1043.3       9315     1043.3       9490       1042       9535       1042       9655     1043.5       9670
GR     1042       9685       1040       9715       1038       9760       1036       9780       1034       9845
GR     1034       9890     1033.7       9960     1032.9      10000       1032      10020     1032.3      10100
GR     1032      10120     1031.8      10130       1032      10140     1031.7      10145     1032.5      10266
GR   1033.5      10415     1034.4    10550.4     1045.0    10571.6     1045.5      11090       1046      11350
GR   1047.7      11390       1048      12390

ET     70.5                                    7.1        9.1        9.1       9579      10271       9579      10271
                AP PLAN STA. 70+50
X1     70.5         40       9580      10270        710        700        750
GR   1049.8       7020       1048       7215     1047.7       7255       1046       7310     1045.8       7420
GR     1045       7825     1045.1       7985     1044.3       8190       1045       8520     1044.7       8790
GR   1045.2       9075     1044.6       9360       1044       9460       1043       9485       1042       9505
GR     1042       9550       1044       9565       1044       9570       1044       9580       1042       9595
GR   1040.7       9625     1041.8       9720       1040       9825       1038       9840     1035.5       9922
GR   1035.5       9994     1036.4      10000     1034.5      10055     1033.5      10122     1035.5      10147
GR   1033.5      10165     1034.5      10240     1046.5      10262     1047.5      10270       1046      10390
GR     1046      10490     1046.5      10560       1046      10600       1046      11300       1048      11700

ET       77                                    7.1        9.1        9.1       9775      10250       9775      10250
                AP PLAN STA. 74+16, END CHANNEL AT 107TH AVE.
                NORTH PROJECT X-77.0 USED AS NATURAL RIVER BED
X1       77         33       9776      10148        480        660        650
GR     1052       7105       1050       7110     1048.4       7205       1048       7500       1047       8115
GR   1047.3       8410     1047.2       8760       1046       9080     1045.7       9225     1045.5       9390
GR   1044.2       9548       1044       9648     1043.7       9748       1051       9776     1044.6       9807
GR   1042.3       9858     1042.2       9875     1043.4       9884     1042.3       9891     1042.8       9900
GR   1035.6       9921     1036.3       9956     1036.2      10000     1035.5      10048     1034.6      10078
GR   1035.7      10104     1044.7      10148     1044.5      10165     1048.2      10192     1046.1      10214
GR   1046.7      10236     1048.1      10248     1050.9      10285
1
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ET       84                                    7.1        9.1        9.1       9844      10790       9844      10401
X1       84         40       9845      10400        620        700        700
X3       10
GR     1054       7475       1052       7490       1052       7520       1052       7545       1051       7570
GR     1050       7795     1048.5       7970     1048.4       8210     1048.2       8500     1048.2       8820
GR     1050       8950     1048.7       9320       1048       9480     1047.5       9630       1046       9740
GR     1046       9815       1052       9840     1053.5       9845       1052       9855     1046.1       9875
GR   1044.1       9880     1042.1       9905     1036.1       9915     1035.8       9970     1036.1       9990
GR   1038.1      10025     1038.1      10045     1040.1      10115     1042.1      10160     1042.1      10215
GR   1040.1      10230     1040.1      10360     1042.1      10370     1044.4      10400       1042      10415
GR     1042      10490       1044      10570       1048      10610       1050      10615     1050.0      10790

ET     88.7                                    7.1        9.1        9.1       9729      10980       9729      10301
                GRAVEL PIT, LOB BREAKOUT TO X95.5. D/S B.O. LIMITED IN Q TO X77
X1     88.7         47       9730      10300        520        430        470
X3
GR     1054       6520       1052       6550       1052       6580       1052       7170       1052       7440
GR     1052       8650     1050.4       8770     1050.2       8910     1050.2       9080     1050.1       9250
GR     1050       9630       1050       9725       1052       9730       1050       9735     1036.2       9760
GR   1035.9       9765     1036.2       9770     1042.2       9810     1042.2       9910     1034.2       9930
GR   1036.2       9990     1038.2      10000     1036.2      10030     1034.2      10100     1034.2      10170
GR   1044.1      10220     1044.1      10220     1045.6      10300       1046      10310       1046      10360
GR     1048      10430       1050      10455       1052      10500       1052      10530       1050      10560
GR     1050      10610       1052      10615       1052      10650       1050      10700       1052      10710
GR     1052      10760       1050      10765       1050      10830     1050.9      10850     1051.1      10950
GR     1052      10980       1058      11030

ET     95.5                                                  9.1        9.1                             9499      10306
                GRAVEL PIT, LOB BREAKOUT TO X88.7.
X1     95.5         40       9500      10305        400        680        680
X3       10
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GR     1056       6420      1055.8       6575        1055       7030      1053.3       7530      1053.3       7540
GR     1052       7550        1052       7610        1052       7615      1052.0       8270      1052.0       8610
GR     1052       8855        1052       9140      1053.6       9340        1052       9470        1052       9500
GR     1050       9535        1050       9840      1048.1       9845      1046.1       9850      1044.2       9890
GR   1042.2       9905      1040.2       9915      1037.5       9960      1036.2      10000      1036.2      10085
GR   1034.2      10120      1034.2      10240      1036.2      10250      1038.2      10260      1038.2      10280
GR     1052      10305        1050      10310        1050      10330        1052      10420      1050.7      10580
GR     1051      10880        1052      10975      1052.1      11070        1054      11280        1064      11400

ET    100.7                                          9.1         9.1                                9629      10191
X1    100.7         48        9630      10190         550         620         520
GR     1056       7400      1055.1       7450        1070       7451        1070       7600        1056       7601
GR     1055       7730        1070       7731        1070       8019      1054.5       8020      1054.3       8110
GR     1070       8111        1070       8139      1054.2       8140      1054.2       8210      1054.1       8450
GR   1054.2       8600      1054.1       8740      1053.6       9180        1054       9300      1054.5       9450
GR     1054       9570        1054       9600        1055       9630        1054       9645        1052       9670
GR     1051       9720        1052       9820        1052       9865        1050       9890      1042.3       9900
GR   1042.3       9960      1040.3       9970      1036.3       9980      1036.3      10070        1035      10100
GR   1036.3      10120      1038.3      10130      1040.3      10155        1052      10190        1052      10240
GR     1053      10270        1052      10300        1052      10380      1052.2      10430      1053.3      10570
GR   1053.7      10880        1054      11140        1062      11200
1
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ET     107                                          9.1         9.1                                9709      10256
X1     107         48        9710      10255         300         640         630
GR   1058.9       7275      1058.7       7480      1058.2       7715        1058       7750        1056       7810
GR     1070       7811        1070       7920      1055.3       7921      1055.1       8025        1055       8120
GR     1070       8121        1070       8194      1055.5       8195      1055.2       8330        1070       8331
GR     1070       8389      1055.3       8390      1055.1       8580      1054.2       8630      1054.4       8835
GR   1054.5       9105      1054.8       9370        1056       9490        1056       9620        1056       9710
GR     1052       9735      1040.1       9750      1039.6       9755      1040.1       9770      1040.1       9830
GR   1038.1       9835      1038.1       9960      1040.1       9985      1040.1      10110      1042.1      10130
GR   1042.1      10180      1045.1      10190      1045.1      10240        1054      10255        1055      10365
GR   1055.7      10460      1055.7      10550        1056      10735        1057      10740      1056.1      10755
GR   1056.2      10870        1056      10980        1060      11010

NC     .045       .045        .035         .3          .5
ET    110.7                                          9.1         9.1                                9734      10236
X1    110.7          42       9735      10235         600         300         370
GR     1060       7845        1060       7846        1058       7852        1058       7854      1057.7       8000
GR     1058       8145        1058       8150        1058       8200      1057.1       8540      1057.4       8810
GR   1056.6       8950      1056.1       9075        1056       9100      1055.6       9320      1055.4       9430
GR     1056       9495      1056.7       9525        1056       9540        1054       9545        1054       9690
GR   1055.6       9735        1054       9770      1042.2       9790      1041.5       9820      1042.2       9870
GR   1046.2       9880      1048.2       9910      1049.2      10000      1049.2      10120      1048.2      10160
GR     1047      10190      1048.2      10215        1056      10235        1054      10250        1054      10340
GR     1056      10345      1056.7      10500        1056      10590      1055.8      10670        1056      10770
GR     1058      10810        1060      10830

ET    117.2                                          9.1         9.1                                9844      10196
          DOWNSTREAM SIDE GLENDALE AVE BRIDGE
X1    117.2          33       9845      10195         800         400         650
X3       10                                                                 1061        1061
GR     1066       7075        1064       7120        1062       8020        1060       8035        1060       8037
GR   1059.8       8280        1060       8340        1060       8360        1060       8380      1058.5       8500
GR   1058.7       8630      1057.9       8780      1057.9       9100      1058.4       9330        1058       9550
GR     1058       9730        1056       9845      1054.1       9855      1052.2       9885      1050.2       9910
GR   1048.2       9970      1046.4      10030      1046.4      10120      1048.2      10165        1056      10195
GR     1057      10260      1057.5      10460        1056      10550        1056      10940        1056      11415
GR     1058      11555        1060      11620        1062      11685

SB       .9       1.56         2.9          0         352       19.8        5503          0      1046.5      1046.2
ET      118                                          9.11        9.11                                9844      10196
          UPSTREAM SIDE GLENDALE AVE BRIDGE-PERCHED. 2FT DEBRIS PER PIER.
          1983 TOPO WITHIN 0.3FT OF BRIDGE PLAN DECK.USED PLANS MINUS 0.3FT
X1     118          33       9845      10195          80          80                                      00
X2                                        1     1063.1        1063
X3      10                                                                 1063.5        1063
BT     -18        8080      1064.5          0        8140      1063.9          0        8420      1063.6          0
BT                8720      1063.5          0        9000      1063.5          0        9230      1063.6          0
BT                9650        1064          0        9700      1064.5          0        9844      1066.1          0
BT                9845      1068.6     1063.1       10195      1068.6     1063.1       10196      1066.1          0
BT               10370        1064          0       10600      1063.3          0       11150        1063          0
BT               11195      1063.4          0       11480      1063.6          0       11515        1064          0
GR     1066       7865        1066       7866        1065       8030        1065       8031        1065       8032
GR     1064       8190      1062.9       8250        1062       8320      1060.1       8515        1060       9170
1
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GR     1059       9290        1060       9710        1060       9835        1058       9845        1056       9860
GR   1049.9       9895      1047.9       9920      1047.4      10020      1047.9      10130      1049.9      10160
GR   1051.9      10175        1058      10195        1058      10210        1060      10220        1058      10730
GR   1057.4      11030      1057.4      11190        1058      11330        1060      11400        1062      11403
GR     1064      11415        1064      11450        1066      11485

ET     120                                          7.1         9.1         9.1       9550      10400       9799      10206
X1     120          40       9800      10205         200         130         200
X3      10
GR   1066.8       7690      1066.2       7795        1066       7840      1064.4       8070        1064       8160
GR     1062       8255      1060.3       8300      1060.3       8480      1060.2       8715      1069.9       8950
GR   1061.4       9100      1060.4       9200        1060       9220      1059.4       9260      1059.5       9360
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GR   1058.4      9430     1059.8      9530      1058      9630      1058      9660     1058.6      9725
GR      1058      9760       1058      9780    1058.2      9800    1057.9      9820     1055.9      9825
GR    1051.9      9850     1049.9      9870    1045.9      9880    1045.9     10180       1058     10205
GR    1058.5     10270     1058.5     10330    1059.6     10350    1059.2     10400     1058.4     10700
GR      1058     11000     1056.7     11185    1056.7     11275      1060     11345       1066     11370

NC      .045      .045       .035        .1        .3
ET       125                            7.1       9.1       9.1      8950     10800       9789     10241
X1       125        36       9790     10240       500       480       500
X3        10
GR      1069      7190       1070      7240      1070      7360      1068      7410       1066      7660
GR      1064      7920       1062      8170    1061.4      8210    1061.5      8425       1061      8630
GR    1062.4      8720       1062      8770      1060      8800      1060      8850     1064.9      8890
GR      1060      8950       1060      8980      1060      9520      1060      9730     1059.8      9790
GR    1057.9      9810     1050.9      9835    1050.4      9900    1049.9      9965     1045.9      9970
GR    1046.2     10180     1047.9     10185      1060     10240    1060.9     10380     1060.1     10520
GR      1060     10570     1059.6     10730      1060     10850      1062     10900       1064     10920
GR      1070     11130

ET     131.0                            7.1       9.1       9.1      8500     10365       9744     10251
          GRAVEL MINE CODED AS 1062 FILLED. UPSTREAM SIDE.
X1     131.0        31       9745     10250       500       650       600
X3        10
GR      1068      7370     1067.4      7440      1066      7570      1065      7685       1064      7770
GR      1064      7880     1063.6      8005    1062.7      8430    1062.6      8580       1062      8660
GR      1062      9500       1062      9520      1064      9525      1064      9540       1062      9630
GR      1061      9745     1059.9      9760    1051.9      9790      1050      9830     1051.9      9890
GR    1053.9      9925     1055.9     10015      1058     10055    1058.7     10160     1057.9     10205
GR    1057.9     10230       1062     10235    1062.7     10250      1062     10300       1064     10335
GR    1071.5     10365

ET     135.0                            7.1       9.1       9.1      8400     10315       9799     10156
X1     135.0        34       9800     10155       380       430       400
X3        10
GR      1068      7340       1066      7460    1065.4      7660      1065      7865       1075      7866
GR      1075      8264     1064.4      8265    1063.8      8420      1063      8780     1063.2      8940
GR    1063.2      9170     1063.4      9400      1075      9401      1075      9584       1064      9585
GR      1064      9690     1063.5      9800    1061.9      9810    1051.9      9830     1051.8      9850
GR    1053.9      9880     1055.9      9920    1056.7      9940    1055.9      9960     1053.9     10000
GR    1054.7     10075     1055.9     10100    1055.9     10130    1057.9     10135     1059.9     10140
GR      1061     10155     1060.5     10230      1062     10280      1070     10315
1
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ET       140                                        9.1       9.1                           9744     10261
X1       140        37       9745     10260       430       520       500
X3        10
X4          5      1100       7901      1100      8299    1064.5      8300      1100       9201      1100
X4       9499
GR      1070      7050       1070      7070      1070      7095    1069.2      7190     1069.2      7305
GR      1068      7405       1066      7585    1065.2      7695    1065.5      7900       1065      8480
GR      1064      8700     1064.2      8875      1065      9000      1065      9200     1064.5      9500
GR    1065.3      9620     1065.7      9745    1063.9      9755    1057.9      9790     1057.9      9960
GR    1055.9     10000     1053.9     10005    1053.9     10035    1055.9     10050     1057.5     10110
GR    1055.9     10185     1053.9     10210    1055.9     10230    1061.9     10255     1062.5     10260
GR      1062     10280       1062     10340      1064     10360      1066     10415       1066     10580
GR      1070     10595       1076     10630

ET       143                                        9.1       9.1                           9600     10401
X1       143        32       9790     10400       300       300       300
X4         6    1069.1      10380    1068.5      9770      1100      8201      1100       8524      1100
X4      9471      1100       9629
GR    1071.4      7285       1070      7325      1070      7340    1069.2      7410     1069.2      7530
GR      1068      7650     1067.8      7675      1066      7870    1065.5      7955     1065.4      8200
GR    1065.1      8525       1066      8730    1064.8      8780    1065.1      9230     1065.9      9470
GR    1065.1      9630       1068      9740      1068      9790    1059.9      9810     1059.9     10015
GR    1057.9     10070     1057.9     10190    1063.9     10225    1059.9     10240     1059.9     10330
GR    1061.9     10370     1063.9     10379    1063.9     10381      1066     10390       1068     10400
GR      1068     10480       1070     10720

ET       146                                        9.1       9.1                           9000     10201
          LOB POULTRY BLDGS CODED AS SINGLE BLOCK.
X1       146        45       9800     10200       310       290       300
GR    1074.7      6940     1075.4      7135    1074.1      7310    1074.1      7312       1074      7409
GR      1072      7410       1070      7420      1070      7430      1072      7470       1070      7500
GR      1070      7510     1069.3      7735    1067.2      8000    1066.6      8350       1077      8351
GR      1077      8699     1066.5      8700    1066.5      8701    1066.5      8702     1066.5      8703
GR    1066.5      8805     1066.4      9525      1075      9526      1075      9699     1066.2      9700
GR      1068      9705       1070      9720    1070.8      9800      1070      9810     1059.9      9830
GR    1060.7      9890     1059.9      9970    1057.9      9990    1057.9     10050     1059.9     10065
GR    1063.9     10080       1066     10175      1068     10185    1069.7     10200     1068.5     10230
GR      1069     10500       1069     10640      1070     10790      1072     10830       1074     10840

QT         5     13000      30000     40000     40000     72500
ET     149.6                                      9.1       9.1                           8850     10206
          LOB ON TOP OF SERVICE RD. POULTRY BLDGS CODED AS ONE SOLID BLOCK.
X1     149.6        44       9735     10205       370       375       360
X3
X4          4    1068.4       8570      1100      8571      1100      8799    1068.4       8800
GR      1075      7530       1074      7605      1072      7635      1070      7640       1070      7650
GR      1072      7655       1072      7720      1070      7730      1070      7850     1070.0      8050
GR      1069      8200     1068.6      8390    1100.0      8695    1068.4      8930     1068.2      9215
GR    1068.1      9285       1069      9365    1069.1      9500    1067.2      9640       1068      9725
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GR   1069.3      9735     1067.9      9745     1065.9      9765     1063.9      9780     1061.9      9805
GR   1059.9      9815     1059.9      9840     1060.8      9860     1059.9      9930     1059.9     10050
GR   1061.9     10060     1065.9     10075     1065.9     10100     1063.9     10180     1065.9     10190
GR     1070     10195     1070.8     10205       1070     10215       1070     10415     1070.1     10605
1
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GR   1070.2     10830       1070     10935       1072     10980       1078     11000

ET      158                                      9.1        9.1                              8950     10250
          CHANNEL GRAVEL MINE BOTTOM AT 1064 DOWNSTREAM OUTLET.
          LEFT BANK CHANNELIZED.
X1      158         37       9730     10215        850        840        840
X3
GR     1076       7620     1075.4      7760     1075.4      7950       1074      8150     1072.0      8155
GR     1070       8160       1070      8170       1072      8175     1073.2      8205       1072      8240
GR     1072       8335       1070      8355       1070      8750     1069.8      9140       1070      9540
GR   1069.8       9620       1070      9720     1071.7      9730     1069.9      9740     1059.9      9770
GR   1059.5       9800     1059.9      9830     1063.9      9850     1063.9     10070     1067.9     10075
GR   1069.9      10150     1069.9     10175       1072     10190       1073     10215       1073     10260
GR   1072.2      10390     1072.4     10590     1072.9     10810     1073.3     11040     1073.8     11250
GR     1074      11270       1076     11310

ET      167                                      7.1        9.1        9.1              11200     9000     10250
          250 FT UPSTREAM IN CHANNEL GRAVEL MINE.  INVERT CUT TO OCT. 83
          EXCAVATION 1059.0.
X1      167         33       9880     10120       1000        800        900
GR     1076       8695       1074      8800     1073.4      8950     1072.1      9240     1072.1      9340
GR     1085       9341       1085      9439     1072.1      9440     1072.4      9620       1072      9785
GR   1071.7       9880     1069.9      9885     1059.9      9910     1059.9      9930     1059.7      9960
GR   1058.9      10000     1058.9     10020     1059.3     10050     1058.9     10090     1069.9     10105
GR   1071.9      10115     1073.7     10120       1072     10160     1070.6     10270       1072     10425
GR     1074      10470       1074     10640       1075     10800     1075.4     11350     1076.3     11450
GR   1076.2      11570       1078     11610       1080     11625

ET      170                                      7.1        9.1        9.1              11200     9030     10136
          OCT 83 EXCAVATION INVERT 1059.3
X1      170         44       9900     10135        300        270        300
X3       10
GR   1080.5       7765       1080      7820     1079.7      7880     1078.9      8050     1078.6      8200
GR     1078       8310     1076.7      8490       1076      8735     1075.7      8810       1074      9030
GR     1072       9060       1072      9085     1074.3      9105       1074      9160     1072.1      9290
GR   1072.8       9380       1080      9385       1080      9430     1072.8      9435     1073.4      9590
GR   1072.4       9770       1072      9850     1071.9      9900     1072.4      9915     1071.9      9920
GR   1059.9       9935     1059.9      9945     1059.2      9980     1059.2     10030     1059.2     10045
GR   1059.2      10065     1059.2     10075     1059.2     10080     1059.9     10095       1074     10130
GR     1076      10135       1074     10160       1074     10450     1075.8     10680       1076     10900
GR   1076.6      11250     1076.4     11600       1078     11640       1080     11645

ET    174.2                                      7.1        9.1        9.1       7800     10800     8850     10300
          OCT 83 EXCAVATION INVERT 1059.6
X1    174.2         40       9920     10095        440        430        420
GR     1080       8000     1079.4      8240       1078      8450     1077.7      8510     1076.5      8830
GR   1076.1       8920       1076      9085       1074      9140       1072      9150       1072      9160
GR   1075.3       9200       1072      9220       1072      9230       1074      9250       1076      9255
GR   1074.7       9390     1074.4      9635       1074      9810     1073.6      9840       1074      9870
GR   1074.7       9890       1074      9905       1076      9920       1074      9930     1059.8      9945
GR   1059.4       9960     1059.4     10020     1059.8     10070       1076     10085     1076.5     10095
GR     1076      10140     1075.7     10420     1076.4     10630     1076.4     10700       1077     11000
GR   1077.5      11300     1077.5     11580       1078     11600       1080     11610       1082     11630
1
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NC     .045       .045       .035        .5         .7
ET      178                                      7.1        9.1        9.1       8400     10600     8750     10400
          NEW X-SECTION D.S. NORTHERN AVE DROP STRUCTURE DEFINITION.
          INVERT 1060.0.
X1      178         27       9860     10170        390        300        380
X4        1       1082       8200
GR     1084       7950       1080      8600       1078      8880     1077.4      8960     1076.4      9150
GR   1076.2       9280     1075.8      9400       1076      9650       1078      9710       1080      9850
GR   1080.7       9860     1069.9      9890     1059.9      9900     1059.9     10110     1069.9     10125
GR     1080      10170       1078     10180     1077.3     10400     1076.2     10600     1076.8     10770
GR   1077.2      11020     1077.5     11345     1077.7     11600       1078     11640       1080     11650
GR     1082      11670       1084     11780

ET    178.5                                      7.1        9.1        9.1       8400     10550     8750     10415
          NORTHERN AVE. DIP-CROSSING CROWN.
X1    178.5         35       9710     10290         50         50         50
X3       10
GR   1085.3       7300     1084.2      7600     1084.1      7900     1084.1      7940       1084      8000
GR     1082       8160     1081.7      8195       1080      8400     1078.6      8500       1078      8705
GR   1077.8       8810       1077      9155     1076.3      9300     1076.6      9630       1076      9710
GR     1074       9750       1072      9820       1070      9860       1068      9970     1067.7      9980
GR     1068      10000       1070     10100       1072     10160       1074     10210       1076     10290
GR   1076.6      10315     1078.1     10415       1078     10430     1079.2     10659     1079.9     10940
GR     1080      11010     1080.1     11195       1082     11500     1082.2     11545       1084     11730

NC     .045       .045       .035         .1         .3
ET    181.5                                      9.1        9.1                              9100     10325
X1    181.5         50       9830     10150        310        320        310
X3       10
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GR   1084.4      7590     1084.3      7870      1084      8005     1082.7      8050      1082      8100
GR   1081.6      8175     1080.8      8345    1080.3      8470     1080.2      8630      1080      8795
GR   1078.9      9000       1078      9095    1077.8      9205       1078      9290      1078      9299
GR     1076      9305     1076.2      9340    1077.7      9480     1077.6      9530      1090      9531
GR     1090      9604     1077.4      9605    1077.2      9720     1077.1      9830    1076.2      9840
GR   1074.2      9850     1072.3      9895    1070.3      9910     1066.5      9915    1068.3      9940
GR   1066.9      9950     1068.3      9990    1068.9     10000     1068.3     10020    1067.5     10050
GR   1068.3     10075     1070.3     10100    1072.3     10120     1076.1     10150      1077     10300
GR     1078     10400       1080     10410      1082     10415       1083     10425      1082     10435
GR   1081.6     10540       1080     10645      1081     11060       1082     11215    1083.1     11505

ET    185.3                                     9.1       9.1                                9500     10211
X1    185.3        55       9850     10210       390       375        380
X3       10
GR     1086      7615     1085.4      7805      1084      7930       1084      7940      1083      7970
GR     1082      8160     1081.2      8410    1080.2      8655     1080.1      8855      1080      8970
GR   1079.3      9065     1078.4      9210      1078      9320       1078      9330      1078      9340
GR   1077.7      9370       1078      9405    1078.3      9420       1100      9421      1100      9559
GR   1078.4      9560     1078.9      9660      1079      9780     1078.8      9850    1078.1      9865
GR   1072.2      9895     1070.2      9925    1068.2      9930     1067.9      9990    1068.2     10020
GR   1069.8     10090     1070.2     10140    1076.2     10170     1078.1     10200    1078.7     10210
GR     1080     10250     1084.7     10290      1080     10360       1078     10410      1078     10425
GR     1080     10440       1082     10455      1083     10460       1082     10470      1080     10475
GR   1080.6     10570       1082     10690    1081.5     10755     1081.4     10905    1081.7     11090
1
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GR     1082     11175     1082.2     11290      1084     11525     1084.4     11785    1085.5     11950

ET      190                                     9.1       9.1                                9804     10401
X1      190        47       9805     10400       480       450        470
X3       10
GR     1086      7950       1084      8010    1082.2      8090     1082.2      8350    1082.1      8595
GR   1082.5      8810     1082.2      8965    1082.1      9180     1082.1      9270    1082.1      9290
GR     1082      9320     1081.5      9420      1100      9421       1100      9649      1081      9650
GR   1080.7      9805     1080.1      9815    1078.1      9845     1076.1      9865    1074.2      9870
GR   1072.2      9895     1072.2      9910    1070.2      9925     1068.2      9935    1068.8      9965
GR   1068.2      9990     1067.8     10010    1068.2     10035     1070.2     10045    1071.7     10050
GR   1072.2     10150     1072.2     10165    1074.2     10195     1076.1     10205    1078.1     10260
GR   1080.1     10325     1080.1     10360    1082.6     10400       1082     10480    1082.9     10620
GR     1082     10805     1082.5     11040    1083.4     11245       1084     11420    1084.1     11490
GR   1085.1     11740       1086     11840

ET    193.6                                     9.1       9.1                                9744     10211
X1    193.6        41       9760     10210       380       360        360
X3       10
X4       20      1084       9745      1089      7500      1088       7740    1086.6      7820    1084.6
X4     7850    1084.3       7960      1084      8050    1083.1       8320    1083.1      8500    1082.9
X4     8700    1082.8       8900    1083.5      9130      1084       9200    1083.7      9220    1083.7
X4     9290      1100       9291      1100      9349    1083.7       9350    1082.5      9600      1084
X4     9740
GR     1089      7360       1084      9760    1082.1      9792     1080.1      9808    1078.2      9820
GR   1076.2      9835     1074.2      9855    1072.2      9870     1070.2      9880    1070.2      9890
GR   1070.3      9935     1072.2      9975      1073     10000     1074.2     10040    1074.2     10055
GR   1076.2     10065     1076.2     10090    1079.2     10105     1076.2     10110    1072.2     10115
GR   1070.2     10120     1070.2     10130    1072.2     10135     1074.2     10150    1076.2     10165
GR   1078.2     10170     1080.1     10185    1082.1     10192     1082.7     10210    1082.3     10235
GR     1082     10260       1082     10320    1082.4     10405     1083.3     10630    1083.2     10790
GR     1084     10900       1084     11140      1084     11170     1085.3     11320    1086.0     11610
GR     1088     11860

ET    198.4                                     9.1       9.1                                9749     10201
X1    198.4        49       9750     10200       460       490        480
X3       10
X4        4      1085       9230      1100      9231      1100       9279      1085      9280
GR     1090      7150     1089.7      7290    1088.8      7500     1088.8      7580      1088      7715
GR     1086      7760     1085.2      7900    1084.6      8095     1084.2      8255      1084      8305
GR     1084      8640     1084.2      8835    1084.8      8990       1084      9075      1082      9085
GR     1082      9095     1085.5      9125    1084.9      9165       1085      9350      1085      9535
GR     1086      9665       1088      9685      1086      9710       1086      9711      1086      9712
GR   1085.2      9750     1084.1      9762    1082.1      9773     1080.2      9790    1078.2      9800
GR   1076.2      9810     1074.2      9825    1072.2      9862       1071      9915    1072.2     10000
GR   1074.2     10035     1074.7     10075    1076.2     10110     1078.2     10150    1080.2     10162
GR   1082.1     10172     1084.1     10180      1086     10190       1086     10200      1086     10250
GR   1086.5     10450       1088     10890      1089     11265       1090     11520
1
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ET    202.4                                     9.1       9.1                                9789     10181
        LOB MOVED TO TOP OF IRRIGATION ROAD TO DETERMINE FLOW SPLIT
        <ROAD INTACT>
X1    202.4        36       9790     10180       400       400        400
X3       10
X4        4    1086.3       9330      1100      9331      1100       9389    1086.1      9390
GR   1089.4      7250     1090.0      7500    1090.0      7710       1089      7970    1088.6      8390
GR   1088.4      8880       1088      9065    1086.4      9090     1086.6      9125    1086.1      9400
GR     1086      9595       1086      9596      1086      9700       1086      9720      1086      9725
GR   1085.5      9790       1084      9805    1082.2      9820     1080.2      9832    1078.2      9837
GR   1076.3      9845     1074.3      9860    1073.3      9900     1072.5     10000    1074.3     10055
GR   1076.3     10070     1078.2     10088    1080.2     10105     1082.2     10112      1084     10140
GR     1086     10170     1087.3     10180      1088     10330       1088.5   10490    1089.5     10675
GR     1090     10740
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ET	206				9.1	9.1			9721	10171
X1	206	42	9740	10170	360	380	360			
X3	10									
X4	5	1087.3	9720	1087.7	9250	1100	9251	1100	9319	1087.6
X4	9320									
GR	1091	7140	1090.7	7370	1090	7625	1088.6	7730	1088.3	7890
GR	1089	8112	1088.5	8260	1088.3	8570	1088.3	8780	1088	8920
GR	1087.5	9090	1087.9	9140	1087.4	9410	1087	9665	1086	9740
GR	1084.2	9750	1082.2	9765	1082.2	9790	1082.2	9791	1082.2	9792
GR	1083.1	9805	1084.2	9830	1086	9850	1086	9875	1084.2	9880
GR	1082.2	9885	1080.2	9890	1076.3	9900	1074.3	9920	1073.5	10000
GR	1074.3	10090	1078.3	10100	1080.2	10108	1082.2	10113	1084.2	10120
GR	1086	10130	1088	10140	1090	10170	1090	10290	1090.1	10395
GR	1091.8	10650	1092	10685						
ET	210.5			7.1	9.1	9.1	8550	10620	9814	10181
X1	210.5	45	9815	10180	440	440	450			
X3	10									
GR	1092.3	7150	1092	7200	1091.2	7400	1090	7700	1089.6	7760
GR	1089.8	7930	1090	8150	1090.3	8300	1090	8440	1089.4	8600
GR	1089.8	8730	1088.8	8850	1088.8	9030	1090	9040	1092	9050
GR	1090	9060	1089	9100	1089.2	9270	1100	9271	1100	9379
GR	1088	9380	1087.5	9490	1087.6	9525	1100	9526	1100	9629
GR	1087.8	9630	1088	9670	1086	9720	1082	9735	1082	9800
GR	1087.2	9815	1086.1	9820	1078.2	9835	1076.2	9845	1076.2	9870
GR	1074.2	9915	1072.2	9970	1071.2	9990	1072.2	10015	1074.2	10110
GR	1076.2	10130	1078.2	10145	1092	10180	1092	10410	1094	10620
ET	216			7.1	9.1	9.1	8900	10480	9769	10241
X1	216	35	9770	10240	400	650	550			
X3	10									
GR	1092.5	7200	1092	7450	1092	7580	1091.6	7760	1090.3	7800
GR	1090.4	8000	1090.2	8300	1090	8540	1089.8	8830	1090	8970
GR	1090.1	9050	1092	9200	1094	9240	1092	9275	1090	9277
GR	1089.5	9310	1088	9620	1086	9700	1085.6	9770	1084.2	9790
GR	1078.2	9825	1076.2	9830	1074.2	9855	1072.2	9870	1074.2	9935
GR	1074.2	9990	1076.2	10020	1076.2	10110	1078.2	10130	1078.2	10175
GR	1092	10230	1093.5	10240	1094	10270	1094.2	10350	1094.4	10480

ET	218			7.1	9.1	9.1	9000	10660	9699	10256
X1	218	38	9700	10255	200	200	200			
X3	10									
GR	1094	7000	1093.2	7120	1092.4	7530	1092	7700	1090.9	7750
GR	1091	8100	1090.1	8430	1090	8700	1090.1	9000	1089.7	9300
GR	1090	9400	1090.1	9450	1090	9480	1088	9520	1086	9550
GR	1086	9640	1086.2	9700	1086.1	9710	1080.1	9720	1078.1	9750
GR	1076.1	9805	1074.1	9850	1072.1	9870	1072.1	9890	1074.1	9915
GR	1076.1	10000	1074.1	10040	1076.1	10070	1076.8	10100	1078.1	10135
GR	1080.1	10145	1080.1	10200	1094	10245	1094	10255	1094	10270
GR	1094	10315	1095	10460	1096	10660				
ET	220.8				9.1	9.1			9749	10256
X1	220.8	32	9750	10255	270	260	280			
X3	10									
GR	1094	7440	1093.3	7730	1093	7950	1092.4	8300	1092.2	8620
GR	1092	8720	1092	8930	1091.4	9230	1090	9280	1088	9360
GR	1088	9465	1088.6	9600	1088.4	9665	1088	9680	1086	9700
GR	1086.1	9750	1080.1	9765	1078.2	9780	1076.2	9785	1075.9	9825
GR	1076.2	9875	1076.2	9925	1074.2	10000	1073.2	10030	1074.2	10060
GR	1076.2	10100	1078.2	10130	1080.1	10170	1082.1	10205	1094	10240
GR	1094.4	10255	1096	10420						
ET	223				9.1	9.1			9749	10271
X1	223	30	9750	10270	220	230	220			
GR	1095	7350	1094	7600	1094	8000	1093.6	8030	1093	8350
GR	1092.5	8650	1092	9050	1090.9	9240	1090	9300	1088.7	9430
GR	1088.5	9580	1088.4	9695	1090	9705	1090.7	9750	1090	9760
GR	1076.2	9775	1076.2	9805	1078.2	9870	1079.9	9980	1078.2	10020
GR	1078.2	10075	1076.2	10095	1074.2	10115	1074.2	10140	1076.2	10145
GR	1078.2	10185	1080.2	10190	1094	10260	1095.1	10270	1095.8	10430
NC	.045	.045	.035	.3	.5					
ET	229			7.1	9.1	9.1	8000	10380	9659	10296
X1	229	25	9660	10295	600	600	600			
GR	1100	7650	1097.7	7800	1096	7850	1096	8180	1095	8330
GR	1094	8750	1093	9170	1092	9285	1091.1	9300	1092.2	9460
GR	1092	9470	1090	9471	1089.8	9590	1088	9660	1082.1	9685
GR	1081.8	9765	1081.6	9860	1080.5	9950	1080.1	9970	1079.9	10100
GR	1080.1	10200	1082.1	10230	1094	10295	1096	10370	1098	10500
ET	231.5			7.1	9.1	9.1	8600	10270	9600	10146
	DOWNSTREAM SIDE OLIVE AVE BRIDGE									
X1	231.5	19	9850	10145	280	200	250			
X3	10							1089	1092	
GR	1097	8130	1096	8300	1095.8	8350	1094	8650	1094	9540
GR	1092	9550	1090	9600	1088	9640	1086	9650	1084	9670
GR	1082	9740	1082.1	9850	1080.3	9851	1080.3	10010	1080.3	10085
GR	1080.3	10125	1090	10145	1094	10170	1096	10270		

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SB    1.05      1.56      2.9         0        244       12.9      2400         2      1080      1080
ET   232.6                          7.11      9.11       9.11      8600     10270      9550     10146
          UPSTREAM SIDE OLIVE AVE BRIDGE WITH 2 FT DEBRIS PER PIER.
X1   232.6        21      9850     10145       110        110
X2                             1     1089.6     1094
X3      10                                                        1094.2      1096
BT     -16      8100    1099.6         0       8290       1098         0      8350    1097.1         0
BT              8610      1096         0       8970     1094.8         0      9280    1094.2         0
BT              9740      1094         0       9849     1094.6         0      9850      1097    1088.3
BT             10145    1098.5    1089.6      10146     1095.9         0     10175      1096         0
BT             10325    1097.3         0      10450       1098         0     10700    1098.9         0
BT             10800      1099         0
GR    1098      7500    1096.9      7901     1094.8       8550    1094.3      8800      1095      9050
GR    1092      9230      1092      9400       1096       9420      1096      9500      1094      9530
GR    1092      9550      1092      9850     1080.1       9880    1080.1      9970    1080.4     10045
GR  1080.1     10100    1080.1     10135       1094      10145      1096     10700      1098     10705
GR    1100     10780

NC    .045      .045      .035        .1         .3
ET     235                            7.1        9.1        9.1      8650     10500      9620     10176
X1     235        23      9810     10175        130        350       240
GR  1094.8      8600    1095.1      9040     1094.5       9280      1092      9320      1092      9480
GR    1094      9500    1096.3      9580       1094       9630      1092      9650      1092      9780
GR  1092.6      9810      1092      9815     1080.1       9860      1081     10000    1082.1     10070
GR  1084.1     10120    1086.1     10140       1088      10150      1096     10170    1097.5     10175
GR  1097.8     10250      1098     10410       1099      10500

ET    238.8                            7.1        9.1        9.1      8700     11200      9700     10241
X1    238.8        37      9785     10240        400        350       380
GR     1098      8200      1096      8595     1095.6       8690    1094.8      8870    1094.4      9000
GR  1094.5      9180      1094      9195       1092       9200    1091.5      9325      1092      9500
GR    1094      9505      1094      9540       1092       9560      1092      9660      1090      9730
GR    1092      9750      1090      9775       1092       9780      1093      9785      1092      9790
GR    1090      9830      1088      9850     1086.1       9875    1084.1      9900    1082.1      9935
GR  1080.7     10000    1082.1     10095     1084.1      10110    1086.1     10140      1088     10170
GR    1090     10195      1098     10230     1098.5      10240    1098.8     10450    1099.8     10650
GR    1100     10760    1100.5     10770

ET    240.8                            7.1        9.1        9.1      8700     11200      9630     10266
X1    240.8        29      9850     10265        200        175       200
X3       10
GR  1097.6      8320    1096.8      8570       1096       8750    1095.7      8870    1095.2      8950
GR  1094.3      9140    1092.8      9220       1094       9360      1094      9580      1097      9600
GR    1096      9620      1090      9645       1090       9800    1091.7      9850      1090      9870
GR    1088      9905    1086.2      9940     1084.2       9955    1082.2      9985    1080.8     10040
GR  1082.2     10090    1084.2     10100       1096      10150      1096     10245      1098     10260
GR    1099     10265      1100     10330     1099.9      10580      1101     10800
1
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ET    245.8                                      9.1        9.1                             9620     10211
X1    245.8        21      9765     10210        520        490       500
X3       10
GR    1100      8400    1099.4      8550       1098       8930    1097.2      9095    1095.9      9450
GR    1096      9750    1096.6      9765     1095.8       9775    1093.8      9820    1091.8      9845
GR  1089.9      9880    1083.9      9940     1081.9       9960      1082     10000    1081.9     10045
GR  1083.9     10075    1085.9     10085       1098      10155      1100     10200    1101.5     10210
GR    1102     10300

ET     251                                      9.1        9.1                             9704     10241
X1     251        27      9705     10240        560        500       520
X3       10
GR    1102      9035    1101.6      9135     1101.2       9415    1101.1      9540    1100.9      9650
GR    1102      9680    1103.1      9705       1102       9715      1100      9720      1098      9740
GR    1096      9790      1094      9830       1092       9855    1090.1      9890    1088.1      9915
GR  1086.1      9950    1084.1      9975     1082.1       9982    1082.1     10035    1084.1     10105
GR  1090.1     10154      1100     10210       1102      10220      1103     10240      1102     10300
GR    1102     10650    1102.7     10700

ET     256                                      9.1        9.1                             9814     10151
X1     256        25      9815     10150        500        500       500
GR    1104      8500      1120      8501       1120       9039      1103      9040      1103      9160
GR  1103.3      9240    1102.4      9550     1102.1       9700      1102      9815      1100      9835
GR  1092.1      9875    1090.1      9880     1088.1       9950    1086.1      9980    1084.1     10025
GR  1082.8     10070    1084.1     10084     1086.1      10095    1088.1     10105    1090.1     10115
GR  1105.2     10150      1104     10220       1104      10370    1105.1     10420      1106     10500

ET    258.8                                      9.1        9.1                             9789     10175
X1    258.8        20      9790     10175        250        270       280
X3       10
X4        3      1120      9271      1120       9384     1102.8      9385
GR  1104.0      9020    1103.5      9125     1103.3       9270    1103.1      9565    1103.3      9790
GR    1102      9805      1100      9812     1092.1       9820    1090.1      9885    1090.1      9930
GR  1088.1      9968    1086.1      9977     1085.6      10000    1086.1     10020    1086.1     10125
GR  1090.1     10135      1100     10155       1102      10158      1104     10162    1104.2     10175

ET     262                                      9.1        9.1                             9799     10190
X1     262        25      9800     10190        290        340       320
X3       10
X4         5     1104      9115      1104       8850     1103.4      9090      1120      9261     1103.8
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X4     9440
GR   1104.6       8500     1104.2       9260       1120       9439     1103.7       9490       1104       9570
GR   1104.4       9735     1104.4       9770       1104       9775     1104.5       9800       1104       9812
GR     1102       9828       1100       9842       1098       9847       1096       9855       1094       9860
GR   1092.1       9877     1090.1       9920     1088.1       9930     1086.6      10000     1088.1      10120
GR   1090.1      10155       1100      10165       1102      10172       1104      10176     1105.2      10190

ET      265                                        9.1        9.1                              9599      10220
1
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          LOB HOUSES CODED BLOCK BY BLOCK.
X1      265         23       9600      10220        310        350        300
X3       10
X4       14       1105       9600     1105.9       8620       1120       8621       1120       9129     1105.2
X4     9130     1104.4       9160     1105.2       9190       1120       9191       1120       9434     1105.2
X4     9435     1105.2       9500       1120       9501       1120       9569     1105.1       9570
GR     1106       8500     1105.0       9600       1104       9610       1102       9650       1100       9655
GR     1098       9670       1094       9688     1092.1       9735     1092.1       9845     1092.4       9870
GR   1092.1       9890     1090.1       9940     1088.1       9970     1086.6      10000     1088.1      10045
GR   1090.1      10075     1090.4      10115     1090.1      10155     1090.1      10180     1092.1      10187
GR     1100      10205       1106      10212     1106.4      10220

ET    270.5                                      9.1        9.1                              9774      10211
          LOB BLDGS CODED AS SOLID BLOCK. LOB FENCE NOT CONSIDERED
X1    270.5         21       9775      10200        540        550        550
X3       10
X4       17       1120       8816       1120       9304     1106.2       9305       1106       9360     1106.3
X4     9400       1120       9401       1120       9559     1106.2       9560     1105.8       9610     1105.7
X4     9640       1120       9641       1120       9714     1105.6       9715     1107.2      10210     1107.1
X4    10235       1120      10236       1120      10469
GR   1108.2       8815     1105.6       9775       1104       9790       1102       9800       1100       9805
GR   1092.1       9825     1092.1       9860     1092.1       9875     1092.1       9885     1094.1       9888
GR   1096.1       9890     1090.1       9905     1088.1       9915     1088.1       9970     1089.5      10000
GR   1090.1      10015     1090.1      10110     1092.1      10160       1100      10185       1106      10200
GR   1108.0      10470

ET    273.5                                      9.1        9.1                              9699      10156
          LOB AND ROB HOUSES CODED AS SOLID BLOCKS.
          LOB AND ROB FENCE NOT CONSIDERED.
X1    273.5         18       9705      10135        300        300        300
X3       10
X4       19     1106.1       9700       1120       9011       1120       9239     1107.8       9240     1107.1
X4     9270     1107.5       9315       1120       9316       1120     9489.7     1107.1     9490.1     1106.7
X4     9520     1106.1       9560       1120       9561       1120       9609       1106       9610     1107.7
X4    10155     1107.6      10190       1108      10200       1120      10201       1120      10269
GR   1108.3       9010       1106       9665       1104       9705       1100       9712       1096       9725
GR   1090.1       9735     1090.1       9835     1092.1       9855     1092.1       9870     1090.6       9930
GR   1090.1       9980     1090.4      10000     1091.1      10050     1092.1      10105       1100      10135
GR     1106      10135     1108.0      10270     1109.6      10340

ET      277                                        9.1        9.1                              9804      10151
          HOUSES CODED AS BLOCKS. LOB-ROB FENCE NOT CONSIDERED.
X1      277         22       9805      10150        350        330        350
X3       10
X4       19     1108.5       9120     1109.3       9170       1120       9171       1120       9329       1109
X4     9330     1108.1       9380       1109       9400       1120       9401       1120       9459       1109
X4     9460       1108       9500     1107.2       9510     1107.9      10170       1108      10185       1110
X4    10195       1120      10196       1120      10429       1110      10430       1110      10480
GR   1109.3       9070     1106.7       9700       1106       9725       1104       9730       1104       9785
GR     1106       9805       1104       9850       1102       9855       1100       9865       1098       9870
GR   1096.1       9880     1094.1       9894     1092.1       9920     1090.8       9970     1091.1      10000
GR   1092.1      10100       1100      10120       1104      10130       1108      10138     1108.5      10150
GR     1110      10192       1110      10500
1
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ET    281.8                                      9.1        9.1                              9849      10126
          LOB-ROB HOUSED CODED AND FENCES NOT CONSIDERED
X1    281.8         18       9850      10125        480        480        480
X3       10
X4       13       1120       9131       1120       9279     1110.7       9280     1110.2       9320     1110.9
X4     9365       1120       9366       1120       9419     1110.6       9420       1110       9420       1110
X4    10180       1120      10181       1120      10499     1113.2      10500
GR   1110.3       9130     1108.5       9770       1109       9850       1108       9870       1100       9890
GR   1098.1       9895     1096.2       9898     1094.2       9900     1092.2       9910     1092.2       9920
GR   1093.3      10000     1094.2      10070     1096.2      10080     1098.1      10090       1100      10095
GR     1100      10105       1111      10125       1113      10501

NC     .045       .045       .035         .3         .5
ET      288                                        9.1        9.1                              9844      10246
          LOB-ROB ENCROACHED FOR EFFECTIVE FLOW THRU PEORIA AVE BRIDGE.
X1      288         23       9845      10230        620        620        620
X3       10
X4        3       1112       9630       1114       9550     1114.5      10245
GR   1114.3       9520     1110.6       9710       1112       9790       1114       9835       1114       9845
GR     1114       9857       1112       9863       1110       9880     1100.1       9895     1098.1       9905
GR   1096.1       9930     1094.1       9940     1094.1      10000     1094.1      10045     1096.1      10070
GR   1098.1      10080     1098.1      10110     1100.1      10155       1102      10195       1110      10212
GR     1112      10220       1114      10230     1116.0      10400

QT        5      13500      31000      41000      41000      75000
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ET      290                                     9.1         9.1                                 9851        10149
          DOWNSTREAM SIDE PEORIA AVE BRIDGE
X1      290         20       9852       10148        220         160         200
X3       10                                                                 1113.5        1115
X4        1       1114       9665
GR   1114.9       9350       1113       9852       1112        9855        1110        9860      1099.3        9865
GR   1097.3       9880     1095.3       9905     1093.3        9935      1093.3       10000      1093.3       10060
GR   1095.3      10070     1097.3      10090     1099.3       10130      1099.3       10135        1110       10140
GR     1110      10148       1110      10220       1112       10250        1114       10300        1116       10450

SB      0.9        1.56        2.9          0      222.2        10.9        3937        1.36        1096      1095.8
ET      291                                     9.11        9.11                                9851        10149
          UPSTREAM SIDE PEORIA AVE BRIDGE.   BRIDGE PLANS 1 FOOT HIGHER THAN
          81 TOPO,  PLANS LOWERED 1 FOOT, 2 FOOT DEBRIS
X1      291         18       9852       10148        100         100         100        .906
X2                               1      1112.8     1114.0                                          .906
X3       10                                                                 1114        1117
X4        6     1093.6       9950      1115.6       9800      1114.3        9440      1114.1        9530      1114.3
X4     9590     1115.8       9750
BT      -13       9400      1115.3           0       9505      1114.1           0        9665        1114           0
BT        0       9666      1114.0           0       9667      1114.0           0        9852      1117.8           0
BT        0       9852      1118.1      1112.8      10148      1118.1      1112.8       10148      1117.8           0
BT        0      10200      1117.9           0      10220      1117.9           0       10460      1117.5           0
BT        0      10730        1117           0
GR   1115.6       9400        1114       9830       1112       9835        1110       9852       1099.3        9867
GR   1097.3       9882      1095.3       9910     1095.3       9990      1095.4       10000      1097.3       10110
GR   1099.6      10148        1100      10195       1102      10200        1104       10205        1112       10220
GR     1110      10240        1114      10255       1116      10350
1
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ET      293                                     7.1         9.1         9.1        9700       10450        9844       10216
X1      293         23       9862      10215        170         220         200
X3       10
X4       11     1115.6       9845      1115.2       9435        1130        9436        1130        9519      1114.5
X4     9520     1114.2       9600      1114.4       9650      1115.9        9790        1130        9791        1130
X4     9839     1115.8       9840
GR   1115.8       9265        1114       9862       1112       9870        1110       9875       1099.1        9897
GR   1097.1       9922      1095.1       9970     1095.1      10000      1097.1       10040      1097.1       10080
GR   1099.1      10110        1108      10125       1108      10150        1110       10200      1110.2       10215
GR     1110      10220        1110      10295       1112      10300        1114       10380      1115.3       10500
GR     1116      10630      1116.5      10700     1117.7      10900

NC      .045       .045        .035         0.1         0.3
ET      297                                     9.1         9.1                                 9844        10226
X1      297         16       9845      10225        400         400         400
X4       15     1115.6       9806      1115.9       9100        1130        9101        1130        9449      1115.6
X4     9450     1115.2       9580      1114.8       9690      1114.2        9710      1115.7        9750        1130
X4     9751       1130       9805      1115.6      10440        1116       10580      1116.8       10680      1117.1
X4    10730
GR     1116       9030      1115.5       9845       1114       9855        1112       9858        1110        9863
GR   1103.4       9880      1101.3       9900     1099.3       9940      1098.9       10000      1099.3       10080
GR   1101.3      10130        1110      10155       1112      10188        1114       10205      1115.3       10225
GR   1118.0      10755

ET      302                                     9.1         9.1                                 9874        10121
          1.3FT ADDED TO 1981 LOB TO MATCH 1983 TOPO.
X1      302         39       9875      10120        480         510         500
GR   1119.3       9070      1117.3       9100     1116.3       9180      1117.3        9260        1130        9261
GR     1130       9409      1117.9       9410     1117.9       9520        1130        9521        1130        9579
GR   1117.3       9580        1116       9640     1116.7       9650      1116.7        9700      1117.5        9730
GR     1130       9731        1130       9844       1116       9845      1114.7        9875        1114        9892
GR     1103       9922        1101       9930       1101      10050        1099       10060        1099       10082
GR     1118      10115      1119.1      10120       1118      10130        1116       10150        1116       10260
GR   1116.5      10320        1130      10321       1130      10389      1116.7       10390      1117.1       10420
GR     1117      10580      1117.5      10800       1118      11070      1119.6       11170

ET      305                                     9.1         9.1                                 9879        10111
          NEW X-SECTION.FOR DEFINITION OF TRANSITION TO HIGH VELOCITY X302
          2.4FT ADDED TO 1981 LOB TO MATCH 1983 TOPO.
X1      305         32       9880      10110        260         320         300
GR   1119.9       9160      1118.4       9180     1118.4       9310      1118.7        9460        1118        9530
GR     1118       9580      1118.7       9635       1130       9636        1130        9789      1118.4        9790
GR   1118.5       9880        1118       9885     1109.3       9890        1103        9930        1101        9960
GR   1100.6      10000        1101      10015     1101.1      10035        1103       10082        1105       10083
GR     1118      10105      1118.5      10110     1118.5      10160      1119.8       10210      1118.8       10310
GR   1119.8      10380      1119.8      10540       1119      10800      1119.1       10960        1120       11200
GR   1120.7      11450        1122      11530
1
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ET      307                                     9.1         9.1                                 9889        10136
          2.0FT ADDED TO 1981 TOPO TO MATCH 1983 TOPO.
X1      307         33       9890      10135        200         160         200
X3       10
GR   1119.7       9150        1123       9290       1120       9310        1120       9400       1119.6        9490
GR     1118       9670        1116       9730       1116       9795      1115.7       9845       1114.8        9890
GR   1113.7       9895      1107.1       9915     1105.1       9925      1103.1       9945       1101.1        9955
GR   1101.1       9980      1101.7      10020     1101.1      10040      1101.1       10060      1101.5       10080
GR   1103.1      10095        1118      10125       1119      10135      1119.4       10200        1120       10260
GR   1120.2      10330        1120      10480       1120      10570      1112.1       10750      1121.7       10950
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GR    1122      11000     1122.6     11150       1124       11700

ET     311.5                                      9.1         9.1                                    9844       10271
          2.6FT ADDED TO 1981 TOPO TO MATCH 1983 TOPO.
X1     311.5         36       9845       10270        430        430         450
X3        10
GR    1126.8       8200     1124.6        8500       1123       8530      1122.8        8650     1122.6        8700
GR    1119.2       9100       1121        9380       1120       9440        1118        9490     1116.7        9590
GR      1116       9690       1118        9755       1120       9760        1122        9775       1120        9845
GR    1111.1       9855     1107.1        9860     1107.1       9965      1106.2       10000     1105.1       10015
GR    1103.1      10035     1103.1       10200     1105.1      10210      1107.1       10235     1109.1       10240
GR    1105.1      10260     1116.4       10270     1117.2      10320        1116       10420       1118       10440
GR    1119.6      10490       1120       10510     1120.7      10660      1120.2       10900       1122       11000
GR    1122.8      11060

ET       314                                      9.1         9.1                                    9694       10351
          1.7FT ADDED TO 1981 TOPO TO MATCH 1983 TOPO.
X1       314         39       9695       10350        250        240         250
X3        10
GR    1125.9       8500     1123.7        8700     1122.4       8900      1121.7        9020     1121.4        9100
GR      1121       9300     1121.7        9380       1120       9460        1118        9490       1116        9505
GR      1114       9530     1113.5        9600       1112       9675      1111.4        9695     1110.7        9701
GR    1106.7       9735     1106.2        9780     1106.7       9840      1108.7        9900     1106.7        9920
GR    1104.7       9940     1106.7        9950     1108.7       9985      1110.7       10040     1111.7       10070
GR    1110.7      10085     1108.7       10150     1108.7      10220      1110.7       10270     1112.5       10300
GR    1110.7      10310     1110.7       10320     1116.6      10340      1117.3       10350       1118       10360
GR      1120      10410     1121.2       10580       1122      10720        1128       10750

ET       318                                      9.1         9.1                                    9619       10411
X1       318         21       9620       10410        450        420         400
X3        10
GR      1124       9540       1124        9550       1122       9605        1120        9620     1118.5        9623
GR    1116.5       9640     1106.6        9660     1108.6       9700      1110.6        9725     1112.6        9800
GR    1113.6       9830     1112.6        9885     1112.6      10090      1110.6       10150     1110.4       10180
GR    1110.6      10210     1112.6       10250     1113.8      10300      1114.6       10360       1122       10410
GR      1124      10435

ET       323                                      9.1         9.1                                    9429       10401
X1       323         32       9430       10400        500        400         500
X3        10
GR      1126       9420       1126        9430       1124       9460        1122        9480     1120.2        9500
GR    1118.4       9505     1116.6        9510     1114.6       9530      1114.6        9590     1116.6        9620
GR    1116.6       9670     1114.6        9695     1110.6       9696      1109.3        9720     1110.6        9740
1
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GR    1112.6       9770     1113.5        9800     1114.6       9835      1116.1        9890     1114.6       10020
GR    1116.6      10120     1116.6       10160     1114.6      10200      1112.6       10230     1114.6       10255
GR    1112.6      10265     1112.6       10340     1114.6      10345        1126       10390     1126.2       10400
GR      1126      10440       1124       10460

ET       328                                      9.1         9.1                                    9729       10270
          FIRST CHIMP X-SECT FAIRED INTO NATURAL RIVERBED AT X323.
          NEW X-SECTION TO DEFINE LOB DUMP FILL INSIDE CITY SERVICE AREA.
          PUSHING DS.
X1       328         37       9730       10265        600        460         500
CI     10000     1111.6    500.035           1          1       -440
X3        10    1111.56
X4         3       1126       9761        1126       9770       1126       10230
GR      1126       9110     1125.7        9225       1140       9226        1140        9309     1125.6        9310
GR      1126       9340       1132        9345     1133.2       9355        1132        9360       1130        9365
GR      1128       9390     1127.3        9420     1126.3       9480        1126        9520       1124        9535
GR      1120       9550       1120        9575       1122       9635        1126        9730       1122        9760
GR      1120       9785       1114        9835       1112       9865        1112        9895       1114        9925
GR      1116       9945     1116.6        9980     1117.6      10050        1116       10070       1116       10130
GR      1114      10165       1114       10210       1116      10225        1126       10255     1127.1       10265
GR      1126      10300       1126       10350

ET       330                                      9.1         9.1                                    9820       10260
X1       330         25       9830       10200        200        200         200
CI     10038     1110.9    175.035           1          1       -340
X3        10
X4         2       1126       9850        1126       9864
GR      1132       9360       1130        9375       1128       9400      1127.5        9420       1126        9540
GR      1125       9625       1124        9640       1124       9750        1122        9830       1120        9865
GR      1114       9895       1112        9900       1112       9925        1114        9945       1116        9970
GR      1118      10025       1118       10060       1116      10080        1116       10120       1114       10145
GR      1114      10165       1120       10185       1126      10192      1127.5       10200       1126       10289

ET       334                                      9.1         9.1                                    9840       10210
          330FT BOTTOM WIDTH CHANNEL TO D.S. GRAND AVE BRIDGE X345.
          LOB HOUSES NOT CODED.  ALONG SOUTH BORDER ROAD.  ROB ENCR AT GOLF BLK
          WALL END OF SMALL CHANNEL TO GRAND AVE BRIDGES.  LOB ENCR AT BRIDGE
          EXPANSION.
X1       334         32       9850       10170        400        400         400
CI     10025     1112.1    400.035           1          1       -330
X3        10     1112.1
GR    1135.9       7150     1135.4        7320       1134       7450        1132        7590     1130.8        7620
GR      1131       7970     1130.5        8300     1130.2       8510        1130        8660     1129.5        8730
GR      1129       9000       1129        9130     1128.5       9400        1128        9500     1128.2        9655
GR      1128       9770     1128.5        9850       1128       9855        1120        9865     1113.2        9880
GR      1114       9915       1116        9940     1116.6       9970        1118       10070     1117.5       10100
GR      1118      10120       1120       10135       1128      10170      1127.5       10240     1126.4       10410
GR      1126      10520     1127.4       10565
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ET      337                                     9.1       9.1                                 9855      10225
X1      337        64      9860      10130      300       300       300
CI    10040    1113.2   300.035          1        1      -330
X3       10
GR   1135.7      7540      1134       7650     1132      7650      1132      7680    1132.4      7750
GR     1150      7751      1150       7819   1132.8      7820      1132      7880    1131.9      8010
GR     1150      8011      1150       8499   1130.3      8500    1130.2      8660      1150      8661
GR     1150      8749      1130       8750   1129.7      8835      1150      8836      1150      8999
GR   1129.6      9000    1129.4       9085     1150      9086      1150      9169      1129      9170
GR   1129.6      9190      1150       9191     1150      9259      1129      9260    1128.5      9310
GR   1128.3      9350      1150       9351     1150      9429    1128.9      9430    1128.7      9455
GR     1150      9456      1150       9559   1127.7      9560    1127.9      9580    1127.6      9650
GR     1150      9651      1150       9679   1127.7      9680    1127.7      9760    1127.7      9790
GR     1150      9791      1150       9829   1127.9      9830      1128      9855    1129.2      9860
GR     1128      9870      1116       9900   1114.3      9905      1116      9920    1116.6      9980
GR     1118     10085      1120      10095     1132     10125    1132.6     10130      1132     10135
GR     1130     10160      1128      10285     1130     10298      1130     10360

ET     340.5                                     9.1       9.1                                 9860      10230
X1     340.5        41      9880      10115      350       350       350
CI    10045    1114.4   350.035          1        1      -330
X3       10
GR   1135.7      7430      1134       7540     1132      7570      1132      7600    1132.4      7660
GR     1150      7661      1150       7749   1132.8      7750      1132      7930      1150      7931
GR     1150      8649    1130.2       8650   1130.2      8720      1150      8721      1150      9589
GR   1128.8      9590    1128.8       9690     1150      9691      1150      9779    1128.5      9780
GR   1128.4      9830    1129.7       9880     1128      9885      1118      9910      1118      9925
GR     1119      9950      1118       9960   1117.3      9990      1116     10015      1115     10025
GR     1116     10040      1118      10065     1120     10080      1130     10105    1131.5     10115
GR     1130     10120    1129.2      10180   1129.3     10300      1130     10315      1132     10325
GR   1130.5     10510

ET      342                                     9.1       9.1                                 9870      10235
X1      342        50      9875      10135      150       150       150
CI    10050    1114.9   150.035          1        1      -330
X3       10
GR   1135.7      7450      1134       7560     1132      7580    1132.4      7650      1150      7651
GR     1150      7779    1132.8       7780   1132.5      7879      1150      7880      1150      8049
GR   1131.8      8050    1131.7       8110     1150      8111      1150      8409    1131.5      8410
GR   1131.6      8540      1150       8541     1150      8649    1131.1      8650    1131.1      8860
GR     1150      8861      1150       8979   1130.8      8980    1130.5      9100      1150      9101
GR     1150      9249    1130.5       9250   1130.2      9550      1150      9551      1150      9599
GR   1130.1      9600    1128.8       9650     1129      9700      1150      9701      1150      9779
GR   1128.6      9780    1129.7       9875     1128      9885      1120      9915      1120      9950
GR   1119.1      9960      1118      10040     1116     10065    1115.2     10075      1116     10090
GR     1130     10130    1131.5      10135     1130     10145      1130     10330      1132     10360

ET      343                                     9.1       9.1                                 9840      10220
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          LOB     CODED AS LT BNK ON DIKE TOP.
X1      343        29      9870      10155      100       100       100
CI    10025    1115.2   100.035          1        1      -330
X3       10
GR   1135.7      7450      1134       7560   1132.6      7600    1132.5      7900    1131.9      8300
GR   1131.7      8650    1131.6       9000   1130.8      9300      1129      9670      1129      9860
GR     1132      9861    1135.2       9870     1132      9880      1122      9905      1120      9915
GR     1120      9950    1119.1       9975     1120      9985      1120     10015      1118     10070
GR     1116     10090    1115.7      10100     1116     10110      1118     10122      1132     10147
GR   1132.5     10155      1132      10160     1132     10345      1134     10365

NC    0.045     0.045     0.035        0.5      0.7
ET    344.9                                     9.1       9.1                                 9822      10179
          DROP STRUCTURE DELETED-CONCRETE INVERT UNDER BRIDGES
X1    344.9         4      9823      10178      110       260       190
CI                                                        .01
X3       10
GR     1132      9823    1116.3       9835   1116.3     10165      1132     10178

ET    345.2                                     9.1       9.1                                 9822      10179
          DOWNSTREAM GRAND AVE DUAL HIGHWAY BRIDGE
X1    345.2         4      9823      10178       30        30        30
X3       10                                                                1138.3    1138.3
GR     1132      9823    1116.3       9835   1116.3     10165      1132     10178

SB      1.1      1.56       2.9          0      330      36.5      5319       .72      1117    1116.3
ET    346.2                                    9.11      9.11                                 9822      10179
          UPSTREAM DUAL HIGHWAY BRIDGE AT GRAND AVE.CODED AS SINGLE BRIDGE WITH
          2FT DEBRIS.1983 TOPO 1.5FT LOWER FOR DECK WAS USED
          THAN 1981 TOPO DECK-PLANS LOWERED TO FIT TOPO.RR WEIR FLOW CONTROLS.
          GRAND AVE & RR BRIDGE HAVE  1:1 SIDES, GROUTED INVERT.
X1    346.2         4      9823      10178      100       100       100                       0
X2                              1     1134.3     1141.9
X3       10                                                                1138.3    1138.3
BT       -2      9823     1141.9     1134.3     10178     1141.9     1134.3
GR     1132      9823      1117.      9835      1117     10165      1132     10178

ET   346.62                                     9.1       9.1                                 9822      10188
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          DOWNSTREAM SIDE SANTA FE RR BRIDGE.NO FLOW PERMITTED BETWEEN BRIDGES
X1   346.62        4       9823      10187         42         42         42                                          0
X3      10                                                                          1140.5     1140.5
GR    1136     9823     1117.5      9840     1117.5      10170       1135      10187

ET   346.72                                    9.1        9.1                                 9822      10188
          JUST INSIDE DOWNSTREAM SIDE OF SANTA FE RR BRIDGE. NO DEBRIS APPLIES.
X1   346.72       21       9823     100187         10         10         10                                          0
BT       -4     9823     1141.4     1135.8       9942     1141.4     1135.8       9947     1141.4     1134.9
BT            10187     1141.4     1134.9                                                                        0
GR    1136     9823     1117.5      9840     1117.5       9885     1135.8       9885     1135.8       9886
GR  1117.5     9886     1117.5      9941     1135.8       9942     1134.9       9947     1117.5       9948
GR  1117.5    10061     1134.9     10062     1134.9      10067     1117.5      10068     1117.5      10121
GR  1134.9    10122     1134.9     10127     1117.5      10128     1117.5      10170       1135      10187
GR    1141    10187
1
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ET    346.9                                     9.1        9.1                                 9822      10188
          JUST INSIDE UPSTREAM SIDE OF SANTA FE RR BRIDGE.4FT DEBRIS EACH PIER.
X1   346.9       22       9823     10187         18         18         18                                          0
BT       -4     9823     1141.4     1135.8       9942     1141.4     1135.8       9947     1141.4     1134.9
BT            10187     1141.4     1134.9
GR    1141     9823     1136       9823     1117.7       9840     1117.7       9884     1135.8       9884
GR  1135.8     9889     1117.7     9889     1117.7       9939     1135.8       9942     1134.9       9947
GR  1117.7     9950     1117.7     10059    1134.9       10060    1134.9       10069    1117.7       10070
GR  1117.7    10119     1134.9     10122    1134.9       10129    1117.7       10130    1117.7       10170
GR  1117.5    10187     1141       10187

ET      347                                     9.1        9.1                                 9822      10188
          UPSTREAM SANTA FE RR BRIDGE.  NORMAL BRIDGE ROUTINE USED TO BETTER
          MODEL DUAL ELLC.  4 FEET DEBRIS.
          NEW TWO SPAN REPLACES WOOD TRESTLE
X1       347       10       9823     10187         10         10         10                                          0
X3        10                                                                         1138.6     1141.4
GR      1140     5500       1138      5600     1137.7       6000     1137.7       8300     1139.8       9814
GR      1141     9823     1117.7      9840     1117.7      10170       1141      10187       1141      11188

NC      .045     .045       .035        .1         .3
ET       349                                    9.1        9.1                                 9809      10214
          PILOT CHANNEL TO X-358; BW=330FT, SS=1:1
X1       349       45       9810     10170        180        220        200
CI     10000   1119.1    275.035         1          1       -330
X3        10
X4         2     1135       9810      1124      10170
GR      1140     5470     1139.8      5600     1138.8       5800     1139.2       6070     1139.2       6300
GR    1139.1     6530       1138      6760     1137.2       7350     1137.1       7600     1136.7       7750
GR      1136     7800     1135.2      7900     1135.3       8130     1134.8       8420       1134       8500
GR      1134     8540     1133.7      8580     1133.5       8930       1134       9100     1134.3       9250
GR    1131.8     9380       1132      9450       1132       9525     1131.5       9550       1132       9575
GR    1131.3     9690       1132      9900       1134       9925       1138       9935       1136       9950
GR      1134     9970       1132      9980       1124      10005       1122      10025     1121.1      10065
GR      1122    10115       1124     10200       1141      10215       1128      10260       1128      10290
GR      1130    10325       1134     10345     1133.8      10380     1133.5      10540       1140      10550

ET       352                                    9.1        9.1                                 9809      10180
          LOB ENCR FOR NO WEIR FLOW. ROB TERMINATED AT SUN CITY BLOCK FENCE.
X1       352       48       9810     10160        230        400        300
CI      9990   1121.3    300.035         1          1       -330
X3        10
X4         2     1132       9810      1124      10160
GR      1142     5360     1141.2      5900     1141.4       6100       1141       6350     1140.3       6580
GR      1140     6750     1139.8      6800     1139.4       7100     1138.7       7400       1138       7730
GR      1138     7750       1150      7751       1150       7809     1137.7       7810     1136.8       7880
GR    1136.1     7950       1150      7951       1150       8129       1136       8130       1136       8250
GR    1135.6     8660     1134.8      8850     1135.2       9000     1135.5       9200     1135.4       9400
GR    1133.9     9420     1133.3      9640       1132       9715       1132       9925     1132.2       9960
GR      1132     9965       1122      9980     1121.3      10000       1122      10025       1124      10115
GR      1124    10170       1126     10180       1141      10190       1141      10200       1128      10395
GR      1136    10415     1137.4     10425       1136      10440       1134      10530       1134      10600
GR      1132    10730       1132     10750       1140      10770
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ET       358                                  7.1        9.1        9.1       9250      10720       9770      10400
          UPSTREAM END OF PILOT CHANNEL
X1       358       43       9875     10160        400        650        600
CI                                                             .01
GR      1142     6850     1141.2      7000     1140.6       7230     1140.2       7500       1140       7630
GR    1139.7     7700     1138.8      8100       1138       8150     1136.8       8300     1137.8       8550
GR      1150     8551       1150      8879     1137.3       8880       1136       8900     1136.8       9100
GR    1135.7     9570     1135.3      9790       1135       9875       1134       9895       1132       9920
GR      1130     9935       1128      9950       1126       9970       1126      10085     1125.6      10100
GR      1126    10135       1136     10155     1137.5      10160       1128      10180       1128      10265
GR      1130    10270       1132     10290     1136.6      10330       1134      10430     1134.4      10470
GR    1134.4    10620       1136     10840     1136.6      10840     1136.6      10950       1137      11200
GR    1137.6    11370       1139     11400       1142      11480

ET       365                                  7.1        9.1        9.1       8500      10770       9650      10600
X1       365       45       9880     10200        700        700        700
GR      1144     6900     1143.7      7040     1143.5       7210       1143       7280     1142.4       7550
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GR     1142       7760      1141.6       7850      1141.3       8100       1140       8540       1140       8650
GR     1140       8900        1140       9030        1140       9360       1138       9450       1138       9680
GR   1137.3       9740        1138       9770        1138       9830     1137.3       9855       1137       9880
GR     1136       9885      1134.1       9890      1134.1       9960     1132.1       9980     1130.1      10005
GR   1128.1      10010      1127.5      10040      1128.1      10085     1128.1      10155     1130.1      10165
GR     1136      10200        1136      10300      1137.3      10360     1136.3      10420     1136.6      10530
GR     1138      10680      1138.7      10840      1139.8      11050     1139.4      11270     1139.3      11390
GR     1140      11410      1141.2      11430      1140.2      11550     1140.4      11970       1142      12100

ET      370                             7.1        9.1        9.1       8530      10800       9640      10350
X1      370         45        9855      10260        430        500        500
GR     1144       7550      1143.4       7770      1142.5       8130       1142       8420     1141.8       8530
GR     1142       8780        1142       9100      1141.4       9400       1140       9515       1138       9540
GR     1136       9545        1134       9555        1134       9565       1136       9575       1138       9610
GR     1140       9620      1144.1       9640        1142       9670       1140       9700       1140       9750
GR     1140       9845      1140.5       9855        1140       9870       1138       9875       1136       9885
GR   1134.1       9940      1132.1       9970      1130.1      10000     1128.1      10005     1127.4      10025
GR   1128.1      10045      1129.1      10120      1130.1      10165     1132.1      10170     1134.1      10185
GR     1136      10205        1138      10245        1139      10260     1139.2      10350       1138      10410
GR     1138      10550        1140      10600      1141.1      10900       1142      11100       1143      11300

ET      373                             7.1        9.1        9.1       8550      10700       9550      10250
X1      373         43        9855      10190        420        300        330
GR     1146       7620      1144.5       7670        1144       7800     1143.9       7900     1143.6       8160
GR   1143.2       8350      1142.1       8760        1142       8950     1142.2       9000     1142.1       9200
GR     1142       9350        1142       9400        1140       9420       1138       9450       1138       9468
GR     1136       9470        1134       9495        1134       9505       1136       9515       1138       9518
GR     1140       9545        1142       9550      1142.9       9610       1142       9630     1140.2       9710
GR     1140       9760        1140       9855      1134.1       9865       1133       9925     1132.1       9965
GR   1130.1       9975      1128.1       9985      1127.2      10000     1128.1      10025     1130.1      10080
GR   1132.1      10140        1140      10180        1141      10190       1140      10240       1140      10540
GR     1140      10640        1142      10660      1144.4      10670
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ET      377                             7.1        9.1        9.1       9300      10700       9500      10230
          DOWNSTREAM END OF CHANNELIZATION FROM T-BIRD ROAD.
          DS BREAKOUT ENCR HERE.
X1      377         35        9850      10190        400        310        400
GR   1146.7       7850      1144.8       7900        1144       8150     1143.4       8480     1142.8       8720
GR   1142.3       8930      1142.2       9150        1142       9210       1143       9280       1142       9310
GR     1140       9320        1138       9330        1138       9400       1140       9450     1141.8       9520
GR     1142       9521      1142.5       9565        1142       9650     1141.5       9710       1142       9755
GR   1143.8       9850        1142       9855        1140       9860     1132.1       9930     1130.1       9960
GR   1128.5      10000      1130.1      10070        1142      10185     1143.9      10190       1144      10270
GR     1142      10320      1141.1      10420        1142      10600       1144      10930       1146      11330

ET      384                             7.1        9.1        9.1       9340      10240       9829      10240
X1      384         22        9830      10195        750        730        700
X3       10
GR   1148.2       8240        1146       8285      1144.7       8660     1144.6       8850       1144       9020
GR     1146       9060        1147       9080        1146       9120       1142       9175     1140.9       9230
GR     1142       9260        1144       9270      1145.4       9340       1146       9680     1147.0       9830
GR   1146.0       9845      1131.8       9945      1129.8      10030     1129.8      10045     1130.4      10113
GR   1146.0      10195      1147.4      10240

ET      388                                        9.1        9.1                             9819      10201
X1      388         33        9820      10200        400        400        400
X3       10
GR     1149       8440      1148.2       8490        1148       8520     1146.4       8750     1146.3       9100
GR     1146       9130        1146       9165        1148       9190       1150       9200       1155       9210
GR     1150       9220        1142       9235      1141.2       9260       1144       9290       1146       9320
GR   1147.7       9390      1147.2       9550        1146       9685       1144       9690     1143.5       9735
GR     1143       9755        1154       9790        1152       9800     1150.0       9810       1148       9820
GR   1140.0       9875      1132.0       9930      1130.3      10000     1130.0      10105     1140.0      10152
GR     1148      10180        1148      10200      1148.1      10260

ET    391.5                                        9.1        9.1                             9719      10191
X1    391.5         30        9720      10190        350        350        350
X3       10
GR   1149.9       8660        1148       8680      1149.2       8700       1148       8900     1147.1       9210
GR     1148       9220        1148       9240        1147       9270       1150       9310       1154       9320
GR     1150       9330        1146       9335      1144.5       9400       1146       9450       1148       9470
GR   1148.3       9510        1146       9570        1144       9580       1146       9655       1156       9680
GR     1156       9720        1140       9855      1133.0       9920     1132.2       9950     1131.7      10000
GR   1131.8      10075      1140.0      10130        1146      10148     1148.0      10190       1148      10240

ET      395                                        9.1        9.1                             9734      10191
          LOB SPLIT FLOW OF 800 CFS ONLY OK TO X-384
          DOWNSTREAM END OF DEVELOPERS CHANNEL THRU T BIRD BRIDGE
X1      395         40        9735      10190        325        375        350
X3       10
GR     1154       7900        1152       8350      1151.3       8770       1150       8825       1149       8950
GR   1148.1       9120        1148       9140        1148       9300     1149.7       9340       1150       9355
GR   1157.6       9390        1156       9400        1150       9420       1146       9430     1145.6       9490
GR     1146       9510        1146       9540        1148       9640       1150       9715     1151.3       9735
GR     1150       9750        1148       9777        1144       9795       1140       9822       1136       9855
GR   1133.5       9890      1132.2      10000      1134.1      10065     1138.1      10092     1140.0      10112
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GR   1148.0      10135        1150      10190        1152      10210     1153.4      10220       1152      10240
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GR    1150      10250      1148      10285      1147.5      10310      1148      10530      1150.3      10550

ET     402                            7.1        9.1         9.1        9150      10351       9804       10191
X1     402        18       9805      10190       670         710        700
GR    1152       9150      1150      9180       1150        9210       1150.1     9600       1150.7      9790
GR    1150       9805      1140.0    9865       1134.4      9905       1134.2     10000      1134.7      10115
GR    1136.0     10120     1140.0    10140      1150.0      10190      1151.4     10265      1151.8      10300
GR    1152       10310     1154      10350      1154        10360

NC     .045       .045      .035      .3         .5
ET     406                            7.1        9.1         9.1        9500      10300       9804       10191
X1     406        22       9805      10190       390         410        400
GR    1154       8975      1154      9000       1152        9040       1150       9055       1150        9300
GR    1151.3     9350      1152      9480       1152        9600       1152.0     9805       1150        9815
GR    1135.1     9900      1135.5    10000      1135.1      10080      1140.0     10125      1150.0      10190
GR    1152.0     10250     1152.2    10310      1152.8      10340      1152.4     10370      1152.2      10390
GR    1152       10440     1152.4    10470

ET     409                            7.1        9.1         9.1        9830      10156       9830       10156
          D.S. SIDE THUNDERBIRD RD.BRIDGE.
X1     409        21       9830      10155       550         150        300        .89
GR    1156       8800      1152      9150       1152        9420       1154       9520       1154        9775
GR    1160       9830      1138.1    9880       1136.1      9900       1135.3     10000      1136.1      10100
GR    1160       10155     1150      10240      1144        10380      1144       10410      1152        10500
GR    1152.5     10800     1152      10870      1151.4      11070      1151.5     11320      1150.8      11570
GR    1150.7     11700

ET    409.01                                     9.1         9.1                              9851        10149
          JUST INSIDE DOWNSTREAM SIDE OF T BIRD NORMAL BRIDGE. NO PIER DEBRIS
          BRIDGE PLANS 0.8 TO 1.0 FT HIGHER THAN 1981 TOPO.
          PLAN ELEVATION ADJUSTMENT TO TOPO.
X1    409.01       32       9852      10148        1           1          1          .89                     0
X3       10
GR    1157.2     8900      1156.5    9130       1156.7      9370       1158       9500       1160        9600
GR    1161.5     9852      1138      9885       1136        9900       1135.9     9923       1135.9      9924
GR    1135.9     9925      1135.9    9927       1135.2      9998       1135.2     9999       1135.3      10000
GR    1135.4     10002     1135.4    10073      1135.4      10074      1135.3     10076      1135.2      10077
GR    1136       10100     1138      10105      1160.6      10148      1160       10230      1158        10350
GR    1156       10440     1154      10530      1152        10660      1150.4     10840      1151.4      11070
GR    1151.7     11340     1151.9    11700

ET    409.82                                     9.1         9.1                              9851        10149
SB     1.05       1.56      2.9       0         167.33       18        3913.31      2.44      1135.6      1135.2
          NORMAL BRIDGE.  JUST INSIDE UPSTREAM SIDE THUNDERBIRD BRIDGE.
          2 FEET DEBRIS.  DECK SLOPES 0.8 FEET TOWARDS D.S. SIDE-INCLUDED.
          TOPO ELEV USED.  BT FOR BRIDGE.
X1    409.82       30       9852      10148        81          81         81         .89
X2       0          0         1      1155.4      1163.5        0          0          0          .89          0
X3       10
BT       -5       9852      1163.7    1155.3       9922       1163.5     1155.6     9997       1163.3      1155.6
BT                10072     1163.1    1155.4      10148       1163.0     1154.6
GR    1157.2     8930      1156.5    9140       1156.7      9370       1158       9500       1160        9600
GR    1161.5     9852      1138      9890       1136        9900       1135.9     9922       1135.9      9923
1
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GR    1135.9     9927      1135.9    9928       1135.8      9997       1135.7     9998       1135.7      10002
GR    1135.6     10003     1135.8    10072      1135.7      10073      1135.7     10077      1135.6      10078
GR    1136       10095     1160.6    10148      1160        10260      1158       10380      1156        10470
GR    1154       10570     1152      10700      1150.4      10880      1151.7     11380      1151.9      11730

ET     410                                        9.1         9.1                              9851        10149
          JUST UPSTREAM OF THUNDERBIRD BRIDGE.  ROB MAY BLOCK RT APPR.
          WEIR FLOW
X1     410        26       9852      10148        18          18         18         .89
X3       10
GR    1161.7     8100      1160.2    8300       1159        8500       1157.8     8720       1157.2      8920
GR    1156.5     9150      1156.7    9400       1158        9500       1160       9600       1160        9700
GR    1160       9750      1160      9830       1155.3      9852       1138.1     9890       1136.1      9905
GR    1135.7     10040     1136.1    10095      1158.0      10148      1160       10200      1154        10570
GR    1152       10600     1153.8    10680      1152.2      11000      1152.3     11250      1152.5      11520
GR    1152.2     11750

NC     .045       .045      .035      .1         .3
ET     412                                        9.1         9.1                              9824        10166
X1     412        28       9825      10165       100         260        200
X3       10
GR    1161.7     8200      1160.2    8400       1159        8600       1157.8     8800       1157.2      9000
GR    1156.5     9200      1156.7    9450       1158        9580       1160       9590       1160        9595
GR    1160       9600      1159.7    9825       1158        9845       1137.1     9910       1136.8      10020
GR    1137.1     10085     1156      10155      1156.1      10165      1156       10190      1154        10650
GR    1154       10655     1154.9    10740      1155.4      10980      1156       11140      1156.5      11210
GR    1158       11370     1160      11530      1162        11600

ET     418                            7.1        9.1         9.1        9800      10190       9804       10206
X1     418        29       9805      10205       550         700        600
GR    1161       8400      1160.2    8550       1159        8630       1158       8770       1158.8      8800
GR    1158       8900      1158      9140       1157.2      9170       1158       9580       1158        9762
GR    1160       9770      1160      9805       1138.1      9930       1138.1     9970       1138.4      10000
GR    1138.1     10070     1140.1    10085      1146        10126      1148       10135      1150        10145
GR    1160       10205     1157      10360      1157        10375      1157       10435      1157        10455
GR    1157.3     10540     1158      10770      1160        10960      1162       11250

ET     423                                        9.1         9.1                              9789        10211
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          UPSTREAM START OF CHANNEL TO X377-370
X1      423         25       9790      10210        460        600        500
GR   1161.9       8300       1161       8620       1160       8670     1158.2       8850     1157.8       9000
GR   1159.0       9300     1159.3       9500     1159.6       9700       1160       9760       1162       9770
GR   1161.4       9790       1160       9810       1138       9950     1137.6      10000       1138      10072
GR     1152      10085       1144      10110       1150      10142       1156      10165       1160      10195
GR   1162.0      10210     1159.7      10480     1160.0      10520       1162      10580       1170      10630

ET      425                                          9.1        9.1                              9799      10211
          DOWNSTREAM END OF NATURAL STREAMBED TO SKUNK CREEK CHANNELIZATION.
          16FPS ERODES RIVER BED TO MODIFIED GR DIMENSIONS-TIED TO X423 INVERT.
X1      425         14       9800      10210        130        170        200
X4        3     1161.4       8700     1160.8       8250     1160.2       8650
GR   1162.5       8170       1160       8810     1158.6       8850     1158.0       9100     1158.0       9150
GR   1158.8       9630     1159.4       9800       1158       9825       1136       9970       1138      10060
GR     1160      10200     1162.0      10210       1162      10420       1170      10440
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ET      428                                          7.1        9.1        9.1       8000      10500       9809      10229
          ASSUMED 2FT ERODES FROM BOTTOM DUE TO X423 ORIGINAL DROP INLET.
X1      428         33       9810      10228        300        300        300
GR     1163       8000       1162       8030     1161.3       8050     1161.3       8300     1161.5       8520
GR   1161.3       8730     1161.5       8930     1161.8       8950     1159.1       9000     1159.2       9150
GR     1160       9300     1160.3       9550     1161.8       9730     1161.4       9810       1160       9828
GR     1152       9842       1150       9886       1140       9948       1138       9980     1137.9      10000
GR     1138      10038       1140      10092       1150      10142       1156      10180       1160      10202
GR     1164      10228     1161.3      10350       1162      10460       1180      10500       1180      10590
GR     1170      10680       1162      10690       1162      11040

ET      434                                          7.1        9.1        9.1       8150      10600       9901      10326
X1      434         38       9902      10325        600        600        600
GR   1163.8       7750     1162.5       7770     1162.8       7900       1163       8060     1162.8       8260
GR   1163.2       8460     1163.4       8650     1163.3       8880     1162.9       9090     1163.2       9250
GR     1162       9700       1163       9800       1162       9890       1160       9902       1150       9930
GR     1148       9940       1148       9980       1148      10012       1140      10150       1138      10158
GR     1140      10170       1142      10205       1160      10302       1164      10325       1164      10515
GR     1172      10535       1172      10620       1164      10640       1162      10670       1160      10700
GR     1160      10740       1164      10770       1162      10810       1162      11480     1163.2      11530
GR     1164      11615       1166      11620     1167.7      11850

ET      440                                          7.1        9.1        9.1       8600      11200       9919      10359
X1      440         40       9920      10358        600        600        600
GR     1166       6700       1165       7220     1164.8       7320       1164       7350     1163.6       7380
GR     1164       7700     1164.6       8000     1164.8       8200       1165       8380       1165       8600
GR   1164.8       8960     1166.4       9000     1164.7       9030     1164.8       9300     1164.2       9420
GR   1165.1       9600       1165       9810     1165.8       9845       1166       9920       1160       9935
GR     1150       9945     1149.8       9960       1150       9975       1152      10016       1152      10025
GR     1140      10095       1140      10190       1142      10228       1166      10358       1166      10365
GR     1164      10412       1164      10422       1166      10442       1166      10452     1165.3      10650
GR     1166      10700     1166.9      10980       1168      11030       1168      11220     1168.3      11250

ET    443.2                                          7.1        9.1        9.1       8900      11200       9939      10386
X1    443.2         49       9940      10385        330        330        320
GR     1169       6800       1168       6840       1166       7050     1165.5       7320     1165.8       7520
GR   1165.7       7780     1165.4       8000     1165.6       8210     1165.8       8450     1165.7       8610
GR   1167.7       8650       1167       8700     1166.4       9030     1166.4       9200       1166       9430
GR   1166.3       9600     1166.7       9830       1166       9850       1166       9860       1166       9940
GR     1160       9950       1152       9960     1150.1       9968       1152       9985       1154      10050
GR     1152      10062       1150      10070       1144      10110     1140.9      10118     1140.5      10180
GR   1141.5      10235       1150      10295       1160      10350       1170      10385       1170      10395
GR     1169      10400       1168      10432       1171      10520       1164      10560       1164      10690
GR     1166      10710       1166      10760     1166.6      10840       1168      11180       1168      11380
GR     1168      11450       1170      11800       1172      12200     1172.4      12600

ET    449.1                                          7.1        9.1        9.1       9500      11200       9937      10501
X1    449.1         36       9938      10500        600        580        590
GR     1170       8920     1169.5       8950     1169.5       9200     1169.1       9380     1168.8       9580
GR   1168.5       9780       1168       9880     1168.2       9895       1168       9925       1168       9930
GR     1169       9938       1168       9945     1153.4       9988     1153.4      10005       1166      10038
GR   1167.9      10055       1166      10074       1154      10142     1152.6      10150     1152.3      10220
GR     1154      10260       1152      10310       1153      10390       1160      10425       1170      10470
1
   17FEB99      13:41:30                                                                                PAGE   29


GR   1170.8      10500       1170      10620       1168      10628       1168      11080     1168.4      11300
GR     1168      11510       1167      11580       1168      11680       1170      11810       1172      12200
GR   1172.4      12350

ET    451.0                                          7.1        9.1        9.1                 11200       9909      10460
X1    451.0         39       9910      10460        200        120        190
GR   1172.5       8450       1172       8470     1171.7       8700     1171.5       9000     1170.6       9200
GR     1170       9470     1169.6       9620       1169       9800       1170       9830       1170       9910
GR   1167.9       9925     1163.9       9935     1163.9       9960     1161.9       9970     1153.9      10000
GR   1153.9      10015     1155.9      10030     1157.9      10070     1167.9      10100     1167.9      10180
GR   1157.9      10190     1155.9      10260     1154.4      10290     1155.9      10325     1159.9      10340
GR   1161.9      10370     1168.0      10450       1170      10460     1170.5      10550       1170      10680
GR     1168      10760       1168      11070     1168.4      11330       1168      11510       1167      11580
GR     1168      11680       1170      11810       1172      12200     1172.4      12350

NC    0.045      0.045      0.035         .2         .4
ET    8.655                                          9.1        9.1        9.1                             9820      10225
```

CONFLUENCE OF SKUNK CREEK AND NEW RIVER EQUALS NEW RIVER X-SECTION
451.00 LO-FLOW

X1	8.655	36	9581.4	10224.3	950	375	690	0	0	0
X3	10									
GR	1173.9	8649.5	1172.8	8725.6	1173.6	8761.4	1172.8	8805.7	1171.9	8882.4
GR	1171.9	8973.3	1171.7	9029.3	1170.9	9157.1	1170.5	9250.0	1170.8	9322.0
GR	1170.3	9369.5	1169.5	9443.6	1169.3	9488.5	1171.5	9503.3	1167.1	9548.1
GR	1171.6	9581.4	1166.9	9605.5	1161.4	9624.0	1157.9	9660.0	1156.6	9716.3
GR	1155.1	9744.7	1156.1	9761.1	1155.3	9864.2	1155.3	9905.7	1156.2	9954.8
GR	1156.3	10000.0	1156.3	10071.0	1156.7	10091.4	1155.7	10121.5	1155.7	10154.7
GR	1164.5	10193.7	1171.2	10224.3	1172.3	10244.2	1171.2	10247.0	1171.1	10299.3
GR	1170.6	10403.3								
NC				.1	.3					
QT	5	2700	8000	12000	12000	32000				
ET					9.1				9762.5	10213.5
X1	8.731	45	9762.5	10213.5	400	400	400			
X3	10									
GR	1174.8	8627.0	1174.1	8663.6	1172.6	8666.7	1174.4	8670.4	1172.1	8683.8
GR	1170.8	8831.8	1170.4	9040.0	1170.0	9196.9	1168.3	9265.9	1167.0	9305.7
GR	1166.8	9321.0	1173.5	9346.0	1167.4	9377.8	1160.3	9401.7	1156.9	9425.5
GR	1157.6	9463.0	1156.3	9473.2	1158.8	9489.1	1166.0	9510.2	1169.2	9519.8
GR	1168.9	9553.9	1169.2	9595.9	1168.6	9640.2	1168.3	9678.4	1173.6	9692.1
GR	1171.9	9727.6	1171.4	9748.3	1172.8	9762.5	1172.6	9771.0	1167.8	9795.5
GR	1160.0	9831.2	1157.1	9844.0	1156.1	9894.9	1156.9	10000.0	1157.8	10055.6
GR	1157.3	10089.1	1156.7	10123.2	1157.3	10151.0	1164.7	10183.1	1170.6	10206.7
GR	1172.2	10213.5	1173.3	10246.5	1172.0	10250.5	1171.9	10342.2	1171.3	10403.0
ET					9.1				9771.5	10219.2
X1	8.807	58	9771.3	10219.2	400	390	400			
X3	10									
GR	1174.2	8591.0	1174.2	8613.7	1174.8	8626.5	1174.6	8637.8	1173.1	8640.4
GR	1174.2	8644.4	1172.8	8658.6	1172.4	8867.9	1172.0	9015.9	1171.9	9044.3
GR	1172.4	9063.6	1170.8	9080.6	1170.8	9093.1	1174.4	9117.5	1175.0	9131.2
GR	1172.2	9150.5	1164.2	9172.6	1160.1	9193.9	1158.6	9221.8	1157.7	9249.9
GR	1159.2	9261.8	1157.9	9281.7	1159.2	9293.1	1164.6	9312.1	1171.3	9327.1
GR	1170.8	9359.0	1170.5	9382.8	1171.1	9406.1	1170.6	9448.1	1170.9	9478.8

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GR	1171.6	9539.0	1171.9	9588.1	1172.4	9618.2	1172.2	9646.1	1172.1	9673.9
GR	1178.4	9688.1	1187.7	9701.7	1193.4	9715.9	1194.1	9729.6	1186.6	9749.4
GR	1174.7	9771.3	1169.2	9792.0	1162.1	9826.7	1158.7	9848.0	1158.4	9918.7
GR	1158.3	9957.1	1158.8	10000.0	1158.6	10069.8	1158.4	10113.6	1158.5	10146.5
GR	1163.7	10172.1	1170.8	10201.6	1173.9	10219.2	1174.4	10248.2	1173.2	10258.1
GR	1173.9	10328.3	1173.6	10380.5	1173.0	10402.7				
ET					9.1				9824.7	10216.9
X1	8.883	55	9824.7	10216.9	280	400	400			
X3	10									
GR	1176.2	8580.8	1175.3	8595.6	1173.7	8597.9	1174.9	8600.1	1173.5	8625.1
GR	1174.4	8705.8	1174.1	8768.8	1175.2	8824.2	1179.5	8846.4	1180.4	8864.3
GR	1177.5	8878.5	1167.9	8905.2	1162.9	8926.2	1159.6	8943.8	1159.9	8977.9
GR	1158.5	8985.3	1161.3	9000.6	1158.4	9027.9	1158.8	9040.4	1162.1	9058.5
GR	1169.4	9075.9	1173.3	9086.9	1174.0	9126.4	1173.0	9140.3	1173.0	9167.6
GR	1172.7	9204.5	1174.4	9252.2	1173.6	9288.3	1173.9	9325.0	1173.7	9357.3
GR	1174.3	9422.7	1174.7	9473.8	1173.9	9529.7	1173.9	9563.4	1175.1	9610.3
GR	1174.9	9680.1	1175.9	9745.5	1174.9	9824.7	1169.4	9860.8	1166.1	9911.3
GR	1163.8	9955.6	1163.1	9984.3	1163.1	10000.0	1160.2	10004.5	1160.9	10056.5
GR	1160.1	10106.7	1160.4	10145.4	1163.8	10164.1	1171.6	10191.4	1176.3	10216.9
GR	1177.0	10247.6	1175.5	10249.9	1176.3	10292.2	1176.1	10347.6	1175.3	10404.7
ET					9.1				9809.4	10213.2
X1	8.936	60	9809.4	10213.2	300	300	290			
X3	10									
GR	1180.0	8590.6	1174.5	8616.4	1165.7	8644.6	1162.8	8656.8	1162.9	8675.8
GR	1163.3	8691.1	1163.0	8713.3	1162.3	8740.0	1166.9	8754.2	1173.7	8779.8
GR	1179.0	8797.9	1177.6	8810.7	1177.4	8832.3	1175.7	8843.9	1174.6	8913.5
GR	1175.6	8920.6	1174.6	8947.9	1175.5	9022.3	1175.5	9091.0	1175.9	9152.4
GR	1176.4	9222.8	1177.0	9261.2	1177.8	9274.0	1177.1	9322.0	1177.8	9335.9
GR	1178.2	9360.6	1175.8	9370.5	1176.9	9389.9	1177.8	9408.3	1175.5	9452.4
GR	1177.0	9483.3	1176.2	9535.9	1175.6	9543.2	1176.6	9575.3	1176.0	9615.4
GR	1177.8	9634.7	1176.7	9680.7	1177.8	9708.0	1176.9	9754.0	1176.0	9785.5
GR	1176.1	9797.7	1177.3	9809.4	1176.0	9817.0	1167.6	9825.6	1166.8	9859.6
GR	1166.7	9894.0	1165.7	9939.7	1165.3	9959.9	1165.7	9994.3	1162.2	10000.0
GR	1162.3	10069.8	1161.8	10110.7	1162.1	10143.1	1167.9	10169.2	1174.0	10192.8
GR	1178.2	10213.2	1178.2	10244.2	1177.7	10247.6	1177.1	10309.8	1176.6	10402.1
ET					9.1				9886.1	10212.7
X1	8.977	58	9886.1	10212.7	220	200	210			
X3	10									
GR	1177.7	8605.6	1175.6	8628.1	1174.7	8658.4	1174.4	8712.7	1174.6	8744.5
GR	1175.6	8767.2	1174.1	8802.4	1175.6	8841.6	1174.9	8864.9	1175.0	8878.6
GR	1174.7	8934.8	1174.7	8953.5	1175.5	8991.6	1175.7	9030.5	1176.4	9064.0
GR	1178.2	9075.1	1176.8	9084.2	1176.6	9130.2	1176.8	9179.1	1177.1	9252.3
GR	1176.0	9330.2	1176.4	9370.6	1177.8	9377.4	1176.8	9385.9	1176.8	9448.7
GR	1177.3	9491.0	1176.4	9537.0	1176.4	9556.3	1176.9	9609.7	1176.8	9662.3
GR	1176.3	9713.1	1177.2	9747.2	1178.5	9765.9	1178.8	9792.0	1179.6	9802.3
GR	1178.3	9821.0	1180.8	9828.4	1176.5	9836.1	1176.5	9867.6	1177.2	9886.1
GR	1168.4	9900.0	1167.1	9909.3	1165.7	9938.0	1164.9	9976.1	1165.5	10000.0
GR	1163.6	10007.3	1163.7	10066.4	1164.0	10103.3	1163.5	10128.9	1163.5	10137.4
GR	1168.4	10163.5	1173.3	10188.0	1178.5	10209.0	1179.3	10212.7	1180.9	10243.9
GR	1180.1	10248.2	1179.7	10281.7	1179.8	10401.6				

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ET					9.1				9764.5	10207.0
X1	9.009	34	9764.5	10207.0	330	180	180			
X3	10									
GR	1177.0	8740.0	1176.9	8817.3	1177.0	8883.2	1177.1	8937.1	1177.2	9008.7
GR	1177.5	9075.7	1177.5	9150.2	1177.5	9213.2	1177.7	9285.6	1177.7	9368.3
GR	1177.9	9462.0	1178.2	9547.2	1178.2	9614.3	1178.3	9675.6	1178.3	9725.9
GR	1178.0	9764.5	1174.2	9786.1	1167.1	9821.6	1164.9	9852.3	1166.0	9886.3
GR	1164.6	9921.0	1163.6	9960.8	1162.9	10000.0	1164.1	10055.9	1164.8	10109.6
GR	1164.8	10149.3	1169.2	10162.4	1178.6	10177.2	1179.9	10207.0	1180.3	10253.3
GR	1179.5	10304.1	1180.2	10353.8	1179.8	10424.8	1179.3	10475.4		
ET					9.1				9689.8	10113.8
X1	9.047	44	9689.8	10113.8	280	160	200			
X3	10									
GR	1179.8	8601.2	1179.8	8619.0	1180.6	8633.0	1179.4	8721.9	1179.5	8798.8
GR	1179.2	8858.5	1178.9	8933.2	1178.7	9004.2	1178.2	9070.4	1178.8	9154.1
GR	1178.8	9233.1	1178.8	9306.9	1179.0	9377.9	1179.1	9475.6	1178.6	9532.5
GR	1178.7	9570.5	1180.6	9579.9	1180.0	9593.2	1181.6	9616.5	1180.5	9660.0
GR	1177.5	9689.8	1171.4	9715.9	1166.4	9742.1	1166.2	9751.1	1166.9	9756.8
GR	1162.3	9762.5	1162.0	9781.0	1163.2	9794.9	1163.3	9845.4	1164.0	9880.4
GR	1162.9	9904.5	1161.7	9907.9	1161.2	9937.7	1161.9	9971.5	1162.6	10000.0
GR	1165.0	10050.5	1165.7	10084.6	1171.0	10101.3	1177.6	10113.8	1178.2	10168.4
GR	1178.2	10218.1	1178.1	10298.2	1178.7	10354.4	1178.2	10401.6		
NC		.06								
ET					9.1				9641.2	10090.0
X1	9.129	51	9641.2	10090.0	290	460	420			
X3	10									
GR	1182.2	8558.3	1182.2	8569.9	1183.0	8580.4	1181.8	8652.3	1181.8	8719.9
GR	1182.2	8785.2	1181.7	8844.6	1181.3	8932.3	1180.6	8995.9	1180.5	9075.5
GR	1181.0	9134.0	1181.0	9205.5	1181.5	9271.4	1181.2	9370.8	1180.3	9477.1
GR	1180.3	9499.5	1180.1	9524.8	1180.8	9562.3	1180.3	9599.2	1180.9	9629.9
GR	1180.6	9641.2	1176.6	9662.3	1173.0	9666.8	1173.4	9673.0	1164.9	9688.4
GR	1165.5	9712.2	1166.2	9768.2	1166.3	9795.2	1167.5	9799.7	1164.8	9814.5
GR	1164.2	9836.1	1165.2	9889.5	1165.1	9919.9	1166.3	9971.3	1167.1	9982.6
GR	1168.1	9987.7	1167.9	10000.0	1168.9	10061.6	1171.8	10079.8	1178.7	10090.0
GR	1179.0	10117.8	1179.0	10195.1	1178.6	10241.7	1178.5	10245.1	1179.4	10304.1
GR	1179.2	10370.6	1179.6	10407.5	1179.9	10429.4	1178.7	10432.2	1180.1	10433.6
GR	1179.5	10439.6								
NC	.05	.06	.035	.1	.3					
ET				9.1	9.1				19660	20015
X1	9.318	39	19660	20015	1000	1000	1000			
X3	10									
GR	1192	16150	1170	16210	1170	16310	1194.6	16420	1186	16465
GR	1186.6	16560	1184	16830	1185.2	16920	1184	17065	1184	17120
GR	1186	17130	1186	17150	1184	17160	1183.7	17360	1184	17470
GR	1185	17855	1185.2	18380	1185.3	18430	1185	18460	1185.1	19440
GR	1186	19660	1184	19685	1178	19710	1178	19865	1176	19945
GR	1174	19985	1173.2	20000	1174	20010	1181.5	20015	1181.3	20105
GR	1182	20360	1184	20370	1186	21110	1186	21150	1184	21595
GR	1182	22220	1180	22940	1180	23725	1181.2	23740		

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QT	5	2625	7625	11450	11450	30250				
ET					9.1				19770	20235
X1	9.492	40	19770	20235	910	890	920			
X3	10									
GR	1197.2	16090	1178	16135	1178	16185	1193.2	16240	1192	16250
GR	1190	16470	1188	17185	1187	17360	1188	17710	1188.6	17900
GR	1189.3	18260	1189	18870	1188.8	18885	1190	18900	1190	18920
GR	1189.2	19030	1189.5	19300	1188	19610	1185	19635	1186	19650
GR	1188	19700	1188	19770	1186	19905	1184	19930	1184	19950
GR	1180	19970	1179	20000	1180	20055	1182	20160	1184	20195
GR	1193.9	20235	1186	20255	1185.4	20310	1186	20785	1188	20800
GR	1188.8	21100	1190	21450	1190	22860	1188	23130	1188	24240
NC	.04	.06	.035							
ET					9.1				19840	20060
X1	9.692	31	19840	20060	1050	1040	1056			
X3	10									
GR	1194	15930	1192	16660	1190	17050	1189.8	17130	1190	17448
GR	1192	18040	1194	18880	1195	19040	1194.4	19150	1194	19280
GR	1194	19680	1192	19790	1192	19830	1195	19840	1186	19880
GR	1184.1	20000	1186	20015	1188	20020	1190	20040	1196.1	20060
GR	1194	20060	1193.2	20090	1194	20195	1194	21315	1196	21690
GR	1196	21725	1194	22305	1192	24380	1190	24790	1190	25100
GR	1192	25440								

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HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991

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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

NEW RIVER-A.F.R. TO S.C.

SUMMARY PRINTOUT

	SECNO	Q	CWSEL	DEPTH	EG	VCH	OLOSS	SSTA	TOPWID	ENDST
	501.450	39000.00	1027.50	8.30	1027.62	3.20	.00	8395.00	6594.18	15157.41
	501.450	39000.00	1028.22	9.02	1028.42	3.69	.00	9300.00	2800.83	12150.00
*	10.000	39000.00	1029.45	5.45	1030.66	10.69	.33	8600.00	2223.60	10908.61
*	10.000	39000.00	1030.01	6.01	1031.58	11.54	.41	9050.00	1320.00	10370.00
*	13.000	39000.00	1031.08	8.88	1031.50	6.21	.08	8600.00	2347.98	10947.98
*	13.000	39000.00	1031.97	9.77	1032.58	7.00	.10	9050.00	1324.00	10374.00
	20.000	39000.00	1032.46	8.86	1032.92	6.08	.01	8800.00	2303.88	11128.37
	20.000	39000.00	1033.37	9.77	1033.90	6.15	.01	9100.00	1345.00	10445.00
	26.800	39000.00	1033.93	9.03	1034.54	7.14	.04	8000.00	3200.43	11200.43
	26.800	39000.00	1034.58	9.68	1035.45	7.90	.10	9150.00	1250.00	10400.00
	32.600	39000.00	1035.25	9.05	1036.42	8.88	.17	8500.00	1680.05	10222.50
	32.600	39000.00	1036.03	9.83	1036.90	7.72	.00	9000.00	1224.06	10224.06
	38.000	39000.00	1037.16	9.96	1038.17	8.26	.02	8900.00	1164.90	10064.90
	38.000	39000.00	1037.32	10.12	1038.26	8.01	.02	8900.00	1165.23	10065.23
	45.000	39000.00	1039.08	10.78	1039.81	6.96	.03	9150.00	981.56	10131.56
	45.000	39000.00	1039.10	10.80	1039.82	6.94	.02	9150.00	981.60	10131.60
*	51.700	39000.00	1040.18	12.78	1040.66	5.51	.03	9816.33	741.62	10592.57
*	51.700	39000.00	1040.19	12.79	1040.66	5.50	.03	9816.13	741.91	10592.59
	54.000	39000.00	1040.44	12.44	1040.84	5.08	.01	9857.22	832.27	10689.49
	54.000	39000.00	1040.45	12.45	1040.85	5.08	.01	9857.21	832.30	10689.50
	59.000	39000.00	1040.85	10.15	1041.30	5.41	.02	9767.88	925.61	10693.49
	59.000	39000.00	1040.85	10.15	1041.31	5.40	.02	9767.86	925.64	10693.51

	SECNO	Q	CWSEL	DEPTH	EG	VCH	OLOSS	SSTA	TOPWID	ENDST
	63.000	39000.00	1041.25	9.55	1041.82	6.04	.03	9696.25	867.85	10564.10
	63.000	39000.00	1041.26	9.56	1041.82	6.03	.03	9696.15	867.96	10564.11
*	70.500	39000.00	1042.27	8.77	1044.53	12.04	.51	9592.93	661.32	10254.25
*	70.500	39000.00	1042.27	8.77	1044.53	12.04	.51	9592.92	661.33	10254.26
	77.000	39000.00	1046.88	12.28	1049.71	13.52	.17	9795.96	418.12	10237.54
	77.000	39000.00	1046.88	12.28	1049.71	13.52	.17	9795.96	418.10	10237.54
*	84.000	39000.00	1050.69	14.89	1051.15	5.77	.24	9859.46	930.54	10790.00
*	84.000	39000.00	1050.72	14.92	1051.43	6.75	.21	9859.33	541.67	10401.00
	88.700	39000.00	1051.03	16.83	1051.48	5.48	.00	9732.41	999.80	10917.22
	88.700	39000.00	1051.35	17.15	1051.83	5.55	.02	9731.62	569.38	10301.00
	95.500	39000.00	1051.52	17.32	1052.03	5.70	.02	9508.36	795.78	10304.13
	95.500	39000.00	1051.86	17.67	1052.33	5.48	.00	9502.53	802.20	10304.74
*	100.700	39000.00	1051.54	16.54	1053.28	10.59	.37	9692.93	399.10	10188.63
*	100.700	39000.00	1051.90	16.90	1053.50	10.17	.34	9675.50	456.80	10189.67
*	107.000	39000.00	1053.66	15.56	1054.18	5.82	.12	9724.66	529.75	10254.42
*	107.000	39000.00	1053.87	15.77	1054.38	5.72	.11	9723.32	531.46	10254.78
*	110.700	39000.00	1053.23	11.73	1056.47	14.45	1.36	9771.30	456.59	10227.90
*	110.700	39000.00	1053.52	12.02	1056.46	13.78	1.22	9770.82	457.81	10228.63
*	117.200	39000.00	1058.53	12.13	1060.57	11.46	.36	9845.00	350.00	10195.00
*	117.200	39000.00	1058.28	11.88	1060.43	11.77	.24	9845.00	350.00	10195.00
	118.000	39000.00	1058.93	11.53	1061.03	11.61	.00	9845.00	350.00	10195.00
	118.000	39000.00	1058.74	11.34	1060.92	11.85	.00	9845.00	350.00	10195.00
*	120.000	39000.00	1061.05	15.15	1061.75	6.88	.42	9550.00	850.00	10400.00
*	120.000	39000.00	1060.82	14.92	1061.67	7.39	.40	9799.00	407.00	10206.00
	125.000	39000.00	1061.56	15.66	1062.19	6.59	.01	8950.00	1850.00	10800.00
	125.000	39000.00	1061.39	15.49	1062.19	7.19	.00	9789.00	452.00	10241.00
*	131.000	39000.00	1062.12	12.12	1064.40	12.15	.50	8644.03	1489.22	10237.57
*	131.000	39000.00	1061.31	11.31	1064.33	13.94	.66	9744.00	490.16	10234.16
*	135.000	39000.00	1064.84	13.04	1066.12	9.79	.10	8400.00	1707.62	10292.42
*	135.000	39000.00	1064.71	12.91	1066.85	11.73	.09	9799.00	357.00	10156.00
	140.000	39000.00	1066.47	12.57	1067.14	7.07	.06	7543.08	2338.85	10581.75

*	140.000	39000.00	1067.22	13.32	1068.13	7.65	.12	9744.00	517.00	10261.00
	143.000	39000.00	1066.89	8.99	1067.79	8.06	.07	7772.90	2041.33	10394.48
	143.000	39000.00	1067.71	9.81	1068.75	8.22	.04	9629.92	706.33	10398.55

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	SECNO	Q	CWSEL	DEPTH	EG	VCH	OLOSS	SSTA	TOPWID	ENDST
*	146.000	39000.00	1068.64	10.74	1070.12	11.00	.18	7818.53	1823.13	10304.55
*	146.000	39000.00	1068.64	10.74	1070.79	12.54	.33	9000.00	913.24	10190.62
*	149.600	40000.00	1070.49	10.59	1071.42	8.56	.06	7638.77	2993.35	10946.04
*	149.600	40000.00	1071.28	11.38	1072.08	7.85	.14	8850.00	1356.00	10206.00
	158.000	40000.00	1072.76	13.26	1073.43	7.59	.03	8153.09	2484.14	10750.11
	158.000	40000.00	1073.06	13.56	1073.94	8.29	.02	8950.00	1300.00	10250.00
	167.000	40000.00	1074.15	15.25	1075.73	10.92	.28	8792.33	1771.34	10663.36
	167.000	40000.00	1074.67	15.77	1076.16	10.54	.18	9000.00	1150.40	10250.00
	170.000	40000.00	1074.45	15.25	1076.76	12.76	.22	8971.37	1107.05	10131.13
	170.000	40000.00	1075.13	15.93	1076.91	11.47	.09	9030.00	1051.07	10132.83
*	174.200	40000.00	1077.21	17.81	1078.90	11.90	.06	8641.65	2158.35	10800.00
*	174.200	40000.00	1077.09	17.69	1079.03	12.50	.05	8850.00	1450.00	10300.00
*	178.000	40000.00	1079.14	19.24	1079.87	7.35	.48	8720.54	1796.72	10600.00
*	178.000	40000.00	1079.44	19.54	1080.15	7.20	.62	8750.00	1592.09	10400.00
*	178.500	40000.00	1079.30	11.60	1079.97	7.13	.03	8449.86	2100.14	10550.00
	178.500	40000.00	1079.67	11.97	1080.25	6.73	.06	8750.00	1665.00	10415.00
*	181.500	40000.00	1079.37	12.87	1081.03	11.27	.30	8909.73	1422.49	10406.92
*	181.500	40000.00	1079.68	13.18	1081.19	10.79	.28	9100.00	1150.35	10325.00
	185.300	40000.00	1080.97	13.07	1082.24	9.72	.04	8465.87	1883.72	10601.88
	185.300	40000.00	1080.70	12.80	1082.61	11.32	.12	9559.89	651.11	10211.00
	190.000	40000.00	1082.37	14.57	1083.43	8.36	.02	8082.58	1943.56	10396.27
	190.000	40000.00	1082.98	15.18	1083.94	7.90	.09	9804.00	597.00	10401.00
	193.600	40000.00	1082.89	12.69	1084.87	11.34	.27	9778.67	749.19	10527.86
	193.600	40000.00	1083.36	13.16	1085.16	10.78	.25	9770.67	440.33	10211.00
	198.400	40000.00	1085.07	14.07	1086.42	9.30	.06	9751.36	433.77	10185.13
	198.400	40000.00	1085.27	14.27	1086.56	9.12	.05	9749.00	437.16	10186.16
	202.400	40000.00	1085.67	13.17	1087.91	12.01	.27	9767.34	397.78	10165.12
	202.400	40000.00	1085.82	13.32	1087.98	11.80	.26	9789.00	378.42	10167.42
	206.000	40000.00	1087.37	13.87	1089.50	11.72	.01	9428.99	707.86	10136.85
	206.000	40000.00	1087.40	13.90	1089.52	11.69	.00	9721.00	415.98	10136.98
*	210.500	40000.00	1089.63	18.43	1090.37	7.14	.14	8550.00	1296.11	10173.99
*	210.500	40000.00	1089.51	18.31	1090.46	7.83	.12	9814.00	359.69	10173.69
	216.000	40000.00	1090.18	17.98	1090.81	6.49	.01	8900.00	1102.69	10222.77
	216.000	40000.00	1090.28	18.08	1090.99	6.74	.02	9769.00	454.16	10223.16

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	SECNO	Q	CWSEL	DEPTH	EG	VCH	OLOSS	SSTA	TOPWID	ENDST
	218.000	40000.00	1090.53	18.43	1090.95	5.33	.02	9000.00	1233.75	10233.75
	218.000	40000.00	1090.67	18.57	1091.14	5.51	.02	9699.00	535.21	10234.21
	220.800	40000.00	1090.62	17.42	1091.13	5.89	.03	9258.02	972.02	10230.04
	220.800	40000.00	1090.75	17.55	1091.33	6.12	.03	9749.00	481.45	10230.45
	223.000	40000.00	1090.67	16.47	1091.34	6.70	.05	9255.57	984.90	10243.09
	223.000	40000.00	1090.83	16.63	1091.55	6.81	.04	9749.00	494.91	10243.91
	229.000	40000.00	1091.33	11.43	1091.97	6.45	.01	9296.19	847.14	10280.41
	229.000	40000.00	1091.54	11.64	1092.18	6.40	.02	9659.00	622.57	10281.57
	231.500	40000.00	1091.48	11.18	1092.53	8.97	.20	9562.92	582.08	10145.00
	231.500	40000.00	1091.70	11.40	1092.70	8.78	.18	9600.00	545.00	10145.00
	232.600	40000.00	1095.07	14.97	1096.11	8.60	.00	8600.00	1446.39	10145.00
	232.600	40000.00	1096.07	15.97	1097.05	8.26	.00	9550.00	596.00	10146.00
	235.000	40000.00	1095.48	15.38	1096.41	8.09	.01	8650.00	1472.16	10168.69
	235.000	40000.00	1096.40	16.30	1097.31	7.84	.01	9620.00	551.36	10171.36
	238.800	40000.00	1096.33	15.63	1096.87	6.50	.04	8700.00	1522.71	10222.71
	238.800	40000.00	1096.90	16.20	1097.75	7.51	.01	9700.00	525.21	10225.21
*	240.800	40000.00	1096.39	15.59	1097.25	8.52	.10	8700.00	1531.61	10247.92
	240.800	40000.00	1097.09	16.29	1098.14	8.79	.06	9630.00	623.15	10253.15

	245.800	40000.00	1097.17	15.27	1098.97	10.91	.28	9103.37	1046.83	10150.19
	245.800	40000.00	1097.98	16.08	1099.55	10.13	.15	9620.00	534.88	10154.88
	251.000	40000.00	1099.22	17.12	1100.32	8.45	.07	9727.81	477.78	10205.58
	251.000	40000.00	1099.67	17.57	1100.68	8.08	.06	9723.31	484.81	10208.13
	256.000	40000.00	1099.67	16.87	1101.80	11.70	.31	9836.62	300.58	10137.21
	256.000	40000.00	1100.02	17.22	1102.02	11.35	.30	9834.71	303.30	10138.01
	258.800	40000.00	1101.15	15.55	1102.51	9.37	.08	9807.97	348.76	10156.73
	258.800	40000.00	1101.37	15.77	1102.69	9.19	.07	9807.17	349.90	10157.07
	262.000	40000.00	1101.65	15.05	1103.17	9.89	.05	9830.44	340.34	10170.78
	262.000	40000.00	1101.84	15.24	1103.31	9.73	.05	9829.11	342.33	10171.44
*	265.000	40000.00	1103.05	16.45	1103.63	6.11	.09	9628.87	579.69	10208.57
*	265.000	40000.00	1103.19	16.59	1103.76	6.03	.09	9626.10	582.63	10208.73
	270.500	40000.00	1103.28	15.18	1104.40	8.51	.16	9793.61	399.58	10193.19
	270.500	40000.00	1103.40	15.30	1104.50	8.42	.16	9792.99	400.52	10193.51
	273.500	40000.00	1103.94	13.84	1104.82	7.55	.02	9705.11	429.89	10135.00
	273.500	40000.00	1104.04	13.94	1104.91	7.48	.02	9704.90	430.10	10135.00

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	SECNO	Q	CWSEL	DEPTH	EG	VCH	OLOSS	SSTA	TOPWID	ENDST
*	277.000	40000.00	1102.89	12.09	1106.38	14.99	.78	9852.76	274.48	10127.24
*	277.000	40000.00	1103.03	12.23	1106.42	14.78	.76	9852.42	275.15	10127.58
	281.800	40000.00	1105.55	13.35	1109.44	15.83	.12	9876.13	238.96	10115.09
	281.800	40000.00	1105.56	13.36	1109.44	15.82	.15	9876.11	239.00	10115.10
*	288.000	40000.00	1110.65	16.55	1111.98	9.27	.77	9874.50	340.08	10214.59
*	288.000	40000.00	1110.65	16.55	1111.98	9.27	.77	9874.51	340.07	10214.58
	290.000	41000.00	1110.93	17.63	1112.31	9.42	.02	9857.68	290.32	10148.00
	290.000	41000.00	1110.93	17.63	1112.31	9.42	.02	9857.68	290.32	10148.00
	291.000	41000.00	1111.06	17.46	1112.80	10.56	.00	9809.51	268.18	10077.69
	291.000	41000.00	1111.42	17.82	1113.55	11.72	.00	9851.00	226.69	10077.69
	293.000	41000.00	1111.42	16.32	1113.35	11.18	.10	9871.44	427.12	10298.56
	293.000	41000.00	1112.54	17.44	1114.15	10.18	.16	9867.82	348.17	10216.00
	297.000	41000.00	1112.57	13.67	1114.67	11.61	.05	9857.14	335.75	10192.89
	297.000	41000.00	1113.38	14.48	1115.18	10.78	.06	9855.93	343.79	10199.72
*	302.000	41000.00	1112.89	13.89	1118.05	18.22	.92	9895.01	211.13	10106.14
*	302.000	41000.00	1113.39	14.39	1118.10	17.40	.87	9893.65	213.35	10107.00
*	305.000	41000.00	1116.72	16.12	1119.85	14.20	.20	9885.74	217.09	10102.83
	305.000	41000.00	1116.59	15.99	1119.78	14.34	.15	9885.81	216.80	10102.61
	307.000	41000.00	1118.52	17.42	1120.53	11.59	.11	9611.11	519.12	10130.23
	307.000	41000.00	1118.10	17.00	1120.49	12.42	.08	9889.00	237.00	10126.00
*	311.500	41000.00	1120.62	17.52	1121.11	5.84	.15	8932.65	1797.07	10923.47
*	311.500	41000.00	1120.54	17.44	1121.18	6.41	.18	9844.00	427.00	10271.00
	314.000	41000.00	1120.93	16.23	1121.25	4.68	.02	9416.06	1126.22	10542.28
	314.000	41000.00	1120.93	16.23	1121.35	5.23	.02	9694.00	657.00	10351.00
*	318.000	41000.00	1121.02	14.42	1121.61	6.12	.08	9612.32	791.08	10403.40
*	318.000	41000.00	1121.14	14.54	1121.70	6.04	.04	9619.00	785.17	10404.17
	323.000	41000.00	1121.69	12.39	1122.39	6.71	.04	9483.44	889.55	10372.99
	323.000	41000.00	1121.77	12.47	1122.46	6.62	.03	9482.50	890.83	10373.32
	328.000	41000.00	1122.32	10.72	1123.44	8.48	.13	9769.28	461.45	10230.72
	328.000	41000.00	1122.38	10.78	1123.49	8.44	.13	9769.22	461.56	10230.78
	330.000	41000.00	1122.34	11.44	1123.95	10.20	.15	9816.41	378.17	10219.44
	330.000	41000.00	1122.39	11.49	1123.99	10.15	.15	9820.00	374.94	10219.49
	334.000	41000.00	1123.25	11.15	1125.05	10.78	.06	9848.85	352.29	10201.15
	334.000	41000.00	1123.28	11.18	1125.08	10.74	.06	9848.82	352.37	10201.18

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SECNO	Q	CWSEL	DEPTH	EG	VCH	OLOSS	SSTA	TOPWID	ENDST
337.000	41000.00	1124.05	10.85	1125.96	11.08	.03	9864.15	351.71	10215.85
337.000	41000.00	1124.08	10.88	1125.98	11.06	.03	9864.12	351.76	10215.88
340.500	41000.00	1125.11	10.71	1127.07	11.24	.02	9869.29	351.42	10220.71
340.500	41000.00	1125.13	10.73	1127.08	11.22	.02	9869.27	351.45	10220.73
342.000	41000.00	1125.58	10.68	1127.56	11.27	.00	9874.32	351.36	10225.68
342.000	41000.00	1125.60	10.70	1127.56	11.25	.00	9874.31	351.39	10225.69

	343.000	41000.00	1125.92	10.72	1127.88	11.24	.00	9849.29	351.42	10200.71
	343.000	41000.00	1125.93	10.73	1127.89	11.22	.00	9849.28	351.45	10200.72
	344.900	41000.00	1126.51	10.21	1128.70	11.87	.16	9827.19	346.27	10173.46
	344.900	41000.00	1126.52	10.22	1128.70	11.86	.16	9827.18	346.28	10173.47
	345.200	41000.00	1126.79	10.49	1128.86	11.55	.06	9826.98	346.71	10173.69
	345.200	41000.00	1126.80	10.50	1128.87	11.54	.06	9826.97	346.72	10173.69
*	346.200	41000.00	1128.30	11.30	1130.07	10.69	.00	9825.96	348.83	10174.79
*	346.200	41000.00	1128.30	11.30	1130.07	10.69	.00	9825.96	348.83	10174.79
	346.620	41000.00	1128.38	10.88	1130.28	11.07	.09	9830.00	350.57	10180.57
	346.620	41000.00	1128.38	10.88	1130.28	11.07	.09	9830.00	350.57	10180.57
	346.720	41000.00	1128.34	10.84	1130.51	11.82	.19	9830.04	332.20	10180.53
	346.720	41000.00	1128.34	10.84	1130.51	11.82	.19	9830.04	332.20	10180.53
	346.900	41000.00	1128.40	10.90	1130.65	12.05	.06	9830.05	326.33	10187.00
	346.900	41000.00	1128.40	10.90	1130.65	12.05	.06	9830.05	326.33	10187.00
*	347.000	41000.00	1129.25	11.55	1130.96	10.49	.27	9831.57	346.85	10178.43
*	347.000	41000.00	1129.25	11.55	1130.96	10.49	.27	9831.57	346.85	10178.43
	349.000	41000.00	1129.95	10.85	1131.71	10.79	.02	9824.15	451.91	10324.08
	349.000	41000.00	1129.93	10.83	1131.73	10.87	.03	9824.17	381.06	10205.23
	352.000	41000.00	1130.55	9.25	1133.02	12.74	.21	9815.75	411.99	10401.39
	352.000	41000.00	1130.54	9.24	1133.06	12.84	.22	9815.76	364.24	10180.00
*	358.000	41000.00	1136.11	10.51	1138.26	13.15	.03	9394.56	1294.80	10720.00
*	358.000	41000.00	1135.48	9.88	1138.65	15.20	.19	9770.00	566.95	10400.00
	365.000	41000.00	1139.97	12.47	1141.32	10.48	.08	9361.02	1408.98	10770.00
*	365.000	41000.00	1140.65	13.15	1141.89	9.92	.19	9650.00	950.00	10600.00
	370.000	41000.00	1141.61	14.21	1142.71	9.14	.02	9290.07	1462.13	10800.00
	370.000	41000.00	1141.78	14.38	1143.42	10.49	.12	9673.34	676.66	10350.00
	373.000	41000.00	1142.33	15.13	1143.56	9.71	.04	8678.50	1931.14	10661.33
	373.000	41000.00	1142.69	15.49	1144.44	10.84	.03	9550.00	681.77	10250.00

	SECNO	Q	CWSEL	DEPTH	EG	VCH	OLOSS	SSTA	TOPWID	ENDST
	377.000	41000.00	1143.14	14.64	1144.78	10.99	.12	9300.00	1259.52	10700.00
	377.000	41000.00	1143.74	15.24	1145.76	11.60	.08	9500.00	686.14	10189.57
	384.000	41000.00	1145.12	15.32	1147.07	11.19	.09	9851.18	339.20	10190.38
	384.000	41000.00	1146.13	16.33	1147.75	10.22	.04	9843.05	356.14	10199.19
	388.000	41000.00	1146.55	16.55	1148.07	9.89	.04	9829.97	344.96	10174.93
	388.000	41000.00	1147.20	17.20	1148.56	9.38	.03	9825.51	351.69	10177.20
	391.500	41000.00	1147.26	15.56	1148.88	10.23	.03	9793.74	380.74	10174.48
	391.500	41000.00	1147.82	16.12	1149.28	9.70	.03	9789.05	397.09	10186.14
	395.000	41000.00	1148.27	16.07	1149.67	9.50	.02	9773.34	369.13	10142.46
	395.000	41000.00	1148.69	16.49	1150.00	9.17	.02	9767.66	386.37	10154.03
	402.000	41000.00	1149.67	15.47	1150.94	9.05	.01	9806.97	381.38	10188.36
	402.000	41000.00	1149.97	15.77	1151.18	8.83	.01	9805.16	384.70	10189.87
	406.000	41000.00	1150.33	15.23	1151.75	9.56	.07	9813.34	386.62	10199.96
	406.000	41000.00	1150.58	15.48	1151.94	9.35	.07	9812.09	378.91	10191.00
*	409.000	41000.00	1150.59	15.29	1156.08	18.98	2.03	9830.00	235.58	10156.00
*	409.000	41000.00	1150.55	15.25	1156.08	19.06	2.09	9830.00	235.12	10156.00
*	409.010	41000.00	1156.02	20.82	1157.33	9.19	1.25	9754.13	248.82	10002.96
*	409.010	41000.00	1150.42	15.22	1157.32	21.07	.68	9851.00	142.48	9993.48
	409.820	41000.00	1157.48	21.88	1158.68	8.80	.00	9756.36	251.68	10008.04
*	409.820	41000.00	1156.83	21.23	1160.03	14.34	.00	9851.00	155.80	10006.80
	410.000	41000.00	1157.63	21.93	1158.73	8.43	.03	8701.33	891.92	9921.93
*	410.000	41000.00	1164.89	28.99	1169.08	18.78	.50	9851.00	298.00	10149.00
	412.000	41000.00	1158.33	21.53	1158.92	6.64	.05	9841.11	1555.36	11396.46
*	412.000	41000.00	1169.24	32.44	1169.56	4.56	.39	9824.00	342.00	10166.00
	418.000	41000.00	1158.57	20.47	1159.46	7.61	.09	9813.19	376.81	10190.00
	418.000	41000.00	1169.38	31.28	1169.66	4.22	.00	9804.00	402.00	10206.00
	423.000	41000.00	1159.01	21.41	1160.02	8.12	.04	8769.23	907.14	10187.56
	423.000	41000.00	1169.44	31.84	1169.74	4.40	.01	9789.00	422.00	10211.00
	425.000	41000.00	1159.38	23.38	1160.26	7.59	.01	8827.67	1362.80	10196.06
	425.000	41000.00	1169.48	33.48	1169.78	4.36	.00	9799.00	412.00	10211.00
	428.000	41000.00	1159.66	21.76	1160.55	7.58	.00	8989.63	618.17	10200.13

	428.000	41000.00	1169.53	31.63	1169.83	4.34	.00	9809.00	420.00	10229.00
	434.000	41000.00	1160.23	22.23	1161.14	7.63	.00	9900.56	402.82	10303.38
	434.000	41000.00	1169.63	31.63	1169.93	4.40	.00	9901.00	425.00	10326.00

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	SECNO	Q	CWSEL	DEPTH	EG	VCH	OLOSS	SSTA	TOPWID	ENDST
	440.000	41000.00	1160.89	20.89	1161.71	7.29	.01	9932.78	397.54	10330.32
	440.000	41000.00	1169.74	29.74	1170.04	4.36	.00	9919.00	440.00	10359.00
	443.200	41000.00	1161.14	20.64	1162.05	7.64	.02	9948.10	405.89	10353.99
	443.200	41000.00	1169.79	29.29	1170.11	4.52	.01	9939.00	445.29	10384.29
*	449.100	41000.00	1161.19	9.19	1164.73	15.09	.79	9965.05	389.50	10430.37
*	449.100	41000.00	1169.82	17.82	1170.40	6.11	.08	9937.00	532.17	10469.17
*	451.000	41000.00	1165.56	11.66	1169.07	15.04	.00	9930.84	397.85	10418.04
*	451.000	41000.00	1169.60	15.70	1170.82	8.87	.19	9912.84	545.17	10458.01
*	8.655	41000.00	1170.38	15.08	1171.31	7.71	.52	9820.00	400.54	10220.54
*	8.655	41000.00	1171.08	15.78	1171.91	7.32	.08	9820.00	403.76	10223.76
	8.731	12000.00	1171.50	15.40	1171.58	2.23	.08	9776.61	433.92	10210.53
	8.731	12000.00	1172.08	15.98	1172.15	2.13	.08	9773.66	439.33	10212.99
	8.807	12000.00	1171.53	13.23	1171.63	2.54	.01	9783.23	422.52	10205.75
	8.807	12000.00	1172.11	13.81	1172.20	2.42	.01	9781.06	427.95	10209.01
*	8.883	12000.00	1171.50	11.40	1171.80	4.38	.06	9847.02	344.04	10191.05
*	8.883	12000.00	1172.08	11.98	1172.34	4.08	.05	9843.21	350.79	10194.00
	8.936	12000.00	1171.70	9.90	1172.04	4.73	.01	9821.41	362.48	10183.88
	8.936	12000.00	1172.24	10.44	1172.53	4.39	.01	9820.85	365.12	10185.97
	8.977	12000.00	1171.77	8.27	1172.40	6.37	.08	9894.68	285.65	10180.33
	8.977	12000.00	1172.28	8.78	1172.82	5.91	.07	9893.88	289.01	10182.89
*	9.009	12000.00	1172.33	9.43	1172.63	4.42	.03	9795.45	371.88	10167.33
*	9.009	12000.00	1172.74	9.84	1173.01	4.18	.03	9793.38	374.59	10167.98
	9.047	12000.00	1172.56	11.36	1172.75	3.57	.01	9710.96	393.29	10104.24
	9.047	12000.00	1172.94	11.74	1173.12	3.42	.01	9709.33	395.64	10104.97
*	9.129	12000.00	1172.72	8.52	1173.06	4.66	.04	9674.24	406.92	10081.16
*	9.129	12000.00	1173.07	8.87	1173.38	4.41	.04	9666.71	409.35	10081.68
*	9.318	12000.00	1180.55	7.35	1182.39	10.88	.45	19699.38	314.99	20014.37
*	9.318	12000.00	1180.61	7.41	1182.39	10.68	.44	19699.11	315.30	20014.41
*	9.492	11450.00	1187.16	8.16	1187.84	6.62	.12	19826.78	380.98	20207.76
*	9.492	11450.00	1187.11	8.11	1187.80	6.70	.11	19830.27	377.29	20207.55
*	9.692	11450.00	1191.36	7.26	1193.45	11.60	.42	19856.19	188.27	20044.45
*	9.692	11450.00	1191.38	7.28	1193.45	11.54	.41	19856.08	188.45	20044.53

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SUMMARY OF ERRORS AND SPECIAL NOTES

CAUTION SECNO= 10.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 10.000 PROFILE= 1 MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 10.000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 10.000 PROFILE= 2 MINIMUM SPECIFIC ENERGY

WARNING SECNO= 13.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 13.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 51.700 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 51.700 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 70.500 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 70.500 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 84.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 84.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 100.700 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 100.700 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 107.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 107.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO= 110.700 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 110.700 PROFILE= 1 MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 110.700 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 110.700 PROFILE= 2 MINIMUM SPECIFIC ENERGY

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 WARNING SECNO=    117.200  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    117.200  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=    120.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    120.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=    131.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=    131.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=    131.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=    131.000  PROFILE=  2  MINIMUM SPECIFIC ENERGY

 WARNING SECNO=    135.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    135.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=    140.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=    146.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=    146.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=    146.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
1
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 CAUTION SECNO=    146.000  PROFILE=  2  MINIMUM SPECIFIC ENERGY

 WARNING SECNO=    149.600  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    149.600  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=    174.200  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=    174.200  PROFILE=  1  MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=    174.200  PROFILE=  2  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=    174.200  PROFILE=  2  MINIMUM SPECIFIC ENERGY

 WARNING SECNO=    178.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    178.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=    178.500  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=    181.500  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    181.500  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=    210.500  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    210.500  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=    240.800  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=    265.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    265.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=    277.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    277.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=    288.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    288.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=    302.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    302.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=    305.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=    311.500  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    311.500  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=    318.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    318.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=    346.200  PROFILE=  1  HYDRAULIC JUMP D.S.
 CAUTION SECNO=    346.200  PROFILE=  2  HYDRAULIC JUMP D.S.

 WARNING SECNO=    347.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    347.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=    358.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=    358.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY
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 CAUTION SECNO=    358.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=    358.000  PROFILE=  2  MINIMUM SPECIFIC ENERGY

 WARNING SECNO=    365.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=    409.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=    409.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=    409.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=    409.000  PROFILE=  2  MINIMUM SPECIFIC ENERGY

 WARNING SECNO=    409.010  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 CAUTION SECNO=    409.010  PROFILE=  2  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=    409.010  PROFILE=  2  MINIMUM SPECIFIC ENERGY

 WARNING SECNO=    409.820  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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CAUTION SECNO=    410.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    410.000  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=    412.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=    449.100  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    449.100  PROFILE=  1  MINIMUM SPECIFIC ENERGY
WARNING SECNO=    449.100  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=    451.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    451.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY
WARNING SECNO=    451.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      8.655  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      8.655  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      8.883  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      8.883  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      9.009  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      9.009  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      9.129  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      9.129  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=      9.318  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      9.318  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      9.318  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      9.318  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=      9.492  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      9.492  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      9.692  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      9.692  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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FLOODWAY DATA,   NEW RIVER-A.F.R. TO S.C.
PROFILE NO.  2

            ------- FLOODWAY -------      WATER SURFACE ELEVATION
  STATION    WIDTH    SECTION    MEAN      WITH    WITHOUT  DIFFERENCE
                       AREA    VELOCITY  FLOODWAY  FLOODWAY

   501.450   2850.     11270.     3.5     1028.2    1027.5       .7
    10.000   1320.      4223.     9.2     1030.1    1029.5       .6
    13.000   1324.      7047.     5.5     1032.0    1031.1       .9
    20.000   1345.      7192.     5.4     1033.4    1032.5       .9
    26.800   1250.      5892.     6.6     1034.5    1033.9       .6
    32.600   1224.      5783.     6.7     1036.1    1035.3       .8
    38.000   1165.      5479.     7.1     1037.4    1037.2       .2
    45.000    982.      5942.     6.6     1039.1    1039.1       .0
    51.700    776.      7085.     5.5     1040.2    1040.2       .0
    54.000    832.      7678.     5.1     1040.4    1040.4       .0
    59.000    926.      7223.     5.4     1040.8    1040.8       .0
    63.000    868.      6464.     6.0     1041.3    1041.3       .0
    70.500    661.      3239.    12.0     1042.3    1042.3       .0
    77.000    442.      2938.    13.3     1046.9    1046.9       .0
    84.000    542.      5782.     6.7     1050.7    1050.7       .0
    88.700    569.      7029.     5.5     1051.3    1051.0       .3
    95.500    802.      7111.     5.5     1051.8    1051.5       .3
   100.700    514.      3833.    10.2     1051.9    1051.5       .4
   107.000    531.      6820.     5.7     1053.9    1053.7       .2
   110.700    458.      2830.    13.8     1053.5    1053.2       .3
   117.200    350.      3314.    11.8     1058.3    1058.5      -.2
   118.000    350.      3291.    11.9     1058.7    1058.9      -.2
   120.000    407.      5280.     7.4     1060.9    1061.1      -.2
   125.000    452.      5426.     7.2     1061.4    1061.6      -.2
   131.000    490.      2797.    13.9     1061.3    1062.1      -.8
   135.000    357.      3329.    11.7     1064.7    1064.8      -.1
   140.000    517.      5104.     7.6     1067.3    1066.5       .8
   143.000    769.      4846.     8.0     1067.7    1066.9       .8
   146.000   1191.      3863.    10.1     1068.6    1068.6       .0
   149.600   1356.      6706.     6.0     1071.3    1070.5       .8
   158.000   1300.      6239.     6.4     1073.1    1072.8       .3
   167.000   1250.      5450.     7.3     1074.6    1074.1       .5
   170.000   1103.      4874.     8.2     1075.1    1074.4       .7
   174.200   1450.      5217.     7.7     1077.1    1077.2      -.1
   178.000   1650.      7870.     5.1     1079.4    1079.1       .3
   178.500   1665.      7797.     5.1     1079.7    1079.3       .4
   181.500   1225.      5098.     7.8     1079.7    1079.4       .3
   185.300    651.      3932.    10.2     1080.7    1081.0      -.3
   190.000    597.      5066.     7.9     1083.0    1082.4       .6
   193.600    440.      3710.    10.8     1083.4    1082.9       .5
   198.400    437.      4384.     9.1     1085.3    1085.1       .2
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202.400	378.	3389.	11.8	1085.8	1085.7	.1

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FLOODWAY DATA, NEW RIVER-A.F.R. TO S.C.
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
206.000	416.	3433.	11.7	1087.4	1087.4	.0
210.500	360.	5108.	7.8	1089.5	1089.6	-.1
216.000	454.	5940.	6.7	1090.3	1090.2	.1
218.000	535.	7261.	5.5	1090.6	1090.5	.1
220.800	481.	6543.	6.1	1090.7	1090.6	.1
223.000	495.	5876.	6.8	1090.9	1090.7	.2
229.000	623.	6248.	6.4	1091.5	1091.3	.2
231.500	545.	5223.	7.7	1091.7	1091.5	.2
232.600	596.	5666.	7.1	1096.1	1095.1	1.0
235.000	551.	5606.	7.1	1096.4	1095.5	.9
238.800	525.	5592.	7.2	1096.9	1096.3	.6
240.800	623.	5074.	7.9	1097.1	1096.4	.7
245.800	535.	4159.	9.6	1098.0	1097.2	.8
251.000	485.	4953.	8.1	1099.7	1099.2	.5
256.000	303.	3524.	11.4	1100.0	1099.7	.3
258.800	350.	4350.	9.2	1101.4	1101.2	.2
262.000	342.	4111.	9.7	1101.9	1101.7	.2
265.000	583.	6629.	6.0	1103.2	1103.1	.1
270.500	401.	4748.	8.4	1103.4	1103.3	.1
273.500	430.	5345.	7.5	1104.0	1103.9	.1
277.000	275.	2706.	14.8	1103.0	1102.9	.1
281.800	239.	2529.	15.8	1105.5	1105.5	.0
288.000	340.	4316.	9.3	1110.6	1110.6	.0
290.000	290.	4351.	9.4	1110.9	1110.9	.0
291.000	227.	3498.	11.7	1111.5	1111.1	.4
293.000	348.	4032.	10.2	1112.5	1111.4	1.1
297.000	344.	3803.	10.8	1113.4	1112.6	.8
302.000	213.	2356.	17.4	1113.4	1112.9	.5
305.000	217.	2859.	14.3	1116.6	1116.7	-.1
307.000	237.	3303.	12.4	1118.1	1118.5	-.4
311.500	427.	6396.	6.4	1120.5	1120.6	-.1
314.000	657.	7855.	5.2	1120.9	1120.9	.0
318.000	785.	6788.	6.0	1121.1	1121.0	.1
323.000	891.	6189.	6.6	1121.8	1121.7	.1
328.000	462.	4859.	8.4	1122.4	1122.3	.1
330.000	399.	4042.	10.1	1122.4	1122.3	.1
334.000	352.	3816.	10.7	1123.2	1123.2	.0
337.000	352.	3709.	11.1	1124.1	1124.1	.0
340.500	351.	3655.	11.2	1125.1	1125.1	.0
342.000	351.	3643.	11.3	1125.6	1125.6	.0
343.000	351.	3653.	11.2	1125.9	1125.9	.0
344.900	346.	3458.	11.9	1126.5	1126.5	.0

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FLOODWAY DATA, NEW RIVER-A.F.R. TO S.C.
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
345.200	347.	3553.	11.5	1126.8	1126.8	.0
346.200	349.	3835.	10.7	1128.3	1128.3	.0
346.620	351.	3703.	11.1	1128.4	1128.4	.0
346.720	350.	3469.	11.8	1128.3	1128.3	.0
346.900	357.	3403.	12.0	1128.4	1128.4	.0
347.000	347.	3908.	10.5	1129.3	1129.3	.0
349.000	381.	3867.	10.6	1129.9	1129.9	.0
352.000	364.	3249.	12.6	1130.6	1130.6	.0
358.000	630.	2990.	13.7	1135.5	1136.1	-.6
365.000	950.	5511.	7.4	1140.7	1140.0	.7
370.000	677.	4292.	9.6	1141.8	1141.6	.2
373.000	700.	4267.	9.6	1142.7	1142.3	.4
377.000	690.	3938.	10.4	1143.7	1143.1	.6
384.000	356.	4012.	10.2	1146.1	1145.1	1.0
388.000	352.	4372.	9.4	1147.2	1146.6	.6
391.500	397.	4225.	9.7	1147.9	1147.3	.6
395.000	386.	4473.	9.2	1148.7	1148.3	.4
402.000	385.	4645.	8.8	1150.0	1149.7	.3
406.000	379.	4384.	9.4	1150.6	1150.3	.3
409.000	326.	2283.	18.0	1150.6	1150.6	.0
409.010	142.	1946.	21.1	1150.4	1156.0	-5.6
409.820	156.	2859.	14.3	1156.9	1157.5	-.6
410.000	298.	2999.	13.7	1164.9	1157.6	7.3
412.000	342.	9014.	4.5	1169.2	1158.3	10.9

418.000	402.	9726.	4.2	1169.4	1158.6	10.8
423.000	422.	9335.	4.4	1169.4	1159.0	10.4
425.000	412.	9420.	4.4	1169.5	1159.4	10.1
428.000	420.	9461.	4.3	1169.6	1159.7	9.9
434.000	425.	9324.	4.4	1169.6	1160.2	9.4
440.000	440.	9404.	4.4	1169.8	1160.9	8.9
443.200	445.	9065.	4.5	1169.8	1161.1	8.7
449.100	532.	6709.	6.1	1169.8	1161.2	8.6
451.000	545.	4620.	8.9	1169.6	1165.6	4.0
8.655	404.	5601.	7.3	1171.1	1170.4	.7
8.731	439.	5641.	2.1	1172.1	1171.5	.6
8.807	428.	4968.	2.4	1172.1	1171.5	.6
8.883	351.	2939.	4.1	1172.1	1171.5	.6
8.936	365.	2734.	4.4	1172.2	1171.7	.5
8.977	289.	2031.	5.9	1172.3	1171.8	.5
9.009	375.	2872.	4.2	1172.7	1172.3	.4
9.047	396.	3508.	3.4	1173.0	1172.6	.4
9.129	415.	2721.	4.4	1173.1	1172.7	.4

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FLOODWAY DATA, NEW RIVER-A.F.R. TO S.C.
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
9.318	315.	1123.	10.7	1180.6	1180.5	.1
9.492	377.	1709.	6.7	1187.1	1187.2	-.1
9.692	188.	992.	11.5	1191.4	1191.4	.0

HEC-2 FILE UHILLS.DAT

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1*******************************************
*  HEC-2 WATER SURFACE PROFILES           *
*                                         *
*  Version   4.6.2;  May 1991             *
*                                         *
*  RUN DATE    17NOV95    TIME   08:51:14  *
*******************************************
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*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616-4687     *
*          (916) 756-1104           *
*************************************
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X     X  XXXXXXX   XXXXX             XXXXX
X     X  X        X     X           X     X
X     X  X        X                       X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX             XXXXXXX
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17NOV95 08:51:14 PAGE 1

THIS RUN EXECUTED 17NOV95 08:51:14

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************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
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REVISED HEC-2 FILE NRIVER.DAT TO HAVE INPUT DATA MATCH WITH THE HARDCOPY
PRINTOUT OF THE HEC-2 FILE IN THE FLOOD CONTROL DISTRICT LIBRARY THAT
CORRESPONDS WITH PUBLISHED FEMA DATA.
THE HEC-2 MODEL ON THE PRINTOUT WAS WAS RUN ON 9 OCTOBER 1985 USING THE
MAY 1984 UPDATED VERSION OF HEC-2.
THIS HEC-2 MODEL APPEARS TO BE THE BEST MATCH WITH PUBLISHED FEMA DATA
FOR NEW RIVER FROM BELL ROAD UPSTREAM TO THE NEW RIVER DAM.
THE RESULTS GENERATED BY THIS HEC-2 MODEL DOWNSTREAM OF BELL ROAD SHOUDN'T
BE USED.
THE PUBLISHED FEMA DATA FOR THE REACH BELOW BELL ROAD MATCHES CLOSELY WITH
HEC-2 MODEL REVSB., WHICH WAS DEVELOPED BY COE & VAN LOO.
THE CROSS SECTIONS BELOW BELL ROAD WHERE RETAINED FOR HISTORICAL REASONS.
THIS HEC-2 MODEL HASN'T BEEN UPDATED FOR ANY CHANGES THAT MIGHT OCCURED
SINCE THE MODEL WAS ORIGINALLY CREATED.

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T1      NEW RIVER ABOVE SKUNK CREEK, PHOENIX, ARIZ., SEPT 1985    (UHILLS.DAT)
T2      Edited by HDR (1-95) for Union Hills Drive Bridge Analysis
T3      Added Cross Sections    Added by HDR Engineering from survey Feb. 1995
        Existing Condition Flood Plain Model FIS & CORPS Q's
        Estimated starting WSEL from FIS Profiles for 100-yr.

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
                2                                                                  1170.5

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
      1                  -1                                                                     15

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

     38        43        53        21        55        26        56        22        54         4
      1        50

NC     .045      .045      .035      .200      .400
QT       2     41000     41000
         1985 TOPO - DIGITIZED DATA SEC.8.655 THRU SEC.9.129
         DOWNSTREAM STUDY LIMIT
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1

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         NEW RIVER-SKUNK CREEK CONFLUENCE
X1    8.655        36     9581.4    10224.3         750         150         400
X3       10
GR   1173.9     8649.5    1172.8     8725.6      1173.6      8761.4      1172.8      8805.7      1171.9      8882.4
GR   1171.9     8973.3    1171.7     9029.3      1170.9      9157.1      1170.5        9250      1170.8        9322
GR   1170.3     9369.5    1169.5     9443.6      1169.3      9488.5      1171.5      9503.3      1167.1      9548.1
GR   1171.6     9581.4    1166.9     9605.5      1161.4        9624      1157.9        9660      1156.6      9716.3
GR   1155.1     9744.7    1156.1     9761.1      1155.3      9864.2      1155.3      9905.7      1156.2      9954.8
GR   1156.3      10000    1156.3      10071      1156.7     10091.4      1155.7     10121.5      1155.7     10154.7
GR   1164.5    10193.7    1171.2    10224.3      1172.3     10244.2      1171.2       10247      1171.1     10299.3
GR   1170.6    10403.3

NC                                    .100        .300
QT       2      12000     19000
ET                 9.1                                                              9762.5     10213.5
         BEGIN DISCHARGE FOR NEW RIVER ONLY
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X1    8.731        45     9762.5    10213.5         400         400         400
X3       10
GR   1174.8      8627     1174.1     8663.6      1172.6      8666.7      1174.4      8670.4      1172.1      8683.8
GR   1170.8      8831.8   1170.4     9040        1170        9196.9      1168.3      9265.9      1167        9305.7
GR   1166.8      9321     1173.5     9346        1167.4      9377.8      1160.3      9401.7      1156.9      9425.5
GR   1157.6      9463     1156.3     9473.2      1158.8      9489.1      1166        9510.2      1169.2      9519.8
GR   1168.9      9553.9   1169.2     9595.9      1168.6      9640.2      1168.3      9678.4      1173.6      9692.1
GR   1171.9      9727.6   1171.4     9748.3      1172.8      9762.5      1172.6      9771        1167.8      9795.5
GR   1160        9831.2   1157.1     9844        1156.1      9894.9      1156.9      10000       1157.8      10055.6
GR   1157.3      10089.1  1156.7     10123.2     1157.3      10151       1164.7      10183.1     1170.6      10206.7
GR   1172.2      10213.5  1173.3     10246.5     1172        10250.5     1171.9      10342.2     1171.3      10403

      REVISED THE ELEVATION OF STATION 9478.8 FROM 117039 TO 1170.9 (TMM 3-94)

ET                         9.1                                                                    9771.3      10219.2
X1    8.807        58     9771.3    10219.2         400         390         400
X3       10
GR   1174.2      8591     1174.2     8613.7      1174.8      8626.5      1174.6      8637.8      1173.1      8640.4
GR   1174.2      8644.4   1172.8     8658.6      1172.4      8867.9      1172        9015.9      1171.9      9044.3
GR   1172.4      9063.6   1170.8     9080.6      1170.8      9093.1      1174.4      9117.5      1175        9131.2
GR   1172.2      9150.5   1164.2     9172.6      1160.1      9193.9      1158.6      9221.8      1157.7      9249.9
GR   1159.2      9261.8   1157.9     9281.7      1159.2      9293.1      1164.6      9312.1      1171.3      9327.1
GR   1170.8      9359     1170.5     9382.8      1171.1      9406.1      1170.6      9448.1      1170.9      9478.8
GR   1171.6      9539     1171.9     9588.1      1172.4      9618.2      1172.2      9646.1      1172.1      9673.9
GR   1178.4      9688.1   1187.7     9701.7      1193.4      9715.9      1194.1      9729.6      1186.6      9749.4
GR   1174.7      9771.3   1169.2     9792        1162.1      9826.7      1158.7      9848        1158.4      9918.7
GR   1158.3      9957.1   1158.8     10000       1158.6      10069.8     1158.4      10113.6     1158.5      10146.5
GR   1163.7      10172.1  1170.8     10201.6     1173.9      10219.2     1174.4      10248.2     1173.2      10258.1
GR   1173.9      10328.3  1173.6     10380.5     1173        10402.7

ET                         9.1                                                                    9824.7      10216.9
X1    8.883        55     9824.7    10216.9         280         400         400
X3       10
GR   1176.2      8580.8   1175.3     8595.6      1173.7      8597.9      1174.9      8600.1      1173.5      8625.1
GR   1174.4      8705.8   1174.1     8768.8      1175.2      8824.2      1179.5      8846.4      1180.4      8864.3
GR   1177.5      8878.5   1167.9     8905.2      1162.9      8926.2      1159.6      8943.8      1159.9      8977.9
GR   1158.5      8985.3   1161.3     9000.6      1158.4      9027.9      1158.8      9040.4      1162.1      9058.5
1
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GR   1169.4      9075.9   1173.3     9086.9      1174        9126.4      1173        9140.3      1173        9167.6
GR   1172.7      9204.5   1174.4     9252.2      1173.6      9288.3      1173.9      9325        1173.7      9357.3
GR   1174.3      9422.7   1174.7     9473.8      1173.9      9529.7      1173.9      9563.4      1175.1      9610.3
GR   1174.9      9680.1   1175.9     9745.5      1174.9      9824.7      1169.4      9860.8      1166.1      9911.3
GR   1163.8      9955.6   1163.1     9984.3      1163.1      10000       1160.2      10004.5     1160.9      10056.5
GR   1160.1      10106.7  1160.4     10145.4     1163.8      10164.1     1171.6      10191.4     1176.3      10216.9
GR   1177        10247.6  1175.5     10249.9     1176.3      10292.2     1176.1      10347.6     1175.3      10404.7

ET                         9.1                                                                    9809.4      10213.2
          OLD CORP STATION NO. 8.95=0.6
X1    8.936        60     9809.4    10213.2         300         300         290
X3       10
GR   1180        8590.6   1174.5     8616.4      1165.7      8644.6      1162.8      8656.8      1162.9      8675.8
GR   1163.3      8691.1   1163       8713.3      1162.3      8740        1166.9      8754.2      1173.7      8779.8
GR   1179        8797.9   1177.6     8810.7      1177.4      8832.3      1175.7      8843.9      1174.6      8913.5
GR   1175.6      8920.6   1174.6     8947.9      1175.5      9022.3      1175.5      9091        1175.9      9152.4
GR   1176.4      9222.8   1177       9261.2      1177.8      9274        1177.1      9322        1177.8      9335.9
GR   1178.2      9360.6   1175.8     9370.5      1176.9      9389.9      1177.8      9408.3      1175.5      9452.4
GR   1177        9483.3   1176.2     9535.9      1175.6      9543.2      1176.6      9575.3      1176        9615.4
GR   1177.8      9634.7   1176.7     9680.7      1177.8      9708        1176.9      9754        1176        9785.5
GR   1176.1      9797.7   1177.3     9809.4      1176        9817        1167.6      9825.6      1166.8      9859.6
GR   1166.7      9894     1165.7     9939.7      1165.3      9959.9      1165.7      9994.3      1162.2      10000
GR   1162.3      10069.8  1161.8     10110.7     1162.1      10143.1     1167.9      10169.2     1174        10192.8
GR   1178.2      10213.2  1178.2     10244.2     1177.7      10247.6     1177.1      10309.8     1176.6      10402.1

      REVISED THE ELEVATION OF STATION 8934.8 FROM 1744.7 TO 1174.7 (TMM 3-94)
         "    "    "    "    "    9747.2  "   117732  "  1177.2   "
         "    "    "    "    "    9765.9  "   117835  "  1178.5   "
         "    "    "    "    "    9792    "   117838  "  1178.8   "
         "    "    "    "    "    9802.3  "   117936  "  1179.6   "
         "    "    "    "    "    10000.0 "   116535  "  1165.5   "

ET                         9.1                                                                    9886.1      10212.7
X1    8.977        58     9886.1    10212.7         220         200         210
X3       10
GR   1177.7      8605.6   1175.6     8628.1      1174.7      8658.4      1174.4      8712.7      1174.6      8744.5
GR   1175.6      8767.2   1174.1     8802.4      1175.6      8841.6      1174.9      8864.9      1175        8878.6
GR   1174.7      8934.8   1174.7     8953.5      1175.5      8991.6      1175.7      9030.5      1176.4      9064
GR   1178.2      9075.1   1176.8     9084.2      1176.6      9130.2      1176.8      9179.1      1177.1      9252.3
GR   1176        9330.2   1176.4     9370.6      1177.8      9377.4      1176.8      9385.9      1176.8      9448.7
GR   1177.3      9491     1176.4     9537        1176.4      9556.3      1176.9      9609.7      1176.8      9662.3
GR   1176.3      9713.1   1177.2     9747.2      1178.5      9765.9      1178.8      9792        1179.6      9802.3
GR   1178.3      9821     1180.8     9828.4      1176.5      9836.1      1176.5      9867.6      1177.2      9886.1
GR   1168.4      9900     1167.1     9909.3      1165.7      9938        1164.9      9976.1      1165.5      10000
GR   1163.6      10007.3  1163.7     10066.4     1164        10103.3     1163.5      10128.9     1163.5      10137.4
GR   1168.4      10163.5  1173.3     10188       1178.5      10209       1179.3      10212.7     1180.9      10243.9
GR   1180.1      10248.2  1179.7     10281.7     1179.8      10401.6
1
   17NOV95      08:51:14                                                                                                PAGE    4
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ET                              9.1                                                                     9764.5      10207
          GREENWAY ROAD AREA
X1     9.009          34      9764.5      10207         330         180         180
X3        10
GR      1177        8740      1176.9      8817.3        1177      8883.2      1177.1      8937.1      1177.2      9008.7
GR    1177.5      9075.7      1177.5      9150.2      1177.5      9213.2      1177.7      9285.6      1177.7      9368.3
GR    1177.9        9462      1178.2      9547.2      1178.2      9614.3      1178.3      9675.6      1178.3      9725.9
GR      1178      9764.5      1174.2      9786.1      1167.1      9821.6      1164.9      9852.3        1166      9886.3
GR    1164.6        9921      1163.6      9960.8      1162.9       10000      1164.1     10055.9      1164.8     10109.6
GR    1164.8     10149.3      1169.2     10162.4      1178.6     10177.2      1179.9       10207      1180.3     10253.3
GR    1179.5     10304.1      1180.2     10353.8      1179.8     10424.8      1179.3     10475.4

ET                              9.1                                                                     9689.8      10113.8
X1     9.047          44      9689.8     10113.8         280         160         200
X3        10
GR    1179.8      8601.2      1179.8        8619      1180.6        8633      1179.4      8721.9      1179.5      8798.8
GR    1179.2      8858.5      1178.9      8933.2      1178.7      9004.2      1173.2      9070.4      1178.8      9154.1
GR    1178.8      9233.1      1178.8      9306.9        1179      9377.9      1179.1      9475.6      1178.6      9532.5
GR    1178.7      9570.5      1180.6      9579.9        1180      9593.2      1181.6      9616.5      1180.5        9660
GR    1177.5      9689.8      1171.4      9715.9      1166.4      9742.1      1166.2      9751.1      1166.9      9756.8
GR    1162.3      9762.5        1162        9781      1163.2      9794.9      1163.3      9845.4        1164      9880.4
GR    1162.9      9904.5      1161.7      9907.9      1161.2      9937.7      1161.9      9971.5      1162.6       10000
GR      1165     10050.5      1165.7     10084.6        1171     10101.3      1177.6     10113.8      1178.2     10168.4
GR    1178.2     10218.1      1178.1     10298.2      1178.7     10354.4      1178.2     10401.6

NC                  .060
ET                              9.1                                                                     9641.2      10090
          OLD CORP STATION NO. 9.15=9.8
          END 1985 TOPO DIGITIZED SECTIONS, END C/L = 10000
X1     9.129          51      9641.2       10090         290         460         420
X3        10
GR    1182.2      8558.3      1182.2      8569.9        1183      8580.4      1181.8      8652.3      1181.8      8719.9
GR    1182.2      8785.2      1181.7      8844.6      1181.3      8932.3      1180.6      8995.9      1180.5      9075.5
GR      1181        9134        1181      9205.5      1181.5      9271.4      1181.2      9370.8      1180.3      9477.1
GR    1180.3      9499.5      1180.1      9524.8      1180.8      9562.3      1180.3      9599.2      1180.9      9629.9
GR    1180.6      9641.2      1176.6      9662.3        1173      9666.8      1173.4        9673      1164.9      9688.4
GR    1165.5      9712.2      1166.2      9768.2      1166.3      9795.2      1167.5      9799.7      1164.8      9814.5
GR    1164.2      9836.1      1165.2      9889.5      1165.1      9919.9      1166.3      9971.3      1167.1      9982.6
GR    1168.1      9987.7      1167.9       10000      1168.9     10061.6      1171.8     10079.8      1178.7       10090
GR      1179     10117.8        1179     10195.1      1178.6     10241.7      1178.5     10245.1      1179.7     10304.1
GR    1179.2     10370.6      1179.6     10407.5      1179.9     10429.4      1178.7     10432.2      1180.1     10433.6
GR    1179.5     10439.6

      REVISED THE ELEVATION OF STATION 18380 FROM  185.2 TO 1185.2 (TMM 3-94)
         "     "     "     "     "    20015  "   118135 "  1181.5     "


NC      .050        .060        .035        .100        .300
ET                              9.1                                                                     19660       20015
1
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          BEGIN STATION C/L = 20000
X1     9.318          39       19660       20015        1000        1000        1000
X3        10
GR      1192       16150        1170       16210        1170       16310      1194.6       16420        1186       16465
GR    1186.8       16560        1184       16830      1185.2       16920        1184       17065        1184       17120
GR      1186       17130        1186       17150        1184       17160      1183.7       17360        1184       17470
GR      1185       17855      1185.2       18380      1185.3       18430        1185       18460      1185.1       19440
GR      1186       19660        1184       19685        1178       19710        1178       19865        1176       19945
GR      1174       19985      1173.2       20000        1174       20010      1181.5       20015      1181.3       20105
GR      1182       20360        1184       20370        1186       21110        1186       21150        1184       21595
GR      1182       22220        1180       22940        1180       23725      1181.2       23740

QT         2       11450       17250
ET                              9.1                                                                     19770       20235
X1     9.492          40       19770       20235         910         890         920
X3        10
GR    1197.2       16090        1178       16135        1178       16185      1193.2       16240        1192       16250
GR      1190       16470        1188       17185        1187       17360        1188       17710      1188.6       17900
GR    1189.3       18260        1189       18870      1188.8       18885        1190       18900        1190       18920
GR    1189.2       19030      1189.5       19300        1188       19610        1185       19635        1186       19650
GR      1188       19700        1188       19770        1186       19905        1184       19930        1184       19950
GR      1180       19970        1179       20000        1180       20055        1182       20160        1184       20195
GR    1193.9       20235        1186       20255      1185.4       20310        1186       20785        1188       20800
GR    1188.8       21100        1190       21450        1190       22860        1188       23130        1188       24240

NC      .040        .060        .035
ET                              9.1                                                                     19840       20060
X1     9.692          31       19840       20060        1050        1040        1056
X3        10
GR      1194       15930        1192       16660        1190       17050      1189.8       17130        1190       17440
GR      1192       18040        1194       18880        1195       19040      1194.4       19150        1194       19280
GR      1194       19680        1192       19790        1192       19830        1195       19840        1186       19880
GR    1184.1       20000        1186       20015        1188       20020        1190       20040      1196.1       20060
GR      1194       20060      1193.2       20090        1194       20195        1194       21315        1196       21690
GR      1196       21725        1194       22305        1192       24380        1190       24790        1190       25100
GR      1192       25440

NC      .060        .060        .035        .300        .500
ET                              9.1                                                                     19840       20080
X1     9.889          31       19840       20080        1100        1050        1040
X3        10
GR      1200       14530        1198       15330        1196       17370        1198       17830        1200       18620
```

```
GR   1201.6      19190       1200      19460       1198      19490       1196      19510       1196      19570
GR     1198      19590       1198      19810       1200      19820       1200      19840       1198      19850
GR     1196      19870       1190      19890       1188      19900       1190      19920       1190      19965
GR   1188.2      20000       1190      20050       1200      20080       1200      20970     1198.6      21620
GR     1200      21710       1200      21730       1198      22710     1196.1      23410       1198      24490
GR     1198      26950

      REVISED THE ELEVATION OF STATION 15520 FROM 120034 TO 1200.4 (TMM 3-94)

1
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NC     .060       .060       .030       .300       .500
ET                           9.1                                                      19790      20032
         BELL ROAD
X1     9.953         27      19790      20032        335        335        335
X3        10
GR      1202      15050     1200.4      15520       1200      16550       1200      16890     1200.5      17285
GR      1200      17540       1200      17610       1202      18770       1202      18860     1202.4      19045
GR      1200      19515       1200      19790       1194      19805       1192      19840       1192      19910
GR      1190      19990     1188.6      20010       1200      20030       1202      20032       1202      20050
GR      1200      21475       1200      21785       1198      22680       1198      24780       1200      25390
GR      1200      26215     1200.6      26810

ET                           9.110                                                    19825      20110
SB      .900      1.560        2.6                    213         20       2800      1.880    1188.61     1188.6
         SPECIAL BRIDGE
X1     9.967         29      19825      20110         75         75         75
X2                              1     1200.9     1207.5
X3        10
BT        21      15025       1204                 15450     1203.5                 16410       1202
BT     16635     1201.4                 16805       1202                 17990       1204                 18530
BT    1205.6                 19065       1204                 19325       1204                 19800       1205
BT                19825     1207.5     1200.9      20110     1207.5     1200.9      20110     1205.8
BT     20635       1204                 21810       1202                 22850       1200                 24300
BT      1198                 24630       1198                 25270       1200                 26275       1202
BT                27010     1202.1
GR      1204      15025     1203.5      15450       1202       16410     1201.4      16635       1202      16805
GR      1204      17990     1205.6      18530       1204       19065       1204      19325       1205      19800
GR      1204      19825       1196      19845       1194       19860       1192      19890       1192      19980
GR      1190      20015     1188.6      20025       1190       20035       1194      20060       1204      20110
GR    1205.8      20130       1204      20635       1202       21810       1200      22850       1198      24300
GR      1198      24630       1200      25270       1202       26275     1202.1      27010

      REVISED THE ELEVATION OF STATION 23690 FROM 199.6 TO 1199.6 (TMM 3-94)

NC                                     .100       .300
ET                           9.1                                                      19635      20055
X1    10.096         38      19635      20055        610        650        645
X3        10
GR      1206      14890       1204      14935       1203      15070       1204      16230     1204.8      16600
GR    1204.4      17760     1205.1      18700       1205      19025       1204      19260       1204      19275
GR      1206      19285       1208      19335       1208      19435       1206      19545       1202      19555
GR      1201      19635       1198      19665       1196      19970     1195.7      20000       1196      20010
GR      1198      20020       1200      20040       1206      20055       1206      20090       1206      20675
GR      1204      21060       1202      22510       1200      23200     1199.6      23690       1200      24210
GR      1202      24600       1202      24615       1200      24890       1199      25180       1200      25545
GR      1202      25900       1206      25910       1206      26020
1
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QT         2      10900      15500
ET                           9.1                                                      19820      20320
X1    10.271         40      19820      20320        920        925        925
X3        10
GR      1208      14700       1206      15620       1206      16020       1208      16520       1208      16790
GR    1209.6      17735     1209.7      18290       1208      19090       1208      19750     1212.5      19820
GR      1204      19870       1202      19930       1200      19980     1198.2      20000       1200      20020
GR      1202      20230       1204      20295       1208      20320       1208      20365       1206      20375
GR      1206      20680       1208      20685     1208.4      21370       1208      22660       1206      22930
GR      1204      23700       1204      24115       1206      25190       1206      25220       1204      25230
GR      1204      26490       1206      26520       1206      26865       1207      26870       1207      26880
GR      1206      26895       1204      26930       1204      27050       1206      27210       1208      27230

ET                           9.1                                                      19655      20110
X1    10.443         34      19655      20110        930        900        910
X3        10
GR    1213.5      14830       1212      15205     1210.5      15830       1212      16220     1213.9      17660
GR      1212      19220       1211      19560       1212      19590       1216      19605       1216      19655
GR      1210      19670       1210      19740       1208      19750       1206      19950     1205.6      20000
GR      1206      20100       1210      20110       1212      20600       1212      22030       1210      22740
GR      1208      23440     1207.8      23780       1208      24260     1208.6      25120       1208      25140
GR      1206      25145       1206      26400       1208      26810       1208      27000       1206      27080
GR      1206      27180       1208      27190       1212      27205       1214      27415

      REVISED THE ELEVATION OF STATION 16705 FROM 1318   TO 1218   (TMM 3-94)
         "     "      "     "     "    18050  "   121935 "  1219.5    "


ET                           9.1                                                      19955      20300
```

```
X1   10.612        34      19955      20300        880        900        890
X3       10
GR    1217     15010       1216      16240       1216      16325       1218      16705     1219.5      18050
GR    1219     18420       1218      19580       1216      19885       1216      19895       1222      19910
GR    1222     19955       1210      19985     1209.6      20000       1210      20010       1212      20295
GR    1218     20300       1218      20325       1216      20330       1216      20740       1218      20760
GR    1218     21655       1216      22770       1214      23050     1212.4      23730       1214      24140
GR    1214     24250       1214      25455       1212      25530       1210      26540       1212      26790
GR    1212     27110       1214      27420       1214      28550       1216      28650
```

Added cross sections to determine impact of fill from 83rd Ave. location
(Existing Conditions This Run)

```
X1   10.659         8      31.17     314.98        259        255        247
X3       10
GR   1222.2         0    1222.17      31.17     1209.05      52.50    1209.05      68.90    1209.05      75.46
GR   1209.1    216.55    1211.14     305.13     1215.61     314.98
```

Added cross sections to determine impact of fill from 83rd Ave. location
(Existing Conditions This Run)


```
X1   10.691        11      26.25     324.82        174        161        170
X3       10
GR   1223.8         0    1223.81      26.25     1217.25      37.73    1215.61      50.86    1211.14      62.34
GR   1209.1     67.26    1209.05      82.03     1209.05     109.91    1211.14     292.01    1212.33     314.98
GR   1217.3    324.82
```

Added cross sections to determine impact of fill from 83rd Ave. location
(Existing Conditions This Run)

```
X1   10.723        11     113.19     352.71        167        164        170
X3       10
GR   1223.8         0    1223.81      22.97     1217.25      44.29    1215.61     113.19    1211.14     119.76
GR   1209.1    141.08    1209.05     167.33     1211.14     228.03    1212.03     305.13    1213.97     344.51
GR   1217.3    352.71
```

Existing FIS Cross-Section

```
ET                          9.1                                                              19750       20015

X1   10.803        12     19750      20015        420        430        423
X3       10
GR    1220     19575       1220      19585       1220      19595       1220      19750       1216      19760
GR    1216     19888     1214.1      20000       1216      20010       1220      20015       1220      20190
GR    1222     20405       1224      20480

ET                          9.1                                                                0.0       393.8
```

Cross Sections 10.933 thru 10.936 represent the channel geometry at the
proposed crossing of 83rd Ave without the roadway prism.

```
X1   10.933         8        0.0     406.84        164        241        244
X3       10
GR   1222.2       0.0    1217.25       19.7     1215.61      68.90    1214.70      85.31    1213.97     104.99
GR   1214.0    134.52    1215.61     387.16     1220.53     406.84


X1   10.934         8        0.0     390.44         82         92         85
X3       10
GR   1225.5       0.0    1217.25      32.81     1216.43      88.59    1216.43      98.43    1216.43     141.08
GR   1216.4    150.93    1215.61     370.75     1220.53     390.44


X1   10.935        11        0.0     383.88        131        154        144
X3       10
GR   1227.1       0.0    1226.11      26.25     1215.61      59.06    1215.61     206.70    1215.61     213.27
GR   1215.6    265.76    1215.61     272.32     1215.61     334.66    1217.25     351.07    1220.53     360.93
GR   1222.2    383.88
```



```
X1   10.936         9        0.0     324.82        131        154        137
X3       10
GR   1225.5       0.0    1227.1       22.97     1222.17      32.81    1218.89      75.46    1215.61     111.55
GR   1217.3    275.60    1218.89     285.45     1222.17     292.01    1223.81     324.82
```

Cross Section on the down stream side of the Union Hills Crossing
****

```
ET                          9.1                                                                0.0       633.5
        UNION HILLS DRIVE
X1   10.989        15      60.1      335.9        370        370        370
X3       10
GR   1225.5       0.0    1229.7       60.1     1219.2       104.4    1217.0      137.4    1216.5      183.0
```

```
GR   1216.4      210.8     1217.4      233.9     1218.4      271.4     1222.1      297.8     1222.8      335.9
GR   1223.5      374.5     1228.1      482.1     1228.5      524.3     1228.4      580.9     1228.7      633.5


X1   11.005                                        85          85        85


X1   11.020        31      362.3       603.7       66.9        66.9      66.9
X2
X3       10                                                    603.7
GR   1227.2        0.0     1227.2       45.4     1226.9        98.5     1227.2      150.7     1226.4      196.4
GR   1227.0      243.5     1227.5      348.4     1229.5      362.3     1220.8      388.8     1219.4      395.2
GR   1216.8      404.7     1216.0      431.7     1217.7      487.6     1218.5      493.3     1218.2      507.3
GR   1218.1      529.4     1217.9      531.9     1220.8      546.5     1221.6      595.0     1225.6      603.7
GR   1224.5      649.8     1225.1      761.8     1226.7      765.0     1226.7      770.6     1226.0      773.2
GR   1225.3      774.6     1225.4      784.3     1227.8      797.2     1229.2      825.7     1229.3      853.2
GR   1228.3     894.14

   Cross Section 300' upstream of the Union Hills alignment

X1   11.045        16       89.6       307.6       178.7       178.7     178.7
X3       10
GR   1226.6        0.0     1228.4       82.2     1229.8        89.6     1218.6      108.3     1217.8      184.5
GR   1218.6      225.8     1221.0      230.8     1220.7      241.1     1219.5      248.6     1219.3      251.4
GR   1219.3      271.5     1219.1      278.8     1223.5      291.5     1223.8      297.0     1226.9      307.6
GR   1227.3      360.3



ET                           9.1                                                                0.0      381.6
NC     .045       .045
         NEW SECTION - LEFT BANK TAKEN FROM ARROWHEAD RANCH
         WASTEWATER TREATMENT PLANT GRADING PLAN-DIBBLE & ASSOC.
X1   11.129        15       5.6        330.9       410.2       410.2     410.2
X3       10
GR   1230.9        0.0     1230.0        5.6     1220.2        34.7     1221.2       77.8     1221.0      106.8
GR   1217.8      131.6     1217.9      207.9     1218.3      220.8     1221.0      244.8     1221.0      248.8
GR   1221.5      273.8     1221.2      276.4     1231.3      297.6     1230.1      330.9     1229.8      381.6
1
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QT       2      10350      13750
ET                           9.1                                                                758.7     1228.7
X1   11.188        18      761.6      1020.9       325.8       325.8     325.8
X3       10
GR   1232.3      758.7     1232.8      761.6     1220.5      800.6     1221.9      814.1     1221.7      860.6
GR   1218.4      873.4     1217.5      888.0     1219.1      943.9     1221.8      958.7     1221.5      962.5
GR   1221.6      986.5     1221.3      988.7     1227.2     1005.5     1227.4     1009.6     1232.7     1020.9
GR   1231.5     1045.5     1231.6     1088.8     1231.9     1228.7



ET                           9.1                                                                0.0      361.8
X1   11.301        21       72.7       297.9       591.2       591.2     591.2
X3       10
GR   1218.2        0.0     1231.3       44.9     1231.5        63.8     1233.3       72.7     1232.9       80.2
GR   1221.4      116.6     1222.9      128.2     1221.9      132.7     1222.2      161.9     1220.4      177.2
GR   1219.7      194.3     1221.0      219.5     1223.4      230.0     1223.5      233.5     1224.1      255.5
GR   1223.8      266.8     1227.8      276.7     1227.2      281.2     1233.9      297.9     1234.3      320.5
GR   1235.1      361.8

   Cross Section at the beginning of the Treatment Plant protection dike

X1   11.328        18       5.6        214.4       210.8       210.8     210.8
X3       10
GR   1233.9        0.0     1233.6        5.6     1222.3        45.2     1224.0       61.9     1222.3       74.2
GR   1222.5       88.8     1221.2       99.7     1220.9       109.8     1222.3      150.6     1225.5      163.3
GR   1225.3      164.6     1225.8      190.8     1225.7      200.0     1233.4      214.4     1231.4      222.6
GR   1236.7      240.0     1236.4      266.1     1236.5      296.1



NC     .045       .060       .035
ET                           9.1                                                                19900     20175
X1   11.386        15      19900      20175         315         270       310
X3       10
GR     1233      19430      1233      19890        1233       19892      1233      19900      1228      19905
GR     1228      19912      1226      19975        1223       20000      1226      20030      1228      20085
GR     1230      20115      1232      20150        1238       20175    1239.5      20820      1238      22925

ET                           9.1                                                                19780     20170
X1   11.481        15      19780      20170         480         540       520
X3       10
GR     1240      19130      1238      19305        1230       19320      1228      19380      1228      19550
GR     1230      19710      1236      19780        1230       19800      1232      19860      1230      19900
GR     1228      19950    1227.4      20000        1230       20060      1234      20140      1240      20170
1
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ET                          9.1                                                 19470     20310
X1   11.566        37     19470     20310      280       530       460
X3        10
GR      1241     17270      1240     18790     1242     18940      1242     19140      1240     19170
GR      1240     19470      1236     19480     1234     19550      1234     19760      1230     19775
GR      1230     19790      1232     19810     1234     19820      1234     19855      1232     19860
GR      1232     19940      1230     19980   1229.7     20000      1230     20010      1230     20180
GR      1232     20295      1240     20310     1240     20335      1242     20780      1244     21030
GR    1244.2     21620    1244.2     21960     1244     22190    1243.6     23225      1244     23470
GR    1244.9     24495      1246     25220     1245     25570      1244     26550      1244     26660
GR      1246     27240    1246.7     27420

ET                          9.1                                                 19925     20510
X1   11.759        35     19925     20510     1050       980      1020
X3        10
GR      1246     17890      1245     18190     1246     18510      1246     18920    1246.5     18930
GR      1246     18950      1246     19120     1244     19230      1244     19255      1244     19880
GR      1244     19900      1244     19925     1236     19940      1235     20000      1236     20040
GR      1236     20455      1242     20465     1244     20495      1248     20510      1248     20525
GR      1246     20540      1246     20620     1246     20760      1246     20800      1246     20820
GR      1246     21070      1248     21460     1250     21630      1250     21870    1219.6     22350
GR      1249     22980    1249.2     23620     1250     25015      1250     25960    1250.4     27420

NC       .060      .060      .035
ET                          9.1                                                 19865     20510
X1   11.949        35     19865     20510      990      1000      1000
X3        10
X4         1   1247.4     20700
GR    1250.8     18670    1250.4     18895   1250.4     19275      1251     19500      1251     19535
GR      1250     19865      1248     19920     1246     19974      1244     19976      1243     20000
GR      1244     20045      1244     20215     1242     20280      1242     20470      1244     20480
GR      1246     20510      1246     20520     1246     20530      1246     20590      1246     20600
GR      1248     20925      1250     20940     1252     21660      1254     22180      1254     22280
GR    1252.8     22630      1254     22985   1252.5     23380      1254     23685      1244     23750
GR    1252.4     24515      1254     25865     1254     26540      1256     27550    1256.5     27760

ET                          9.1                                                 19890     20680
X1   12.125        37     19890     20680      910      1000       930
X3        10
GR      1256     19305    1256.1     19430     1256     19805      1256     19860      1258     19875
GR      1258     19890      1256     19920     1254     19923      1250     19930    1248.2     19950
GR    1248.5     20000      1250     20025     1250     20090      1248     20140      1248     20160
GR      1250     20230      1250     20320     1248     20330      1248     20440      1250     20565
GR      1252     20600      1254     20640     1258     20680      1258     20710      1254     20730
GR      1254     20800      1254     20810     1254     20860      1253     21155      1254     21455
GR      1256     22190      1258     22395     1258     22940      1259     24160      1260     26290
GR      1260     27215    1261.7     27800
1
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QT         2      9800     12000
ET                          9.1                                                 19830     20240
X1   12.313        28     19830     20240      1010      980       990
X3        10
GR      1261     18650      1260     19080     1260     19800      1262     19810      1262     19830
GR      1260     19835      1258     19840     1256     19935      1254     19950    1252.2     20000
GR      1254     20220      1260     20240     1260     20260      1258     20300      1258     20320
GR      1258     20360      1258     20362     1258     20440      1258     20450      1258     20455
GR    1258.6     21090      1259     21610     1260     22140    1261.5     22890    1261.9     23990
GR      1262     24500      1262     27100   1263.3     27570

ET                          9.1                                                 19810     20280
X1   12.511        35     19810     20280     1000      1020      1056
X3        10
GR      1266     18920      1266     19115     1266     19240      1264     19385      1263     19600
GR      1262     19700      1262     19710     1262     19720    1263.6     19810      1260     19865
GR      1258     19905    1257.3     20000     1258     20070      1264     20110      1264     20140
GR      1262     20210      1260     20220     1260     20265      1264     20280      1264     20350
GR      1262     20365      1260     20400     1260     20440      1264     20460      1264     20610
GR    1263.6     20830      1264     20995     1265     21585      1265     22640      1266     23100
GR      1266     24600    1265.7     24880     1266     26000    1265.7     26670      1266     27380

ET                4.1       9.1                20980                           19810     20330
X1   12.701        34     19810     20330     1030      1020      1000
X3        10
X4         1   1269.6     20500
GR    1270.6     19190      1270     19700     1270     19810      1268     19820      1266     19985
GR    1264.7     20000      1265     20070     1266     20290      1268     20330      1270     20600
GR      1269     20660      1270     20740     1270     20980      1266     20990      1266     21090
GR      1268     21100      1268     21150     1262     21190      1262     21200      1270     21230
GR      1270     21260    1269.6     21510     1270     21770    1271.4     23220    1270.6     23800
GR      1270     23910      1270     23920   1270.7     24130    1268.8     24900    1269.1     26070
GR    1269.6     26710      1270     27000     1270     27650    1270.7     27740

ET                4.1       9.1                21135                           19845     20360
X1   12.896        40     19845     20360     1010      1010      1030
X3        10
X4         1      1274     20420
GR      1276     18670      1274     18750   1275.6     19330      1274     19845      1272     19850
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GR     1270      19965     1268.8     20000      1270      20020      1270      20350      1273      20360
GR     1274      20585       1276     20620      1276      20670      1274      20675      1274      21135
GR     1270      21165       1270     21180      1274      21200      1274      21250      1270      21260
GR     1270      21350       1264     21365      1264      21390      1274      21410      1274      21495
GR     1276      21560     1277.2     21900      1276      22520    1275.6      22660      1276      23015
GR     1277      23610       1276     24190      1276      24280    1274.9      24440    1275.7      25428
GR   1274.2      25910     1274.9     26740      1274      26945      1274      27000      1276      27660

QT        2       7900       9539
ET                 4.1        9.1                21645                                    19930      20350
1
    17NOV95      08:51:14                                                                              PAGE   13

X1   13.076         32      19930      20350       950        980        950
X3       10
GR     1280      19510       1278     19930      1274      19940    1272.6      20000      1274      20050
GR     1276      20090       1276     20210      1274      20260      1272      20270      1272      20315
GR     1274      20335       1278     20350      1279      20480      1278      21020      1278      21150
GR     1280      21645       1280     21660    1278.6      21740    1278.6      21760      1278      21780
GR     1278      21800       1280     21960      1280      22825    1279.6      23250      1280      23630
GR     1280      24220       1278     24835    1278.6      25040    1278.6      26370      1278      26740
GR     1278      26920       1280     27585

ET                 4.1        9.1                21410                                    19810      20120
X1   13.227         26      19810      20120       800        670        800
X3       10
GR     1284      18690       1282     19260      1282      19690    1281.5      19810      1276      19845
GR     1274      19970     1273.9     20000      1274      20030      1278      20090      1280      20100
GR     1282      20120       1282     21410      1276      21425      1276      21440      1282      21455
GR   1282.2      21900       1284     22160    1282.6      22860      1284      23350    1284.7      23820
GR     1284      24080       1282     24510      1282      24580    1281.8      24730    1281.5      25780
GR     1282      27300

ET                 4.1        9.1                21425                                    19870      20170
X1   13.420         33      19870      20170       970       1000       1020
X3       10
X4        2    1187.2      19750       1186     19700
GR     1290      18215       1288     19350      1288      19490      1286      19560    1287.5      19870
GR     1284      19880       1282     19975    1281.8      20000      1282      20040      1282      20080
GR     1286      20100       1288     20150      1290      20170      1290      20185      1288      20195
GR     1288      20315       1288     20490      1288      20780      1287      20840      1286      21425
GR     1284      21570       1282     21580      1282      21610      1286      21650      1286      21760
GR     1288      21875       1297     21900      1288      21940      1288      23570    1288.7      23780
GR   1289.6      25395       1290     26450    1290.7      26525

NC     .050       .050       .035
ET                 4.1        9.1                21380                                    19870      20455
X1   13.619         39      19870      20455      1090       1020       1056
X3       10
GR     1296      18690       1294     19490      1294      19835      1294      19870      1294      19890
GR     1286      19910       1286     19995      1285      20000      1286      20005      1290      20105
GR     1290      20315       1292     20360      1292      20445      1290      20450      1292      20455
GR     1293      20456       1292     20457      1292      20470      1290      20480      1290      20520
GR     1294      20540       1294     20600      1294      21380      1292      21680      1290      21690
GR     1290      21710       1292     21755      1294      21780      1294      21850      1290      21880
GR     1290      21895       1292     21905      1294      22680    1295.4      23340    1295.7      24310
GR     1294      24400       1294     25040    1294.8      25580      1296      26565

ET                 4.1        9.1                21430                                    19890      20340
X1   13.818         33      19890      20340      1050       1050       1056
GR     1302      18660       1300     19320      1300      19890      1298      19895      1296      19970
GR   1295.5      20000       1296     20015      1296      20130      1294      20250      1294      20325
GR     1298      20340       1298     20450      1296      20460      1296      20630      1298      20740
GR     1300      20750       1300     20870    1299.2      21160      1300      21305    1300.3      21430
GR     1300      21580       1298     21820      1294      21840      1294      21850      1296      21860
GR     1296      22050       1298     22060      1300      22865      1300      23030    1300.6      23470
GR   1300.8      23985       1300     24550      1300      26150
1
    17NOV95      08:51:14                                                                              PAGE   14

      REVISED THE ELEVATION OF STATION 22245 FROM 2300 TO 1300 (TMM 3-94)

QT        2       6100       7207
ET                 4.1        9.1                22160                                    19915      20270
X1   14.013         39      19915      20270      1020       1055       1030
X4        5       1304      20900     1302.3     20930       1304      20960       1304     21100       1302
X4    21170
GR     1306      19285       1304     19690      1304      19915      1302      19940      1302      19960
GR     1300      19962       1299     20000      1300      20010      1302      20035      1300      20120
GR     1302      20190       1302     20250      1303      20270      1302      20300      1302      20625
GR     1300      20645       1300     20660      1302      20720      1305      20725      1304      21145
GR     1306      21170       1306     22160      1304      22225      1300      22245      1298      22255
GR     1298      22270       1302     22285      1302      22350      1304      22390      1304      22460
GR     1302      22480       1304     22505      1306      22680      1306      23465    1307.7      24010
GR   1306.2      24750       1306     25400      1306      25520    1306.3      26000

ET                 4.1        9.1                21710                                    19715      20015
X1   14.197         36      19715      20015       990        920        970
GR     1316      18385       1314     18590      1312      19130      1310      19550      1308      19565
GR   1308.5      19715       1306     19730      1304      19732      1304      19755      1306      19800
GR     1307      19850       1306     20000      1310      20015      1310      20240      1308      20242
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GR	1308	20310	1310	20330	1310	20460	1308	20465	1308	20745
GR	1310	20780	1310	20810	1308	20815	1308	20830	1310	20832
GR	1310	21710	1308	21930	1306	21970	1306	22035	1308	22060
GR	1310	22550	1310	22640	1310.6	22800	1310	22910	1310	25290
GR	1311	25560								
ET		4.1	9.1		21420				19540	20250
X1	14.379	38	19540	20095	940	1000	960			
X4	3	1316	21150	1315	21030	1315.3	20970			
GR	1324	18115	1322	18320	1320	18550	1318	19100	1316	19540
GR	1314	19550	1314	19635	1312	19655	1310	19665	1310	19690
GR	1316	19705	1316	19950	1312	19960	1310.4	20000	1312	20020
GR	1314	20095	1314	20430	1316	20535	1316	20580	1314	20750
GR	1314	20820	1314	20860	1312	20900	1312	20945	1314	20950
GR	1316	21420	1316	22060	1314	22065	1312	22075	1312	22150
GR	1314	22180	1316	22385	1316	23115	1318	23325	1318	23600
GR	1316	24180	1316	24290	1318	25135				
ET		4.1	9.1		20045				19220	20045
X1	14.559	39	19220	20045	950	915	950			
X4	2	1320	20035	1320.8	20045					
GR	1326	18225	1324	18540	1322	18690	1322	19220	1318	19225
GR	1316	19230	1318	19300	1320	19360	1320	19415	1318	19425
GR	1318	19450	1320	19550	1320	19740	1318	19760	1318	19780
GR	1318	19940	1316	19960	1315.4	20000	1316	20020	1318	20025
GR	1320	20065	1320	20210	1320.6	20375	1320	20875	1319.9	21150
GR	1320	21220	1320.4	21370	1320	21515	1320	21790	1318	21792
GR	1318	21820	1320	21840	1320	22190	1322	22800	1322	23050
GR	1320	23620	1320	23650	1322	23970	1322.4	24200		

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ET		4.1	9.1		22000				19670	20170
X1	14.752	36	19670	20170	1010	1010	1020			
X3	10									
GR	1336	17740	1334	18200	1332	18480	1330	18820	1328	19010
GR	1326	19300	1326	19670	1322	19680	1322	19910	1320	19988
GR	1318.8	20000	1320	20010	1322	20015	1322	20080	1324	20090
GR	1324	20125	1326	20170	1326	20580	1324	21260	1324	21550
GR	1326	21780	1328	21820	1328	22005	1326	22060	1322	22070
GR	1322	22120	1324	22190	1326	22230	1328	22580	1328	23035
GR	1236.4	23615	1328	24120	1330	24470	1332	24710	1334	24950
GR	1336	25220								
QT	2	4200	4746							
ET		4.1	9.1		20720				19865	20050
X1	14.945	49	19865	20050	1005	1000	1020			
GR	1350	17110	1348	17265	1346	17660	1344	18190	1342	18415
GR	1340	18830	1338	19040	1336	19350	1334	19650	1332	19770
GR	1330	19865	1328	19940	1326	19950	1324	19970	1322.5	20000
GR	1324	20020	1330	20050	1330	20245	1328	20370	1328	20400
GR	1330	20420	1332	20615	1332.8	20720	1332	21050	1332	21960
GR	1330	22110	1330	22200	1331.3	22400	1330	22550	1330	22750
GR	1324	22770	1324	22790	1328	22800	1330	22845	1332	22875
GR	1332	23060	1333	23245	1333	23450	1334	23850	1336	24040
GR	1338	24310	1338	24610	1340	24915	1342	25050	1344	25120
GR	1346	25270	1348	25480	1348	26190	1350	26250		
ET		4.1	9.1		21800				19955	20382
X1	15.144	55	19955	20382	900	890	1056	.89		
X3	10									
GR	1360	16750	1358	16880	1356	17180	1354	17540	1352	17750
GR	1350	17905	1350	18105	1348	18410	1346	18630	1344	18950
GR	1342	19115	1342	19250	1340	19555	1338	19660	1338	19720
GR	1334	19724	1334	19830	1334	19832	1332	19850	1336	19865
GR	1336	19900	1336	19955	1330	19975	1329	20000	1330	20070
GR	1332	20080	1334	20315	1334	20350	1332	20380	1336	20382
GR	1338	21510	1338	21800	1336	22035	1336	22315	1334	22350
GR	1334	22370	1336	22390	1336	22470	1334	22515	1332	22530
GR	1332	22570	1334	22625	1336	22640	1336	22700	1334	22810
GR	1332	22820	1332	22840	1334	22880	1336	22960	1338	23815
GR	1340	23960	1342	24145	1344	24305	1350	24455	1360	24660
ET		4.1	9.1		21750				19770	20100
X1	15.333	53	19770	20100	900	890	1000			
X3	10									
GR	1358	17825	1356	18010	1354	18370	1352	18530	1350	18570
GR	1348	18605	1348	18620	1350	18630	1350	18725	1348	18900
GR	1346	18930	1346	19010	1348	19040	1348	19060	1344	19070
GR	1344	19080	1346	19090	1346	19305	1344	19335	1340	19350
GR	1340	19770	1338	19790	1336	19880	1336	19980	1335	20000
GR	1336	20010	1338	20090	1342	20100	1342	21750	1338	21765
GR	1338	21790	1340	21810	1340	22045	1340	22046	1338	22060
GR	1338	22080	1340	22120	1340	22150	1336	22170	1336	22180
GR	1340	22190	1342	22270	1342	22300	1340	22540	1340	22590

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GR	1342	22760	1342	23065	1344	23360	1345	23420	1348	23530
GR	1348	23690	1350	23710	1360	23930				
ET		4.1	9.1		20960				19950	20320

X1	15.519	48	19950	20320	940	960	980			
X3	10									
X4	1	1345	20320							
GR	1360	18730	1358	18760	1358	18965	1356	19050	1354	19115
GR	1354	19390	1352	19460	1352	19515	1350	19540	1350	19680
GR	1348	19950	1342	19970	1340	19995	1340	20005	1342	20015
GR	1342	20130	1340	20215	1340	20225	1344	20250	1344.5	20338
GR	1346	20595	1350	20960	1350	21080	1348	21965	1344	21985
GR	1344	22005	1346	22020	1348	22080	1346	22110	1346	22135
GR	1348	22145	1346	22275	1346	22530	1342	22545	1344	22560
GR	1346	22630	1346	22855	1344	22860	1344	22875	1346	22895
GR	1346	22925	1342	22930	1346	22945	1348	23615	1348	23765
GR	1350	23950	1352	24140	1360	24300				
ET		4.1	9.1		20900				19870	20085
X1	15.699	37	19870	20085	935	920	950			
GR	1364	18850	1362	18960	1360	19070	1358	19220	1356	19230
GR	1356	19260	1358	19270	1358	19345	1356	19490	1354	19870
GR	1352	19880	1350	19885	1348	19950	1346	19980	1345	20000
GR	1346	20030	1346	20065	1348	20075	1350	20085	1350	20700
GR	1348	20760	1348	20885	1354	20900	1354	21715	1348	21790
GR	1348	21880	1352	21930	1352	23430	1350	23435	1350	23445
GR	1352	23450	1352	23550	1356	23920	1360	24120	1362	24170
GR	1362	24470	1364	24650						
QT	2	2350	2350							
ET		4.1	9.1		2690				1985	2430
X1	15.966	40	1985	2430	1450	1200	1410			
X4	9	1359	1900	1352	2280	1354	2300	1356	2325	1356
X4	2400	1357	2430	1357.3	2530	1352	2600	1354	2620	
GR	1364	1080	1362	1180	1360	1585	1360	1725	1358	1985
GR	1356	1990	1354	1995	1354	2005	1356	2010	1356	2040
GR	1355	2060	1354	2150	1354	2250	1356	2560	1356	2670
GR	1358	2675	1360	2690	1360	3205	1358	3505	1358	4225
GR	1356	4415	1356	5380	1354	5381	1354	5395	1356	5405
GR	1356	5495	1358	5610	1358	5745	1360	5850	1362	5925
GR	1362	6150	1364	6270	1366	6410	1368	6580	1370	6615
GR	1372	6755	1374	6795	1376	6835	1376	6965	1378	7010
ET		4.1	9.1		2865				1970	2350
X1	16.066	48	1970	2350	565	480	570			
X4	3	1360.4	1970	1356.2	2560	1358	2580			
GR	1368	1090	1368	1150	1366	1305	1364	1560	1362	1650
GR	1362	1780	1360	1820	1360	1980	1356	2000	1358	2060
GR	1360	2150	1360	2210	1358	2240	1358	2280	1360	2350
GR	1360	2435	1358	2465	1358	2690	1360	2710	1362	2760
GR	1364	2865	1364	2915	1362	3310	1360	3545	1358	3550
GR	1358	3730	1360	3745	1360	4670	1358	4920	1358	5145
GR	1356	5355	1354	5356	1354	5365	1356	5368	1358	5375
GR	1358	5570	1360	5720	1362	5800	1364	5915	1364	6005

GR	1366	6110	1368	6380	1368	6570	1370	6680	1372	6780
GR	1374	6830	1374	6870	1376	6920				
ET		4.1	9.1		3030				1950	2200
X1	16.167	22	1950	2130	530	530	530			
X4	2	1359.7	2030	1362	2130					
GR	1370	1020	1370	1095	1368	1245	1366	1255	1366	1270
GR	1368	1290	1368	1420	1366	1665	1364.8	1950	1360	1955
GR	1360	2040	1362	2110	1362	2170	1362	2250	1362	2370
GR	1360	2550	1360	2590	1358	2600	1360	2610	1362	2620
GR	1364	2630	1365	2650						
ET		4.1	9.1		2645				1925	2030
X1	16.248	40	1925	2030	450	340	430			
GR	1372	1090	1370	1100	1370	1115	1370	1120	1370	1130
GR	1370	1365	1368	1590	1366	1660	1367	1925	1362	1940
GR	1362	1985	1361	2000	1362	2013	1364	2030	1364	2230
GR	1362	2240	1362	2250	1364	2300	1364	2630	1366	2645
GR	1366	2943	1364	2950	1364	3045	1366	3055	1366	3690
GR	1364	3755	1364	3770	1365	4105	1364	4218	1362	4765
GR	1360	5045	1358	5055	1356.1	5095	1358	5105	1360	5115
GR	1362	5328	1364	5485	1366	5755	1368	5810	1370	6160
ET		4.1	9.1		2665				1915	2240
X1	16.328	45	1915	2240	440	250	410			
X4	1	1367.4	2240							
GR	1374	980	1372	990	1372	1010	1372	1015	1372	1020
GR	1372	1250	1370	1520	1368	1790	1367	1835	1366	1915
GR	1364	1940	1362.8	2000	1364	2050	1366	2150	1366	2335
GR	1364	2339	1364	2370	1366	2397	1366	2403	1368	2665
GR	1366	2680	1366	2715	1368	2735	1368	3345	1366	3530
GR	1366	3730	1367	3890	1366	4145	1366	4310	1364	4355
GR	1364	4505	1362	4760	1362	4885	1360	4910	1358	4920
GR	1357.5	4925	1358	4937	1360	4947	1362	5050	1362	5278
GR	1364	5335	1366	5455	1368	5645	1370	5695	1370	5780
ET		4.1	9.1		2460				1885	2055
X1	16.411	46	1885	2055	510	350	450			
X3	10									
X4	1	1369.2	1885							
GR	1378	610	1376	760	1376	761	1376	762	1376	763

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GR     1374       1090       1372       1370       1370       1500       1370       1650       1368       1665
GR     1368       1920       1366       1948     1364.3       2000       1366       2048       1370       2055
GR     1370       2210       1368       2223       1368       2240       1370       2260       1370       2390
GR     1368       2425       1368       2450       1370       2460       1370       2980       1368       3125
GR     1368       3390       1369       3520       1369       3580       1369       3645       1368       3830
GR     1366       4025       1366       4200       1364       4520       1362       4545       1360       4545
GR   1359.5       4555       1360       4561       1362       4565       1362       4588       1360       4594
GR     1360       4600       1362       4601       1364       4758       1366       4885       1368       4995
GR     1370       5185

      REVISED THE ELEVATION OF STATION 2000 FROM 1365 TO 1365.8 (TMM 3-94)
         "     "     "      "    "     3560  "   1970 "  1370      "
         "     "     "      "    "     3960  "   1398 "  1368      "
1
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ET                          9.1                                                             1835       2035
X1   16.504         33       1835       2035        460        300        490
X3       10
GR     1380        680       1378        695       1378        712       1378        720       1378        743
GR     1376        980       1374       1180       1374       1315       1372       1625       1370       1630
GR     1370       1665       1372       1670       1372       1770       1370       1780       1370       1835
GR     1368       1915       1366       1980     1365.8       2000       1366       2018       1372       2035
GR     1372       2110       1370       2140       1370       2160       1372       2195       1372       2390
GR   1370.7       2880     1371.8       3295       1370       3560       1368       3960       1366       4225
GR     1364       4310       1364       4340       1390       4340

ET                          9.1                                                             1910       2110
X1   16.608         30       1910       2110        485        450        530
X3       10
X4        2     1376.5       1910     1374.2       2110
GR     1382        920       1380       1000       1380       1050       1380       1150       1380       1151
GR     1378       1280       1376       1520       1376       1920       1374       1925       1372       1930
GR     1370       1935       1370       1980       1368       1995     1367.8       2000       1368       2015
GR     1370       2020       1370       2080       1372       2090       1372       2200       1370       2210
GR     1369       2220       1370       2235       1372       2270       1374       2310       1374       2375
GR     1372       2385       1372       2395       1374       2400       1376       2410       1376       2550

ET                  4.1        9.1                   2300                                       1950       2110
X1   16.732         18       1950       2115        640        420        685
X3       10
X4        4       1375       2000       1380       1950       1376       2040       1379       2300
GR     1382       1650       1376       1960       1376       2110       1378       2115       1378       2370
GR     1376       2470       1376       2480       1378       2490       1378       2550       1376       2570
GR     1376       2620       1378       2630       1378       2850       1376       2880       1375       2885
GR     1376       2890       1378       2910       1380       2920

ET                          9.1                                                             1935       2045
X1   16.818         14       1935       2045        430        750        455
X4        1     1381.2       2240
GR     1390       1145       1388       1340       1386       1490       1384       1640       1382       1935
GR     1376       1980     1375.7       2000       1376       2030     1380.4       2045       1380       2097
GR     1378       2105       1378       2190       1380       2210       1382       2350
1
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


*PROF 1
0

CCHV=     .200 CEHV=     .400
*SECNO 8.655

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1171.60 ELREA=      1171.20

        1985 TOPO - DIGITIZED DATA SEC.8.655 THRU SEC.9.129
        DOWNSTREAM STUDY LIMIT
        NEW RIVER-SKUNK CREEK CONFLUENCE
    8.655     15.40   1170.50       .00   1170.50   1170.89       .39       .00       .00   1171.60
 41000.0        .0   41000.0        .0        .0    8176.1        .0        .0        .0   1171.20
     .00        .00       5.01       .00       .000      .035      .000      .000   1155.10   9587.04
 .000464      750.      400.      150.         0         0         0       .00    634.06  10221.10


FLOW DISTRIBUTION FOR SECNO=      8.65          CWSEL=   1170.50

STA=    9587.   10224.
  PER Q=     100.0
   AREA=    8176.1
    VEL=       5.0
  DEPTH=      12.9

CCHV=     .100 CEHV=     .300
*SECNO 8.731

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .60
```

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1172.80 ELREA= 1172.20

BEGIN DISCHARGE FOR NEW RIVER ONLY

8.731	14.86	1170.96	.00	.00	1171.04	.08	.12	.03	1172.80
12000.0	.0	12000.0	.0	.0	5154.5	.0	61.2	4.9	1172.20
.05	.00	2.33	.00	.000	.035	.000	.000	1156.10	9779.38
.000110	400.	400.	400.	2	0	0	.00	428.84	10208.22

FLOW DISTRIBUTION FOR SECNO= 8.73 CWSEL= 1170.96

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

STA= 9779. 10214.
PER Q= 100.0
AREA= 5154.5
VEL= 2.3
DEPTH= 12.0

*SECNO 8.807

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1174.70 ELREA= 1173.90

8.807	12.69	1170.99	.00	.00	1171.10	.11	.05	.01	1174.70
12000.0	.0	12000.0	.0	.0	4497.9	.0	105.5	8.8	1173.90
.09	.00	2.67	.00	.000	.035	.000	.000	1158.30	9785.25
.000167	400.	400.	390.	2	0	0	.00	417.45	10202.70

FLOW DISTRIBUTION FOR SECNO= 8.81 CWSEL= 1170.99

STA= 9785. 10219.
PER Q= 100.0
AREA= 4497.9
VEL= 2.7
DEPTH= 10.8

*SECNO 8.883

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .45

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1174.90 ELREA= 1176.30

8.883	10.86	1170.96	.00	.00	1171.30	.34	.13	.07	1174.90
12000.0	.0	12000.0	.0	.0	2552.9	.0	137.9	12.2	1176.30
.11	.00	4.70	.00	.000	.035	.000	.000	1160.10	9850.57
.000837	280.	400.	400.	2	0	0	.00	338.58	10189.15

FLOW DISTRIBUTION FOR SECNO= 8.88 CWSEL= 1170.96

STA= 9851. 10217.
PER Q= 100.0
AREA= 2552.9
VEL= 4.7
DEPTH= 7.5

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 8.936

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1177.30 ELREA= 1178.20

OLD CORP STATION NO. 8.95=0.6

8.936	9.40	1171.20	.00	.00	1171.61	.40	.29	.02	1177.30
12000.0	.0	12000.0	.0	.0	2359.8	.0	154.2	14.6	1178.20
.13	.00	5.09	.00	.000	.035	.000	.000	1161.80	9821.91
.001185	300.	290.	300.	2	0	0	.00	360.07	10181.98

FLOW DISTRIBUTION FOR SECNO= 8.94 CWSEL= 1171.20

STA= 9822. 10213.
PER Q= 100.0
AREA= 2359.8
VEL= 5.1

```
  DEPTH=       6.6

*SECNO 8.977

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       1177.20 ELREA=       1179.30

     8.977       7.81   1171.31        .00        .00   1172.04        .73        .34        .10   1177.20
   12000.0         .0   12000.0         .0         .0   1755.3          .0      164.2       16.1   1179.30
      .14         .00      6.84        .00       .000      .035       .000       .000    1163.50   9895.40
   .002293       220.      210.       200.          2          0          0        .00     282.68  10178.07


FLOW DISTRIBUTION FOR SECNO=       8.98          CWSEL=    1171.31

STA=     9895.   10213.
  PER Q=     100.0
   AREA=    1755.3
    VEL=       6.8
  DEPTH=       6.2

*SECNO 9.009

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.60

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       1178.00 ELREA=       1179.90

         GREENWAY ROAD AREA
     9.009       9.09   1171.99        .00        .00   1172.32        .33        .24        .04   1178.00
   12000.0         .0   12000.0         .0         .0   2591.4          .0      173.1       17.5   1179.90
      .15         .00      4.63        .00       .000      .035       .000       .000    1162.90   9797.15
   .000893       330.      180.       180.          2          0          0        .00     369.65  10166.79


FLOW DISTRIBUTION FOR SECNO=       9.01          CWSEL=    1171.99

STA=     9797.   10207.
  PER Q=     100.0
   AREA=    2591.4
    VEL=       4.6
  DEPTH=       7.0

*SECNO 9.047

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       1177.50 ELREA=       1177.60

     9.047      11.05   1172.25        .00        .00   1172.46        .21        .12        .01   1177.50
   12000.0         .0   12000.0         .0         .0   3237.0          .0      186.5       19.2   1177.60
      .16         .00      3.71        .00       .000      .035       .000       .000    1161.20   9712.28
   .000462       280.      200.       160.          2          0          0        .00     391.38  10103.66


FLOW DISTRIBUTION FOR SECNO=       9.05          CWSEL=    1172.25

STA=     9712.   10114.
  PER Q=     100.0
   AREA=    3237.0
    VEL=       3.7
  DEPTH=       8.3

*SECNO 9.129

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .62

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       1180.60 ELREA=       1178.70

        OLD CORP STATION NO. 9.15=9.8
        END 1985 TOPO DIGITIZED SECTIONS, END C/L = 10000
     9.129       8.23   1172.43        .00        .00   1172.80        .37        .30        .05   1180.60
   12000.0         .0   12000.0         .0         .0   2459.5          .0      214.0       23.1   1178.70
      .19         .00      4.88        .00       .000      .035       .000       .000    1164.20   9674.75
   .001207       290.      420.       460.          2          0          0        .00     405.98  10080.74
```

FLOW DISTRIBUTION FOR SECNO= 9.13 CWSEL= 1172.43

STA= 9675. 10090.
PER Q= 100.0
AREA= 2459.5
VEL= 4.9
DEPTH= 6.1

CCHV= .100 CEHV= .300
*SECNO 9.318

3265 DIVIDED FLOW

3280 CROSS SECTION 9.32 EXTENDED .30 FEET

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1186.00 ELREA= 1181.50

BEGIN STATION C/L = 20000

9.318	8.30	1181.50	1181.50	.00	1182.03	.53	1.90	.05	1186.00
12000.0	.0	9255.1	2744.9	.0	1405.1	1616.1	276.9	48.7	1181.50
.24	.00	6.59	1.70	.000	.035	.060	.000	1173.20	19695.41
.003405	1000.	1000.	1000.	20	15	0	.00	1824.29	23740.00

FLOW DISTRIBUTION FOR SECNO= 9.32 CWSEL= 1181.50

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

STA= 19695. 20015. 20105. 20179. 22940. 23725. 23740.
PER Q= 77.1 .0 .0 4.0 18.6 .1
AREA= 1405.1 9.2 7.5 406.4 1179.5 13.5
VEL= 6.6 .3 .3 1.2 1.9 1.3
DEPTH= 4.4 .1 .1 .1 1.5 .9

*SECNO 9.492

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .61

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1188.00 ELREA= 1193.90

9.492	6.42	1185.42	.00	.00	1186.91	1.49	4.59	.29	1188.00
11450.0	.0	11450.0	.0	.0	1167.6	.0	320.6	70.4	1193.90
.26	.00	9.81	.00	.000	.035	.000	.000	1179.00	19912.16
.008303	910.	920.	890.	2	0	0	.00	288.61	20200.77

FLOW DISTRIBUTION FOR SECNO= 9.49 CWSEL= 1185.42

STA= 19912. 20235.
PER Q= 100.0
AREA= 1167.6
VEL= 9.8
DEPTH= 4.0

*SECNO 9.692
3280 CROSS SECTION 9.69 EXTENDED .22 FEET

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1195.00 ELREA= 1196.10

9.692	8.12	1192.22	.00	.00	1193.76	1.53	6.83	.01	1195.00
11450.0	.0	11450.0	.0	.0	1152.2	.0	348.7	76.3	1196.10
.29	.00	9.94	.00	.000	.035	.000	.000	1184.10	19852.36
.005182	1050.	1056.	1040.	3	0	0	.00	194.91	20047.27

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 9.69 CWSEL= 1192.22

STA= 19852. 20060.

```
  PER Q=    100.0
   AREA=   1152.2
    VEL=      9.9
  DEPTH=      5.9

CCHV=     .300 CEHV=     .500
*SECNO 9.889

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1200.00 ELREA=      1200.00

     9.889      8.98   1196.98       .00       .00   1198.04      1.07      4.15       .14   1200.00
   11450.0        .0   11450.0        .0        .0   1379.9         .0     378.9      81.1   1200.00
       .33       .00      8.30       .00      .000      .035      .000      .000   1188.00  19860.24
   .003165     1100.     1040.     1050.         3         0         0       .00    210.69  20070.93


FLOW DISTRIBUTION FOR SECNO=      9.89          CWSEL=   1196.98

STA=   19860.   20080.
  PER Q=    100.0
   AREA=   1379.9
    VEL=      8.3
  DEPTH=      6.5

CCHV=     .300 CEHV=     .500
*SECNO 9.953

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1200.00 ELREA=      1202.00

         BELL ROAD
     9.953      9.37   1197.97       .00       .00   1198.98      1.01       .92       .02   1200.00
   11450.0        .0   11450.0        .0        .0   1421.4         .0     389.7      82.8   1202.00
       .34       .00      8.06       .00      .000      .030      .000      .000   1188.60  19795.05
   .002397      335.      335.      335.         2         0         0       .00    231.40  20026.45


FLOW DISTRIBUTION FOR SECNO=      9.95          CWSEL=   1197.97

1
   17NOV95      08:51:14                                                                                PAGE   26

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


STA=   19795.   20032.
  PER Q=    100.0
   AREA=   1421.4
    VEL=      8.1
  DEPTH=      6.1


SPECIAL BRIDGE

SB  XK         XKOR       COPQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
      .90       1.56       2.60        .00     213.00      20.00    2800.00       1.88    1188.61    1188.60

*SECNO 9.967
CLASS A LOW FLOW

3420 BRIDGE W.S.=     1197.87 BRIDGE VELOCITY=        5.87     CALCULATED CHANNEL AREA=       1948.

 EGPRS       EGLWC       H3        QWEIR      QLOW       BAREA    TRAPEZOID      ELLC       ELTRD      WEIRLN
                                                                    AREA
       .00   1199.24        .22         0.    11450.      2800.     2656.      1200.90    1207.50         0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1204.00 ELREA=      1204.00

          SPECIAL BRIDGE
     9.967      9.59   1198.19       .00       .00   1199.24      1.05       .26       .00   1204.00
   11450.0        .0   11450.0        .0        .0   1395.1         .0     392.1      83.3   1204.00
       .34       .00      8.21       .00      .000      .030      .000      .000   1188.60  19839.52
   .002671       75.       75.       75.         0         0         0       .00    241.44  20080.96


FLOW DISTRIBUTION FOR SECNO=      9.97          CWSEL=   1198.19

STA=   19840.   20110.
  PER Q=    100.0
   AREA=   1395.1
    VEL=      8.2
  DEPTH=      5.8

CCHV=     .100 CEHV=     .300
*SECNO 10.096
1
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
```

Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .70

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1201.00 ELREA= 1206.00

10.096	4.86	1200.56	.00	.00	1201.64	1.08	2.39	.01	1201.00
11450.0	.0	11450.0	.0	.0	1375.0	.0	412.6	88.0	1206.00
.36	.00	8.33	.00	.000	.030	.000	.000	1195.70	19639.38
.005494	610.	645.	650.	3	0	0	.00	402.03	20041.40

FLOW DISTRIBUTION FOR SECNO= 10.10 CWSEL= 1200.56

STA= 19639. 20055.
PER Q= 100.0
AREA= 1375.0
VEL= 8.3
DEPTH= 3.4

*SECNO 10.271

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1212.50 ELREA= 1208.00

10.271	6.86	1205.06	.00	.00	1205.82	.76	4.15	.03	1212.50
10900.0	.0	10900.0	.0	.0	1555.2	.0	443.7	96.9	1208.00
.40	.00	7.01	.00	.000	.030	.000	.000	1198.20	19863.81
.003698	920.	925.	925.	3	0	0	.00	437.77	20301.58

FLOW DISTRIBUTION FOR SECNO= 10.27 CWSEL= 1205.06

STA= 19864. 20320.
PER Q= 100.0
AREA= 1555.2
VEL= 7.0
DEPTH= 3.6

*SECNO 10.443

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1216.00 ELREA= 1210.00

10.443	3.98	1209.58	1209.58	.00	1211.09	1.51	5.02	.22	1216.00
10900.0	.0	10900.0	.0	.0	1106.4	.0	471.5	105.3	1210.00
.43	.00	9.85	.00	.000	.030	.000	.000	1205.60	19742.09
.009108	930.	910.	900.	2	11	0	.00	366.87	20108.96

FLOW DISTRIBUTION FOR SECNO= 10.44 CWSEL= 1209.58

STA= 19742. 20110.
PER Q= 100.0
AREA= 1106.4
VEL= 9.9
DEPTH= 3.0

*SECNO 10.612

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.54

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1222.00 ELREA= 1218.00

10.612	5.59	1215.19	.00	.00	1216.18	.99	5.04	.05	1222.00
10900.0	.0	10900.0	.0	.0	1368.2	.0	496.8	112.4	1218.00
.46	.00	7.97	.00	.000	.030	.000	.000	1209.60	19972.01
.003854	880.	890.	900.	3	0	0	.00	325.65	20297.66

FLOW DISTRIBUTION FOR SECNO= 10.61 CWSEL= 1215.19

STA= 19972. 20300.

```
  PER Q=    100.0
   AREA=   1368.2
    VEL=      8.0
  DEPTH=      4.2

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   17NOV95      08:51:14                                                                                    PAGE   29

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*SECNO 10.659
3280 CROSS SECTION     10.66 EXTENDED       .54 FEET

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.71

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1222.17 ELREA=      1215.61

   10.659      7.09   1216.14       .00       .00   1216.74       .59       .52       .04   1222.17
  10900.0        .0   10900.0        .0        .0   1762.9         .0     505.7     114.1   1215.61
      .47       .00      6.18       .00      .000      .030      .000      .000   1209.05     40.96
  .001324      259.      247.      255.         2         0         0       .00    274.02    314.98

FLOW DISTRIBUTION FOR SECNO=     10.66          CWSEL=   1216.14

STA=      41.     315.
  PER Q=    100.0
   AREA=   1762.9
    VEL=      6.2
  DEPTH=      6.4

*SECNO 10.691

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1223.81 ELREA=      1217.30

   10.691      7.28   1216.33       .00       .00   1217.02       .69       .26       .03   1223.81
  10900.0        .0   10900.0        .0        .0   1634.6         .0     512.3     115.2   1217.30
      .48       .00      6.67       .00      .000      .030      .000      .000   1209.05     45.06
  .001725      174.      170.      161.         2         0         0       .00    277.84    322.91

FLOW DISTRIBUTION FOR SECNO=     10.69          CWSEL=   1216.33

STA=      45.     325.
  PER Q=    100.0
   AREA=   1634.6
    VEL=      6.7
  DEPTH=      5.9

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   17NOV95      08:51:14                                                                                    PAGE   30

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*SECNO 10.723

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .70

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1215.61 ELREA=      1217.30

   10.723      7.33   1216.38       .00       .00   1217.58      1.20       .41       .15   1215.61
  10900.0        9.8   10890.2        .0      12.5   1237.0         .0     518.0     116.3   1217.30
      .48       .78      8.80       .00      .060      .030      .000      .000   1209.05     80.74
  .003534      167.      170.      164.         2         0         0       .00    269.71    350.45

FLOW DISTRIBUTION FOR SECNO=     10.72          CWSEL=   1216.38

STA=      81.     113.     353.
  PER Q=       .1      99.9
   AREA=     12.5   1237.0
    VEL=       .8      8.8
  DEPTH=       .4      5.2

*SECNO 10.803

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
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3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1220.00 ELREA=      1220.00

    10.803      5.28   1219.38   1219.38       .00   1221.29      1.91      2.23       .21   1220.00
   10900.0        .0   10900.0        .0        .0    982.4         .0     528.8     118.8   1220.00
       .49       .00     11.10       .00      .000      .030      .000      .000   1214.10  19751.55
   .008732      420.      423.      430.        20        15         0       .00    262.68  20014.22


FLOW DISTRIBUTION FOR SECNO=     10.80          CWSEL=    1219.38

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   17NOV95      08:51:14                                                                          PAGE   31

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


STA=   19752.   20015.
  PER Q=     100.0
   AREA=     982.4
    VEL=      11.1
  DEPTH=       3.7

*SECNO 10.933
3280 CROSS SECTION     10.93 EXTENDED      1.03 FEET


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.65


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1222.20 ELREA=      1220.53

    10.933      7.59   1221.56       .00       .00   1221.85       .29       .39       .16   1222.20
   10900.0        .0   10900.0        .0        .0    2536.0         .0     538.6     120.7   1220.53
       .51       .00      4.30       .00      .000      .030      .000      .000   1213.97      2.54
   .000656      164.      244.      241.         2         0         0       .00    404.30    406.84


FLOW DISTRIBUTION FOR SECNO=     10.93          CWSEL=    1221.56

STA=        3.      407.
  PER Q=     100.0
   AREA=    2536.0
    VEL=       4.3
  DEPTH=       6.3

*SECNO 10.934
3280 CROSS SECTION     10.93 EXTENDED       .95 FEET


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .64


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1225.50 ELREA=      1220.53

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   17NOV95      08:51:14                                                                          PAGE   32

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


    10.934      5.87   1221.48       .00       .00   1222.00       .52       .08       .07   1225.50
   10900.0        .0   10900.0        .0        .0    1881.7         .0     543.0     121.5   1220.53
       .51       .00      5.79       .00      .000      .030      .000      .000   1215.61     15.97
   .001601       82.       85.       92.         2         0         0       .00    374.47    390.44


FLOW DISTRIBUTION FOR SECNO=     10.93          CWSEL=    1221.48

STA=       16.      390.
  PER Q=     100.0
   AREA=    1881.7
    VEL=       5.8
  DEPTH=       5.0

*SECNO 10.935

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1227.10 ELREA=      1222.20

    10.935      6.09   1221.69       .00       .00   1222.23       .54       .22       .00   1227.10
   10900.0        .0   10900.0        .0        .0    1856.9         .0     549.1     122.6   1222.20
       .52       .00      5.87       .00      .000      .030      .000      .000   1215.60     40.06
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3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1220.00 ELREA=      1220.00

    10.803       5.28   1219.38   1219.38       .00   1221.29       1.91       2.23       .21   1220.00
   10900.0         .0   10900.0         .0        .0    982.4         .0      528.8      118.8   1220.00
       .49        .00     11.10        .00      .000     .030       .000       .000    1214.10  19751.55
   .008732       420.      423.       430.        20       15          0        .00     262.68  20014.22

FLOW DISTRIBUTION FOR SECNO=     10.80          CWSEL=   1219.38

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   17NOV95      08:51:14                                                                                PAGE   31

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

STA=   19752.   20015.
  PER Q=     100.0
   AREA=     982.4
    VEL=      11.1
  DEPTH=       3.7

*SECNO 10.933
3280 CROSS SECTION     10.93 EXTENDED      1.03 FEET

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.65

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1222.20 ELREA=      1220.53

    10.933       7.59   1221.56        .00        .00   1221.85        .29        .39        .16   1222.20
   10900.0         .0   10900.0         .0         .0    2536.0         .0      538.6      120.7   1220.53
       .51        .00      4.30        .00       .000      .030       .000       .000    1213.97      2.54
   .000656       164.      244.       241.          2         0          0        .00     404.30    406.84

?LOW DISTRIBUTION FOR SECNO=     10.93          CWSEL=   1221.56

STA=       3.      407.
  PER Q=     100.0
   AREA=    2536.0
    VEL=       4.3
  DEPTH=       6.3

*SECNO 10.934
3280 CROSS SECTION     10.93 EXTENDED       .95 FEET

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .64

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1225.50 ELREA=      1220.53

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   17NOV95      08:51:14                                                                                PAGE   32

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

    10.934       5.87   1221.48        .00        .00   1222.00        .52        .08        .07   1225.50
   10900.0         .0   10900.0         .0         .0    1881.7         .0      543.0      121.5   1220.53
       .51        .00      5.79        .00       .000      .030       .000       .000    1215.61     15.97
   .001601        82.       85.        92.          2         0          0        .00     374.47    390.44

FLOW DISTRIBUTION FOR SECNO=     10.93          CWSEL=   1221.48

STA=      16.      390.
  PER Q=     100.0
   AREA=    1881.7
    VEL=       5.8
  DEPTH=       5.0

*SECNO 10.935

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1227.10 ELREA=      1222.20

    10.935       6.09   1221.69        .00        .00   1222.23        .54        .22        .00   1227.10
   10900.0         .0   10900.0         .0         .0    1856.9         .0      549.1      122.6   1222.20
       .52        .00      5.87        .00       .000      .030       .000       .000    1215.60     40.06
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3470 ENCROACHMENT STATIONS=          .0     603.7  TYPE=       1  TARGET=      603.699

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       1229.50 ELREA=     100000.00

    11.020       8.27   1224.27        .00        .00   1225.49       1.22        .19        .09   1229.50
   10900.0         .0   10900.0         .0         .0    1229.6         .0      568.1      126.9 100000.00
       .54        .00       8.86       .00       .000      .030       .000       .000    1216.00     378.21
   .003320       67.        67.       67.          2         0          0        .00     222.61     600.82


FLOW DISTRIBUTION FOR SECNO=      11.02          CWSEL=    1224.27

STA=      378.      604.
  PER Q=     100.0
   AREA=    1229.6
    VEL=       8.9
  DEPTH=       5.5

*SECNO 11.045

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       1229.80 ELREA=      1226.90

    11.045       6.95   1224.75        .00        .00   1226.23       1.48        .65        .08   1229.80
   10900.0         .0   10900.0         .0         .0    1116.8         .0      572.9      127.7    1226.90
       .54        .00       9.76       .00       .000      .030       .000       .000    1217.80      98.04
   .004061      179.       179.      179.          2         0          0        .00     202.20     300.24


FLOW DISTRIBUTION FOR SECNO=      11.05          CWSEL=    1224.75

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   17NOV95       08:51:14                                                                                PAGE   35

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


STA=       98.      308.
  PER Q=     100.0
   AREA=    1116.8
    VEL=       9.8
  DEPTH=       5.5

*SECNO 11.129

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.81


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       1230.00 ELREA=      1230.10

         NEW SECTION - LEFT BANK TAKEN FROM ARROWHEAD RANCH
         WASTEWATER TREATMENT PLANT GRADING PLAN-DIBBLE & ASSOC.
    11.129       8.78   1226.58        .00        .00   1227.16        .57        .84        .09   1230.00
   10900.0         .0   10900.0         .0         .0    1793.3         .0      586.6      130.0    1230.10
       .56        .00       6.08       .00       .000      .030       .000       .000    1217.80      15.74
   .001234      410.       410.      410.          2         0          0        .00     271.96     287.70


FLOW DISTRIBUTION FOR SECNO=      11.13          CWSEL=    1226.58

STA=       16.      331.
  PER Q=     100.0
   AREA=    1793.3
    VEL=       6.1
  DEPTH=       6.6

*SECNO 11.188

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       1232.80 ELREA=      1232.70

    11.188       9.38   1226.88        .00        .00   1227.76        .88        .51        .09   1232.80
   10350.0         .0   10350.0         .0         .0    1374.1         .0      598.5      131.8    1232.70
       .57        .00       7.53       .00       .000      .030       .000       .000    1217.50     780.37
   .002095      326.       326.      326.          2         0          0        .00     224.22    1004.59


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   17NOV95       08:51:14                                                                                PAGE   36

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=      11.19          CWSEL=    1226.88
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STA=     780.    1021.
  PER Q=    100.0
   AREA=   1374.1
    VEL=      7.5
  DEPTH=      6.1

*SECNO 11.301
3280 CROSS SECTION     11.30 EXTENDED      9.93 FEET

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .70

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1233.30 ELREA=      1233.90

    11.301      8.43   1228.13       .00       .00   1229.69      1.57      1.72       .21   1233.30
   10350.0        .0   10350.0        .0        .0   1030.8         .0     614.8      134.6   1233.90
      .59        .00     10.04       .00      .000      .030      .000      .000   1219.70     95.30
   .004336      591.      591.      591.         2         0         0       .00    188.21    283.51

FLOW DISTRIBUTION FOR SECNO=     11.30          CWSEL=   1228.13

STA=      95.     298.
  PER Q=    100.0
   AREA=   1030.8
    VEL=     10.0
  DEPTH=      5.5

*SECNO 11.328

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1233.60 ELREA=      1233.40

    11.328      8.11   1229.01       .00       .00   1230.65      1.64       .94       .02   1233.60
   10350.0        .0   10350.0        .0        .0   1007.1         .0     619.7      135.5   1233.40
      .60        .00     10.28       .00      .000      .030      .000      .000   1220.90     21.68
   .004560      211.      211.      211.         2         0         0       .00    184.52    206.20

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   17NOV95      08:51:14                                                                                PAGE   37

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

FLOW DISTRIBUTION FOR SECNO=     11.33          CWSEL=   1229.01

STA=      22.     214.
  PER Q=    100.0
   AREA=   1007.1
    VEL=     10.3
  DEPTH=      5.5

*SECNO 11.386
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1233.00 ELREA=      1238.00

    11.386      7.95   1230.95   1230.95       .00   1232.95      2.00      2.13       .11   1233.00
   10350.0        .0   10350.0        .0        .0    911.9         .0     626.6      137.0   1238.00
      .60        .00     11.35       .00      .000      .035      .000      .000   1223.00  19902.05
   .011469      315.      310.      270.         3         8         0       .00    229.55  20131.60

FLOW DISTRIBUTION FOR SECNO=     11.39          CWSEL=   1230.95

STA=   19902.   20175.
  PER Q=    100.0
   AREA=    911.9
    VEL=     11.3
  DEPTH=      4.0

*SECNO 11.481

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.13

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1236.00 ELREA=      1240.00

    11.481      7.57   1234.97       .00       .00   1235.53       .56      2.44       .14   1236.00
   10350.0        .0   10350.0        .0        .0   1717.1         .0     642.3      140.5   1240.00
      .63        .00      6.03       .00      .000      .035      .000      .000   1227.40  19783.43
   .002534      480.      520.      540.         2         0         0       .00    361.44  20144.86
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 11.48 CWSEL= 1234.97

STA= 19783. 20170.
PER Q= 100.0
AREA= 1717.1
VEL= 6.0
DEPTH= 4.8

*SECNO 11.566

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.66

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1240.00 ELREA= 1240.00

11.566	6.37	1236.07	.00	.00	1236.23	.16	.66	.04	1240.00
10350.0	.0	10350.0	.0	.0	3231.4	.0	668.4	146.8	1240.00
.67	.00	3.20	.00	.000	.035	.000	.000	1229.70	19479.81
.000922	280.	460.	530.	3	0	0	.00	822.83	20302.64

FLOW DISTRIBUTION FOR SECNO= 11.57 CWSEL= 1236.07

STA= 19480. 20310.
PER Q= 100.0
AREA= 3231.4
VEL= 3.2
DEPTH= 3.9

*SECNO 11.759

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1244.00 ELREA= 1248.00

11.759	3.22	1238.22	1238.22	.00	1239.37	1.16	2.37	.30	1244.00
10350.0	.0	10350.0	.0	.0	1199.5	.0	720.3	162.5	1248.00
.70	.00	8.63	.00	.000	.035	.000	.000	1235.00	19935.85
.013692	1050.	1020.	980.	20	8	0	.00	522.84	20458.69

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 11.76 CWSEL= 1238.22

STA= 19936. 20510.
PER Q= 100.0
AREA= 1199.5
VEL= 8.6
DEPTH= 2.3

*SECNO 11.949

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.73

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1250.00 ELREA= 1246.00

11.949	4.22	1246.22	.00	.00	1246.76	.54	7.33	.06	1250.00
10350.0	.0	9905.7	444.3	.0	1649.0	262.5	756.0	178.5	1246.00
.75	.00	6.01	1.69	.000	.035	.060	.000	1242.00	19968.01
.004553	990.	1000.	1000.	6	0	0	.00	864.61	23952.34

FLOW DISTRIBUTION FOR SECNO= 11.95 CWSEL= 1246.22

```
STA=   19968.   20510.   20520.   20530.   20590.   20600.   23750.   23952.
  PER Q=     95.7       .0       .0       .1       .0       .3      3.9
   AREA=   1649.0      2.2      2.2     13.3      2.2     17.8    224.8
    VEL=      6.0       .6       .6       .6       .6      1.6      1.8
  DEPTH=      3.0       .2       .2       .2       .2       .0      1.1

*SECNO 12.125

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1258.00 ELREA=      1258.00

    12.125      3.46   1251.46       .00       .00   1252.13       .66      5.33       .04   1258.00
   10350.0        .0   10350.0        .0        .0    1585.5        .0     793.5     195.0    1258.00
       .79       .00      6.53       .00       .000      .035      .000      .000   1248.00  19927.44
   .007408     910.      930.     1000.         3         0         0       .00    663.21  20590.64


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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

FLOW DISTRIBUTION FOR SECNO=     12.13          CWSEL=   1251.46

STA=   19927.   20680.
  PER Q=    100.0
   AREA=   1585.5
    VEL=      6.5
  DEPTH=      2.4

*SECNO 12.313

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1262.00 ELREA=      1260.00

    12.313      5.40   1257.60       .00       .00   1258.43       .83      6.26       .05   1262.00
    9800.0        .0    9800.0        .0        .0    1340.5        .0     826.8     206.8    1260.00
       .83       .00      7.31       .00       .000      .035      .000      .000   1252.20  19858.48
   .005411     1010.      990.      980.         2         0         0       .00    373.55  20232.04

FLOW DISTRIBUTION FOR SECNO=     12.31          CWSEL=   1257.60

STA=   19858.   20240.
  PER Q=    100.0
   AREA=   1340.5
    VEL=      7.3
  DEPTH=      3.6

*SECNO 12.511

3265 DIVIDED FLOW


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1263.60 ELREA=      1264.00

    12.511      5.78   1263.08       .00       .00   1263.82       .75      5.38       .01   1263.60
    9800.0        .0    9800.0        .0        .0    1413.5        .0     860.1     216.1    1264.00
       .87       .00      6.93       .00       .000      .035      .000      .000   1257.30  19818.01
   .004808     1000.     1056.     1020.         3         0         0       .00    390.00  20276.53

FLOW DISTRIBUTION FOR SECNO=     12.51          CWSEL=   1263.08

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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


STA=   19818.   20280.
  PER Q=    100.0
   AREA=   1413.5
    VEL=      6.9
  DEPTH=      3.6

*SECNO 12.701

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1270.00 ELREA=      1268.00

    12.701      4.08   1268.78       .00       .00   1269.52       .74      5.69       .00   1270.00
    9800.0        .0    9764.5      35.5        .0    1415.0      32.4     893.0     227.4    1268.00
       .91       .00      6.90      1.09       .000      .035      .060      .000   1264.70  19816.10
   .006848     1030.     1000.     1020.         4         0         0       .00    596.88  20412.97

FLOW DISTRIBUTION FOR SECNO=     12.70          CWSEL=   1268.78
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```
STA=   19816.   20330.   20413.
  PER Q=     99.6       .4
   AREA=   1415.0     32.4
    VEL=      6.9      1.1
  DEPTH=      2.8       .4

*SECNO 12.896

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.47


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1274.00 ELREA=      1273.00

    12.896      4.89   1273.69       .00       .00   1274.16       .46      4.61       .03   1274.00
    9800.0        .0    9790.2        9.8        .0    1789.5      14.4     931.4     241.0   1273.00
       .96       .00      5.47       .69       .000      .035      .060      .000   1268.80  19845.77
   .003155     1010.     1030.     1010.         4         0         0       .00    555.75  20401.52


FLOW DISTRIBUTION FOR SECNO=     12.90          CWSEL=   1273.69

STA=   19846.   20360.   20402.
  PER Q=     99.9       .1
   AREA=   1789.5     14.4
    VEL=      5.5       .7
  DEPTH=      3.5       .3

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*SECNO 13.076

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .61


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1278.00 ELREA=      1278.00

    13.076      5.34   1277.34       .00       .00   1277.99       .65      3.77       .06   1278.00
    7900.0        .0    7900.0        .0        .0    1223.2        .0     964.4     251.6   1278.00
      1.00       .00      6.46       .00       .000      .035      .000      .000   1272.00  19931.64
   .005518      950.      950.      980.         2         0         0       .00    415.90  20347.54


FLOW DISTRIBUTION FOR SECNO=     13.08          CWSEL=   1277.34

STA=   19932.   20350.
  PER Q=    100.0
   AREA=   1223.2
    VEL=      6.5
  DEPTH=      2.9

*SECNO 13.227

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.53


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1281.50 ELREA=      1282.00

    13.227      6.33   1280.23       .00       .00   1280.76       .53      2.76       .01   1281.50
    7900.0        .0    7900.0        .0        .0    1353.8        .0     988.1     258.0   1282.00
      1.04       .00      5.84       .00       .000      .035      .000      .000   1273.90  19818.08
   .002364      800.      800.      670.         2         0         0       .00    284.22  20102.30


FLOW DISTRIBUTION FOR SECNO=     13.23          CWSEL=   1280.23

STA=   19818.   20120.
  PER Q=    100.0
   AREA=   1353.8
    VEL=      5.8
  DEPTH=      4.8

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*SECNO 13.420

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
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3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1287.50 ELREA= 1290.00

13.420	4.19	1285.99	1285.99	.00	1287.69	1.70	4.65	.35	1287.50
7900.0	.0	7900.0	.0	.0	755.4	.0	1012.8	264.0	1290.00
1.07	.00	10.46	.00	.000	.035	.000	.000	1281.80	19874.31
.012169	970.	1020.	1000.	20	19	0	.00	225.65	20099.96

FLOW DISTRIBUTION FOR SECNO= 13.42 CWSEL= 1285.99

STA= 19874. 20170.
PER Q= 100.0
AREA= 755.4
VEL= 10.5
DEPTH= 3.3

*SECNO 13.619

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.25

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1294.00 ELREA= 1292.00

13.619	7.41	1292.41	.00	.00	1292.70	.29	4.87	.14	1294.00
7900.0	.0	7592.9	307.1	.0	1726.3	130.7	1044.4	274.4	1292.00
1.13	.00	4.40	2.35	.000	.035	.050	.000	1285.00	19893.97
.002411	1090.	1056.	1020.	6	0	0	.00	636.92	20532.06

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 13.62 CWSEL= 1292.41

STA= 19894. 20455. 20470. 20480. 20520. 20532.
PER Q= 96.1 .1 .3 3.2 .3
AREA= 1726.3 5.4 14.1 96.5 14.6
VEL= 4.4 .8 1.8 2.6 1.6
DEPTH= 3.1 .4 1.4 2.4 1.2

*SECNO 13.818

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

13.818	3.44	1297.44	1297.44	.00	1298.28	.84	5.01	.16	1300.00
7900.0	.0	6663.9	1236.1	.0	852.2	306.2	1080.9	290.4	1298.00
1.18	.00	7.82	4.04	.000	.035	.050	.000	1294.00	19916.12
.013302	1050.	1056.	1050.	3	15	0	.00	677.97	20709.02

FLOW DISTRIBUTION FOR SECNO= 13.82 CWSEL= 1297.44

STA= 19916. 20340. 20460. 20630. 20709.
PER Q= 84.4 .2 13.5 2.0
AREA= 852.2 5.2 244.3 56.8
VEL= 7.8 2.7 4.4 2.7
DEPTH= 2.0 .0 1.4 .7

*SECNO 14.013

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.79

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA

SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
14.013	5.74	1303.74	.00	.00	1303.91	.16	5.56	.07	1304.00
6100.0	.0	3447.1	2652.9	.0	884.9	1291.2	1120.8	313.9	1303.00
1.27	.00	3.90	2.05	.000	.035	.050	.000	1298.00	19918.26
.002471	1020.	1030.	1055.	6	0	0	.00	1285.94	21600.50

FLOW DISTRIBUTION FOR SECNO= 14.01 CWSEL= 1303.74

STA=	19918.	20270.	20300.	20625.	20645.	20660.	20720.	20723.	20930.	20955.	21600.
PER Q=	56.5	1.0	19.8	2.6	3.3	7.8	.1	.4	.4	8.2	
AREA=	884.9	37.2	565.3	54.8	56.1	164.4	2.5	18.3	18.3	374.4	
VEL=	3.9	1.7	2.1	2.9	3.6	2.9	1.2	1.2	1.2	1.3	
DEPTH=	2.5	1.2	1.7	2.7	3.7	2.7	.9	.1	.7	.6	

*SECNO 14.197

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

14.197	4.77	1308.77	1308.77	.00	1309.43	.65	3.77	.15	1308.50
6100.0	131.6	5357.7	610.8	80.5	778.7	290.6	1156.9	336.9	1310.00
1.31	1.63	6.88	2.10	.050	.035	.050	.000	1304.00	19559.21
.007258	990.	970.	920.	3	10	0	.00	840.82	20830.77

FLOW DISTRIBUTION FOR SECNO= 14.20 CWSEL= 1308.77

STA=	19559.	19565.	19715.	20015.	20310.	20318.	20465.	20745.	20759.	20815.	20830.	20831.
PER Q=	.0	2.1	87.8	1.8	.1	.0	7.6	.1	.0	.4	.0	
AREA=	2.2	78.3	778.7	52.8	3.0	.7	216.2	5.2	.7	11.6	.3	
VEL=	1.3	1.6	6.9	2.1	1.3	1.3	2.1	1.3	1.3	2.1	1.1	
DEPTH=	.4	.5	2.6	.2	.4	.0	.8	.4	.0	.8	.4	

*SECNO 14.379

3265 DIVIDED FLOW

14.379	5.05	1315.05	.00	.00	1315.40	.35	5.94	.03	1316.00
6100.0	.0	4011.4	2088.6	.0	727.0	778.9	1186.7	357.7	1314.00
1.37	.00	5.52	2.68	.000	.035	.050	.000	1310.00	19544.77
.005248	940.	960.	1000.	5	0	0	.00	1010.34	21035.58

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 14.38 CWSEL= 1315.05

STA=	19545.	20095.	20430.	20485.	20750.	20820.	20860.	20900.	20945.	20950.	20966.	21036.
PER Q=	65.8	12.8	.7	1.1	2.7	1.5	4.7	10.2	.6	.2	.0	
AREA=	727.0	350.6	28.7	46.5	73.3	41.9	81.9	137.1	10.2	8.4	.3	
VEL=	5.5	2.2	1.4	1.4	2.2	2.2	3.5	4.5	3.3	1.4	.2	
DEPTH=	2.4	1.0	.5	.2	1.0	1.0	2.0	3.0	2.0	.5	.0	

*SECNO 14.559

14.559	4.83	1320.23	.00	.00	1320.54	.31	5.14	.00	1322.00
6100.0	.0	6100.0	.0	.0	1361.0	.0	1217.6	377.4	1320.80
1.43	.00	4.48	.00	.000	.035	.000	.000	1315.40	19222.21
.005652	950.	950.	915.	4	0	0	.00	815.72	20037.93

FLOW DISTRIBUTION FOR SECNO= 14.56 CWSEL= 1320.23

STA=	19222.	20045.
PER Q=	100.0	
AREA=	1361.0	
VEL=	4.5	
DEPTH=	1.7	

*SECNO 14.752

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1326.00 ELREA= 1326.00

14.752	5.86	1324.66	.00	.00	1325.03	.37	4.47	.02	1326.00
6100.0	.0	6100.0	.0	.0	1256.7	.0	1248.3	392.4	1326.00
1.49	.00	4.85	.00	.000	.035	.000	.000	1318.80	19673.36
.003499	1010.	1020.	1010.	4	0	0	.00	466.45	20139.80

FLOW DISTRIBUTION FOR SECNO= 14.75 CWSEL= 1324.66

STA=	19673.	20170.
PER Q=	100.0	
AREA=	1256.7	

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   VEL=      4.9
  DEPTH=     2.7

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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*SECNO 14.945

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .44

   14.945      6.52   1329.02   1328.80       .00   1330.12      1.10      4.88       .22   1330.00
   4200.0        .0    4048.6     151.4        .0     472.2      68.8    1269.3     400.7   1330.00
     1.52       .00      8.57      2.20       .000      .035      .050      .000   1322.50  19901.58
  .008402     1005.     1020.     1000.          4         8         0       .00    247.81  20410.24

FLOW DISTRIBUTION FOR SECNO=     14.94          CWSEL=   1329.02

STA=   19902.   20050.   20370.   20400.   20410.
  PER Q=     96.4      1.4      2.0       .2
   AREA=    472.2     32.8     30.7      5.2
    VEL=      8.6      1.7      2.8      1.7
  DEPTH=      3.3       .1      1.0       .5

*SECNO 15.144

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.69

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1336.00 ELREA=      1336.00

   15.144      5.82   1334.82       .00       .00   1335.11       .29      4.90       .08   1336.00
   4200.0        .0    4200.0        .0        .0     971.7        .0    1287.5     408.1   1336.00
     1.59       .00      4.32       .00       .000      .035      .000      .000   1329.00  19605.97
  .002952     900.     1056.      890.          3         0         0       .00    375.98  19981.95

FLOW DISTRIBUTION FOR SECNO=     15.14          CWSEL=   1334.82

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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

STA=   19606.   19982.
  PER Q=    100.0
   AREA=    971.7
    VEL=      4.3
  DEPTH=      2.6

*SECNO 15.333

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .67

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1340.00 ELREA=      1342.00

   15.333      3.85   1338.85       .00       .00   1339.40       .55      4.22       .08   1340.00
   4200.0        .0    4200.0        .0        .0     708.4        .0    1306.8     416.0   1342.00
     1.64       .00      5.93       .00       .000      .035      .000      .000   1335.00  19781.38
  .006510     900.     1000.      890.          3         0         0       .00    310.78  20092.16

FLOW DISTRIBUTION FOR SECNO=     15.33          CWSEL=   1338.85

STA=   19781.   20100.
  PER Q=    100.0
   AREA=    708.4
    VEL=      5.9
  DEPTH=      2.3

*SECNO 15.519

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1348.00 ELREA=      1345.00
```

15.519	4.19	1344.19	.00	.00	1344.64	.45	5.23	.01	1348.00
4200.0	.0	4200.0	.0	.0	784.4	.0	1323.6	422.8	1345.00
1.69	.00	5.35	.00	.000	.035	.000	.000	1340.00	19962.68
.004454	940.	980.	960.	4	0	0	.00	301.08	20263.76

FLOW DISTRIBUTION FOR SECNO= 15.52 CWSEL= 1344.19

STA=	19963.	20320.			
PER Q=	100.0				
AREA=	784.4				
VEL=	5.4				
DEPTH=	2.6				

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 15.699

3265 DIVIDED FLOW

15.699	4.57	1349.57	.00	.00	1350.24	.68	5.53	.07	1354.00
4200.0	.0	3409.8	790.2	.0	476.5	235.4	1339.8	430.0	1350.00
1.73	.00	7.16	3.36	.000	.035	.050	.000	1345.00	19899.14
.007995	935.	950.	920.	3	0	0	.00	359.55	20888.91

FLOW DISTRIBUTION FOR SECNO= 15.70 CWSEL= 1349.57

STA=	19899.	20085.	20760.	20885.	20889.
PER Q=	81.2	2.0	16.7	.2	
AREA=	476.5	36.7	195.6	3.1	
VEL=	7.2	2.3	3.6	2.1	
DEPTH=	2.6	.1	1.6	.8	

*SECNO 15.966

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

15.966	4.31	1356.31	.00	.00	1356.41	.11	6.11	.06	1358.00
2350.0	.0	1821.7	528.3	.0	677.7	225.0	1364.8	443.8	1357.00
1.87	.00	2.69	2.35	.000	.035	.050	.000	1352.00	1989.23
.002126	1450.	1410.	1200.	5	0	0	.00	537.87	2670.77

FLOW DISTRIBUTION FOR SECNO= 15.97 CWSEL= 1356.31

STA=	1989.	2430.	2560.	2600.	2620.	2670.	2671.
PER Q=	77.5	.0	9.4	8.5	4.6	.0	
AREA=	677.7	1.1	92.3	66.2	65.4	.1	
VEL=	2.7	.4	2.4	3.0	1.6	.4	
DEPTH=	1.6	.0	2.3	3.3	1.3	.2	

*SECNO 16.066
1
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .31

16.066	4.68	1358.68	.00	.00	1359.16	.47	2.63	.11	1360.40
2350.0	.0	1007.6	1342.4	.0	167.9	262.3	1373.1	449.7	1360.00
1.90	.00	6.00	5.12	.000	.035	.050	.000	1354.00	1986.60
.021649	565.	570.	480.	2	0	0	.00	419.99	2696.80

FLOW DISTRIBUTION FOR SECNO= 16.07 CWSEL= 1358.68

STA=	1987.	2350.	2465.	2560.	2580.	2690.	2697.
PER Q=	42.9	.3	37.9	8.0	10.8	.2	
AREA=	167.9	3.5	150.1	31.6	74.8	2.3	
VEL=	6.0	2.1	5.9	5.9	3.4	2.1	
DEPTH=	.9	.0	1.6	1.6	.7	.3	

```
*SECNO 16.167

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.69

    16.167      4.43   1362.43       .00       .00   1362.56       .13      3.37       .03   1364.80
    2350.0        .0    1159.3    1190.7        .0     331.0     541.0    1381.0     456.3   1362.00
      1.95       .00      3.50      2.20      .000      .035      .050      .000   1358.00   1952.47
   .002987      530.      530.      530.         5         0         0       .00    669.68   2622.15


FLOW DISTRIBUTION FOR SECNO=     16.17          CWSEL=   1362.43

STA=    1952.    2130.    2170.    2250.    2370.    2550.    2590.    2600.    2610.    2620.    2622.
  PER Q=     49.3       .7      1.4      2.0     22.6     12.1      5.3      5.3      1.2        .0
   AREA=    331.0     17.2     34.4     51.6    257.3     97.2     34.3     34.3     14.3        .5
    VEL=      3.5       .9       .9       .9      2.1      2.9      3.6      3.6      2.0        .6
  DEPTH=      1.9       .4       .4       .4      1.4      2.4      3.4      3.4      1.4        .2

*SECNO 16.248
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
1
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

    16.248      8.34   1364.44   1364.44       .00   1364.95       .51      1.85       .11   1367.00
    2350.0        .0    1548.5     801.5        .0     225.9     346.8    1387.2     462.0   1364.00
      1.97       .00      6.86      2.31      .000      .035      .050      .000   1356.10   1932.67
   .008556      450.      430.      340.         6        15         0       .00    700.66   2633.33


FLOW DISTRIBUTION FOR SECNO=     16.25          CWSEL=   1364.44

STA=    1933.    2030.    2230.    2240.    2250.    2300.    2630.    2633.
  PER Q=     65.9       6.0      2.1      5.2     10.8     10.0        .0
   AREA=    225.9     88.7     14.4     24.4     72.2    146.3        .7
    VEL=      6.9       1.6      3.5      5.0      3.5      1.6       1.0
  DEPTH=      2.3       .4       1.4      2.4      1.4       .4        .2

*SECNO 16.328

3265 DIVIDED FLOW


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.71

    16.328      9.02   1366.52       .00       .00   1366.71       .19      1.73       .03   1366.00
    2350.0        7.2    1989.6     353.2      10.9     542.6     155.7    1392.3     466.1   1367.40
      2.00        .66      3.67      2.27      .050      .035      .050      .000   1357.50   1873.19
   .002923      440.      410.      250.         3         0         0       .00    482.32   2471.46


FLOW DISTRIBUTION FOR SECNO=     16.33          CWSEL=   1366.52

STA=    1873.    1915.    2240.    2335.    2339.    2370.    2397.    2403.    2471.
  PER Q=        .3     84.7        .3        .5       9.9      3.7        .1        .5
   AREA=     10.9    542.6       9.3       6.1      78.2     41.1       3.1      17.9
    VEL=       .7      3.7        .7       2.0       3.0      2.1       1.0        .7
  DEPTH=       .3      2.0        .1       1.5       2.5      1.5        .5        .3

*SECNO 16.411

3301 HV CHANGED MORE THAN HVINS

1
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .60

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1369.20 ELREA=      1370.00

    16.411      3.85   1368.15       .00       .00   1368.90       .75      2.02       .17   1369.20
    2350.0        .0    2350.0        .0        .0     337.3        .0    1397.5     469.1   1370.00
      2.02       .00      6.97       .00      .000      .035      .000      .000   1364.30   1915.48
   .008103      510.      450.      350.         2         0         0       .00    136.29   2051.77


FLOW DISTRIBUTION FOR SECNO=     16.41          CWSEL=   1368.15

STA=    1915.    2055.
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  PER Q=    100.0
   AREA=    337.3
    VEL=      7.0
  DEPTH=      2.5

*SECNO 16.504

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.91


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1370.00 ELREA=      1372.00

    16.504      6.58   1370.58       .00       .00   1370.83       .25      1.88       .05   1370.00
    2350.0      51.9    2298.1         .0      53.9     566.7         .0    1402.9     471.5   1372.00
      2.05       .96      4.06       .00       .050      .035      .000      .000   1364.00   1628.55
   .002227      460.      490.      300.         2         0         0       .00    291.78   2030.98


FLOW DISTRIBUTION FOR SECNO=     16.50          CWSEL=   1370.58

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


STA=    1629.    1630.    1665.    1666.    1780.    1835.    2035.
  PER Q=      .0       .8       .0       .0      1.3     97.8
   AREA=      .4     20.3       .4       .8     31.9    566.7
    VEL=      .6      1.0       .6       .6      1.0      4.1
  DEPTH=      .3       .6       .3       .0       .6      2.9

*SECNO 16.608

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .61


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1376.50 ELREA=      1374.20

    16.608      4.39   1372.19       .00       .00   1372.73       .54      1.81       .09   1376.50
    2350.0        .0    2350.0         .0        .0     397.2         .0    1409.1     474.2   1374.20
      2.08       .00      5.92       .00       .000      .035      .000      .000   1367.80   1929.53
   .005938      485.      530.      450.         3         0         0       .00    162.17   2091.70


FLOW DISTRIBUTION FOR SECNO=     16.61          CWSEL=   1372.19

STA=    1930.    2110.
  PER Q=    100.0
   AREA=    397.2
    VEL=      5.9
  DEPTH=      2.4

*SECNO 16.732

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .67


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1380.00 ELREA=      1378.00

    16.732      2.75   1377.75   1377.68       .00   1378.64       .89      5.80       .10   1380.00
    2350.0        .0    2350.0         .0        .0     310.6         .0    1414.6     476.8   1378.00
      2.10       .00      7.57       .00       .000      .035      .000      .000   1375.00   1955.62
   .013052      640.      685.      420.        12        14         0       .00    158.76   2114.38


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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=     16.73          CWSEL=   1377.75

STA=    1956.    2115.
  PER Q=    100.0
   AREA=    310.6
    VEL=      7.6
  DEPTH=      2.0

*SECNO 16.818
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3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.44

    16.818      4.94   1380.64       .00       .00   1380.90       .26      2.20       .06   1382.00
    2350.0        .0    1645.0     705.0        .0     356.8     298.3    1420.7     479.7   1380.40
      2.14       .00      4.61      2.36       .000      .035      .050      .000   1375.70   1945.20
   .002183      430.      455.      750.          4         0         0       .00    280.80   2226.00


FLOW DISTRIBUTION FOR SECNO=    16.82          CWSEL=   1380.64

STA=    1945.    2045.    2097.    2105.    2190.    2210.    2226.
  PER Q=     70.0       .8      1.1     25.3      2.7       .1
   AREA=    356.8     22.9     13.1    224.4     32.8      5.1
    VEL=      4.6       .8      1.9      2.7      1.9       .6
  DEPTH=      3.6       .4      1.6      2.6      1.6       .3

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T1      NEW RIVER ABOVE SKUNK CREEK, PHOENIX, ARIZ., APRIL 1981
T2      Corps of Engineers Future Condition 100 YEAR Q
T3      Comparison with FIS Q  WSEL estimated from FIS Profile

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                3                                                                  1170.5

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     15                                                                                       15



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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


 *PROF 2
0

 CCHV=     .200 CEHV=     .400
 *SECNO 8.655

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1171.60 ELREA=      1171.20

         1985 TOPO - DIGITIZED DATA SEC.8.655 THRU SEC.9.129
         DOWNSTREAM STUDY LIMIT
         NEW RIVER-SKUNK CREEK CONFLUENCE
     8.655     15.40   1170.50       .00   1170.50   1170.89       .39       .00       .00   1171.60
   41000.0        .0   41000.0        .0        .0    8176.1        .0        .0        .0   1171.20
       .00       .00      5.01       .00       .000      .035       .000      .000   1155.10   9587.04
   .000464      750.      400.      150.         0         0         0       .00    634.06  10221.10


 FLOW DISTRIBUTION FOR SECNO=      8.65          CWSEL=   1170.50

 STA=    9587.   10224.
   PER Q=    100.0
    AREA=   8176.1
     VEL=      5.0
   DEPTH=     12.9

 CCHV=     .100 CEHV=     .300
 *SECNO 8.731

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .59


 3470 ENCROACHMENT STATIONS=     9762.5   10213.5  TYPE=      1  TARGET=      451.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1172.80 ELREA=    100000.00

         BEGIN DISCHARGE FOR NEW RIVER ONLY
     8.731     14.75   1170.85       .00   1170.96   1171.06       .21       .16       .02   1172.80
   19000.0        .0   19000.0        .0        .0    5108.1        .0      61.0       4.9 100000.00
       .03       .00      3.72       .00       .000      .035       .000      .000   1156.10   9779.93
   .000284      400.      400.      400.         2         0         0       .00    427.83  10207.76


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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

FLOW DISTRIBUTION FOR SECNO=      8.73          CWSEL=   1170.85

STA=    9780.   10214.
  PER Q=    100.0
   AREA=   5108.1
    VEL=      3.7
  DEPTH=     11.9

*SECNO 8.807

3470 ENCROACHMENT STATIONS=     9771.3   10219.2  TYPE=      1  TARGET=      447.900

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1174.70 ELREA=    100000.00

     8.807     12.64   1170.94       .00   1170.99   1171.22       .28       .14       .02   1174.70
   19000.0        .0   19000.0        .0        .0    4476.6        .0     105.0       8.8 100000.00
       .06       .00      4.24       .00      .000      .035      .000      .000   1158.30   9785.44
   .000425      400.      400.      390.         2         0         0       .00    416.96  10202.41


FLOW DISTRIBUTION FOR SECNO=      8.81          CWSEL=   1170.94

STA=    9785.   10219.
  PER Q=    100.0
   AREA=   4476.6
    VEL=      4.2
  DEPTH=     10.7

*SECNO 8.883

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .44

3470 ENCROACHMENT STATIONS=     9824.7   10216.9  TYPE=      1  TARGET=      392.200

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1174.90 ELREA=    100000.00

     8.883     10.75   1170.85       .00   1170.96   1171.73       .89       .33       .18   1174.90
   19000.0        .0   19000.0        .0        .0    2515.2        .0     137.1      12.2 100000.00
       .07       .00      7.55       .00      .000      .035      .000      .000   1160.10   9851.30
   .002195      280.      400.      400.         2         0         0       .00    337.46  10188.76


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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

FLOW DISTRIBUTION FOR SECNO=      8.88          CWSEL=   1170.85

STA=    9851.   10217.
  PER Q=    100.0
   AREA=   2515.2
    VEL=      7.6
  DEPTH=      7.5

*SECNO 8.936

3470 ENCROACHMENT STATIONS=     9809.4   10213.2  TYPE=      1  TARGET=      403.800

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1177.30 ELREA=    100000.00

         OLD CORP STATION NO. 8.95=0.6
     8.936      9.71   1171.51       .00   1171.20   1172.43       .92       .69       .01   1177.30
   19000.0        .0   19000.0        .0        .0    2470.6        .0     153.7      14.5 100000.00
       .08       .00      7.69       .00      .000      .035      .000      .000   1161.80   9821.60
   .002565      300.      290.      300.         2         0         0       .00    361.58  10183.17


FLOW DISTRIBUTION FOR SECNO=      8.94          CWSEL=   1171.51

STA=    9822.   10213.
  PER Q=    100.0
   AREA=   2470.6
    VEL=      7.7
  DEPTH=      6.8

*SECNO 8.977

3301 HV CHANGED MORE THAN HVINS
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3470 ENCROACHMENT STATIONS=     9886.1    10212.7  TYPE=       1  TARGET=      326.601

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       1177.20 ELREA=     100000.00

      8.977       8.25    1171.75        .00    1171.31    1173.34       1.59        .71        .20    1177.20
    19000.0         .0    19000.0         .0         .0    1880.1         .0      164.2       16.1 100000.00
        .09        .00      10.11        .00       .000       .035       .000       .000    1163.50    9894.70
    .004637       220.       210.       200.          2          0          0        .00     285.57   10180.27


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     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

FLOW DISTRIBUTION FOR SECNO=       8.98          CWSEL=    1171.75

STA=     9895.    10213.
  PER Q=     100.0
   AREA=    1880.1
    VEL=      10.1
  DEPTH=       6.6

*SECNO 9.009

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.87

3470 ENCROACHMENT STATIONS=     9764.5    10207.0  TYPE=       1  TARGET=      442.500

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       1178.00 ELREA=     100000.00

         GREENWAY ROAD AREA
      9.009      10.34    1173.24        .00    1171.99    1173.84        .60        .41        .10    1178.00
    19000.0         .0    19000.0         .0         .0    3061.2         .0      174.4       17.5 100000.00
        .10        .00       6.21        .00       .000       .035       .000       .000    1162.90    9790.86
    .001326       330.       180.       180.          2          0          0        .00     377.91   10168.77


FLOW DISTRIBUTION FOR SECNO=       9.01          CWSEL=    1173.24

STA=     9791.    10207.
  PER Q=     100.0
   AREA=    3061.2
    VEL=       6.2
  DEPTH=       8.1

*SECNO 9.047

3470 ENCROACHMENT STATIONS=     9689.8    10113.8  TYPE=       1  TARGET=      424.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       1177.50 ELREA=     100000.00

1
    17NOV95       08:51:14                                                                                    PAGE   60

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


      9.047      12.46    1173.66        .00    1172.25    1174.05        .39        .19        .02    1177.50
    19000.0         .0    19000.0         .0         .0    3797.3         .0      190.1       19.3 100000.00
        .11        .00       5.00        .00       .000       .035       .000       .000    1161.20    9706.22
    .000701       280.       200.       160.          2          0          0        .00     400.12   10106.34


FLOW DISTRIBUTION FOR SECNO=       9.05          CWSEL=    1173.66

STA=     9706.    10114.
  PER Q=     100.0
   AREA=    3797.3
    VEL=       5.0
  DEPTH=       9.5

*SECNO 9.129

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .69

3470 ENCROACHMENT STATIONS=     9641.2    10090.0  TYPE=       1  TARGET=      448.800

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       1180.60 ELREA=     100000.00
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         OLD CORP STATION NO. 9.15=9.8
         END 1985 TOPO DIGITIZED SECTIONS, END C/L = 10000
     9.129      9.73   1173.93       .00   1172.43   1174.53       .59       .41       .06   1180.60
   19000.0        .0   19000.0        .0        .0    3077.5        .0     223.3      23.2 100000.00
       .13       .00      6.17       .00      .000      .035      .000      .000   1164.20   9665.63
   .001492      290.      420.      460.         2         0         0       .00    417.32  10082.96


 FLOW DISTRIBUTION FOR SECNO=      9.13          CWSEL=   1173.93

 STA=    9666.   10090.
   PER Q=    100.0
    AREA=   3077.5
     VEL=      6.2
   DEPTH=      7.4

 CCHV=     .100 CEHV=     .300
1
    17NOV95      08:51:14                                                                                    PAGE   61

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


 *SECNO 9.318
 3280 CROSS SECTION      9.32 EXTENDED       .64 FEET


 3301 HV CHANGED MORE THAN HVINS

 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3470 ENCROACHMENT STATIONS=    19660.0   20015.0  TYPE=       1  TARGET=      355.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1186.00 ELREA=    100000.00

         BEGIN STATION C/L = 20000
     9.318      8.64   1181.84   1181.84   1181.50   1184.29      2.45      3.21       .56   1186.00
   19000.0        .0   19000.0        .0        .0    1513.7        .0     276.0      31.7 100000.00
       .15       .00     12.55       .00      .000      .035      .000      .000   1173.20  19693.99
   .011280     1000.     1000.     1000.        20        15         0       .00    321.00  20015.00


 FLOW DISTRIBUTION FOR SECNO=      9.32          CWSEL=   1181.84

 STA=   19694.   20015.
   PER Q=    100.0
    AREA=   1513.7
     VEL=     12.6
   DEPTH=      4.7

 *SECNO 9.492
 3280 CROSS SECTION      9.49 EXTENDED       .70 FEET


 3301 HV CHANGED MORE THAN HVINS


 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.73


 3470 ENCROACHMENT STATIONS=    19770.0   20235.0  TYPE=       1  TARGET=      465.000
1
    17NOV95      08:51:14                                                                                    PAGE   62

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1188.00 ELREA=    100000.00

     9.492     10.70   1188.70       .00   1185.42   1189.51       .81      5.06       .16   1188.00
   17250.0        .0   17250.0        .0        .0    2386.7        .0     317.2      39.8 100000.00
       .18       .00      7.23       .00      .000      .035      .000      .000   1178.00  19770.00
   .003094      910.      920.      890.         3         0         0       .00    444.01  20214.01


 FLOW DISTRIBUTION FOR SECNO=      9.49          CWSEL=   1188.70

 STA=   19770.   20235.
   PER Q=    100.0
    AREA=   2386.7
     VEL=      7.2
   DEPTH=      5.4

 *SECNO 9.692
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3280 CROSS SECTION      9.69 EXTENDED       .54 FEET


3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=    19840.0   20060.0  TYPE=      1  TARGET=      220.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1195.00 ELREA=    100000.00

     9.692      8.44   1192.54   1192.54   1192.22   1195.67      3.13      5.40       .70   1195.00
   17250.0        .0   17250.0        .0        .0    1214.8        .0     360.8      47.5 100000.00
       .20       .00     14.20       .00      .000      .035      .000      .000   1184.10  19850.95
   .010033     1050.     1056.     1040.         3        15         0       .00    197.37  20048.32


FLOW DISTRIBUTION FOR SECNO=      9.69          CWSEL=   1192.54

STA=   19851.   20060.
  PER Q=    100.0
   AREA=   1214.8
    VEL=     14.2
  DEPTH=      6.2

1
    17NOV95      08:51:14                                                                                    PAGE   63

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


CCHV=     .300 CEHV=      .500
*SECNO 9.889
3280 CROSS SECTION      9.89 EXTENDED      1.70 FEET


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.01

3470 ENCROACHMENT STATIONS=    19840.0   20080.0  TYPE=      1  TARGET=      240.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1200.00 ELREA=    100000.00

     9.889     11.69   1199.69       .00   1196.98   1200.86      1.16      4.60       .59   1200.00
   17250.0        .0   17250.0        .0        .0    1994.3        .0     399.1      52.7 100000.00
       .24       .00      8.65       .00      .000      .035      .000      .000   1188.00  19841.51
   .002475     1100.     1040.     1050.         3         0         0       .00    237.58  20079.09


FLOW DISTRIBUTION FOR SECNO=      9.89          CWSEL=   1199.69

STA=   19842.   20080.
  PER Q=    100.0
   AREA=   1994.3
    VEL=      8.6
  DEPTH=      8.4

CCHV=     .300 CEHV=      .500
*SECNO 9.953

3470 ENCROACHMENT STATIONS=    19790.0   20032.0  TYPE=      1  TARGET=      242.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1200.00 ELREA=    100000.00

        BELL ROAD
     9.953     11.81   1200.41       .00   1197.97   1201.57      1.16       .71       .00   1200.00
   17250.0        .0   17250.0        .0        .0    1997.5        .0     414.5      54.6 100000.00
       .25       .00      8.64       .00      .000      .030      .000      .000   1188.60  19790.00
   .001855      335.      335.      335.         3         0         0       .00    240.41  20030.41


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    17NOV95      08:51:14                                                                                    PAGE   64

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


FLOW DISTRIBUTION FOR SECNO=      9.95          CWSEL=   1200.41

STA=   19790.   20032.
  PER Q=    100.0
   AREA=   1997.5
    VEL=      8.6
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  DEPTH=       8.3

SPECIAL BRIDGE

SB  XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
      .90       1.56       2.60        .00     213.00      20.00    2800.00       1.88    1188.61    1188.60

*SECNO 9.967
BTCARD, BRIDGE STENCL=    19825.00   STENCR=    20110.00
CLASS A LOW FLOW

3420 BRIDGE W.S.=     1200.28 BRIDGE VELOCITY=        6.87     CALCULATED CHANNEL AREA=       2508.

 EGPRS       EGLWC       H3        QWEIR       QLOW       BAREA    TRAPEZOID AREA      ELLC       ELTRD      WEIRLN
   1201.33    1201.79       .23         0.     17250.      2800.      2656.      1200.90    1207.50          0.


3470 ENCROACHMENT STATIONS=     19825.0    20110.0  TYPE=       1  TARGET=       285.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       1204.00 ELREA=     100000.00

         SPECIAL BRIDGE
     9.967      12.04    1200.64        .00    1198.19    1201.79       1.14        .22        .00    1204.00
   17250.0         .0    17250.0         .0         .0     2009.2         .0      417.9       55.0  100000.00
      .25         .00       8.59        .00       .000       .030       .000       .000    1188.60   19833.39
   .001988       75.        75.         75.          0          0          0        .00     259.81   20093.21


FLOW DISTRIBUTION FOR SECNO=       9.97           CWSEL=    1200.64

STA=    19833.    20110.
  PER Q=     100.0
   AREA=    2009.2
    VEL=       8.6
  DEPTH=       7.7

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    17NOV95       08:51:14                                                                                PAGE   65

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


CCHV=      .100 CEHV=      .300
*SECNO 10.096

3470 ENCROACHMENT STATIONS=     19635.0    20055.0  TYPE=       1  TARGET=       420.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       1201.00 ELREA=     100000.00

    10.096       6.64    1202.34        .00    1200.56    1203.39       1.05       1.59        .01    1201.00
   17250.0         .0    17250.0         .0         .0     2100.8         .0      448.4       60.0  100000.00
      .27         .00       8.21        .00       .000       .030       .000       .000    1195.70   19635.00
   .003142       610.       645.        650.          3          0          0        .00     410.85   20045.85


FLOW DISTRIBUTION FOR SECNO=      10.10           CWSEL=    1202.34

STA=    19635.    20055.
  PER Q=     100.0
   AREA=    2100.8
    VEL=       8.2
  DEPTH=       5.1

*SECNO 10.271

3470 ENCROACHMENT STATIONS=     19820.0    20320.0  TYPE=       1  TARGET=       500.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       1212.50 ELREA=     100000.00

    10.271       7.49    1205.69        .00    1205.06    1206.80       1.11       3.39        .02    1212.50
   15500.0         .0    15500.0         .0         .0     1834.4         .0      490.1       69.0  100000.00
      .30         .00       8.45        .00       .000       .030       .000       .000    1198.20   19860.09
   .004415       920.       925.        925.          2          0          0        .00     445.44   20305.53


FLOW DISTRIBUTION FOR SECNO=      10.27           CWSEL=    1205.69

STA=    19860.    20320.
  PER Q=     100.0
   AREA=    1834.4
    VEL=       8.4
  DEPTH=       4.1

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    17NOV95       08:51:14                                                                                PAGE   66

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
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    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


*SECNO 10.443

3470 ENCROACHMENT STATIONS=     19655.0    20110.0  TYPE=       1  TARGET=      455.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       1216.00 ELREA=     100000.00

    10.443       5.02    1210.62        .00    1209.58    1212.21       1.58       5.27        .14    1216.00
   15500.0         .0    15500.0         .0         .0     1535.3         .0      525.3       78.3 100000.00
       .33        .00      10.10        .00        .000       .030       .000       .000    1205.60   19668.44
   .007926       930.       910.       900.          3          0          0        .00     441.56   20110.00


FLOW DISTRIBUTION FOR SECNO=      10.44           CWSEL=    1210.62

STA=    19668.    20110.
  PER Q=     100.0
   AREA=    1535.3
    VEL=      10.1
  DEPTH=       3.5

*SECNO 10.612

3470 ENCROACHMENT STATIONS=     19955.0    20300.0  TYPE=       1  TARGET=      345.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       1222.00 ELREA=     100000.00

    10.612       6.38    1215.98        .00    1215.19    1217.39       1.41       5.17        .02    1222.00
   15500.0         .0    15500.0         .0         .0     1626.3         .0      557.6       86.2 100000.00
       .35        .00       9.53        .00        .000       .030       .000       .000    1209.60   19970.04
   .004438       880.       890.       900.          2          0          0        .00     328.28   20298.32


FLOW DISTRIBUTION FOR SECNO=      10.61           CWSEL=    1215.98

STA=    19970.    20300.
  PER Q=     100.0
   AREA=    1626.3
    VEL=       9.5
  DEPTH=       5.0

1
   17NOV95      08:51:14                                                                                    PAGE   67

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


*SECNO 10.659
3280 CROSS SECTION      10.66 EXTENDED       1.58 FEET


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.64


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       1222.17 ELREA=     1215.61

    10.659       8.14    1217.19        .00    1216.14    1218.07        .89        .63        .05    1222.17
   15500.0         .0    15500.0         .0         .0     2048.6         .0      568.1       87.9    1215.61
       .36        .00       7.57        .00        .000       .030       .000       .000    1209.05     39.27
   .001647       259.       247.       255.          2          0          0        .00     275.71    314.98


FLOW DISTRIBUTION FOR SECNO=      10.66           CWSEL=    1217.19

STA=       39.      315.
  PER Q=     100.0
   AREA=    2048.6
    VEL=       7.6
  DEPTH=       7.4

*SECNO 10.691
3280 CROSS SECTION      10.69 EXTENDED        .13 FEET


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       1223.81 ELREA=     1217.30

    10.691       8.38    1217.43        .00    1216.33    1218.41        .99        .31        .03    1223.81
   15500.0         .0    15500.0         .0         .0     1944.8         .0      575.9       89.0    1217.30
       .37        .00       7.97        .00        .000       .030       .000       .000    1209.05     37.42
   .002048       174.       170.       161.          2          0          0        .00     287.40    324.82


FLOW DISTRIBUTION FOR SECNO=      10.69           CWSEL=    1217.43
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STA=      37.     325.
  PER Q=    100.0
   AREA=   1944.8
    VEL=      8.0
  DEPTH=      6.8

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   17NOV95      08:51:14                                                                                    PAGE   68

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*SECNO 10.723
3280 CROSS SECTION     10.72 EXTENDED       .13 FEET

3301 HV CHANGED MORE THAN HVINS

    10.723      8.38   1217.43       .00   1216.38   1219.08      1.65       .47       .20   1215.61
   15500.0     106.9   15393.1        .0      69.2    1487.9         .0     582.7      90.2   1217.30
      .37      1.54     10.35       .00       .060      .030      .000      .000   1209.05     43.69
   .003870     167.      170.      164.         2         0         0       .00    309.02    352.71

FLOW DISTRIBUTION FOR SECNO=     10.72          CWSEL=   1217.43

STA=      44.     113.     353.
  PER Q=       .7     99.3
   AREA=     69.2   1487.9
    VEL=      1.5     10.3
  DEPTH=      1.0      6.2

*SECNO 10.803

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=    19750.0   20015.0  TYPE=       1  TARGET=      265.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1220.00 ELREA=    100000.00

    10.803      6.29   1220.39   1220.39   1219.38   1222.78      2.39      2.28       .22   1220.00
   15500.0        .0   15500.0        .0        .0    1250.5         .0     596.3      92.9 100000.00
      .38       .00     12.39       .00       .000      .030      .000      .000   1214.10  19750.00
   .008035     420.      423.      430.        20        15         0       .00    265.00  20015.00

FLOW DISTRIBUTION FOR SECNO=     10.80          CWSEL=   1220.39

STA=   19750.   20015.
  PER Q=    100.0
   AREA=   1250.5
    VEL=     12.4
  DEPTH=      4.7

1
   17NOV95      08:51:14                                                                                    PAGE   69

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*SECNO 10.933
3280 CROSS SECTION     10.93 EXTENDED       .78 FEET

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.35

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1222.20 ELREA=    100000.00

    10.933      9.01   1222.98       .00   1221.56   1223.39       .41       .42       .20   1222.20
   15500.0        .0   15500.0        .0        .0    3016.4         .0     608.3      94.8 100000.00
      .40       .00      5.14       .00       .000      .030      .000      .000   1213.97       .00
   .000718     164.      244.      241.         2         0         0       .00    387.16    387.16

FLOW DISTRIBUTION FOR SECNO=     10.93          CWSEL=   1222.98

STA=       0.     407.
  PER Q=    100.0
   AREA=   3016.4
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    VEL=       5.1
  DEPTH=       7.8

*SECNO 10.934
3280 CROSS SECTION      10.93 EXTENDED       2.38 FEET

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       1225.50 ELREA=       1220.53

    10.934       7.30   1222.91        .00   1221.48   1223.55        .64        .08        .07   1225.50
   15500.0         .0   15500.0         .0        .0    2419.9         .0      613.6       95.5   1220.53
       .40        .00      6.41        .00       .000      .030       .000       .000    1215.61     10.30
   .001435       82.        85.        92.          2         0          0        .00     380.14    390.44

FLOW DISTRIBUTION FOR SECNO=      10.93          CWSEL=    1222.91

STA=       10.      390.
  PER Q=     100.0
   AREA=    2419.9
    VEL=       6.4
  DEPTH=       6.4

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     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*SECNO 10.935
3280 CROSS SECTION      10.94 EXTENDED        .88 FEET

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       1227.10 ELREA=       1222.20

    10.935       7.48   1223.08        .00   1221.69   1223.77        .68        .21        .01   1227.10
   15500.0         .0   15500.0         .0        .0    2336.8         .0      621.4       96.7   1222.20
       .40        .00      6.63        .00       .000      .030       .000       .000    1215.60     35.71
   .001431      131.       144.       154.          2         0          0        .00     348.17    383.88

FLOW DISTRIBUTION FOR SECNO=      10.94          CWSEL=    1223.08

STA=       36.      384.
  PER Q=     100.0
   AREA=    2336.8
    VEL=       6.6
  DEPTH=       6.7

*SECNO 10.936

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =    .45

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       1225.50 ELREA=       1223.81

    10.936       6.75   1222.36        .00   1221.07   1224.61       2.25        .37        .47   1225.50
   15500.0         .0   15500.0         .0        .0    1288.6         .0      627.1       97.7   1223.81
       .41        .00     12.03        .00       .000      .030       .000       .000    1215.61     32.41
   .007152      131.       137.       154.          3         0          0        .00     263.63    296.04

FLOW DISTRIBUTION FOR SECNO=      10.94          CWSEL=    1222.36

STA=       32.      325.
  PER Q=     100.0
   AREA=    1288.6
    VEL=      12.0
  DEPTH=       4.9

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     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*SECNO 10.989

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.47
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3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1229.70 ELREA=      1222.80

         UNION HILLS DRIVE
    10.989      8.61   1225.01       .00   1223.89   1226.43      1.42      1.74       .08   1229.70
   15500.0        .0   15313.8     186.2        .0    1590.4      98.3     639.8     100.2   1222.80
       .42       .00      9.63      1.89       .000      .030      .060      .000   1216.40     79.90
   .003327      370.      370.      370.          3         0         0       .00    329.86    409.76


FLOW DISTRIBUTION FOR SECNO=     10.99          CWSEL=   1225.01

STA=      80.     336.     375.     410.
  PER Q=     98.8       1.0        .2
   AREA=   1590.4      71.7      26.6
    VEL=      9.6       2.2       1.2
  DEPTH=      6.2       1.9        .8

*SECNO 11.005
    11.005      9.10   1225.50       .00   1224.30   1226.70      1.21       .25       .02   1229.70
   15500.0        .0   15240.0     260.0        .0    1716.1     137.2     643.2     100.9   1222.80
       .42       .00      8.88      1.89       .000      .030      .060      .000   1216.40     77.83
   .002585       85.       85.       85.          2         0         0       .00    343.37    421.20


FLOW DISTRIBUTION FOR SECNO=     11.01          CWSEL=   1225.50

STA=      78.     336.     375.     421.
  PER Q=     98.3       1.3        .4
   AREA=   1716.1      90.6      46.6
    VEL=      8.9       2.2       1.3
  DEPTH=      6.6       2.3       1.0

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*SECNO 11.020

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=         .0     603.7  TYPE=       1  TARGET=      603.699

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1229.50 ELREA=    100000.00

    11.020      9.34   1225.34       .00   1224.27   1227.07      1.72       .21       .16   1229.50
   15500.0        .0   15500.0        .0        .0    1471.3        .0     645.8     101.3 100000.00
       .42       .00     10.54       .00       .000      .030      .000      .000   1216.00    374.95
   .003823       67.       67.       67.          2         0         0       .00    228.20    603.15


FLOW DISTRIBUTION FOR SECNO=     11.02          CWSEL=   1225.34

STA=     375.     604.
  PER Q=    100.0
   AREA=   1471.3
    VEL=     10.5
  DEPTH=      6.4

*SECNO 11.045

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1229.80 ELREA=      1226.90

    11.045      8.05   1225.85       .00   1224.75   1227.92      2.07       .75       .10   1229.80
   15500.0        .0   15500.0        .0        .0    1343.0        .0     651.6     102.2   1226.90
       .43       .00     11.54       .00       .000      .030      .000      .000   1217.80     96.20
   .004618      179.      179.      179.          2         0         0       .00    207.81    304.01


FLOW DISTRIBUTION FOR SECNO=     11.05          CWSEL=   1225.85

STA=      96.     308.
  PER Q=    100.0
   AREA=   1343.0
    VEL=     11.5
  DEPTH=      6.5

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   17NOV95      08:51:14                                                                    PAGE   73

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*SECNO 11.129
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3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.93

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1230.00 ELREA= 1230.10

NEW SECTION - LEFT BANK TAKEN FROM ARROWHEAD RANCH
WASTEWATER TREATMENT PLANT GRADING PLAN-DIBBLE & ASSOC.

11.129	10.39	1228.19	.00	1226.58	1228.94	.75	.89	.13	1230.00
15500.0	.0	15500.0	.0	.0	2236.8	.0	668.4	104.5	1230.10
.44	.00	6.93	.00	.000	.030	.000	.000	1217.80	10.97
.001245	410.	410.	410.	2	0	0	.00	280.10	291.07

FLOW DISTRIBUTION FOR SECNO= 11.13 CWSEL= 1228.19

STA= 11. 331.
PER Q= 100.0
AREA= 2236.8
VEL= 6.9
DEPTH= 8.0

*SECNO 11.188

3470 ENCROACHMENT STATIONS= 758.7 1228.7 TYPE= 1 TARGET= 470.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1232.80 ELREA= 1232.70

11.188	11.02	1228.52	.00	1226.88	1229.47	.95	.47	.06	1232.80
13750.0	.0	13750.0	.0	.0	1754.6	.0	683.3	106.4	1232.70
.46	.00	7.84	.00	.000	.030	.000	.000	1217.50	775.16
.001765	326.	326.	326.	2	0	0	.00	236.84	1012.00

FLOW DISTRIBUTION FOR SECNO= 11.19 CWSEL= 1228.52

STA= 775. 1021.
PER Q= 100.0
AREA= 1754.6
VEL= 7.8
DEPTH= 7.4

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 11.301
3280 CROSS SECTION 11.30 EXTENDED 11.22 FEET

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .67

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1233.30 ELREA= 1233.90

11.301	9.73	1229.43	.00	1228.13	1231.22	1.80	1.50	.25	1233.30
13750.0	.0	13750.0	.0	.0	1278.2	.0	703.9	109.4	1233.90
.47	.00	10.76	.00	.000	.030	.000	.000	1219.70	91.22
.003940	591.	591.	591.	1	0	0	.00	195.50	286.73

FLOW DISTRIBUTION FOR SECNO= 11.30 CWSEL= 1229.43

STA= 91. 298.
PER Q= 100.0
AREA= 1278.2
VEL= 10.8
DEPTH= 6.5

*SECNO 11.328

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1233.60 ELREA= 1233.40

11.328	9.30	1230.20	.00	1229.01	1232.14	1.94	.87	.04	1233.60
13750.0	.0	13750.0	.0	.0	1229.5	.0	710.0	110.3	1233.40
.48	.00	11.18	.00	.000	.030	.000	.000	1220.90	17.52
.004341	211.	211.	211.	2	0	0	.00	190.89	208.41

FLOW DISTRIBUTION FOR SECNO= 11.33 CWSEL= 1230.20

STA= 18. 214.
PER Q= 100.0
AREA= 1229.5

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   VEL=     11.2
 DEPTH=      6.4

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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*SECNO 11.386

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .66

3470 ENCROACHMENT STATIONS=    19900.0   20175.0  TYPE=      1  TARGET=      275.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1233.00 ELREA=    100000.00

   11.386      8.99   1231.99       .00   1230.95   1234.17      2.18      1.96       .07   1233.00
  13750.0        .0   13750.0        .0        .0    1160.7        .0     718.5     111.9 100000.00
     .48        .00     11.85        .00      .000      .035      .000      .000   1223.00  19901.01
  .010102      315.      310.       270.         3         0         0       .00    248.79  20149.80

FLOW DISTRIBUTION FOR SECNO=     11.39          CWSEL=   1231.99

STA=   19901.   20175.
  PER Q=    100.0
   AREA=   1160.7
    VEL=     11.8
  DEPTH=      4.7

*SECNO 11.481

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.02

3470 ENCROACHMENT STATIONS=    19780.0   20170.0  TYPE=      1  TARGET=      390.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1236.00 ELREA=    100000.00

   11.481      8.54   1235.94       .00   1234.97   1236.62       .69      2.30       .15   1236.00
  13750.0        .0   13750.0        .0        .0    2070.0        .0     737.8     115.5 100000.00
     .51        .00      6.64        .00      .000      .035      .000      .000   1227.40  19780.21
  .002472      480.      520.       540.         2         0         0       .00    369.48  20149.69

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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

FLOW DISTRIBUTION FOR SECNO=     11.48          CWSEL=   1235.94

STA=   19780.   20170.
  PER Q=    100.0
   AREA=   2070.0
    VEL=      6.6
  DEPTH=      5.6

*SECNO 11.566

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.80

3470 ENCROACHMENT STATIONS=    19470.0   20310.0  TYPE=      1  TARGET=      840.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1240.00 ELREA=    100000.00

   11.566      7.38   1237.08       .00   1236.07   1237.26       .18       .58       .05   1240.00
  13750.0        .0   13750.0        .0        .0    4059.7        .0     770.1     121.9 100000.00
     .54        .00      3.39        .00      .000      .035      .000      .000   1229.70  19477.30
  .000766      280.      460.       530.         3         0         0       .00    827.22  20304.52

FLOW DISTRIBUTION FOR SECNO=     11.57          CWSEL=   1237.08

STA=   19477.   20310.
  PER Q=    100.0
   AREA=   4059.7
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   VEL=       3.4
  DEPTH=      4.9

*SECNO 11.759

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
1
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3470 ENCROACHMENT STATIONS=    19925.0   20510.0  TYPE=       1  TARGET=       585.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       1244.00 ELREA=     100000.00

    11.759       3.69   1238.69   1238.69   1238.22   1240.09       1.40       2.02        .37   1244.00
   13750.0         .0   13750.0         .0        .0    1448.2         .0      834.6      137.7 100000.00
       .57        .00       9.49       .00       .000       .035       .000       .000   1235.00  19934.96
   .012958     1050.      1020.      980.        20          8          0        .00    524.53  20459.48


FLOW DISTRIBUTION FOR SECNO=      11.76          CWSEL=    1238.69

STA=    19935.   20510.
  PER Q=     100.0
   AREA=    1448.2
    VEL=       9.5
  DEPTH=       2.8

*SECNO 11.949

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.64


3470 ENCROACHMENT STATIONS=    19865.0   20510.0  TYPE=       1  TARGET=       645.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       1250.00 ELREA=     100000.00

    11.949       4.86   1246.86        .00   1246.22   1247.59        .73       7.43        .07   1250.00
   13750.0         .0   13750.0         .0        .0    2000.3         .0      874.2      150.1 100000.00
       .61        .00       6.87       .00       .000       .035       .000       .000   1242.00  19950.79
   .004815      990.      1000.     1000.          3          0          0        .00    559.21  20510.00


FLOW DISTRIBUTION FOR SECNO=      11.95          CWSEL=    1246.86

STA=    19951.   20510.
  PER Q=     100.0
   AREA=    2000.3
    VEL=       6.9
  DEPTH=       3.6

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


*SECNO 12.125

3470 ENCROACHMENT STATIONS=    19890.0   20680.0  TYPE=       1  TARGET=       790.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       1258.00 ELREA=     100000.00

    12.125       4.03   1252.03        .00   1251.46   1252.79        .76       5.19        .01   1258.00
   13750.0         .0   13750.0         .0        .0    1963.7         .0      916.5      163.3 100000.00
       .65        .00       7.00       .00       .000       .035       .000       .000   1248.00  19926.45
   .006551      910.      930.      1000.          3          0          0        .00    674.18  20600.62


FLOW DISTRIBUTION FOR SECNO=      12.13          CWSEL=    1252.03

STA=    19926.   20680.
  PER Q=     100.0
   AREA=    1963.7
    VEL=       7.0
  DEPTH=       2.9
```

*SECNO 12.313

3470 ENCROACHMENT STATIONS= 19830.0 20240.0 TYPE= 1 TARGET= 410.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1262.00 ELREA= 100000.00

12.313	5.84	1258.04	.00	1257.60	1259.03	.99	6.17	.07	1262.00
12000.0	.0	12000.0	.0	.0	1506.4	.0	956.0	175.4	100000.00
.68	.00	7.97	.00	.000	.035	.000	.000	1252.20	19839.89
.005895	1010.	990.	980.	3	0	0	.00	393.58	20233.47

FLOW DISTRIBUTION FOR SECNO= 12.31 CWSEL= 1258.04

STA= 19840. 20240.
PER Q= 100.0
AREA= 1506.4
VEL= 8.0
DEPTH= 3.8

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 12.511

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 19810.0 20280.0 TYPE= 1 TARGET= 470.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1263.60 ELREA= 100000.00

12.511	6.42	1263.72	.00	1263.08	1264.52	.79	5.47	.02	1263.60
12000.0	.0	12000.0	.0	.0	1679.5	.0	994.6	185.4	100000.00
.73	.00	7.14	.00	.000	.035	.000	.000	1257.30	19810.00
.004589	1000.	1056.	1020.	3	0	0	.00	427.51	20278.97

FLOW DISTRIBUTION FOR SECNO= 12.51 CWSEL= 1263.72

STA= 19810. 20280.
PER Q= 100.0
AREA= 1679.5
VEL= 7.1
DEPTH= 3.9

*SECNO 12.701

3470 ENCROACHMENT STATIONS= 19810.0 20330.0 TYPE= 1 TARGET= 520.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1270.00 ELREA= 100000.00

12.701	4.47	1269.17	.00	1268.78	1270.02	.85	5.49	.02	1270.00
12000.0	.0	12000.0	.0	.0	1617.2	.0	1032.4	196.2	100000.00
.76	.00	7.42	.00	.000	.035	.000	.000	1264.70	19814.13
.006681	1030.	1000.	1020.	2	0	0	.00	515.87	20330.00

FLOW DISTRIBUTION FOR SECNO= 12.70 CWSEL= 1269.17

STA= 19814. 20330.
PER Q= 100.0
AREA= 1617.2
VEL= 7.4
DEPTH= 3.1

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 12.896

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.44

3470 ENCROACHMENT STATIONS= 19845.0 20360.0 TYPE= 1 TARGET= 515.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1274.00 ELREA= 100000.00

12.896	5.32	1274.12	.00	1273.69	1274.67	.55	4.62	.03	1274.00
12000.0	.0	12000.0	.0	.0	2013.4	.0	1075.3	208.4	100000.00
.81	.00	5.96	.00	.000	.035	.000	.000	1268.80	19845.00

```
   .003217     1010.     1030.     1010.         3         0         0       .00    515.00  20360.00


FLOW DISTRIBUTION FOR SECNO=     12.90          CWSEL=   1274.12

STA=   19845.   20360.
  PER Q=    100.0
   AREA=   2013.4
    VEL=      6.0
  DEPTH=      3.9

*SECNO 13.076

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .62


3470 ENCROACHMENT STATIONS=    19930.0   20350.0  TYPE=      1  TARGET=      420.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1278.00 ELREA=    100000.00

    13.076      5.75   1277.75       .00   1277.34   1278.48       .73      3.75       .05   1278.00
    9539.0        .0    9539.0        .0        .0    1391.3        .0    1112.5     218.6 100000.00
       .85       .00      6.86       .00      .000      .035      .000      .000   1272.00  19930.63
   .005281      950.      950.      980.         3         0         0       .00    418.42  20349.05


FLOW DISTRIBUTION FOR SECNO=     13.08          CWSEL=   1277.75

STA=   19931.   20350.
  PER Q=    100.0
   AREA=   1391.3
    VEL=      6.9
  DEPTH=      3.3

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


*SECNO 13.227

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.43


3470 ENCROACHMENT STATIONS=    19810.0   20120.0  TYPE=      1  TARGET=      310.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1281.50 ELREA=    100000.00

    13.227      6.81   1280.71       .00   1280.23   1281.35       .63      2.86       .01   1281.50
    9539.0        .0    9539.0        .0        .0    1493.0        .0    1139.0     225.1 100000.00
       .88       .00      6.39       .00      .000      .035      .000      .000   1273.90  19815.01
   .002581      800.      800.      670.         2         0         0       .00    292.12  20107.13


FLOW DISTRIBUTION FOR SECNO=     13.23          CWSEL=   1280.71

STA=   19815.   20120.
  PER Q=    100.0
   AREA=   1493.0
    VEL=      6.4
  DEPTH=      5.1

*SECNO 13.420

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=    19870.0   20170.0  TYPE=      1  TARGET=      300.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1287.50 ELREA=    100000.00

    13.420      4.70   1286.51   1286.51   1285.99   1288.35      1.85      4.89       .36   1287.50
    9539.0        .0    9539.0        .0        .0     874.8        .0    1166.7     231.3 100000.00
       .91       .00     10.90       .00      .000      .035      .000      .000   1281.80  19872.84
   .011801      970.     1020.     1000.        20        19         0       .00    239.78  20112.63


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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST
```

FLOW DISTRIBUTION FOR SECNO= 13.42 CWSEL= 1286.51

STA= 19873. 20170.
PER Q= 100.0
AREA= 874.8
VEL= 10.9
DEPTH= 3.6

*SECNO 13.619

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.24

3470 ENCROACHMENT STATIONS= 19870.0 20455.0 TYPE= 1 TARGET= 585.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1294.00 ELREA= 100000.00

13.619	7.90	1292.90	.00	1292.41	1293.25	.35	4.75	.15	1294.00
9539.0	.0	9539.0	.0	.0	1996.9	.0	1201.5	241.0	100000.00
.97	.00	4.78	.00	.000	.035	.000	.000	1285.00	19892.76
.002354	1090.	1056.	1020.	5	0	0	.00	562.23	20455.00

FLOW DISTRIBUTION FOR SECNO= 13.62 CWSEL= 1292.90

STA= 19893. 20455.
PER Q= 100.0
AREA= 1996.9
VEL= 4.8
DEPTH= 3.6

*SECNO 13.818

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 19890.0 20340.0 TYPE= 1 TARGET= 450.000

13.818	3.94	1297.94	1297.94	1297.44	1299.17	1.23	4.95	.26	1300.00
9539.0	.0	9539.0	.0	.0	1071.2	.0	1238.7	253.2	100000.00
1.00	.00	8.90	.00	.000	.035	.000	.000	1294.00	19897.12
.013563	1050.	1056.	1050.	2	8	0	.00	442.67	20339.79

FLOW DISTRIBUTION FOR SECNO= 13.82 CWSEL= 1297.94

STA= 19897. 20340.
PER Q= 100.0
AREA= 1071.2
VEL= 8.9
DEPTH= 2.4

*SECNO 14.013

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.64

3470 ENCROACHMENT STATIONS= 19915.0 20270.0 TYPE= 1 TARGET= 355.000

14.013	6.99	1304.99	.00	1303.74	1305.45	.46	6.19	.08	1304.00
7207.0	.0	7207.0	.0	.0	1323.2	.0	1267.0	262.7	100000.00
1.06	.00	5.45	.00	.000	.035	.000	.000	1298.00	19915.00
.002891	1020.	1030.	1055.	5	0	0	.00	355.00	20270.00

FLOW DISTRIBUTION FOR SECNO= 14.01 CWSEL= 1304.99

STA= 19915. 20270.
PER Q= 100.0
AREA= 1323.2
VEL= 5.4
DEPTH= 3.7

*SECNO 14.197

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV

Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .57

3470 ENCROACHMENT STATIONS= 19715.0 20015.0 TYPE= 1 TARGET= 300.000

14.197	5.11	1309.11	.00	1308.77	1310.16	1.04	4.54	.17	1308.50
7207.0	.0	7207.0	.0	.0	879.9	.0	1291.5	269.9	100000.00
1.09	.00	8.19	.00	.000	.035	.000	.000	1304.00	19715.00
.008818	990.	970.	920.	4	0	0	.00	296.68	20011.68

FLOW DISTRIBUTION FOR SECNO= 14.20 CWSEL= 1309.11

STA= 19715. 20015.
PER Q= 100.0
AREA= 879.9
VEL= 8.2
DEPTH= 3.0

*SECNO 14.379

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 19540.0 20250.0 TYPE= 1 TARGET= 710.000

14.379	6.28	1316.28	.00	1315.05	1316.64	.36	6.42	.07	1316.00
7207.0	.0	5906.0	1301.0	.0	1174.0	353.6	1318.2	281.1	1314.00
1.15	.00	5.03	3.68	.000	.035	.050	.000	1310.00	19540.00
.005206	940.	960.	1000.	4	0	0	.00	710.00	20250.00

FLOW DISTRIBUTION FOR SECNO= 14.38 CWSEL= 1316.28

STA= 19540. 20095. 20250.
PER Q= 81.9 18.1
AREA= 1174.0 353.6
VEL= 5.0 3.7
DEPTH= 2.1 2.3

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 14.559

3470 ENCROACHMENT STATIONS= 19220.0 20045.0 TYPE= 1 TARGET= 825.000

14.559	5.22	1320.62	.00	1320.23	1320.91	.29	4.26	.01	1322.00
7207.0	.0	7207.0	.0	.0	1681.9	.0	1353.1	297.7	100000.00
1.21	.00	4.29	.00	.000	.035	.000	.000	1315.40	19221.72
.003931	950.	950.	915.	5	0	0	.00	821.11	20042.82

FLOW DISTRIBUTION FOR SECNO= 14.56 CWSEL= 1320.62

STA= 19222. 20045.
PER Q= 100.0
AREA= 1681.9
VEL= 4.3
DEPTH= 2.0

*SECNO 14.752

3470 ENCROACHMENT STATIONS= 19670.0 20170.0 TYPE= 1 TARGET= 500.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1326.00 ELREA= 100000.00

14.752	5.94	1324.74	.00	1324.66	1325.22	.48	4.25	.06	1326.00
7207.0	.0	7207.0	.0	.0	1296.5	.0	1387.9	312.8	100000.00
1.26	.00	5.56	.00	.000	.035	.000	.000	1318.80	19673.14
.004429	1010.	1020.	1010.	3	0	0	.00	468.57	20141.72

FLOW DISTRIBUTION FOR SECNO= 14.75 CWSEL= 1324.74

STA= 19673. 20170.
PER Q= 100.0
AREA= 1296.5
VEL= 5.6
DEPTH= 2.8

*SECNO 14.945

3301 HV CHANGED MORE THAN HVINS

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .52

3470 ENCROACHMENT STATIONS= 19865.0 20050.0 TYPE= 1 TARGET= 185.000

14.945	7.26	1329.76	.00	1329.02	1330.77	1.00	5.39	.16	1330.00
4746.0	.0	4746.0	.0	.0	590.0	.0	1410.0	320.3	100000.00
1.29	.00	8.04	.00	.000	.035	.000	.000	1322.50	19873.85
.007151	1005.	1020.	1000.	3	0	0	.00	174.97	20048.82

FLOW DISTRIBUTION FOR SECNO= 14.94 CWSEL= 1329.76

STA= 19874. 20050.
PER Q= 100.0
AREA= 590.0
VEL= 8.0
DEPTH= 3.4

*SECNO 15.144

3470 ENCROACHMENT STATIONS= 19955.0 20382.0 TYPE= 1 TARGET= 427.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 100000.00 ELREA= 1336.00

15.144	6.24	1338.24	1338.23	1334.82	1339.02	.78	8.22	.02	100000.00
4746.0	.0	1536.7	3209.3	.0	143.2	736.4	1426.4	326.9	1336.00
1.34	.00	10.73	4.36	.000	.035	.050	.000	1332.00	19955.00
.009562	900.	1056.	890.	15	9	0	.00	427.00	20382.00

FLOW DISTRIBUTION FOR SECNO= 15.14 CWSEL= 1338.24

STA= 19955. 19982. 20382.
PER Q= 32.4 67.6
AREA= 143.2 736.4
VEL= 10.7 4.4
DEPTH= 5.2 1.8

*SECNO 15.333

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 3.19

3470 ENCROACHMENT STATIONS= 19770.0 20100.0 TYPE= 1 TARGET= 330.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1340.00 ELREA= 100000.00

15.333	5.99	1340.99	.00	1338.85	1341.17	.18	2.10	.06	1340.00
4746.0	.0	4746.0	.0	.0	1393.4	.0	1451.6	335.0	100000.00
1.42	.00	3.41	.00	.000	.035	.000	.000	1335.00	19770.00
.000940	900.	1000.	890.	5	0	0	.00	327.48	20097.48

FLOW DISTRIBUTION FOR SECNO= 15.33 CWSEL= 1340.99

STA= 19770. 20100.
PER Q= 100.0
AREA= 1393.4
VEL= 3.4
DEPTH= 4.3

*SECNO 15.519

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

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3470 ENCROACHMENT STATIONS=    19950.0   20320.0  TYPE=      1  TARGET=      370.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1348.00 ELREA=    100000.00

    15.519      3.47   1343.47   1343.47   1344.19   1344.52      1.05      2.34       .26   1348.00
    4746.0        .0    4746.0        .0        .0     576.2        .0    1473.7     341.9 100000.00
      1.45       .00      8.24       .00      .000      .035      .000      .000   1340.00  19965.10
   .014541      940.      980.      960.        20        14         0       .00    281.59  20246.69


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     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

FLOW DISTRIBUTION FOR SECNO=     15.52          CWSEL=   1343.47

STA=   19965.   20320.
  PER Q=    100.0
   AREA=    576.2
    VEL=      8.2
  DEPTH=      2.0

*SECNO 15.699

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.83

3470 ENCROACHMENT STATIONS=    19870.0   20085.0  TYPE=      1  TARGET=      215.000
    15.699      5.82   1350.82       .00   1349.57   1351.48       .66      6.92       .04   1354.00
    4746.0        .0    4746.0        .0        .0     725.5        .0    1487.9     347.2 100000.00
      1.49       .00      6.54       .00      .000      .035      .000      .000   1345.00  19882.94
   .004360      935.      950.      920.         4         0         0       .00    202.06  20085.00

FLOW DISTRIBUTION FOR SECNO=     15.70          CWSEL=   1350.82

STA=   19883.   20085.
  PER Q=    100.0
   AREA=    725.5
    VEL=      6.5
  DEPTH=      3.6

*SECNO 15.966

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .64

3470 ENCROACHMENT STATIONS=     1985.0    2430.0  TYPE=      1  TARGET=      445.000
    15.966      4.47   1356.47       .00   1356.31   1356.62       .15      5.09       .05   1358.00
    2350.0        .0    2350.0        .0        .0     748.1        .0    1511.8     357.3 100000.00
      1.61       .00      3.14       .00      .000      .035      .000      .000   1352.00   1988.81
   .002588     1450.     1410.     1200.         5         0         0       .00    425.41   2414.23


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     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

FLOW DISTRIBUTION FOR SECNO=     15.97          CWSEL=   1356.47

STA=    1989.    2430.
  PER Q=    100.0
   AREA=    748.1
    VEL=      3.1
  DEPTH=      1.8

*SECNO 16.066

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     1970.0    2350.0  TYPE=      1  TARGET=      380.000
    16.066      5.50   1359.50   1359.50   1358.68   1360.21       .71      3.07       .17   1360.40
    2350.0        .0    2350.0        .0        .0     346.6        .0    1518.9     361.8 100000.00
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      1.64       .00      6.78       .00      .000      .035      .000      .000   1354.00   1982.52
   .017387      565.      570.      480.         6        11         0       .00    259.67   2332.38

 FLOW DISTRIBUTION FOR SECNO=     16.07          CWSEL=   1359.50

 STA=    1983.    2350.
   PER Q=    100.0
    AREA=    346.6
     VEL=      6.8
   DEPTH=      1.3

 *SECNO 16.167

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.34

 3470 ENCROACHMENT STATIONS=     1950.0    2200.0  TYPE=      1  TARGET=      250.000
    16.167       5.25   1363.25       .00   1362.43   1363.55       .31      3.30       .04   1364.80
    2350.0         .0    2182.7     167.3        .0     476.5      87.3    1524.5     364.9   1362.00
      1.67       .00       4.58      1.92      .000      .035      .050      .000   1358.00   1951.62
   .003173      530.      530.      530.         7         0         0       .00    248.38   2200.00


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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

 FLOW DISTRIBUTION FOR SECNO=     16.17          CWSEL=   1363.25

 STA=    1952.    2130.    2170.    2200.
   PER Q=    92.9      4.1      3.0
    AREA=   476.5     49.9     37.4
     VEL=     4.6      1.9      1.9
   DEPTH=     2.7      1.2      1.2

 *SECNO 16.248

 3301 HV CHANGED MORE THAN HVINS

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .54

 3470 ENCROACHMENT STATIONS=     1925.0    2030.0  TYPE=      1  TARGET=      105.000
    16.248       8.83   1364.93       .00   1364.44   1366.08      1.14      2.27       .25   1367.00
    2350.0         .0    2350.0         .0        .0     273.7        .0    1528.5     366.5 100000.00
      1.68       .00       8.59      .00       .000      .035      .000      .000   1356.10   1931.21
   .010739      450.      430.      340.         3         0         0       .00     98.79   2030.00

 FLOW DISTRIBUTION FOR SECNO=     16.25          CWSEL=   1364.93

 STA=    1931.    2030.
   PER Q=    100.0
    AREA=    273.7
     VEL=      8.6
   DEPTH=      2.8

 *SECNO 16.328

 3301 HV CHANGED MORE THAN HVINS

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.67

 3470 ENCROACHMENT STATIONS=     1915.0    2240.0  TYPE=      1  TARGET=      325.000
    16.328       9.85   1367.35       .00   1366.52   1367.49       .14      1.31       .10   1366.00
    2350.0         .0    2350.0         .0        .0     786.9        .0    1533.5     368.5 100000.00
      1.72       .00       2.99      .00       .000      .035      .000      .000   1357.50   1915.00
   .001511      440.      410.      250.         1         0         0       .00    321.81   2236.81


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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

 FLOW DISTRIBUTION FOR SECNO=     16.33          CWSEL=   1367.35

 STA=    1915.    2240.
   PER Q=    100.0
    AREA=    786.9
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    VEL=      3.0
  DEPTH=      2.4

*SECNO 16.411

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .45


3470 ENCROACHMENT STATIONS=     1885.0    2055.0  TYPE=      1  TARGET=      170.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1369.20 ELREA=    100000.00

    16.411      3.95   1368.25       .00   1368.15   1368.94       .70      1.29       .17   1369.20
    2350.0        .0    2350.0        .0        .0     350.4        .0    1539.4     370.9 100000.00
      1.74       .00      6.71       .00      .000      .035      .000      .000   1364.30   1912.69
   .007338      510.      450.      350.         3         0         0       .00    139.25   2051.94


FLOW DISTRIBUTION FOR SECNO=     16.41          CWSEL=   1368.25

STA=    1913.    2055.
  PER Q=    100.0
   AREA=    350.4
    VEL=      6.7
  DEPTH=      2.5

*SECNO 16.504

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.78


3470 ENCROACHMENT STATIONS=     1835.0    2035.0  TYPE=      1  TARGET=      200.000
1
   17NOV95      08:51:14                                                                          PAGE   92

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1370.00 ELREA=    100000.00

    16.504      6.59   1370.59       .00   1370.58   1370.85       .27      1.87       .04   1370.00
    2350.0        .0    2350.0        .0        .0     567.7        .0    1544.6     372.8 100000.00
      1.77       .00      4.14       .00      .000      .035      .000      .000   1364.00   1835.00
   .002324      460.      490.      300.         3         0         0       .00    195.99   2030.99


FLOW DISTRIBUTION FOR SECNO=     16.50          CWSEL=   1370.59

STA=    1835.    2035.
  PER Q=    100.0
   AREA=    567.7
    VEL=      4.1
  DEPTH=      2.9

*SECNO 16.608

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .64


3470 ENCROACHMENT STATIONS=     1910.0    2110.0  TYPE=      1  TARGET=      200.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1376.50 ELREA=    100000.00

    16.608      4.43   1372.23       .00   1372.19   1372.76       .53      1.83       .08   1376.50
    2350.0        .0    2350.0        .0        .0     403.3        .0    1550.5     375.0 100000.00
      1.80       .00      5.83       .00      .000      .035      .000      .000   1367.80   1929.44
   .005665      485.      530.      450.         2         0         0       .00    162.61   2092.04


FLOW DISTRIBUTION FOR SECNO=     16.61          CWSEL=   1372.23

STA=    1929.    2110.
  PER Q=    100.0
   AREA=    403.3
    VEL=      5.8
  DEPTH=      2.5

1
   17NOV95      08:51:14                                                                          PAGE   93

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST
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*SECNO 16.732

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .64


3470 ENCROACHMENT STATIONS=     1950.0    2110.0  TYPE=       1  TARGET=      160.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1380.00 ELREA=    100000.00

    16.732      2.73   1377.73   1377.68   1377.75   1378.66       .94      5.78       .12   1380.00
    2350.0        .0    2350.0       .0        .0     302.7        .0    1556.0     377.5 100000.00
      1.82       .00      7.76       .00      .000      .035      .000      .000   1375.00   1955.68
   .013869      640.      685.      420.        12        14         0       .00    154.31   2110.00


FLOW DISTRIBUTION FOR SECNO=     16.73          CWSEL=   1377.73

STA=    1956.    2115.
  PER Q=    100.0
   AREA=    302.7
    VEL=      7.8
  DEPTH=      2.0

*SECNO 16.818

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.99


3470 ENCROACHMENT STATIONS=     1935.0    2045.0  TYPE=       1  TARGET=      110.000
    16.818      5.25   1380.95       .00   1380.64   1381.51       .57      2.82       .04   1382.00
    2350.0        .0    2350.0       .0        .0     388.5        .0    1559.6     378.8 100000.00
      1.84       .00      6.05       .00      .000      .035      .000      .000   1375.70   1942.85
   .003488      430.      455.      750.         3         0         0       .00    102.15   2045.00


FLOW DISTRIBUTION FOR SECNO=     16.82          CWSEL=   1380.95

STA=    1943.    2045.
  PER Q=    100.0
   AREA=    388.5
    VEL=      6.0
  DEPTH=      3.8

1
PROFILE FOR STREAM  Comparison with FIS Q  W


PLOTTED POINTS (BY PRIORITY) E-ENERGY,W-WATER SURFACE,I-INVERT,C-CRITICAL W.S.,L-LEFT BANK,R-RIGHT BANK,M-LOWER END STA


ELEVATION  1155.     1205.     1255.     1305.     1355.     1405.     1455.     1505.     1555.     1605.
    SECNO   CUMDIS

     8.65      0.  I  E      .         .         .         .         .         .         .         .         .
             100.  I  E      .         .         .         .         .         .         .         .         R
             200.  I  E      .         .         .         .         .         .         .         .         R
             300.  I  E      .         .         .         .         .         .         .         .         R
     8.73    400.  I  EL     .         .         .         .         .         .         .         .         R
             500.  I  EL     .         .         .         .         .         .         .         .         R
             600.  I  EL     .         .         .         .         .         .         .         .         R
             700.  CI EL     .         .         .         .         .         .         .         .         R
     8.81    800.  CI EL     .         .         .         .         .         .         .         .         R
             900.  CI EL     .         .         .         .         .         .         .         .         R
            1000.  CI EL     .         .         .         .         .         .         .         .         R
            1100.  CI EL     .         .         .         .         .         .         .         .         R
     8.88   1200.  CI EL     .         .         .         .         .         .         .         .         R
            1300.  CI EL     .         .         .         .         .         .         .         .         R
            1400.  CI EL     .         .         .         .         .         .         .         .         R
     8.94   1500.  CI EL     .         .         .         .         .         .         .         .         R
            1600.  C IWEM    .         .         .         .         .         .         .         .         R
     8.98   1700.  C IWEM    .         .         .         .         .         .         .         .         R
            1800.  C IWEL    .         .         .         .         .         .         .         .         R
     9.01   1900.  C I EL    .         .         .         .         .         .         .         .         R
            2000.  CI  EL    .         .         .         .         .         .         .         .         R
     9.05   2100.  CI  EM    .         .         .         .         .         .         .         .         R
            2200.  CI  EL    .         .         .         .         .         .         .         .         R
            2300.  C I EL    .         .         .         .         .         .         .         .         R
            2400.  C I EL    .         .         .         .         .         .         .         .         R
     9.13   2500.  C I EL    .         .         .         .         .         .         .         .         R
            2600.  C I EL    .         .         .         .         .         .         .         .         R
            2700.  C I EL    .         .         .         .         .         .         .         .         R
            2800.  C I EL    .         .         .         .         .         .         .         .         R
            2900.  C  IWEL   .         .         .         .         .         .         .         .         R
            3000.  C  I EL   .         .         .         .         .         .         .         .         R
            3100.  C  I EL   .         .         .         .         .         .         .         .         R
            3200.  C  I EL   .         .         .         .         .         .         .         .         R
            3300.  C  I EL   .         .         .         .         .         .         .         .         R
            3400.  C  I WE   .         .         .         .         .         .         .         .         R
     9.32   3500.  .   IWE   .         .         .         .         .         .         .         .         R
            3600.  C  IWE    .         .         .         .         .         .         .         .         R
            3700.  C  I E    .         .         .         .         .         .         .         .         R
            3800.  C  I E    .         .         .         .         .         .         .         .         R
            3900.  C  I E    .         .         .         .         .         .         .         .         R
```

	4000.	C	I E	.	.	.	.	.	.	.	.	.		R
	4100.	C	I WE	.	.	.	.	.	.	.	.	.		R
	4200.	C	I WE	.	.	.	.	.	.	.	.	.		R
	4300.	C	I ME	.	.	.	.	.	.	.	.	.		R
	4400.	C	I E	.	.	.	.	.	.	.	.	.		R
9.49	4500.	C	I E	.	.	.	.	.	.	.	.	.		R
	4600.	C	I E	.	.	.	.	.	.	.	.	.		R
	4700.	C	I E	.	.	.	.	.	.	.	.	.		R
	4800.	C	I E	.	.	.	.	.	.	.	.	.		R
	4900.	C	I E	.	.	.	.	.	.	.	.	.		R
	5000.	C	I E	.	.	.	.	.	.	.	.	.		R
	5100.	C	I WE	.	.	.	.	.	.	.	.	.		R
	5200.	C	I WE	.	.	.	.	.	.	.	.	.		R
	5300.	C	IWE	.	.	.	.	.	.	.	.	.		R
	5400.	C	IWE	.	.	.	.	.	.	.	.	.		R
9.69	5500.	.	IWE	.	.	.	.	.	.	.	.	.		R
	5600.	C	IME	.	.	.	.	.	.	.	.	.		R
	5700.	C	I E	.	.	.	.	.	.	.	.	.		R
	5800.	C	I E	.	.	.	.	.	.	.	.	.		R
	5900.	C	I WE	.	.	.	.	.	.	.	.	.		R
	6000.	C	I WE	.	.	.	.	.	.	.	.	.		R
	6100.	C	I WE	.	.	.	.	.	.	.	.	.		R
	6200.	C	I WE	.	.	.	.	.	.	.	.	.		R
	6300.	C	I ME	.	.	.	.	.	.	.	.	.		R
	6400.	C	I ME	.	.	.	.	.	.	.	.	.		R
	6500.	C	I E	.	.	.	.	.	.	.	.	.		R
9.89	6600.	C	I E	.	.	.	.	.	.	.	.	.		R
	6700.	C	I E	.	.	.	.	.	.	.	.	.		R
	6800.	C	I E	.	.	.	.	.	.	.	.	.		R
9.95	6900.	C	I E	.	.	.	.	.	.	.	.	.		R
9.97	7000.	C	I EL	.	.	.	.	.	.	.	.	.		R
	7100.	C	I EL	.	.	.	.	.	.	.	.	.		R
	7200.	C	I EL	.	.	.	.	.	.	.	.	.		R
	7300.	C	I EL	.	.	.	.	.	.	.	.	.		R
	7400.	C	IWE	.	.	.	.	.	.	.	.	.		R
	7500.	C	IWE	.	.	.	.	.	.	.	.	.		R
10.10	7600.	C	IWE	.	.	.	.	.	.	.	.	.		R
	7700.	C	ILE	.	.	.	.	.	.	.	.	.		R
	7800.	C	I E	.	.	.	.	.	.	.	.	.		R
	7900.	C	I E	.	.	.	.	.	.	.	.	.		R
	8000.	C	I E	.	.	.	.	.	.	.	.	.		R
	8100.	C	I E	.	.	.	.	.	.	.	.	.		R
	8200.	C	I EL	.	.	.	.	.	.	.	.	.		R
	8300.	C	I EL	.	.	.	.	.	.	.	.	.		R
	8400.	C	IEL	.	.	.	.	.	.	.	.	.		R
10.27	8500.	C	IEL	.	.	.	.	.	.	.	.	.		R
	8600.	C	IEML	.	.	.	.	.	.	.	.	.		R
	8700.	C	IWEL	.	.	.	.	.	.	.	.	.		R
	8800.	C	IWEL	.	.	.	.	.	.	.	.	.		R
	8900.	C	I.EL	.	.	.	.	.	.	.	.	.		R
	9000.	C	I.EL	.	.	.	.	.	.	.	.	.		R
	9100.	C	IEL	.	.	.	.	.	.	.	.	.		R
	9200.	C	IEL	.	.	.	.	.	.	.	.	.		R
	9300.	C	IEL	.	.	.	.	.	.	.	.	.		R
	9400.	C	IEL	.	.	.	.	.	.	.	.	.		R
10.44	9500.	C	IEL	.	.	.	.	.	.	.	.	.		R
	9600.	C	IWE	.	.	.	.	.	.	.	.	.		R
	9700.	C	IWE	.	.	.	.	.	.	.	.	.		R
	9800.	C	IWEL	.	.	.	.	.	.	.	.	.		R
	9900.	C	I EL	.	.	.	.	.	.	.	.	.		R
	10000.	C	.IEL	.	.	.	.	.	.	.	.	.		R
	10100.	C	.IEL	.	.	.	.	.	.	.	.	.		R
	10200.	C	.IEL	.	.	.	.	.	.	.	.	.		R
10.61	10300.	C	.IEL	.	.	.	.	.	.	.	.	.		R
	10400.	C	.IWE	.	.	.	.	.	.	.	.	.		R
	10500.	C	.IWE	.	.	.	.	.	.	.	.	.		R
10.66	10600.	C	.IWE	.	.	.	.	.	.	.	.	.		.
	10700.	C	.IWEL	.	.	.	.	.	.	.	.	.		.
10.69	10800.	C	.IWEL	.	.	.	.	.	.	.	.	.		.
10.72	10900.	C	.IWE	.	.	.	.	.	.	.	.	.		.
	11000.	C	.ILE	.	.	.	.	.	.	.	.	.		R
	11100.	C	.I E	.	.	.	.	.	.	.	.	.		R
	11200.	C	. IE	.	.	.	.	.	.	.	.	.		R
	11300.	C	. IEM	.	.	.	.	.	.	.	.	.		R
10.80	11400.	.	. IWE	.	.	.	.	.	.	.	.	.		R
	11500.	C	. IWE	.	.	.	.	.	.	.	.	.		R
10.93	11600.	C	. ILE	.	.	.	.	.	.	.	.	.		R
10.93	11700.	C	. IRE	.	.	.	.	.	.	.	.	.		.
10.94	11800.	C	. IRE	.	.	.	.	.	.	.	.	.		.
	11900.	C	. IWE	.	.	.	.	.	.	.	.	.		.
10.94	12000.	C	. IWE	.	.	.	.	.	.	.	.	.		.
	12100.	C	. I E	.	.	.	.	.	.	.	.	.		.
	12200.	C	. I EL	.	.	.	.	.	.	.	.	.		.
10.99	12300.	C	. I EL	.	.	.	.	.	.	.	.	.		.
11.01	12400.	C	. I EL	.	.	.	.	.	.	.	.	.		.
11.02	12500.	C	. I EL	.	.	.	.	.	.	.	.	.		R
	12600.	C	. I EL	.	.	.	.	.	.	.	.	.		R
11.05	12700.	C	. IWE	.	.	.	.	.	.	.	.	.		.
	12800.	C	. IWE	.	.	.	.	.	.	.	.	.		M
	12900.	C	. IWE	.	.	.	.	.	.	.	.	.		M
	13000.	C	. IWE	.	.	.	.	.	.	.	.	.		M
11.13	13100.	C	. I E	.	.	.	.	.	.	.	.	.		M
	13200.	C	. I E	.	.	.	.	.	.	.	.	.		M
	13300.	C	. I E	.	.	.	.	.	.	.	.	.		M
11.19	13400.	C	. I EL	.	.	.	.	.	.	.	.	.		.

```
      13500.  C        .  I EL   .        .        .        .        .        .        .        .
      13600.  C        .  IMEL   .        .        .        .        .        .        .        .
      13700.  C        .  IMEL   .        .        .        .        .        .        .        .
      13800.  C        .  IMEL   .        .        .        .        .        .        .        .
      13900.  C        .  I EL   .        .        .        .        .        .        .        .
11.30 14000.  C        .  I EL   .        .        .        .        .        .        .        .
      14100.  C        .  IMEL   .        .        .        .        .        .        .        .
11.33 14200.  C        .  I EL   .        .        .        .        .        .        .        .
      14300.  C        .  I WE   .        .        .        .        .        .        .        R
      14400.  C        .  I WE   .        .        .        .        .        .        .        R
11.39 14500.  C        .   IWEM  .        .        .        .        .        .        .        R
      14600.  C        .   I EM  .        .        .        .        .        .        .        R
      14700.  C        .   I EM  .        .        .        .        .        .        .        R
      14800.  C        .   I EM  .        .        .        .        .        .        .        R
      14900.  C        .   I EM  .        .        .        .        .        .        .        R
11.48 15000.  C        .   I EM  .        .        .        .        .        .        .        R
      15100.  C        .    IEM  .        .        .        .        .        .        .        R
      15200.  C        .    IELM .        .        .        .        .        .        .        R
      15300.  C        .    IELM .        .        .        .        .        .        .        R
      15400.  C        .    IELM .        .        .        .        .        .        .        R
11.57 15500.  C        .    IELM .        .        .        .        .        .        .        R
      15600.  C        .    IELM .        .        .        .        .        .        .        R
      15700.  C        .    IWEM .        .        .        .        .        .        .        R
      15800.  C        .    IWE M.        .        .        .        .        .        .        R
      15900.  C        .    I E M.        .        .        .        .        .        .        R
      16000.  C        .    I E M.        .        .        .        .        .        .        R
      16100.  C        .     IE M.        .        .        .        .        .        .        R
      16200.  C        .     IELM.        .        .        .        .        .        .        R
      16300.  C        .     IELM.        .        .        .        .        .        .        R
      16400.  C        .     IELM.        .        .        .        .        .        .        R
11.76 16500.  .        .     IELM.        .        .        .        .        .        .        R
      16600.  C        .     IELM.        .        .        .        .        .        .        R
      16700.  C        .     IELM.        .        .        .        .        .        .        R
      16800.  C        .     IELM.        .        .        .        .        .        .        R
      16900.  C        .      WE M        .        .        .        .        .        .        R
      17000.  C        .      IE M        .        .        .        .        .        .        R
      17100.  C        .      IELM        .        .        .        .        .        .        R
      17200.  C        .      IELM        .        .        .        .        .        .        R
      17300.  C        .      IELM        .        .        .        .        .        .        R
      17400.  C        .      IELM        .        .        .        .        .        .        R
11.95 17500.  C        .      IELM        .        .        .        .        .        .        R
      17600.  C        .       WEM        .        .        .        .        .        .        R
      17700.  C        .       IE.M       .        .        .        .        .        .        R
      17800.  C        .       IE.M       .        .        .        .        .        .        R
      17900.  C        .       IELM       .        .        .        .        .        .        R
      18000.  C        .       IELM       .        .        .        .        .        .        R
      18100.  C        .       IELM       .        .        .        .        .        .        R
      18200.  C        .       IELM       .        .        .        .        .        .        R
      18300.  C        .       IELM       .        .        .        .        .        .        R
12.13 18400.  C        .        WEL       .        .        .        .        .        .        R
      18500.  C        .        IEL       .        .        .        .        .        .        R
      18600.  C        .        IEL       .        .        .        .        .        .        R
      18700.  C        .        IEL       .        .        .        .        .        .        R
      18800.  C        .        IEL       .        .        .        .        .        .        R
      18900.  C        .        IEL       .        .        .        .        .        .        R
      19000.  C        .        IELM      .        .        .        .        .        .        R
      19100.  C        .        IELM      .        .        .        .        .        .        R
      19200.  C        .        IWEM      .        .        .        .        .        .        R
      19300.  C        .        IWEM      .        .        .        .        .        .        R
12.31 19400.  C        .        I.EM      .        .        .        .        .        .        R
      19500.  C        .         IEM      .        .        .        .        .        .        R
      19600.  C        .         IEM      .        .        .        .        .        .        R
      19700.  C        .         IEM      .        .        .        .        .        .        R
      19800.  C        .         IEL      .        .        .        .        .        .        R
      19900.  C        .         IEL      .        .        .        .        .        .        R
      20000.  C        .         IEL      .        .        .        .        .        .        R
      20100.  C        .         IWE      .        .        .        .        .        .        R
      20200.  C        .         IWE      .        .        .        .        .        .        R
      20300.  C        .         I E      .        .        .        .        .        .        R
      20400.  C        .         I E      .        .        .        .        .        .        R
12.51 20500.  C        .         I E      .        .        .        .        .        .        R
      20600.  C        .         .IE      .        .        .        .        .        .        R
      20700.  C        .         .IE      .        .        .        .        .        .        R
      20800.  C        .         .IE      .        .        .        .        .        .        R
      20900.  C        .         .IEM     .        .        .        .        .        .        R
      21000.  C        .         .IEM     .        .        .        .        .        .        R
      21100.  C        .         .IWE     .        .        .        .        .        .        R
      21200.  C        .         .IWE     .        .        .        .        .        .        R
      21300.  C        .         . IE     .        .        .        .        .        .        R
      21400.  C        .         . IE     .        .        .        .        .        .        R
12.70 21500.  C        .         . IE     .        .        .        .        .        .        R
      21600.  C        .         . IE     .        .        .        .        .        .        R
      21700.  C        .         . IE     .        .        .        .        .        .        R
      21800.  C        .         . IE     .        .        .        .        .        .        R
      21900.  C        .         . IEM    .        .        .        .        .        .        R
      22000.  C        .         . IEM    .        .        .        .        .        .        R
      22100.  C        .         . IWE    .        .        .        .        .        .        R
      22200.  C        .         . IWE    .        .        .        .        .        .        R
      22300.  C        .         .  IE    .        .        .        .        .        .        R
      22400.  C        .         .  IE    .        .        .        .        .        .        R
12.90 22500.  C        .         .  IE    .        .        .        .        .        .        R
      22600.  C        .         .  IE    .        .        .        .        .        .        R
      22700.  C        .         .  IE    .        .        .        .        .        .        R
      22800.  C        .         .  IE    .        .        .        .        .        .        R
      22900.  C        .         .  IEM   .        .        .        .        .        .        R
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      23000.  C         .         .  IEM    .         .         .         .         .         .         .         R
      23100.  C         .         .  IEM    .         .         .         .         .         .         .         R
      23200.  C         .         .  IEM    .         .         .         .         .         .         .         R
      23300.  C         .         .  IWE    .         .         .         .         .         .         .         R
      23400.  C         .         .  IWE    .         .         .         .         .         .         .         R
13.08 23500.  C         .         .  I E    .         .         .         .         .         .         .         R
      23600.  C         .         .  I E    .         .         .         .         .         .         .         R
      23700.  C         .         .  I E    .         .         .         .         .         .         .         R
      23800.  C         .         .   IE    .         .         .         .         .         .         .         R
      23900.  C         .         .   IE    .         .         .         .         .         .         .         R
      24000.  C         .         .   IE    .         .         .         .         .         .         .         R
      24100.  C         .         .   IE    .         .         .         .         .         .         .         R
      24200.  C         .         .   IE    .         .         .         .         .         .         .         R
13.23 24300.  C         .         .   IE    .         .         .         .         .         .         .         R
      24400.  C         .         .   IEM   .         .         .         .         .         .         .         R
      24500.  C         .         .   IWE   .         .         .         .         .         .         .         R
      24600.  C         .         .   IWE   .         .         .         .         .         .         .         R
      24700.  C         .         .   I E   .         .         .         .         .         .         .         R
      24800.  C         .         .    IE   .         .         .         .         .         .         .         R
      24900.  C         .         .    IE   .         .         .         .         .         .         .         R
      25000.  C         .         .    IEM  .         .         .         .         .         .         .         R
      25100.  C         .         .    IEM  .         .         .         .         .         .         .         R
      25200.  C         .         .    IEM  .         .         .         .         .         .         .         R
13.42 25300.  .         .         .    IWE  .         .         .         .         .         .         .         R
      25400.  . C       .         .    IWE  .         .         .         .         .         .         .         R
      25500.  C         .         .    I E  .         .         .         .         .         .         .         R
      25600.  C         .         .     IE  .         .         .         .         .         .         .         R
      25700.  C         .         .     IEM .         .         .         .         .         .         .         R
      25800.  C         .         .     IEM .         .         .         .         .         .         .         R
      25900.  C         .         .     IEM .         .         .         .         .         .         .         R
      26000.  C         .         .     IEM .         .         .         .         .         .         .         R
      26100.  C         .         .     IEM .         .         .         .         .         .         .         R
      26200.  C         .         .     IEL .         .         .         .         .         .         .         R
13.62 26300.  C         .         .     I E .         .         .         .         .         .         .         R
      26400.  C         .         .     I E .         .         .         .         .         .         .         R
      26500.  C         .         .     I E .         .         .         .         .         .         .         R
      26600.  C         .         .     I E .         .         .         .         .         .         .         R
      26700.  C         .         .      IE .         .         .         .         .         .         .         R
      26800.  C         .         .      IEM.         .         .         .         .         .         .         R
      26900.  C         .         .      IEM.         .         .         .         .         .         .         R
      27000.  C         .         .      IEL.         .         .         .         .         .         .         R
      27100.  C         .         .      IWE.         .         .         .         .         .         .         R
      27200.  C         .         .       WE.         .         .         .         .         .         .         R
      27300.  .         .    C    .       IE.         .         .         .         .         .         .         R
13.82 27400.  .         .         .       IE.         .         .         .         .         .         .         R
      27500.  .  C      .         .       IE.         .         .         .         .         .         .         R
      27600.  C         .         .       IE.         .         .         .         .         .         .         R
      27700.  C         .         .       IE.         .         .         .         .         .         .         R
      27800.  C         .         .       IE.         .         .         .         .         .         .         R
      27900.  C         .         .       IEM         .         .         .         .         .         .         R
      28000.  C         .         .       IWE         .         .         .         .         .         .         R
      28100.  C         .         .       I E         .         .         .         .         .         .         R
      28200.  C         .         .       I E         .         .         .         .         .         .         R
      28300.  C         .         .       I E         .         .         .         .         .         .         R
14.01 28400.  C         .         .        IE         .         .         .         .         .         .         R
      28500.  C         .         .        IE         .         .         .         .         .         .         R
      28600.  C         .         .        IE         .         .         .         .         .         .         R
      28700.  C         .         .        IEM        .         .         .         .         .         .         R
      28800.  C         .         .        IEM        .         .         .         .         .         .         R
      28900.  C         .         .        IWE        .         .         .         .         .         .         R
      29000.  C         .         .        IWE        .         .         .         .         .         .         R
      29100.  C         .         .        ILE        .         .         .         .         .         .         R
      29200.  C         .         .         IE        .         .         .         .         .         .         R
      29300.  C         .         .         IE        .         .         .         .         .         .         R
14.20 29400.  C         .         .         IE        .         .         .         .         .         .         R
      29500.  C         .         .         IE        .         .         .         .         .         .         R
      29600.  C         .         .         IE        .         .         .         .         .         .         R
      29700.  C         .         .         IEM       .         .         .         .         .         .         R
      29800.  C         .         .         IWE       .         .         .         .         .         .         R
      29900.  C         .         .         ILE       .         .         .         .         .         .         R
      30000.  C         .         .         .IE       .         .         .         .         .         .         R
      30100.  C         .         .         .IE       .         .         .         .         .         .         R
      30200.  C         .         .         .IE       .         .         .         .         .         .         R
      30300.  C         .         .         .IE       .         .         .         .         .         .         R
14.38 30400.  C         .         .         .IEM      .         .         .         .         .         .         .
      30500.  C         .         .         .IEM      .         .         .         .         .         .         R
      30600.  C         .         .         .IEM      .         .         .         .         .         .         R
      30700.  C         .         .         .I E      .         .         .         .         .         .         R
      30800.  C         .         .         .I E      .         .         .         .         .         .         R
      30900.  C         .         .         . IE      .         .         .         .         .         .         R
      31000.  C         .         .         . IE      .         .         .         .         .         .         R
      31100.  C         .         .         . IE      .         .         .         .         .         .         R
      31200.  C         .         .         . IE      .         .         .         .         .         .         R
14.56 31300.  C         .         .         . IE      .         .         .         .         .         .         R
      31400.  C         .         .         . IEM     .         .         .         .         .         .         R
      31500.  C         .         .         . IEL     .         .         .         .         .         .         R
      31600.  C         .         .         . IEL     .         .         .         .         .         .         R
      31700.  C         .         .         . IWEM    .         .         .         .         .         .         R
      31800.  C         .         .         . I EM    .         .         .         .         .         .         R
      31900.  C         .         .         . I EM    .         .         .         .         .         .         R
      32000.  C         .         .         .  IEM    .         .         .         .         .         .         R
      32100.  C         .         .         .  IE M   .         .         .         .         .         .         R
      32200.  C         .         .         .  IE M   .         .         .         .         .         .         R
14.75 32300.  C         .         .         .  IE M   .         .         .         .         .         .         R
      32400.  C         .         .         .  IE M   .         .         .         .         .         .         R
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      32500.  C         .         .         .  IE  M  .         .         .         .         .         .         R
      32600.  C         .         .         .  IE  M  .         .         .         .         .         .         R
      32700.  C         .         .         .  IE  M  .         .         .         .         .         .         R
      32800.  C         .         .         .  IWE  M .         .         .         .         .         .         R
      32900.  C         .         .         .  I E  M .         .         .         .         .         .         R
      33000.  C         .         .         .  I E  M .         .         .         .         .         .         R
      33100.  C         .         .         .  I E  M .         .         .         .         .         .         R
      33200.  C         .         .         .  I E   M.         .         .         .         .         .         R
      33300.  C         .         .         .  I E   M.         .         .         .         .         .         R
14.94 33400.  C         .         .         .  I E   M.         .         .         .         .         .         R
      33500.  C         .         .         .   IE   M.         .         .         .         .         .         L
      33600.  C         .         .         .   IE   M.         .         .         .         .         .         L
      33700.  C         .         .         .   IWE   M         .         .         .         .         .         L
      33800.  C         .         .         .   I E   M         .         .         .         .         .         L
      33900.  C         .         .         .   I E   M         .         .         .         .         .         L
      34000.  C         .         .         .    IE   M         .         .         .         .         .         L
      34100.  C         .         .         .    IE   M         .         .         .         .         .         L
      34200.  C         .         .         .    IE   M         .         .         .         .         .         L
      34300.  C         .         .         .    IWE  .M        .         .         .         .         .         L
15.14 34400.  .         .         .         .    IRE  .M        .         .         .         .         .         L
      34500.  .         C         .         .    I E  .M        .         .         .         .         .         L
      34600.  C         .         .         .     IE  .M        .         .         .         .         .         L
      34700.  C         .         .         .     IE  .M        .         .         .         .         .         L
      34800.  C         .         .         .     IE  .M        .         .         .         .         .         L
      34900.  C         .         .         .     IE  .M        .         .         .         .         .         L
      35000.  C         .         .         .     IE  .M        .         .         .         .         .         L
      35100.  C         .         .         .     IE  .M        .         .         .         .         .         L
      35200.  C         .         .         .     IE  .M        .         .         .         .         .         L
      35300.  C         .         .         .     IE  .M        .         .         .         .         .         L
15.33 35400.  C         .         .         .     IE  .M        .         .         .         .         .         R
      35500.  C         .         .         .     IE  .M        .         .         .         .         .         R
      35600.  C         .         .         .     IE  .M        .         .         .         .         .         R
      35700.  C         .         .         .     IE  .M        .         .         .         .         .         R
      35800.  C         .         .         .     IEL .M        .         .         .         .         .         R
      35900.  C         .         .         .     IWE .M        .         .         .         .         .         R
      36000.  C         .         .         .      WE .M        .         .         .         .         .         R
      36100.  C         .         .         .      IE .M        .         .         .         .         .         R
      36200.  C         .         .         .      IE .M        .         .         .         .         .         R
      36300.  .         .     C   .         .      IE .M        .         .         .         .         .         R
15.52 36400.  .         .         .         .      IEL.M        .         .         .         .         .         R
      36500.  .        C.         .         .      IEL.M        .         .         .         .         .         R
      36600.  C         .         .         .      IEL.M        .         .         .         .         .         R
      36700.  C         .         .         .      IEL.M        .         .         .         .         .         R
      36800.  C         .         .         .      IEL.M        .         .         .         .         .         R
      36900.  C         .         .         .       WE.M        .         .         .         .         .         R
      37000.  C         .         .         .       IE.M        .         .         .         .         .         R
      37100.  C         .         .         .       IE. M       .         .         .         .         .         R
      37200.  C         .         .         .       IEL M       .         .         .         .         .         R
15.70 37300.  C         .         .         .       IEL M       .         .         .         .         .         R
      37400.  C         .         .         .       IEL M       .         .         .         .         .         R
      37500.  C         .         .         .       IEL M       .         .         .         .         .         R
      37600.  C         .         .         .       IEL M       .         .         .         .         .         R
      37700.  C         .         .         .       IWE  M      .         .         .         .         .         R
      37800.  C         .         .         .       I E  M      .         .         .         .         .         R
      37900.  C         .         .         .        IE  M      .         .         .         .         .         R
      38000.  C         .         .         .        IE  M      .         .         .         .         .         R
      38100.  C         .         .         .        IE  M      .         .         .         .         .         R
      38200.  C         .         .         .        IE   M     .         .         .         .         .         R
      38300.  C         .         .         .        IE   M     .         .         .         .         .         R
      38400.  C         .         .         .        IE   M     .         .         .         .         .         R
      38500.  C         .         .         .        IE   M     .         .         .         .         .         R
      38600.  C         .         .         .        IEL  M     .         .         .         .         .         R
15.97 38700.  C         .         .         .        IEL   M    .         .         .         .         .         R
      38800.  C         .         .         .        IEL   M    .         .         .         .         .         R
      38900.  C         .         .         .         WE  M     .         .         .         .         .         R
      39000.  C         .         .         .         IE  M     .         .         .         .         .         R
      39100.  C         .         .         .         IE  M     .         .         .         .         .         R
      39200.  .      C  .         .         .         IE  M     .         .         .         .         .         R
16.07 39300.  .         .         .         .         IE  M     .         .         .         .         .         R
      39400.  C         .         .         .         IE  M     .         .         .         .         .         R
      39500.  C         .         .         .         IE M      .         .         .         .         .         R
      39600.  C         .         .         .         IELM      .         .         .         .         .         R
      39700.  C         .         .         .         IWEM      .         .         .         .         .         R
16.17 39800.  C         .         .         .         .IE       .         .         .         .         .         .
      39900.  C         .         .         .         I E       .         .         .         .         .         R
      40000.  C         .         .         .         I E       .         .         .         .         .         R
      40100.  C         .         .         .         I EM      .         .         .         .         .         R
      40200.  C         .         .         .         I EM      .         .         .         .         .         R
16.25 40300.  C         .         .         .         I EM      .         .         .         .         .         R
      40400.  C         .         .         .         I EM      .         .         .         .         .         R
      40500.  C         .         .         .         I EM      .         .         .         .         .         R
      40600.  C         .         .         .         I EM      .         .         .         .         .         R
16.33 40700.  C         .         .         .         I EM      .         .         .         .         .         R
      40800.  C         .         .         .         .IWE      .         .         .         .         .         R
      40900.  C         .         .         .         .ILE      .         .         .         .         .         R
      41000.  C         .         .         .         .I E      .         .         .         .         .         R
16.41 41100.  C         .         .         .         . IE      .         .         .         .         .         R
      41200.  C         .         .         .         . IEM     .         .         .         .         .         R
      41300.  C         .         .         .         . IE M    .         .         .         .         .         R
      41400.  C         .         .         .         . IE M    .         .         .         .         .         R
      41500.  C         .         .         .         . IE  M   .         .         .         .         .         R
16.50 41600.  C         .         .         .         . IE   M  .         .         .         .         .         R
      41700.  C         .         .         .         . IE  M   .         .         .         .         .         R
      41800.  C         .         .         .         . IE  M   .         .         .         .         .         R
      41900.  C         .         .         .         . IELM    .         .         .         .         .         R
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	42000.	C	.	.	.	.	IELM	.	.	.	.	.	R
	42100.	C	.	.	.	.	IWE	.	.	.	.	.	R
16.61	42200.	C	.	.	.	.	WE	.	.	.	.	.	R
	42300.	C	.	.	.	.	IE	.	.	.	.	.	R
	42400.	C	.	.	.	.	IE	.	.	.	.	.	R
	42500.	C	.	.	.	.	IEL	.	.	.	.	.	R
	42600.	C	.	.	.	.	IEL	.	.	.	.	.	R
	42700.	C	.	.	.	.	EL	.	.	.	.	.	R
16.73	42800.	.	.	.	.	.	IE	.	.	.	.	.	R
	42900.	C	.	.	.	.	IE	.	.	.	.	.	R
	43000.	C	.	.	.	.	IE	.	.	.	.	.	R
	43100.	C	.	.	.	.	IE	.	.	.	.	.	R
	43200.	C	.	.	.	.	IE	.	.	.	.	.	R
16.82	43300.	C	.	.	.	.	IE	.	.	.	.	.	R

THIS RUN EXECUTED 17NOV95 08:51:22

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HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

Added Cross Sections

SUMMARY PRINTOUT

	SECNO	Q	SSTA	STCHL	VLOB	VCH	VROB	STCHR	ENDST	TOPWID	CWSEL	DIFWSP
	8.655	41000.00	9587.04	9581.40	.00	5.01	.00	10224.30	10221.10	634.06	1170.50	.00
	8.655	41000.00	9587.04	9581.40	.00	5.01	.00	10224.30	10221.10	634.06	1170.50	.00
*	8.731	12000.00	9779.38	9762.50	.00	2.33	.00	10213.50	10208.22	428.84	1170.96	.00
*	8.731	19000.00	9779.93	9762.50	.00	3.72	.00	10213.50	10207.76	427.83	1170.85	-.11
	8.807	12000.00	9785.25	9771.30	.00	2.67	.00	10219.20	10202.70	417.45	1170.99	.00
	8.807	19000.00	9785.44	9771.30	.00	4.24	.00	10219.20	10202.41	416.96	1170.94	-.05
*	8.883	12000.00	9850.57	9824.70	.00	4.70	.00	10216.90	10189.15	338.58	1170.96	.00
*	8.883	19000.00	9851.30	9824.70	.00	7.55	.00	10216.90	10188.76	337.46	1170.85	-.11
	8.936	12000.00	9821.91	9809.40	.00	5.09	.00	10213.20	10181.98	360.07	1171.20	.00
	8.936	19000.00	9821.60	9809.40	.00	7.69	.00	10213.20	10183.17	361.58	1171.51	.31
	8.977	12000.00	9895.40	9886.10	.00	6.84	.00	10212.70	10178.07	282.68	1171.31	.00
	8.977	19000.00	9894.70	9886.10	.00	10.11	.00	10212.70	10180.27	285.57	1171.75	.44
*	9.009	12000.00	9797.15	9764.50	.00	4.63	.00	10207.00	10166.79	369.65	1171.99	.00
*	9.009	19000.00	9790.86	9764.50	.00	6.21	.00	10207.00	10168.77	377.91	1173.24	1.25
	9.047	12000.00	9712.28	9689.80	.00	3.71	.00	10113.80	10103.66	391.38	1172.25	.00
	9.047	19000.00	9706.22	9689.80	.00	5.00	.00	10113.80	10106.34	400.12	1173.66	1.42
*	9.129	12000.00	9674.75	9641.20	.00	4.88	.00	10090.00	10080.74	405.98	1172.43	.00
*	9.129	19000.00	9665.63	9641.20	.00	6.17	.00	10090.00	10082.96	417.32	1173.93	1.50
*	9.318	12000.00	19695.41	19660.00	.00	6.59	1.70	20015.00	23740.00	1824.29	1181.50	.00
*	9.318	19000.00	19693.99	19660.00	.00	12.55	.00	20015.00	20015.00	321.00	1181.84	.34
*	9.492	11450.00	19912.16	19770.00	.00	9.81	.00	20235.00	20200.77	288.61	1185.42	.00
*	9.492	17250.00	19770.00	19770.00	.00	7.23	.00	20235.00	20214.01	444.01	1188.70	3.28

	SECNO	Q	SSTA	STCHL	VLOB	VCH	VROB	STCHR	ENDST	TOPWID	CWSEL	DIFWSP
	9.692	11450.00	19852.36	19840.00	.00	9.94	.00	20060.00	20047.27	194.91	1192.22	.00
*	9.692	17250.00	19850.95	19840.00	.00	14.20	.00	20060.00	20048.32	197.37	1192.54	.31
	9.889	11450.00	19860.24	19840.00	.00	8.30	.00	20080.00	20070.93	210.69	1196.98	.00
*	9.889	17250.00	19841.51	19840.00	.00	8.65	.00	20080.00	20079.09	237.58	1199.69	2.72
	9.953	11450.00	19795.05	19790.00	.00	8.06	.00	20032.00	20026.45	231.40	1197.97	.00
	9.953	17250.00	19790.00	19790.00	.00	8.64	.00	20032.00	20030.41	240.41	1200.41	2.44
	9.967	11450.00	19839.52	19825.00	.00	8.21	.00	20110.00	20080.96	241.44	1198.19	.00
	9.967	17250.00	19833.39	19825.00	.00	8.59	.00	20110.00	20093.21	259.81	1200.64	2.45
*	10.096	11450.00	19639.38	19635.00	.00	8.33	.00	20055.00	20041.40	402.03	1200.56	.00
	10.096	17250.00	19635.00	19635.00	.00	8.21	.00	20055.00	20045.85	410.85	1202.34	1.78
	10.271	10900.00	19863.81	19820.00	.00	7.01	.00	20320.00	20301.58	437.77	1205.06	.00
	10.271	15500.00	19860.09	19820.00	.00	8.45	.00	20320.00	20305.53	445.44	1205.69	.63

*	10.443	10900.00	19742.09	19655.00	.00	9.85	.00	20110.00	20108.96	366.87	1209.58	.00
	10.443	15500.00	19668.44	19655.00	.00	10.10	.00	20110.00	20110.00	441.56	1210.62	1.04
*	10.612	10900.00	19972.01	19955.00	.00	7.97	.00	20300.00	20297.66	325.65	1215.19	.00
	10.612	15500.00	19970.04	19955.00	.00	9.53	.00	20300.00	20298.32	328.28	1215.98	.79
*	10.659	10900.00	40.96	31.17	.00	6.18	.00	314.98	314.98	274.02	1216.14	.00
*	10.659	15500.00	39.27	31.17	.00	7.57	.00	314.98	314.98	275.71	1217.19	1.04
	10.691	10900.00	45.06	26.25	.00	6.67	.00	324.82	322.91	277.84	1216.33	.00
	10.691	15500.00	37.42	26.25	.00	7.97	.00	324.82	324.82	287.40	1217.43	1.10
*	10.723	10900.00	80.74	113.19	.78	8.80	.00	352.71	350.45	269.71	1216.38	.00
	10.723	15500.00	43.69	113.19	1.54	10.35	.00	352.71	352.71	309.02	1217.43	1.05
*	10.803	10900.00	19751.55	19750.00	.00	11.10	.00	20015.00	20014.22	262.68	1219.38	.00
*	10.803	15500.00	19750.00	19750.00	.00	12.39	.00	20015.00	20015.00	265.00	1220.39	1.01
*	10.933	10900.00	2.54	.00	.00	4.30	.00	406.84	406.84	404.30	1221.56	.00
*	10.933	15500.00	.00	.00	.00	5.14	.00	406.84	387.16	387.16	1222.98	1.42
*	10.934	10900.00	15.97	.00	.00	5.79	.00	390.44	390.44	374.47	1221.48	.00
	10.934	15500.00	10.30	.00	.00	6.41	.00	390.44	390.44	380.14	1222.91	1.43
	10.935	10900.00	40.06	.00	.00	5.87	.00	383.88	376.87	336.81	1221.69	.00
	10.935	15500.00	35.71	.00	.00	6.63	.00	383.88	383.88	348.17	1223.08	1.39
*	10.936	10900.00	47.16	.00	.00	11.36	.00	324.82	289.80	242.65	1221.07	.00
*	10.936	15500.00	32.41	.00	.00	12.03	.00	324.82	296.04	263.63	1222.36	1.30
*	10.989	10900.00	84.61	60.10	.00	8.31	1.10	335.90	383.63	299.01	1223.89	.00
*	10.989	15500.00	79.90	60.10	.00	9.63	1.89	335.90	409.76	329.86	1225.01	1.12

	SECNO	Q	SSTA	STCHL	VLOB	VCH	VROB	STCHR	ENDST	TOPWID	CWSEL	DIFWSP
	11.005	10900.00	82.88	60.10	.00	7.68	1.25	335.90	393.24	310.37	1224.30	.00
	11.005	15500.00	77.83	60.10	.00	8.88	1.89	335.90	421.20	343.37	1225.50	1.20
	11.020	10900.00	378.21	362.30	.00	8.86	.00	603.70	600.82	222.61	1224.27	.00
	11.020	15500.00	374.95	362.30	.00	10.54	.00	603.70	603.15	228.20	1225.34	1.07
	11.045	10900.00	98.04	89.60	.00	9.76	.00	307.60	300.24	202.20	1224.75	.00
	11.045	15500.00	96.20	89.60	.00	11.54	.00	307.60	304.01	207.81	1225.85	1.10
*	11.129	10900.00	15.74	5.60	.00	6.08	.00	330.90	287.70	271.96	1226.58	.00
*	11.129	15500.00	10.97	5.60	.00	6.93	.00	330.90	291.07	280.10	1228.19	1.61
	11.188	10350.00	780.37	761.60	.00	7.53	.00	1020.90	1004.59	224.22	1226.88	.00
	11.188	13750.00	775.16	761.60	.00	7.84	.00	1020.90	1012.00	236.84	1228.52	1.64
*	11.301	10350.00	95.30	72.70	.00	10.04	.00	297.90	283.51	188.21	1228.13	.00
*	11.301	13750.00	91.22	72.70	.00	10.76	.00	297.90	286.73	195.50	1229.43	1.30
	11.328	10350.00	21.68	5.60	.00	10.28	.00	214.40	206.20	184.52	1229.01	.00
	11.328	13750.00	17.52	5.60	.00	11.18	.00	214.40	208.41	190.89	1230.20	1.19
*	11.386	10350.00	19902.05	19900.00	.00	11.35	.00	20175.00	20131.60	229.55	1230.95	.00
*	11.386	13750.00	19901.01	19900.00	.00	11.85	.00	20175.00	20149.80	248.79	1231.99	1.05
*	11.481	10350.00	19783.43	19780.00	.00	6.03	.00	20170.00	20144.86	361.44	1234.97	.00
*	11.481	13750.00	19780.21	19780.00	.00	6.64	.00	20170.00	20149.69	369.48	1235.94	.97
*	11.566	10350.00	19479.81	19470.00	.00	3.20	.00	20310.00	20302.64	822.83	1236.07	.00
*	11.566	13750.00	19477.30	19470.00	.00	3.39	.00	20310.00	20304.52	827.22	1237.08	1.01
*	11.759	10350.00	19935.85	19925.00	.00	8.63	.00	20510.00	20458.69	522.84	1238.22	.00
*	11.759	13750.00	19934.96	19925.00	.00	9.49	.00	20510.00	20459.48	524.53	1238.69	.47
*	11.949	10350.00	19968.01	19865.00	.00	6.01	1.69	20510.00	23952.34	864.61	1246.22	.00
*	11.949	13750.00	19950.79	19865.00	.00	6.87	.00	20510.00	20510.00	559.21	1246.86	.64
	12.125	10350.00	19927.44	19890.00	.00	6.53	.00	20680.00	20590.64	663.21	1251.46	.00
	12.125	13750.00	19926.45	19890.00	.00	7.00	.00	20680.00	20600.62	674.18	1252.03	.56
	12.313	9800.00	19858.48	19830.00	.00	7.31	.00	20240.00	20232.04	373.55	1257.60	.00
	12.313	12000.00	19839.89	19830.00	.00	7.97	.00	20240.00	20233.47	393.58	1258.04	.44
	12.511	9800.00	19818.01	19810.00	.00	6.93	.00	20280.00	20276.53	390.00	1263.08	.00
	12.511	12000.00	19810.00	19810.00	.00	7.14	.00	20280.00	20278.97	427.51	1263.72	.65
	12.701	9800.00	19816.10	19810.00	.00	6.90	1.09	20330.00	20412.97	596.88	1268.78	.00
	12.701	12000.00	19814.13	19810.00	.00	7.42	.00	20330.00	20330.00	515.87	1269.17	.39
*	12.896	9800.00	19845.77	19845.00	.00	5.47	.69	20360.00	20401.52	555.75	1273.69	.00
*	12.896	12000.00	19845.00	19845.00	.00	5.96	.00	20360.00	20360.00	515.00	1274.12	.43

SECNO	Q	SSTA	STCHL	VLOB	VCH	VROB	STCHR	ENDST	TOPWID	CWSEL	DIFWSP

*	13.076	7900.00	19931.64	19930.00	.00	6.46	.00	20350.00	20347.54	415.90	1277.34	.00
*	13.076	9539.00	19930.63	19930.00	.00	6.86	.00	20350.00	20349.05	418.42	1277.75	.41
*	13.227	7900.00	19818.08	19810.00	.00	5.84	.00	20120.00	20102.30	284.22	1280.23	.00
*	13.227	9539.00	19815.01	19810.00	.00	6.39	.00	20120.00	20107.13	292.12	1280.71	.48
*	13.420	7900.00	19874.31	19870.00	.00	10.46	.00	20170.00	20099.96	225.65	1285.99	.00
*	13.420	9539.00	19872.84	19870.00	.00	10.90	.00	20170.00	20112.63	239.78	1286.51	.51
*	13.619	7900.00	19893.97	19870.00	.00	4.40	2.35	20455.00	20532.06	636.92	1292.41	.00
*	13.619	9539.00	19892.76	19870.00	.00	4.78	.00	20455.00	20455.00	562.23	1292.90	.49
*	13.818	7900.00	19916.12	19890.00	.00	7.82	4.04	20340.00	20709.02	677.97	1297.44	.00
*	13.818	9539.00	19897.12	19890.00	.00	8.90	.00	20340.00	20339.79	442.67	1297.94	.51
*	14.013	6100.00	19918.26	19915.00	.00	3.90	2.05	20270.00	21600.50	1285.94	1303.74	.00
*	14.013	7207.00	19915.00	19915.00	.00	5.45	.00	20270.00	20270.00	355.00	1304.99	1.24
*	14.197	6100.00	19559.21	19715.00	1.63	6.88	2.10	20015.00	20830.77	840.82	1308.77	.00
*	14.197	7207.00	19715.00	19715.00	.00	8.19	.00	20015.00	20011.68	296.68	1309.11	.34
	14.379	6100.00	19544.77	19540.00	.00	5.52	2.68	20095.00	21035.58	1010.34	1315.05	.00
	14.379	7207.00	19540.00	19540.00	.00	5.03	3.68	20095.00	20250.00	710.00	1316.28	1.23
	14.559	6100.00	19222.21	19220.00	.00	4.48	.00	20045.00	20037.93	815.72	1320.23	.00
	14.559	7207.00	19221.72	19220.00	.00	4.29	.00	20045.00	20042.82	821.11	1320.62	.40
	14.752	6100.00	19673.36	19670.00	.00	4.85	.00	20170.00	20139.80	466.45	1324.66	.00
	14.752	7207.00	19673.14	19670.00	.00	5.56	.00	20170.00	20141.72	468.57	1324.74	.08
*	14.945	4200.00	19901.58	19865.00	.00	8.57	2.20	20050.00	20410.24	247.81	1329.02	.00
*	14.945	4746.00	19873.85	19865.00	.00	8.04	.00	20050.00	20048.82	174.97	1329.76	.74
*	15.144	4200.00	19605.97	19602.45	.00	4.32	.00	19982.48	19981.95	375.98	1334.82	.00
	15.144	4746.00	19955.00	19602.45	.00	10.73	4.36	19982.48	20382.00	427.00	1338.24	3.42
*	15.333	4200.00	19781.38	19770.00	.00	5.93	.00	20100.00	20092.16	310.78	1338.85	.00
*	15.333	4746.00	19770.00	19770.00	.00	3.41	.00	20100.00	20097.48	327.48	1340.99	2.14
	15.519	4200.00	19962.68	19950.00	.00	5.35	.00	20320.00	20263.76	301.08	1344.19	.00
*	15.519	4746.00	19965.10	19950.00	.00	8.24	.00	20320.00	20246.69	281.59	1343.47	-.72
	15.699	4200.00	19899.14	19870.00	.00	7.16	3.36	20085.00	20888.91	359.55	1349.57	.00
*	15.699	4746.00	19882.94	19870.00	.00	6.54	.00	20085.00	20085.00	202.06	1350.82	1.25
	15.966	2350.00	1989.23	1985.00	.00	2.69	2.35	2430.00	2670.77	537.87	1356.31	.00
*	15.966	2350.00	1988.81	1985.00	.00	3.14	.00	2430.00	2414.23	425.41	1356.47	.16
*	16.066	2350.00	1986.60	1970.00	.00	6.00	5.12	2350.00	2696.80	419.99	1358.68	.00
*	16.066	2350.00	1982.52	1970.00	.00	6.78	.00	2350.00	2332.38	259.67	1359.50	.81

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	SECNO	Q	SSTA	STCHL	VLOB	VCH	VROB	STCHR	ENDST	TOPWID	CWSEL	DIFWSP
*	16.167	2350.00	1952.47	1950.00	.00	3.50	2.20	2130.00	2622.15	669.68	1362.43	.00
*	16.167	2350.00	1951.62	1950.00	.00	4.58	1.92	2130.00	2200.00	248.38	1363.25	.82
*	16.248	2350.00	1932.67	1925.00	.00	6.86	2.31	2030.00	2633.33	700.66	1364.44	.00
*	16.248	2350.00	1931.21	1925.00	.00	8.59	.00	2030.00	2030.00	98.79	1364.93	.49
*	16.328	2350.00	1873.19	1915.00	.66	3.67	2.27	2240.00	2471.46	482.32	1366.52	.00
*	16.328	2350.00	1915.00	1915.00	.00	2.99	.00	2240.00	2236.81	321.81	1367.35	.83
*	16.411	2350.00	1915.48	1885.00	.00	6.97	.00	2055.00	2051.77	136.29	1368.15	.00
*	16.411	2350.00	1912.69	1885.00	.00	6.71	.00	2055.00	2051.94	139.25	1368.25	.10
*	16.504	2350.00	1628.55	1835.00	.96	4.06	.00	2035.00	2030.98	291.78	1370.58	.00
*	16.504	2350.00	1835.00	1835.00	.00	4.14	.00	2035.00	2030.99	195.99	1370.59	.01
*	16.608	2350.00	1929.53	1910.00	.00	5.92	.00	2110.00	2091.70	162.17	1372.19	.00
*	16.608	2350.00	1929.44	1910.00	.00	5.83	.00	2110.00	2092.04	162.61	1372.23	.05
*	16.732	2350.00	1955.62	1950.00	.00	7.57	.00	2115.00	2114.38	158.76	1377.75	.00
*	16.732	2350.00	1955.68	1950.00	.00	7.76	.00	2115.00	2110.00	154.31	1377.73	-.02
*	16.818	2350.00	1945.20	1935.00	.00	4.61	2.36	2045.00	2226.00	280.80	1380.64	.00
*	16.818	2350.00	1942.85	1935.00	.00	6.05	.00	2045.00	2045.00	102.15	1380.95	.31

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SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO= 8.731 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 8.731 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 8.883 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

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 WARNING SECNO=      8.883  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=      9.009  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=      9.009  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=      9.129  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=      9.129  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=      9.318  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=      9.318  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=      9.318  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
 CAUTION SECNO=      9.318  PROFILE=  2  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=      9.318  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=      9.318  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

 WARNING SECNO=      9.492  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=      9.492  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=      9.692  PROFILE=  2  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=      9.692  PROFILE=  2  MINIMUM SPECIFIC ENERGY

 WARNING SECNO=      9.889  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     10.096  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=     10.443  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=     10.443  PROFILE=  1  MINIMUM SPECIFIC ENERGY

 WARNING SECNO=     10.612  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     10.659  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     10.659  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     10.723  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=     10.803  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=     10.803  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=     10.803  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
 CAUTION SECNO=     10.803  PROFILE=  2  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=     10.803  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=     10.803  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

 WARNING SECNO=     10.933  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     10.933  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     10.934  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
1
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 CAUTION SECNO=     10.936  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=     10.936  PROFILE=  1  MINIMUM SPECIFIC ENERGY
 WARNING SECNO=     10.936  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     10.989  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     10.989  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     11.129  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     11.129  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     11.301  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     11.301  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=     11.386  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=     11.386  PROFILE=  1  MINIMUM SPECIFIC ENERGY
 WARNING SECNO=     11.386  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     11.481  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     11.481  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     11.566  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     11.566  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=     11.759  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=     11.759  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=     11.759  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
 CAUTION SECNO=     11.759  PROFILE=  2  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=     11.759  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=     11.759  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

 WARNING SECNO=     11.949  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     11.949  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     12.896  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     12.896  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     13.076  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     13.076  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     13.227  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     13.227  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=     13.420  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=     13.420  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
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 CAUTION SECNO=     13.420  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
 CAUTION SECNO=     13.420  PROFILE=  2  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=     13.420  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=     13.420  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

 WARNING SECNO=     13.619  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     13.619  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=     13.818  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=     13.818  PROFILE=  1  MINIMUM SPECIFIC ENERGY
1
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 CAUTION SECNO=     13.818  PROFILE=  2  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=     13.818  PROFILE=  2  MINIMUM SPECIFIC ENERGY

 WARNING SECNO=     14.013  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     14.013  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=     14.197  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=     14.197  PROFILE=  1  MINIMUM SPECIFIC ENERGY
 WARNING SECNO=     14.197  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     14.945  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     14.945  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     15.144  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     15.333  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     15.333  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=     15.519  PROFILE=  2  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=     15.519  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=     15.519  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

 WARNING SECNO=     15.699  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     15.966  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     16.066  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 CAUTION SECNO=     16.066  PROFILE=  2  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=     16.066  PROFILE=  2  MINIMUM SPECIFIC ENERGY

 WARNING SECNO=     16.167  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     16.167  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=     16.248  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=     16.248  PROFILE=  1  MINIMUM SPECIFIC ENERGY
 WARNING SECNO=     16.248  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     16.328  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     16.328  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     16.411  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     16.411  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     16.504  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     16.504  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     16.608  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     16.608  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     16.732  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     16.732  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     16.818  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     16.818  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
1
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HEC-2 FILE UNIONBR8.DAT

```
1*****************************************
 *  HEC-2 WATER SURFACE PROFILES           *
 *                                         *
 *  Version   4.6.2;  May 1991             *
 *                                         *
 *  RUN DATE    17NOV95    TIME   08:48:30  *
 *****************************************
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*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616-4687     *
*          (916) 756-1104           *
*************************************
```

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X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                        X
XXXXXXX  XXXX     X          XXXXX     XXXXX
X     X  X        X                   X
X     X  X        X     X             X
X     X  XXXXXXX   XXXXX              XXXXXXX
```

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1
   17NOV95      08:48:30                                                                    PAGE    1


                                                                THIS RUN EXECUTED 17NOV95    08:48:30

 ************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
 ************************************


    REVISED HEC-2 FILE NRIVER.DAT TO HAVE INPUT DATA MATCH WITH THE HARDCOPY
    PRINTOUT OF THE HEC-2 FILE IN THE FLOOD CONTROL DISTRICT LIBRARY THAT
    CORRESPONDS WITH PUBLISHED FEMA DATA.
    THE HEC-2 MODEL ON THE PRINTOUT WAS WAS RUN ON 9 OCTOBER 1985 USING THE
    MAY 1984 UPDATED VERSION OF HEC-2.
    THIS HEC-2 MODEL APPEARS TO BE THE BEST MATCH WITH PUBLISHED FEMA DATA
    FOR NEW RIVER FROM BELL ROAD UPSTREAM TO THE NEW RIVER DAM.
    THE RESULTS GENERATED BY THIS HEC-2 MODEL DOWNSTREAM OF BELL ROAD SHOUDN'T
    BE USED.
    THE PUBLISHED FEMA DATA FOR THE REACH BELOW BELL ROAD MATCHES CLOSELY WITH
    HEC-2 MODEL REVSB., WHICH WAS DEVELOPED BY COE & VAN LOO.
    THE CROSS SECTIONS BELOW BELL ROAD WHERE RETAINED FOR HISTORICAL REASONS.
    THIS HEC-2 MODEL HASN'T BEEN UPDATED FOR ANY CHANGES THAT MIGHT OCCURED
    SINCE THE MODEL WAS ORIGINALLY CREATED.

T1      NEW RIVER ABOVE SKUNK CREEK, PHOENIX, ARIZ., SEPT 1985   (UNIONBR8.DAT)
T2      Edited by HDR (5-95) for Union Hills Drive Bridge Analysis
T3      Union Hills Bridge      5-Span Structure (Includes 83rd Ave. Crossing)
        Existing Condition Flood Plain Model FIS, COE 100-yr & 500-yr Q's
        Estimated starting WSEL from FIS Profiles for 100-yr 500-yr.

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                2                                                                  1170.5

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      1                  -1                                                                     15


J3  VARIABLE CODES FOR SUMMARY PRINTOUT

     38         43         53         21         55         26         56         22         54         4
      1         50

NC     .045       .045       .035       .200       .400
QT       3      41000      41000      69700
         1985 TOPO - DIGITIZED DATA SEC.8.655 THRU SEC.9.129
         DOWNSTREAM STUDY LIMIT
1
   17NOV95      08:48:30                                                                    PAGE    2


         NEW RIVER-SKUNK CREEK CONFLUENCE
X1    8.655         36     9581.4    10224.3         750         150         400
X3       10
GR   1173.9     8649.5     1172.8     8725.6     1173.6     8761.4     1172.8     8805.7     1171.9     8882.4
GR   1171.9     8973.3     1171.7     9029.3     1170.9     9157.1     1170.5       9250     1170.8       9322
GR   1170.3     9369.5     1169.5     9443.6     1169.3     9488.5     1171.5     9503.3     1167.1     9548.1
GR   1171.6     9581.4     1166.9     9605.5     1161.4       9624     1157.9       9660     1156.6     9716.3
GR   1155.1     9744.7     1156.1     9761.1     1155.3     9864.2     1155.3     9905.7     1156.2     9954.8
GR   1156.3      10000     1156.3      10071     1156.7    10091.4     1155.7    10121.5     1155.7    10154.7
GR   1164.5    10193.7     1171.2    10224.3     1172.3    10244.2     1171.2      10247     1171.1    10299.3
GR   1170.6    10403.3

NC                                     .100       .300
QT       3      12000      19000      20400
ET                           9.1                                                       9762.5     10213.5
         BEGIN DISCHARGE FOR NEW RIVER ONLY
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X1    8.731        45     9762.5    10213.5         400         400         400
X3       10
GR   1174.8      8627     1174.1     8663.6      1172.6      8666.7      1174.4      8670.4      1172.1      8683.8
GR   1170.8    8831.8     1170.4       9040        1170      9196.9      1168.3      9265.9        1167      9305.7
GR   1166.8      9321     1173.5       9346      1167.4      9377.8      1160.3      9401.7      1156.9      9425.5
GR   1157.6      9463     1156.3     9473.2      1158.8      9489.1        1166      9510.2      1169.2      9519.8
GR   1168.9    9553.9     1169.2     9595.9      1168.6      9640.2      1168.3      9678.4      1173.6      9692.1
GR   1171.9    9727.6     1171.4     9748.3      1172.8      9762.5      1172.6        9771      1167.8      9795.5
GR     1160    9831.2     1157.1       9844      1156.1      9894.9      1156.9       10000      1157.8     10055.6
GR   1157.3   10089.1     1156.7    10123.2      1157.3       10151      1164.7     10183.1      1170.6     10206.7
GR   1172.2   10213.5     1173.3    10246.5        1172     10250.5      1171.9     10342.2      1171.3       10403

      REVISED THE ELEVATION OF STATION 9478.8 FROM 117039 TO 1170.9 (TMM 3-94)

ET                          9.1                                                                 9771.3     10219.2
X1    8.807        58     9771.3    10219.2         400         390         400
X3       10
GR   1174.2      8591     1174.2     8613.7      1174.8      8626.5      1174.6      8637.8      1173.1      8640.4
GR   1174.2    8644.4     1172.8     8658.6      1172.4      8867.9        1172      9015.9      1171.9      9044.3
GR   1172.4    9063.6     1170.8     9080.6      1170.8      9093.1      1174.4      9117.5        1175      9131.2
GR   1172.2    9150.5     1164.2     9172.6      1160.1      9193.9      1158.6      9221.8      1157.7      9249.9
GR   1159.2    9261.8     1157.9     9281.7      1159.2      9293.1      1164.6      9312.1      1171.3      9327.1
GR   1170.8      9359     1170.5     9382.8      1171.1      9406.1      1170.6      9448.1      1170.9      9478.8
GR   1171.6      9539     1171.9     9588.1      1172.4      9618.2      1172.2      9646.1      1172.1      9673.9
GR   1178.4    9688.1     1187.7     9701.7      1193.4      9715.9      1194.1      9729.6      1186.6      9749.4
GR   1174.7    9771.3     1169.2       9792      1162.1      9826.7      1158.7        9848      1158.4      9918.7
GR   1158.3    9957.1     1158.8      10000      1158.6     10069.8      1158.4     10113.6      1158.5     10146.5
GR   1163.7   10172.1     1170.8    10201.6      1173.9     10219.2      1174.4     10248.2      1173.2     10258.1
GR   1173.9   10328.3     1173.6    10380.5        1173     10402.7

ET                          9.1                                                                 9824.7     10216.9
X1    8.883        55     9824.7    10216.9         280         400         400
X3       10
GR   1176.2    8580.8     1175.3     8595.6      1173.7      8597.9      1174.9      8600.1      1173.5      8625.1
GR   1174.4    8705.8     1174.1     8768.8      1175.2      8824.2      1179.5      8846.4      1180.4      8864.3
GR   1177.5    8878.5     1167.9     8905.2      1162.9      8926.2      1159.6      8943.8      1159.9      8977.9
GR   1158.5    8985.3     1161.3     9000.6      1158.4      9027.9      1158.8      9040.4      1162.1      9058.5
1
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GR   1169.4    9075.9     1173.3     9086.9        1174      9126.4        1173      9140.3        1173      9167.6
GR   1172.7    9204.5     1174.4     9252.2      1173.6      9288.3      1173.9        9325      1173.7      9357.3
GR   1174.3    9422.7     1174.7     9473.8      1173.9      9529.7      1173.9      9563.4      1175.1      9610.3
GR   1174.9    9680.1     1175.9     9745.5      1174.9      9824.7      1169.4      9860.8      1166.1      9911.3
GR   1163.8    9955.6     1163.1     9984.3      1163.1       10000      1160.2     10004.5      1160.9     10056.5
GR   1160.1   10106.7     1160.4    10145.4      1163.8     10164.1      1171.6     10191.4      1176.3     10216.9
GR     1177   10247.6     1175.5    10249.9      1176.3     10292.2      1176.1     10347.6      1175.3     10404.7

ET                          9.1                                                                 9809.4     10213.2
         OLD CORP STATION NO. 8.95=0.6
X1    8.936        60     9809.4    10213.2         300         300         290
X3       10
GR    1180      8590.6     1174.5     8616.4      1165.7      8644.6      1162.8      8656.8      1162.9      8675.8
GR   1163.3     8691.1       1163     8713.3      1162.3        8740      1166.9      8754.2      1173.7      8779.8
GR    1179      8797.9     1177.6     8810.7      1177.4      8832.3      1175.7      8843.9      1174.6      8913.5
GR   1175.6     8920.6     1174.6     8947.9      1175.5      9022.3      1175.5        9091      1175.9      9152.4
GR   1176.4     9222.8       1177     9261.2      1177.8        9274      1177.1        9322      1177.8      9335.9
GR   1178.2     9360.6     1175.8     9370.5      1176.9      9389.9      1177.8      9408.3      1175.5      9452.4
GR     1177     9483.3     1176.2     9535.9      1175.6      9543.2      1176.6      9575.3        1176      9615.4
GR   1177.8     9634.7     1176.7     9680.7      1177.8        9708      1176.9        9754        1176      9785.5
GR   1176.1     9797.7     1177.3     9809.4        1176        9817      1167.6      9825.6      1166.8      9859.6
GR   1166.7       9894     1165.7     9939.7      1165.3      9959.9      1165.7      9994.3      1162.2       10000
GR   1162.3    10069.8     1161.8    10110.7      1162.1     10143.1      1167.9     10169.2        1174     10192.8
GR   1178.2    10213.2     1178.2    10244.2      1177.7     10247.6      1177.1     10309.8      1176.6     10402.1

      REVISED THE ELEVATION OF STATION 8934.8 FROM 1744.7 TO 1174.7 (TMM 3-94)
         "     "     "     "     "    9747.2  "   117732 "  1177.2    "
         "     "     "     "     "    9765.9  "   117835 "  1178.5    "
         "     "     "     "     "    9792    "   117838 "  1178.8    "
         "     "     "     "     "    9802.3  "   117936 "  1179.6    "
         "     "     "     "     "   10000.0  "   116535 "  1165.5    "

ET                          9.1                                                                 9886.1     10212.7
X1    8.977        58     9886.1    10212.7         220         200         210
X3       10
GR   1177.7      8605.6   1175.6     8628.1      1174.7      8658.4      1174.4      8712.7      1174.6      8744.5
GR   1175.6      8767.2   1174.1     8802.4      1175.6      8841.6      1174.9      8864.9        1175      8878.6
GR   1174.7      8934.8   1174.7     8953.5      1175.5      8991.6      1175.7      9030.5      1176.4        9064
GR   1178.2      9075.1   1176.8     9084.2      1176.6      9130.2      1176.8      9179.1      1177.1      9252.3
GR     1176      9330.2   1176.4     9370.6      1177.8      9377.4      1176.8      9385.9      1176.8      9448.7
GR   1177.3        9491   1176.4       9537      1176.4      9556.3      1176.9      9609.7      1176.8      9662.3
GR   1176.3      9713.1   1177.2     9747.2      1178.5      9765.9      1178.8        9792      1179.6      9802.3
GR   1178.3        9821   1180.8     9828.4      1176.5      9836.1      1176.5      9867.6      1177.2      9886.1
GR   1168.4        9900   1167.1     9909.3      1165.7        9938      1164.9      9976.1      1165.5       10000
GR   1163.6     10007.3   1163.7    10066.4        1164     10103.3      1163.5     10128.9      1163.5     10137.4
GR   1168.4     10163.5   1173.3      10188      1178.5       10209      1179.3     10212.7      1180.9     10243.9
GR   1180.1     10248.2   1179.7    10281.7      1179.8     10401.6
1
   17NOV95      08:48:30                                                                                          PAGE    4
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ET                                9.1                                                                  9764.5      10207
        GREENWAY ROAD AREA
X1    9.009         34      9764.5      10207         330         180         180
X3       10
GR     1177       8740      1176.9      8817.3       1177      8883.2      1177.1      8937.1      1177.2      9008.7
GR   1177.5     9075.7      1177.5      9150.2      1177.5      9213.2      1177.7      9285.6      1177.7      9368.3
GR   1177.9       9462      1178.2      9547.2      1178.2      9614.3      1178.3      9675.6      1178.3      9725.9
GR     1178     9764.5      1174.2      9786.1      1167.1      9821.6      1164.9      9852.3        1166      9886.3
GR   1164.6       9921      1163.6      9960.8      1162.9       10000      1164.1     10055.9      1164.8     10109.6
GR   1164.8    10149.3      1169.2     10162.4      1178.6     10177.2      1179.9       10207      1180.3     10253.3
GR   1179.5    10304.1      1180.2     10353.8      1179.8     10424.8      1179.3     10475.4

ET                                9.1                                                                  9689.8      10113.8
X1    9.047         44      9689.8     10113.8         280         160         200
X3       10
GR   1179.8     8601.2      1179.8        8619      1180.6        8633      1179.4      8721.9      1179.5      8798.8
GR   1179.2     8858.5      1178.9      8933.2      1178.7      9004.2      1173.2      9070.4      1178.8      9154.1
GR   1178.8     9233.1      1178.8      9306.9        1179      9377.9      1179.1      9475.6      1178.6      9532.5
GR   1178.7     9570.5      1180.6      9579.9        1180      9593.2      1181.6      9616.5      1180.5        9660
GR   1177.5     9689.8      1171.4      9715.9      1166.4      9742.1      1166.2      9751.1      1166.9      9756.8
GR   1162.3     9762.5        1162        9781      1163.2      9794.9      1163.3      9845.4        1164      9880.4
GR   1162.9     9904.5      1161.7      9907.9      1161.2      9937.7      1161.9      9971.5      1162.6       10000
GR     1165    10050.5      1165.7     10084.6        1171     10101.3      1177.6     10113.8      1178.2     10168.4
GR   1178.2    10218.1      1178.1     10298.2      1178.7     10354.4      1178.2     10401.6

NC                .060
ET                                9.1                                                                  9641.2      10090
        OLD CORP STATION NO. 9.15=9.8
        END 1985 TOPO DIGITIZED SECTIONS, END C/L = 10000
X1    9.129         51      9641.2       10090         290         460         420
X3       10
GR   1182.2     8558.3      1182.2      8569.9        1183      8580.4      1181.8      8652.3      1181.8      8719.9
GR   1182.2     8785.2      1181.7      8844.6      1181.3      8932.3      1180.6      8995.9      1180.5      9075.5
GR     1181       9134        1181      9205.5      1181.5      9271.4      1181.2      9370.8      1180.3      9477.1
GR   1180.3     9499.5      1180.1      9524.8      1180.8      9562.3      1180.3      9599.2      1180.9      9629.9
GR   1180.6     9641.2      1176.6      9662.3        1173      9666.8      1173.4        9673      1164.9      9688.4
GR   1165.5     9712.2      1166.2      9768.2      1166.3      9795.2      1167.5      9799.7      1164.8      9814.5
GR   1164.2     9836.1      1165.2      9889.5      1165.1      9919.9      1166.3      9971.3      1167.1      9982.6
GR   1168.1     9987.7      1167.9       10000      1168.9     10061.6      1171.8     10079.8      1178.7       10090
GR     1179    10117.8        1179     10195.1      1178.6     10241.7      1178.5     10245.1      1179.7     10304.1
GR   1179.2    10370.6      1179.6     10407.5      1179.9     10429.4      1178.7     10432.2      1180.1     10433.6
GR   1179.5    10439.6

      REVISED THE ELEVATION OF STATION 18380 FROM  185.2 TO 1185.2 (TMM 3-94)
        "     "      "     "     "    20015  "   118135 "  1181.5     "


NC     .050        .060        .035        .100        .300
ET                                9.1                                                                  19660       20015
1
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        BEGIN STATION C/L = 20000
X1    9.318         39       19660       20015        1000        1000        1000
X3       10
GR     1192      16150        1170       16210        1170       16310      1194.6       16420        1186       16465
GR   1186.8      16560        1184       16830      1185.2       16920        1184       17065        1184       17120
GR     1186      17130        1186       17150        1184       17160      1183.7       17360        1184       17470
GR     1185      17855      1185.2       18380      1185.3       18430        1185       18460      1185.1       19440
GR     1186      19660        1184       19685        1178       19710        1178       19865        1176       19945
GR     1174      19985      1173.2       20000        1174       20010      1181.5       20015      1181.3       20105
GR     1182      20360        1184       20370        1186       21110        1186       21150        1184       21595
GR     1182      22220        1180       22940        1180       23725      1181.2       23740

QT        3      11450       17250       19465
ET                                9.1                                                                  19770       20235
X1    9.492         40       19770       20235         910         890         920
X3       10
GR   1197.2      16090        1178       16135        1178       16185      1193.2       16240        1192       16250
GR     1190      16470        1188       17185        1187       17360        1188       17710      1188.6       17900
GR   1189.3      18260        1189       18870      1188.8       18885        1190       18900        1190       18920
GR   1189.2      19030      1189.5       19300        1188       19610        1185       19635        1186       19650
GR     1188      19700        1188       19770        1186       19905        1184       19930        1184       19950
GR     1180      19970        1179       20000        1180       20055        1182       20160        1184       20195
GR   1193.9      20235        1186       20255      1185.4       20310        1186       20785        1188       20800
GR   1188.8      21100        1190       21450        1190       22860        1188       23130        1188       24240

NC     .040        .060        .035
ET                                9.1                                                                  19840       20060
X1    9.692         31       19840       20060        1050        1040        1056
X3       10
GR     1194      15930        1192       16660        1190       17050      1189.8       17130        1190       17440
GR     1192      18040        1194       18880        1195       19040      1194.4       19150        1194       19280
GR     1194      19680        1192       19790        1192       19830        1195       19840        1186       19880
GR   1184.1      20000        1186       20015        1188       20020        1190       20040      1196.1       20060
GR     1194      20060      1193.2       20090        1194       20195        1194       21315        1196       21690
GR     1196      21725        1194       22305        1192       24380        1190       24790        1190       25100
GR     1192      25440

NC     .060        .060        .035        .300        .500
ET                                9.1                                                                  19840       20080
X1    9.889         31       19840       20080        1100        1050        1040
X3       10
GR     1200      14530        1198       15330        1196       17370        1198       17830        1200       18620
```

```
GR   1201.6      19190      1200      19460      1198      19490      1196      19510      1196      19570
GR     1198      19590      1198      19810      1200      19820      1200      19840      1198      19850
GR     1196      19870      1190      19890      1188      19900      1190      19920      1190      19965
GR   1188.2      20000      1190      20050      1200      20080      1200      20970    1198.6      21620
GR     1200      21710      1200      21730      1198      22710    1196.1      23410      1198      24490
GR     1198      26950
```

REVISED THE ELEVATION OF STATION 15520 FROM 120034 TO 1200.4 (TMM 3-94)


```
NC     .060       .060       .030       .300       .500
ET                           9.1                                                  19790      20032
          BELL ROAD
X1     9.953         27      19790      20032        335        335        335
X3        10
GR      1202      15050     1200.4      15520       1200      16550       1200      16890    1200.5      17285
GR      1200      17540       1200      17610       1202      18770       1202      18860    1202.4      19045
GR      1200      19515       1200      19790       1194      19805       1192      19840      1192      19910
GR      1190      19990     1188.6      20010       1200      20030       1202      20032      1202      20050
GR      1200      21475       1200      21785       1198      22680       1198      24780      1200      25390
GR      1200      26215     1200.6      26810

ET                           9.110                                                19825      20110
SB      .900      1.560        2.6                    213         20       2800      1.880   1188.61    1188.6
          SPECIAL BRIDGE
X1     9.967         29      19825      20110         75         75         75
X2                              1     1200.9     1207.5
X3        10
BT        21      15025       1204                 15450     1203.5                 16410       1202
BT     16635     1201.4                 16805       1202                 17990       1204                 18530
BT    1205.6                 19065       1204                 19325       1204                 19800       1205
BT                 19825     1207.5     1200.9      20110     1207.5     1200.9      20110     1205.8
BT     20635       1204                 21810       1202                 22850       1200                 24300
BT      1198                 24630       1198                 25270       1200                 26275       1202
BT                 27010     1202.1
GR      1204      15025     1203.5      15450       1202      16410     1201.4      16635       1202      16805
GR      1204      17990     1205.6      18530       1204      19065       1204      19325       1205      19800
GR      1204      19825       1196      19845       1194      19860       1192      19890       1192      19980
GR      1190      20015     1188.6      20025       1190      20035       1194      20060       1204      20110
GR    1205.8      20130       1204      20635       1202      21810       1200      22850       1198      24300
GR      1198      24630       1200      25270       1202      26275     1202.1      27010
```

REVISED THE ELEVATION OF STATION 23690 FROM 199.6 TO 1199.6 (TMM 3-94)

```
NC                                     .100       .300
ET                           9.1                                                  19635      20055
X1    10.096         38      19635      20055        610        650        645
X3        10
GR      1206      14890       1204      14935       1203      15070       1204      16230    1204.8      16600
GR    1204.4      17760     1205.1      18700       1205      19025       1204      19260      1204      19275
GR      1206      19285       1208      19335       1208      19435       1206      19545      1202      19555
GR      1201      19635       1198      19665       1196      19970     1195.7      20000      1196      20010
GR      1198      20020       1200      20040       1206      20055       1206      20090      1206      20675
GR      1204      21060       1202      22510       1200      23200     1199.6      23690      1200      24210
GR      1202      24600       1202      24615       1200      24890       1199      25180      1200      25545
GR      1202      25900       1206      25910       1206      26020
```



```
QT        3      10900      15500      18530
ET                           9.1                                                  19820      20320
X1    10.271         40      19820      20320        920        925        925
X3        10
GR      1208      14700       1206      15620       1206      16020       1208      16520       1208      16790
GR    1209.6      17735     1209.7      18290       1208      19090       1208      19750    1212.5      19820
GR      1204      19870       1202      19930       1200      19980     1198.2      20000      1200      20020
GR      1202      20230       1204      20295       1208      20320       1208      20365      1206      20375
GR      1206      20680       1208      20685     1208.4      21370       1208      22660      1206      22930
GR      1204      23700       1204      24115       1206      25190       1206      25220      1204      25230
GR      1204      26490       1206      26520       1206      26865       1207      26870      1207      26880
GR      1206      26895       1204      26930       1204      27050       1206      27210      1208      27230

ET                           9.1                                                  19655      20110
X1    10.443         34      19655      20110        930        900        910
X3        10
GR    1213.5      14830       1212      15205     1210.5      15830       1212      16220    1213.9      17660
GR      1212      19220       1211      19560       1212      19590       1216      19605      1216      19655
GR      1210      19670       1210      19740       1208      19750       1206      19950    1205.6      20000
GR      1206      20100       1210      20110       1212      20600       1212      22030      1210      22740
GR      1208      23440     1207.8      23780       1208      24260     1208.6      25120      1208      25140
GR      1206      25145       1206      26400       1208      26810       1208      27000      1206      27080
GR      1206      27180       1208      27190       1212      27205       1214      27415
```

REVISED THE ELEVATION OF STATION 16705 FROM 1318 TO 1218 (TMM 3-94)
" " " " " 18050 " 121935 " 1219.5 "

```
ET                           9.1                                                  19955      20300
```

```
X1   10.612          6      19955      20300         880          900         890
X3       10
    1217   15010    1216   16240    1216   16325    1218   16705  1219.5   18050
    1219   18420    1218   19580    1216   19885    1216   19895    1222   19910
GR     1222       19955       1210       19985      1209.6       20000       1210       20010       1212       20295
GR     1218       20300
    1218   20300    1218   20325    1216   20330    1216   20740    1218   20760
    1218   21655    1216   22770    1214   23050  1212.4   23730    1214   24140
    1214   24250    1214   25455    1212   25530    1210   26540    1212   26790
    1212   27110    1214   27420    1214   28550    1216   28650
```

Added cross sections to determine impact of fill from 83rd Ave. location

```
X1   10.659          8       29.9     314.98         259         255         247
X3       10
GR   1222.2        29.9    1213.97      45.90     1209.05       52.50     1209.05       68.90     1209.05       75.46
GR   1209.1      216.55    1211.14     305.13     1215.61      314.98
```

Added cross sections to determine impact of fill from 83rd Ave. location


```
X1   10.691         11      37.73     324.82         174         161         170
X3       10
GR   1223.2          0    1223.16      26.25     1223.16       37.73     1223.16          40     1223.16       46.68
GR   1209.1      77.00    1209.05      82.03     1209.05      109.91     1211.14      292.01     1212.33      314.98
GR   1217.3     324.82
```

Added cross sections to determine impact of fill from 83rd Ave. location

```
X1   10.723         11     113.19     352.71         167         164         170
X3       10
GR   1223.8          0    1223.81      22.97     1217.25       44.29     1215.61      113.19     1211.14      119.76
GR   1209.1     141.08    1209.05     167.33     1211.14      228.03     1212.03      305.13     1213.97      344.51
GR   1217.3     352.71
```

Existing FIS Cross-Section

```
ET                            9.1                                                                  19750       20015
X1   10.803         12     19750      20015         420         430         423
X3       10
GR     1220      19575      1220      19585        1220      19595        1220      19750        1216      19760
GR     1216      19888    1214.1      20000        1216      20010        1220      20015        1220      20190
GR     1222      20405      1224      20480
```

```
**************************************************************************
May 1995 - HDR Engineering Inc. under contract to the Maricopa County Highway
Department to bridge the Union Hills corssing of the New River.
HDR modified this model to determine the impact the new bridge would have on
the existing floodplain. This reach originally contained only 3 cross
sections in the model. Sections were added to better define the water surface
thru this reach. Normal bridge method is used to model the new 5 span bridge.
The bridge spans bank to bank (e.g. no abutments extend into the channel). The
section data is taken from new survey done in February 1995.
**************************************************************************
```

Cross Sections 10.933 thru 10.936 represent the channel geometry at the proposed crossing of 83rd Ave.

```
X1   10.933          8        0.0     406.84         164         241         244
X3       10
GR   1222.2          0.0    1217.25       19.7     1217.25       68.90     1215.61       85.31     1213.97      104.99
GR   1214.0       134.52    1215.61     387.16     1220.53      406.84

X1   10.934          8        0.0     390.44          82          92          85
X3       10
GR   1225.5          0.0    1217.25       32.81    1216.43       88.59     1216.93       98.43     1216.93      141.08
GR   1216.4       150.93    1215.61     370.75     1220.53      390.44
```



```
X1   10.935         11        0.0     383.88         131         154         144
X3       10
GR   1227.1          0.0    1226.11      26.25     1215.61       59.06     1215.61      206.70     1217.91      213.27
GR   1217.9       265.76    1215.61     272.32     1215.61      334.66     1217.25      351.07     1220.53      360.93
GR   1222.2       383.88

X1   10.936          9        0.0     324.82         131         154         137
X3       10
GR   1225.5          0.0    1227.1       22.97    1222.17       32.81     1218.89       75.46     1215.61      111.55
GR   1217.3       275.60    1218.89     285.45     1222.17      292.01     1223.81      324.82
```

```
**************************************************************************
```

```
  Cross Section on the down stream face of the Union Hills Crossing
  Modified To Include A Proposed 5-Span Proposed Bridge Structure
  The Bridge Spans the New River Bank to Bank. The Channel is not
  restricted and expansion and contraction is not critical to the model.
  ********************************************************************************

NC                                        .3        .5
        UNION HILLS DRIVE
X1   10.989        35       60.1      309.0       370       370       370     0.956
X2                                      1228      1230                                          15
X3       10
GR   1225.5       0.0     1229.7       60.1   1227.98      68.0   1227.98      70.0    1227.0      74.2
GR   1219.2     104.4     1218.1      116.8   1227.98     116.8   1227.98     118.8   1217.85     118.8
GR   1217.0     137.4    1216.75      164.6   1227.98     164.6   1227.98     166.6   1216.70     166.6
GR   1216.4     210.8    1216.45      212.4   1227.98     212.4   1227.98     214.4   1216.55     214.4
GR   1217.4     233.9    1218.05      260.2   1227.98     260.2   1227.98     262.2    1218.1     262.2
GR   1218.4     271.4     1219.1      277.0   1227.98     309.0   1227.98     311.0    1222.8     335.9
GR   1223.5     374.5     1228.1      482.0    1228.5     524.3    1228.4     580.9    1228.7     633.5

  Upstream Face of the Union Hills Bridge

X1   11.004        35       60.1      309.0        85        85        85     0.956
X2                                      1228      1230                                          15
X3       10
GR   1225.5       0.0     1229.7       60.1   1227.98      68.0   1227.98      70.0    1227.0      74.2
GR   1219.2     104.4     1218.1      116.8   1227.98     116.8   1227.98     118.8   1217.85     118.8
GR   1217.0     137.4    1216.75      164.6   1227.98     164.6   1227.98     166.6   1216.70     166.6
GR   1216.4     210.8    1216.45      212.4   1227.98     212.4   1227.98     214.4   1216.55     214.4
GR   1217.4     233.9    1218.05      260.2   1227.98     260.2   1227.98     262.2    1218.1     262.2
GR   1218.4     271.4     1219.1      277.0   1227.98     309.0   1227.98     311.0    1222.8     335.9
GR   1223.5     374.5     1228.1      482.0    1228.5     524.3    1228.4     580.9    1228.7     633.5


X1   11.005        15       60.1      309.0         5         5         5     0.956
X2                                                                                              15
X3       10                                                   309.0    1230.0
GR   1225.5       0.0     1229.7       60.1   1228.0      68.0    1228.0      70.0    1227.0      74.2
GR   1219.2     104.4     1217.0      137.4   1216.4     210.8    1217.4     233.9    1218.4     271.4
GR   1222.1     297.8    1222.15      309.0   1222.8     335.9    1223.5     374.5    1228.7     633.5
1
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NC                                        0.1       0.3
X1   11.020        31      362.3      603.7        60        60
X2
X3       10                                           603.7    1230.3
GR   1227.2       0.0     1227.2       45.4   1226.9      98.5    1227.2     150.7    1226.4     196.4
GR   1227.0     243.5     1227.5      348.4   1229.5     362.3    1220.8     388.8    1219.4     395.2
GR   1216.8     404.7     1216.0      431.7   1217.7     487.6    1218.5     493.3    1218.2     507.3
GR   1218.1     529.4     1217.9      531.9   1220.8     546.5    1221.6     595.0    1225.6     603.7
GR   1224.5     649.8     1225.1      761.8   1226.7     765.0    1226.7     770.6    1226.0     773.2
GR   1225.3     774.6     1225.4      784.3   1227.8     797.2    1229.2     825.7    1229.3     853.2
GR   1228.3     894.14

   Cross Section 300' upstream of the Union Hills alignment

X1   11.045        16       89.6      307.6       170       170       170
X2                                                                                              15
X3       10
GR   1226.6       0.0     1228.4       82.2   1229.8      89.6    1218.6     108.3    1217.8     184.5
GR   1218.6     225.8     1221.0      230.8   1220.7     241.1    1219.5     248.6    1219.3     251.4
GR   1219.3     271.5     1219.1      278.8   1223.5     291.5    1223.8     297.0    1226.9     307.6
GR   1227.3     360.3


ET                             9.1                                                      0.0      381.6
NC     .045       .045

  This section was re-surveyed and updated by HDR using data taken during
  the Union Hills project

        NEW SECTION - LEFT BANK TAKEN FROM ARROWHEAD RANCH
        WASTEWATER TREATMENT PLANT GRADING PLAN-DIBBLE & ASSOC.
X1   11.129        15        5.6      330.9       395       395       395
X2                                                                                              15
X3       10
GR   1230.9       0.0     1230.0        5.6   1220.2      34.7    1221.2      77.8    1221.0     106.8
GR   1217.8     131.6     1217.9      207.9   1218.3     220.8    1221.0     244.8    1221.0     248.8
GR   1221.5     273.8     1221.2      276.4   1231.3     297.6    1230.1     330.9    1229.8     381.6


QT       3      10350      13750      17595
ET                             9.1                                                    758.7      1228.

  This section was re-surveyed and updated by HDR using data taken during
  the Union Hills project

X1   11.188        18      761.6     1020.9       320       320       320
X2                                                                                              15
X3       10
```

```
GR   1232.3      758.7     1232.8      761.6     1220.5      800.6     1221.9      814.1     1221.7      860.6
GR   1218.4      873.4     1217.5      888.0     1219.1      943.9     1221.8      958.7     1221.5      962.5
GR   1221.6      986.5     1221.3      988.7     1227.2     1005.5     1227.4     1009.6     1232.7     1020.9
1
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GR   1231.5     1045.5     1231.6     1088.8     1231.9     1228.7

ET                          9.1                                                          0.0       361.8

  This section was re-surveyed and updated by HDR using data taken during
  the Union Hills project

X1   11.301        21        72.7       297.9       600        600        600
X3       10
GR   1218.2       0.0      1231.3        44.9     1231.5       63.8     1233.3       72.7     1232.9       80.2
GR   1221.4       116.6    1222.9       128.2     1221.9      132.7     1222.2      161.9     1220.4      177.2
GR   1219.7       194.3    1221.0       219.5     1223.4      230.0     1223.5      233.5     1224.1      255.5
GR   1223.8       266.8    1227.8       276.7     1227.2      281.2     1233.9      297.9     1234.3      320.5
GR   1235.1       361.8

  Cross Section at the beginning of the Treatment Plant protection dike

X1   11.328        18        5.6        214.4       180        180        180
X3       10
GR   1233.9       0.0      1233.6         5.6     1222.3       45.2     1224.0       61.9     1222.3       74.2
GR   1222.5       88.8     1221.2        99.7     1220.9      109.8     1222.3      150.6     1225.5      163.3
GR   1225.3       164.6    1225.8       190.8     1225.7      200.0     1233.4      214.4     1231.4      222.6
GR   1236.7       240.0    1236.4       266.1     1236.5      296.1

  End of HDR Engineering Inc. Modifications
 ********************************************************************************

NC       .045       .060       .035
ET                             9.1                                                          19900       20175
X1   11.386        32        19900       20175       315        240        270
X3       10
GR     1240       16820      1238        17220     1238        18760     1240        18800     1244        18850
GR     1244       18915      1238        18950     1238        19040     1236        19280     1236        19420
GR     1233       19430      1233        19890     1233        19892     1233        19900     1228        19905
GR     1228       19912      1226        19975     1223        20000     1226        20030     1228        20085
GR     1230       20115      1232        20150     1238        20175     1239.5      20820     1238        22925
GR   1238.8       23655      1240        24780     1240        24805     1238        25705     1236.8      26140
GR     1238       26800      1240        27485

ET                             9.1                                                          19780       20170
X1   11.481        15        19780       20170       480        540        520
X3       10
GR     1240       19130      1238        19305     1230        19320     1228        19380     1228        19550
GR     1230       19710      1236        19780     1230        19800     1232        19860     1230        19900
GR     1228       19950      1227.4      20000     1230        20060     1234        20140     1240        20170
1
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ET                             9.1                                                          19470       20310
X1   11.566        37        19470       20310       280        530        460
X3       10
GR     1241       17270      1240        18790     1242        18940     1242        19140     1240        19170
GR     1240       19470      1236        19480     1234        19550     1234        19760     1230        19775
GR     1230       19790      1232        19810     1234        19820     1234        19855     1232        19860
GR     1232       19940      1230        19980   1229.7        20000     1230        20010     1230        20180
GR     1232       20295      1240        20310     1240        20335     1242        20780     1244        21030
GR   1244.2       21620    1244.2        21960     1244        22190   1243.6        23225     1244        23470
GR   1244.9       24495      1246        25220     1245        25570     1244        26550     1244        26660
GR     1246       27240    1246.7        27420

ET                             9.1                                                          19925       20510
X1   11.759        35        19925       20510      1050        980        1020
X3       10
GR     1246       17890      1245        18190     1246        18510     1246        18920     1246.5      18930
GR     1246       18950      1246        19120     1244        19230     1244        19255     1244        19880
GR     1244       19900      1244        19925     1236        19940     1235        20000     1236        20040
GR     1236       20455      1242        20465     1244        20495     1248        20510     1248        20525
GR     1246       20540      1246        20620     1246        20760     1246        20800     1246        20820
GR     1246       21070      1248        21460     1250        21630     1250        21870   1219.6        22350
GR     1249       22980    1249.2        23620     1250        25015     1250        25960   1250.4        27420

NC       .060       .060       .035
ET                             9.1                                                          19865       20510
X1   11.949        35        19865       20510       990       1000       1000
X3       10
X4        1      1247.4      20700
GR   1250.8       18670    1250.4        18895   1250.4        19275     1251        19500     1251        19535
GR     1250       19865      1248        19920     1246        19974     1244        19976     1243        20000
GR     1244       20045      1244        20215     1242        20280     1242        20470     1244        20480
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GR     1246      20510      1246      20520      1246      20530      1246      20590      1246      20600
GR     1248      20925      1250      20940      1252      21660      1254      22180      1254      22280
GR   1252.8      22630      1254      22985    1252.5      23380      1254      23685      1244      23750
GR   1252.4      24515      1254      25865      1254      26540      1256      27550    1256.5      27760

ET                            9.1                                                      19890      20680
X1   12.125         37      19890      20680       910       1000       930
X3       10
GR     1256      19305    1256.1      19430      1256      19805      1256      19860      1258      19875
GR     1258      19890      1256      19920      1254      19923      1250      19930    1248.2      19950
GR   1248.5      20000      1250      20025      1250      20090      1248      20140      1248      20160
GR     1250      20230      1250      20320      1248      20330      1248      20440      1250      20565
GR     1252      20600      1254      20640      1258      20680      1258      20710      1254      20730
GR     1254      20800      1254      20810      1254      20860      1253      21155      1254      21455
GR     1256      22190      1258      22395      1258      22940      1259      24160      1260      26290
GR     1260      27215    1261.7      27800
1
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QT        3       9800      12000      16660
ET                            9.1                                                      19830      20240
X1   12.313         28      19830      20240       1010        980        990
X3       10
GR     1261      18650      1260      19080      1260      19800      1262      19810      1262      19830
GR     1260      19835      1258      19840      1256      19935      1254      19950    1252.2      20000
GR     1254      20220      1260      20240      1260      20260      1258      20300      1258      20320
GR     1258      20360      1258      20362      1258      20440      1258      20450      1258      20455
GR   1258.6      21090      1259      21610      1260      22140    1261.5      22890    1261.9      23990
GR     1262      24500      1262      27100    1263.3      27570

ET                            9.1                                                      19810      20280
X1   12.511         35      19810      20280       1000        1020       1056
X3       10
GR     1266      18920      1266      19115      1266      19240      1264      19385      1263      19600
GR     1262      19700      1262      19710      1262      19720    1263.6      19810      1260      19865
GR     1258      19905    1257.3      20000      1258      20070      1264      20110      1264      20140
GR     1262      20210      1260      20220      1260      20265      1264      20280      1264      20350
GR     1262      20365      1260      20400      1260      20440      1264      20460      1264      20610
GR   1263.6      20830      1264      20995      1265      21585      1265      22640      1266      23100
GR     1266      24600    1265.7      24880      1266      26000    1265.7      26670      1266      27380

ET                  4.1       9.1                20980                                    19810      20330
X1   12.701         34      19810      20330       1030        1020       1000
X3       10
X4        1     1269.6      20500
GR   1270.6      19190      1270      19700      1270      19810      1268      19820      1266      19985
GR   1264.7      20000      1265      20070      1266      20290      1268      20330      1270      20600
GR     1269      20660      1270      20740      1270      20980      1266      20990      1266      21090
GR     1268      21100      1268      21150      1262      21190      1262      21200      1270      21230
GR     1270      21260    1269.6      21510      1270      21770    1271.4      23220    1270.6      23800
GR     1270      23910      1270      23920    1270.7      24130    1268.8      24900    1269.1      26070
GR   1269.6      26710      1270      27000      1270      27650    1270.7      27740

ET                  4.1       9.1                21135                                    19845      20360
X1   12.896         40      19845      20360       1010        1010       1030
X3       10
X4        1       1274      20420
GR     1276      18670      1274      18750    1275.6      19330      1274      19845      1272      19850
GR     1270      19965    1268.8      20000      1270      20020      1270      20350      1273      20360
GR     1274      20585      1276      20620      1276      20670      1274      20675      1274      21135
GR     1270      21165      1270      21180      1274      21200      1274      21250      1270      21260
GR     1270      21350      1264      21365      1264      21390      1274      21410      1274      21495
GR     1276      21560    1277.2      21900      1276      22520    1275.6      22660      1276      23015
GR     1277      23610      1276      24190      1276      24280    1274.9      24440    1275.7      25428
GR   1274.2      25910    1274.9      26740      1274      26945      1274      27000      1276      27660

QT        3       7900       7900      13430
ET                  4.1       9.1                21645                                    19930      20350
1
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X1   13.076         32      19930      20350        950        980        950
X3       10
GR     1280      19510      1278      19930      1274      19940    1272.6      20000      1274      20050
GR     1276      20090      1276      20210      1274      20260      1272      20270      1272      20315
GR     1274      20335      1278      20350      1279      20480      1278      21020      1278      21150
GR     1280      21645      1280      21660    1278.6      21740    1278.6      21760      1278      21780
GR     1278      21800      1280      21960      1280      22825    1279.6      23250      1280      23630
GR     1280      24220      1278      24835    1278.6      25040    1278.6      26370      1278      26740
GR     1278      26920      1280      27585

ET                  4.1       9.1                21410                                    19810      20120
X1   13.227         26      19810      20120        800        670        800
X3       10
GR     1284      18690      1282      19260      1282      19690    1281.5      19810      1276      19845
GR     1274      19970    1273.9      20000      1274      20030      1278      20090      1280      20100
GR     1282      20120      1282      21410      1276      21425      1276      21440      1282      21455
GR   1282.2      21900      1284      22160    1282.6      22860      1284      23350    1284.7      23820
GR     1284      24080      1282      24510      1282      24580    1281.8      24730    1281.5      25780
GR     1282      27300

ET                  4.1       9.1                21425                                    19870      20170
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X1   13.420        33      19870      20170        970       1000       1020
X3        10
X4         2    1187.2      19750       1186      19700
GR      1290     18215       1288       19350       1288      19490       1286      19560     1287.5      19870
GR      1284     19880       1282       19975     1281.8      20000       1282      20040       1282      20080
GR      1286     20100       1288       20150       1290      20170       1290      20185       1288      20195
GR      1288     20315       1288       20490       1288      20780       1287      20840       1286      21425
GR      1284     21570       1282       21580       1282      21610       1286      21650       1286      21760
GR      1288     21875       1297       21900       1288      21940       1288      23570     1288.7      23780
GR    1289.6     25395       1290       26450     1290.7      26525

NC      .050      .050       .035
ET                 4.1        9.1                   21380                                      19870      20455
X1   13.619        39      19870      20455        1090       1020       1056
X3        10
GR      1296     18690       1294       19490       1294      19835       1294      19870       1294      19890
GR      1286     19910       1286       19995       1285      20000       1286      20005       1290      20105
GR      1290     20315       1292       20360       1292      20445       1290      20450       1292      20455
GR      1293     20456       1292       20457       1292      20470       1290      20480       1290      20520
GR      1294     20540       1294       20600       1294      21380       1292      21680       1290      21690
GR      1290     21710       1292       21755       1294      21780       1294      21850       1290      21880
GR      1290     21895       1292       21905       1294      22680     1295.4      23340     1295.7      24310
GR      1294     24400       1294       25040     1294.8      25580       1296      26565

ET                 4.1        9.1                   21430                                      19890      20340
X1   13.818        33      19890      20340        1050       1050       1056
GR      1302     18660       1300       19320       1300      19890       1298      19895       1296      19970
GR    1295.5     20000       1296       20015       1296      20130       1294      20250       1294      20325
GR      1298     20340       1298       20450       1296      20460       1296      20630       1298      20740
GR      1300     20750       1300       20870     1299.2      21160       1300      21305     1300.3      21430
GR      1300     21580       1298       21820       1294      21840       1294      21850       1296      21860
GR      1296     22050       1298       22060       1300      22865       1300      23030     1300.6      23470
GR    1300.8     23985       1300       24550       1300      26150
1
    17NOV95      08:48:30                                                                                  PAGE   15
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REVISED THE ELEVATION OF STATION 22245 FROM 2300 TO 1300 (TMM 3-94)

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QT         3       6100       9539      10370
ET                 4.1        9.1                   22160                                      19915      20270
X1   14.013        39      19915      20270        1020       1055       1030
X4         5     1304      20900     1302.3      20930       1304      20960       1304      21100       1302
X4     21170
GR      1306     19285       1304       19690       1304      19915       1302      19940       1302      19960
GR      1300     19962       1299       20000       1300      20010       1302      20035       1300      20120
GR      1302     20190       1302       20250       1303      20270       1302      20300       1302      20625
GR      1300     20645       1300       20660       1302      20720       1305      20725       1304      21145
GR      1306     21170       1306       22160       1304      22225       1300      22245       1298      22255
GR      1298     22270       1302       22285       1302      22350       1304      22390       1304      22460
GR      1302     22480       1304       22505       1306      22680       1306      23465     1307.7      24010
GR    1306.2     24750       1306       25400       1306      25520     1306.3      26000

ET                 4.1        9.1                   21710                                      19715      20015
X1   14.197        36      19715      20015         990        920        970
GR      1316     18385       1314       18590       1312      19130       1310      19550       1308      19565
GR    1308.5     19715       1306       19730       1304      19732       1304      19755       1306      19800
GR      1307     19850       1306       20000       1310      20015       1310      20240       1308      20242
GR      1308     20310       1310       20330       1310      20460       1308      20465       1308      20745
GR      1310     20780       1310       20810       1308      20815       1308      20830       1310      20832
GR      1310     21710       1308       21930       1306      21970       1306      22035       1308      22060
GR      1310     22550       1310       22640     1310.6      22800       1310      22910       1310      25290
GR      1311     25560

ET                 4.1        9.1                   21420                                      19540      20250
X1   14.379        38      19540      20095         940       1000        960
X4         3     1316      21150       1315      21030     1315.3      20970
GR      1324     18115       1322       18320       1320      18550       1318      19100       1316      19540
GR      1314     19550       1314       19635       1312      19655       1310      19665       1310      19690
GR      1316     19705       1316       19950       1312      19960     1310.4      20000       1312      20020
GR      1314     20095       1314       20430       1316      20535       1316      20580       1314      20750
GR      1314     20820       1314       20860       1312      20900       1312      20945       1314      20950
GR      1316     21420       1316       22060       1314      22065       1312      22075       1312      22150
GR      1314     22180       1316       22385       1316      23115       1318      23325       1318      23600
GR      1316     24180       1316       24290       1318      25135

ET                 4.1        9.1                   20045                                      19220      20045
X1   14.559        39      19220      20045         950        915        950
X4         2     1320      20035     1320.8      20045
GR      1326     18225       1324       18540       1322      18690       1322      19220       1318      19225
GR      1316     19230       1318       19300       1320      19360       1320      19415       1318      19425
GR      1318     19450       1320       19550       1320      19740       1318      19760       1318      19780
GR      1318     19940       1316       19960     1315.4      20000       1316      20020       1318      20025
GR      1320     20065       1320       20210     1320.6      20375       1320      20875     1319.9      21150
GR      1320     21220     1320.4       21370       1320      21515       1320      21790       1318      21792
GR      1318     21820       1320       21840       1320      22190       1322      22800       1322      23050
GR      1320     23620       1320       23650       1322      23970     1322.4      24200
1
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ET                 4.1        9.1                   22000                                      19670      20170
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X1   14.752        36      19670      20170       1010       1010       1020
X3        10
GR     1336     17740       1334      18200       1332      18480       1330      18820       1328      19010
GR     1326     19300       1326      19670       1322      19680       1322      19910       1320      19988
GR   1318.8     20000       1320      20010       1322      20015       1322      20080       1324      20090
GR     1324     20125       1326      20170       1326      20580       1324      21260       1324      21550
GR     1326     21780       1328      21820       1328      22005       1326      22060       1322      22070
GR     1322     22120       1324      22190       1326      22230       1328      22580       1328      23035
GR   1236.4     23615       1328      24120       1330      24470       1332      24710       1334      24950
GR     1336     25220

QT        3       4200       4746       7140
ET                 4.1        9.1                   20720                                    19865      20050
X1   14.945         49      19865      20050       1005       1000       1020
GR     1350     17110       1348      17265       1346      17660       1344      18190       1342      18415
GR     1340     18830       1338      19040       1336      19350       1334      19650       1332      19770
GR     1330     19865       1328      19940       1326      19950       1324      19970     1322.5      20000
GR     1324     20020       1330      20050       1330      20245       1328      20370       1328      20400
GR     1330     20420       1332      20615     1332.8      20720       1332      21050       1332      21960
GR     1330     22110       1330      22200     1331.3      22400       1330      22550       1330      22750
GR     1324     22770       1324      22790       1328      22800       1330      22845       1332      22875
GR     1332     23060       1333      23245       1333      23450       1334      23850       1336      24040
GR     1338     24310       1338      24610       1340      24915       1342      25050       1344      25120
GR     1346     25270       1348      25480       1348      26190       1350      26250

ET                 4.1        9.1                   21800                                    19955      20382
X1   15.144         55      19955      20382        900        890       1056        .89
X3        10
GR     1360     16750       1358      16880       1356      17180       1354      17540       1352      17750
GR     1350     17905       1350      18105       1348      18410       1346      18630       1344      18950
GR     1342     19115       1342      19250       1340      19555       1338      19660       1338      19720
GR     1334     19724       1334      19830       1334      19832       1332      19850       1336      19865
GR     1336     19900       1336      19955       1330      19975       1329      20000       1330      20070
GR     1332     20080       1334      20315       1334      20350       1332      20380       1336      20382
GR     1338     21510       1338      21800       1336      22035       1336      22315       1334      22350
GR     1334     22370       1336      22390       1336      22470       1334      22515       1332      22530
GR     1332     22570       1334      22625       1336      22640       1336      22700       1334      22810
GR     1332     22820       1332      22840       1334      22880       1336      22960       1338      23815
GR     1340     23960       1342      24145       1344      24305       1350      24455       1360      24660

ET                 4.1        9.1                   21750                                    19770      20100
X1   15.333         53      19770      20100        900        890       1000
X3        10
GR     1358     17825       1356      18010       1354      18370       1352      18530       1350      18570
GR     1348     18605       1348      18620       1350      18630       1350      18725       1348      18900
GR     1346     18930       1346      19010       1348      19040       1348      19060       1344      19070
GR     1344     19080       1346      19090       1346      19305       1344      19335       1340      19350
GR     1340     19770       1338      19790       1336      19880       1336      19980       1335      20000
GR     1336     20010       1338      20090       1342      20100       1342      21750       1338      21765
GR     1338     21790       1340      21810       1340      22045       1340      22046       1338      22060
GR     1338     22080       1340      22120       1340      22150       1336      22170       1336      22180
GR     1340     22190       1342      22270       1342      22300       1340      22540       1340      22590
1
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GR     1342     22760       1342      23065       1344      23360       1345      23420       1348      23530
GR     1348     23690       1350      23710       1360      23930

ET                 4.1        9.1                   20960                                    19950      20320
X1   15.519         48      19950      20320        940        960        980
X3        10
X4         1       1345      20320
GR     1360     18730       1358      18760       1358      18965       1356      19050       1354      19115
GR     1354     19390       1352      19460       1352      19515       1350      19540       1350      19680
GR     1348     19950       1342      19970       1340      19995       1340      20005       1342      20015
GR     1342     20130       1340      20215       1340      20225       1344      20250     1344.5      20338
GR     1346     20595       1350      20960       1350      21080       1348      21965       1344      21985
GR     1344     22005       1346      22020       1348      22080       1346      22110       1346      22135
GR     1348     22145       1346      22275       1346      22530       1342      22545       1344      22560
GR     1346     22630       1346      22855       1344      22860       1344      22875       1346      22895
GR     1346     22925       1342      22930       1346      22945       1348      23615       1348      23765
GR     1350     23950       1352      24140       1360      24300

ET                 4.1        9.1                   20900                                    19870      20085
X1   15.699         37      19870      20085        935        920        950
GR     1364     18850       1362      18960       1360      19070       1358      19220       1356      19230
GR     1356     19260       1358      19270       1358      19345       1356      19490       1354      19870
GR     1352     19880       1350      19885       1348      19950       1346      19980       1345      20000
GR     1346     20030       1346      20065       1348      20075       1350      20085       1350      20700
GR     1348     20760       1348      20885       1354      20900       1354      21715       1348      21790
GR     1348     21880       1352      21930       1352      23430       1350      23435       1350      23445
GR     1352     23450       1352      23550       1356      23920       1360      24120       1362      24170
GR     1362     24470       1364      24650

QT        3       2350       2350       3995
ET                 4.1        9.1                   2690                                     1985       2430
X1   15.966         40      1985       2430        1450       1200       1410
X4         9       1359      1900       1352        2280       1354       2300       1356       2325       1356
X4      2400       1357      2430     1357.3        2530       1352       2600       1354       2620
GR     1364       1080      1362       1180        1360       1585       1360       1725       1358       1985
GR     1356       1990      1354       1995        1354       2005       1356       2010       1356       2040
GR     1355       2060      1354       2150        1354       2250       1356       2560       1356       2670
GR     1358       2675      1360       2690        1360       3205       1358       3505       1358       4225
GR     1356       4415      1356       5380        1354       5381       1354       5395       1356       5405
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GR     1356       5495       1358       5610       1358       5745       1360       5850       1362       5925
GR     1362       6150       1364       6270       1366       6410       1368       6580       1370       6615
GR     1372       6755       1374       6795       1376       6835       1376       6965       1378       7010

ET                  4.1        9.1                  2865                                             1970       2350
X1   16.066         48       1970       2350        565        480        570
X4        3     1360.4       1970     1356.2       2560       1358       2580
GR     1368       1090       1368       1150       1366       1305       1364       1560       1362       1650
GR     1362       1780       1360       1820       1360       1980       1356       2000       1358       2060
GR     1360       2150       1360       2210       1358       2240       1358       2280       1360       2350
GR     1360       2435       1358       2465       1358       2690       1360       2710       1362       2760
GR     1364       2865       1364       2915       1362       3310       1360       3545       1358       3550
GR     1358       3730       1360       3745       1360       4670       1358       4920       1358       5145
GR     1356       5355       1354       5356       1354       5365       1356       5368       1358       5375
GR     1358       5570       1360       5720       1362       5800       1364       5915       1364       6005
1
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GR     1366       6110       1368       6380       1368       6570       1370       6680       1372       6780
GR     1374       6830       1374       6870       1376       6920

ET                  4.1        9.1                  3030                                             1950       2200
X1   16.167         22       1950       2130        530        530        530
X4        2     1359.7       2030       1362       2130
GR     1370       1020       1370       1095       1368       1245       1366       1255       1366       1270
GR     1368       1290       1368       1420       1366       1665     1364.8       1950       1360       1955
GR     1360       2040       1362       2110       1362       2170       1362       2250       1362       2370
GR     1360       2550       1360       2590       1358       2600       1360       2610       1362       2620
GR     1364       2630       1365       2650

ET                  4.1        9.1                  2645                                             1925       2030
X1   16.248         40       1925       2030        450        340        430
GR     1372       1090       1370       1100       1370       1115       1370       1120       1370       1130
GR     1370       1365       1368       1590       1366       1660       1367       1925       1362       1940
GR     1362       1985       1361       2000       1362       2013       1364       2030       1364       2230
GR     1362       2240       1362       2250       1364       2300       1364       2630       1366       2645
GR     1366       2943       1364       2950       1364       3045       1366       3055       1366       3690
GR     1364       3755       1364       3770       1365       4105       1364       4218       1362       4765
GR     1360       5045       1358       5055     1356.1       5095       1358       5105       1360       5115
GR     1362       5328       1364       5485       1366       5755       1368       5810       1370       6160

ET                  4.1        9.1                  2665                                             1915       2240
X1   16.328         45       1915       2240        440        250        410
X4        1     1367.4       2240
GR     1374        980       1372        990       1372       1010       1372       1015       1372       1020
GR     1372       1250       1370       1520       1368       1790       1367       1835       1366       1915
GR     1364       1940     1362.8       2000       1364       2050       1366       2150       1366       2335
GR     1364       2339       1364       2370       1366       2397       1366       2403       1368       2665
GR     1366       2680       1366       2715       1368       2735       1368       3345       1366       3530
GR     1366       3730       1367       3890       1366       4145       1366       4310       1364       4355
GR     1364       4505       1362       4760       1362       4885       1360       4910       1358       4920
GR   1357.5       4925       1358       4937       1360       4947       1362       5050       1362       5278
GR     1364       5335       1366       5455       1368       5645       1370       5695       1370       5780

ET                  4.1        9.1                  2460                                             1885       2055
X1   16.411         46       1885       2055        510        350        450
X3       10
X4        1     1369.2       1885
GR     1378        610       1376        760       1376        761       1376        762       1376        763
GR     1374       1090       1372       1370       1370       1500       1370       1650       1368       1665
GR     1368       1920       1366       1948     1364.3       2000       1366       2048       1370       2055
GR     1370       2210       1368       2223       1368       2240       1370       2260       1370       2390
GR     1368       2425       1368       2450       1370       2460       1370       2980       1368       3125
GR     1368       3390       1369       3520       1369       3580       1369       3645       1368       3830
GR     1366       4025       1366       4200       1364       4520       1362       4545       1360       4545
GR   1359.5       4555       1360       4561       1362       4565       1362       4588       1360       4594
GR     1360       4600       1362       4601       1364       4758       1366       4885       1368       4995
GR     1370       5185

      REVISED THE ELEVATION OF STATION 2000 FROM 1365 TO 1365.8 (TMM 3-94)
        "     "     "      "    "     3560  "   1970 "  1370      "
        "     "     "      "    "     3960  "   1398 "  1368      "
1
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ET                              9.1                                                                  1835       2035
X1   16.504         33       1835       2035        460        300        490
X3       10
GR     1380        680       1378        695       1378        712       1378        720       1378        743
GR     1376        980       1374       1180       1374       1315       1372       1625       1370       1630
GR     1370       1665       1372       1670       1372       1770       1370       1780       1370       1835
GR     1368       1915       1366       1980     1365.8       2000       1366       2018       1372       2035
GR     1372       2110       1370       2140       1370       2160       1372       2195       1372       2390
GR   1370.7       2880     1371.8       3295       1370       3560       1368       3960       1366       4225
GR     1364       4310       1364       4340       1390       4340

ET                              9.1                                                                  1910       2110
X1   16.608         30       1910       2110        485        450        530
X3       10
X4        2     1376.5       1910     1374.2       2110
GR     1382        920       1380       1000       1380       1050       1380       1150       1380       1151
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GR     1378       1280       1376       1520       1376       1920       1374       1925       1372       1930
GR     1370       1935       1370       1980       1368       1995     1367.8       2000       1368       2015
GR     1370       2020       1370       2080       1372       2090       1372       2200       1370       2210
GR     1369       2220       1370       2235       1372       2270       1374       2310       1374       2375
GR     1372       2385       1372       2395       1374       2400       1376       2410       1376       2550

ET                 4.1        9.1                   2300                                             1950       2110
X1   16.732         18       1950       2115        640        420        685
X3       10
X4        4       1375       2000       1380       1950       1376       2040       1379       2300
GR     1382       1650       1376       1960       1376       2110       1378       2115       1378       2370
GR     1376       2470       1376       2480       1378       2490       1378       2550       1376       2570
GR     1376       2620       1378       2630       1378       2850       1376       2880       1375       2885
GR     1376       2890       1378       2910       1380       2920

ET                            9.1                                                                1935       2045
X1   16.818         14       1935       2045        430        750        455
X4        1     1381.2       2240
GR     1390       1145       1388       1340       1386       1490       1384       1640       1382       1935
GR     1376       1980     1375.7       2000       1376       2030     1380.4       2045       1380       2097
GR     1378       2105       1378       2190       1380       2210       1382       2350

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


*PROF 1
0

CCHV=      .200 CEHV=      .400
*SECNO 8.655

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1171.60 ELREA=      1171.20

        1985 TOPO - DIGITIZED DATA SEC.8.655 THRU SEC.9.129
        DOWNSTREAM STUDY LIMIT
        NEW RIVER-SKUNK CREEK CONFLUENCE
     8.655      15.40   1170.50       .00   1170.50   1170.89       .39       .00       .00   1171.60
   41000.0         .0   41000.0         .0        .0    8176.1         .0        .0        .0   1171.20
      .00        .00      5.01        .00       .000      .035       .000      .000   1155.10   9587.04
   .000464       750.      400.       150.         0         0          0       .00    634.06  10221.10


FLOW DISTRIBUTION FOR SECNO=       8.65          CWSEL=    1170.50

STA=     9587.   10224.
  PER Q=     100.0
   AREA=    8176.1
    VEL=       5.0
  DEPTH=      12.9

CCHV=      .100 CEHV=      .300
*SECNO 8.731

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .60


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1172.80 ELREA=      1172.20

         BEGIN DISCHARGE FOR NEW RIVER ONLY
     8.731      14.86   1170.96       .00        .00   1171.04       .08       .12       .03   1172.80
   12000.0         .0   12000.0         .0        .0    5154.5         .0      61.2       4.9   1172.20
      .05        .00      2.33        .00       .000      .035       .000      .000   1156.10   9779.38
   .000110       400.      400.       400.         2         0          0       .00    428.84  10208.22


FLOW DISTRIBUTION FOR SECNO=       8.73          CWSEL=    1170.96

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


STA=     9779.   10214.
  PER Q=     100.0
   AREA=    5154.5
    VEL=       2.3
  DEPTH=      12.0

*SECNO 8.807

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1174.70 ELREA=      1173.90

     8.807      12.69   1170.99       .00        .00   1171.10       .11       .05       .01   1174.70
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   12000.0        .0   12000.0        .0        .0    4497.9        .0     105.5       8.8   1173.90
       .09        .00       2.67       .00       .000       .035       .000       .000   1158.30   9785.25
   .000167      400.      400.      390.         2          0          0        .00    417.45  10202.70


FLOW DISTRIBUTION FOR SECNO=      8.81          CWSEL=   1170.99

STA=    9785.   10219.
  PER Q=    100.0
   AREA=   4497.9
    VEL=      2.7
  DEPTH=     10.8

*SECNO 8.883

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .45


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1174.90 ELREA=      1176.30

     8.883     10.86   1170.96        .00        .00   1171.30        .34        .13        .07   1174.90
   12000.0        .0   12000.0        .0        .0    2552.9        .0      137.9       12.2   1176.30
       .11        .00       4.70       .00       .000       .035       .000       .000   1160.10   9850.57
   .000837      280.      400.      400.         2          0          0        .00    338.58  10189.15


FLOW DISTRIBUTION FOR SECNO=      8.88          CWSEL=   1170.96

STA=    9851.   10217.
  PER Q=    100.0
   AREA=   2552.9
    VEL=      4.7
  DEPTH=      7.5

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   17NOV95      08:48:30                                                                          PAGE   22

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


*SECNO 8.936

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1177.30 ELREA=      1178.20

         OLD CORP STATION NO. 8.95=0.6
     8.936      9.40   1171.20        .00        .00   1171.61        .40        .29        .02   1177.30
   12000.0        .0   12000.0        .0        .0    2359.8        .0      154.2       14.6   1178.20
       .13        .00       5.09       .00       .000       .035       .000       .000   1161.80   9821.91
   .001185      300.      290.      300.         2          0          0        .00    360.07  10181.98


FLOW DISTRIBUTION FOR SECNO=      8.94          CWSEL=   1171.20

STA=    9822.   10213.
  PER Q=    100.0
   AREA=   2359.8
    VEL=      5.1
  DEPTH=      6.6

*SECNO 8.977

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1177.20 ELREA=      1179.30

     8.977      7.81   1171.31        .00        .00   1172.04        .73        .34        .10   1177.20
   12000.0        .0   12000.0        .0        .0    1755.3        .0      164.2       16.1   1179.30
       .14        .00       6.84       .00       .000       .035       .000       .000   1163.50   9895.40
   .002293      220.      210.      200.         2          0          0        .00    282.68  10178.07


FLOW DISTRIBUTION FOR SECNO=      8.98          CWSEL=   1171.31

STA=    9895.   10213.
  PER Q=    100.0
   AREA=   1755.3
    VEL=      6.8
  DEPTH=      6.2

*SECNO 9.009

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.60

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST
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3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1178.00 ELREA=      1179.90

         GREENWAY ROAD AREA
     9.009      9.09   1171.99       .00       .00   1172.32       .33       .24       .04   1178.00
   12000.0        .0   12000.0        .0        .0    2591.4        .0     173.1      17.5   1179.90
       .15       .00      4.63       .00      .000      .035      .000      .000   1162.90   9797.15
   .000893      330.      180.      180.         2         0         0       .00    369.65  10166.79


FLOW DISTRIBUTION FOR SECNO=      9.01          CWSEL=   1171.99

STA=    9797.   10207.
  PER Q=    100.0
   AREA=   2591.4
    VEL=      4.6
  DEPTH=      7.0

*SECNO 9.047

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1177.50 ELREA=      1177.60

     9.047     11.05   1172.25       .00       .00   1172.46       .21       .12       .01   1177.50
   12000.0        .0   12000.0        .0        .0    3237.0        .0     186.5      19.2   1177.60
       .16       .00      3.71       .00      .000      .035      .000      .000   1161.20   9712.28
   .000462      280.      200.      160.         2         0         0       .00    391.38  10103.66


FLOW DISTRIBUTION FOR SECNO=      9.05          CWSEL=   1172.25

STA=    9712.   10114.
  PER Q=    100.0
   AREA=   3237.0
    VEL=      3.7
  DEPTH=      8.3

*SECNO 9.129

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .62

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1180.60 ELREA=      1178.70

         OLD CORP STATION NO. 9.15=9.8
         END 1985 TOPO DIGITIZED SECTIONS, END C/L = 10000
     9.129      8.23   1172.43       .00       .00   1172.80       .37       .30       .05   1180.60
   12000.0        .0   12000.0        .0        .0    2459.5        .0     214.0      23.1   1178.70
       .19       .00      4.88       .00      .000      .035      .000      .000   1164.20   9674.75
   .001207      290.      420.      460.         2         0         0       .00    405.98  10080.74


FLOW DISTRIBUTION FOR SECNO=      9.13          CWSEL=   1172.43

STA=    9675.   10090.
  PER Q=    100.0
   AREA=   2459.5
    VEL=      4.9
  DEPTH=      6.1

CCHV=     .100 CEHV=     .300
*SECNO 9.318

3265 DIVIDED FLOW

3280 CROSS SECTION      9.32 EXTENDED       .30 FEET

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1186.00 ELREA=      1181.50

         BEGIN STATION C/L = 20000
     9.318      8.30   1181.50   1181.50       .00   1182.03       .53      1.90       .05   1186.00
   12000.0        .0    9255.1    2744.9        .0    1405.1    1616.1     276.9      48.7   1181.50
       .24       .00      6.59      1.70      .000      .035      .060      .000   1173.20  19695.41
   .003405     1000.     1000.     1000.        20        15         0       .00   1824.29  23740.00


FLOW DISTRIBUTION FOR SECNO=      9.32          CWSEL=   1181.50

1
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

STA=	19695.	20015.	20105.	20179.	22940.	23725.	23740.
PER Q=	77.1	.0	.0	4.0	18.6	.1	
AREA=	1405.1	9.2	7.5	406.4	1179.5	13.5	
VEL=	6.6	.3	.3	1.2	1.9	1.3	
DEPTH=	4.4	.1	.1	.1	1.5	.9	

*SECNO 9.492

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .61

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1188.00 ELREA= 1193.90

9.492	6.42	1185.42	.00	.00	1186.91	1.49	4.59	.29	1188.00
11450.0	.0	11450.0	.0	.0	1167.6	.0	320.6	70.4	1193.90
.26	.00	9.81	.00	.000	.035	.000	.000	1179.00	19912.16
.008303	910.	920.	890.	2	0	0	.00	288.61	20200.77

FLOW DISTRIBUTION FOR SECNO= 9.49 CWSEL= 1185.42

STA=	19912.	20235.
PER Q=	100.0	
AREA=	1167.6	
VEL=	9.8	
DEPTH=	4.0	

*SECNO 9.692
3280 CROSS SECTION 9.69 EXTENDED .22 FEET

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1195.00 ELREA= 1196.10

9.692	8.12	1192.22	.00	.00	1193.76	1.53	6.83	.01	1195.00
11450.0	.0	11450.0	.0	.0	1152.2	.0	348.7	76.3	1196.10
.29	.00	9.94	.00	.000	.035	.000	.000	1184.10	19852.36
.005182	1050.	1056.	1040.	3	0	0	.00	194.91	20047.27

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 9.69 CWSEL= 1192.22

STA=	19852.	20060.
PER Q=	100.0	
AREA=	1152.2	
VEL=	9.9	
DEPTH=	5.9	

CCHV= .300 CEHV= .500
*SECNO 9.889

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1200.00 ELREA= 1200.00

9.889	8.98	1196.98	.00	.00	1198.04	1.07	4.15	.14	1200.00
11450.0	.0	11450.0	.0	.0	1379.9	.0	378.9	81.1	1200.00
.33	.00	8.30	.00	.000	.035	.000	.000	1188.00	19860.24
.003165	1100.	1040.	1050.	3	0	0	.00	210.69	20070.93

FLOW DISTRIBUTION FOR SECNO= 9.89 CWSEL= 1196.98

STA=	19860.	20080.
PER Q=	100.0	
AREA=	1379.9	
VEL=	8.3	
DEPTH=	6.5	

CCHV= .300 CEHV= .500
*SECNO 9.953

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1200.00 ELREA= 1202.00

BELL ROAD

9.953	9.37	1197.97	.00	.00	1198.98	1.01	.92	.02	1200.00
11450.0	.0	11450.0	.0	.0	1421.4	.0	389.7	82.8	1202.00
.34	.00	8.06	.00	.000	.030	.000	.000	1188.60	19795.05
.002397	335.	335.	335.	2	0	0	.00	231.40	20026.45

FLOW DISTRIBUTION FOR SECNO= 9.95 CWSEL= 1197.97

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

STA= 19795. 20032.
PER Q= 100.0
AREA= 1421.4
VEL= 8.1
DEPTH= 6.1

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.90	1.56	2.60	.00	213.00	20.00	2800.00	1.88	1188.61	1188.60

*SECNO 9.967
CLASS A LOW FLOW

3420 BRIDGE W.S.= 1197.87 BRIDGE VELOCITY= 5.87 CALCULATED CHANNEL AREA= 1948.

EGPRS	EGLWC	H3	QWEIR	QLOW	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
.00	1199.24	.22	0.	11450.	2800.	2656.	1200.90	1207.50	0.

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1204.00 ELREA= 1204.00

SPECIAL BRIDGE									
9.967	9.59	1198.19	.00	.00	1199.24	1.05	.26	.00	1204.00
11450.0	.0	11450.0	.0	.0	1395.1	.0	392.1	83.3	1204.00
.34	.00	8.21	.00	.000	.030	.000	.000	1188.60	19839.52
.002671	75.	75.	75.	0	0	0	.00	241.44	20080.96

FLOW DISTRIBUTION FOR SECNO= 9.97 CWSEL= 1198.19

STA= 19840. 20110.
PER Q= 100.0
AREA= 1395.1
VEL= 8.2
DEPTH= 5.8

CCHV= .100 CEHV= .300
*SECNO 10.096

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .70

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1201.00 ELREA= 1206.00

10.096	4.86	1200.56	.00	.00	1201.64	1.08	2.39	.01	1201.00
11450.0	.0	11450.0	.0	.0	1375.0	.0	412.6	88.0	1206.00
.36	.00	8.33	.00	.000	.030	.000	.000	1195.70	19639.38
.005494	610.	645.	650.	3	0	0	.00	402.03	20041.40

FLOW DISTRIBUTION FOR SECNO= 10.10 CWSEL= 1200.56

STA= 19639. 20055.
PER Q= 100.0
AREA= 1375.0
VEL= 8.3
DEPTH= 3.4

*SECNO 10.271

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1212.50 ELREA= 1208.00

10.271	6.86	1205.06	.00	.00	1205.82	.76	4.15	.03	1212.50
10900.0	.0	10900.0	.0	.0	1555.2	.0	443.7	96.9	1208.00
.40	.00	7.01	.00	.000	.030	.000	.000	1198.20	19863.81
.003698	920.	925.	925.	3	0	0	.00	437.77	20301.58

FLOW DISTRIBUTION FOR SECNO= 10.27 CWSEL= 1205.06

STA= 19864. 20320.
PER Q= 100.0
AREA= 1555.2
VEL= 7.0
DEPTH= 3.6

*SECNO 10.443

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1216.00 ELREA= 1210.00

10.443	3.98	1209.58	1209.58	.00	1211.09	1.51	5.02	.22	1216.00
10900.0	.0	10900.0	.0	.0	1106.4	.0	471.5	105.3	1210.00
.43	.00	9.85	.00	.000	.030	.000	.000	1205.60	19742.09
.009108	930.	910.	900.	2	11	0	.00	366.87	20108.96

FLOW DISTRIBUTION FOR SECNO= 10.44 CWSEL= 1209.58

STA= 19742. 20110.
PER Q= 100.0
AREA= 1106.4
VEL= 9.9
DEPTH= 3.0

*SECNO 10.612

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.54

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1222.00 ELREA= 1218.00

10.612	5.59	1215.19	.00	.00	1216.18	.99	5.04	.05	1222.00
10900.0	.0	10900.0	.0	.0	1368.2	.0	496.8	112.4	1218.00
.46	.00	7.97	.00	.000	.030	.000	.000	1209.60	19972.01
.003854	880.	890.	900.	3	0	0	.00	325.65	20297.66

FLOW DISTRIBUTION FOR SECNO= 10.61 CWSEL= 1215.19

STA= 19972. 20300.
PER Q= 100.0
AREA= 1368.2
VEL= 8.0
DEPTH= 4.2

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 10.659
3280 CROSS SECTION 10.66 EXTENDED .54 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.70

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1222.20 ELREA= 1215.61

10.659	7.09	1216.14	.00	.00	1216.74	.60	.52	.04	1222.20
10900.0	.0	10900.0	.0	.0	1756.8	.0	505.7	114.1	1215.61
.47	.00	6.20	.00	.000	.030	.000	.000	1209.05	41.67
.001336	259.	247.	255.	2	0	0	.00	273.31	314.98

FLOW DISTRIBUTION FOR SECNO= 10.66 CWSEL= 1216.14

STA= 42. 315.
PER Q= 100.0

```
   AREA=   1756.8
    VEL=      6.2
  DEPTH=      6.4

*SECNO 10.691

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1223.16 ELREA=      1217.30

    10.691      7.24   1216.29       .00       .00   1217.07       .78       .27       .05   1223.16
   10900.0        .0   10900.0        .0        .0   1542.4         .0     512.1     115.2   1217.30
      .47        .00      7.07       .00      .000      .030      .000      .000   1209.05     61.49
   .001933      174.      170.      161.         2         0         0       .00    261.33    322.82


FLOW DISTRIBUTION FOR SECNO=     10.69          CWSEL=   1216.29

STA=      61.     325.
  PER Q=    100.0
   AREA=   1542.4
    VEL=      7.1
  DEPTH=      5.9

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


*SECNO 10.723

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1215.61 ELREA=      1217.30

    10.723      7.39   1216.44       .00       .00   1217.61      1.18       .43       .12   1215.61
   10900.0      11.5   10888.5         .0      14.4   1249.9         .0     517.6     116.2   1217.30
      .48        .80      8.71       .00      .060      .030      .000      .000   1209.05     78.45
   .003415      167.      170.      164.         2         0         0       .00    272.14    350.58


FLOW DISTRIBUTION FOR SECNO=     10.72          CWSEL=   1216.44

STA=      78.     113.     353.
  PER Q=      .1     99.9
   AREA=    14.4   1249.9
    VEL=       .8      8.7
  DEPTH=       .4      5.3

*SECNO 10.803

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1220.00 ELREA=      1220.00

    10.803      5.28   1219.38   1219.38       .00   1221.29      1.91      2.19       .22   1220.00
   10900.0        .0   10900.0         .0        .0    982.6         .0     528.5     118.8   1220.00
      .49        .00     11.09       .00      .000      .030      .000      .000   1214.10  19751.55
   .008725      420.      423.      430.        20        15         0       .00    262.68  20014.23


FLOW DISTRIBUTION FOR SECNO=     10.80          CWSEL=   1219.38

STA=   19752.   20015.
  PER Q=    100.0
   AREA=    982.6
    VEL=     11.1
  DEPTH=      3.7

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


*SECNO 10.933
3280 CROSS SECTION      10.93 EXTENDED      1.04 FEET


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.49


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1222.20 ELREA=      1220.53
```

10.933	7.60	1221.57	.00	.00	1221.88	.30	.42	.16	1222.20
10900.0	.0	10900.0	.0	.0	2470.1	.0	538.2	120.7	1220.53
.51	.00	4.41	.00	.000	.030	.000	.000	1213.97	2.50
.000716	164.	244.	241.	2	0	0	.00	404.34	406.84

FLOW DISTRIBUTION FOR SECNO= 10.93 CWSEL= 1221.57

STA= 3. 407.
PER Q= 100.0
AREA= 2470.1
VEL= 4.4
DEPTH= 6.1

*SECNO 10.934
3280 CROSS SECTION 10.93 EXTENDED .98 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .66

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1225.50 ELREA= 1220.53

10.934	5.89	1221.50	.00	.00	1222.03	.53	.09	.07	1225.50
10900.0	.0	10900.0	.0	.0	1863.2	.0	542.4	121.4	1220.53
.51	.00	5.85	.00	.000	.030	.000	.000	1215.61	15.89
.001655	82.	85.	92.	2	0	0	.00	374.55	390.44

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 10.93 CWSEL= 1221.50

STA= 16. 390.
PER Q= 100.0
AREA= 1863.2
VEL= 5.9
DEPTH= 5.0

*SECNO 10.935

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1227.10 ELREA= 1222.20

10.935	6.08	1221.69	.00	.00	1222.31	.63	.25	.03	1227.10
10900.0	.0	10900.0	.0	.0	1717.5	.0	548.3	122.6	1222.20
.52	.00	6.35	.00	.000	.030	.000	.000	1215.61	40.09
.001886	131.	144.	154.	1	0	0	.00	336.63	376.73

FLOW DISTRIBUTION FOR SECNO= 10.94 CWSEL= 1221.69

STA= 40. 384.
PER Q= 100.0
AREA= 1717.5
VEL= 6.3
DEPTH= 5.1

*SECNO 10.936

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .53

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1225.50 ELREA= 1223.81

10.936	5.74	1221.35	.00	.00	1223.09	1.74	.44	.33	1225.50
10900.0	.0	10900.0	.0	.0	1030.3	.0	552.6	123.5	1223.81
.52	.00	10.58	.00	.000	.030	.000	.000	1215.61	43.38
.006830	131.	137.	154.	3	0	0	.00	247.01	290.38

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 10.94 CWSEL= 1221.35

STA= 43. 325.

```
  PER Q=    100.0
   AREA=   1030.3
    VEL=     10.6
  DEPTH=      4.2

CCHV=     .300 CEHV=     .500
*SECNO 10.989

3265 DIVIDED FLOW


3370 NORMAL BRIDGE, NRD=   0 MIN ELTRD=  1230.00 MAX ELLC=  1228.00


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1229.70 ELREA=      1227.98

         UNION HILLS DRIVE
   10.989      7.47   1223.87       .00       .00   1225.34      1.47      2.17       .08   1229.70
  10900.0        .0   10900.0        .0        .0   1119.7         .0     561.8     125.4   1227.98
     .53        .00      9.73       .00      .000      .030      .000      .000   1216.40     82.50
 .005093      370.      370.      370.         3         0         0       .00    191.12    281.27


FLOW DISTRIBUTION FOR SECNO=     10.99          CWSEL=   1223.87

STA=      82.     295.
  PER Q=    100.0
   AREA=   1119.7
    VEL=      9.7
  DEPTH=      5.9

*SECNO 11.004

3265 DIVIDED FLOW


3370 NORMAL BRIDGE, NRD=   0 MIN ELTRD=  1230.00 MAX ELLC=  1228.00

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1229.70 ELREA=      1227.98

   11.004      8.26   1224.66       .00       .00   1225.80      1.14       .36       .10   1229.70
  10900.0        .0   10900.0        .0        .0   1273.7         .0     564.1     125.8   1227.98
     .53        .00      8.56       .00      .000      .030      .000      .000   1216.40     79.56
 .003537       85.       85.       85.         2         0         0       .00    196.79    284.00


FLOW DISTRIBUTION FOR SECNO=     11.00          CWSEL=   1224.66

STA=      80.     295.
  PER Q=    100.0
   AREA=   1273.7
    VEL=      8.6
  DEPTH=      6.5

*SECNO 11.005

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.41


3470 ENCROACHMENT STATIONS=          .0     309.0  TYPE=       1  TARGET=      308.999

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1229.70 ELREA=      1222.15

   11.005      8.65   1225.05       .00       .00   1225.90       .85       .01       .09   1229.70
  10900.0        .0   10832.2      67.8        .0   1458.4      37.2     564.3     125.8   1222.15
     .53        .00      7.43      1.82      .000      .030      .060      .000   1216.40     78.13
 .001788        5.        5.        5.         2         0         0       .00    230.87    309.00


FLOW DISTRIBUTION FOR SECNO=     11.01          CWSEL=   1225.05

STA=      78.     295.     309.
  PER Q=     99.4        .6
   AREA=   1458.4      37.2
    VEL=      7.4       1.8
  DEPTH=      6.7       2.7

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
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    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

CCHV=     .100 CEHV=     .300
*SECNO 11.020

3470 ENCROACHMENT STATIONS=         .0     603.7  TYPE=       1  TARGET=      603.699

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1229.50 ELREA=      1230.30

    11.020      9.12   1225.12       .00       .00   1226.03       .92       .12       .02   1229.50
   10900.0         .0   10900.0        .0        .0   1419.2         .0     566.3     126.1   1230.30
      .54        .00      7.68       .00       .000      .030      .000      .000   1216.00    375.64
   .002116      60.       60.        60.          2         0         0       .00    227.01    602.65


FLOW DISTRIBUTION FOR SECNO=     11.02          CWSEL=   1225.12

STA=     376.     604.
  PER Q=    100.0
   AREA=   1419.2
    VEL=      7.7
  DEPTH=      6.3

*SECNO 11.045

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1229.80 ELREA=      1226.90

    11.045      7.54   1225.34       .00       .00   1226.54      1.21       .42       .09   1229.80
   10900.0         .0   10900.0        .0        .0   1237.3         .0     571.5     126.9   1226.90
      .54        .00      8.81       .00       .000      .030      .000      .000   1217.80     97.05
   .002948     170.      170.       170.          2         0         0       .00    205.21    302.26


FLOW DISTRIBUTION FOR SECNO=     11.05          CWSEL=   1225.34

STA=      97.     308.
  PER Q=    100.0
   AREA=   1237.3
    VEL=      8.8
  DEPTH=      6.0

*SECNO 11.129
1
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.61


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1230.00 ELREA=      1230.10

         NEW SECTION - LEFT BANK TAKEN FROM ARROWHEAD RANCH
         WASTEWATER TREATMENT PLANT GRADING PLAN-DIBBLE & ASSOC.
    11.129      8.95   1226.75       .00       .00   1227.29       .55       .69       .07   1230.00
   10900.0         .0   10900.0        .0        .0   1838.2         .0     585.4     129.1   1230.10
      .56        .00      5.93       .00       .000      .030      .000      .000   1217.80     15.25
   .001141     395.      395.       395.          2         0         0       .00    272.79    288.05


FLOW DISTRIBUTION FOR SECNO=     11.13          CWSEL=   1226.75

STA=      15.     331.
  PER Q=    100.0
   AREA=   1838.2
    VEL=      5.9
  DEPTH=      6.7

*SECNO 11.188

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1232.80 ELREA=      1232.70

    11.188      9.51   1227.01       .00       .00   1227.85       .85       .47       .09   1232.80
   10350.0         .0   10350.0        .0        .0   1402.0         .0     597.3     130.9   1232.70
      .57        .00      7.38       .00       .000      .030      .000      .000   1217.50    779.98
   .001969     320.      320.       320.          2         0         0       .00    224.97   1004.94


FLOW DISTRIBUTION FOR SECNO=     11.19          CWSEL=   1227.01

STA=     780.    1021.
  PER Q=    100.0
   AREA=   1402.0
    VEL=      7.4
  DEPTH=      6.2
```

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 11.301
3280 CROSS SECTION 11.30 EXTENDED 9.99 FEET

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .69

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1233.30 ELREA= 1233.90

11.301	8.49	1228.19	.00	.00	1229.72	1.53	1.66	.21	1233.30
10350.0	.0	10350.0	.0	.0	1042.8	.0	614.1	133.8	1233.90
.59	.00	9.93	.00	.000	.030	.000	.000	1219.70	95.10
.004184	600.	600.	600.	2	0	0	.00	188.57	283.67

FLOW DISTRIBUTION FOR SECNO= 11.30 CWSEL= 1228.19

STA= 95. 298.
PER Q= 100.0
AREA= 1042.8
VEL= 9.9
DEPTH= 5.5

*SECNO 11.328

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1233.60 ELREA= 1233.40

11.328	7.97	1228.87	.00	.00	1230.60	1.73	.82	.06	1233.60
10350.0	.0	10350.0	.0	.0	980.4	.0	618.3	134.5	1233.40
.59	.00	10.56	.00	.000	.030	.000	.000	1220.90	22.18
.004957	180.	180.	180.	2	0	0	.00	183.74	205.92

FLOW DISTRIBUTION FOR SECNO= 11.33 CWSEL= 1228.87

STA= 22. 214.
PER Q= 100.0
AREA= 980.4
VEL= 10.6
DEPTH= 5.3

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 11.386
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1233.00 ELREA= 1238.00

11.386	7.91	1230.91	1230.91	.00	1232.95	2.04	1.97	.09	1233.00	
10350.0	.0	10350.0	.0	.0	902.8	.0	624.2	135.8	1238.00	
.60	.00	11.46	.00	.000	.035	.000	.000	1223.00	19902.09	
.011808	315.	270.	240.	3	5	0	.00	228.81	20130.91	

FLOW DISTRIBUTION FOR SECNO= 11.39 CWSEL= 1230.91

STA= 19902. 20175.
PER Q= 100.0
AREA= 902.8
VEL= 11.5
DEPTH= 3.9

*SECNO 11.481

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.17

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1236.00 ELREA= 1240.00

11.481	7.58	1234.98	.00	.00	1235.55	.56	2.45	.15	1236.00
10350.0	.0	10350.0	.0	.0	1721.5	.0	639.8	139.4	1240.00
.62	.00	6.01	.00	.000	.035	.000	.000	1227.40	19783.39
.002513	480.	520.	540.	2	0	0	.00	361.54	20144.92

FLOW DISTRIBUTION FOR SECNO= 11.48 CWSEL= 1234.98

STA= 19783. 20170.
PER Q= 100.0
AREA= 1721.5
VEL= 6.0
DEPTH= 4.8

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 11.566

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.66

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1240.00 ELREA= 1240.00

11.566	6.38	1236.08	.00	.00	1236.24	.16	.65	.04	1240.00
10350.0	.0	10350.0	.0	.0	3239.5	.0	666.0	145.6	1240.00
.66	.00	3.19	.00	.000	.035	.000	.000	1229.70	19479.79
.000914	280.	460.	530.	3	0	0	.00	822.87	20302.66

FLOW DISTRIBUTION FOR SECNO= 11.57 CWSEL= 1236.08

STA= 19480. 20310.
PER Q= 100.0
AREA= 3239.5
VEL= 3.2
DEPTH= 3.9

*SECNO 11.759

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1244.00 ELREA= 1248.00

11.759	3.21	1238.21	1238.21	.00	1239.37	1.16	2.36	.30	1244.00
10350.0	.0	10350.0	.0	.0	1198.8	.0	718.0	161.4	1248.00
.70	.00	8.63	.00	.000	.035	.000	.000	1235.00	19935.85
.013717	1050.	1020.	980.	20	8	0	.00	522.84	20458.69

FLOW DISTRIBUTION FOR SECNO= 11.76 CWSEL= 1238.21

STA= 19936. 20510.
PER Q= 100.0
AREA= 1198.8
VEL= 8.6
DEPTH= 2.3

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 11.949

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.74

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1250.00 ELREA= 1246.00

11.949	4.22	1246.22	.00	.00	1246.76	.54	7.33	.06	1250.00
10350.0	.0	9905.3	444.7	.0	1649.5	262.8	753.7	177.3	1246.00
.74	.00	6.01	1.69	.000	.035	.060	.000	1242.00	19967.99

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   .004549      990.     1000.     1000.         6         0         0       .00    864.78  23952.42

 FLOW DISTRIBUTION FOR SECNO=     11.95          CWSEL=   1246.22

 STA=   19968.   20510.   20520.   20530.   20590.   20600.   23750.   23952.
   PER Q=     95.7       .0       .0       .1       .0       .3      3.9
    AREA=   1649.5      2.2      2.2     13.4      2.2     17.8    225.0
     VEL=      6.0       .6       .6       .6       .6      1.6      1.8
   DEPTH=      3.0       .2       .2       .2       .2       .0      1.1

 *SECNO 12.125

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1258.00 ELREA=      1258.00

    12.125      3.46   1251.46       .00       .00   1252.13       .66      5.33       .04   1258.00
   10350.0        .0   10350.0        .0        .0   1585.1        .0     791.2     193.9   1258.00
       .78       .00      6.53       .00      .000      .035      .000      .000   1248.00  19927.44
   .007414      910.      930.     1000.         3         0         0       .00    663.20  20590.63


 FLOW DISTRIBUTION FOR SECNO=     12.13          CWSEL=   1251.46

 STA=   19927.   20680.
   PER Q=    100.0
    AREA=   1585.1
     VEL=      6.5
   DEPTH=      2.4

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     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


 *SECNO 12.313

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1262.00 ELREA=      1260.00

    12.313      5.40   1257.60       .00       .00   1258.43       .83      6.26       .05   1262.00
    9800.0        .0    9800.0        .0        .0   1340.7        .0     824.5     205.6   1260.00
       .82       .00      7.31       .00      .000      .035      .000      .000   1252.20  19858.45
   .005408     1010.      990.      980.         2         0         0       .00    373.59  20232.04


 FLOW DISTRIBUTION FOR SECNO=     12.31          CWSEL=   1257.60

 STA=   19858.   20240.
   PER Q=    100.0
    AREA=   1340.7
     VEL=      7.3
   DEPTH=      3.6

 *SECNO 12.511

 3265 DIVIDED FLOW


 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1263.60 ELREA=      1264.00

    12.511      5.78   1263.08       .00       .00   1263.82       .75      5.38       .01   1263.60
    9800.0        .0    9800.0        .0        .0   1413.3        .0     857.9     214.9   1264.00
       .86       .00      6.93       .00      .000      .035      .000      .000   1257.30  19818.02
   .004810     1000.     1056.     1020.         3         0         0       .00    389.97  20276.53


 FLOW DISTRIBUTION FOR SECNO=     12.51          CWSEL=   1263.08

 STA=   19818.   20280.
   PER Q=    100.0
    AREA=   1413.3
     VEL=      6.9
   DEPTH=      3.6

 *SECNO 12.701
1
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     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1270.00 ELREA=      1268.00

    12.701      4.08   1268.78       .00       .00   1269.52       .74      5.69       .00   1270.00
    9800.0        .0    9764.5      35.5        .0   1415.2      32.4     890.7     226.2   1268.00
       .90       .00      6.90      1.09      .000      .035      .060      .000   1264.70  19816.09
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   .006846     1030.     1000.     1020.         4         0         0       .00    596.90  20413.00

 FLOW DISTRIBUTION FOR SECNO=     12.70          CWSEL=   1268.78

 STA=   19816.   20330.   20413.
   PER Q=     99.6       .4
    AREA=   1415.2     32.4
     VEL=      6.9      1.1
   DEPTH=      2.8       .4

 *SECNO 12.896

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.47

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1274.00 ELREA=      1273.00

    12.896      4.89   1273.69       .00       .00   1274.16       .46      4.61       .03   1274.00
    9800.0        .0    9790.2       9.8        .0    1789.4      14.4     929.1     239.8   1273.00
       .96       .00      5.47       .69      .000      .035      .060      .000   1268.80  19845.77
   .003156     1010.     1030.     1010.         4         0         0       .00    555.74  20401.51

 FLOW DISTRIBUTION FOR SECNO=     12.90          CWSEL=   1273.69

 STA=   19846.   20360.   20402.
   PER Q=     99.9       .1
    AREA=   1789.4     14.4
     VEL=      5.5       .7
   DEPTH=      3.5       .3

 *SECNO 13.076
1
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     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .61

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1278.00 ELREA=      1278.00

    13.076      5.34   1277.34       .00       .00   1277.99       .65      3.77       .06   1278.00
    7900.0        .0    7900.0        .0        .0    1223.2        .0     962.2     250.5   1278.00
      1.00       .00      6.46       .00      .000      .035      .000      .000   1272.00  19931.64
   .005517      950.      950.      980.         2         0         0       .00    415.91  20347.54

 FLOW DISTRIBUTION FOR SECNO=     13.08          CWSEL=   1277.34

 STA=   19932.   20350.
   PER Q=    100.0
    AREA=   1223.2
     VEL=      6.5
   DEPTH=      2.9

 *SECNO 13.227

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.53

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1281.50 ELREA=      1282.00

    13.227      6.33   1280.23       .00       .00   1280.76       .53      2.76       .01   1281.50
    7900.0        .0    7900.0        .0        .0    1353.8        .0     985.8     256.9   1282.00
      1.04       .00      5.84       .00      .000      .035      .000      .000   1273.90  19818.08
   .002365      800.      800.      670.         2         0         0       .00    284.21  20102.30

 FLOW DISTRIBUTION FOR SECNO=     13.23          CWSEL=   1280.23

 STA=   19818.   20120.
   PER Q=    100.0
    AREA=   1353.8
     VEL=      5.8
   DEPTH=      4.8

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     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


 *SECNO 13.420
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3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1287.50 ELREA=      1290.00

    13.420      4.19   1285.99   1285.99       .00   1287.69      1.70      4.64       .35   1287.50
    7900.0        .0    7900.0        .0        .0     755.8        .0    1010.5     262.8   1290.00
      1.06       .00     10.45       .00      .000      .035      .000      .000   1281.80  19874.30
   .012147      970.      1020.     1000.        20        19         0       .00    225.67  20099.97

FLOW DISTRIBUTION FOR SECNO=     13.42          CWSEL=   1285.99

STA=   19874.   20170.
  PER Q=    100.0
   AREA=    755.8
    VEL=     10.5
  DEPTH=      3.3

*SECNO 13.619

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.24


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1294.00 ELREA=      1292.00

    13.619      7.41   1292.41       .00       .00   1292.70       .29      4.87       .14   1294.00
    7900.0        .0    7593.0     307.0        .0    1725.9     130.7    1042.1     273.3   1292.00
      1.13       .00      4.40      2.35      .000      .035      .050      .000   1285.00  19893.97
   .002413     1090.      1056.     1020.         6         0         0       .00    636.91  20532.06


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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

FLOW DISTRIBUTION FOR SECNO=     13.62          CWSEL=   1292.41

STA=   19894.   20455.   20470.   20480.   20520.   20532.
  PER Q=     96.1       .1       .3      3.2       .3
   AREA=   1725.9      5.4     14.1     96.5     14.5
    VEL=      4.4       .8      1.8      2.6      1.6
  DEPTH=      3.1       .4      1.4      2.4      1.2

*SECNO 13.818

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    13.818      3.44   1297.44   1297.44       .00   1298.28       .84      5.01       .16   1300.00
    7900.0        .0    6663.8    1236.2        .0     852.2     306.2    1078.6     289.2   1298.00
      1.17       .00      7.82      4.04      .000      .035      .050      .000   1294.00  19916.12
   .013299     1050.      1056.     1050.         3        15         0       .00    677.98  20709.03

FLOW DISTRIBUTION FOR SECNO=     13.82          CWSEL=   1297.44

STA=   19916.   20340.   20460.   20630.   20709.
  PER Q=     84.4       .2     13.5      2.0
   AREA=    852.2      5.2    244.3     56.8
    VEL=      7.8      2.7      4.4      2.7
  DEPTH=      2.0       .0      1.4       .7

*SECNO 14.013

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.79

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
14.013	5.74	1303.74	.00	.00	1303.91	.16	5.56	.07	1304.00
6100.0	.0	3447.2	2652.8	.0	884.9	1291.1	1118.5	312.7	1303.00
1.26	.00	3.90	2.05	.000	.035	.050	.000	1298.00	19918.26
.002471	1020.	1030.	1055.	6	0	0	.00	1285.90	21600.47

FLOW DISTRIBUTION FOR SECNO= 14.01 CWSEL= 1303.74

STA=	19918.	20270.	20300.	20625.	20645.	20660.	20720.	20723.	20930.	20955.	21600.
PER Q=	56.5	1.0	19.8	2.6	3.3	7.8	.1	.4	.4	8.2	
AREA=	884.9	37.2	565.3	54.8	56.1	164.4	2.5	18.3	18.3	374.3	
VEL=	3.9	1.7	2.1	2.9	3.6	2.9	1.2	1.2	1.2	1.3	
DEPTH=	2.5	1.2	1.7	2.7	3.7	2.7	.9	.1	.7	.6	

*SECNO 14.197

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

14.197	4.77	1308.77	1308.77	.00	1309.43	.65	3.77	.15	1308.50
6100.0	131.3	5358.7	610.1	80.4	778.5	290.2	1154.7	335.7	1310.00
1.31	1.63	6.88	2.10	.050	.035	.050	.000	1304.00	19559.21
.007269	990.	970.	920.	3	10	0	.00	840.79	20830.77

FLOW DISTRIBUTION FOR SECNO= 14.20 CWSEL= 1308.77

STA=	19559.	19565.	19715.	20015.	20310.	20318.	20465.	20745.	20758.	20815.	20830.	20831.
PER Q=	.0	2.1	87.8	1.8	.1	.0	7.5	.1	.0	.4	.0	
AREA=	2.2	78.2	778.5	52.7	3.0	.7	215.9	5.2	.7	11.6	.3	
VEL=	1.3	1.6	6.9	2.1	1.3	1.3	2.1	1.3	1.3	2.1	1.1	
DEPTH=	.4	.5	2.6	.2	.4	.0	.8	.4	.0	.8	.4	

*SECNO 14.379

3265 DIVIDED FLOW

14.379	5.05	1315.05	.00	.00	1315.40	.35	5.94	.03	1316.00
6100.0	.0	4010.9	2089.1	.0	727.1	779.4	1184.4	356.6	1314.00
1.37	.00	5.52	2.68	.000	.035	.050	.000	1310.00	19544.76
.005243	940.	960.	1000.	5	0	0	.00	1010.64	21035.65

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 14.38 CWSEL= 1315.05

STA=	19545.	20095.	20430.	20485.	20750.	20820.	20860.	20900.	20945.	20950.	20966.	21036.
PER Q=	65.8	12.8	.7	1.1	2.7	1.5	4.7	10.2	.6	.2	.0	
AREA=	727.1	350.8	28.8	46.6	73.3	41.9	81.9	137.1	10.2	8.4	.4	
VEL=	5.5	2.2	1.4	1.4	2.2	2.2	3.5	4.5	3.3	1.4	.2	
DEPTH=	2.4	1.0	.5	.2	1.0	1.0	2.0	3.0	2.0	.5	.0	

*SECNO 14.559

14.559	4.83	1320.23	.00	.00	1320.54	.31	5.14	.00	1322.00
6100.0	.0	6100.0	.0	.0	1360.7	.0	1215.3	376.2	1320.80
1.42	.00	4.48	.00	.000	.035	.000	.000	1315.40	19222.21
.005656	950.	950.	915.	4	0	0	.00	815.71	20037.92

FLOW DISTRIBUTION FOR SECNO= 14.56 CWSEL= 1320.23

STA=	19222.	20045.
PER Q=	100.0	
AREA=	1360.7	
VEL=	4.5	
DEPTH=	1.7	

*SECNO 14.752

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1326.00 ELREA= 1326.00

14.752	5.86	1324.66	.00	.00	1325.03	.37	4.47	.02	1326.00
6100.0	.0	6100.0	.0	.0	1256.8	.0	1246.0	391.2	1326.00
1.48	.00	4.85	.00	.000	.035	.000	.000	1318.80	19673.36
.003498	1010.	1020.	1010.	4	0	0	.00	466.45	20139.81

FLOW DISTRIBUTION FOR SECNO= 14.75 CWSEL= 1324.66

STA= 19673. 20170.
PER Q= 100.0
AREA= 1256.8
VEL= 4.9
DEPTH= 2.7

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 14.945

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .44

14.945	6.52	1329.02	1328.80	.00	1330.12	1.10	4.88	.22	1330.00
4200.0	.0	4048.7	151.3	.0	472.2	68.7	1267.0	399.6	1330.00
1.52	.00	8.57	2.20	.000	.035	.050	.000	1322.50	19901.60
.008405	1005.	1020.	1000.	4	8	0	.00	247.75	20410.24

FLOW DISTRIBUTION FOR SECNO= 14.94 CWSEL= 1329.02

STA= 19902. 20050. 20370. 20400. 20410.
PER Q= 96.4 1.4 2.0 .2
AREA= 472.2 32.8 30.7 5.2
VEL= 8.6 1.7 2.8 1.7
DEPTH= 3.3 .1 1.0 .5

*SECNO 15.144

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.69

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1336.00 ELREA= 1336.00

15.144	5.82	1334.82	.00	.00	1335.11	.29	4.90	.08	1336.00
4200.0	.0	4200.0	.0	.0	971.8	.0	1285.2	406.9	1336.00
1.58	.00	4.32	.00	.000	.035	.000	.000	1329.00	19605.97
.002952	900.	1056.	890.	3	0	0	.00	375.98	19981.95

FLOW DISTRIBUTION FOR SECNO= 15.14 CWSEL= 1334.82

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

STA= 19606. 19982.
PER Q= 100.0
AREA= 971.8
VEL= 4.3
DEPTH= 2.6

*SECNO 15.333

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .67

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1340.00 ELREA= 1342.00

15.333	3.85	1338.85	.00	.00	1339.40	.55	4.22	.08	1340.00
4200.0	.0	4200.0	.0	.0	708.4	.0	1304.5	414.8	1342.00
1.63	.00	5.93	.00	.000	.035	.000	.000	1335.00	19781.38
.006510	900.	1000.	890.	3	0	0	.00	310.78	20092.16

FLOW DISTRIBUTION FOR SECNO= 15.33 CWSEL= 1338.85

STA= 19781. 20100.
PER Q= 100.0
AREA= 708.4
VEL= 5.9

```
  DEPTH=      2.3

*SECNO 15.519

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1348.00 ELREA=      1345.00

    15.519      4.20   1344.20       .00       .00   1344.64       .45      5.23       .01   1348.00
    4200.0        .0    4200.0        .0        .0     784.4        .0    1321.3     421.7   1345.00
      1.68       .00      5.35       .00      .000      .035      .000      .000   1340.00  19962.68
   .004455      940.      980.      960.         4         0         0       .00    301.07  20263.75


FLOW DISTRIBUTION FOR SECNO=     15.52          CWSEL=   1344.20

STA=   19963.   20320.
  PER Q=    100.0
   AREA=    784.4
    VEL=      5.4
  DEPTH=      2.6

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


*SECNO 15.699

3265 DIVIDED FLOW

    15.699      4.57   1349.57       .00       .00   1350.24       .68      5.53       .07   1354.00
    4200.0        .0    3409.8     790.2        .0     476.6     235.4    1337.5     428.8   1350.00
      1.72       .00      7.15      3.36      .000      .035      .050      .000   1345.00  19899.13
   .007994      935.      950.      920.         3         0         0       .00    359.55  20888.91


FLOW DISTRIBUTION FOR SECNO=     15.70          CWSEL=   1349.57

STA=   19899.   20085.   20760.   20885.   20889.
  PER Q=     81.2      2.0     16.7       .2
   AREA=    476.6     36.7    195.6      3.1
    VEL=      7.2      2.3      3.6      2.1
  DEPTH=      2.6       .1      1.6       .8

*SECNO 15.966

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

    15.966      4.31   1356.31       .00       .00   1356.41       .11      6.11       .06   1358.00
    2350.0        .0    1821.7     528.3        .0     677.6     225.0    1362.6     442.6   1357.00
      1.87       .00      2.69      2.35      .000      .035      .050      .000   1352.00  1989.23
   .002126     1450.     1410.     1200.         5         0         0       .00    537.86  2670.77


FLOW DISTRIBUTION FOR SECNO=     15.97          CWSEL=   1356.31

STA=    1989.    2430.    2560.    2600.    2620.    2670.    2671.
  PER Q=     77.5       .0      9.4      8.5      4.6       .0
   AREA=    677.6      1.1     92.3     66.1     65.4       .1
    VEL=      2.7       .4      2.4      3.0      1.6       .4
  DEPTH=      1.6       .0      2.3      3.3      1.3       .2

*SECNO 16.066
1
   17NOV95      08:48:30                                                                          PAGE   52

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3265 DIVIDED FLOW


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .31

    16.066      4.68   1358.68       .00       .00   1359.16       .47      2.63       .11   1360.40
    2350.0        .0    1007.6    1342.4        .0     168.0     262.4    1370.8     448.5   1360.00
      1.90       .00      6.00      5.12      .000      .035      .050      .000   1354.00  1986.60
   .021627      565.      570.      480.         2         0         0       .00    420.04  2696.80


FLOW DISTRIBUTION FOR SECNO=     16.07          CWSEL=   1358.68

STA=    1987.    2350.    2465.    2560.    2580.    2690.    2697.
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```
  PER Q=     42.9       .3     37.9       8.0     10.8       .2
   AREA=    168.0      3.5    150.1      31.6     74.8      2.3
    VEL=      6.0      2.1      5.9       5.9      3.4      2.1
  DEPTH=       .9       .0      1.6       1.6       .7       .3

*SECNO 16.167

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.69

    16.167     4.42  1362.42      .00      .00  1362.56      .13     3.37      .03  1364.80
    2350.0       .0   1159.3   1190.7       .0    331.0    540.9   1378.7    455.2  1362.00
      1.95      .00     3.50     2.20     .000     .035     .050     .000  1358.00  1952.47
   .002988     530.     530.     530.        5        0        0      .00   669.68  2622.15


FLOW DISTRIBUTION FOR SECNO=     16.17          CWSEL=   1362.42

STA=    1952.    2130.    2170.    2250.    2370.    2550.    2590.    2600.    2610.    2620.    2622.
  PER Q=     49.3       .7      1.4      2.0     22.6     12.1      5.3      5.3      1.2       .0
   AREA=    331.0     17.2     34.4     51.5    257.3     97.2     34.3     34.3     14.3       .5
    VEL=      3.5       .9       .9       .9      2.1      2.9      3.6      3.6      2.0       .6
  DEPTH=      1.9       .4       .4       .4      1.4      2.4      3.4      3.4      1.4       .2

*SECNO 16.248
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
1
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


    16.248     8.34  1364.44  1364.44      .00  1364.95      .51     1.85      .11  1367.00
    2350.0       .0   1548.5    801.5       .0    225.9    346.8   1384.9    460.8  1364.00
      1.97      .00     6.86     2.31     .000     .035     .050     .000  1356.10  1932.67
   .008556     450.     430.     340.        6       15        0      .00   700.66  2633.33


FLOW DISTRIBUTION FOR SECNO=     16.25          CWSEL=   1364.44

STA=    1933.    2030.    2230.    2240.    2250.    2300.    2630.    2633.
  PER Q=     65.9      6.0      2.1      5.2     10.8     10.0       .0
   AREA=    225.9     88.7     14.4     24.4     72.2    146.3       .7
    VEL=      6.9      1.6      3.5      5.0      3.5      1.6      1.0
  DEPTH=      2.3       .4      1.4      2.4      1.4       .4       .2

*SECNO 16.328

3265 DIVIDED FLOW


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.71

    16.328     9.02  1366.52      .00      .00  1366.71      .19     1.73      .03  1366.00
    2350.0       7.2   1989.6   353.2     10.9    542.6    155.7   1390.0    465.0  1367.40
      2.00       .66     3.67     2.27     .050     .035     .050     .000  1357.50  1873.19
   .002923     440.     410.     250.        3        0        0      .00   482.32  2471.46


FLOW DISTRIBUTION FOR SECNO=     16.33          CWSEL=   1366.52

STA=    1873.    1915.    2240.    2335.    2339.    2370.    2397.    2403.    2471.
  PER Q=       .3     84.7       .3       .5      9.9      3.7       .1       .5
   AREA=     10.9    542.6      9.3      6.1     78.2     41.1      3.1     17.9
    VEL=       .7      3.7       .7      2.0      3.0      2.1      1.0       .7
  DEPTH=       .3      2.0       .1      1.5      2.5      1.5       .5       .3

*SECNO 16.411

3301 HV CHANGED MORE THAN HVINS

1
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .60

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1369.20 ELREA=      1370.00

    16.411     3.85  1368.15      .00      .00  1368.90      .75     2.02      .17  1369.20
    2350.0       .0   2350.0       .0       .0    337.3       .0  1395.3    468.0  1370.00
      2.01      .00     6.97      .00     .000     .035     .000     .000  1364.30  1915.48
   .008103     510.     450.     350.        2        0        0      .00   136.29  2051.77
```

FLOW DISTRIBUTION FOR SECNO= 16.41 CWSEL= 1368.15

STA= 1915. 2055.
PER Q= 100.0
AREA= 337.3
VEL= 7.0
DEPTH= 2.5

*SECNO 16.504

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.91

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1370.00 ELREA= 1372.00

16.504	6.58	1370.58	.00	.00	1370.83	.25	1.88	.05	1370.00
2350.0	51.9	2298.1	.0	53.9	566.7	.0	1400.6	470.4	1372.00
2.05	.96	4.06	.00	.050	.035	.000	.000	1364.00	1628.55
.002227	460.	490.	300.	2	0	0	.00	291.78	2030.98

FLOW DISTRIBUTION FOR SECNO= 16.50 CWSEL= 1370.58

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

STA= 1629. 1630. 1665. 1666. 1780. 1835. 2035.
PER Q= .0 .8 .0 .0 1.3 97.8
AREA= .4 20.3 .4 .8 31.9 566.7
VEL= .6 1.0 .6 .6 1.0 4.1
DEPTH= .3 .6 .3 .0 .6 2.9

*SECNO 16.608

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .61

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1376.50 ELREA= 1374.20

16.608	4.39	1372.19	.00	.00	1372.73	.54	1.81	.09	1376.50
2350.0	.0	2350.0	.0	.0	397.2	.0	1406.8	473.1	1374.20
2.07	.00	5.92	.00	.000	.035	.000	.000	1367.80	1929.53
.005938	485.	530.	450.	3	0	0	.00	162.17	2091.70

FLOW DISTRIBUTION FOR SECNO= 16.61 CWSEL= 1372.19

STA= 1930. 2110.
PER Q= 100.0
AREA= 397.2
VEL= 5.9
DEPTH= 2.4

*SECNO 16.732

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .67

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1380.00 ELREA= 1378.00

16.732	2.75	1377.75	1377.68	.00	1378.64	.89	5.80	.10	1380.00
2350.0	.0	2350.0	.0	.0	310.6	.0	1412.4	475.6	1378.00
2.10	.00	7.57	.00	.000	.035	.000	.000	1375.00	1955.62
.013052	640.	685.	420.	12	14	0	.00	158.76	2114.38

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 16.73 CWSEL= 1377.75

STA= 1956. 2115.
PER Q= 100.0

```
   AREA=    310.6
    VEL=      7.6
  DEPTH=      2.0

*SECNO 16.818

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.44

    16.818      4.94   1380.64       .00       .00   1380.90       .26      2.20       .06   1382.00
    2350.0        .0    1645.0     705.0        .0     356.8     298.3    1418.4     478.5   1380.40
      2.13       .00      4.61      2.36       .000      .035      .050      .000   1375.70   1945.20
   .002183      430.      455.      750.          4         0         0       .00    280.80   2226.00


FLOW DISTRIBUTION FOR SECNO=     16.82          CWSEL=   1380.64

STA=    1945.    2045.    2097.    2105.    2190.    2210.    2226.
  PER Q=    70.0       .8      1.1     25.3      2.7       .1
   AREA=   356.8     22.9     13.1    224.4     32.8      5.1
    VEL=     4.6       .8      1.9      2.7      1.9       .6
  DEPTH=     3.6       .4      1.6      2.6      1.6       .3

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T1      NEW RIVER ABOVE SKUNK CREEK, PHOENIX, ARIZ., APRIL 1981
T2      Corps of Engineers Future Condition 100 YEAR Q
T3      Comparison with FIS Q  WSEL estimated from FIS Profile

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                3                                                                  1170.5

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      2                  -1                                                                    15


1
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


*PROF 2
0

CCHV=     .200 CEHV=     .400
*SECNO 8.655

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=     1171.60 ELREA=     1171.20

         1985 TOPO - DIGITIZED DATA SEC.8.655 THRU SEC.9.129
         DOWNSTREAM STUDY LIMIT
         NEW RIVER-SKUNK CREEK CONFLUENCE
     8.655     15.40   1170.50       .00   1170.50   1170.89       .39       .00       .00   1171.60
   41000.0        .0   41000.0        .0        .0    8176.1        .0        .0        .0   1171.20
      .00       .00      5.01       .00       .000      .035      .000      .000   1155.10   9587.04
   .000464      750.      400.      150.          0         0         0       .00    634.06  10221.10


FLOW DISTRIBUTION FOR SECNO=      8.65          CWSEL=   1170.50

STA=    9587.   10224.
  PER Q=   100.0
   AREA=  8176.1
    VEL=     5.0
  DEPTH=    12.9

CCHV=     .100 CEHV=     .300
*SECNO 8.731

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .59


3470 ENCROACHMENT STATIONS=     9762.5   10213.5  TYPE=       1  TARGET=      451.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=     1172.80 ELREA=    100000.00

         BEGIN DISCHARGE FOR NEW RIVER ONLY
     8.731     14.75   1170.85       .00   1170.96   1171.06       .21       .16       .02   1172.80
   19000.0        .0   19000.0        .0        .0    5108.1        .0      61.0       4.9 100000.00
      .03       .00      3.72       .00       .000      .035      .000      .000   1156.10   9779.93
   .000284      400.      400.      400.          2         0         0       .00    427.83  10207.76


1
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 8.73 CWSEL= 1170.85

STA= 9780. 10214.
PER Q= 100.0
AREA= 5108.1
VEL= 3.7
DEPTH= 11.9

*SECNO 8.807

3470 ENCROACHMENT STATIONS= 9771.3 10219.2 TYPE= 1 TARGET= 447.900

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1174.70 ELREA= 100000.00

8.807	12.64	1170.94	.00	1170.99	1171.22	.28	.14	.02	1174.70
19000.0	.0	19000.0	.0	.0	4476.6	.0	105.0	8.8	100000.00
.06	.00	4.24	.00	.000	.035	.000	.000	1158.30	9785.44
.000425	400.	400.	390.	2	0	0	.00	416.96	10202.41

FLOW DISTRIBUTION FOR SECNO= 8.81 CWSEL= 1170.94

STA= 9785. 10219.
PER Q= 100.0
AREA= 4476.6
VEL= 4.2
DEPTH= 10.7

*SECNO 8.883

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .44

3470 ENCROACHMENT STATIONS= 9824.7 10216.9 TYPE= 1 TARGET= 392.200

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1174.90 ELREA= 100000.00

8.883	10.75	1170.85	.00	1170.96	1171.73	.89	.33	.18	1174.90
19000.0	.0	19000.0	.0	.0	2515.2	.0	137.1	12.2	100000.00
.07	.00	7.55	.00	.000	.035	.000	.000	1160.10	9851.30
.002195	280.	400.	400.	2	0	0	.00	337.46	10188.76

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 8.88 CWSEL= 1170.85

STA= 9851. 10217.
PER Q= 100.0
AREA= 2515.2
VEL= 7.6
DEPTH= 7.5

*SECNO 8.936

3470 ENCROACHMENT STATIONS= 9809.4 10213.2 TYPE= 1 TARGET= 403.800

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1177.30 ELREA= 100000.00

OLD CORP STATION NO. 8.95=0.6

8.936	9.71	1171.51	.00	1171.20	1172.43	.92	.69	.01	1177.30
19000.0	.0	19000.0	.0	.0	2470.6	.0	153.7	14.5	100000.00
.08	.00	7.69	.00	.000	.035	.000	.000	1161.80	9821.60
.002565	300.	290.	300.	2	0	0	.00	361.58	10183.17

FLOW DISTRIBUTION FOR SECNO= 8.94 CWSEL= 1171.51

STA= 9822. 10213.
PER Q= 100.0
AREA= 2470.6
VEL= 7.7
DEPTH= 6.8

*SECNO 8.977

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 9886.1 10212.7 TYPE= 1 TARGET= 326.601

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1177.20 ELREA= 100000.00

8.977	8.25	1171.75	.00	1171.31	1173.34	1.59	.71	.20	1177.20
19000.0	.0	19000.0	.0	.0	1880.1	.0	164.2	16.1	100000.00
.09	.00	10.11	.00	.000	.035	.000	.000	1163.50	9894.70
.004637	220.	210.	200.	2	0	0	.00	285.57	10180.27

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 8.98 CWSEL= 1171.75

STA= 9895. 10213.
PER Q= 100.0
AREA= 1880.1
VEL= 10.1
DEPTH= 6.6

*SECNO 9.009

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.87

3470 ENCROACHMENT STATIONS= 9764.5 10207.0 TYPE= 1 TARGET= 442.500

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1178.00 ELREA= 100000.00

GREENWAY ROAD AREA

9.009	10.34	1173.24	.00	1171.99	1173.84	.60	.41	.10	1178.00
19000.0	.0	19000.0	.0	.0	3061.2	.0	174.4	17.5	100000.00
.10	.00	6.21	.00	.000	.035	.000	.000	1162.90	9790.86
.001326	330.	180.	180.	2	0	0	.00	377.91	10168.77

FLOW DISTRIBUTION FOR SECNO= 9.01 CWSEL= 1173.24

STA= 9791. 10207.
PER Q= 100.0
AREA= 3061.2
VEL= 6.2
DEPTH= 8.1

*SECNO 9.047

3470 ENCROACHMENT STATIONS= 9689.8 10113.8 TYPE= 1 TARGET= 424.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1177.50 ELREA= 100000.00

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

9.047	12.46	1173.66	.00	1172.25	1174.05	.39	.19	.02	1177.50
19000.0	.0	19000.0	.0	.0	3797.3	.0	190.1	19.3	100000.00
.11	.00	5.00	.00	.000	.035	.000	.000	1161.20	9706.22
.000701	280.	200.	160.	2	0	0	.00	400.12	10106.34

FLOW DISTRIBUTION FOR SECNO= 9.05 CWSEL= 1173.66

STA= 9706. 10114.
PER Q= 100.0
AREA= 3797.3
VEL= 5.0
DEPTH= 9.5

*SECNO 9.129

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .69

3470 ENCROACHMENT STATIONS= 9641.2 10090.0 TYPE= 1 TARGET= 448.800

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3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1180.60 ELREA=    100000.00

        OLD CORP STATION NO. 9.15=9.8
        END 1985 TOPO DIGITIZED SECTIONS, END C/L = 10000
     9.129      9.73   1173.93       .00   1172.43   1174.53       .59       .41       .06   1180.60
   19000.0        .0   19000.0        .0        .0    3077.5        .0     223.3      23.2 100000.00
       .13        .00      6.17       .00       .000      .035       .000      .000   1164.20   9665.63
   .001492      290.      420.      460.         2         0         0       .00    417.32  10082.96


FLOW DISTRIBUTION FOR SECNO=      9.13          CWSEL=   1173.93

STA=    9666.   10090.
  PER Q=    100.0
   AREA=   3077.5
    VEL=      6.2
  DEPTH=      7.4

CCHV=     .100 CEHV=     .300
1
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


*SECNO 9.318
3280 CROSS SECTION      9.32 EXTENDED       .64 FEET


3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=    19660.0   20015.0  TYPE=      1  TARGET=      355.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1186.00 ELREA=    100000.00

        BEGIN STATION C/L = 20000
     9.318      8.64   1181.84   1181.84   1181.50   1184.29      2.45      3.21       .56   1186.00
   19000.0        .0   19000.0        .0        .0    1513.7        .0     276.0      31.7 100000.00
       .15        .00     12.55       .00       .000      .035       .000      .000   1173.20  19693.99
   .011280     1000.     1000.     1000.        20        15         0       .00    321.00  20015.00


FLOW DISTRIBUTION FOR SECNO=      9.32          CWSEL=   1181.84

STA=   19694.   20015.
  PER Q=    100.0
   AREA=   1513.7
    VEL=     12.6
  DEPTH=      4.7

*SECNO 9.492
3280 CROSS SECTION      9.49 EXTENDED       .70 FEET


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.73


3470 ENCROACHMENT STATIONS=    19770.0   20235.0  TYPE=      1  TARGET=      465.000
1
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1188.00 ELREA=    100000.00

     9.492     10.70   1188.70       .00   1185.42   1189.51       .81      5.06       .16   1188.00
   17250.0        .0   17250.0        .0        .0    2386.7        .0     317.2      39.8 100000.00
       .18        .00      7.23       .00       .000      .035       .000      .000   1178.00  19770.00
   .003094      910.      920.      890.         3         0         0       .00    444.01  20214.01


FLOW DISTRIBUTION FOR SECNO=      9.49          CWSEL=   1188.70

STA=   19770.   20235.
  PER Q=    100.0
   AREA=   2386.7
    VEL=      7.2
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  DEPTH=      5.4

*SECNO 9.692
3280 CROSS SECTION      9.69 EXTENDED       .54 FEET


3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=    19840.0   20060.0  TYPE=       1  TARGET=      220.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1195.00 ELREA=    100000.00

     9.692      8.44   1192.54   1192.54   1192.22   1195.67      3.13      5.40       .70   1195.00
   17250.0        .0   17250.0        .0        .0    1214.8        .0     360.8      47.5 100000.00
      .20       .00     14.20       .00      .000      .035      .000      .000   1184.10  19850.95
   .010033     1050.     1056.     1040.         3        15         0       .00    197.37  20048.32


FLOW DISTRIBUTION FOR SECNO=      9.69          CWSEL=   1192.54

STA=   19851.   20060.
  PER Q=    100.0
   AREA=   1214.8
    VEL=     14.2
  DEPTH=      6.2

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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


CCHV=      .300 CEHV=      .500
*SECNO 9.889
3280 CROSS SECTION      9.89 EXTENDED      1.70 FEET


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.01


3470 ENCROACHMENT STATIONS=    19840.0   20080.0  TYPE=       1  TARGET=      240.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1200.00 ELREA=    100000.00

     9.889     11.69   1199.69       .00   1196.98   1200.86      1.16      4.60       .59   1200.00
   17250.0        .0   17250.0        .0        .0    1994.3        .0     399.1      52.7 100000.00
      .24       .00      8.65       .00      .000      .035      .000      .000   1188.00  19841.51
   .002475     1100.     1040.     1050.         3         0         0       .00    237.58  20079.09


FLOW DISTRIBUTION FOR SECNO=      9.89          CWSEL=   1199.69

STA=   19842.   20080.
  PER Q=    100.0
   AREA=   1994.3
    VEL=      8.6
  DEPTH=      8.4

CCHV=      .300 CEHV=      .500
*SECNO 9.953

3470 ENCROACHMENT STATIONS=    19790.0   20032.0  TYPE=       1  TARGET=      242.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1200.00 ELREA=    100000.00

         BELL ROAD
     9.953     11.81   1200.41       .00   1197.97   1201.57      1.16       .71       .00   1200.00
   17250.0        .0   17250.0        .0        .0    1997.5        .0     414.5      54.6 100000.00
      .25       .00      8.64       .00      .000      .030      .000      .000   1188.60  19790.00
   .001855      335.      335.      335.         3         0         0       .00    240.41  20030.41


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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


FLOW DISTRIBUTION FOR SECNO=      9.95          CWSEL=   1200.41

STA=   19790.   20032.
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  PER Q=    100.0
   AREA=   1997.5
    VEL=      8.6
  DEPTH=      8.3


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
      .90      1.56      2.60       .00    213.00     20.00   2800.00      1.88   1188.61   1188.60

*SECNO 9.967
BTCARD, BRIDGE STENCL=   19825.00   STENCR=   20110.00
CLASS A LOW FLOW

3420 BRIDGE W.S.=    1200.28 BRIDGE VELOCITY=       6.87     CALCULATED CHANNEL AREA=      2508.

 EGPRS       EGLWC       H3        QWEIR      QLOW      BAREA    TRAPEZOID       ELLC      ELTRD      WEIRLN
                                                                    AREA
   1201.33   1201.79       .23         0.    17250.     2800.     2656.     1200.90   1207.50         0.


3470 ENCROACHMENT STATIONS=    19825.0   20110.0  TYPE=      1  TARGET=      285.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1204.00 ELREA=    100000.00

         SPECIAL BRIDGE
     9.967     12.04   1200.64       .00   1198.19   1201.79      1.14       .22       .00   1204.00
   17250.0        .0   17250.0        .0        .0    2009.2         .0     417.9      55.0 100000.00
       .25        .00      8.59       .00       .000      .030       .000      .000   1188.60  19833.39
   .001988       75.       75.       75.          0         0          0       .00    259.81  20093.21


FLOW DISTRIBUTION FOR SECNO=      9.97          CWSEL=   1200.64

STA=   19833.   20110.
  PER Q=    100.0
   AREA=   2009.2
    VEL=      8.6
  DEPTH=      7.7

1
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


CCHV=      .100 CEHV=      .300
*SECNO 10.096

3470 ENCROACHMENT STATIONS=    19635.0   20055.0  TYPE=      1  TARGET=      420.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1201.00 ELREA=    100000.00

    10.096       6.64   1202.34       .00   1200.56   1203.39      1.05      1.59       .01   1201.00
   17250.0        .0   17250.0        .0        .0    2100.8         .0     448.4      60.0 100000.00
       .27        .00      8.21       .00       .000      .030       .000      .000   1195.70  19635.00
   .003142      610.      645.      650.          3         0          0       .00    410.85  20045.85


FLOW DISTRIBUTION FOR SECNO=     10.10          CWSEL=   1202.34

STA=   19635.   20055.
  PER Q=    100.0
   AREA=   2100.8
    VEL=      8.2
  DEPTH=      5.1

*SECNO 10.271

3470 ENCROACHMENT STATIONS=    19820.0   20320.0  TYPE=      1  TARGET=      500.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1212.50 ELREA=    100000.00

    10.271       7.49   1205.69       .00   1205.06   1206.80      1.11      3.39       .02   1212.50
   15500.0        .0   15500.0        .0        .0    1834.4         .0     490.1      69.0 100000.00
       .30        .00      8.45       .00       .000      .030       .000      .000   1198.20  19860.09
   .004415      920.      925.      925.          2         0          0       .00    445.44  20305.53


FLOW DISTRIBUTION FOR SECNO=     10.27          CWSEL=   1205.69

STA=   19860.   20320.
  PER Q=    100.0
   AREA=   1834.4
    VEL=      8.4
  DEPTH=      4.1

1
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 10.443

3470 ENCROACHMENT STATIONS= 19655.0 20110.0 TYPE= 1 TARGET= 455.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1216.00 ELREA= 100000.00

10.443	5.02	1210.62	.00	1209.58	1212.21	1.58	5.27	.14	1216.00
15500.0	.0	15500.0	.0	.0	1535.3	.0	525.3	78.3	100000.00
.33	.00	10.10	.00	.000	.030	.000	.000	1205.60	19668.44
.007926	930.	910.	900.	3	0	0	.00	441.56	20110.00

FLOW DISTRIBUTION FOR SECNO= 10.44 CWSEL= 1210.62

STA= 19668. 20110.
PER Q= 100.0
AREA= 1535.3
VEL= 10.1
DEPTH= 3.5

*SECNO 10.612

3470 ENCROACHMENT STATIONS= 19955.0 20300.0 TYPE= 1 TARGET= 345.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1272.00 ELREA= 100000.00

10.612	6.38	1215.98	.00	1215.19	1217.39	1.41	5.17	.02	1272.00
15500.0	.0	15500.0	.0	.0	1626.3	.0	557.6	86.2	100000.00
.35	.00	9.53	.00	.000	.030	.000	.000	1209.60	19970.04
.004438	880.	890.	900.	2	0	0	.00	328.28	20298.32

FLOW DISTRIBUTION FOR SECNO= 10.61 CWSEL= 1215.98

STA= 19970. 20300.
PER Q= 100.0
AREA= 1626.3
VEL= 9.5
DEPTH= 5.0

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 10.659
3280 CROSS SECTION 10.66 EXTENDED 1.57 FEET

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.63

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1222.20 ELREA= 1215.61

10.659	8.13	1217.18	.00	1216.14	1218.08	.90	.63	.05	1222.20
15500.0	.0	15500.0	.0	.0	2041.6	.0	568.0	87.9	1215.61
.36	.00	7.59	.00	.000	.030	.000	.000	1209.05	39.65
.001664	259.	247.	255.	2	0	0	.00	275.33	314.98

FLOW DISTRIBUTION FOR SECNO= 10.66 CWSEL= 1217.18

STA= 40. 315.
PER Q= 100.0
AREA= 2041.6
VEL= 7.6
DEPTH= 7.4

*SECNO 10.691
3280 CROSS SECTION 10.69 EXTENDED .06 FEET

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1223.16 ELREA= 1217.30

10.691	8.30	1217.35	.00	1216.29	1218.48	1.12	.33	.07	1223.16
15500.0	.0	15500.0	.0	.0	1822.9	.0	575.6	88.9	1217.30
.37	.00	8.50	.00	.000	.030	.000	.000	1209.05	59.20
.002295	174.	170.	161.	2	0	0	.00	265.62	324.82

```
 FLOW DISTRIBUTION FOR SECNO=     10.69          CWSEL=   1217.35

 STA=      59.     325.
   PER Q=    100.0
    AREA=   1822.9
     VEL=      8.5
   DEPTH=      6.9

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    17NOV95      08:48:30                                                                                    PAGE   70

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


 *SECNO 10.723
 3280 CROSS SECTION     10.72 EXTENDED       .20 FEET

     10.723      8.45   1217.50       .00   1216.44   1219.11      1.61       .49       .15   1215.61
    15500.0     117.0   15383.0        .0      73.9    1504.0        .0     582.2      90.1   1217.30
        .37      1.58     10.23       .00       .060      .030      .000      .000   1209.05     43.47
    .003729     167.      170.      164.         2         0         0       .00    309.24    352.71


 FLOW DISTRIBUTION FOR SECNO=     10.72          CWSEL=   1217.50

 STA=      43.     113.     353.
   PER Q=      .8     99.2
    AREA=    73.9   1504.0
     VEL=      1.6     10.2
   DEPTH=      1.1      6.3

 *SECNO 10.803

 3301 HV CHANGED MORE THAN HVINS

 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3470 ENCROACHMENT STATIONS=    19750.0   20015.0  TYPE=      1  TARGET=      265.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1220.00 ELREA=    100000.00

     10.803      6.28   1220.38   1220.38   1219.38   1222.78      2.40      2.24       .24   1220.00
    15500.0        .0   15500.0        .0        .0    1246.9        .0     595.9      92.9 100000.00
        .38       .00     12.43       .00       .000      .030      .000      .000   1214.10  19750.00
    .008113     420.      423.      430.        20        19         0       .00    265.00  20015.00


 FLOW DISTRIBUTION FOR SECNO=     10.80          CWSEL=   1220.38

 STA=   19750.   20015.
   PER Q=    100.0
    AREA=   1246.9
     VEL=     12.4
   DEPTH=      4.7

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     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


 *SECNO 10.933
 3280 CROSS SECTION     10.93 EXTENDED      2.47 FEET


 3301 HV CHANGED MORE THAN HVINS


 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.34

     10.933      9.03   1223.00       .00   1221.57   1223.40       .40       .42       .20   1222.20
    15500.0        .0   15500.0        .0        .0    3049.5        .0     608.0      94.7   1220.53
        .40       .00      5.08       .00       .000      .030      .000      .000   1213.97      .00
    .000729     164.      244.      241.         2         0         0       .00    406.84    406.84


 FLOW DISTRIBUTION FOR SECNO=     10.93          CWSEL=   1223.00

 STA=       0.     407.
   PER Q=    100.0
    AREA=   3049.5
     VEL=      5.1
   DEPTH=      7.5
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*SECNO 10.934
3280 CROSS SECTION     10.93 EXTENDED      2.39 FEET

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1225.50 ELREA=      1220.53

    10.934      7.30   1222.91       .00   1221.50   1223.56       .65       .09       .07   1225.50
   15500.0        .0   15500.0        .0        .0    2395.3        .0     613.3      95.5   1220.53
       .40       .00      6.47       .00      .000      .030      .000      .000   1215.61     10.28
   .001486      82.       85.       92.         2         0         0       .00    380.16    390.44

FLOW DISTRIBUTION FOR SECNO=     10.93          CWSEL=   1222.91

STA=      10.     390.
  PER Q=    100.0
   AREA=   2395.3
    VEL=      6.5
  DEPTH=      6.3

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    SECNO      DEPTH      CWSEL      CRIWS.     WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*SECNO 10.935
3280 CROSS SECTION     10.94 EXTENDED       .86 FEET

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1227.10 ELREA=      1222.20

    10.935      7.45   1223.06       .00   1221.69   1223.83       .77       .23       .04   1227.10
   15500.0        .0   15500.0        .0        .0    2194.7        .0     620.9      96.7   1222.20
       .40       .00      7.06       .00      .000      .030      .000      .000   1215.61     35.77
   .001769     131.      144.      154.         1         0         0       .00    348.11    383.88

FLOW DISTRIBUTION FOR SECNO=     10.94          CWSEL=   1223.06

STA=      36.     384.
  PER Q=    100.0
   AREA=   2194.7
    VEL=      7.1
  DEPTH=      6.3

*SECNO 10.936

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .53

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1225.50 ELREA=      1223.81

    10.936      6.95   1222.56       .00   1221.35   1224.64      2.08       .42       .39   1225.50
   15500.0        .0   15500.0        .0        .0    1340.6        .0     626.4      97.7   1223.81
       .41       .00     11.56       .00      .000      .030      .000      .000   1215.61     32.02
   .006407     131.      137.      154.         3         0         0       .00    267.93    299.95

FLOW DISTRIBUTION FOR SECNO=     10.94          CWSEL=   1222.56

STA=      32.     325.
  PER Q=    100.0
   AREA=   1340.6
    VEL=     11.6
  DEPTH=      5.0

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   17NOV95      08:48:30                                                                                    PAGE   73

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

CCHV=     .300 CEHV=     .500
*SECNO 10.989

3265 DIVIDED FLOW

3370 NORMAL BRIDGE, NRD=    0 MIN ELTRD=  1230.00 MAX ELLC=  1228.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1229.70 ELREA=      1227.98
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          UNION HILLS DRIVE
    10.989      8.51   1224.91       .00   1223.87   1227.04      2.13      2.38       .03   1229.70
   15500.0        .0   15500.0        .0        .0    1322.4        .0     637.7      99.7   1227.98
       .42       .00     11.72       .00      .000      .030      .000      .000   1216.40     78.65
   .006436      370.      370.      370.         2         0         0       .00    198.56    284.85


 FLOW DISTRIBUTION FOR SECNO=     10.99          CWSEL=   1224.91

 STA=      79.     295.
   PER Q=    100.0
    AREA=   1322.4
     VEL=     11.7
   DEPTH=      6.7

 *SECNO 11.004

 3265 DIVIDED FLOW

 3280 CROSS SECTION     11.00 EXTENDED       .64 FEET


 3301 HV CHANGED MORE THAN HVINS


 3370 NORMAL BRIDGE, NRD=    0 MIN ELTRD=  1230.00 MAX ELLC=  1228.00


 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1229.70 ELREA=      1227.98

    11.004      9.74   1226.14       .00   1224.66   1227.65      1.51       .42       .19   1229.70
   15500.0        .0   15500.0        .0        .0    1569.9        .0     640.5     100.0   1227.98
       .42       .00      9.87       .00      .000      .030      .000      .000   1216.40     74.13
   .003986       85.       85.       85.         3         0         0       .00    207.27    289.05


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    17NOV95       08:48:30                                                                          PAGE   74

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


 FLOW DISTRIBUTION FOR SECNO=     11.00          CWSEL=   1226.14

 STA=      74.     295.
   PER Q=    100.0
    AREA=   1569.9
     VEL=      9.9
   DEPTH=      7.6

 *SECNO 11.005

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.49


 3470 ENCROACHMENT STATIONS=         .0     309.0  TYPE=       1  TARGET=      308.999

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1229.70 ELREA=      1222.15

    11.005     10.29   1226.69       .00   1225.05   1227.79      1.10       .01       .12   1229.70
   15500.0        .0   15361.0     139.0        .0    1819.3      59.4     640.7     100.1   1222.15
       .42       .00      8.44      2.34      .000      .030      .060      .000   1216.40     72.07
   .001787         5.        5.        5.         3         0         0       .00    236.93    309.00


 FLOW DISTRIBUTION FOR SECNO=     11.01          CWSEL=   1226.69

 STA=      72.     295.     309.
   PER Q=     99.1       .9
    AREA=   1819.3     59.4
     VEL=      8.4      2.3
   DEPTH=      8.1      4.4

 CCHV=     .100 CEHV=     .300
 *SECNO 11.020

 3470 ENCROACHMENT STATIONS=         .0     603.7  TYPE=       1  TARGET=      603.699

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1229.50 ELREA=      1230.30

    11.020     10.77   1226.77       .00   1225.12   1227.92      1.15       .11       .02   1229.50
   15500.0        .0   15500.0        .0        .0    1799.7        .0     643.3     100.4   1230.30
       .42       .00      8.61       .00      .000      .030      .000      .000   1216.00    370.61
   .002025       60.       60.       60.         2         0         0       .00    233.08    603.70


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    17NOV95       08:48:30                                                                          PAGE   75

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
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    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

FLOW DISTRIBUTION FOR SECNO=      11.02          CWSEL=    1226.77

STA=      371.     604.
  PER Q=     100.0
   AREA=    1799.7
    VEL=       8.6
  DEPTH=       7.7

*SECNO 11.045
3280 CROSS SECTION      11.05 EXTENDED        .32 FEET

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       1229.80 ELREA=       1226.90

    11.045       9.12    1226.92        .00    1225.34    1228.44       1.52        .41        .11    1229.80
   15500.0          .0    15500.0         .0         .0     1568.5         .0      649.9      101.3    1226.90
       .43         .00       9.88        .01        .000       .030       .060       .000    1217.80      94.41
   .002854       170.       170.       170.          2          0          0        .00     215.99     310.40

FLOW DISTRIBUTION FOR SECNO=      11.05          CWSEL=    1226.92

STA=       94.     308.
  PER Q=     100.0
   AREA=    1568.5
    VEL=       9.9
  DEPTH=       7.4

*SECNO 11.129

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.61

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       1230.00 ELREA=       1230.10

         NEW SECTION - LEFT BANK TAKEN FROM ARROWHEAD RANCH
         WASTEWATER TREATMENT PLANT GRADING PLAN-DIBBLE & ASSOC.
    11.129      10.69    1228.49        .00    1226.75    1229.18        .69        .66        .08    1230.00
   15500.0          .0    15500.0         .0         .0     2322.2         .0      667.5      103.5    1230.10
       .44         .00       6.67        .00        .000       .030       .000       .000    1217.80      10.07
   .001108       395.       395.       395.          2          0          0        .00     281.64     291.71


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    17NOV95       08:48:30                                                                                    PAGE    76

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

FLOW DISTRIBUTION FOR SECNO=      11.13          CWSEL=    1228.49

STA=       10.     331.
  PER Q=     100.0
   AREA=    2322.2
    VEL=       6.7
  DEPTH=       8.2

*SECNO 11.188

3470 ENCROACHMENT STATIONS=       758.7    1228.0  TYPE=       1  TARGET=       469.300

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       1232.80 ELREA=       1232.70

    11.188      11.27    1223.77        .00    1227.01    1229.66        .89        .42        .06    1232.80
   13750.0          .0    13750.0         .0         .0     1813.0         .0      682.7      105.4    1232.70
       .45         .00       7.58        .00        .000       .030       .000       .000    1217.50     774.38
   .001595       320.       320.       320.          2          0          0        .00     238.14    1012.52

FLOW DISTRIBUTION FOR SECNO=      11.19          CWSEL=    1228.77

STA=      774.    1021.
  PER Q=     100.0
   AREA=    1813.0
    VEL=       7.6
  DEPTH=       7.6

*SECNO 11.301
3280 CROSS SECTION      11.30 EXTENDED      11.38 FEET

3301 HV CHANGED MORE THAN HVINS
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3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .66

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1233.30 ELREA= 1233.90

11.301	9.88	1229.58	.00	1228.19	1231.29	1.71	1.39	.25	1233.30
13750.0	.0	13750.0	.0	.0	1309.9	.0	704.2	108.4	1233.90
.47	.00	10.50	.00	.000	.030	.000	.000	1219.70	90.71
.003655	600.	600.	600.	0	0	0	.00	196.42	287.13

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 11.30 CWSEL= 1229.58

STA= 91. 298.
PER Q= 100.0
AREA= 1309.9
VEL= 10.5
DEPTH= 6.7

*SECNO 11.328

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1233.60 ELREA= 1233.40

11.328	9.22	1230.12	.00	1228.87	1232.11	1.99	.73	.08	1233.60
13750.0	.0	13750.0	.0	.0	1214.0	.0	709.4	109.2	1233.40
.47	.00	11.33	.00	.000	.030	.000	.000	1220.90	17.81
.004514	180.	180.	180.	2	0	0	.00	190.45	208.26

FLOW DISTRIBUTION FOR SECNO= 11.33 CWSEL= 1230.12

STA= 18. 214.
PER Q= 100.0
AREA= 1214.0
VEL= 11.3
DEPTH= 6.4

*SECNO 11.386
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 19900.0 20175.0 TYPE= 1 TARGET= 275.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1233.00 ELREA= 100000.00

11.386	8.82	1231.82	1231.82	1230.91	1234.16	2.34	1.82	.11	1233.00
13750.0	.0	13750.0	.0	.0	1119.5	.0	716.6	110.6	100000.00
.48	.00	12.28	.00	.000	.035	.000	.000	1223.00	19901.18
.011204	315.	270.	240.	3	11	0	.00	245.71	20146.89

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 11.39 CWSEL= 1231.82

STA= 19901. 20175.
PER Q= 100.0
AREA= 1119.5
VEL= 12.3
DEPTH= 4.6

*SECNO 11.481

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.16

3470 ENCROACHMENT STATIONS= 19780.0 20170.0 TYPE= 1 TARGET= 390.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1236.00 ELREA= 100000.00

11.481	8.59	1235.99	.00	1234.98	1236.66	.67	2.33	.17	1236.00
13750.0	.0	13750.0	.0	.0	2090.3	.0	735.8	114.3	100000.00
.50	.00	6.58	.00	.000	.035	.000	.000	1227.40	19780.02

```
   .002397      480.      520.      540.         3         0         0       .00    369.94  20149.96

FLOW DISTRIBUTION FOR SECNO=     11.48          CWSEL=   1235.99

STA=   19780.   20170.
  PER Q=    100.0
   AREA=   2090.3
    VEL=      6.6
  DEPTH=      5.7

*SECNO 11.566

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.78

3470 ENCROACHMENT STATIONS=    19470.0   20310.0  TYPE=      1  TARGET=      840.000
1
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1240.00 ELREA=    100000.00

    11.566       7.40   1237.10        .00   1236.08   1237.28        .18        .57        .05   1240.00
   13750.0         .0   13750.0         .0        .0    4081.4         .0      768.4      120.6 100000.00
       .54        .00      3.37        .00       .000      .035       .000       .000   1229.70  19477.24
   .000753      280.      460.      530.         3         0         0       .00    827.34  20304.57

FLOW DISTRIBUTION FOR SECNO=     11.57          CWSEL=   1237.10

STA=   19477.   20310.
  PER Q=    100.0
   AREA=   4081.4
    VEL=      3.4
  DEPTH=      4.9

*SECNO 11.759

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=    19925.0   20510.0  TYPE=      1  TARGET=      585.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1244.00 ELREA=    100000.00

    11.759       3.69   1238.69   1238.69   1238.21   1240.09       1.40       2.00        .37   1244.00
   13750.0         .0   13750.0         .0        .0    1445.9         .0      833.1      136.4 100000.00
       .57        .00      9.51        .00       .000      .035       .000       .000   1235.00  19934.96
   .013026     1050.     1020.      980.        20         8         0       .00    524.51  20459.48

FLOW DISTRIBUTION FOR SECNO=     11.76          CWSEL=   1238.69

STA=   19935.   20510.
  PER Q=    100.0
   AREA=   1445.9
    VEL=      9.5
  DEPTH=      2.8

1
   17NOV95      08:48:30                                                                                    PAGE   80

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*SECNO 11.949

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.65

3470 ENCROACHMENT STATIONS=    19865.0   20510.0  TYPE=      1  TARGET=      645.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1250.00 ELREA=    100000.00

    11.949       4.86   1246.86        .00   1246.22   1247.59        .73       7.44        .07   1250.00
   13750.0         .0   13750.0         .0        .0    2001.9         .0      872.7      148.8 100000.00
       .61        .00      6.87        .00       .000      .035       .000       .000   1242.00  19950.71
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   .004803      990.     1000.     1000.         3         0         0       .00    559.29  20510.00

FLOW DISTRIBUTION FOR SECNO=     11.95          CWSEL=   1246.86

STA=   19951.   20510.
  PER Q=    100.0
   AREA=   2001.9
    VEL=      6.9
  DEPTH=      3.6

*SECNO 12.125

3470 ENCROACHMENT STATIONS=    19890.0   20680.0  TYPE=      1  TARGET=      790.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1258.00 ELREA=    100000.00

    12.125       4.03   1252.03       .00   1251.46   1252.79       .76      5.19       .01   1258.00
   13750.0         .0   13750.0         .0        .0    1963.2         .0     915.0     162.0 100000.00
       .65        .00      7.00       .00       .000      .035      .000      .000   1248.00  19926.45
   .006557      910.      930.     1000.         3         0         0       .00    674.16  20600.61

FLOW DISTRIBUTION FOR SECNO=     12.13          CWSEL=   1252.03

STA=   19926.   20680.
  PER Q=    100.0
   AREA=   1963.2
    VEL=      7.0
  DEPTH=      2.9

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*SECNO 12.313

3470 ENCROACHMENT STATIONS=    19830.0   20240.0  TYPE=      1  TARGET=      410.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1262.00 ELREA=    100000.00

    12.313       5.84   1258.04       .00   1257.60   1259.03       .98      6.17       .07   1262.00
   12000.0         .0   12000.0         .0        .0    1506.9         .0     954.4     174.1 100000.00
       .68        .00      7.96       .00       .000      .035      .000      .000   1252.20  19839.89
   .005889     1010.      990.      980.         3         0         0       .00    393.59  20233.48

FLOW DISTRIBUTION FOR SECNO=     12.31          CWSEL=   1258.04

STA=   19840.   20240.
  PER Q=    100.0
   AREA=   1506.9
    VEL=      8.0
  DEPTH=      3.8

*SECNO 12.511

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=    19810.0   20280.0  TYPE=      1  TARGET=      470.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1263.60 ELREA=    100000.00

    12.511       6.42   1263.72       .00   1263.08   1264.52       .79      5.47       .02   1263.60
   12000.0         .0   12000.0         .0        .0    1679.1         .0     993.0     184.1 100000.00
       .72        .00      7.15       .00       .000      .035      .000      .000   1257.30  19810.00
   .004591     1000.     1056.     1020.         3         0         0       .00    427.47  20278.96

FLOW DISTRIBUTION FOR SECNO=     12.51          CWSEL=   1263.72

STA=   19810.   20280.
  PER Q=    100.0
   AREA=   1679.1
    VEL=      7.1
  DEPTH=      3.9

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*SECNO 12.701
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3470 ENCROACHMENT STATIONS= 19810.0 20330.0 TYPE= 1 TARGET= 520.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1270.00 ELREA= 100000.00

12.701	4.47	1269.17	.00	1268.78	1270.02	.85	5.49	.02	1270.00
12000.0	.0	12000.0	.0	.0	1617.5	.0	1030.9	194.9	100000.00
.76	.00	7.42	.00	.000	.035	.000	.000	1264.70	19814.13
.006677	1030.	1000.	1020.	2	0	0	.00	515.87	20330.00

FLOW DISTRIBUTION FOR SECNO= 12.70 CWSEL= 1269.17

STA= 19814. 20330.
PER Q= 100.0
AREA= 1617.5
VEL= 7.4
DEPTH= 3.1

*SECNO 12.896

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.44

3470 ENCROACHMENT STATIONS= 19845.0 20360.0 TYPE= 1 TARGET= 515.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1274.00 ELREA= 100000.00

12.896	5.32	1274.12	.00	1273.69	1274.67	.55	4.62	.03	1274.00
12000.0	.0	12000.0	.0	.0	2013.2	.0	1073.8	207.1	100000.00
.81	.00	5.96	.00	.000	.035	.000	.000	1268.80	19845.00
.003218	1010.	1030.	1010.	3	0	0	.00	515.00	20360.00

FLOW DISTRIBUTION FOR SECNO= 12.90 CWSEL= 1274.12

STA= 19845. 20360.
PER Q= 100.0
AREA= 2013.2
VEL= 6.0
DEPTH= 3.9

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 13.076

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .56

3470 ENCROACHMENT STATIONS= 19930.0 20350.0 TYPE= 1 TARGET= 420.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1278.00 ELREA= 100000.00

13.076	5.55	1277.55	.00	1277.34	1278.12	.56	3.44	.00	1278.00
7900.0	.0	7900.0	.0	.0	1311.1	.0	1110.1	217.3	100000.00
.85	.00	6.03	.00	.000	.035	.000	.000	1272.00	19931.11
.004398	950.	950.	980.	3	0	0	.00	417.22	20348.33

FLOW DISTRIBUTION FOR SECNO= 13.08 CWSEL= 1277.55

STA= 19931. 20350.
PER Q= 100.0
AREA= 1311.1
VEL= 6.0
DEPTH= 3.1

*SECNO 13.227

3470 ENCROACHMENT STATIONS= 19810.0 20120.0 TYPE= 1 TARGET= 310.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1281.50 ELREA= 100000.00

13.227	6.26	1280.16	.00	1280.23	1280.70	.54	2.58	.00	1281.50
7900.0	.0	7900.0	.0	.0	1333.5	.0	1134.3	223.7	100000.00
.89	.00	5.92	.00	.000	.035	.000	.000	1273.90	19818.54
.002473	800.	800.	670.	2	0	0	.00	283.04	20101.58

FLOW DISTRIBUTION FOR SECNO= 13.23 CWSEL= 1280.16

STA= 19819. 20120.
PER Q= 100.0
AREA= 1333.5
VEL= 5.9
DEPTH= 4.7

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 13.420

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 19870.0 20170.0 TYPE= 1 TARGET= 300.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1287.50 ELREA= 100000.00

13.420	4.20	1286.00	1286.00	1285.99	1287.69	1.69	4.78	.34	1287.50
7900.0	.0	7900.0	.0	.0	757.2	.0	1158.8	229.7	100000.00
.92	.00	10.43	.00	.000	.035	.000	.000	1281.80	19874.29
.012079	970.	1020.	1000.	20	14	0	.00	225.71	20100.00

FLOW DISTRIBUTION FOR SECNO= 13.42 CWSEL= 1286.00

STA= 19874. 20170.
PER Q= 100.0
AREA= 757.2
VEL= 10.4
DEPTH= 3.4

*SECNO 13.619

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.21

3470 ENCROACHMENT STATIONS= 19870.0 20455.0 TYPE= 1 TARGET= 585.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1294.00 ELREA= 100000.00

13.619	7.47	1292.47	.00	1292.41	1292.79	.31	4.96	.14	1294.00
7900.0	.0	7900.0	.0	.0	1754.2	.0	1189.3	239.2	100000.00
.98	.00	4.50	.00	.000	.035	.000	.000	1285.00	19893.84
.002478	1090.	1056.	1020.	5	0	0	.00	561.15	20455.00

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 13.62 CWSEL= 1292.47

STA= 19894. 20455.
PER Q= 100.0
AREA= 1754.2
VEL= 4.5
DEPTH= 3.1

*SECNO 13.818

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 19890.0 20340.0 TYPE= 1 TARGET= 450.000

13.818	3.64	1297.64	1297.64	1297.44	1298.74	1.10	5.17	.23	1300.00
7900.0	.0	7900.0	.0	.0	939.8	.0	1221.9	251.2	100000.00
1.02	.00	8.41	.00	.000	.035	.000	.000	1294.00	19908.40
.013852	1050.	1056.	1050.	3	11	0	.00	430.26	20338.66

FLOW DISTRIBUTION FOR SECNO= 13.82 CWSEL= 1297.64

STA= 19908. 20340.
PER Q= 100.0
AREA= 939.8
VEL= 8.4
DEPTH= 2.2

*SECNO 14.013

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3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.13


3470 ENCROACHMENT STATIONS=    19915.0   20270.0  TYPE=      1  TARGET=      355.000
    14.013       7.13   1305.13       .00   1303.74   1305.87       .75      7.10       .04   1304.00
    9539.0         .0    9539.0        .0        .0    1375.9        .0    1249.3     260.5 100000.00
      1.06        .00      6.93       .00      .000      .035      .000      .000   1298.00  19915.00
   .004452     1020.     1030.     1055.         5         0         0       .00    355.00  20270.00


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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=     14.01          CWSEL=   1305.13

STA=   19915.   20270.
  PER Q=    100.0
   AREA=   1375.9
    VEL=      6.9
  DEPTH=      3.9

*SECNO 14.197

3470 ENCROACHMENT STATIONS=    19715.0   20015.0  TYPE=      1  TARGET=      300.000
    14.197       6.03   1310.03       .00   1308.77   1311.09      1.06      5.13       .09   1308.50
    9539.0         .0    9539.0        .0        .0    1153.9        .0    1277.5     267.8 100000.00
      1.09        .00      8.27       .00      .000      .035      .000      .000   1304.00  19715.00
   .006379      990.      970.      920.         4         0         0       .00    300.00  20015.00


FLOW DISTRIBUTION FOR SECNO=     14.20          CWSEL=   1310.03

STA=   19715.   20015.
  PER Q=    100.0
   AREA=   1153.9
    VEL=      8.3
  DEPTH=      3.8

*SECNO 14.379

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=    19540.0   20250.0  TYPE=      1  TARGET=      710.000
    14.379       6.58   1316.58       .00   1315.05   1317.06       .49      5.91       .06   1316.00
    9539.0         .0    7839.5    1699.5        .0    1339.9     399.9    1309.5     279.0   1314.00
      1.14        .00      5.85      4.25      .000      .035      .050      .000   1310.00  19540.00
   .005908      940.      960.     1000.         4         0         0       .00    710.00  20250.00


FLOW DISTRIBUTION FOR SECNO=     14.38          CWSEL=   1316.58

STA=   19540.   20095.   20250.
  PER Q=     82.2      17.8
   AREA=   1339.9     399.9
    VEL=      5.9       4.3
  DEPTH=      2.4       2.6

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


*SECNO 14.559

3470 ENCROACHMENT STATIONS=    19220.0   20045.0  TYPE=      1  TARGET=      825.000
    14.559       5.67   1321.07       .00   1320.23   1321.41       .34      4.33       .01   1322.00
    9539.0         .0    9539.0        .0        .0    2038.9        .0    1350.6     295.7 100000.00
      1.19        .00      4.68       .00      .000      .035      .000      .000   1315.40  19221.18
   .003644      950.      950.      915.         4         0         0       .00    823.82  20045.00


FLOW DISTRIBUTION FOR SECNO=     14.56          CWSEL=   1321.07

STA=   19221.   20045.
  PER Q=    100.0
   AREA=   2038.9
    VEL=      4.7
  DEPTH=      2.5

*SECNO 14.752
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3470 ENCROACHMENT STATIONS=    19670.0   20170.0  TYPE=      1  TARGET=      500.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1326.00 ELREA=    100000.00

    14.752      6.37   1325.17       .00   1324.66   1325.80       .63      4.30       .09   1326.00
    9539.0        .0    9539.0        .0        .0    1498.0        .0    1392.0     310.9 100000.00
      1.24       .00      6.37       .00       .000      .035      .000      .000   1318.80  19672.08
   .004940     1010.     1020.     1010.         3         0         0       .00    479.21  20151.29


FLOW DISTRIBUTION FOR SECNO=     14.75          CWSEL=   1325.17

STA=   19672.   20170.
  PER Q=    100.0
   AREA=   1498.0
    VEL=      6.4
  DEPTH=      3.1

*SECNO 14.945

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .49

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3470 ENCROACHMENT STATIONS=    19865.0   20050.0  TYPE=      1  TARGET=      185.000
    14.945      7.67   1330.17       .00   1329.02   1330.97       .79      5.12       .05   1330.00
    4746.0        .0    4746.0        .0        .0     664.8        .0    1417.3     318.7 100000.00
      1.28       .00      7.14       .00       .000      .035      .000      .000   1322.50  19865.00
   .005187     1005.     1020.     1000.         3         0         0       .00    185.00  20050.00


FLOW DISTRIBUTION FOR SECNO=     14.94          CWSEL=   1330.17

STA=   19865.   20050.
  PER Q=    100.0
   AREA=    664.8
    VEL=      7.1
  DEPTH=      3.6

*SECNO 15.144
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=    19955.0   20382.0  TYPE=      1  TARGET=      427.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=      1336.00

    15.144      6.25   1338.25   1338.25   1334.82   1339.02       .77      6.85       .00 100000.00
    4746.0        .0    1531.8    3214.2        .0     143.4     739.5    1434.7     325.4   1336.00
      1.32       .00     10.68      4.35       .000      .035      .050      .000   1332.00  19955.00
   .009455      900.     1056.      890.         8        14         0       .00    427.00  20382.00


FLOW DISTRIBUTION FOR SECNO=     15.14          CWSEL=   1338.25

STA=   19955.   19982.   20382.
  PER Q=     32.3      67.7
   AREA=    143.4     739.5
    VEL=     10.7       4.3
  DEPTH=      5.2       1.9

*SECNO 15.333
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.17

3470 ENCROACHMENT STATIONS=    19770.0   20100.0  TYPE=      1  TARGET=      330.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1340.00 ELREA=    100000.00

    15.333      6.00   1341.00       .00   1338.85   1341.18       .18      2.10       .06   1340.00
    4746.0        .0    4746.0        .0        .0    1392.0        .0    1459.8     333.5 100000.00
      1.40       .00      3.41       .00       .000      .035      .000      .000   1335.00  19770.00
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   .000943      900.     1000.      890.         5         0         0       .00    327.47  20097.47

FLOW DISTRIBUTION FOR SECNO=     15.33          CWSEL=   1341.00

STA=   19770.   20100.
  PER Q=    100.0
   AREA=   1392.0
    VEL=      3.4
  DEPTH=      4.3

*SECNO 15.519

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=    19950.0   20320.0  TYPE=      1  TARGET=      370.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1348.00 ELREA=    100000.00

    15.519      3.47   1343.47   1343.47   1344.20   1344.52      1.05      2.35       .26   1348.00
    4746.0        .0    4746.0        .0        .0     576.1        .0    1482.0     340.4 100000.00
      1.43       .00      8.24       .00      .000      .035      .000      .000   1340.00  19965.10
   .014552      940.      980.      960.        20        14         0       .00    281.59  20246.69


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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

FLOW DISTRIBUTION FOR SECNO=     15.52          CWSEL=   1343.47

STA=   19965.   20320.
  PER Q=    100.0
   AREA=    576.1
    VEL=      8.2
  DEPTH=      2.0

*SECNO 15.699

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.83

3470 ENCROACHMENT STATIONS=    19870.0   20085.0  TYPE=      1  TARGET=      215.000
    15.699      5.82   1350.82       .00   1349.57   1351.48       .66      6.92       .04   1354.00
    4746.0        .0    4746.0        .0        .0     725.6        .0    1496.2     345.6 100000.00
      1.47       .00      6.54       .00      .000      .035      .000      .000   1345.00  19882.94
   .004358      935.      950.      920.         4         0         0       .00    202.06  20085.00

FLOW DISTRIBUTION FOR SECNO=     15.70          CWSEL=   1350.82

STA=   19883.   20085.
  PER Q=    100.0
   AREA=    725.6
    VEL=      6.5
  DEPTH=      3.6

*SECNO 15.966

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .64

3470 ENCROACHMENT STATIONS=     1985.0    2430.0  TYPE=      1  TARGET=      445.000
    15.966      4.47   1356.47       .00   1356.31   1356.62       .15      5.09       .05   1358.00
    2350.0        .0    2350.0        .0        .0     747.9        .0    1520.0     355.8 100000.00
      1.60       .00      3.14       .00      .000      .035      .000      .000   1352.00   1988.82
   .002590     1450.     1410.     1200.         5         0         0       .00    425.40   2414.22


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   17NOV95      08:48:30                                                                          PAGE   91

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

FLOW DISTRIBUTION FOR SECNO=     15.97          CWSEL=   1356.47

STA=    1989.    2430.
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```
  PER Q=     100.0
   AREA=     747.9
    VEL=       3.1
  DEPTH=       1.8

*SECNO 16.066

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     1970.0    2350.0  TYPE=      1  TARGET=      380.000
    16.066      5.50   1359.50   1359.50   1358.68   1360.21       .71      3.07       .17   1360.40
    2350.0        .0    2350.0        .0        .0     346.8        .0    1527.2     360.3 100000.00
      1.62       .00      6.78       .00      .000      .035      .000      .000   1354.00   1982.51
   .017370      565.      570.      480.         6        11         0       .00    259.72   2332.40


FLOW DISTRIBUTION FOR SECNO=     16.07          CWSEL=   1359.50

STA=    1983.    2350.
  PER Q=     100.0
   AREA=     346.8
    VEL=       6.8
  DEPTH=       1.3

*SECNO 16.167

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.34


3470 ENCROACHMENT STATIONS=     1950.0    2200.0  TYPE=      1  TARGET=      250.000
    16.167      5.25   1363.25       .00   1362.42   1363.55       .31      3.30       .04   1364.80
    2350.0        .0    2182.7     167.3        .0     476.4      87.3    1532.7     363.4   1362.00
      1.66       .00      4.58      1.92      .000      .035      .050      .000   1358.00   1951.62
   .003174      530.      530.      530.         7         0         0       .00    248.38   2200.00


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   17NOV95      08:48:30                                                                                PAGE   92

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=     16.17          CWSEL=   1363.25

STA=    1952.    2130.    2170.    2200.
  PER Q=      92.9       4.1       3.0
   AREA=     476.4      49.9      37.4
    VEL=       4.6       1.9       1.9
  DEPTH=       2.7       1.2       1.2

*SECNO 16.248

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .54


3470 ENCROACHMENT STATIONS=     1925.0    2030.0  TYPE=      1  TARGET=      105.000
    16.248      8.83   1364.93       .00   1364.44   1366.08      1.14      2.27       .25   1367.00
    2350.0        .0    2350.0        .0        .0     273.7        .0    1536.8     365.0 100000.00
      1.67       .00      8.59       .00      .000      .035      .000      .000   1356.10   1931.21
   .010736      450.      430.      340.         3         0         0       .00     98.79   2030.00


FLOW DISTRIBUTION FOR SECNO=     16.25          CWSEL=   1364.93

STA=    1931.    2030.
  PER Q=     100.0
   AREA=     273.7
    VEL=       8.6
  DEPTH=       2.8

*SECNO 16.328

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.67


3470 ENCROACHMENT STATIONS=     1915.0    2240.0  TYPE=      1  TARGET=      325.000
    16.328      9.85   1367.35       .00   1366.52   1367.49       .14      1.31       .10   1366.00
    2350.0        .0    2350.0        .0        .0     786.9        .0    1541.8     367.0 100000.00
      1.71       .00      2.99       .00      .000      .035      .000      .000   1357.50   1915.00
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    .001511      440.      410.      250.         1         0         0       .00    321.79   2236.79

1
    17NOV95      08:48:30                                                                                  PAGE   93

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

 FLOW DISTRIBUTION FOR SECNO=    16.33          CWSEL=   1367.35

 STA=    1915.    2240.
   PER Q=    100.0
    AREA=    786.9
     VEL=      3.0
   DEPTH=      2.4

 *SECNO 16.411

 3301 HV CHANGED MORE THAN HVINS


 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .45


 3470 ENCROACHMENT STATIONS=     1885.0    2055.0  TYPE=       1  TARGET=      170.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1369.20 ELREA=    100000.00

     16.411      3.95   1368.25       .00   1368.15   1368.94       .70      1.29       .17   1369.20
     2350.0        .0    2350.0        .0        .0     350.5        .0    1547.6     369.4 100000.00
       1.73       .00      6.71       .00       .000      .035      .000      .000   1364.30   1912.68
    .007336      510.      450.      350.         3         0         0       .00    139.26   2051.94


 FLOW DISTRIBUTION FOR SECNO=     16.41          CWSEL=   1368.25

 STA=    1913.    2055.
   PER Q=    100.0
    AREA=    350.5
     VEL=      6.7
   DEPTH=      2.5

 *SECNO 16.504

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.78


 3470 ENCROACHMENT STATIONS=     1835.0    2035.0  TYPE=       1  TARGET=      200.000
1
    17NOV95      08:48:30                                                                                  PAGE   94

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1370.00 ELREA=    100000.00

     16.504      6.59   1370.59       .00   1370.58   1370.85       .27      1.86       .04   1370.00
     2350.0        .0    2350.0        .0        .0     567.7        .0    1552.8     371.3 100000.00
       1.76       .00      4.14       .00       .000      .035      .000      .000   1364.00   1835.00
    .002324      460.      490.      300.         3         0         0       .00    195.99   2030.99


 FLOW DISTRIBUTION FOR SECNO=     16.50          CWSEL=   1370.59

 STA=    1835.    2035.
   PER Q=    100.0
    AREA=    567.7
     VEL=      4.1
   DEPTH=      2.9

 *SECNO 16.608

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .64


 3470 ENCROACHMENT STATIONS=     1910.0    2110.0  TYPE=       1  TARGET=      200.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1376.50 ELREA=    100000.00

     16.608      4.43   1372.23       .00   1372.19   1372.76       .53      1.83       .08   1376.50
     2350.0        .0    2350.0        .0        .0     403.3        .0    1558.7     373.4 100000.00
       1.78       .00      5.83       .00       .000      .035      .000      .000   1367.80   1929.44
    .005665      485.      530.      450.         2         0         0       .00    162.61   2092.04
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 FLOW DISTRIBUTION FOR SECNO=     16.61          CWSEL=   1372.23

 STA=    1929.    2110.
   PER Q=    100.0
    AREA=    403.3
     VEL=      5.8
   DEPTH=      2.5

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    17NOV95      08:48:30                                                                                    PAGE   95

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *SECNO 16.732

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .64

 3470 ENCROACHMENT STATIONS=     1950.0    2110.0  TYPE=      1  TARGET=      160.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1380.00 ELREA=    100000.00

     16.732      2.72   1377.72   1377.68   1377.75   1378.66       .94      5.78       .12   1380.00
     2350.0        .0    2350.0        .0        .0     302.7        .0    1564.3     375.9 100000.00
       1.81       .00       7.76       .00       .000      .035      .000       .000   1375.00   1955.68
    .013869      640.      685.      420.        12        14         0        .00    154.31   2110.00

 FLOW DISTRIBUTION FOR SECNO=     16.73          CWSEL=   1377.72

 STA=    1956.    2115.
   PER Q=    100.0
    AREA=    302.7
     VEL=      7.8
   DEPTH=      2.0

 *SECNO 16.818

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.99

 3470 ENCROACHMENT STATIONS=     1935.0    2045.0  TYPE=      1  TARGET=      110.000
     16.818      5.25   1380.95       .00   1380.64   1381.51       .57      2.82       .04   1382.00
     2350.0        .0    2350.0        .0        .0     388.5        .0    1567.9     377.3 100000.00
       1.83       .00       6.05       .00       .000      .035      .000       .000   1375.70   1942.85
    .003488      430.      455.      750.         3         0         0        .00    102.15   2045.00

 FLOW DISTRIBUTION FOR SECNO=     16.82          CWSEL=   1380.95

 STA=    1943.    2045.
   PER Q=    100.0
    AREA=    388.5
     VEL=      6.0
   DEPTH=      3.8

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 T1       NEW RIVER ABOVE SKUNK CREEK, PHOENIX, ARIZ., APRIL 1981
 T2       Corps of Engineers Condition 500 YEAR Q  (i.e. 1.7XQ100)
 T3       Comparison with FIS Q  WSEL estimated from FIS Profile

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 4                                                                   1170.5

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      15                  -1                                                                     15



1
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     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 3
0

 CCHV=     .200 CEHV=     .400
 *SECNO 8.655
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3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1171.60 ELREA=      1171.20

         1985 TOPO - DIGITIZED DATA SEC.8.655 THRU SEC.9.129
         DOWNSTREAM STUDY LIMIT
         NEW RIVER-SKUNK CREEK CONFLUENCE
     8.655     15.40   1170.50       .00   1170.50   1171.63      1.13       .00       .00   1171.60
   69700.0        .0   69700.0        .0        .0    8176.1        .0        .0        .0   1171.20
       .00        .00      8.52       .00       .000      .035      .000      .000   1155.10   9587.04
   .001342      750.      400.      150.         0         0         0       .00    634.06  10221.10


FLOW DISTRIBUTION FOR SECNO=      8.65          CWSEL=   1170.50

STA=    9587.   10224.
  PER Q=    100.0
   AREA=   8176.1
    VEL=      8.5
  DEPTH=     12.9

CCHV=     .100 CEHV=      .300
*SECNO 8.731
3280 CROSS SECTION      8.73 EXTENDED       .53 FEET


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .67


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1172.80 ELREA=      1172.20

         BEGIN DISCHARGE FOR NEW RIVER ONLY
     8.731     15.73   1171.83       .00       .00   1172.04       .21       .32       .09   1172.80
   20400.0        .0   20400.0        .0        .0    5533.1        .0      62.9       4.9   1172.20
       .03        .00      3.69       .00       .000      .035      .000      .000   1156.10   9774.92
   .000258      400.      400.      400.         2         0         0       .00    437.02  10211.94


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   17NOV95      08:48:30                                                                          PAGE   98

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


FLOW DISTRIBUTION FOR SECNO=      8.73          CWSEL=   1171.83

STA=    9775.   10214.
  PER Q=    100.0
   AREA=   5533.1
    VEL=      3.7
  DEPTH=     12.7

*SECNO 8.807

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1174.70 ELREA=      1173.90

     8.807     13.61   1171.91       .00       .00   1172.18       .27       .12       .02   1174.70
   20400.0        .0   20400.0        .0        .0    4886.1        .0      110.8       8.9   1173.90
       .06        .00      4.18       .00       .000      .035      .000      .000   1158.30   9781.79
   .000377      400.      400.      390.         2         0         0       .00    426.14  10207.92


FLOW DISTRIBUTION FOR SECNO=      8.81          CWSEL=   1171.91

STA=    9782.   10219.
  PER Q=    100.0
   AREA=   4886.1
    VEL=      4.2
  DEPTH=     11.5

*SECNO 8.883

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .47


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1174.90 ELREA=      1176.30

     8.883     11.73   1171.83       .00       .00   1172.62       .79       .28       .16   1174.90
   20400.0        .0   20400.0        .0        .0    2851.1        .0      146.3      12.4   1176.30
       .07        .00      7.16       .00       .000      .035      .000      .000   1160.10   9844.87
   .001735      280.      400.      400.         2         0         0       .00    347.77  10192.64


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   17NOV95      08:48:30                                                                          PAGE   99
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 8.88 CWSEL= 1171.83

STA= 9845. 10217.
PER Q= 100.0
AREA= 2851.1
VEL= 7.2
DEPTH= 8.2

*SECNO 8.936

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1177.30 ELREA= 1178.20

OLD CORP STATION NO. 8.95=0.6

8.936	10.54	1172.34	.00	.00	1173.18	.84	.55	.01	1177.30
20400.0	.0	20400.0	.0	.0	2772.4	.0	165.0	14.8	1178.20
.08	.00	7.36	.00	.000	.035	.000	.000	1161.80	9820.75
.002047	300.	290.	300.	2	0	0	.00	365.64	10186.38

FLOW DISTRIBUTION FOR SECNO= 8.94 CWSEL= 1172.34

STA= 9821. 10213.
PER Q= 100.0
AREA= 2772.4
VEL= 7.4
DEPTH= 7.6

*SECNO 8.977

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1177.20 ELREA= 1179.30

8.977	8.97	1172.47	.00	.00	1173.95	1.49	.58	.19	1177.20
20400.0	.0	20400.0	.0	.0	2085.7	.0	176.7	16.4	1179.30
.09	.00	9.78	.00	.000	.035	.000	.000	1163.50	9893.58
.003870	220.	210.	200.	2	0	0	.00	290.26	10183.84

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 8.98 CWSEL= 1172.47

STA= 9894. 10213.
PER Q= 100.0
AREA= 2085.7
VEL= 9.8
DEPTH= 7.2

*SECNO 9.009

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.77

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1178.00 ELREA= 1179.90

GREENWAY ROAD AREA

9.009	10.90	1173.80	.00	.00	1174.40	.60	.36	.09	1178.00
20400.0	.0	20400.0	.0	.0	3272.8	.0	187.8	17.8	1179.90
.10	.00	6.23	.00	.000	.035	.000	.000	1162.90	9788.08
.001240	330.	180.	180.	2	0	0	.00	381.57	10169.65

FLOW DISTRIBUTION FOR SECNO= 9.01 CWSEL= 1173.80

STA= 9788. 10207.
PER Q= 100.0
AREA= 3272.8
VEL= 6.2
DEPTH= 8.6

*SECNO 9.047

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1177.50 ELREA= 1177.60

9.047	13.00	1174.20	.00	.00	1174.60	.40	.18	.02	1177.50

```
   20400.0        .0   20400.0        .0        .0    4014.4        .0     204.5     19.6   1177.60
      .11        .00       5.08       .00      .000      .035      .000      .000   1161.20   9703.91
   .000679      280.      200.       160.         2         0         0       .00    403.45  10107.36


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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

FLOW DISTRIBUTION FOR SECNO=      9.05          CWSEL=   1174.20

STA=    9704.   10114.
  PER Q=    100.0
   AREA=   4014.4
    VEL=      5.1
  DEPTH=     10.0

*SECNO 9.129

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1180.60 ELREA=      1178.70

        OLD CORP STATION NO. 9.15=9.8
        END 1985 TOPO DIGITIZED SECTIONS, END C/L = 10000
     9.129     10.26   1174.46        .00        .00   1175.05        .59       .39       .06   1180.60
   20400.0         .0   20400.0         .0         .0    3297.4         .0     239.8      23.5   1178.70
      .13        .00       6.19       .00      .000      .035      .000      .000   1164.20   9664.97
   .001374      290.      420.       460.         2         0         0       .00    418.76  10083.73


FLOW DISTRIBUTION FOR SECNO=      9.13          CWSEL=   1174.46

STA=    9665.   10090.
  PER Q=    100.0
   AREA=   3297.4
    VEL=      6.2
  DEPTH=      7.9

CCHV=     .100 CEHV=     .300
*SECNO 9.318

3265 DIVIDED FLOW

3280 CROSS SECTION      9.32 EXTENDED       .70 FEET

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1186.00 ELREA=      1181.50

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        BEGIN STATION C/L = 20000
     9.318      8.70   1181.90   1181.90        .00   1182.92      1.02      2.55       .13   1186.00
   20400.0         .0   14497.4    5902.6         .0    1533.4    2276.7     321.4      52.6   1181.50
      .16        .00       9.45       2.59      .000      .035      .060      .000   1173.20  19693.74
   .006288     1000.     1000.      1000.        20         9         0       .00   2115.97  23740.00


FLOW DISTRIBUTION FOR SECNO=      9.32          CWSEL=   1181.90

STA=   19694.   20015.   20105.   20325.   22940.   23725.   23740.
  PER Q=     71.1       .3       .3      6.1     22.1       .2
   AREA=   1533.4     45.3     66.2    651.8   1493.8     19.5
    VEL=      9.5      1.2       .9      1.9      3.0      2.3
  DEPTH=      4.8       .5       .3       .2      1.9      1.3

*SECNO 9.492

3301 HV CHANGED MORE THAN HVINS


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1188.00 ELREA=      1193.90

     9.492      8.69   1187.69        .00        .00   1189.25      1.56      6.17       .16   1188.00
   19465.0         .0   19465.0         .0         .0    1939.1         .0     381.3      78.8   1193.90
      .19        .00      10.04       .00      .000      .035      .000      .000   1179.00  19791.31
   .007261      910.      920.       890.         1         0         0       .00    418.58  20209.89


FLOW DISTRIBUTION FOR SECNO=      9.49          CWSEL=   1187.69

STA=   19791.   20235.
  PER Q=    100.0
   AREA=   1939.1
    VEL=     10.0
  DEPTH=      4.6
```

```
*SECNO 9.692
3280 CROSS SECTION      9.69 EXTENDED      2.16 FEET

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1195.00 ELREA=      1196.10

     9.692     10.06   1194.16       .00       .00   1196.62      2.47      7.10       .27   1195.00
   19465.0        .0   19465.0        .0        .0   1544.2         .0     423.5      86.4   1196.10
       .21       .00     12.61       .00      .000      .035      .000      .000   1184.10  19843.75
   .006243     1050.     1056.     1040.         2         0         0       .00    209.87  20053.62


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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

FLOW DISTRIBUTION FOR SECNO=      9.69          CWSEL=   1194.16

STA=   19844.   20060.
  PER Q=    100.0
   AREA=   1544.2
    VEL=     12.6
  DEPTH=      7.4

CCHV=     .300 CEHV=     .500
*SECNO 9.889
3280 CROSS SECTION      9.89 EXTENDED      1.85 FEET

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.45

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1200.00 ELREA=      1200.00

     9.889     11.85   1199.85       .00       .00   1201.28      1.43      4.34       .31   1200.00
   19465.0        .0   19465.0        .0        .0   2030.5         .0     466.2      91.8   1200.00
       .24       .00      9.59       .00      .000      .035      .000      .000   1188.00  19840.75
   .002988     1100.     1040.     1050.         3         0         0       .00    238.80  20079.55

FLOW DISTRIBUTION FOR SECNO=      9.89          CWSEL=   1199.85

STA=   19841.   20080.
  PER Q=    100.0
   AREA=   2030.5
    VEL=      9.6
  DEPTH=      8.5

CCHV=     .300 CEHV=     .500
*SECNO 9.953

3265 DIVIDED FLOW

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   17NOV95      08:48:30                                                                                PAGE  104

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

3280 CROSS SECTION      9.95 EXTENDED       .83 FEET

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.66

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1200.00 ELREA=      1202.00

        BELL ROAD
     9.953     12.83   1201.43       .00       .00   1202.08       .65       .57       .23   1200.00
   19465.0   3511.3   15953.7         .0    3972.9    2242.9         .0     497.9     108.1   1202.00
       .26       .88      7.11       .00      .060      .030      .000      .000   1188.60  15216.64
   .001084       335.      335.      335.         2         0         0       .00   4021.36  20031.43

FLOW DISTRIBUTION FOR SECNO=      9.95          CWSEL=   1201.43
```

```
STA=   15217.   15520.   16550.   16890.   17285.   17540.   17610.   18441.   19515.   19790.   20032.
  PER Q=      .4      6.1      2.6      2.2      1.4       .5      2.0       .7      2.1      82.0
   AREA=   156.6   1269.7    487.1    467.2    301.6    100.3    595.3    201.0    394.0   2242.9
    VEL=      .5       .9      1.0       .9       .9      1.0       .7       .7      1.0       7.1
  DEPTH=      .5      1.2      1.4      1.2      1.2      1.4       .7       .2      1.4       9.3


SPECIAL BRIDGE

SB  XK        XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
      .90       1.56       2.60        .00     213.00      20.00    2800.00      1.88     1188.61    1188.60

*SECNO 9.967

3301 HV CHANGED MORE THAN HVINS

CLASS A LOW FLOW

3420 BRIDGE W.S.=    1201.30 BRIDGE VELOCITY=       7.07     CALCULATED CHANNEL AREA=      2751.
1
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


 EGPRS       EGLWC       H3         QWEIR       QLOW       BAREA    TRAPEZOID      ELLC       ELTRD      WEIRLN
                                                                      AREA
   1202.60    1202.69        .08         0.     19465.      2800.     2656.      1200.90    1207.50         0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1204.00 ELREA=      1204.00

        SPECIAL BRIDGE
     9.967      12.91    1201.51        .00        .00    1202.69       1.17        .61        .00    1204.00
   19465.0         .0    19465.0         .0         .0    2238.1          .0      505.2      111.8    1204.00
      .26         .00       8.70        .00       .000       .030       .000       .000    1188.60   19831.22
   .001828       75.        75.        75.          0          0          0        .00     266.34   20097.56


FLOW DISTRIBUTION FOR SECNO=      9.97          CWSEL=    1201.51

STA=   19831.   20110.
  PER Q=    100.0
   AREA=   2238.1
    VEL=      8.7
  DEPTH=      8.4

CCHV=      .100 CEHV=      .300
*SECNO 10.096

3265 DIVIDED FLOW


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1201.00 ELREA=      1206.00

    10.096       7.39    1203.09        .00        .00    1204.07        .98       1.37        .02    1201.00
   19465.0      216.0    19249.0         .0      134.2    2409.9          .0      540.5      118.3    1206.00
       .28       1.61       7.99        .00       .060       .030       .000       .000    1195.70   15057.69
   .002481      610.       645.       650.          3          0          0        .00     613.54   20047.73


FLOW DISTRIBUTION FOR SECNO=     10.10          CWSEL=    1203.09

STA=   15058.   19555.   19635.   20055.
  PER Q=      .0      1.1     98.9
   AREA=      6.9    127.3   2409.9
    VEL=      .3       1.7      8.0
  DEPTH=      .0       1.6      5.8

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


*SECNO 10.271

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .66


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1212.50 ELREA=      1208.00

    10.271       7.77    1205.97        .00        .00    1207.35       1.39       3.16        .12    1212.50
   18530.0         .0    18530.0         .0         .0    1960.2          .0      588.3      129.5    1208.00
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      .31       .00      9.45       .00      .000      .030      .000      .000   1198.20  19858.43
   .005111      920.      925.      925.         3         0         0       .00    448.86  20307.29


FLOW DISTRIBUTION FOR SECNO=     10.27          CWSEL=   1205.97

STA=   19858.   20320.
  PER Q=    100.0
   AREA=   1960.2
    VEL=      9.5
  DEPTH=      4.4

*SECNO 10.443

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1216.00 ELREA=      1210.00

    10.443      4.49   1210.09   1210.09       .00   1210.13       .04      1.26       .13   1216.00
   18530.0        .0    3339.0   15191.0        .0    1301.2   11659.9     742.9      185.5   1210.00
       .48       .00      2.57      1.30      .000      .030      .060      .000    1205.60  19669.77
   .000635      930.      910.      900.        20        25         0       .00    4954.19  27197.85


FLOW DISTRIBUTION FOR SECNO=     10.44          CWSEL=   1210.09

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


STA=   19670.   20110.   23780.   24260.   25120.   26400.   26810.   27080.   27180.   27198.
  PER Q=     18.0      7.0      6.0      7.7     44.6      9.1      4.0      3.5       .2
   AREA=   1301.2   1513.9   1052.9   1542.4   5188.7   1268.3    645.2    409.4     39.2
    VEL=      2.6       .9      1.1       .9      1.6      1.3      1.1      1.6      1.2
  DEPTH=      3.0       .4      2.2      1.8      4.1      3.1      2.4      4.1      2.2

*SECNO 10.612

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1222.00 ELREA=      1218.00

    10.612      6.03   1215.63   1215.63       .00   1217.97      2.34      1.38       .69   1222.00
   18530.0        .0   18530.0         .0        .0    1511.0        .0     892.0     239.9   1218.00
       .50       .00     12.26       .00      .000      .030      .000      .000    1209.60  19970.92
   .008058      880.      890.      900.        20        11         0       .00     327.11  20298.03


FLOW DISTRIBUTION FOR SECNO=     10.61          CWSEL=   1215.63

STA=   19971.   20300.
  PER Q=    100.0
   AREA=   1511.0
    VEL=     12.3
  DEPTH=      4.6

*SECNO 10.659
3280 CROSS SECTION     10.66 EXTENDED      2.23 FEET


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.11

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1222.20 ELREA=      1215.61
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    10.659       8.79   1217.84        .00        .00   1218.92       1.08        .82        .13   1222.20
   18530.0         .0   18530.0         .0         .0    2221.6         .0      902.6      241.6   1215.61
       .50        .00       8.34       .00       .000       .030       .000       .000    1209.05     38.38
   .001812       259.       247.       255.          2          0          0        .00     276.60     314.98


 FLOW DISTRIBUTION FOR SECNO=      10.66          CWSEL=    1217.84

 STA=       38.      315.
   PER Q=     100.0
    AREA=    2221.6
     VEL=       8.3
   DEPTH=       8.0

 *SECNO 10.691
 3280 CROSS SECTION      10.69 EXTENDED        .72 FEET


 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       1223.16 ELREA=       1217.30

    10.691       8.96   1218.01        .00        .00   1219.35       1.33        .35        .08   1223.16
   18530.0         .0   18530.0         .0         .0    2000.6         .0      910.9      242.7   1217.30
       .51        .00       9.26       .00       .000       .030       .000       .000    1209.05     57.76
   .002432       174.       170.       161.          2          0          0        .00     267.06     324.82


 FLOW DISTRIBUTION FOR SECNO=      10.69          CWSEL=    1218.01

 STA=       58.      325.
   PER Q=     100.0
    AREA=    2000.6
     VEL=       9.3
   DEPTH=       7.5

 *SECNO 10.723
 3280 CROSS SECTION      10.72 EXTENDED        .86 FEET

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     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


 3301 HV CHANGED MORE THAN HVINS

    10.723       9.11   1218.16        .00        .00   1220.01       1.85        .51        .15   1215.61
   18530.0     263.7    18266.3         .0       120.8    1662.7         .0      918.3      243.8   1217.30
       .51       2.18      10.99       .00        .060       .030       .000       .000    1209.05     41.32
   .003778       167.       170.       164.          2          0          0        .00     311.39     352.71


 FLOW DISTRIBUTION FOR SECNO=      10.72          CWSEL=    1218.16

 STA=       41.      113.      353.
   PER Q=       1.4       98.6
    AREA=     120.8    1662.7
     VEL=       2.2       11.0
   DEPTH=       1.7        6.9

 *SECNO 10.803
 3280 CROSS SECTION      10.80 EXTENDED       1.39 FEET

 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
    10.803       7.29   1221.39   1221.39        .00   1223.29       1.89       1.87        .01   1220.00
   18530.0     543.9    17292.2     693.9      244.0     1515.4     348.5      937.2      249.1   1220.00
       .52       2.23      11.41      1.99        .060       .030       .060       .000    1214.10  19575.00
   .005252       420.       423.       430.         20         15          0        .00     764.87  20339.87


 FLOW DISTRIBUTION FOR SECNO=      10.80          CWSEL=    1221.39

 STA=    19575.    19585.    19595.    19750.    20015.    20190.    20340.
   PER Q=       .2        .2       2.6      93.3       2.9        .8
    AREA=     13.9      13.9     216.1    1515.4     244.0     104.5
     VEL=       2.1       2.2       2.2      11.4       2.2       1.4
   DEPTH=       1.4       1.4       1.4       5.7       1.4        .7

 *SECNO 10.933
 3280 CROSS SECTION      10.93 EXTENDED       2.81 FEET

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     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST
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3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.42

    10.933      9.36   1223.33       .00       .00   1223.86       .52       .44       .14   1222.20
   18530.0        .0   18530.0        .0        .0    3187.6        .0     951.8     252.2    1220.53
       .54       .00      5.81       .00      .000      .030      .000      .000   1213.97       .00
   .000900      164.      244.      241.         2         0         0       .00    406.84    406.84

FLOW DISTRIBUTION FOR SECNO=     10.93          CWSEL=   1223.33

STA=       0.     407.
  PER Q=    100.0
   AREA=   3187.6
    VEL=      5.8
  DEPTH=      7.8

*SECNO 10.934
3280 CROSS SECTION     10.93 EXTENDED      2.69 FEET

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1225.50 ELREA=      1220.53

    10.934      7.61   1223.22       .00       .00   1224.06       .85       .11       .10   1225.50
   18530.0        .0   18530.0        .0        .0    2510.8        .0     957.3     252.9    1220.53
       .54       .00      7.38       .00      .000      .030      .000      .000   1215.61      9.07
   .001824       82.       85.       92.         2         0         0       .00    381.37    390.44

FLOW DISTRIBUTION FOR SECNO=     10.93          CWSEL=   1223.22

STA=       9.     390.
  PER Q=    100.0
   AREA=   2510.8
    VEL=      7.4
  DEPTH=      6.6

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*SECNO 10.935
3280 CROSS SECTION     10.94 EXTENDED      1.20 FEET

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1227.10 ELREA=      1222.20

    10.935      7.78   1223.39       .00       .00   1224.39      1.00       .28       .05   1227.10
   18530.0        .0   18530.0        .0        .0    2312.7        .0     965.3     254.2    1222.20
       .54       .00      8.01       .00      .000      .030      .000      .000   1215.61     34.71
   .002134      131.      144.      154.         1         0         0       .00    349.17    383.88

FLOW DISTRIBUTION FOR SECNO=     10.94          CWSEL=   1223.39

STA=      35.     384.
  PER Q=    100.0
   AREA=   2312.7
    VEL=      8.0
  DEPTH=      6.6

*SECNO 10.936

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1225.50 ELREA=      1223.81

    10.936      7.26   1222.87   1222.87       .00   1225.50      2.63       .50       .49   1225.50
   18530.0        .0   18530.0        .0        .0    1423.5        .0     971.2     255.1    1223.81
       .55       .00     13.02       .00      .000      .030      .000      .000   1215.61     31.41
   .007750      131.      137.      154.         4        11         0       .00    274.66    306.07

FLOW DISTRIBUTION FOR SECNO=     10.94          CWSEL=   1222.87

STA=      31.     325.
  PER Q=    100.0
   AREA=   1423.5
    VEL=     13.0
  DEPTH=      5.2
```

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

CCHV= .300 CEHV= .500
*SECNO 10.989

3265 DIVIDED FLOW

3280 CROSS SECTION 10.99 EXTENDED .34 FEET

3370 NORMAL BRIDGE, NRD= 0 MIN ELTRD= 1230.00 MAX ELLC= 1228.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1229.70 ELREA= 1227.98

UNION HILLS DRIVE

10.989	9.44	1225.84	.00	.00	1228.18	2.34	2.59	.09	1229.70
18530.0	.0	18530.0	.0	.0	1509.0	.0	983.6	257.2	1227.98
.55	.00	12.28	.00	.000	.030	.000	.000	1216.40	75.23
.006360	370.	370.	370.	2	0	0	.00	205.16	288.03

FLOW DISTRIBUTION FOR SECNO= 10.99 CWSEL= 1225.84

STA= 75. 295.
PER Q= 100.0
AREA= 1509.0
VEL= 12.3
DEPTH= 7.4

*SECNO 11.004

3265 DIVIDED FLOW

3280 CROSS SECTION 11.00 EXTENDED 1.61 FEET

3301 HV CHANGED MORE THAN HVINS

3370 NORMAL BRIDGE, NRD= 0 MIN ELTRD= 1230.00 MAX ELLC= 1228.00

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1229.70 ELREA= 1227.98

11.004	10.71	1227.11	.00	.00	1228.80	1.69	.43	.19	1229.70
18530.0	.0	18530.0	.0	.0	1774.2	.0	986.8	257.6	1227.98
.56	.00	10.44	.00	.000	.030	.000	.000	1216.40	70.50
.004062	85.	85.	85.	3	0	0	.00	214.24	292.39

FLOW DISTRIBUTION FOR SECNO= 11.00 CWSEL= 1227.11

STA= 71. 295.
PER Q= 100.0
AREA= 1774.2
VEL= 10.4
DEPTH= 8.3

*SECNO 11.005

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.52

3470 ENCROACHMENT STATIONS= .0 309.0 TYPE= 1 TARGET= 308.999

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1229.70 ELREA= 1222.15

11.005	11.33	1227.73	.00	.00	1228.95	1.23	.01	.14	1229.70
18530.0	.0	18341.5	188.5	.0	2051.8	73.5	987.0	257.6	1222.15
.56	.00	8.94	2.57	.000	.030	.060	.000	1216.40	68.02
.001749	5.	5.	5.	3	0	0	.00	240.98	309.00

FLOW DISTRIBUTION FOR SECNO= 11.01 CWSEL= 1227.73

STA= 68. 295. 309.

```
  PER Q=      99.0       1.0
   AREA=    2051.8      73.5
    VEL=       8.9       2.6
  DEPTH=       9.0       5.4

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     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

CCHV=     .100 CEHV=     .300
*SECNO 11.020

3470 ENCROACHMENT STATIONS=          .0     603.7  TYPE=       1  TARGET=      603.699

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       1229.50 ELREA=      1230.30

    11.020     11.80   1227.80       .00        .00   1229.08       1.28       .11        .01   1229.50
   18530.0        .0   18530.0        .0         .0   2041.7           .0     989.9      257.9   1230.30
       .56        .00      9.08       .00        .000     .030        .000       .000  1216.00    367.47
   .001947       60.       60.        60.          2        0           0        .00    236.23    603.70


FLOW DISTRIBUTION FOR SECNO=     11.02          CWSEL=    1227.80

STA=      367.      604.
  PER Q=     100.0
   AREA=    2041.7
    VEL=       9.1
  DEPTH=       8.6

*SECNO 11.045
3280 CROSS SECTION      11.05 EXTENDED       1.32 FEET


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       1229.80 ELREA=      1226.90

    11.045     10.12   1227.92       .00        .00   1229.58       1.67       .39        .12   1229.80
   18530.0        .0   18482.0      48.0         .0   1781.8       43.1     997.5      258.9   1226.90
       .56        .00     10.37       1.11       .000     .030        .060       .000  1217.80     92.74
   .002684      170.      170.       170.          2        0           0        .00    267.56    360.30


FLOW DISTRIBUTION FOR SECNO=     11.05          CWSEL=    1227.92

STA=       93.      308.      360.
  PER Q=      99.7         .3
   AREA=    1781.8      43.1
    VEL=      10.4       1.1
  DEPTH=       8.3         .8

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     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*SECNO 11.129

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.57


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       1230.00 ELREA=      1230.10

         NEW SECTION - LEFT BANK TAKEN FROM ARROWHEAD RANCH
         WASTEWATER TREATMENT PLANT GRADING PLAN-DIBBLE & ASSOC.
    11.129     11.74   1229.54       .00        .00   1230.31        .78       .64        .09   1230.00
   18530.0        .0   18530.0        .0         .0   2619.6           .0    1017.6      261.4   1230.10
       .58        .00      7.07       .00        .000     .030        .000       .000  1217.80      6.96
   .001088      395.      395.       395.          2        0           0        .00    286.94    293.91


FLOW DISTRIBUTION FOR SECNO=     11.13          CWSEL=    1229.54

STA=        7.      331.
  PER Q=     100.0
   AREA=    2619.6
    VEL=       7.1
  DEPTH=       9.1

*SECNO 11.188

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       1232.80 ELREA=      1232.70
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   11.188     12.21   1229.71       .00       .00   1230.87      1.15       .44       .11   1232.80
  17595.0        .0   17595.0        .0        .0    2040.2        .0    1034.7     263.4   1232.70
      .59       .00      8.62       .00      .000      .030      .000      .000   1217.50    771.39
 .001814      320.      320.      320.         2         0         0       .00    243.15   1014.53


FLOW DISTRIBUTION FOR SECNO=     11.19          CWSEL=   1229.71

STA=     771.    1021.
  PER Q=    100.0
   AREA=   2040.2
    VEL=      8.6
  DEPTH=      8.4

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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*SECNO 11.301
3280 CROSS SECTION     11.30 EXTENDED     12.38 FEET

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .68

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1233.30 ELREA=      1233.90

   11.301     10.88   1230.58       .00       .00   1232.69      2.11      1.54       .29   1233.30
  17595.0        .0   17595.0        .0        .0    1509.7        .0    1059.2     266.4   1233.90
      .60       .00     11.65       .00      .000      .030      .000      .000   1219.70     87.54
 .003879      600.      600.      600.         0         0         0       .00    202.09    289.63

FLOW DISTRIBUTION FOR SECNO=     11.30          CWSEL=   1230.58

STA=      88.     298.
  PER Q=    100.0
   AREA=   1509.7
    VEL=     11.7
  DEPTH=      7.5

*SECNO 11.328

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1233.60 ELREA=      1233.40

   11.328     10.23   1231.13       .00       .00   1233.55      2.42       .77       .09   1233.60
  17595.0        .0   17595.0        .0        .0    1408.9        .0    1065.2     267.3   1233.40
      .61       .00     12.49       .00      .000      .030      .000      .000   1220.90     14.27
 .004682      180.      180.      180.         2         0         0       .00    195.87    210.15

FLOW DISTRIBUTION FOR SECNO=     11.33          CWSEL=   1231.13

STA=      14.     214.
  PER Q=    100.0
   AREA=   1408.9
    VEL=     12.5
  DEPTH=      7.2

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   17NOV95      08:48:30                                                                          PAGE  117

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*SECNO 11.386

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1233.00 ELREA=      1238.00

   11.386     10.54   1233.54   1233.54       .00   1235.39      1.85      1.45       .06   1233.00
  17595.0     437.4   17157.6        .0     253.7    1552.6        .0    1075.3     270.4   1238.00
      .61      1.72     11.05       .00      .045      .035      .000      .000   1223.00  19428.20
 .006226      315.      270.      240.         3         8         0       .00    728.21  20156.41

FLOW DISTRIBUTION FOR SECNO=     11.39          CWSEL=   1233.54
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```
STA=   19428.   19890.   19892.   19900.   20175.
  PER Q=      2.4       .0       .0     97.5
   AREA=    248.3      1.1      4.3   1552.6
    VEL=      1.7      1.7      1.7     11.1
  DEPTH=       .5       .5       .5      6.1

*SECNO 11.481

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.08


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1236.00 ELREA=      1240.00

    11.481      8.75   1236.15       .00       .00   1236.32       .17       .76       .17   1236.00
   17595.0   10105.4    7489.6        .0    3209.7    2144.8        .0    1116.5     279.3   1240.00
       .66      3.15      3.49       .00       .045      .035      .000      .000   1227.40  19308.49
   .000654      480.      520.      540.         2         0         0       .00    842.21  20150.70


FLOW DISTRIBUTION FOR SECNO=     11.48          CWSEL=   1236.15

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


STA=   19308.   19320.   19380.   19550.   19710.   19780.   20170.
  PER Q=       .3      7.6     26.9     20.3      2.3     42.6
   AREA=     35.3    428.4   1383.8   1142.4    219.8   2144.8
    VEL=      1.6      3.1      3.4      3.1      1.8      3.5
  DEPTH=      3.1      7.1      8.1      7.1      3.1      5.8

*SECNO 11.566

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .57


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1240.00 ELREA=      1240.00

    11.566      6.73   1236.43       .00       .00   1236.81       .39       .43       .07   1240.00
   17595.0        .0   17595.0        .0        .0    3527.5        .0    1156.7     287.1   1240.00
       .68       .00      4.99       .00       .000      .035      .000      .000   1229.70  19478.91
   .001995      280.      460.      530.         2         0         0       .00    824.40  20303.31


FLOW DISTRIBUTION FOR SECNO=     11.57          CWSEL=   1236.43

STA=   19479.   20310.
  PER Q=    100.0
   AREA=   3527.5
    VEL=      5.0
  DEPTH=      4.3

*SECNO 11.759

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .47


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1244.00 ELREA=      1248.00

    11.759      4.51   1239.51       .00       .00   1240.87      1.36      3.76       .29   1244.00
   17595.0        .0   17595.0        .0        .0    1877.2        .0    1220.0     303.0   1248.00
       .71       .00      9.37       .00       .000      .035      .000      .000   1235.00  19933.43
   .009011     1050.     1020.      980.         5         0         0       .00    527.41  20460.84

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=     11.76          CWSEL=   1239.51

STA=   19933.   20510.
  PER Q=    100.0
   AREA=   1877.2
    VEL=      9.4
  DEPTH=      3.6
```

*SECNO 11.949

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1250.00 ELREA= 1246.00

11.949	5.07	1247.07	.00	.00	1247.92	.85	7.00	.05	1250.00
17595.0	.0	16223.6	1371.4	.0	2119.5	597.9	1272.7	320.9	1246.00
.75	.00	7.65	2.29	.000	.035	.060	.000	1242.00	19945.06
.005590	990.	1000.	1000.	4	0	0	.00	1031.23	24029.76

FLOW DISTRIBUTION FOR SECNO= 11.95 CWSEL= 1247.07

STA=	19945.	20510.	20520.	20530.	20590.	20600.	20677.	23750.	24030.
PER Q=	92.2	.1	.1	.7	.1	.3	.4	6.0	
AREA=	2119.5	10.7	10.7	64.3	10.7	41.0	30.7	429.7	
VEL=	7.7	1.9	1.9	1.9	1.9	1.2	2.4	2.5	
DEPTH=	3.8	1.1	1.1	1.1	1.1	.5	.0	1.5	

*SECNO 12.125

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1258.00 ELREA= 1258.00

12.125	4.56	1252.56	.00	.00	1253.45	.89	5.52	.01	1258.00
17595.0	.0	17595.0	.0	.0	2322.7	.0	1327.0	339.6	1258.00
.78	.00	7.58	.00	.000	.035	.000	.000	1248.00	19925.52
.006271	910.	930.	1000.	4	0	0	.00	685.66	20611.18

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 12.13 CWSEL= 1252.56

STA=	19926.	20680.
PER Q=	100.0	
AREA=	2322.7	
VEL=	7.6	
DEPTH=	3.4	

*SECNO 12.313

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1262.00 ELREA= 1260.00

12.313	6.48	1258.68	.00	.00	1260.07	1.39	6.47	.15	1262.00
16660.0	.0	16660.0	.0	.0	1761.7	.0	1373.4	351.9	1260.00
.81	.00	9.46	.00	.000	.035	.000	.000	1252.20	19838.28
.006834	1010.	990.	980.	2	0	0	.00	397.35	20235.63

FLOW DISTRIBUTION FOR SECNO= 12.31 CWSEL= 1258.68

STA=	19838.	20240.
PER Q=	100.0	
AREA=	1761.7	
VEL=	9.5	
DEPTH=	4.4	

*SECNO 12.511

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.41

12.511	7.23	1264.53	.00	.00	1265.10	.57	4.95	.08	1263.60
16660.0	1271.4	13579.1	1809.5	642.0	2048.9	861.1	1437.1	379.8	1264.00
.86	1.98	6.63	2.10	.060	.035	.060	.000	1257.30	19346.41
.003435	1000.	1056.	1020.	4	0	0	.00	1962.60	21309.01

FLOW DISTRIBUTION FOR SECNO= 12.51 CWSEL= 1264.53

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

```
STA=   19346.   19700.   19810.   20280.   20440.   20995.   21309.
  PER Q=      4.9      2.8     81.5      7.3      3.3       .3
   AREA=    435.4    206.5   2048.9    365.2    412.4     83.6
    VEL=      1.9      2.2      6.6      3.3      1.3       .6
  DEPTH=      1.2      1.9      4.4      2.3       .7       .3

*SECNO 12.701

3265 DIVIDED FLOW


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .70


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1270.00 ELREA=      1268.00

    12.701      4.51   1269.21   1268.53       .00   1269.95       .74      4.80       .05   1270.00
   16660.0        .0   12612.5    4047.5        .0    1635.2    1178.3    1510.8     430.6   1268.00
       .90       .00      7.71      3.44      .000      .035      .060      .000   1264.70  19813.96
   .007095     1030.     1000.     1020.         4        12         0       .00   2392.90  26208.75


FLOW DISTRIBUTION FOR SECNO=     12.70          CWSEL=   1269.21

STA=   19814.   20330.   21090.   21190.   21200.   26070.   26209.
  PER Q=     75.7      9.7      6.8      3.4      4.5       .0
   AREA=   1635.2    414.3    250.8     72.1    433.5      7.5
    VEL=      7.7      3.9      4.5      7.8      1.7       .3
  DEPTH=      3.2       .5      2.5      7.2       .1       .1

*SECNO 12.896

3265 DIVIDED FLOW


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.50

    12.896      5.36   1274.16       .00       .00   1274.62       .46      4.64       .03   1274.00
   16660.0        2.9   12095.9    4561.2      10.7    2036.5    1223.1    1582.2     479.9   1273.00
       .96        .27      5.94      3.73      .060      .035      .060      .000   1268.80  18743.13
   .003137     1010.     1030.     1010.         2         0         0       .00   1844.39  27056.72


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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=     12.90          CWSEL=   1274.16

STA=   18743.   19845.   20360.   21200.   21350.   21365.   21390.   27057.
  PER Q=        .0      72.6       3.4       8.4       3.2       9.9       2.5
   AREA=      10.7    2036.5     319.2     405.8     107.6     254.3     136.2
    VEL=        .3       5.9       1.8       3.5       4.9       6.5       3.0
  DEPTH=        .0       4.0        .4       2.7       7.2      10.2        .0

*SECNO 13.076

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .49


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1278.00 ELREA=      1278.00

    13.076      5.98   1277.98       .00       .00   1279.25      1.27      4.38       .24   1278.00
   13430.0        .0   13430.0        .0        .0    1487.5        .0    1634.5     505.0   1278.00
       .99       .00      9.03       .00      .000      .035      .000      .000   1272.00  19930.06
   .008417     950.      950.      980.         2         0         0       .00    419.86  20349.92


FLOW DISTRIBUTION FOR SECNO=     13.08          CWSEL=   1277.98

STA=   19930.   20350.
  PER Q=    100.0
   AREA=   1487.5
    VEL=      9.0
  DEPTH=      3.5

*SECNO 13.227

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.79


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1281.50 ELREA=      1282.00

    13.227      8.05   1281.95       .00       .00   1282.75       .80      3.46       .05   1281.50
   13430.0       11.3   13418.7        .0      24.2    1866.0        .0    1665.5     512.7   1282.00
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      1.02       .47      7.19       .00      .060      .035      .000      .000   1273.90  19702.22
    .002624      800.      800.      670.         3         0         0       .00    417.27  20119.49


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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

FLOW DISTRIBUTION FOR SECNO=     13.23          CWSEL=   1281.95

STA=   19702.   19810.   20120.
  PER Q=       .1     99.9
   AREA=     24.2   1866.0
    VEL=       .5      7.2
  DEPTH=       .2      6.0

*SECNO 13.420

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1287.50 ELREA=      1290.00

    13.420      5.74   1287.54   1287.54       .00   1287.55       .01       .01       .08   1287.50
   13430.0   13177.1     252.9        .0   18326.0    1137.2        .0    1905.0     524.7   1290.00
      1.41       .72       .22       .00      .060      .035      .000      .000   1281.80  19506.19
    .000004      970.     1020.     1000.        20        16         0       .00    632.25  20138.44


FLOW DISTRIBUTION FOR SECNO=     13.42          CWSEL=   1287.54

STA=   19506.   19560.   19700.   19750.   19870.   20170.
  PER Q=       .0     32.2     40.5     25.4      1.9
   AREA=     41.4   7215.2   5046.9   6022.5   1137.2
    VEL=       .0       .6      1.1       .6       .2
  DEPTH=       .8     51.5    100.9     50.2      4.2

*SECNO 13.619

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
1
   17NOV95      08:48:30                                                                          PAGE  124

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1294.00 ELREA=      1292.00

    13.619      7.00   1292.00   1292.00       .00   1293.01      1.01       .02       .30   1294.00
   13430.0        .0   12408.1    1021.9        .0    1495.5     250.2    2169.1     541.5   1292.00
      1.45       .00      8.30      4.09      .000      .035      .050      .000   1285.00  19895.00
    .010362     1090.     1056.     1020.        20        18         0       .00    748.48  21905.33


FLOW DISTRIBUTION FOR SECNO=     13.62          CWSEL=   1292.00

STA=   19895.   20455.   20520.   21880.   21905.
  PER Q=      92.4      3.1      3.2      1.3
   AREA=    1495.5     90.0    120.1     40.0
    VEL=       8.3      4.6      3.6      4.3
  DEPTH=       2.7      1.4       .1      1.6

*SECNO 13.818

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.68

    13.818      4.81   1298.81       .00       .00   1299.17       .36      6.10       .06   1300.00
   13430.0        .0    8247.4    5182.6        .0    1457.1    1650.3    2227.8     568.9   1298.00
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      1.51       .00      5.66      3.14      .000      .035      .050      .000   1294.00  19892.98
    .003686     1050.     1056.     1050.         5         0         0       .00   1513.75  22385.61


 FLOW DISTRIBUTION FOR SECNO=     13.82          CWSEL=   1298.81

 STA=   19893.   20340.   20630.   20740.   21850.   22050.   22386.
   PER Q=     61.4     14.2      4.0      3.6     15.5      1.3
    AREA=   1457.1    584.6    199.0    145.2    571.8    149.8
     VEL=      5.7      3.3      2.7      3.4      3.6      1.2
   DEPTH=      3.3      2.0      1.8       .1      2.9       .4

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    17NOV95      08:48:30                                                                          PAGE  125

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


 *SECNO 14.013

 3265 DIVIDED FLOW


 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .59

     14.013      5.58   1303.58       .00       .00   1303.95       .37      4.78       .00   1304.00
    10370.0        .0    4981.1    5388.9        .0     829.3    1517.8    2293.2     604.3   1303.00
       1.57       .00      6.01      3.55      .000      .035      .050      .000   1298.00  19920.24
    .006357     1020.     1030.     1055.         4         0         0       .00   1428.94  22499.76


 FLOW DISTRIBUTION FOR SECNO=     14.01          CWSEL=   1303.58

 STA=   19920.   20270.   20625.   20660.   20720.   21561.   22255.   22270.   22350.   22500.
   PER Q=     48.0     16.7      5.1      6.7      6.6      3.9      6.0      6.0      1.0
    AREA=    829.3    546.2    105.3    154.8    340.3     77.9     83.7    156.5     53.1
     VEL=      6.0      3.2      5.0      4.5      2.0      5.2      7.5      4.0      2.0
   DEPTH=      2.4      1.5      3.0      2.6       .4       .1      5.6      2.0       .4

 *SECNO 14.197

 3265 DIVIDED FLOW

     14.197      5.29   1309.29       .00       .00   1309.81       .52      5.81       .05   1308.50
    10370.0     377.1    6498.6    3494.3     162.4     932.5    1156.2    2342.9     635.2   1310.00
       1.62      2.32      6.97      3.02      .050      .035      .050      .000   1304.00  19555.32
    .005908      990.      970.      920.         5         0         0       .00   1452.93  22376.33


 FLOW DISTRIBUTION FOR SECNO=     14.20          CWSEL=   1309.29

 STA=   19555.   19715.   20015.   20745.   21970.   22035.   22376.
   PER Q=      3.6     62.7     11.9      5.8     10.4      5.5
    AREA=    162.4    932.5    460.6    220.2    213.9    261.5
     VEL=      2.3      7.0      2.7      2.7      5.1      2.2
   DEPTH=      1.0      3.1       .6       .2      3.3       .8

 *SECNO 14.379
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    17NOV95      08:48:30                                                                          PAGE  126

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


 3265 DIVIDED FLOW

     14.379      5.34   1315.34       .00       .00   1315.77       .43      5.95       .01   1316.00
    10370.0        .0    5288.1    5081.9        .0     816.3    1448.6    2393.8     667.6   1314.00
       1.67       .00      6.48      3.51      .000      .035      .050      .000   1310.00  19543.29
    .006282      940.      960.     1000.         3         0         0       .00   1400.09  22317.61


 FLOW DISTRIBUTION FOR SECNO=     14.38          CWSEL=   1315.34

 STA=   19543.   20095.   20430.   20820.   20900.   20945.   22150.   22318.
   PER Q=     51.0     12.4      4.8      5.2      7.6     14.5      4.4
    AREA=    816.3    449.7    217.9    147.4    150.4    320.5    162.6
     VEL=      6.5      2.9      2.3      3.7      5.3      4.7      2.8
   DEPTH=      2.7      1.3       .6      1.8      3.3       .3      1.0

 *SECNO 14.559

 3265 DIVIDED FLOW

     14.559      5.25   1320.65       .00       .00   1320.94       .29      5.16       .01   1322.00
    10370.0        .0    8190.0    2180.0        .0    1704.2    1409.7    2451.3     719.3   1320.80
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      1.73       .00      4.81      1.55      .000      .035      .050      .000   1315.40  19221.68
    .004862      950.      950.      915.         4         0         0       .00   3482.71  23754.51


 FLOW DISTRIBUTION FOR SECNO=     14.56          CWSEL=   1320.65

 STA=   19222.   20045.   20875.   21150.   21790.   21840.   22190.   23755.
   PER Q=     79.0      3.8      3.1      5.1      3.8      3.4      1.8
    AREA=   1704.2    334.9    193.4    362.5    110.7    228.6    179.6
     VEL=      4.8      1.2      1.6      1.4      3.6      1.6      1.0
   DEPTH=      2.1       .4       .7       .6      2.2       .7       .1

 *SECNO 14.752

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1326.00 ELREA=      1326.00

     14.752      6.56   1325.36       .00       .00   1326.02       .66      4.96       .11   1326.00
    10370.0        .0   10370.0        .0        .0    1586.5        .0    2506.2     765.4   1326.00
       1.78       .00      6.54       .00      .000      .035      .000      .000   1318.80  19671.62
    .004883      1010.     1020.     1010.         4         0         0       .00    483.80  20155.42


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     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

 FLOW DISTRIBUTION FOR SECNO=     14.75          CWSEL=   1325.36

 STA=   19672.   20170.
   PER Q=    100.0
    AREA=   1586.5
     VEL=      6.5
   DEPTH=      3.3

 *SECNO 14.945

 3265 DIVIDED FLOW

     14.945      7.82   1330.32       .00       .00   1330.86       .55      4.83       .01   1330.00
    7140.0        1.4    4758.7    2379.9       2.4     691.2     732.5    2541.3     783.8   1330.00
       1.83       .59      6.88      3.25      .050      .035      .050      .000   1322.50  19849.93
    .004568      1005.     1020.     1000.         2         0         0       .00   1099.97  22849.76


 FLOW DISTRIBUTION FOR SECNO=     14.94          CWSEL=   1330.32

 STA=   19850.   19865.   20050.   20370.   20400.   22770.   22790.   22800.   22850.
   PER Q=        .0     66.6      6.4      3.4      6.3     12.1      3.1      2.0
    AREA=       2.4    691.2    226.5     69.5    206.9    126.3     43.2     60.0
     VEL=        .6      6.9      2.0      3.5      2.2      6.9      5.1      2.4
   DEPTH=        .2      3.7       .7      2.3       .1      6.3      4.3      1.2

 *SECNO 15.144

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1336.00 ELREA=      1336.00

     15.144      6.24   1335.24       .00       .00   1335.86       .62      4.97       .02   1336.00
    7140.0        .0    7140.0        .0        .0    1134.1        .0    2570.9     799.9   1336.00
       1.87       .00      6.30       .00      .000      .035      .000      .000   1329.00  19604.70
    .005131      900.     1056.      890.         4         0         0       .00    377.45  19982.14


 FLOW DISTRIBUTION FOR SECNO=     15.14          CWSEL=   1335.24

 STA=   19605.   19982.
   PER Q=    100.0
    AREA=   1134.1
     VEL=      6.3
   DEPTH=      3.0

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    17NOV95      08:48:30                                                                          PAGE  128

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

 *SECNO 15.333

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1340.00 ELREA=      1342.00

     15.333      5.09   1340.09       .00       .00   1340.74       .65      4.87       .01   1340.00
    7140.0       14.0    7126.0        .0      35.7    1097.7        .0    2596.9     812.4   1342.00
       1.92       .39      6.49       .00      .050      .035      .000      .000   1335.00  19349.68
    .004629      900.     1000.      890.         3         0         0       .00    745.53  20095.21
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FLOW DISTRIBUTION FOR SECNO= 15.33 CWSEL= 1340.09

STA=	19350.	19770.	20100.
PER Q=	.2	99.8	
AREA=	35.7	1097.7	
VEL=	.4	6.5	
DEPTH=	.1	3.4	

*SECNO 15.519

3265 DIVIDED FLOW

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1348.00 ELREA= 1345.00

15.519	5.03	1345.03	.00	.00	1345.63	.61	4.89	.00	1348.00
7140.0	.0	6773.9	366.1	.0	1059.6	166.8	2623.4	827.3	1345.00
1.96	.00	6.39	2.20	.000	.035	.050	.000	1340.00	19959.91
.005398	940.	980.	960.	3	0	0	.00	606.39	22941.35

FLOW DISTRIBUTION FOR SECNO= 15.52 CWSEL= 1345.03

STA=	19960.	20320.	22560.	22941.
PER Q=	94.9	3.3	1.8	
AREA=	1059.6	103.4	63.3	
VEL=	6.4	2.3	2.1	
DEPTH=	2.9	.0	.2	

*SECNO 15.699

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3265 DIVIDED FLOW

15.699	5.38	1350.38	.00	.00	1350.89	.51	5.24	.01	1354.00
7140.0	.0	4391.5	2748.5	.0	635.5	907.2	2653.2	846.2	1350.00
2.01	.00	6.91	3.03	.000	.035	.050	.000	1345.00	19884.06
.005728	935.	950.	920.	4	0	0	.00	1168.19	23445.94

FLOW DISTRIBUTION FOR SECNO= 15.70 CWSEL= 1350.38

STA=	19884.	20085.	20700.	20760.	20885.	20891.	21790.	21880.	21910.	23445.	23446.
PER Q=	61.5	3.8	3.2	16.7	.2	1.2	12.0	1.2	.1	.0	
AREA=	635.5	231.8	82.6	297.1	7.1	35.3	213.9	35.3	3.9	.2	
VEL=	6.9	1.2	2.8	4.0	2.4	2.5	4.0	2.5	1.2	.7	
DEPTH=	3.2	.4	1.4	2.4	1.2	.0	2.4	1.2	.0	.2	

*SECNO 15.966

3265 DIVIDED FLOW

15.966	4.53	1356.53	.00	.00	1356.65	.12	5.72	.04	1358.00
3995.0	.0	2561.8	1433.2	.0	770.8	881.5	2700.6	887.4	1357.00
2.14	.00	3.32	1.63	.000	.035	.050	.000	1352.00	1988.68
.002799	1450.	1410.	1200.	4	0	0	.00	1711.07	5525.33

FLOW DISTRIBUTION FOR SECNO= 15.97 CWSEL= 1356.53

STA=	1989.	2430.	2560.	2600.	2620.	2670.	4415.	5380.	5381.	5395.	5405.	5495.	5525.
PER Q=	64.1	.1	7.4	6.4	4.0	.2	13.1	.0	2.6	.8	1.2	.1	
AREA=	770.8	3.2	101.1	70.5	76.4	13.6	509.0	1.5	35.4	15.3	47.5	8.0	
VEL=	3.3	.6	2.9	3.6	2.1	.6	1.0	1.2	2.9	2.1	1.0	.6	
DEPTH=	1.8	.0	2.5	3.5	1.5	.0	.5	1.5	2.5	1.5	.5	.3	

*SECNO 16.066

3265 DIVIDED FLOW

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .63

16.066	4.70	1358.70	.00	.00	1358.84	.14	2.18	.00	1360.40
3995.0	.0	598.5	3396.5	.0	172.3	1170.3	2718.1	905.2	1360.00

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      2.19       .00      3.47      2.90      .000      .035      .050      .000   1354.00   1986.48
    .007132      565.      570.      480.         2         0         0       .00   1401.08   5622.85


 FLOW DISTRIBUTION FOR SECNO=     16.07          CWSEL=   1358.70

 STA=    1986.    2350.    2560.    2690.    3730.    5145.    5355.    5365.    5570.    5623.
   PER Q=     15.0     13.2      6.6      6.4      8.9     32.1      7.8      9.4       .6
    AREA=    172.3    156.2    109.6    130.0    191.5    358.0     46.0    160.5     18.6
     VEL=      3.5      3.4      2.4      2.0      1.9      3.6      6.8      2.3      1.3
   DEPTH=      1.0       .7       .8       .1       .1      1.7      4.6       .8       .4

 *SECNO 16.167
     16.167      4.48   1362.48       .00       .00   1362.84       .35      3.94       .06   1364.80
     3995.0        .0    1957.8    2037.2        .0     340.8     568.1    2731.8     917.8   1362.00
       2.22       .00      5.75      3.59      .000      .035      .050      .000   1358.00   1952.41
    .007738      530.      530.      530.         4         0         0       .00    670.01   2622.42


 FLOW DISTRIBUTION FOR SECNO=     16.17          CWSEL=   1362.48

 STA=    1952.    2130.    2170.    2250.    2370.    2550.    2590.    2600.    2610.    2620.    2622.
   PER Q=     49.0       .8      1.6      2.3     22.8     11.9      5.2      5.2      1.2       .0
    AREA=    340.8     19.4     38.8     58.2    267.2     99.4     34.8     34.8     14.8       .6
     VEL=      5.7      1.6      1.6      1.6      3.4      4.8      5.9      5.9      3.4      1.0
   DEPTH=      1.9       .5       .5       .5      1.5      2.5      3.5      3.5      1.5       .2

 *SECNO 16.248

 3265 DIVIDED FLOW


 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.90

     16.248      7.46   1363.56       .00       .00   1363.61       .05       .74       .03   1367.00
     3995.0        .0     245.5    3749.5        .0     142.2    2163.0    2744.9     925.6   1364.00
       2.28       .00      1.73      1.73      .000      .035      .050      .000   1356.10   1935.31
    .000918      450.      430.      340.         4         0         0       .00   1261.13   5450.71


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    17NOV95      08:48:30                                                                          PAGE  131

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


 FLOW DISTRIBUTION FOR SECNO=     16.25          CWSEL=   1363.56

 STA=    1935.    2030.    2240.    2250.    2289.    4765.    5045.    5055.    5095.    5105.    5115.    5328.    5451.
   PER Q=      6.1       .1       .5       .6      6.4     30.3      2.8     20.5      5.1      2.8     23.0      1.8
    AREA=    142.2      6.1     15.6     30.5    334.2    717.7     45.6    260.5     65.1     45.6    546.0     95.9
     VEL=      1.7       .8      1.2       .8       .8      1.7      2.4      3.1      3.1      2.4      1.7       .8
   DEPTH=      1.6       .0      1.6       .8       .1      2.6      4.6      6.5      6.5      4.6      2.6       .8

 *SECNO 16.328

 3265 DIVIDED FLOW


 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .61

     16.328      6.39   1363.89       .00       .00   1363.99       .10       .36       .02   1366.00
     3995.0        .0       75.7    3919.3        .0      54.0    1514.5    2756.3     932.2   1367.40
       2.31       .00      1.40      2.59      .000      .035      .050      .000   1357.50   1945.71
    .002461      440.      410.      250.         3         0         0       .00    911.73   5331.75


 FLOW DISTRIBUTION FOR SECNO=     16.33          CWSEL=   1363.89

 STA=    1946.    2240.    4760.    4885.    4910.    4920.    4925.    4937.    4947.    5050.    5278.    5332.
   PER Q=      1.9      8.0     13.3      5.4      5.1      3.8      9.1      5.1     22.2     24.2      1.8
    AREA=     54.0    226.7    235.7     72.1     48.9     30.7     73.6     48.9    297.2    430.0     50.7
     VEL=      1.4      1.4      2.3      3.0      4.2      4.9      4.9      4.2      3.0      2.3      1.4
   DEPTH=       .5       .1      1.9      2.9      4.9      6.1      6.1      4.9      2.9      1.9       .9

 *SECNO 16.411

 3301 HV CHANGED MORE THAN HVINS

 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1369.20 ELREA=      1370.00

     16.411      4.45   1368.75   1368.75       .00   1370.13      1.38      1.91       .38   1369.20
     3995.0        .0    3995.0        .0        .0     424.0        .0    2764.9     936.8   1370.00
       2.32       .00      9.42       .00      .000      .035      .000      .000   1364.30   1898.10
    .012943      510.      450.      350.        20        18         0       .00    154.71   2052.81
```

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 16.41 CWSEL= 1368.75

STA=	1898.	2055.
PER Q=	100.0	
AREA=	424.0	
VEL=	9.4	
DEPTH=	2.7	

*SECNO 16.504

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.69

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1370.00 ELREA= 1372.00

16.504	7.80	1371.80	.00	.00	1372.10	.30	1.86	.11	1370.00
3995.0	319.4	3675.6	.0	177.9	807.3	.0	2772.7	939.3	1372.00
2.35	1.80	4.55	.00	.050	.035	.000	.000	1364.00	1625.51
.001795	460.	490.	300.	5	0	0	.00	307.40	2034.43

FLOW DISTRIBUTION FOR SECNO= 16.50 CWSEL= 1371.80

STA=	1626.	1630.	1665.	1669.	1780.	1835.	2035.
PER Q=	.1	2.9	.1	.2	4.6	92.0	
AREA=	4.0	62.9	4.0	8.1	98.9	807.3	
VEL=	1.1	1.9	1.1	1.2	1.9	4.6	
DEPTH=	.9	1.8	.9	.1	1.8	4.0	

*SECNO 16.608

3301 HV CHANGED MORE THAN HVINS

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .52

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1376.50 ELREA= 1374.20

16.608	5.26	1373.06	.00	.00	1373.90	.84	1.64	.16	1376.50
3995.0	.0	3995.0	.0	.0	543.0	.0	2782.0	942.2	1374.20
2.37	.00	7.36	.00	.000	.035	.000	.000	1367.80	1927.35
.006568	485.	530.	450.	3	0	0	.00	172.28	2099.63

FLOW DISTRIBUTION FOR SECNO= 16.61 CWSEL= 1373.06

STA=	1927.	2110.
PER Q=	100.0	
AREA=	543.0	
VEL=	7.4	
DEPTH=	3.2	

*SECNO 16.732

3265 DIVIDED FLOW

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1380.00 ELREA= 1378.00

16.732	3.15	1378.15	1378.09	.00	1378.69	.54	4.76	.03	1380.00
3995.0	.0	2574.3	1420.7	.0	374.1	419.4	2791.2	947.6	1378.00
2.40	.00	6.88	3.39	.000	.035	.050	.000	1375.00	1954.62
.008545	640.	685.	420.	19	22	0	.00	739.57	2910.75

FLOW DISTRIBUTION FOR SECNO= 16.73 CWSEL= 1378.15

STA= 1955. 2115. 2470. 2490. 2620. 2880. 2890. 2911.

PER Q=	64.4	8.7	3.3	14.2	4.1	3.4	1.7
AREA=	374.1	118.0	33.0	139.6	79.2	26.5	23.1
VEL=	6.9	3.0	4.0	4.1	2.1	5.2	3.0
DEPTH=	2.3	.3	1.7	1.1	.3	2.7	1.1

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 16.818

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.53

16.818	5.50	1381.20	.00	.00	1381.68	.48	2.99	.01	1382.00
3995.0	.0	2642.1	1352.9	.0	412.4	400.8	2802.4	955.6	1380.40
2.43	.00	6.41	3.38	.000	.035	.050	.000	1375.70	1941.11
.003668	430.	455.	750.	1	0	0	.00	298.54	2239.64

FLOW DISTRIBUTION FOR SECNO= 16.82 CWSEL= 1381.20

STA=	1941.	2045.	2097.	2105.	2190.	2210.	2240.
PER Q=	66.1	2.3	1.3	26.4	3.3	.6	
AREA=	412.4	51.3	17.5	270.8	43.7	17.6	
VEL=	6.4	1.8	3.0	3.9	3.0	1.3	
DEPTH=	4.0	1.0	2.2	3.2	2.2	.6	

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THIS RUN EXECUTED 17NOV95 08:48:40

****
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

Union Hills Bridge

SUMMARY PRINTOUT

	SECNO	Q	SSTA	STCHL	VLOB	VCH	VROB	STCHR	ENDST	TOPWID	CWSEL	DIFWSP
	8.655	41000.00	9587.04	9581.40	.00	5.01	.00	10224.30	10221.10	634.06	1170.50	.00
	8.655	41000.00	9587.04	9581.40	.00	5.01	.00	10224.30	10221.10	634.06	1170.50	.00
	8.655	69700.00	9587.04	9581.40	.00	8.52	.00	10224.30	10221.10	634.06	1170.50	.00
*	8.731	12000.00	9779.38	9762.50	.00	2.33	.00	10213.50	10208.22	428.84	1170.96	.00
*	8.731	19000.00	9779.93	9762.50	.00	3.72	.00	10213.50	10207.76	427.83	1170.85	-.11
*	8.731	20400.00	9774.92	9762.50	.00	3.69	.00	10213.50	10211.94	437.02	1171.83	.98
	8.807	12000.00	9785.25	9771.30	.00	2.67	.00	10219.20	10202.70	417.45	1170.99	.00
	8.807	19000.00	9785.44	9771.30	.00	4.24	.00	10219.20	10202.41	416.96	1170.94	-.05
	8.807	20400.00	9781.79	9771.30	.00	4.18	.00	10219.20	10207.92	426.14	1171.91	.97
*	8.883	12000.00	9850.57	9824.70	.00	4.70	.00	10216.90	10189.15	338.58	1170.96	.00
*	8.883	19000.00	9851.30	9824.70	.00	7.55	.00	10216.90	10188.76	337.46	1170.85	-.11
*	8.883	20400.00	9844.87	9824.70	.00	7.16	.00	10216.90	10192.64	347.77	1171.83	.98
	8.936	12000.00	9821.91	9809.40	.00	5.09	.00	10213.20	10181.98	360.07	1171.20	.00
	8.936	19000.00	9821.60	9809.40	.00	7.69	.00	10213.20	10183.17	361.58	1171.51	.31
	8.936	20400.00	9820.75	9809.40	.00	7.36	.00	10213.20	10186.38	365.64	1172.34	.83
	8.977	12000.00	9895.40	9886.10	.00	6.84	.00	10212.70	10178.07	282.68	1171.31	.00
	8.977	19000.00	9894.70	9886.10	.00	10.11	.00	10212.70	10180.27	285.57	1171.75	.44
	8.977	20400.00	9893.58	9886.10	.00	9.78	.00	10212.70	10183.84	290.26	1172.47	.71
*	9.009	12000.00	9797.15	9764.50	.00	4.63	.00	10207.00	10166.79	369.65	1171.99	.00
*	9.009	19000.00	9790.86	9764.50	.00	6.21	.00	10207.00	10168.77	377.91	1173.24	1.25
*	9.009	20400.00	9788.08	9764.50	.00	6.23	.00	10207.00	10169.65	381.57	1173.80	.56
	9.047	12000.00	9712.28	9689.80	.00	3.71	.00	10113.80	10103.66	391.38	1172.25	.00
	9.047	19000.00	9706.22	9689.80	.00	5.00	.00	10113.80	10106.34	400.12	1173.66	1.42
	9.047	20400.00	9703.91	9689.80	.00	5.08	.00	10113.80	10107.36	403.45	1174.20	.54

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	SECNO	Q	SSTA	STCHL	VLOB	VCH	VROB	STCHR	ENDST	TOPWID	CWSEL	DIFWSP

*	9.129	12000.00	9674.75	9641.20	.00	4.88	.00	10090.00	10080.74	405.98	1172.43	.00
*	9.129	19000.00	9665.63	9641.20	.00	6.17	.00	10090.00	10082.96	417.32	1173.93	1.50
	9.129	20400.00	9664.97	9641.20	.00	6.19	.00	10090.00	10083.73	418.76	1174.46	.53
*	9.318	12000.00	19695.41	19660.00	.00	6.59	1.70	20015.00	23740.00	1824.29	1181.50	.00
*	9.318	19000.00	19693.99	19660.00	.00	12.55	.00	20015.00	20015.00	321.00	1181.84	.34
*	9.318	20400.00	19693.74	19660.00	.00	9.45	2.59	20015.00	23740.00	2115.97	1181.90	.06
*	9.492	11450.00	19912.16	19770.00	.00	9.81	.00	20235.00	20200.77	288.61	1185.42	.00
*	9.492	17250.00	19770.00	19770.00	.00	7.23	.00	20235.00	20214.01	444.01	1188.70	3.28
	9.492	19465.00	19791.31	19770.00	.00	10.04	.00	20235.00	20209.89	418.58	1187.69	-1.01
	9.692	11450.00	19852.36	19840.00	.00	9.94	.00	20060.00	20047.27	194.91	1192.22	.00
*	9.692	17250.00	19850.95	19840.00	.00	14.20	.00	20060.00	20048.32	197.37	1192.54	.31
	9.692	19465.00	19843.75	19840.00	.00	12.61	.00	20060.00	20053.62	209.87	1194.16	1.62
	9.889	11450.00	19860.24	19840.00	.00	8.30	.00	20080.00	20070.93	210.69	1196.98	.00
*	9.889	17250.00	19841.51	19840.00	.00	8.65	.00	20080.00	20079.09	237.58	1199.69	2.72
*	9.889	19465.00	19840.75	19840.00	.00	9.59	.00	20080.00	20079.55	238.80	1199.85	.16
	9.953	11450.00	19795.05	19790.00	.00	8.06	.00	20032.00	20026.45	231.40	1197.97	.00
	9.953	17250.00	19790.00	19790.00	.00	8.64	.00	20032.00	20030.41	240.41	1200.41	2.44
*	9.953	19465.00	15216.64	19790.00	.88	7.11	.00	20032.00	20031.43	4021.36	1201.43	1.02
	9.967	11450.00	19839.52	19825.00	.00	8.21	.00	20110.00	20080.96	241.44	1198.19	.00
	9.967	17250.00	19833.39	19825.00	.00	8.59	.00	20110.00	20093.21	259.81	1200.64	2.45
	9.967	19465.00	19831.22	19825.00	.00	8.70	.00	20110.00	20097.56	266.34	1201.51	.87
*	10.096	11450.00	19639.38	19635.00	.00	8.33	.00	20055.00	20041.40	402.03	1200.56	.00
	10.096	17250.00	19635.00	19635.00	.00	8.21	.00	20055.00	20045.85	410.85	1202.34	1.78
	10.096	19465.00	15057.69	19635.00	1.61	7.99	.00	20055.00	20047.73	613.54	1203.09	.75
	10.271	10900.00	19863.81	19820.00	.00	7.01	.00	20320.00	20301.58	437.77	1205.06	.00
	10.271	15500.00	19860.09	19820.00	.00	8.45	.00	20320.00	20305.53	445.44	1205.69	.63
*	10.271	18530.00	19858.43	19820.00	.00	9.45	.00	20320.00	20307.29	448.86	1205.97	.28
*	10.443	10900.00	19742.09	19655.00	.00	9.85	.00	20110.00	20108.96	366.87	1209.58	.00
	10.443	15500.00	19668.44	19655.00	.00	10.10	.00	20110.00	20110.00	441.56	1210.62	1.04
*	10.443	18530.00	19669.77	19655.00	.00	2.57	1.30	20110.00	27197.85	4954.19	1210.09	-.53
*	10.612	10900.00	19972.01	19955.00	.00	7.97	.00	20300.00	20297.66	325.65	1215.19	.00
	10.612	15500.00	19970.04	19955.00	.00	9.53	.00	20300.00	20298.32	328.28	1215.98	.79
*	10.612	18530.00	19970.92	19955.00	.00	12.26	.00	20300.00	20298.03	327.11	1215.63	-.35
*	10.659	10900.00	41.67	29.90	.00	6.20	.00	314.98	314.98	273.31	1216.14	.00
*	10.659	15500.00	39.65	29.90	.00	7.59	.00	314.98	314.98	275.33	1217.18	1.04
*	10.659	18530.00	38.38	29.90	.00	8.34	.00	314.98	314.98	276.60	1217.84	.65
	10.691	10900.00	61.49	37.73	.00	7.07	.00	324.82	322.82	261.33	1216.29	.00
	10.691	15500.00	59.20	37.73	.00	8.50	.00	324.82	324.82	265.62	1217.35	1.06
	10.691	18530.00	57.76	37.73	.00	9.26	.00	324.82	324.82	267.06	1218.01	.66

	SECNO	Q	SSTA	STCHL	VLOB	VCH	VROB	STCHR	ENDST	TOPWID	CWSEL	DIFWSP
	10.723	10900.00	78.45	113.19	.80	8.71	.00	352.71	350.58	272.14	1216.44	.00
	10.723	15500.00	43.47	113.19	1.58	10.23	.00	352.71	352.71	309.24	1217.50	1.06
	10.723	18530.00	41.32	113.19	2.18	10.99	.00	352.71	352.71	311.39	1218.16	.66
*	10.803	10900.00	19751.55	19750.00	.00	11.09	.00	20015.00	20014.23	262.68	1219.38	.00
*	10.803	15500.00	19750.00	19750.00	.00	12.43	.00	20015.00	20015.00	265.00	1220.38	1.00
*	10.803	18530.00	19575.00	19750.00	2.23	11.41	1.99	20015.00	20339.87	764.87	1221.39	1.01
*	10.933	10900.00	2.50	.00	.00	4.41	.00	406.84	406.84	404.34	1221.57	.00
*	10.933	15500.00	.00	.00	.00	5.08	.00	406.84	406.84	406.84	1223.00	1.43
*	10.933	18530.00	.00	.00	.00	5.81	.00	406.84	406.84	406.84	1223.33	.33
*	10.934	10900.00	15.89	.00	.00	5.85	.00	390.44	390.44	374.55	1221.50	.00
	10.934	15500.00	10.28	.00	.00	6.47	.00	390.44	390.44	380.16	1222.91	1.41
	10.934	18530.00	9.07	.00	.00	7.38	.00	390.44	390.44	381.37	1223.22	.30
	10.935	10900.00	40.09	.00	.00	6.35	.00	383.88	376.73	336.63	1221.69	.00
	10.935	15500.00	35.77	.00	.00	7.06	.00	383.88	383.88	348.11	1223.06	1.37
	10.935	18530.00	34.71	.00	.00	8.01	.00	383.88	383.88	349.17	1223.39	.34
*	10.936	10900.00	43.38	.00	.00	10.58	.00	324.82	290.38	247.01	1221.35	.00
*	10.936	15500.00	32.02	.00	.00	11.56	.00	324.82	299.95	267.93	1222.56	1.21
*	10.936	18530.00	31.41	.00	.00	13.02	.00	324.82	306.07	274.66	1222.87	.31
	10.989	10900.00	82.50	57.46	.00	9.73	.00	295.40	281.27	191.12	1223.87	.00
	10.989	15500.00	78.65	57.46	.00	11.72	.00	295.40	284.85	198.56	1224.91	1.04
	10.989	18530.00	75.23	57.46	.00	12.28	.00	295.40	288.03	205.16	1225.84	.93
	11.004	10900.00	79.56	57.46	.00	8.56	.00	295.40	284.00	196.79	1224.66	.00
	11.004	15500.00	74.13	57.46	.00	9.87	.00	295.40	289.05	207.27	1226.14	1.48
	11.004	18530.00	70.50	57.46	.00	10.44	.00	295.40	292.39	214.24	1227.11	.97
*	11.005	10900.00	78.13	57.46	.00	7.43	1.82	295.40	309.00	230.87	1225.05	.00
*	11.005	15500.00	72.07	57.46	.00	8.44	2.34	295.40	309.00	236.93	1226.69	1.65
*	11.005	18530.00	68.02	57.46	.00	8.94	2.57	295.40	309.00	240.98	1227.73	1.03
	11.020	10900.00	375.64	362.30	.00	7.68	.00	603.70	602.65	227.01	1225.12	.00

	11.020	15500.00	370.61	362.30	.00	8.61	.00	603.70	603.70	233.08	1226.77	1.65
	11.020	18530.00	367.47	362.30	.00	9.08	.00	603.70	603.70	236.23	1227.80	1.03
	11.045	10900.00	97.05	89.60	.00	8.81	.00	307.60	302.26	205.21	1225.34	.00
	11.045	15500.00	94.41	89.60	.00	9.88	.01	307.60	310.40	215.99	1226.92	1.58
	11.045	18530.00	92.74	89.60	.00	10.37	1.11	307.60	360.30	267.56	1227.92	1.00
*	11.129	10900.00	15.25	5.60	.00	5.93	.00	330.90	288.05	272.79	1226.75	.00
*	11.129	15500.00	10.07	5.60	.00	6.67	.00	330.90	291.71	281.64	1228.49	1.74
*	11.129	18530.00	6.96	5.60	.00	7.07	.00	330.90	293.91	286.94	1229.54	1.04
	11.188	10350.00	779.98	761.60	.00	7.38	.00	1020.90	1004.94	224.97	1227.01	.00
	11.188	13750.00	774.38	761.60	.00	7.58	.00	1020.90	1012.52	238.14	1228.77	1.76
	11.188	17595.00	771.39	761.60	.00	8.62	.00	1020.90	1014.53	243.15	1229.71	.94

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	SECNO	Q	SSTA	STCHL	VLOB	VCH	VROB	STCHR	ENDST	TOPWID	CWSEL	DIFWSP
*	11.301	10350.00	95.10	72.70	.00	9.93	.00	297.90	283.67	188.57	1228.19	.00
*	11.301	13750.00	90.71	72.70	.00	10.50	.00	297.90	287.13	196.42	1229.58	1.39
*	11.301	17595.00	87.54	72.70	.00	11.65	.00	297.90	289.63	202.09	1230.58	1.00
	11.328	10350.00	22.18	5.60	.00	10.56	.00	214.40	205.92	183.74	1228.87	.00
	11.328	13750.00	17.81	5.60	.00	11.33	.00	214.40	208.26	190.45	1230.12	1.25
	11.328	17595.00	14.27	5.60	.00	12.49	.00	214.40	210.15	195.87	1231.13	1.01
*	11.386	10350.00	19902.09	19900.00	.00	11.46	.00	20175.00	20130.91	228.81	1230.91	.00
*	11.386	13750.00	19901.18	19900.00	.00	12.28	.00	20175.00	20146.89	245.71	1231.82	.91
*	11.386	17595.00	19428.20	19900.00	1.72	11.05	.00	20175.00	20156.41	728.21	1233.54	1.72
*	11.481	10350.00	19783.39	19780.00	.00	6.01	.00	20170.00	20144.92	361.54	1234.98	.00
*	11.481	13750.00	19780.02	19780.00	.00	6.58	.00	20170.00	20149.96	369.94	1235.99	1.01
*	11.481	17595.00	19308.49	19780.00	3.15	3.49	.00	20170.00	20150.70	842.21	1236.15	.16
*	11.566	10350.00	19479.79	19470.00	.00	3.19	.00	20310.00	20302.66	822.87	1236.08	.00
*	11.566	13750.00	19477.24	19470.00	.00	3.37	.00	20310.00	20304.57	827.34	1237.10	1.02
*	11.566	17595.00	19478.91	19470.00	.00	4.99	.00	20310.00	20303.31	824.40	1236.43	-.68
*	11.759	10350.00	19935.85	19925.00	.00	8.63	.00	20510.00	20458.69	522.84	1238.21	.00
*	11.759	13750.00	19934.96	19925.00	.00	9.51	.00	20510.00	20459.48	524.51	1238.69	.47
*	11.759	17595.00	19933.43	19925.00	.00	9.37	.00	20510.00	20460.84	527.41	1239.51	.82
*	11.949	10350.00	19967.99	19865.00	.00	6.01	1.69	20510.00	23952.42	864.78	1246.22	.00
*	11.949	13750.00	19950.71	19865.00	.00	6.87	.00	20510.00	20510.00	559.29	1246.86	.64
	11.949	17595.00	19945.06	19865.00	.00	7.65	2.29	20510.00	24029.76	1031.23	1247.07	.21
	12.125	10350.00	19927.44	19890.00	.00	6.53	.00	20680.00	20590.63	663.20	1251.46	.00
	12.125	13750.00	19926.45	19890.00	.00	7.00	.00	20680.00	20600.61	674.16	1252.03	.56
	12.125	17595.00	19925.52	19890.00	.00	7.58	.00	20680.00	20611.18	685.66	1252.56	.53
	12.313	9800.00	19858.45	19830.00	.00	7.31	.00	20240.00	20232.04	373.59	1257.60	.00
	12.313	12000.00	19839.89	19830.00	.00	7.96	.00	20240.00	20233.48	393.59	1258.04	.44
	12.313	16660.00	19838.28	19830.00	.00	9.46	.00	20240.00	20235.63	397.35	1258.68	.64
	12.511	9800.00	19818.02	19810.00	.00	6.93	.00	20280.00	20276.53	389.97	1263.08	.00
	12.511	12000.00	19810.00	19810.00	.00	7.15	.00	20280.00	20278.96	427.47	1263.72	.65
*	12.511	16660.00	19346.41	19810.00	1.98	6.63	2.10	20280.00	21309.01	1962.60	1264.53	.81
	12.701	9800.00	19816.09	19810.00	.00	6.90	1.09	20330.00	20413.00	596.90	1268.78	.00
	12.701	12000.00	19814.13	19810.00	.00	7.42	.00	20330.00	20330.00	515.87	1269.17	.39
*	12.701	16660.00	19813.96	19810.00	.00	7.71	3.44	20330.00	26208.75	2392.90	1269.21	.04
*	12.896	9800.00	19845.77	19845.00	.00	5.47	.69	20360.00	20401.51	555.74	1273.69	.00
*	12.896	12000.00	19845.00	19845.00	.00	5.96	.00	20360.00	20360.00	515.00	1274.12	.43
*	12.896	16660.00	18743.13	19845.00	.27	5.94	3.73	20360.00	27056.72	1844.39	1274.16	.04
*	13.076	7900.00	19931.64	19930.00	.00	6.46	.00	20350.00	20347.54	415.91	1277.34	.00
*	13.076	7900.00	19931.11	19930.00	.00	6.03	.00	20350.00	20348.33	417.22	1277.55	.22
*	13.076	13430.00	19930.06	19930.00	.00	9.03	.00	20350.00	20349.92	419.86	1277.98	.43

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	SECNO	Q	SSTA	STCHL	VLOB	VCH	VROB	STCHR	ENDST	TOPWID	CWSEL	DIFWSP
*	13.227	7900.00	19818.08	19810.00	.00	5.84	.00	20120.00	20102.30	284.21	1280.23	.00
	13.227	7900.00	19818.54	19810.00	.00	5.92	.00	20120.00	20101.58	283.04	1280.16	-.07
*	13.227	13430.00	19702.22	19810.00	.47	7.19	.00	20120.00	20119.49	417.27	1281.95	1.79
*	13.420	7900.00	19874.30	19870.00	.00	10.45	.00	20170.00	20099.97	225.67	1285.99	.00
*	13.420	7900.00	19874.29	19870.00	.00	10.43	.00	20170.00	20100.00	225.71	1286.00	.01
*	13.420	13430.00	19506.19	19870.00	.72	.22	.00	20170.00	20138.44	632.25	1287.54	1.54
*	13.619	7900.00	19893.97	19870.00	.00	4.40	2.35	20455.00	20532.06	636.91	1292.41	.00
*	13.619	7900.00	19893.84	19870.00	.00	4.50	.00	20455.00	20455.00	561.15	1292.47	.06
*	13.619	13430.00	19895.00	19870.00	.00	8.30	4.09	20455.00	21905.33	748.48	1292.00	-.47
*	13.818	7900.00	19916.12	19890.00	.00	7.82	4.04	20340.00	20709.03	677.98	1297.44	.00
*	13.818	7900.00	19908.40	19890.00	.00	8.41	.00	20340.00	20338.66	430.26	1297.64	.21
*	13.818	13430.00	19892.98	19890.00	.00	5.66	3.14	20340.00	22385.61	1513.75	1298.81	1.17

*	14.013	6100.00	19918.26	19915.00	.00	3.90	2.05	20270.00	21600.47	1285.90	1303.74	.00
*	14.013	9539.00	19915.00	19915.00	.00	6.93	.00	20270.00	20270.00	355.00	1305.13	1.38
*	14.013	10370.00	19920.24	19915.00	.00	6.01	3.55	20270.00	22499.76	1428.94	1303.58	-1.54
*	14.197	6100.00	19559.21	19715.00	1.63	6.88	2.10	20015.00	20830.77	840.79	1308.77	.00
	14.197	9539.00	19715.00	19715.00	.00	8.27	.00	20015.00	20015.00	300.00	1310.03	1.26
	14.197	10370.00	19555.32	19715.00	2.32	6.97	3.02	20015.00	22376.33	1452.93	1309.29	-.74
	14.379	6100.00	19544.76	19540.00	.00	5.52	2.68	20095.00	21035.65	1010.64	1315.05	.00
	14.379	9539.00	19540.00	19540.00	.00	5.85	4.25	20095.00	20250.00	710.00	1316.58	1.53
	14.379	10370.00	19543.29	19540.00	.00	6.48	3.51	20095.00	22317.61	1400.09	1315.34	-1.23
	14.559	6100.00	19222.21	19220.00	.00	4.48	.00	20045.00	20037.92	815.71	1320.23	.00
	14.559	9539.00	19221.18	19220.00	.00	4.68	.00	20045.00	20045.00	823.82	1321.07	.84
	14.559	10370.00	19221.68	19220.00	.00	4.81	1.55	20045.00	23754.51	3482.71	1320.65	-.41
	14.752	6100.00	19673.36	19670.00	.00	4.85	.00	20170.00	20139.81	466.45	1324.66	.00
	14.752	9539.00	19672.08	19670.00	.00	6.37	.00	20170.00	20151.29	479.21	1325.17	.51
	14.752	10370.00	19671.62	19670.00	.00	6.54	.00	20170.00	20155.42	483.80	1325.36	.19
*	14.945	4200.00	19901.60	19865.00	.00	8.57	2.20	20050.00	20410.24	247.75	1329.02	.00
*	14.945	4746.00	19865.00	19865.00	.00	7.14	.00	20050.00	20050.00	185.00	1330.17	1.15
	14.945	7140.00	19849.93	19865.00	.59	6.88	3.25	20050.00	22849.76	1099.97	1330.32	.14
*	15.144	4200.00	19605.97	19602.45	.00	4.32	.00	19982.48	19981.95	375.98	1334.82	.00
*	15.144	4746.00	19955.00	19602.45	.00	10.68	4.35	19982.48	20382.00	427.00	1338.25	3.43
	15.144	7140.00	19604.70	19602.45	.00	6.30	.00	19982.48	19982.14	377.45	1335.24	-3.01
*	15.333	4200.00	19781.38	19770.00	.00	5.93	.00	20100.00	20092.16	310.78	1338.85	.00
*	15.333	4746.00	19770.00	19770.00	.00	3.41	.00	20100.00	20097.47	327.47	1341.00	2.14
	15.333	7140.00	19349.68	19770.00	.39	6.49	.00	20100.00	20095.21	745.53	1340.09	-.91
	15.519	4200.00	19962.68	19950.00	.00	5.35	.00	20320.00	20263.75	301.07	1344.20	.00
*	15.519	4746.00	19965.10	19950.00	.00	8.24	.00	20320.00	20246.69	281.59	1343.47	-.73
	15.519	7140.00	19959.91	19950.00	.00	6.39	2.20	20320.00	22941.35	606.39	1345.03	1.56

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	SECNO	Q	SSTA	STCHL	VLOB	VCH	VROB	STCHR	ENDST	TOPWID	CWSEL	DIFWSP
	15.699	4200.00	19899.13	19870.00	.00	7.15	3.36	20085.00	20888.91	359.55	1349.57	.00
*	15.699	4746.00	19882.94	19870.00	.00	6.54	.00	20085.00	20085.00	202.06	1350.82	1.25
	15.699	7140.00	19884.06	19870.00	.00	6.91	3.03	20085.00	23445.94	1168.19	1350.38	-.44
	15.966	2350.00	1989.23	1985.00	.00	2.69	2.35	2430.00	2670.77	537.86	1356.31	.00
*	15.966	2350.00	1988.82	1985.00	.00	3.14	.00	2430.00	2414.22	425.40	1356.47	.16
	15.966	3995.00	1988.68	1985.00	.00	3.32	1.63	2430.00	5525.33	1711.07	1356.53	.05
*	16.066	2350.00	1986.60	1970.00	.00	6.00	5.12	2350.00	2696.80	420.04	1358.68	.00
*	16.066	2350.00	1982.51	1970.00	.00	6.78	.00	2350.00	2332.40	259.72	1359.50	.81
*	16.066	3995.00	1986.48	1970.00	.00	3.47	2.90	2350.00	5622.85	1401.08	1358.70	-.80
*	16.167	2350.00	1952.47	1950.00	.00	3.50	2.20	2130.00	2622.15	669.68	1362.42	.00
*	16.167	2350.00	1951.62	1950.00	.00	4.58	1.92	2130.00	2200.00	248.38	1363.25	.82
	16.167	3995.00	1952.41	1950.00	.00	5.75	3.59	2130.00	2622.42	670.01	1362.48	-.76
*	16.248	2350.00	1932.67	1925.00	.00	6.86	2.31	2030.00	2633.33	700.66	1364.44	.00
*	16.248	2350.00	1931.21	1925.00	.00	8.59	.00	2030.00	2030.00	98.79	1364.93	.49
*	16.248	3995.00	1935.31	1925.00	.00	1.73	1.73	2030.00	5450.71	1261.13	1363.56	-1.37
*	16.328	2350.00	1873.19	1915.00	.66	3.67	2.27	2240.00	2471.46	482.32	1366.52	.00
*	16.328	2350.00	1915.00	1915.00	.00	2.99	.00	2240.00	2236.79	321.79	1367.35	.83
*	16.328	3995.00	1945.71	1915.00	.00	1.40	2.59	2240.00	5331.75	911.73	1363.89	-3.46
*	16.411	2350.00	1915.48	1885.00	.00	6.97	.00	2055.00	2051.77	136.29	1368.15	.00
*	16.411	2350.00	1912.68	1885.00	.00	6.71	.00	2055.00	2051.94	139.26	1368.25	.10
*	16.411	3995.00	1898.10	1885.00	.00	9.42	.00	2055.00	2052.81	154.71	1368.75	.51
*	16.504	2350.00	1628.55	1835.00	.96	4.06	.00	2035.00	2030.98	291.78	1370.58	.00
*	16.504	2350.00	1835.00	1835.00	.00	4.14	.00	2035.00	2030.99	195.99	1370.59	.01
*	16.504	3995.00	1625.51	1835.00	1.80	4.55	.00	2035.00	2034.43	307.40	1371.80	1.21
*	16.608	2350.00	1929.53	1910.00	.00	5.92	.00	2110.00	2091.70	162.17	1372.19	.00
*	16.608	2350.00	1929.44	1910.00	.00	5.83	.00	2110.00	2092.04	162.61	1372.23	.05
*	16.608	3995.00	1927.35	1910.00	.00	7.36	.00	2110.00	2099.63	172.28	1373.06	.82
*	16.732	2350.00	1955.62	1950.00	.00	7.57	.00	2115.00	2114.38	158.76	1377.75	.00
*	16.732	2350.00	1955.68	1950.00	.00	7.76	.00	2115.00	2110.00	154.31	1377.72	-.02
	16.732	3995.00	1954.62	1950.00	.00	6.88	3.39	2115.00	2910.75	739.57	1378.15	.42
*	16.818	2350.00	1945.20	1935.00	.00	4.61	2.36	2045.00	2226.00	280.80	1380.64	.00
*	16.818	2350.00	1942.85	1935.00	.00	6.05	.00	2045.00	2045.00	102.15	1380.95	.31
*	16.818	3995.00	1941.11	1935.00	.00	6.41	3.38	2045.00	2239.64	298.54	1381.20	.25

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SUMMARY OF ERRORS AND SPECIAL NOTES

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 WARNING SECNO=      8.731  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=      8.731  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=      8.731  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=      8.883  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=      8.883  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=      8.883  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=      9.009  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=      9.009  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=      9.009  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=      9.129  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=      9.129  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=      9.318  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=      9.318  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=      9.318  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
 CAUTION SECNO=      9.318  PROFILE=  2  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=      9.318  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=      9.318  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL
 CAUTION SECNO=      9.318  PROFILE=  3  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=      9.318  PROFILE=  3  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=      9.318  PROFILE=  3  20 TRIALS ATTEMPTED TO BALANCE WSEL

 WARNING SECNO=      9.492  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=      9.492  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=      9.692  PROFILE=  2  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=      9.692  PROFILE=  2  MINIMUM SPECIFIC ENERGY

 WARNING SECNO=      9.889  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=      9.889  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=      9.953  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     10.096  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     10.271  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=     10.443  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=     10.443  PROFILE=  1  MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=     10.443  PROFILE=  3  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=     10.443  PROFILE=  3  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=     10.443  PROFILE=  3  20 TRIALS ATTEMPTED TO BALANCE WSEL

 WARNING SECNO=     10.612  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 CAUTION SECNO=     10.612  PROFILE=  3  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=     10.612  PROFILE=  3  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=     10.612  PROFILE=  3  20 TRIALS ATTEMPTED TO BALANCE WSEL
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 WARNING SECNO=     10.659  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     10.659  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     10.659  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=     10.803  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=     10.803  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=     10.803  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
 CAUTION SECNO=     10.803  PROFILE=  2  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=     10.803  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=     10.803  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL
 CAUTION SECNO=     10.803  PROFILE=  3  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=     10.803  PROFILE=  3  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=     10.803  PROFILE=  3  20 TRIALS ATTEMPTED TO BALANCE WSEL

 WARNING SECNO=     10.933  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     10.933  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     10.933  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     10.934  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     10.936  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     10.936  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 CAUTION SECNO=     10.936  PROFILE=  3  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=     10.936  PROFILE=  3  MINIMUM SPECIFIC ENERGY

 WARNING SECNO=     11.005  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     11.005  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     11.005  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     11.129  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     11.129  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     11.129  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     11.301  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     11.301  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     11.301  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=     11.386  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=     11.386  PROFILE=  1  MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=     11.386  PROFILE=  2  CRITICAL DEPTH ASSUMED
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 CAUTION SECNO=     11.386  PROFILE=  2  MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=     11.386  PROFILE=  3  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=     11.386  PROFILE=  3  MINIMUM SPECIFIC ENERGY

 WARNING SECNO=     11.481  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     11.481  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     11.481  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     11.566  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     11.566  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     11.566  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=     11.759  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=     11.759  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
1
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 CAUTION SECNO=     11.759  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
 CAUTION SECNO=     11.759  PROFILE=  2  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=     11.759  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=     11.759  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL
 WARNING SECNO=     11.759  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     11.949  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     11.949  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     12.511  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     12.701  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     12.896  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     12.896  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     12.896  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     13.076  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     13.076  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     13.076  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     13.227  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     13.227  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=     13.420  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=     13.420  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=     13.420  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
 CAUTION SECNO=     13.420  PROFILE=  2  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=     13.420  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=     13.420  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL
 CAUTION SECNO=     13.420  PROFILE=  3  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=     13.420  PROFILE=  3  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=     13.420  PROFILE=  3  20 TRIALS ATTEMPTED TO BALANCE WSEL

 WARNING SECNO=     13.619  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     13.619  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 CAUTION SECNO=     13.619  PROFILE=  3  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=     13.619  PROFILE=  3  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=     13.619  PROFILE=  3  20 TRIALS ATTEMPTED TO BALANCE WSEL

 CAUTION SECNO=     13.818  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=     13.818  PROFILE=  1  MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=     13.818  PROFILE=  2  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=     13.818  PROFILE=  2  MINIMUM SPECIFIC ENERGY
 WARNING SECNO=     13.818  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     14.013  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     14.013  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     14.013  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=     14.197  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=     14.197  PROFILE=  1  MINIMUM SPECIFIC ENERGY

 WARNING SECNO=     14.945  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
1
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 WARNING SECNO=     14.945  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     15.144  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 CAUTION SECNO=     15.144  PROFILE=  2  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=     15.144  PROFILE=  2  MINIMUM SPECIFIC ENERGY

 WARNING SECNO=     15.333  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     15.333  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=     15.519  PROFILE=  2  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=     15.519  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=     15.519  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

 WARNING SECNO=     15.699  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     15.966  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     16.066  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 CAUTION SECNO=     16.066  PROFILE=  2  CRITICAL DEPTH ASSUMED
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 CAUTION SECNO=     16.066  PROFILE=  2  MINIMUM SPECIFIC ENERGY
 WARNING SECNO=     16.066  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     16.167  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     16.167  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=     16.248  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=     16.248  PROFILE=  1  MINIMUM SPECIFIC ENERGY
 WARNING SECNO=     16.248  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     16.248  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     16.328  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     16.328  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     16.328  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     16.411  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     16.411  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 CAUTION SECNO=     16.411  PROFILE=  3  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=     16.411  PROFILE=  3  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=     16.411  PROFILE=  3  20 TRIALS ATTEMPTED TO BALANCE WSEL

 WARNING SECNO=     16.504  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     16.504  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     16.504  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     16.608  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     16.608  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     16.608  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     16.732  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     16.732  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     16.818  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     16.818  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=     16.818  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
1
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HEC-2 FILE CORPSBR1.PRN

```
1*****************************************
*  HEC-2 WATER SURFACE PROFILES           *
*                                         *
*  Version   4.6.2;  May 1991             *
*                                         *
*  RUN DATE    18FEB99    TIME   08:25:29  *
*****************************************
```

```
*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616-4687     *
*          (916) 756-1104           *
*************************************
```

```
X     X  XXXXXXX   XXXXX            XXXXX
X     X  X        X     X          X     X
X     X  X        X                      X
XXXXXXX  XXXX     X          XXXXX   XXXXX
X     X  X        X                X
X     X  X        X     X          X
X     X  XXXXXXX   XXXXX            XXXXXXX
```

1

THIS RUN EXECUTED 18FEB99 08:25:29

```
************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
************************************
```

MODEL REFLECTS NEW TOPOGRAPHIC DATA ALONG ORIGINAL FEMA
CROSS-SECTION ALIGNMENTS. N-VALUES AND EXPANSIONS AND CONTRACTION
COEFFICIENTS REMAIN THE SAME AS THE ORIGINAL FEMA MODEL.

BRIDGE DATA FOR BELL ROAD BRIDGE FROM ORIGINAL FEMA MODEL UTILIZED.

```
T1      NEW RIVER ABOVE SKUNK CREEK                        JULY 1998
T2      MIDDLE NEW RIVER WATERCOURSE MASTER PLAN          STANTEC #28900058
T3      FEMA/COE MODEL UPDATE                             FILE CORPSBR1.PRN
```

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		2							1170.38	

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
			-1							15

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

38	43	1	21	55	26	56	22	54	4

QT	1	21000								
NC	0.045	0.045	0.035	0.20	0.40					
X1	8.655	94.00	9530.01	10103.54	0.00	0.00	0.00			
X3	10									
GR	1178.0	9170.87	1175.14	9186.78	1171.38	9207.89	1171.05	9239.90	1170.66	9274.99
GR	1170.6	9288.99	1169.65	9422.73	1169.63	9424.24	1169.63	9426.29	1169.86	9530.01
GR	1162.4	9556.56	1155.64	9578.45	1154.62	9626.75	1154.35	9637.48	1154.20	9654.43
GR	1154.2	9668.25	1154.15	9678.08	1153.90	9685.57	1153.29	9714.69	1152.61	9736.46
GR	1152.5	9745.47	1152.89	9753.88	1153.40	9765.26	1153.42	9773.51	1153.56	9788.22
GR	1154.6	9861.07	1154.50	9881.94	1154.53	9889.33	1154.35	9908.38	1153.85	9935.01
GR	1154.5	9943.17	1154.59	9964.33	1154.50	9976.54	1154.22	10000.00	1154.56	10029.77
GR	1154.6	10066.05	1154.67	10078.08	1165.32	10097.35	1168.79	10103.54	1168.91	10107.06
GR	1169.9	10125.73	1169.67	10139.65	1169.64	10144.07	1170.43	10148.74	1171.10	10153.01
GR	1171.1	10157.54	1171.21	10180.85	1171.39	10195.32	1170.26	10235.61	1170.24	10237.66
GR	1170.2	10239.84	1170.18	10242.13	1170.14	10244.55	1170.10	10247.09	1170.07	10249.75
GR	1170.0	10252.52	1169.98	10255.39	1169.95	10257.98	1169.95	10258.23	1169.93	10260.11
GR	1169.9	10261.89	1169.91	10263.57	1169.89	10265.17	1169.90	10265.84	1169.91	10267.30
GR	1169.9	10268.72	1169.92	10270.09	1169.93	10271.44	1169.93	10272.77	1169.93	10274.07
GR	1169.9	10275.37	1169.92	10276.66	1169.91	10277.95	1169.91	10279.24	1169.90	10280.54
GR	1169.9	10281.86	1169.87	10283.20	1169.85	10284.57	1169.83	10285.96	1169.81	10287.40

1

GR	1169.8	10288.88	1169.76	10290.42	1169.73	10292.02	1169.69	10293.69	1169.66	10295.44
GR	1169.6	10297.29	1169.57	10299.24	1169.52	10301.33	1169.47	10303.56	1169.40	10305.97
GR	1169.3	10308.25	1169.35	10309.12	1169.29	10322.28	1169.04	10332.00		
QT	1	12000.00								
NC	0.045	0.045	0.035	0.10	0.30					
X1	8.731	62.00	9668.92	10132.76	400.00	400.00	400.00			

X3	10									
GR	1184.0	9263.83	1183.89	9273.67	1183.82	9278.67	1183.43	9279.35	1182.05	9286.70
GR	1175.7	9324.78	1171.67	9332.34	1157.57	9359.81	1157.41	9361.45	1157.20	9368.22
GR	1155.9	9372.24	1154.97	9374.22	1155.24	9385.88	1154.88	9415.00	1154.83	9423.41
GR	1154.8	9426.92	1154.03	9453.17	1153.75	9484.88	1153.59	9495.55	1153.94	9509.78
GR	1154.2	9515.58	1154.75	9556.08	1155.22	9601.05	1155.37	9614.42	1155.38	9620.01
GR	1155.6	9635.10	1155.81	9638.01	1155.82	9640.41	1156.95	9668.92	1155.80	9705.62
GR	1155.7	9708.91	1155.55	9712.12	1155.51	9740.10	1155.30	9751.11	1154.92	9793.53
GR	1154.7	9806.20	1154.63	9821.61	1155.62	9889.11	1155.91	9906.50	1155.83	9931.57
GR	1155.8	9955.78	1155.61	9975.19	1155.47	10000.00	1155.55	10011.03	1155.67	10038.24
GR	1155.9	10077.08	1156.24	10098.62	1156.22	10110.26	1159.25	10115.42	1169.55	10132.76
GR	1169.9	10146.25	1170.06	10156.45	1169.88	10168.79	1169.88	10168.85	1169.89	10168.91
GR	1171.7	10181.70	1171.37	10202.65	1171.33	10206.10	1170.89	10260.47	1170.70	10279.56
GR	1169.6	10358.16	1169.54	10366.79						
X1	8.807	62.00	9793.8	10113.26	400.00	390.00	400.00			
GR	1178.0	9421.80	1177.73	9423.19	1172.85	9451.67	1172.82	9452.67	1172.52	9479.22
GR	1172.5	9484.61	1173.51	9490.41	1175.79	9504.85	1175.92	9513.90	1175.95	9527.01
GR	1175.8	9545.24	1173.99	9563.44	1173.82	9565.21	1173.11	9572.08	1173.18	9578.47
GR	1172.9	9590.10	1172.78	9602.56	1172.76	9612.01	1172.86	9624.06	1173.16	9629.64
GR	1173.2	9639.35	1172.97	9681.99	1172.56	9696.14	1172.07	9708.18	1171.58	9720.28
GR	1171.9	9725.73	1172.76	9733.58	1173.00	9746.88	1172.98	9754.53	1172.90	9758.85
GR	1173.0	9768.60	1173.15	9787.35	1173.10	9792.80	1172.65	9793.80	1166.57	9811.60
GR	1158.5	9831.40	1158.04	9853.48	1158.11	9870.59	1158.32	9890.76	1158.66	9904.47
GR	1159.4	9931.62	1158.96	9957.85	1158.45	9967.74	1158.11	9994.95	1158.05	10000.00
GR	1158.1	10003.84	1159.09	10063.74	1159.30	10084.73	1159.38	10094.13	1164.35	10103.63
GR	1169.7	10113.26	1169.91	10133.74	1170.04	10141.61	1170.36	10151.30	1171.37	10155.28
GR	1172.7	10160.68	1172.91	10181.74	1172.92	10182.92	1172.66	10222.09	1172.44	10246.42
GR	1171.7	10326.10	1171.59	10355.30						
X1	8.883	52.00	9857.59	10117.1	280.00	400.00	400.00			
GR	1180.0	9480.17	1174.28	9513.30	1174.18	9513.83	1173.93	9535.87	1173.92	9538.06
GR	1174.0	9539.20	1174.30	9545.92	1174.84	9558.22	1175.03	9560.57	1176.61	9577.40
GR	1176.7	9581.33	1176.81	9600.19	1176.78	9630.42	1176.57	9665.33	1176.11	9698.90
GR	1175.9	9707.94	1176.00	9715.96	1176.22	9740.14	1176.43	9770.13	1176.62	9799.18
GR	1176.6	9815.43	1176.78	9851.43	1176.79	9857.59	1174.81	9861.82	1163.02	9890.54
GR	1161.7	9909.03	1161.63	9910.73	1161.63	9911.28	1161.63	9911.97	1161.63	9915.33
GR	1161.3	9957.94	1161.49	9963.86	1161.95	9976.81	1160.27	9982.67	1159.44	9985.06
GR	1159.4	10000.00	1159.72	10005.60	1160.42	10019.83	1160.61	10045.59	1160.95	10081.26
GR	1161.2	10095.72	1166.60	10108.75	1170.46	10117.10	1170.87	10137.60	1171.40	10158.29
GR	1174.2	10170.22	1175.80	10176.74	1175.89	10181.64	1175.86	10194.61	1176.10	10207.65
GR	1176.0	10213.14	1176.38	10366.19						

X1	8.936	54.00	9831.06	10130.27	300.00	300.00	290.00			
GR	1182.0	9514.24	1179.95	9525.82	1178.24	9533.71	1175.36	9550.47	1174.57	9570.14
GR	1174.4	9573.79	1174.20	9582.33	1174.29	9608.34	1174.65	9618.37	1174.63	9625.17
GR	1174.9	9663.71	1174.94	9669.82	1174.92	9674.90	1174.96	9709.09	1174.94	9711.68
GR	1174.9	9713.50	1174.75	9762.72	1174.58	9812.18	1174.57	9813.66	1174.57	9813.91
GR	1174.6	9814.19	1174.56	9815.34	1174.58	9831.06	1166.59	9853.27	1165.27	9857.16
GR	1164.5	9900.49	1164.45	9901.99	1164.42	9904.21	1164.40	9905.71	1164.39	9906.52
GR	1164.2	9914.52	1163.65	9943.73	1162.78	9982.18	1161.34	9985.69	1159.99	9989.50
GR	1160.0	10009.86	1159.94	10014.00	1160.40	10019.99	1161.34	10035.61	1161.40	10046.22
GR	1161.5	10064.28	1161.81	10084.06	1162.21	10111.08	1168.65	10125.67	1170.86	10130.27
GR	1171.1	10138.05	1172.10	10160.75	1174.75	10173.52	1177.20	10185.13	1177.40	10200.84
GR	1177.4	10216.10	1177.63	10219.87	1177.69	10241.23	1177.64	10379.42		
X1	8.977	60.00	9865.94	10117.99	220.00	200.00	210.00			
GR	1182.0	9530.75	1177.22	9556.56	1178.22	9576.50	1178.28	9579.92	1175.65	9597.09
GR	1175.6	9597.47	1175.60	9599.29	1175.59	9649.12	1175.13	9678.97	1175.44	9701.50
GR	1176.0	9778.76	1175.85	9795.45	1175.77	9823.92	1175.80	9838.68	1175.87	9862.76
GR	1175.9	9864.92	1175.30	9865.94	1164.27	9885.67	1164.26	9886.42	1164.10	9899.10
GR	1163.8	9907.50	1163.70	9912.61	1162.66	9952.88	1162.61	9959.70	1162.59	9968.65
GR	1162.2	9970.48	1161.67	9972.96	1161.61	9977.66	1161.50	9985.29	1161.42	9990.29
GR	1161.4	9992.62	1161.29	10000.00	1161.82	10032.38	1162.26	10054.60	1162.25	10064.69
GR	1162.4	10087.81	1163.03	10088.26	1166.51	10093.03	1168.22	10095.00	1167.77	10108.40
GR	1167.6	10110.95	1169.02	10112.97	1172.63	10117.99	1172.90	10124.82	1173.24	10133.91
GR	1173.6	10142.57	1174.48	10149.30	1175.52	10157.00	1176.85	10168.79	1177.41	10174.44
GR	1178.0	10180.27	1178.01	10189.22	1178.00	10198.79	1178.02	10204.88	1178.11	10210.71
GR	1178.1	10212.97	1178.11	10213.49	1178.11	10224.37	1178.64	10343.05	1178.49	10365.12
X1	9.009	73.00	9805.01	10189.89	330.00	180.00	180.00			
X3	10									
GR	1182.0	9625.05	1180.47	9635.32	1177.71	9652.46	1177.27	9672.23	1177.16	9676.47
GR	1177.2	9772.91	1177.16	9775.63	1177.17	9777.62	1177.18	9778.09	1177.19	9778.95
GR	1177.2	9780.54	1177.21	9785.92	1177.09	9804.50	1177.10	9805.01	1177.26	9807.82
GR	1175.2	9815.50	1174.38	9819.47	1166.70	9855.25	1166.21	9858.00	1166.19	9858.53
GR	1166.0	9861.88	1165.71	9865.43	1164.62	9887.86	1164.55	9889.75	1164.36	9893.90
GR	1164.2	9897.12	1164.13	9899.07	1164.01	9901.79	1163.29	9946.76	1162.99	9962.95
GR	1162.9	9967.84	1162.06	10000.00	1162.25	10022.13	1162.27	10032.36	1162.28	10032.57
GR	1164.3	10086.05	1164.29	10087.22	1164.32	10088.08	1164.33	10088.44	1164.35	10088.80
GR	1164.4	10089.02	1164.35	10089.18	1164.35	10089.23	1164.36	10089.29	1164.36	10090.81
GR	1164.3	10092.26	1163.24	10146.14	1163.75	10149.21	1164.38	10153.09	1171.03	10177.52
GR	1171.6	10180.05	1172.26	10183.43	1173.14	10188.26	1173.35	10189.22	1173.37	10189.89
GR	1173.9	10211.96	1173.76	10212.35	1173.62	10212.64	1173.45	10213.08	1168.23	10227.40
GR	1167.4	10228.46	1167.47	10239.95	1165.37	10249.36	1162.81	10268.27	1164.30	10277.40
GR	1164.5	10279.55	1164.56	10280.76	1166.29	10316.71	1166.38	10336.17	1166.90	10403.32

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GR   1166.8   10427.02    1166.71   10445.63     1166.59    10514.93

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    18FEB99       08:25:29                                                                    PAGE    4


X1     9.047       60.00    9865.24   10286.83      280.00      160.00      200.00
GR    1182.0     9716.66    1180.57    9727.55     1177.81     9745.93     1177.65     9751.49     1177.31     9760.47
GR    1177.6     9804.59    1177.83    9855.29     1177.73     9861.06     1177.69     9865.24     1168.94     9906.55
GR    1162.7     9936.12    1162.79    9941.54     1162.95     9947.00     1162.78     9969.17     1161.64    10000.00
GR    1162.7    10011.16    1163.01   10013.40     1163.59    10018.72     1163.57    10022.22     1163.64    10026.40
GR    1164.0    10044.67    1163.63   10050.79     1163.12    10058.45     1162.89    10061.27     1162.49    10069.43
GR    1162.4    10074.85    1162.07   10086.72     1162.18    10090.35     1162.14    10094.04     1162.19    10100.98
GR    1162.8    10127.62    1163.12   10131.63     1163.65    10139.42     1164.42    10165.05     1164.82    10178.76
GR    1165.1    10188.88    1165.17   10191.87     1165.76    10210.64     1165.85    10221.29     1166.42    10261.29
GR    1169.8    10268.59    1173.62   10276.16     1174.87    10286.83     1178.89    10322.18     1180.42    10335.05
GR    1179.7    10340.89    1175.80   10372.69     1173.58    10381.73     1172.99    10384.53     1172.98    10397.84
GR    1173.0    10432.14    1172.87   10454.59     1172.83    10469.88     1172.72    10507.64     1172.72    10509.11
GR    1172.7    10512.25    1173.80   10519.20     1178.86    10545.75     1179.00    10554.76     1178.63    10593.95

NC     0.045       0.06      0.035       0.10         0.30

X1     9.129       67.00    9828.71   10330.52      290.00      460.00      420.00
GR    1184.0     9717.85    1181.94    9731.54     1179.46     9747.14     1178.59     9763.28     1178.16     9773.21
GR    1179.3     9808.31    1179.36    9811.66     1179.38     9812.50     1179.44     9814.13     1180.07     9828.71
GR    1179.2     9832.93    1176.76    9843.99     1166.68     9890.36     1163.97     9903.21     1163.87     9907.39
GR    1163.8     9911.78    1163.70    9913.42     1163.67     9921.37     1163.16    10000.00     1163.82    10042.71
GR    1163.9    10048.34    1164.70   10140.88     1164.70    10142.41     1164.69    10144.15     1164.68    10144.91
GR    1164.7    10145.57    1164.66   10149.28     1164.61    10172.67     1165.78    10207.44     1166.32    10222.25
GR    1166.4    10225.51    1167.13   10244.20     1167.26    10248.22     1167.28    10249.62     1167.38    10279.08
GR    1167.5    10297.38    1168.47   10299.33     1175.40    10313.49     1176.88    10330.52     1177.08    10333.89
GR    1177.6    10342.56    1177.23   10346.13     1176.89    10348.95     1176.39    10362.86     1172.93    10376.80
GR    1172.5    10378.60    1172.27   10380.95     1172.26    10387.21     1172.28    10394.53     1172.29    10398.10
GR    1172.3    10403.78    1172.18   10412.57     1172.02    10424.54     1172.01    10426.19     1173.51    10435.79
GR    1174.1    10439.81    1174.85   10443.80     1176.48    10451.16     1176.37    10455.64     1175.98    10459.61
GR    1175.8    10461.26    1176.01   10468.18     1177.37    10532.47     1178.21    10639.30     1178.71    10710.84
GR    1178.0    10809.06    1177.80   10841.21

NC      0.05       0.06      0.035       0.10         0.30

X1     9.318       96.00    9775.17   10151.89     1000.00     1000.00     1000.00
GR    1188.0     9564.00    1185.42    9588.02     1184.89     9592.68     1184.89     9595.73     1184.95     9598.50
GR    1184.6     9657.59    1184.56    9667.45     1184.37     9688.21     1184.36     9689.48     1184.36     9690.35
GR    1184.4     9691.19    1184.12    9695.63     1184.09     9695.84     1184.11     9696.22     1184.22     9702.06
GR    1184.0     9748.35    1184.15    9752.08     1184.42     9755.88     1184.48     9761.69     1184.94     9770.41
GR    1185.1     9775.17    1184.64    9776.39     1184.37     9777.15     1180.91     9785.01     1174.89     9801.56
GR    1174.1     9803.59    1173.59    9805.10     1173.37     9816.72     1173.30     9821.43     1173.26     9822.72
GR    1173.2     9832.97    1173.17    9833.59     1173.17     9843.47     1173.15     9844.04     1173.25     9850.48
GR    1173.2     9861.59    1173.24    9862.59     1173.05     9874.65     1172.96     9876.03     1172.17     9894.25
GR    1172.0     9898.62    1171.68    9903.77     1171.01     9919.04     1170.82     9923.59     1170.79     9924.27
GR    1170.6     9926.80    1170.78    9934.87     1171.05     9943.61     1170.96     9948.02     1170.81     9955.00
GR    1170.7     9956.03    1170.68    9961.43     1170.29     9966.81     1169.13     9986.33     1169.03     9988.29
GR    1168.9     9991.12    1168.58    9996.75     1168.51     9997.74     1168.35    10000.00     1168.45    10001.32
GR    1168.5    10001.96    1168.47   10003.38     1168.60    10009.24     1169.94    10020.45     1170.00    10020.98
GR    1170.0    10023.97    1170.37   10059.13     1170.45    10067.22     1170.88    10092.46     1171.67    10109.31
GR    1172.4    10119.60    1173.80   10139.29     1177.40    10145.92     1180.57    10151.89     1181.40    10167.33
GR    1181.9    10173.54    1181.60   10176.41     1181.47    10179.72     1181.31    10187.22     1181.03    10195.98
1
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GR    1176.5    10219.99    1176.49   10220.00     1176.49    10220.10     1176.35    10227.26     1176.55    10228.54
GR    1179.9    10251.06    1180.00   10255.25     1179.98    10257.19     1179.84    10259.23     1179.48    10262.60
GR    1180.0    10318.68    1180.66   10385.16     1180.86    10518.99     1181.14    10587.20     1181.14    10655.17
GR    1181.4    10700.10

QT         1    11450.00

X1     9.492       97.00    9800.21   10307.96      910.00      890.00      920.00
GR    1192.0     9761.25    1191.92    9761.95     1191.39     9766.56     1190.68     9772.37     1189.11     9784.84
GR    1188.8     9789.52    1188.11    9800.21     1175.20     9828.88     1174.71     9829.98     1174.72     9830.81
GR    1174.9     9848.19    1174.98    9856.36     1175.06     9874.07     1174.85     9906.20     1174.69     9924.14
GR    1174.6     9928.83    1174.63    9934.07     1174.63     9938.50     1174.59     9943.89     1174.57     9947.08
GR    1174.6     9957.07    1174.01    9996.51     1173.96     9998.33     1173.96     9998.64     1173.96     9998.88
GR    1174.0     9999.10    1173.94   10000.00     1174.33    10052.34     1174.54    10065.68     1174.54    10065.71
GR    1174.6    10068.58    1174.64   10078.53     1174.65    10085.68     1174.78    10113.97     1174.92    10142.62
GR    1175.1    10146.09    1175.73   10158.36     1175.92    10163.47     1176.00    10165.59     1176.03    10166.27
GR    1176.1    10180.40    1176.23   10241.37     1176.16    10243.69     1177.15    10260.82     1177.70    10273.34
GR    1178.4    10289.54    1182.48   10301.78     1184.43    10307.96     1187.23    10331.92     1187.60    10336.05
GR    1184.7    10366.14    1184.55   10367.66     1184.54    10368.22     1184.53    10368.70     1184.45    10374.02
GR    1184.4    10376.34    1184.45   10379.87     1184.47    10381.95     1184.51    10389.37     1184.51    10397.96
GR    1184.5    10398.48    1184.49   10399.08     1184.49    10399.78     1184.48    10400.58     1184.48    10401.50
GR    1184.5    10402.54    1184.47   10403.71     1184.47    10405.03     1184.42    10409.65     1184.43    10410.48
GR    1184.4    10411.42    1184.44   10412.49     1184.46    10413.68     1184.47    10415.01     1184.48    10416.46
GR    1184.5    10416.56    1184.49   10416.56     1184.49    10416.70     1184.51    10417.95     1184.67    10427.19
GR    1184.7    10429.02    1185.06   10446.99     1185.08    10492.66     1184.82    10505.63     1184.82    10505.77
GR    1184.8    10505.89    1184.82   10506.00     1184.81    10506.09     1184.81    10507.90     1184.82    10510.04
GR    1185.2    10567.65    1185.75   10649.48     1185.88    10667.20     1185.99    10863.02     1186.00    10867.19
GR    1186.0    10871.37    1186.09   10972.79
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NC      0.04       0.06       0.035      0.10       0.30

X1     9.692      80.00     9915.96   10315.20   1050.00    1040.00    1056.00
GR    1204.0     9861.60    1201.34    9875.13   1197.39    9897.49    1193.92    9915.96    1191.19    9921.53
GR    1179.0     9948.26    1179.25    9977.32   1179.27    9978.97    1179.39    9981.96    1178.95    9986.75
GR    1177.7    10000.00    1178.51   10013.68   1178.51   10017.43    1178.63   10030.48    1178.64   10031.95
GR    1178.7    10032.84    1179.04   10039.03   1179.11   10040.39    1179.35   10044.25    1179.21   10045.66
GR    1178.1    10060.07    1178.08   10061.25   1178.07   10062.08    1177.93   10069.53    1177.92   10071.10
GR    1177.8    10079.10    1177.66   10085.13   1177.56   10092.83    1177.53   10096.87    1177.44   10099.74
GR    1177.3    10107.63    1177.25   10115.40   1177.21   10118.66    1177.41   10129.75    1177.41   10130.24
GR    1177.5    10133.00    1177.48   10134.36   1177.90   10143.25    1177.66   10154.67    1177.67   10158.28
GR    1177.6    10161.99    1178.01   10170.13   1177.61   10175.56    1178.70   10190.01    1181.55   10223.71
GR    1181.6    10225.35    1181.57   10230.38   1181.54   10254.68    1181.60   10272.70    1180.90   10286.70
GR    1180.6    10296.41    1184.43   10303.83   1190.03   10315.20    1190.14   10320.70    1190.30   10324.72
GR    1190.8    10329.42    1190.83   10330.50   1193.74   10340.37    1194.71   10343.47    1194.58   10344.24
GR    1193.7    10346.94    1193.97   10362.82   1194.26   10368.69    1194.19   10385.51    1194.02   10436.64
GR    1194.0    10458.23    1194.05   10482.29   1193.98   10516.43    1194.04   10557.30    1194.09   10598.97
GR    1194.1    10631.43    1194.22   10686.11   1193.12   10724.85    1192.65   10768.69    1192.64   10812.53
GR    1192.8    10968.71    1192.78   11124.94   1192.84   11168.70    1192.84   11212.42    1192.84   11272.71

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NC      0.06       0.06       0.035      0.30       0.50

X1     9.889      85.00      9919.8   10132.31   1100.00    1050.00    1040.00
GR    1228.0     9462.41    1227.56    9464.40   1226.05    9470.65    1222.98    9480.70    1200.17    9556.32
GR    1200.1     9562.12    1200.14    9571.81   1199.87    9582.70    1199.68    9592.25    1198.76    9603.06
GR    1198.5     9608.01    1197.93    9649.41   1197.90    9653.45    1197.75    9735.27    1197.60    9753.46
GR    1197.8     9772.49    1198.03    9821.73   1197.71    9828.64    1197.34    9839.65    1196.72    9852.59
GR    1197.5     9855.86    1201.40    9867.38   1197.96    9888.44    1196.64    9899.42    1196.38    9904.11
GR    1195.1     9919.80    1190.99    9929.84   1186.28    9941.82    1187.77    9953.49    1188.30    9959.31
GR    1188.6     9961.49    1188.26    9964.99   1187.11    9977.98    1187.47    9978.66    1186.71    9982.33
GR    1185.4    10000.00    1186.09   10010.63   1186.19   10041.78    1186.29   10063.89    1186.45   10089.18
GR    1186.3    10104.47    1186.13   10111.12   1189.86   10117.00    1198.00   10132.31    1198.31   10138.92
GR    1198.5    10142.87    1197.77   10166.17   1197.58   10167.20    1197.67   10168.68    1197.98   10183.32
GR    1198.1    10184.48    1198.13   10187.08   1198.41   10212.99    1198.89   10238.67    1199.27   10263.28
GR    1199.5    10272.98    1200.09   10312.14   1200.08   10328.53    1199.79   10401.98    1199.65   10409.88
GR    1199.3    10440.90    1199.10   10462.98   1199.11   10463.29    1199.11   10463.64    1199.11   10464.01
GR    1198.7    10493.35    1198.66   10498.72   1198.76   10500.52    1199.10   10505.35    1200.17   10532.01
GR    1200.0    10536.58    1199.82   10542.54   1199.82   10545.66    1200.30   10563.46    1200.42   10567.76
GR    1200.4    10568.80    1200.42   10569.93   1199.62   10593.83    1199.07   10601.01    1198.67   10608.94
GR    1199.4    10640.72    1199.77   10653.47   1200.16   10666.45    1201.54   10744.94    1201.50   10762.97


NC      0.06       0.06       0.03       0.30       0.50

X1     9.953      44.00     9867.22   10153.45     225.00     225.00     225.00
X3        10
GR    1215.3     9378.87    1207.02    9394.52   1204.35    9409.14    1204.42    9444.71    1204.18    9475.92
GR    1203.5     9523.12    1203.71    9568.11   1203.13    9590.73    1202.72    9651.10    1201.61    9658.09
GR    1201.2     9671.72    1201.17    9692.70   1200.73    9721.18    1199.80    9744.56    1199.65    9757.39
GR    1200.4     9809.66    1201.00    9832.09   1202.16    9867.22    1191.04    9892.51    1190.66   10000.00
GR    1190.8    10020.48    1190.53   10075.79   1189.68   10090.73    1189.38   10113.72    1194.58   10127.03
GR    1195.0    10137.12    1201.10   10153.45   1202.77   10171.08    1203.14   10182.78    1202.69   10193.94
GR    1203.0    10218.64    1202.91   10282.67   1202.53   10371.93    1202.91   10415.01    1202.96   10452.97
GR    1202.4    10522.62    1202.85   10588.61   1202.70   10614.87    1201.99   10624.50    1201.61   10636.89
GR    1203.8    10671.74    1201.25   10718.20   1200.19   10772.35    1200.19   10784.55

  Inserted bridge data from corps model


SB      .900       1.560        2.6                  213         20       2800      1.880    1188.61    1188.6
X1     9.967          29      19825      20110         75         75         75
X2                               1     1200.9     1207.5
X3        10
BT        21       15025       1204                15450     1203.5                16410       1202
BT     16635      1201.4                 16805       1202                17990       1204                 18530
BT    1205.6                   19065       1204                19325       1204                 19800       1205
BT                 19825      1207.5     1200.9      20110     1207.5     1200.9      20110     1205.8
BT     20635        1204                 21810       1202                22850       1200                 24300
BT      1198                    24630       1198                25270       1200                 26275       1202
BT                 27010      1202.1
GR      1204       15025      1203.5      15450       1202      16410      1201.4      16635       1202      16805
GR      1204       17990      1205.6      18530       1204      19065       1204      19325       1205      19800
GR      1204       19825        1196      19845       1194      19860       1192      19890       1192      19980
1
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GR      1190       20015      1188.6      20025       1190      20035       1194      20060       1204      20110
GR    1205.8       20130        1204      20635       1202      21810       1200      22850       1198      24300
GR      1198       24630        1200      25270       1202      26275     1202.1      27010


NC      0.06       0.06       0.03       0.10       0.30

X1    10.096      47.00     9708.29   10160.97     610.00     650.00     645.00
X3        10
GR    1230.0     9192.34    1220.42    9252.51   1220.05    9257.18    1210.63    9333.68    1207.84    9345.89
GR    1207.4     9362.31    1206.31    9372.38   1205.47    9472.01    1205.03    9497.21    1204.01    9581.54
GR    1203.1     9630.78    1198.95    9652.50   1198.89    9695.35    1202.63    9708.29    1195.62    9746.45
GR    1194.3     9773.08    1196.82    9825.16   1195.19    9835.67    1196.89    9853.23    1196.33    9890.36
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GR   1196.0    9970.71   1193.96    9988.16   1193.85   10015.00   1195.15   10028.41   1194.87   10069.10
GR   1196.2   10081.93   1197.46   10117.94   1203.56   10130.98   1203.96   10160.97   1204.02   10183.80
GR   1204.6   10242.79   1205.08   10276.80   1205.41   10338.36   1205.00   10380.47   1204.56   10508.76
GR   1204.8   10543.63   1205.27   10578.69   1205.25   10594.62   1204.02   10622.95   1204.24   10649.64
GR   1203.9   10676.60   1201.92   10709.55   1201.78   10727.27   1202.72   10751.06   1202.82   10778.60
GR   1203.9   10809.36   1204.78   10888.22

QT         1   10900.00

X1    10.271      48.00   9841.02   10310.47    920.00    925.00    925.00
GR   1214.0    9405.66   1213.57    9453.75   1213.17   9461.98   1210.26    9490.82   1207.94    9503.08
GR   1207.3    9527.51   1208.72    9564.74   1208.98   9616.22   1208.56    9687.09   1209.12    9741.87
GR   1210.1    9776.46   1211.43    9798.99   1211.82   9827.72   1212.19    9841.02   1212.65    9842.31
GR   1210.1    9850.49   1202.58    9872.73   1201.74   9896.52   1202.23    9915.47   1202.49    9929.65
GR   1201.6    9945.79   1198.31    9971.00   1198.42  10034.95   1200.07   10056.51   1200.78   10069.29
GR   1200.7   10095.95   1200.70   10120.73   1201.73  10131.70   1201.02   10154.33   1201.41   10190.25
GR   1201.3   10213.20   1199.58   10230.03   1199.25  10289.87   1205.86   10310.47   1205.28   10335.72
GR   1204.9   10418.16   1204.04   10463.15   1204.44  10506.27   1204.87   10525.73   1205.86   10616.21
GR   1206.3   10717.06   1206.42   10818.51   1206.07  10853.93   1206.85   10911.97   1206.99   11004.40
GR   1206.9   11029.27   1207.61   11195.06   1208.47  11415.17

X1    10.433      51.00   9881.10   10287.96    930.00    900.00    910.00
GR   1214.0    9289.29   1213.40    9293.38   1213.29   9316.20   1212.49    9394.80   1213.10    9400.31
GR   1212.0    9419.74   1211.72    9505.37   1211.49   9530.29   1210.71    9552.88   1210.43    9569.10
GR   1224.2    9617.52   1227.16    9633.39   1228.50   9666.92   1229.34    9694.63   1227.87    9714.45
GR   1224.9    9725.41   1219.55    9750.82   1216.73   9763.22   1217.48    9772.48   1217.98    9800.53
GR   1210.5    9843.87   1210.53    9881.10   1207.90   9898.70   1207.09    9902.21   1206.62    9959.77
GR   1204.6    9982.00   1205.81   10025.42   1206.35  10109.86   1206.29   10151.26   1205.28   10208.74
GR   1205.3   10269.70   1211.67   10287.96   1213.65  10320.24   1212.83   10415.71   1212.69   10423.73
GR   1212.4   10489.83   1211.09   10518.99   1211.26  10546.89   1211.39   10598.78   1211.73   10625.16
GR   1211.5   10642.10   1211.75   10664.79   1211.43  10706.62   1211.57   10730.05   1212.00   10917.23
GR   1212.1   11008.08   1212.62   11124.27   1213.17  11214.03   1212.77   11325.24   1211.94   11413.33
GR   1211.6   11511.19

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    18FEB99      08:25:29                                                                          PAGE     8

X1    10.612      95.00   9910.15   10254.01    880.00    900.00    890.00
X3        10
GR   1218.0    9025.95   1218.17    9035.68   1218.18   9044.61   1219.31    9048.60   1220.05    9051.51
GR   1219.0    9057.32   1218.43    9060.65   1218.44   9077.11   1218.76    9106.70   1218.80    9113.00
GR   1218.6    9210.30   1218.55    9211.71   1218.49   9260.74   1218.42    9321.42   1218.28    9390.62
GR   1218.2    9410.24   1218.24    9410.91   1218.32   9498.74   1218.09    9538.25   1217.54    9634.59
GR   1218.1    9703.80   1218.12    9713.37   1217.22   9802.55   1217.11    9805.65   1217.09    9806.28
GR   1217.0    9807.74   1216.90    9810.55   1216.42   9822.55   1216.43    9826.33   1216.38    9830.91
GR   1216.4    9832.78   1216.36    9834.23   1216.39   9841.11   1221.18    9862.90   1221.43    9863.98
GR   1221.5    9864.09   1221.49    9864.30   1221.50   9864.56   1221.67    9879.68   1221.66    9884.34
GR   1221.5    9895.48   1221.45    9904.78   1221.31   9906.77   1221.17    9908.25   1221.09    9909.90
GR   1221.1    9910.13   1221.05    9910.15   1221.01   9912.41   1220.86    9912.81   1214.68    9929.05
GR   1208.8    9946.36   1208.79    9956.56   1208.75   9978.00   1208.77    9999.95   1208.88   10004.41
GR   1209.0   10008.65   1209.37   10021.79   1209.51  10028.24   1209.56   10030.15   1209.65   10035.60
GR   1210.9   10098.97   1210.75   10103.25   1210.28  10121.81   1210.08   10143.11   1210.02   10179.56
GR   1210.1   10185.45   1210.03   10193.86   1210.00  10197.15   1209.98   10238.72   1210.91   10241.09
GR   1215.6   10254.01   1215.80   10341.23   1215.83  10356.80   1214.27   10378.24   1213.67   10389.18
GR   1213.7   10397.56   1213.84   10404.43   1213.75  10409.77   1213.73   10419.44   1214.34   10439.53
GR   1214.4   10440.27   1214.44   10504.91   1214.44  10510.40   1214.97   10585.88   1214.88   10600.03
GR   1216.5   10811.64   1216.49   10814.54   1215.58  11001.69   1215.59   11007.48   1216.81   11203.97
GR   1217.0   11214.80   1216.75   11223.36   1216.02  11410.35   1215.58   11480.23   1214.27   11601.22

X1    10.803      98.00   9873.61   10202.20   1020.00   1010.00   1010.00
X3        10
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GR   1224.6    9098.12   1224.49    9176.13   1224.45   9190.70   1224.47    9207.47   1224.53    9298.23
GR   1224.4    9371.35   1224.34    9389.18   1223.77   9479.46   1223.68    9498.18   1223.56    9512.69
GR   1223.0    9590.03   1222.94    9597.04   1222.79   9609.97   1225.19    9617.88   1227.10    9623.72
GR   1227.5    9650.01   1227.58    9660.55   1227.82   9664.81   1228.24    9672.82   1228.24    9673.13
GR   1228.5    9703.84   1220.18    9749.65   1219.97   9750.83   1219.93    9751.30   1218.42    9774.67
GR   1219.2    9781.00   1220.90    9797.52   1220.95   9802.46   1220.76    9818.21   1220.72    9823.02
GR   1220.7    9823.75   1220.70    9826.33   1220.69   9826.66   1220.69    9826.93   1220.03    9845.56
GR   1219.9    9848.84   1219.89    9850.23   1219.87   9850.90   1219.71    9851.98   1219.76    9855.07
GR   1219.8    9859.44   1220.07    9873.61   1219.86   9877.75   1219.62    9882.61   1219.49    9885.13
GR   1219.1    9892.61   1218.78    9898.99   1217.91   9915.94   1217.45    9921.40   1217.38    9924.57
GR   1217.4    9927.52   1215.32    9937.57   1214.56   9941.16   1214.53    9945.85   1214.42    9952.98
GR   1214.5    9955.42   1214.60    9975.62   1214.70   9989.53   1214.53    9992.66   1214.10   10000.00
GR   1215.1   10005.38   1216.05   10010.56   1216.46  10031.62   1217.05   10051.93   1215.59   10075.18
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GR   1215.0   10109.75   1214.98   10112.36   1215.05  10116.86   1215.08   10119.78   1215.00   10128.98
GR   1215.1   10133.28   1215.19   10141.12   1215.44  10157.48   1215.76   10181.69   1218.41   10189.63
GR   1220.0   10193.38   1219.96   10202.20   1220.15  10212.15   1220.34   10217.89   1220.24   10271.81
GR   1220.2   10293.27   1219.95   10384.32   1219.94  10386.29   1219.90   10395.34   1219.66   10493.26
GR   1220.0   10506.60   1220.03   10589.79   1219.94  10615.24

X1    10.989      85.00   9767.58   10035.76       920      1000       980
GR   1236.0    8909.02   1235.41    8950.80   1235.28   8962.49   1234.91    8984.25   1233.90    9037.73
GR   1233.2    9077.39   1232.00    9148.72   1230.84   9206.35   1230.45    9229.94   1229.96    9255.38
GR   1229.5    9275.37   1229.00    9315.71   1228.87   9330.22   1228.68    9355.13   1228.27    9417.46
GR   1228.1    9440.98   1228.32    9489.16   1228.36   9502.59   1228.48    9518.87   1228.65    9564.24
GR   1228.9    9580.61   1229.59    9634.91   1229.68   9645.19   1230.62    9699.11   1230.69    9705.00
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GR   1230.8   9718.37   1231.02   9767.34   1231.02   9767.58   1227.34   9787.47   1227.27   9787.91
GR   1220.5   9812.81   1219.35   9816.92   1219.35   9817.09   1219.36   9826.40   1219.34   9829.76
GR   1219.2   9847.50   1219.13   9872.82   1219.07   9887.30   1219.05   9894.46   1218.97   9917.66
GR   1218.9   9928.65   1218.87   9940.13   1218.72   9972.37   1218.68   9979.51   1218.57  10000.00
GR   1223.2  10015.64   1229.10  10035.76   1229.48  10037.35   1230.85  10042.18   1230.77  10047.26
GR   1230.6  10062.97   1229.83  10109.84   1229.35  10156.61   1229.15  10171.28   1229.14  10171.94
GR   1229.1  10173.10   1229.10  10174.28   1229.09  10175.48   1229.07  10176.68   1229.05  10177.87
GR   1229.0  10179.05   1229.02  10180.21   1229.01  10181.32   1229.00  10182.40   1228.99  10183.42
GR   1229.0  10184.39   1228.97  10185.30   1228.88  10195.99   1228.87  10197.24   1228.86  10198.44
GR   1228.9  10199.58   1228.84  10200.65   1228.84  10201.67   1228.83  10202.62   1228.83  10203.51
GR   1228.8  10204.32   1228.83  10205.08   1228.76  10214.87   1228.76  10215.84   1228.75  10216.74
GR   1228.8  10217.58   1228.75  10218.35   1228.75  10219.06   1228.75  10219.71   1228.64  10235.49

NC    0.045     0.045      0.03

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GR   1230.0   9001.61   1231.31   9019.86   1230.94   9039.30   1230.34   9086.18   1230.21   9091.30
GR   1230.2   9101.65   1230.28   9177.79   1230.28   9190.39   1230.27   9203.23   1230.01   9262.69
GR   1230.0   9274.53   1229.94   9279.83   1229.83   9368.23   1229.87   9378.04   1229.84   9385.44
GR   1230.0   9437.65   1230.18   9464.66   1230.22   9466.98   1230.44   9478.21   1230.35   9485.63
GR   1230.3   9491.24   1230.50   9548.84   1230.66   9573.75   1230.74   9576.39   1231.13   9594.44
GR   1230.5   9596.85   1227.20   9617.44   1226.87   9619.06   1226.11   9634.45   1225.42   9638.64
GR   1225.3   9666.53   1225.18   9693.16   1224.86   9713.88   1224.37   9738.10   1224.75   9748.54
GR   1225.4   9763.26   1226.00   9766.70   1228.16   9780.03   1231.57   9793.85   1231.53   9797.40
GR   1231.1   9823.74   1231.30   9825.90   1224.42   9848.01   1220.98   9859.01   1220.70   9877.10
GR   1220.7   9888.72   1221.52   9925.80   1221.06   9929.89   1220.76   9932.58   1219.44   9944.53
GR   1219.4   9956.12   1219.39  10016.41   1219.39  10037.00   1219.71  10041.50   1220.31  10049.49
GR   1221.5  10066.24   1221.67  10086.88   1221.69  10092.45   1222.96  10096.04   1231.76  10117.76
GR   1230.7  10150.32   1230.02  10182.69   1230.18  10223.11   1230.46  10283.89   1231.22  10342.92
GR   1231.9  10385.09   1232.28  10401.10   1232.35  10405.73   1230.75  10414.07   1229.78  10419.29
GR   1230.7  10433.31   1232.18  10456.24   1232.56  10482.89   1232.67  10488.99   1232.52  10496.79
GR   1232.0  10513.53

QT        1  10350.00

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GR   1231.3   9195.59   1231.29   9323.60   1231.26   9344.72   1231.02   9423.75   1231.39   9453.21
GR   1231.4   9463.24   1231.45   9468.41   1231.43   9475.56   1231.49   9482.12   1231.66   9488.78
GR   1232.1   9498.93   1232.21   9501.61   1233.82   9505.69   1233.88   9507.28   1235.74   9520.34
GR   1235.2   9532.26   1233.01   9544.01   1233.13   9544.71   1235.23   9561.01   1235.23   9563.22
GR   1235.3   9579.44   1235.15   9579.93   1233.34   9585.20   1233.19   9588.18   1232.45   9593.19
GR   1232.5   9600.40   1232.06   9614.98   1231.99   9617.84   1231.59   9629.26   1224.94   9651.24
GR   1218.9   9670.08   1218.66   9709.57   1218.53   9730.02   1218.56   9739.49   1218.51   9753.00
GR   1218.8   9803.24   1228.08   9831.44   1231.38   9841.83   1231.23   9860.22   1231.20   9861.74
GR   1231.3   9862.13   1232.77   9868.66   1228.92   9881.82   1221.37   9907.00   1221.67   9927.77
GR   1221.7   9927.99   1221.68   9928.81   1221.62   9956.02   1220.38   9964.53   1219.84   9970.00
GR   1219.1   9976.70   1219.22  10016.30   1219.24  10022.95   1220.13  10036.55   1220.82  10046.63
GR   1221.0  10049.68   1222.01  10060.28   1221.96  10064.64   1221.74  10084.10   1221.70  10086.79
GR   1227.0  10106.28   1230.75  10120.96   1232.93  10127.63   1232.64  10132.41   1231.84  10140.54
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GR   1231.7  10177.77   1231.65  10225.13   1231.95  10290.77   1232.20  10325.42   1233.08  10384.01
GR   1233.5  10425.70   1233.74  10441.69   1233.80  10447.04   1233.06  10451.14   1230.85  10460.65
GR   1232.7  10486.34   1233.51  10496.91   1233.74  10518.29   1233.88  10533.48   1233.54  10544.98
GR   1233.0  10563.12   1232.56  10567.72   1232.44  10568.94   1232.34  10570.30   1232.16  10572.18
GR   1231.8  10575.61   1232.00  10576.52

X1   11.301     75.00    9889.57  10113.79     600.00     600.00     600.00
X3       10
GR   1234.0   9058.01   1234.36   9062.92   1234.59   9064.90   1234.70   9067.29   1234.85   9071.13
GR   1235.0   9074.08   1235.11   9076.94   1234.98   9087.93   1234.94   9093.80   1234.97   9097.45
GR   1234.6   9114.11   1233.70   9143.57   1232.39   9185.42   1232.26   9193.02   1231.81   9302.24
GR   1231.8   9306.97   1231.82   9312.68   1233.12   9322.58   1233.33   9326.69   1232.37   9331.95
GR   1231.9   9335.33   1232.14   9353.03   1232.18   9385.71   1231.22   9460.20   1230.68   9489.90
GR   1226.3   9505.98   1223.69   9516.20   1223.69   9834.81   1230.17   9860.30   1231.02   9863.45
GR   1231.0   9864.73   1231.01   9865.28   1231.12   9876.51   1231.34   9878.48   1232.87   9889.57
GR   1226.4   9912.23   1221.78   9927.66   1222.87   9934.95   1222.68   9943.95   1221.92   9957.12
GR   1222.1   9967.38   1221.63   9982.20   1221.54   9993.66   1221.52   9995.88   1221.46   9999.75
GR   1221.3  10016.66   1221.27  10019.50   1221.95  10025.40   1222.77  10031.72   1223.83  10043.03
GR   1223.8  10047.51   1223.68  10070.27   1232.54  10105.97   1234.82  10113.79   1234.94  10133.53
GR   1235.3  10206.71   1235.47  10261.02   1235.71  10307.53   1235.91  10340.01   1236.33  10390.55
GR   1236.4  10395.17   1236.27  10408.36   1236.72  10468.62   1237.00  10516.30   1237.09  10527.62
GR   1235.8  10533.20   1233.53  10543.79   1233.82  10546.69   1233.87  10548.08   1234.05  10549.91
GR   1235.5  10567.06   1235.75  10569.03   1235.92  10571.22   1236.00  10572.29   1236.01  10572.54

NC    0.045      0.06     0.035

X1   11.386     44.00    9864.13  10133.77     440.00     420.00     450.00
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GR   1231.0   9280.89   1228.94   9287.65   1229.45   9308.60   1229.75   9395.04   1229.81   9401.57
GR   1228.9   9482.30   1229.01   9516.32   1230.04   9537.23   1230.05   9594.06   1229.96   9610.32
GR   1230.2   9690.40   1230.22   9712.37   1230.37   9789.85   1229.50   9849.97   1233.46   9864.13
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GR   1226.3    9882.67    1223.19    9891.77    1226.78    9931.82    1223.57    9967.77    1223.55    9973.97
GR   1223.1   10045.00    1229.38   10066.11    1228.89   10090.41    1230.94   10110.16    1238.40   10133.77
GR   1238.1   10238.00    1238.23   10273.37    1242.54   10303.74    1241.68   10314.41    1238.11   10333.31
GR   1238.0   10363.59    1239.24   10432.93    1239.15   10468.29    1239.39   10532.90    1239.44   10583.29
GR   1239.6   10609.56    1234.78   10629.53    1238.14   10669.77    1238.00   10711.04

X1   11.481      41.00    9846.96   10215.16     480.00      540.00      520.00
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GR   1240.0    9217.89    1231.30    9263.96    1230.96    9294.11    1230.07    9299.13    1228.64    9317.01
GR   1228.4    9356.30    1229.22    9385.44    1234.43    9401.62    1229.72    9410.77    1230.75    9445.99
GR   1233.7    9455.24    1229.09    9464.81    1229.38    9489.35    1228.69    9517.47    1232.91    9532.83
GR   1233.9    9538.22    1233.72    9542.85    1228.96    9556.56    1229.99    9570.25    1230.12    9631.80
GR   1231.1    9704.68    1231.84    9774.45    1232.16    9831.41    1236.77    9846.96    1234.57    9854.35
GR   1225.7    9879.26    1224.81    9915.00    1227.89    9947.19    1226.04    9987.71    1225.45   10011.59
GR   1226.5   10018.54    1227.81   10065.44    1228.66   10108.35    1234.10   10128.28    1233.97   10151.66
GR   1234.0   10180.39    1237.23   10199.67    1240.19   10215.16    1240.78   10245.66    1240.70   10262.73
GR   1241.5   10326.11

1
   18FEB99      08:25:29                                                                              PAGE   11


X1   11.566      55.00    9218.65   10060.0      280.00      530.00      460.00
GR   1240.0    9218.65    1241.94    9245.26    1243.12    9264.73    1235.34    9309.39    1235.06    9330.03
GR   1235.4    9343.19    1233.44    9357.53    1240.89    9370.03    1241.33    9381.64    1233.84    9409.90
GR   1233.6    9429.84    1236.00    9442.86    1235.92    9457.18    1235.04    9468.76    1234.83    9497.07
GR   1234.3    9510.70    1234.96    9524.83    1234.44    9544.66    1232.21    9557.78    1231.97    9566.70
GR   1229.3    9592.00    1229.37    9614.00    1228.55    9675.39    1229.76    9728.73    1228.48    9771.51
GR   1228.6    9789.18    1229.71    9844.48    1229.50    9860.07    1230.00    9885.27    1229.58    9914.65
GR   1229.0    9933.74    1229.69    9963.83    1228.58    9989.27    1228.32   10025.00    1234.13   10039.07
GR   1243.3   10060.00    1243.56   10069.74    1243.57   10097.73    1243.75   10158.54    1243.26   10197.61
GR   1242.7   10217.53    1242.04   10255.73    1243.29   10267.02    1242.98   10282.72    1242.85   10288.39
GR   1242.9   10381.88    1243.85   10482.19    1244.38   10569.60    1244.26   10703.01    1244.43   10786.66
GR   1244.5   10881.47    1244.38   10913.54    1245.20   10928.59    1243.14   10937.14    1243.29   10981.58

X1   11.759      87.00    9428.04   10132.96    1050.00      980.00     1020.00
GR   1246.0    9382.57    1246.26    9386.80    1247.01    9404.19    1247.47    9414.42    1243.77    9428.04
GR   1237.1    9451.29    1235.64    9491.80    1235.12    9508.08    1235.13    9518.41    1234.93    9554.62
GR   1235.0    9598.67    1234.80    9613.81    1234.66    9627.49    1234.63    9638.35    1234.75    9658.70
GR   1235.2    9680.28    1241.75    9694.91    1244.58    9701.38    1243.20    9711.39    1242.92    9713.12
GR   1243.2    9725.09    1242.88    9729.94    1241.70    9734.24    1237.86    9746.64    1236.32    9751.56
GR   1242.6    9770.23    1244.09    9774.09    1244.29    9781.79    1244.46    9794.01    1244.35    9808.02
GR   1244.4    9810.38    1240.79    9821.83    1242.57    9825.93    1239.32    9831.92    1239.15    9832.17
GR   1239.2    9832.42    1242.12    9841.94    1239.59    9850.36    1238.77    9852.45    1240.38    9857.44
GR   1241.1    9860.94    1237.16    9867.80    1235.26    9870.37    1234.17    9872.41    1234.23    9896.51
GR   1234.2    9930.98    1234.01    9939.39    1234.19    9946.48    1234.71    9962.84    1235.17    9992.88
GR   1233.0    9997.66    1232.02   10000.00    1232.21   10037.32    1232.25   10044.61    1233.90   10058.04
GR   1234.3   10061.70    1234.15   10079.75    1234.19   10097.62    1233.97   10103.10    1235.85   10107.42
GR   1246.5   10132.96    1246.85   10144.86    1246.94   10170.62    1247.07   10228.34    1246.92   10248.16
GR   1246.3   10307.05    1245.92   10353.90    1245.66   10385.76    1245.69   10459.63    1245.66   10464.46
GR   1245.7   10478.53    1245.48   10543.18    1245.39   10565.37    1245.12   10586.18    1244.09   10642.42
GR   1243.8   10651.03    1243.61   10658.52    1243.57   10659.92    1243.55   10664.91    1243.52   10670.15
GR   1243.1   10710.11    1242.93   10755.37    1242.89   10766.12    1243.52   10810.32    1243.59   10831.93
GR   1243.6   10848.27    1245.80   10985.76

NC      0.06        0.06       0.035

X1   11.949      59.00    9678.36   10235.82     990.00     1000.00     1000.00
X3       10
GR   1252.0    9324.61    1252.72    9344.99    1252.27    9358.68    1251.06    9384.12    1251.34    9392.95
GR   1250.0    9430.95    1249.50    9447.90    1244.15    9462.71    1243.17    9546.84    1243.06    9568.51
GR   1244.3    9589.46    1247.72    9655.12    1248.70    9678.36    1247.84    9710.30    1247.26    9743.04
GR   1245.3    9758.43    1246.42    9770.12    1245.82    9777.57    1241.28    9791.94    1242.45    9809.76
GR   1242.0    9840.86    1244.24    9883.54    1245.13    9897.82    1239.71    9920.26    1239.00    9979.53
GR   1239.1   10055.23    1239.17   10084.45    1238.90   10110.00    1241.77   10124.84    1241.04   10141.53
GR   1239.5   10192.93    1242.65   10235.82    1243.20   10261.47    1244.39   10327.99    1244.81   10329.81
GR   1244.7   10346.06    1242.00   10367.25    1241.81   10387.69    1247.16   10407.79    1248.88   10417.24
GR   1248.8   10432.61    1247.94   10447.26    1247.93   10483.97    1248.75   10502.58    1248.81   10558.55
GR   1247.9   10633.88    1249.14   10682.15    1250.23   10716.46    1249.78   10764.38    1249.64   10864.12
GR   1249.5   10901.37    1249.65   10963.14    1249.59   11022.34    1249.72   11077.87    1250.05   11158.14
GR   1249.9   11215.28    1250.91   11279.44    1248.33   11382.78    1245.43   11580.12

   CROSS SECTION ADJUSTED PER FLETCHER HEIGHTS GRADING PLAN
1
   18FEB99      08:25:29                                                                              PAGE   12


X1   12.125         63    9742.17   10335.82     910.00     1000.00      930.00
X3       10
GR   1252.0    9047.18    1255.00    9066.41    1254.82    9095.00    1245.20    9125.19    1245.27    9142.02
GR   1255.0    9176.47    1255.40    9199.99    1255.24    9245.66    1255.66    9368.18    1256.01    9399.64
GR   1256.0    9510.06    1256.65    9573.26    1258.35    9585.20    1256.14    9606.41    1255.76    9623.32
GR   1255.5    9652.10    1255.96    9683.52    1254.31    9742.17    1253.38    9746.28    1250.29    9765.66
GR   1249.9    9805.27    1249.75    9820.38    1247.19    9860.67    1246.14    9872.18    1245.84    9891.41
GR   1245.2    9903.18    1244.96    9961.51    1245.05   10009.40    1244.65   10085.42    1245.48   10124.23
GR   1245.6   10186.60    1245.07   10215.26    1245.25   10225.00    1246.6    10300.00    1254.4    10335.82
GR   1256.2   10435.97    1255.79   10451.59    1255.3    10495.79    1255.2    10526.95    1257.2    10538.34
GR   1256.9   10655.92    1256.80   10730.16    1257.1    10827.97    1256.8    10911.91    1257.0    10981.78
GR   1257.0   11044.99    1256.79   11132.25    1256.4    11189.41    1256.6    11225.19    1255.8    11303.26
```

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GR   1255.9   11319.04   1255.28   11375.71    1254.1   11403.70    1253.9   11418.38    1253.8   11455.25
GR   1254.4   11502.50   1253.34   11579.35    1253.4   11605.90    1254.5   11627.74    1254.6   11639.08
GR   1255.8   11646.02   1253.99   11671.16    1253.4   11706.36


QT        1    9800.00

X1   12.313         58   9806.87   10248.19    1010.00     980.00     990.00
X3       10
GR   1261.9    8592.00   1261.37    8778.39    1261.34    8847.05    1261.95    8867.85    1260.97    8953.64
GR   1260.7    9059.42   1260.08    9165.19    1259.44    9359.00    1258.03    9581.32    1258.57    9695.16
GR   1258.5    9806.87   1261.90    9827.49    1260.35    9853.29    1257.19    9869.41    1257.38    9902.43
GR   1256.0    9956.58   1250.87    9978.49    1250.47   10014.55    1252.75   10028.94    1254.62   10117.83
GR   1255.1   10153.23   1254.01   10161.35    1253.55   10169.65    1250.91   10188.34    1250.75   10215.26
GR   1251.1   10221.02   1258.14   10248.19    1258.88   10262.30    1259.86   10274.15    1259.67   10300.55
GR   1259.9   10366.21   1258.66   10398.74    1258.78   10433.60    1259.55   10479.53    1258.42   10553.69
GR   1258.2   10647.77   1259.20   10670.89    1258.64   10733.75    1258.45   10737.89    1258.11   10784.80
GR   1258.3   10803.17   1258.51   10886.66    1258.58   11009.52    1258.33   11047.73    1260.16   11072.80
GR   1260.0   11173.31   1254.56   11200.24    1259.17   11230.71    1260.13   11250.41    1259.58   11356.76
GR   1258.1   11383.87   1258.11   11413.73    1259.93   11444.10    1260.01   11543.99    1258.24   11563.01
GR   1258.4   11679.69   1259.36   11747.48    1259.06   11847.23

  ADDED IN STA. 9830    CODED OUT PIT AT STA'S 9170.56 AND 9196.30


X1   12.511         95   9830.00   10296.93    1000.00    1020.00    1056.00
X3       10
GR   1265.3    8690.00   1265.72    8722.98    1265.04    8800.78    1266.46    8877.93    1266.49    8890.38
GR   1266.0    8981.85   1265.46    9039.65    1265.57    9069.51    1266.12    9085.08    1268.85    9115.14
GR   1264.3    9130.04   1266.04    9156.70    1265.00    9170.56    1265.00    9196.30    1265.36    9213.06
GR   1265.1    9233.08   1265.01    9269.17    1265.12    9306.39    1264.21    9384.01    1264.06    9435.16
GR   1263.6    9495.33   1263.43    9500.45    1265.12    9523.52    1264.00    9531.84    1263.64    9577.67
GR   1263.7    9644.25   1263.41    9672.29    1262.59    9730.15    1263.21    9797.63    1263.00    9830.00
GR   1262.2    9871.16    1261.0    9883.86    1259.32    9894.60    1258.82    9930.99    1257.37    9939.13
GR   1257.3    9949.46   1256.1    10006.26    1258.76   10014.94    1258.45   10030.45    1258.03   10040.27
GR   1255.2   10046.61   1254.8    10065.39    1259.67   10081.46    1262.29   10098.86    1265.39   10111.39
GR   1262.9   10128.79   1262.4    10163.12    1268.36   10179.88    1258.77   10197.79    1258.52   10223.11
GR   1261.1   10235.23   1264.3    10262.78    1264.16   10285.66    1264.63   10296.93    1264.04   10330.81
GR   1263.4   10343.83   1260.2    10356.42    1262.92   10377.50    1259.40   10390.66    1258.90   10428.38
GR   1263.8   10451.62   1264.0    10472.33    1263.86   10545.08    1264.81   10579.02    1263.12   10625.09
1
    18FEB99      08:25:29                                                                              PAGE   13


GR   1263.1   10712.44   1263.5    10731.12    1261.71   10768.22    1261.65   10793.64    1261.65   10799.50
GR   1263.4   10822.58   1263.5    10851.82    1263.27   10915.50    1263.51   11032.53    1263.88   11133.36
GR   1263.9   11225.85   1263.7    11305.59    1264.04   11370.37    1264.60   11419.42    1263.34   11432.45
GR   1263.7   11448.20   1263.2    11464.10    1264.34   11496.85    1264.85   11600.66    1262.96   11616.13
GR   1262.4   11637.84   1262.7    11664.06    1262.29   11700.31    1262.83   11719.63    1263.84   11740.75
GR   1264.6   11805.36   1264.3    11905.36    1264.14   12105.70    1265.05   12143.78    1265.51   12181.04

  ADDED IN STA.    10268


X1   12.701         54   9748.20   10268.00    1030.00    1020.00    1000.00
X3       10
GR   1270.6    8679.69   1270.78    8721.34    1270.39    8761.23    1269.90    8833.88    1270.26    8937.48
GR   1270.4    9012.64   1270.30    9085.61    1270.35    9213.01    1269.98    9339.41    1268.84    9353.58
GR   1268.8    9385.62   1270.11    9401.02    1269.68    9469.49    1268.53    9566.70    1268.60    9597.16
GR   1270.6    9611.57   1271.46    9662.01    1271.92    9720.40    1271.92    9748.20    1266.65    9763.96
GR   1265.6    9795.42   1265.27    9811.44    1264.93    9881.27    1266.19    9897.84    1266.58    9928.05
GR   1260.1    9962.00   1260.60   10022.54    1262.09   10056.78    1267.52   10087.73    1267.63   10119.94
GR   1268.1   10154.63   1269.00   10268.00    1269.79   10320.67    1270.31   10438.54    1268.11   10464.36
GR   1268.0   10495.14    1268.7   10531.67    1269.90   10586.85    1270.31   10635.58    1269.74   10648.20
GR   1270.0   10667.88    1270.6   10703.92    1270.38   10759.91    1269.97   10796.17    1268.94   10830.95
GR   1268.5   10836.90    1269.0   10865.29    1269.75   10900.36    1268.83   10938.96    1270.17   10954.33
GR   1270.0   10961.64    1268.3   10969.83    1261.37   11007.01    1268.74   11046.65

  ADDED STA 10345


X1   12.896      70.00   9833.94      10345    1010.00       1010       1030
X3       10
GR   1274.9    8580.93   1274.87    8673.09    1274.38    8704.21    1274.04    8723.05    1274.49    8749.93
GR   1274.0    8793.37   1275.30    8802.34    1275.29    8836.56    1274.95    8904.16    1274.68    8975.01
GR   1275.0    9098.79   1275.18    9207.36    1274.81    9315.93    1275.06    9424.49    1274.72    9576.94
GR   1274.9    9659.17   1274.71    9701.13    1274.17    9717.06    1276.06    9744.07    1276.58    9773.97
GR   1276.8    9804.07   1277.11    9814.91    1278.41    9833.94    1269.60    9869.82    1269.25    9888.98
GR   1267.4    9898.23   1263.73    9911.98    1262.67    9944.78    1262.50   10045.00    1269.15   10086.34
GR   1264.4   10098.25   1265.88   10158.03    1265.26   10183.14    1266.51   10194.99    1265.26   10222.79
GR   1264.8   10272.92   1269.56   10303.90    1273.04   10320.71    1273.00   10345.00    1273.48   10382.41
GR   1272.8   10468.19    1270.9   10496.62    1270.12   10518.59    1273.41   10536.41    1275.23   10549.79
GR   1274.9   10608.82    1274.9   10654.72    1274.88   10686.20    1273.87   10715.79    1274.02   10765.87
GR   1275.2   10787.15    1274.3   10834.35    1276.17   10841.05    1274.01   10846.05    1274.44   10942.72
GR   1273.6   10963.87    1274.0   10991.43    1274.13   11093.97    1274.27   11154.66    1274.62   11205.89
GR   1269.6   11225.58    1271.8   11254.72    1268.42   11276.71    1270.68   11291.08    1264.52   11313.83
GR   1264.4   11321.49    1273.2   11373.42    1275.02   11385.37    1276.40   11406.68    1274.00   11416.06


QT        1    7900.00

  ADDED IN STA 10103.00

X1   13.076         87   9665.58   10103.00     950.00     980.00     950.00
X3       10
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GR   1277.7    8630.49    1277.44    8676.33    1277.70    8705.97    1278.00    8765.27    1279.13    8916.61
GR   1279.5    8992.75    1281.42    9191.97    1281.52    9237.48    1280.17    9250.04    1279.43    9278.28
GR   1279.8    9299.93    1279.75    9347.01    1280.46    9377.28    1278.04    9389.74    1279.96    9415.68
1
    18FEB99      08:25:29                                                                                  PAGE   14

GR   1280.3    9455.36    1280.27    9487.90    1280.59    9551.21    1280.45    9601.71    1279.35    9665.58
GR   1271.3    9685.17    1265.52    9698.48    1263.66    9726.61    1264.63    9754.41    1264.26    9798.96
GR   1262.5    9822.49    1262.56    9828.92    1264.46    9847.65    1264.35    9863.37    1264.56    9881.24
GR   1263.8    9901.55    1263.96    9916.59    1262.75    9931.23    1263.05    9943.82    1264.01    9965.53
GR   1263.4    9977.95    1262.37    9993.24    1262.37   10010.00    1264.10   10024.82    1266.15   10035.77
GR   1263.2   10056.03    1263.91   10067.46    1269.18   10082.40    1271.82   10091.28    1272.00   10103.00
GR   1272.7   10124.75     1278.5   10147.95    1278.65   10190.41    1279.48   10257.54    1279.91   10298.86
GR   1288.2   10346.02     1288.6   10355.91    1279.32   10406.59    1279.27   10454.49    1279.00   10511.71
GR   1279.8   10542.50     1279.8   10568.00    1280.15   10660.38    1280.46   10674.73    1280.56   10713.34
GR   1279.8   10728.07     1278.7   10773.12    1279.18   10811.36    1279.20   10863.83    1279.05   10898.25
GR   1277.8   10989.63     1279.2   11080.51    1279.38   11169.90    1279.83   11188.28    1279.34   11241.84
GR   1278.8   11290.22     1278.9   11310.13    1278.68   11329.33    1280.21   11339.95    1278.01   11347.13
GR   1278.5   11364.15     1278.9   11420.15    1278.71   11457.78    1278.89   11497.66    1278.79   11549.18
GR   1278.6   11565.40     1271.0   11591.43    1272.96   11595.64    1279.13   11613.05    1278.04   11672.02
GR   1278.2   11684.58     1279.7   11702.70

X1   13.277      38.00    9941.62   10240.18     800.00     670.00     800.00
GR   1284.9    9165.00    1284.99    9241.52    1285.38    9289.32    1283.69    9296.67    1284.00    9321.40
GR   1283.9    9356.28    1283.54    9389.83    1282.86    9404.65    1283.57    9426.27    1282.78    9447.55
GR   1283.0    9490.68    1282.15    9666.80    1283.34    9688.67    1283.56    9747.20    1283.85    9773.52
GR   1282.8    9880.37    1281.61    9932.49    1282.54    9941.62    1277.72    9953.53    1275.80    9957.06
GR   1274.9    9981.17    1274.89   10018.22    1275.57   10043.46    1276.31   10056.44    1275.84   10106.97
GR   1275.4   10131.61    1275.40   10146.04    1278.72   10204.81    1288.90   10240.18    1284.60   10256.67
GR   1284.4   10269.09    1283.30   10378.02    1283.33   10413.98    1283.16   10573.42    1283.26   10647.07
GR   1283.2   10742.80    1283.42   10887.18    1283.40   10898.50

X1   13.420      61.00    9844.81   10080.79     970.00    1000.00    1020.00
X3       10
GR   1288.0    9393.95    1288.06    9422.91    1287.97    9476.16    1287.26    9512.85    1286.57    9531.16
GR   1286.6    9555.11    1286.46    9581.00    1287.25    9612.16    1287.96    9630.03    1287.45    9654.45
GR   1288.3    9698.67    1288.27    9721.87    1288.92    9790.25    1288.27    9812.77    1290.55    9826.19
GR   1288.5    9839.34    1288.33    9844.81    1283.51    9861.07    1282.43    9879.68    1281.07    9893.21
GR   1280.6    9905.75    1280.99    9958.28    1278.03    9982.45    1277.43   10000.00    1277.80   10023.40
GR   1280.3   10035.18    1281.57   10062.82    1289.98   10080.79    1286.40   10088.73    1288.72   10112.21
GR   1287.3   10120.29    1287.71   10127.18    1289.33   10140.65    1293.38   10167.45    1288.58   10185.23
GR   1288.4   10235.98    1289.23   10251.21    1288.32   10275.01    1287.05   10307.20    1287.28   10343.83
GR   1287.3   10387.62    1286.94   10428.70    1286.93   10456.27    1286.66   10479.60    1285.71   10519.63
GR   1286.1   10542.23    1285.79   10562.51    1285.76   10630.46    1286.54   10651.09    1285.93   10671.99
GR   1284.5   10714.62    1285.10   10725.10    1286.77   10744.50    1287.02   10796.78    1286.96   10826.83
GR   1287.8   10841.87    1288.10   10914.83    1286.27   10944.13    1286.26   10984.26    1285.96   10993.76
GR   1286.0   11020.50

NC    0.05       0.05     0.035

X1   13.619      70.00    9762.99   10335.67    1090.00    1020.00    1056.00
GR   1292.0    9585.58    1292.36    9652.88    1294.25    9663.46    1292.78    9684.96    1292.79    9698.41
GR   1295.2    9717.05    1294.77    9762.99    1285.43    9812.00    1283.79    9822.71    1284.12    9888.90
GR   1283.5    9958.86    1284.45    9977.80    1284.14    9990.76    1283.47   10000.00    1283.51   10019.40
GR   1285.3   10030.04    1285.13   10072.28    1284.73   10100.28    1284.43   10157.81    1285.02   10214.32
GR   1285.2   10243.58    1284.80   10318.54    1291.19   10335.67    1290.25   10340.98    1291.11   10347.83
GR   1289.7   10359.68    1289.46   10385.47    1293.88   10414.58    1294.38   10461.27    1294.70   10501.93
1
    18FEB99      08:25:29                                                                                  PAGE   15

GR   1298.4   10511.38    1301.80   10518.60    1294.49   10535.37    1302.40   10556.34    1303.98   10575.18
GR   1305.0   10602.28    1298.27   10624.37    1299.33   10646.64    1293.68   10663.54    1293.71   10676.04
GR   1295.2   10679.49    1296.02   10695.91    1297.61   10705.90    1296.63   10710.74    1293.79   10717.43
GR   1293.7   10742.73    1300.02   10754.19    1295.94   10762.56    1299.93   10771.34    1296.25   10778.68
GR   1299.7   10786.15    1295.97   10792.43    1298.87   10800.95    1296.19   10806.96    1298.73   10813.69
GR   1294.5   10822.00    1295.37   10883.55    1294.78   10912.66    1293.58   10965.70    1293.06   11026.77
GR   1292.3   11080.63    1293.20   11147.56    1293.04   11193.48    1293.10   11258.34    1292.94   11263.80
GR   1292.9   11297.22    1293.53   11360.29    1293.84   11378.44    1293.64   11427.12    1293.09   11457.26

  INCREASED GR ELEV. TO 1268 FOR STA'S 9835.48 TO 10465.00 TO MODEL FLOW
  CONVEYED IN GRAVEL PIT

X1   13.818      51.00    9821.63   10331.30    1050.00    1050.00    1056.00
X3       10
GR   1298.0    9457.90    1298.87    9473.66    1298.90    9499.95    1299.46    9580.20    1299.62    9584.73
GR   1296.7    9613.64    1297.12    9655.26    1293.55    9668.81    1295.18    9692.29    1295.29    9699.65
GR   1294.1    9717.53    1292.98    9751.46    1293.68    9766.86    1293.89    9783.00    1293.17    9784.20
GR   1291.3    9801.73    1290.67    9810.69    1290.76    9821.63    1288.00    9835.48    1288.00   10331.30
GR   1288.0   10465.00    1292.32   10478.72    1289.20   10487.96    1288.71   10531.93    1288.81   10545.65
GR   1289.9   10555.25    1294.94   10582.72    1299.17   10607.46    1299.63   10636.15    1289.07   10651.08
GR   1287.8   10698.65    1287.78   10863.93    1288.22   10909.82    1288.02   10933.29    1288.23   10943.55
GR   1288.1   10998.98    1288.49   11034.12    1289.44   11062.87    1289.29   11085.09    1289.55   11105.80
GR   1289.0   11188.14    1290.12   11224.24    1288.42   11268.57    1289.97   11374.44    1290.35   11398.66
GR   1291.8   11419.65    1291.96   11430.08    1290.64   11444.56    1292.34   11454.84    1290.56   11460.29
GR   1290.7   11483.66

QT        1    6100.00

X1   14.013      56.00     9785.6   10046.46    1020.00    1055.00    1030.00
```

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GR   1308.1    8885.04    1307.16    9001.97    1306.76    9131.69    1305.89    9262.54    1305.46    9463.27
GR   1305.1    9536.52    1305.80    9581.14    1306.33    9612.59    1306.46    9656.69    1306.04    9718.42
GR   1306.1    9748.58    1305.60    9785.60    1302.88    9789.55    1300.12    9833.18    1299.23    9894.80
GR   1299.0    9926.31    1296.71    9935.80    1298.47    9952.05    1298.12    9980.15    1295.83    9992.04
GR   1295.8   10012.00    1303.66   10046.46    1301.65   10069.05    1302.58   10079.46    1303.94   10111.70
GR   1302.3   10139.56    1303.71   10182.19    1304.23   10259.71    1304.30   10279.45    1301.54   10291.09
GR   1301.5   10336.66    1303.38   10390.98    1303.41   10452.40    1301.81   10469.00    1301.44   10484.76
GR   1300.6   10497.18    1302.40   10515.30    1301.77   10525.22    1301.01   10546.39    1305.31   10558.44
GR   1305.3   10629.80    1304.00   10640.75    1305.46   10654.41    1302.58   10668.11    1305.64   10686.15
GR   1305.4   10737.82    1301.43   10757.14    1303.93   10781.78    1304.52   10809.46    1304.49   10869.87
GR   1304.7   10926.68    1302.78   10964.28    1305.71   10999.97    1305.99   11074.48    1306.06   11178.36
GR   1306.3   11224.99

X1   14.197      61.00    9934.14   10263.32     990.00     920.00     970.00
GR   1312.3    9057.99    1312.02    9128.57    1311.52    9237.56    1310.88    9437.57    1310.21    9532.53
GR   1310.3    9637.37    1310.21    9657.85    1311.02    9737.58    1307.66    9804.07    1309.41    9819.00
GR   1309.3    9843.53    1308.78    9876.36    1310.08    9883.82    1309.84    9923.14    1309.62    9934.14
GR   1301.9   10000.00    1305.91   10027.15    1306.24   10040.69    1307.57   10146.12    1307.88   10191.01
GR   1306.7   10232.33    1306.60   10241.44    1310.80   10263.32    1310.54   10339.42    1310.58   10440.82
GR   1311.3   10476.46    1307.35   10489.70    1307.95   10523.02    1306.79   10552.35    1310.79   10569.56
GR   1310.4   10637.65    1311.00   10699.75    1307.71   10710.61    1309.41   10730.06    1308.86   10747.01
GR   1308.7   10768.64    1308.79   10824.52    1309.04   10833.97    1307.85   10851.15    1308.97   10865.21
GR   1308.2   10879.45    1308.37   10885.68    1306.28   10900.92    1306.70   10941.53    1307.57   10957.62
1
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GR   1306.5   10971.36    1306.28   10983.48    1310.33   10998.91    1308.97   11010.87    1310.26   11031.15
GR   1310.4   11043.96    1309.97   11055.73    1307.38   11069.33    1310.82   11083.15    1310.54   11145.23
GR   1309.3   11242.46    1309.56   11282.63    1308.63   11293.26    1309.91   11330.36    1310.51   11362.09
GR   1310.8   11433.55

  ADDED STA 9551

X1   14.379         61    9551.00   10106.58     940.00    1000.00     960.00
GR   1318.0    9021.00    1317.77    9154.20    1317.61    9206.43    1316.99    9283.44    1316.45    9406.46
GR   1316.3    9506.48     1316.3    9551.00    1314.22    9638.45    1313.33    9668.13    1310.91    9681.78
GR   1308.7    9689.35     1308.0    9709.34    1313.09    9717.56    1316.83    9728.26    1316.30    9806.52
GR   1316.2    9841.49     1316.3    9906.34    1316.58    9969.41    1309.18    9984.55    1312.77   10106.58
GR   1313.2   10174.33     1313.3   10201.48    1313.78   10213.27    1313.61   10241.58    1313.00   10265.72
GR   1313.9   10292.66     1314.5   10320.38    1313.12   10381.49    1312.38   10403.95    1312.27   10441.69
GR   1314.9   10495.75     1315.2   10507.24    1315.69   10565.84    1316.10   10604.25    1313.89   10615.71
GR   1315.0   10641.45     1313.6   10657.55    1313.74   10707.28    1314.33   10747.70    1312.73   10786.97
GR   1312.1   10819.27     1312.7   10839.42    1314.96   10852.38    1313.25   10888.47    1312.47   10917.80
GR   1310.8   10929.98     1310.7   10962.21    1315.13   10980.38    1314.82   11009.50    1314.20   11106.74
GR   1313.9   11217.17     1314.1   11306.78    1314.17   11315.40    1314.33   11406.81    1315.42   11433.49
GR   1315.8   11482.38     1314.7   11492.85    1314.40   11500.18    1315.63   11528.39    1316.23   11610.10
GR   1316.2   11673.33

X1   14.559      62.00    9196.31   10019.18     950.00     915.00     950.00
GR   1324.0    8495.79    1322.75    8664.22    1321.18    8894.09    1319.94    8991.46    1319.36    9008.48
GR   1320.7    9020.18    1320.60    9064.19    1321.01    9160.13    1321.63    9196.31    1317.65    9222.14
GR   1316.9    9228.26    1316.40    9262.17    1319.40    9312.00    1320.19    9362.65    1320.04    9395.71
GR   1316.7    9411.74    1316.68    9423.78    1317.23    9461.28    1316.68    9491.89    1318.79    9514.37
GR   1319.7    9519.38    1320.64    9594.67    1321.19    9664.84    1320.92    9730.31    1316.14    9762.62
GR   1319.4    9778.27    1316.60    9861.71    1317.84    9883.52    1317.90    9910.45    1316.97    9960.73
GR   1317.1    9971.30    1315.45    9978.63    1315.07   10012.00    1320.94   10019.18    1320.59   10033.36
GR   1319.0   10041.58    1319.71   10057.25    1320.69   10079.35    1320.59   10109.16    1320.32   10136.44
GR   1321.0   10160.03    1320.77   10171.58    1319.57   10184.86    1320.83   10197.69    1320.34   10240.72
GR   1321.0   10254.93    1320.60   10364.18    1320.13   10469.94    1319.94   10569.66    1319.55   10668.02
GR   1320.3   10763.60    1320.45   10833.72    1318.88   10881.72    1318.80   10943.49    1318.60   10965.71
GR   1319.1   10978.76    1319.03   11074.35    1319.20   11164.21    1319.86   11252.94    1320.72   11283.69
GR   1320.4   11351.62    1320.72   11386.29

X1   14.752      65.00    9669.41   10173.79    1010.00    1010.00    1020.00
X3       10
GR   1331.2    8715.21    1329.70    8914.54    1329.18    8947.03    1327.13    9096.14    1326.85    9163.26
GR   1327.0    9195.27    1326.95    9274.26    1326.24    9303.35    1324.99    9321.45    1326.34    9337.23
GR   1326.4    9384.46    1326.26    9388.85    1326.37    9439.29    1326.02    9476.49    1326.72    9542.71
GR   1326.6    9574.84    1325.48    9586.69    1326.69    9606.65    1326.52    9617.95    1326.53    9669.41
GR   1320.3    9682.79    1320.23    9691.15    1320.90    9736.76    1324.02    9770.44    1323.71    9784.07
GR   1324.3    9871.80    1323.24    9904.36    1320.32    9920.65    1320.76    9953.54    1321.51    9970.20
GR   1320.4    9991.13    1319.58   10000.00    1323.60   10015.77    1321.53   10040.26    1322.79   10075.99
GR   1325.0   10094.92    1322.43   10113.09    1324.99   10120.12    1324.14   10161.40    1327.21   10173.79
GR   1327.3   10270.77    1327.07   10308.99    1326.21   10423.48    1325.58   10499.08    1326.14   10551.63
GR   1326.3   10587.38    1326.03   10710.57    1326.00   10810.98    1325.52   10911.41    1325.27   10987.37
GR   1324.7   11087.27    1324.61   11162.30    1324.64   11187.38    1324.54   11261.88    1324.46   11320.93
GR   1325.5   11363.17    1324.61   11462.41    1324.25   11487.39    1324.48   11513.89    1324.92   11614.30
1
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GR   1325.1   11687.38    1325.46   11752.29    1326.53   11803.18    1327.49   11820.73    1327.40   11837.08

QT       1    4200.00

  ADDED STA 9839

X1   14.945         75    9839.00   10023.75    1005.00    1000.00    1020.00
X3       10
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GR   1337.4    8999.01    1335.96    9178.64    1335.87    9210.42    1334.83    9345.17    1334.57    9425.61
GR   1334.9    9466.09    1334.24    9472.12    1333.97    9493.38    1333.94    9570.05    1334.00    9588.29
GR   1332.5    9642.74    1331.70    9650.26    1331.54    9663.27    1331.93    9695.22    1331.29    9762.79
GR   1330.3    9796.07    1329.5     9839.00    1328.89    9877.10    1326.10    9921.75    1325.07    9948.82
GR   1323.8   10000.00    1330.4    10023.75    1334.24   10035.51    1333.91   10057.71    1334.66   10064.42
GR   1331.0   10076.08    1331.1    10088.10    1330.34   10156.77    1330.23   10194.65    1329.53   10223.38
GR   1328.7   10241.17    1330.4    10273.61    1330.11   10307.97    1328.77   10339.39    1327.07   10373.92
GR   1329.4   10421.76    1332.1    10437.68    1331.21   10475.64    1330.73   10477.68    1319.80   10512.02
GR   1318.1   10523.52    1318.3    10536.53    1315.80   10573.45    1315.29   10653.00    1315.52   10678.70
GR   1316.2   10698.94    1315.9    10716.85    1317.97   10733.82    1323.73   10752.62    1324.37   10757.42
GR   1330.0   10775.43    1334.6    10792.58    1332.01   10810.57    1328.18   10823.84    1331.81   10833.35
GR   1332.5   10909.04    1332.8    10917.18    1332.36   10962.34    1331.38   11038.61    1331.18   11122.23
GR   1330.9   11195.19    1330.8    11317.78    1331.40   11323.88    1331.61   11337.82    1331.33   11378.73
GR   1331.3   11418.52    1331.2    11478.73    1331.57   11537.95    1331.65   11578.73    1331.90   11608.73
GR   1331.8   11683.66    1331.5    11714.73    1331.89   11760.92    1332.47   11820.91    1332.72   11855.79

X1   15.144      67.00    9723.35    10113.9        900        890        1056        .89
X3       10
GR   1344.8    8716.59    1343.81    8820.25    1343.32    8897.84    1342.60    8922.58    1342.69    8975.04
GR   1342.4    9018.53    1342.24    9064.13    1342.47    9114.12    1342.14    9147.99    1341.46    9185.91
GR   1340.6    9201.25    1341.56    9220.79    1340.71    9323.48    1340.31    9338.05    1340.14    9369.16
GR   1337.8    9384.69    1343.14    9399.44    1340.89    9406.83    1338.89    9418.73    1338.12    9442.32
GR   1339.6    9470.84    1339.58    9483.84    1334.16    9501.70    1334.32    9520.77    1333.90    9560.76
GR   1334.8    9571.73    1335.11    9596.84    1330.96    9612.59    1334.70    9634.42    1335.25    9662.11
GR   1335.5    9692.78    1336.01    9697.39    1336.54    9723.35    1332.16    9744.51    1329.50    9760.15
GR   1332.5    9826.27    1333.17    9847.25    1333.34    9899.86    1333.72    9920.28    1331.93    9975.33
GR   1329.2    9990.00    1329.48   10004.50    1331.32   10018.00    1332.04   10059.31    1333.02   10073.27
GR   1333.6   10091.46    1333.51   10113.90    1333.84   10144.63    1337.37   10164.78    1337.10   10179.27
GR   1338.3   10233.80    1338.70   10304.95    1337.91   10367.80    1337.41   10469.23    1339.61   10505.02
GR   1338.2   10522.90    1337.73   10596.56    1337.68   10697.97    1337.48   10767.91    1337.52   10828.29
GR   1337.1   10967.09    1336.92   10997.98    1337.26   11066.70    1337.28   11197.98    1337.52   11265.91
GR   1337.8   11297.98    1338.01   11409.74

X1   15.333      60.00    9735.16    10057.01     900.00     890.00     1000.00
X3       10
GR   1351.7    8464.49    1351.51    8472.80    1349.69    8652.71    1349.78    8673.82    1348.61    8756.93
GR   1348.3    8781.17    1348.29    8801.56    1348.63    8847.99    1347.57    8867.39    1347.83    8876.73
GR   1347.0    8888.90    1344.52    8899.15    1343.91    8907.37    1342.60    8913.09    1347.93    8929.97
GR   1347.4    8947.12    1346.13    9004.70    1347.89    9012.84    1348.26    9028.93    1347.91    9055.96
GR   1347.7    9067.71    1346.77    9074.32    1346.50    9123.37    1346.55    9187.96    1346.08    9257.25
GR   1346.1    9263.81    1345.49    9334.96    1344.19    9436.51    1343.84    9471.48    1343.67    9541.61
GR   1343.5    9567.08    1344.26    9614.64    1339.61    9631.52    1337.97    9657.39    1340.24    9675.69
GR   1340.1    9735.16    1337.04    9760.57    1338.11    9786.05    1336.76    9801.56    1335.73    9857.56
1
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GR   1337.7    9907.45    1335.14    9949.64    1333.64   10000.00    1333.69   10037.09    1342.68   10057.01
GR   1343.2   10238.20    1342.68   10352.19    1342.64   10376.59    1342.91   10452.18    1342.25   10551.85
GR   1342.1   10627.11    1342.21   10677.42    1342.49   10761.98    1343.26   10826.87    1343.27   10843.69
GR   1342.4   10926.33    1342.48   10978.26    1342.86   11052.20    1342.79   11078.53    1343.16   11154.04

  MOVED CORPS SECTION 15.519

X1   15.506      59.00     9583.6    10049.31     871.00     891.00     911.00
GR   1350.0    9130.00    1349.44    9171.07    1350.54    9182.01    1350.66    9202.41    1347.15    9217.14
GR   1347.3    9223.91    1349.18    9232.83    1350.84    9248.80    1350.14    9280.76    1350.43    9287.50
GR   1349.5    9305.29    1349.40    9315.08    1349.84    9338.82    1349.61    9343.51    1349.38    9374.47
GR   1349.7    9389.56    1348.85    9428.85    1348.12    9450.68    1347.86    9477.02    1346.09    9513.68
GR   1347.7    9533.28    1347.34    9555.18    1347.14    9572.45    1342.22    9583.60    1341.34    9599.78
GR   1341.6    9636.79    1341.32    9678.54    1339.53    9685.93    1336.71    9702.65    1337.26    9725.18
GR   1337.4    9762.02    1338.00    9814.88    1337.80    9845.64    1338.23    9921.79    1337.81    9955.94
GR   1336.1    9971.61    1335.51   10012.16    1344.94   10049.31    1343.76   10065.07    1341.35   10073.20
GR   1341.6   10095.56    1345.28   10114.17    1345.62   10162.54    1345.24   10212.26    1345.49   10228.33
GR   1346.5   10254.16    1346.56   10278.85    1346.52   10310.77    1347.06   10414.90    1346.99   10431.44
GR   1347.4   10531.31    1348.24   10614.89    1347.71   10712.84    1347.39   10803.97    1347.31   10830.24
GR   1346.6   10979.95    1346.66   11008.75    1348.16   11044.31    1348.00   11056.79

X1   15.699      51.00    9838.14    10057.68    1004.00     989.00    1019.00
GR   1357.8    9294.63    1357.18    9382.00    1356.18    9404.08    1353.62    9413.31    1355.37    9423.79
GR   1356.2    9445.86    1355.86    9485.88    1355.33    9573.79    1355.32    9586.67    1354.24    9623.78
GR   1353.4    9684.70    1353.65    9704.79    1353.35    9758.40    1353.25    9773.37    1350.58    9780.33
GR   1348.9    9787.61    1344.92    9801.35    1345.84    9812.79    1349.39    9838.14    1348.42    9870.89
GR   1344.9    9896.59    1345.54    9925.79    1344.56    9985.00    1345.17   10011.60    1345.49   10035.50
GR   1349.7   10057.68    1348.74   10067.78    1349.47   10086.36    1349.17   10107.77    1351.14   10147.74
GR   1351.1   10180.81    1349.62   10270.66    1348.85   10296.67    1350.51   10326.41    1351.69   10339.43
GR   1349.6   10419.89    1348.33   10474.04    1350.09   10495.52    1349.67   10553.48    1349.34   10580.45
GR   1349.5   10595.12    1348.47   10678.67    1348.26   10684.54    1347.08   10767.98    1346.42   10783.55
GR   1349.5   10794.80    1353.10   10806.43    1353.63   10890.74    1353.87   10984.55    1354.58   11083.58
GR   1354.5   11100.01

QT       1    2350.00

X1   15.966      49.00    9697.82    10153.85    1450.00    1200.00    1410.00
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GR   1362.6    9107.52    1362.11    9166.44    1361.40    9212.48    1360.34    9317.45    1360.44    9395.39
GR   1359.5    9474.97    1358.94    9599.89    1358.93    9615.07    1357.42    9618.57    1358.95    9624.43
GR   1358.6    9662.18    1359.10    9697.82    1353.46    9714.88    1358.90    9731.13    1358.21    9750.01
GR   1355.4    9768.33    1355.12    9800.44    1355.85    9809.20    1356.22    9832.96    1353.69    9862.72
GR   1355.6    9934.10    1354.00    9949.05    1351.84   10000.00    1356.10   10022.16    1356.70   10077.24
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GR   1355.7   10102.69    1356.62   10119.29    1356.72   10153.85    1357.74   10167.67    1357.77   10179.16
GR   1356.0   10276.04    1354.72   10282.19    1354.06   10316.99    1357.75   10332.42    1354.40   10369.79
GR   1360.1   10389.77    1360.53   10400.65    1360.90   10554.12    1360.95   10626.14    1361.13   10708.32
GR   1361.4   10758.56    1361.58   10785.80    1361.51   10832.49    1361.23   10876.66

  ADDED STA 10125

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X1   16.066         60    9745.57   10125.00     565.00      480.00     570.00
GR   1368.8    8772.49    1367.91    8866.84    1367.20    8906.41    1367.03    9007.86    1366.60    9081.51
GR   1366.1    9128.64    1365.08    9215.30    1364.57    9296.22    1363.38    9380.44    1363.04    9417.94
GR   1363.5    9463.39    1363.10    9524.88    1362.18    9546.14    1361.42    9583.36    1358.27    9598.81
GR   1359.3    9604.63    1359.35    9613.54    1358.86    9634.17    1358.05    9649.10    1360.07    9664.39
GR   1361.1    9679.01    1361.05    9686.77    1359.84    9709.52    1360.88    9736.10    1360.66    9745.57
GR   1356.7    9759.97    1355.87    9784.07    1356.38    9791.10    1358.19    9832.99    1359.68    9850.83
GR   1357.9    9906.63    1358.91    9914.54    1357.80    9927.13    1358.94    9940.31    1359.73    9982.54
GR   1354.4   10000.00    1357.24   10017.40    1357.22   10032.34    1359.30   10057.91    1359.74   10073.96
GR   1359.5   10113.48    1359.90   10125.00    1360.12   10156.35    1360.91   10175.37    1359.58   10203.84
GR   1358.4   10218.23     1357.8   10233.04    1357.58   10264.16    1354.63   10288.59    1358.50   10365.15
GR   1356.4   10430.62     1360.5   10455.33    1361.31   10479.14    1361.89   10520.47    1362.27   10529.56
GR   1362.7   10575.64     1363.6   10658.99    1363.80   10691.58    1363.92   10778.20    1364.08   10889.77

X1   16.167        45.00    9900.11   10077.88     530.00      530.00     530.00
GR   1373.8    8675.00    1373.46    8712.70    1373.12    8770.73    1371.96    8857.49    1370.68    8949.38
GR   1370.4    9103.19    1368.64    9201.68    1368.20    9287.71    1368.09    9417.14    1366.39    9632.59
GR   1365.8    9740.33    1365.21    9795.77    1365.02    9859.36    1364.28    9900.11    1360.34    9918.75
GR   1360.0    9958.46    1360.72    9983.59    1358.98   10005.76    1363.49   10033.48    1362.35   10077.88
GR   1361.9   10107.27    1361.08   10125.89    1363.40   10147.81    1363.36   10161.08    1363.72   10187.34
GR   1364.0   10190.97    1363.05   10215.38    1362.94   10236.86    1363.28   10267.76    1361.99   10356.63
GR   1361.4   10386.59    1362.61   10415.86    1361.88   10437.85    1359.11   10468.61    1360.31   10504.24
GR   1357.6   10525.16    1364.83   10548.47    1364.65   10598.82    1362.48   10615.75    1360.59   10635.66
GR   1364.2   10661.51    1364.79   10707.32    1361.52   10755.37    1366.85   10775.20    1366.50   10800.44

X1   16.248        51.00    9957.43   10057.86     450.00      340.00     430.00
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GR   1370.6    9353.53    1370.58    9421.45    1369.86    9478.31    1369.56    9539.01    1369.31    9563.12
GR   1367.7    9629.78    1367.91    9670.50    1365.93    9686.92    1368.11    9701.38    1367.95    9738.42
GR   1366.5    9747.22    1367.35    9764.28    1366.79    9878.48    1366.86    9947.02    1361.19    9957.43
GR   1360.2    9992.00    1363.10   10034.92    1364.02   10057.86    1364.29   10071.03    1365.40   10164.01
GR   1363.5   10192.65    1365.07   10228.71    1365.31   10253.52    1361.33   10273.93    1363.88   10296.34
GR   1362.7   10314.86    1365.85   10329.02    1365.68   10363.06    1364.42   10406.01    1365.60   10427.20
GR   1364.3   10446.00    1363.73   10466.47    1365.10   10475.95    1365.33   10484.17    1364.11   10494.07
GR   1365.5   10505.40    1364.79   10544.69    1365.25   10583.37    1363.26   10604.84    1362.54   10624.69
GR   1361.5   10638.50    1367.47   10664.63    1366.99   10740.80    1367.36   10804.88    1367.25   10821.88
GR   1366.5   10831.32

X1   16.328        39.00    9900.83   10236.68     440.00      250.00     410.00
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GR   1373.0    9213.23    1372.97    9262.62    1372.08    9370.24    1371.34    9444.24    1370.75    9521.26
GR   1370.3    9585.45    1369.96    9685.81    1369.74    9717.60    1369.51    9743.16    1364.90    9761.75
GR   1366.7    9783.29    1367.06    9795.52    1366.85    9868.87    1366.93    9900.83    1363.81    9917.19
GR   1365.3    9941.02    1364.02    9968.74    1362.60   10010.00    1364.96   10050.34    1365.59   10099.97
GR   1365.8   10129.81    1366.98   10157.41    1367.61   10184.26    1367.77   10236.68    1367.06   10278.40
GR   1364.6   10293.06    1368.32   10318.66    1366.61   10345.50    1363.65   10360.13    1364.70   10366.36
GR   1368.9   10380.82    1367.56   10424.04    1368.01   10446.38    1368.74   10532.04

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X1   16.411         76.00    9876.84   10044.45     510.00      350.00     450.00
X3       10
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GR   1371.4    9428.37    1371.07    9452.99    1371.08    9460.90    1371.10    9476.27    1370.90    9538.60
GR   1371.4    9569.87    1370.94    9582.75    1371.07    9624.62    1371.17    9635.44    1371.39    9639.59
GR   1371.4    9639.67    1371.55    9642.19    1371.45    9642.69    1371.16    9645.85    1370.12    9651.09
GR   1368.2    9659.28    1367.98    9668.71    1367.73    9677.04    1367.66    9679.18    1367.64    9680.43
GR   1367.5    9691.66    1367.46    9698.63    1368.21    9705.94    1368.59    9711.62    1368.97    9716.55
GR   1369.4    9721.48    1369.40    9735.40    1369.51    9752.09    1369.62    9780.92    1369.65    9790.33
GR   1369.5    9876.84    1369.46    9891.31    1368.86    9900.51    1368.60    9904.21    1368.53    9905.19
GR   1367.5    9924.59    1366.46    9945.29    1366.13    9953.56    1365.29    9975.54    1365.18    9978.90
GR   1365.0    9991.56    1364.58   10013.82    1364.41   10022.71    1364.27   10030.00    1369.30   10039.67
GR   1371.4   10043.83    1371.45   10044.45    1371.35   10095.80    1371.29   10124.59    1371.29   10126.85
GR   1371.3   10127.53    1371.29   10127.64    1371.29   10127.96    1371.28   10128.37    1371.29   10129.67
GR   1370.9   10189.72    1370.61   10196.89    1370.60   10197.34    1370.32   10199.28    1367.85   10216.22
GR   1367.6   10218.17    1368.63   10224.76    1369.82   10237.22    1369.89   10243.35    1370.26   10249.59
GR   1370.5   10255.82    1370.69   10260.05    1370.74   10281.20    1370.54   10293.01    1370.50   10309.89
GR   1370.5   10322.42

X1   16.504         69.00    9881.12   10077.88     460.00      300.00     490.00
X3       10
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GR   1375.8    9134.13    1375.45    9175.57    1374.98    9248.24    1374.98    9251.00    1374.56    9350.63
GR   1374.3    9374.74    1374.06    9399.84    1373.99    9404.40    1373.99    9405.05    1374.00    9405.55
GR   1374.0    9406.67    1374.02    9408.16    1373.95    9434.31    1373.96    9447.20    1373.96    9452.54
GR   1374.0    9476.58    1374.17    9543.67    1374.31    9590.73    1374.09    9624.22    1374.23    9645.24
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 GR   1374.3    9647.80    1374.35    9653.27    1374.00    9670.32    1374.00    9671.76    1373.83    9672.29
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 GR   1372.8    9806.61    1372.86    9810.14    1372.90    9815.58    1372.92    9818.32    1372.55    9822.19
 GR   1370.5    9840.78    1370.82    9848.90    1371.41    9861.47    1371.72    9867.69    1371.80    9870.05
 GR   1371.1    9875.11    1370.28    9881.12    1369.90    9884.12    1369.86    9896.18    1369.80    9901.88
 GR   1369.2    9933.18    1368.17    9978.39    1367.53   10004.10    1366.99   10027.02    1366.89   10030.00
 GR   1367.2   10041.54    1367.78   10062.76    1369.44   10066.46    1373.87   10077.88    1373.37   10101.92
 GR   1373.3   10104.39    1374.39   10120.99    1374.45   10122.19    1374.27   10133.96

 X1   16.608       87.0    9819.07    10042.2       485.00       450.00       530.00
 X3       10
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 GR   1381.5    8877.83    1381.06    8885.78    1381.22    8890.37    1381.24    8890.79    1381.33    8892.90
 GR   1381.9    8900.42    1381.80    8913.68    1381.58    8927.84    1381.19    8930.40    1379.80    8939.52
 GR   1380.5    8943.79    1381.37    8949.97    1381.32    8951.64    1381.23    8955.17    1380.90    8989.41
 GR   1380.7    9028.58    1380.26    9064.73    1379.90    9154.19    1379.75    9178.52    1379.75    9185.72
 GR   1379.6    9199.00    1379.06    9259.47    1378.93    9292.29    1378.61    9333.22    1377.96    9406.05
 GR   1377.9    9408.63    1377.41    9480.73    1377.06    9519.86    1376.91    9554.47    1376.89    9618.23
 GR   1376.9    9633.65    1376.77    9699.36    1376.98    9740.39    1377.17    9771.04    1377.26    9775.79
 GR   1377.3    9780.57    1377.27    9787.55    1377.28    9796.91    1377.23    9802.00    1377.06    9818.05
 GR   1377.1    9819.07    1373.42    9832.69    1371.67    9838.45    1371.60    9843.02    1371.33    9850.30
 GR   1371.2    9853.48    1371.87    9886.36    1371.82    9889.17    1371.83    9891.72    1372.17    9901.02
 GR   1370.4    9909.72    1369.70    9912.80    1369.52    9914.23    1368.88    9918.79    1369.27    9922.16
 GR   1369.7    9927.57    1370.52    9935.27    1371.21    9943.78    1371.49    9964.01    1371.62    9974.05
1
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 GR   1370.8    9982.91    1368.54   10005.00    1368.66   10006.09    1368.71   10006.47    1369.84   10014.62
 GR   1370.4   10019.36    1371.11   10024.67    1372.82   10036.62    1373.08   10038.41    1373.62   10042.20
 GR   1373.7   10047.84    1373.48   10060.74    1373.21   10066.14    1372.48   10073.69    1371.35   10083.94
 GR   1371.0   10087.86    1370.93   10089.62    1370.13   10094.99    1370.97   10099.81    1372.83   10106.61
 GR   1373.7   10110.59    1374.03   10113.41

 X1   16.732       93.00    9875.39    10046.16       640.00       420.00       685.00
 X3       10
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 GR   1384.8    9293.40    1384.39    9324.36    1384.41    9328.79    1384.25    9354.58    1384.23    9356.39
 GR   1384.0    9357.74    1382.66    9365.43    1383.13    9368.02    1384.31    9374.66    1384.16    9392.81
 GR   1384.1    9403.62    1384.06    9406.55    1384.02    9408.29    1383.98    9409.59    1383.83    9421.95
 GR   1382.9    9487.14    1382.62    9525.62    1382.31    9560.18    1381.83    9618.74    1381.68    9633.21
 GR   1381.6    9641.75    1380.94    9706.23    1380.48    9757.84    1380.33    9774.15    1380.32    9775.71
 GR   1380.3    9779.34    1380.36    9782.88    1380.13    9805.47    1380.12    9810.26    1380.10    9813.42
 GR   1380.1    9836.20    1380.07    9871.53    1379.92    9872.21    1379.90    9873.23    1379.89    9873.98
 GR   1379.9    9875.39    1379.87    9876.55    1379.85    9877.46    1379.83    9878.10    1378.19    9882.57
 GR   1373.1    9902.92    1373.11    9903.50    1373.15    9905.22    1373.54    9920.99    1373.81    9927.30
 GR   1375.8    9964.79    1376.00    9969.85    1376.38    9977.28    1373.49    9996.06    1372.93   10000.00
 GR   1373.4   10003.81    1375.42   10018.75    1374.55   10024.76    1373.99   10030.08    1376.94   10046.16
 GR   1378.1   10052.49    1378.18   10056.15    1378.23   10058.17    1378.40   10068.80    1378.94   10085.52
 GR   1379.1   10089.78    1378.77   10100.16    1378.62   10105.79    1378.28   10122.43    1377.31   10141.98
 GR   1378.4   10168.08    1379.03   10191.45    1379.04   10192.88    1379.26   10221.05    1379.26   10222.68
 GR   1379.3   10227.60    1379.18   10242.45    1378.19   10246.58    1376.60   10252.70    1376.62   10254.49
 GR   1376.6   10255.87    1376.65   10257.50    1376.97   10287.04    1377.08   10295.55    1377.20   10304.95
 GR   1377.2   10310.91    1377.13   10318.01    1376.45   10352.95    1376.01   10398.13    1375.82   10409.80
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 X1   16.818       76.00    9890.87    10084.4       430.00       750.00       455.00
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 GR   1385.1    9516.71    1383.71    9624.93    1383.60    9634.21    1383.57    9636.26    1383.54    9639.96
 GR   1382.6    9751.70    1382.64    9778.62    1382.77    9800.20    1382.45    9801.00    1382.04    9803.60
 GR   1382.2    9804.12    1382.92    9807.44    1387.05    9825.73    1390.32    9835.58    1387.05    9842.98
 GR   1381.8    9858.11    1379.92    9863.70    1379.68    9864.81    1380.17    9867.81    1380.81    9876.00
 GR   1380.9    9876.58    1380.85    9876.75    1380.81    9877.29    1379.69    9886.29    1379.60    9890.87
 GR   1379.5    9894.37    1379.10    9897.73    1379.08    9901.74    1379.10    9905.76    1379.15    9908.37
 GR   1378.8    9914.12    1378.74    9917.88    1378.42    9921.17    1377.92    9925.40    1377.63    9927.37
 GR   1376.9    9937.00    1376.66    9946.61    1375.75    9988.86    1375.46   10010.05    1375.47   10014.10
 GR   1375.2   10023.74    1375.00   10035.00    1377.56   10057.56    1378.84   10068.25    1379.04   10077.77
 GR   1379.1   10079.35    1379.07   10079.86    1379.10   10080.84    1379.34   10084.40    1379.49   10088.34
 GR   1379.6   10089.50    1378.86   10109.00    1378.77   10112.68    1378.39   10138.42    1377.91   10147.36
 GR   1377.3   10155.06    1377.30   10155.16    1380.14   10171.98    1379.88   10183.83    1379.70   10193.69
 GR   1379.8   10197.38    1380.23   10219.01    1380.25   10236.00    1380.33   10244.00    1380.36   10246.97
 GR   1380.3   10247.71    1380.46   10281.11    1380.54   10289.81    1380.58   10297.31    1380.38   10305.36
 GR   1380.0   10314.84


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     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

 *PROF 1
0

 CCHV=      .200 CEHV=      .400
```

*SECNO 8.655

3265 DIVIDED FLOW

3280 CROSS SECTION 8.65 EXTENDED 1.34 FEET

8.655	17.88	1170.38	.00	1170.38	1170.47	.09	.00	.00	1169.86
21000.0	21.6	20951.2	27.1	106.0	8677.3	100.3	.0	.0	1168.79
.00	.20	2.41	.27	.045	.035	.045	.000	1152.50	9319.96
.000088	0.	0.	0.	0	0	0	.00	929.15	10332.00

FLOW DISTRIBUTION FOR SECNO= 8.65 CWSEL= 1170.38

STA=	9320.	9530.	10104. 10332.
PER Q=	.1	99.8	.1
AREA=	106.0	8677.3	100.3
VEL=	.2	2.4	.3
DEPTH=	.5	15.1	.4

CCHV= .100 CEHV= .300

*SECNO 8.731

3265 DIVIDED FLOW

3280 CROSS SECTION 8.73 EXTENDED .94 FEET

8.731	16.89	1170.48	.00	.00	1170.50	.02	.02	.01	1156.95
12000.0	4464.8	7529.5	5.7	4971.8	6750.7	58.2	94.9	8.4	1169.55
.11	.90	1.12	.10	.045	.035	.045	.000	1153.59	9334.66
.000020	400.	400.	400.	2	0	0	.00	909.82	10366.79

FLOW DISTRIBUTION FOR SECNO= 8.73 CWSEL= 1170.48

STA=	9335.	9386.	9415.	9453.	9485.	9510.	9556.	9601.	9635.	9669.	10133.	10367.
PER Q=	3.3	3.4	4.7	4.2	3.3	5.8	5.3	3.8	3.4	62.7	.0	
AREA=	537.8	449.0	608.0	526.0	417.2	743.3	696.7	513.6	480.0	6750.7	58.2	
VEL=	.7	.9	.9	1.0	1.0	.9	.9	.9	.9	1.1	.1	
DEPTH=	10.5	15.4	15.9	16.6	16.8	16.1	15.5	15.1	14.2	14.6	.2	

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 8.807

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .26

8.807	12.33	1170.37	.00	.00	1170.57	.20	.02	.05	1172.65
12000.0	.0	11994.2	5.8	.0	3374.4	16.4	164.5	14.2	1169.70
.14	.00	3.55	.35	.000	.035	.045	.000	1158.04	9800.47
.000300	400.	400.	390.	2	0	0	.00	350.88	10151.35

FLOW DISTRIBUTION FOR SECNO= 8.81 CWSEL= 1170.37

STA=	9800.	10113.	10134.	10151.
PER Q=	100.0	.0	.0	
AREA=	3374.4	11.6	4.8	
VEL=	3.6	.4	.3	
DEPTH=	10.8	.6	.3	

*SECNO 8.883

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .53

8.883	10.96	1170.36	.00	.00	1170.87	.51	.20	.09	1176.79
12000.0	.0	12000.0	.0	.0	2090.4	.0	189.7	16.9	1170.46
.16	.00	5.74	.00	.000	.035	.000	.000	1159.40	9872.67
.001066	280.	400.	400.	2	0	0	.00	244.21	10116.88

FLOW DISTRIBUTION FOR SECNO= 8.88 CWSEL= 1170.36

STA=	9873.	10117.
PER Q=	100.0	
AREA=	2090.4	
VEL=	5.7	
DEPTH=	8.6	

*SECNO 8.936

8.936	10.78	1170.72	.00	.00	1171.19	.47	.32	.00	1174.58
12000.0	.0	12000.0	.0	.0	2184.4	.0	203.9	18.7	1170.86
.17	.00	5.49	.00	.000	.035	.000	.000	1159.94	9841.78
.001142	300.	290.	300.	2	0	0	.00	288.21	10129.99

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 8.94 CWSEL= 1170.72

STA= 9842. 10130.
PER Q= 100.0
AREA= 2184.4
VEL= 5.5
DEPTH= 7.6

*SECNO 8.977

8.977	9.58	1170.87	.00	.00	1171.54	.67	.29	.06	1175.30
12000.0	.0	12000.0	.0	.0	1831.0	.0	213.6	20.0	1172.63
.18	.00	6.55	.00	.000	.035	.000	.000	1161.29	9873.86
.001646	220.	210.	200.	2	0	0	.00	241.68	10115.54

FLOW DISTRIBUTION FOR SECNO= 8.98 CWSEL= 1170.87

STA= 9874. 10118.
PER Q= 100.0
AREA= 1831.0
VEL= 6.6
DEPTH= 7.6

*SECNO 9.009
3280 CROSS SECTION 9.01 EXTENDED 4.84 FEET

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1177.10 ELREA= 1173.37

9.009	9.37	1171.43	.00	.00	1171.79	.36	.22	.03	1177.10
12000.0	.0	12000.0	.0	.0	2495.9	.0	222.5	21.2	1173.37
.19	.00	4.81	.00	.000	.035	.000	.000	1162.06	9833.22
.000926	330.	180.	180.	2	0	0	.00	346.06	10179.29

FLOW DISTRIBUTION FOR SECNO= 9.01 CWSEL= 1171.43

STA= 9833. 10190.
PER Q= 100.0
AREA= 2495.9
VEL= 4.8
DEPTH= 7.2

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 9.047

9.047	10.03	1171.67	.00	.00	1171.95	.28	.16	.01	1177.69
12000.0	.0	12000.0	.0	.0	2810.7	.0	234.7	22.9	1174.87
.21	.00	4.27	.00	.000	.035	.000	.000	1161.64	9893.65
.000704	280.	200.	160.	2	0	0	.00	378.64	10272.30

FLOW DISTRIBUTION FOR SECNO= 9.05 CWSEL= 1171.67

STA= 9894. 10287.
PER Q= 100.0
AREA= 2810.7
VEL= 4.3
DEPTH= 7.4

CCHV= .100 CEHV= .300
*SECNO 9.129

9.129	8.84	1172.00	.00	.00	1172.25	.24	.29	.00	1180.07
12000.0	.0	12000.0	.0	.0	3037.6	.0	262.9	26.8	1176.88
.23	.00	3.95	.00	.000	.035	.000	.000	1163.16	9865.90
.000664	290.	420.	460.	1	0	0	.00	440.63	10306.54

FLOW DISTRIBUTION FOR SECNO= 9.13 CWSEL= 1172.00

STA= 9866. 10331.
PER Q= 100.0
AREA= 3037.6
VEL= 4.0
DEPTH= 6.9

CCHV= .100 CEHV= .300
*SECNO 9.318

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3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     9.318      6.35   1174.70   1174.70       .00   1176.44      1.74      1.75       .45   1185.10
   12000.0        .0   12000.0        .0        .0    1133.3        .0     310.8      35.8   1180.57
      .26       .00     10.59       .00       .000      .035      .000      .000   1168.35   9802.05
   .012475    1000.     1000.     1000.        20        19         0       .00    338.89  10140.95


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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

FLOW DISTRIBUTION FOR SECNO=      9.32          CWSEL=   1174.70

STA=    9802.   10152.
  PER Q=    100.0
   AREA=   1133.3
    VEL=     10.6
  DEPTH=       3.3

*SECNO 9.492

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.42

     9.492      5.97   1179.91       .00       .00   1180.33       .42      3.76       .13   1188.11
   11450.0        .0   11450.0        .0        .0    2203.5        .0     346.0      44.4   1184.43
      .31       .00      5.20       .00       .000      .035      .000      .000   1173.94   9818.44
   .001947     910.      920.      890.         5         0         0       .00    475.61  10294.05


FLOW DISTRIBUTION FOR SECNO=      9.49          CWSEL=   1179.91

STA=    9818.   10308.
  PER Q=    100.0
   AREA=   2203.5
    VEL=       5.2
  DEPTH=       4.6

CCHV=      .100 CEHV=      .300
*SECNO 9.692

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .54

     9.692      5.69   1182.90       .00       .00   1183.99      1.09      3.46       .20   1193.92
   11450.0        .0   11450.0        .0        .0    1368.9        .0     389.3      54.5   1190.03
      .35       .00      8.36       .00       .000      .035      .000      .000   1177.21   9939.69
   .006612    1050.     1056.     1040.         3         0         0       .00    361.19  10300.88


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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

FLOW DISTRIBUTION FOR SECNO=      9.69          CWSEL=   1182.90

STA=    9940.   10315.
  PER Q=    100.0
   AREA=   1368.9
    VEL=       8.4
  DEPTH=       3.8

CCHV=      .300 CEHV=      .500
*SECNO 9.889

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     9.889      6.19   1191.59   1191.59       .00   1194.01      2.42      8.72       .67   1195.10
   11450.0        .0   11450.0        .0        .0     916.6        .0     416.6      61.1   1198.00
      .37       .00     12.49       .00       .000      .035      .000      .000   1185.40   9928.38
   .010982    1100.     1040.     1050.        10         8         0       .00    191.86  10120.25
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FLOW DISTRIBUTION FOR SECNO= 9.89 CWSEL= 1191.59

STA= 9928. 10132.
PER Q= 100.0
AREA= 916.6
VEL= 12.5
DEPTH= 4.8

CCHV= .300 CEHV= .500
*SECNO 9.953
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1202.16 ELREA= 1201.10

9.953	5.51	1194.89	1194.89	.00	1196.91	2.02	2.15	.12	1202.16
11450.0	.0	11450.0	.0	.0	1004.4	.0	421.6	62.3	1201.10
.37	.00	11.40	.00	.000	.030	.000	.000	1189.38	9883.76
.008404	225.	225.	225.	2	11	0	.00	250.71	10134.46

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 9.95 CWSEL= 1194.89

STA= 9884. 10153.
PER Q= 100.0
AREA= 1004.4
VEL= 11.4
DEPTH= 4.0

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.90	1.56	2.60	.00	213.00	20.00	2800.00	1.88	1188.61	1188.60

*SECNO 9.967

3301 HV CHANGED MORE THAN HVINS

CLASS A LOW FLOW

3420 BRIDGE W.S.= 1194.47 BRIDGE VELOCITY= 9.56 CALCULATED CHANNEL AREA= 1196.

EGPRS	EGLWC	H3	QWEIR	QLOW	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
.00	1198.59	1.15	0.	11450.	2800.	2656.	1200.90	1207.50	0.

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1204.00 ELREA= 1204.00

9.967	7.43	1196.03	.00	.00	1198.59	2.56	1.69	.00	1204.00
11450.0	.0	11450.0	.0	.0	891.9	.0	423.2	62.7	1204.00
.38	.00	12.84	.00	.000	.030	.000	.000	1188.60	19844.91
.010786	75.	75.	75.	0	0	0	.00	225.26	20070.17

FLOW DISTRIBUTION FOR SECNO= 9.97 CWSEL= 1196.03

STA= 19845. 20110.
PER Q= 100.0
AREA= 891.9
VEL= 12.8
DEPTH= 4.0

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

CCHV= .100 CEHV= .300
*SECNO 10.096

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.42

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3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1202.63 ELREA=      1203.96

    10.096      6.77   1200.62       .00       .00   1201.17       .55      2.37       .20   1202.63
   11450.0        .0   11450.0        .0        .0    1919.3        .0     444.0      67.3   1203.96
       .41       .00      5.97       .00      .000      .030      .000      .000   1193.85   9719.23
   .001835      610.      645.      650.         3         0         0       .00    405.46  10124.69


FLOW DISTRIBUTION FOR SECNO=     10.10          CWSEL=   1200.62

STA=    9719.   10161.
  PER Q=    100.0
   AREA=   1919.3
    VEL=      6.0
  DEPTH=      4.7

*SECNO 10.271

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .44

    10.271      4.92   1203.23       .00       .00   1204.51      1.28      3.12       .22   1212.19
   10900.0        .0   10900.0        .0        .0    1200.5        .0     477.1      76.2   1205.86
       .43       .00      9.08       .00      .000      .030      .000      .000   1198.31   9870.84
   .008616      920.      925.      925.         3         0         0       .00    431.40  10302.24


FLOW DISTRIBUTION FOR SECNO=     10.27          CWSEL=   1203.23

STA=    9871.   10310.
  PER Q=    100.0
   AREA=   1200.5
    VEL=      9.1
  DEPTH=      2.8

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


*SECNO 10.433
    10.433      4.89   1209.49       .00       .00   1210.50      1.01      5.97       .03   1210.53
   10900.0        .0   10900.0        .0        .0    1349.5        .0     503.8      84.8   1211.67
       .46       .00      8.08       .00      .000      .030      .000      .000   1204.60   9888.11
   .005160      930.      910.      900.         3         0         0       .00    393.57  10281.69


FLOW DISTRIBUTION FOR SECNO=     10.43          CWSEL=   1209.49

STA=    9888.   10288.
  PER Q=    100.0
   AREA=   1349.5
    VEL=      8.1
  DEPTH=      3.4

*SECNO 10.612

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1221.05 ELREA=      1215.60

    10.612      5.14   1213.89       .00       .00   1215.07      1.18      4.51       .05   1221.05
   10900.0        .0   10900.0        .0        .0    1252.9        .0     530.4      92.1   1215.60
       .49       .00      8.70       .00      .000      .030      .000      .000   1208.75   9931.37
   .004988      880.      890.      900.         3         0         0       .00    317.94  10249.31


FLOW DISTRIBUTION FOR SECNO=     10.61          CWSEL=   1213.89

STA=    9931.   10254.
  PER Q=    100.0
   AREA=   1252.9
    VEL=      8.7
  DEPTH=      3.9

*SECNO 10.803

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1220.07 ELREA=      1219.96

    10.803      5.47   1219.57       .00       .00   1221.03      1.46      5.88       .09   1220.07
   10900.0        .0   10900.0        .0        .0    1124.1        .0     557.9      99.4   1219.96
       .52       .00      9.70       .00      .000      .030      .000      .000   1214.10   9883.53
   .006883     1020.     1010.     1010.         3         0         0       .00    308.84  10192.37


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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
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     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

 FLOW DISTRIBUTION FOR SECNO=      10.80          CWSEL=    1219.57

 STA=     9884.    10202.
   PER Q=     100.0
    AREA=    1124.1
     VEL=       9.7
   DEPTH=       3.6

 *SECNO 10.989
     10.989       6.15    1224.72        .00        .00    1226.07       1.36       5.03        .01    1231.02
    10900.0         .0    10900.0         .0         .0     1166.0         .0      583.7      105.4    1229.10
        .55         .00       9.35        .00       .000       .030       .000       .000    1218.57    9797.30
    .003975       920.       980.      1000.          2          0          0        .00     223.52   10020.82


 FLOW DISTRIBUTION FOR SECNO=      10.99          CWSEL=    1224.72

 STA=     9797.    10036.
   PER Q=     100.0
    AREA=    1166.0
     VEL=       9.3
   DEPTH=       5.2

 *SECNO 11.129

 3301 HV CHANGED MORE THAN HVINS


 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.64


 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1231.30 ELREA=      1231.76

     11.129       7.72    1227.11        .00        .00    1227.76        .65       1.62        .07    1231.30
    10900.0         .0    10900.0         .0         .0     1686.3         .0      606.9      109.4    1231.76
        .58         .00       6.46        .00       .000       .030       .000       .000    1219.39    9839.35
    .001474       710.       710.       710.          3          0          0        .00     266.94   10106.29


 FLOW DISTRIBUTION FOR SECNO=      11.13          CWSEL=    1227.11

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    18FEB99      08:25:29                                                                                    PAGE   32

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


 STA=     9839.    10118.
   PER Q=     100.0
    AREA=    1686.3
     VEL=       6.5
   DEPTH=       6.3

 *SECNO 11.188

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1232.77 ELREA=      1232.93

     11.188       8.40    1227.50        .00        .00    1228.40        .90        .56        .08    1232.77
    10350.0         .0    10350.0         .0         .0     1359.0         .0      618.1      111.2    1232.93
        .59         .00       7.62        .00       .000       .030       .000       .000    1219.10    9886.56
    .002131       310.       320.       310.          2          0          0        .00     221.68   10108.24


 FLOW DISTRIBUTION FOR SECNO=      11.19          CWSEL=    1227.50

 STA=     9887.    10128.
   PER Q=     100.0
    AREA=    1359.0
     VEL=       7.6
   DEPTH=       6.1

 *SECNO 11.301

 3301 HV CHANGED MORE THAN HVINS


 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1232.87 ELREA=      1234.82

     11.301       7.51    1228.78        .00        .00    1230.30       1.51       1.72        .18    1232.87
    10350.0         .0    10350.0         .0         .0     1049.0         .0      634.7      114.0    1234.82
        .61         .00       9.87        .00       .000       .030       .000       .000    1221.27    9903.88
    .004033       600.       600.       600.          2          0          0        .00     186.96   10090.84


 FLOW DISTRIBUTION FOR SECNO=      11.30          CWSEL=    1228.78
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```
 STA=    9904.   10114.
   PER Q=    100.0
    AREA=   1049.0
     VEL=      9.9
   DEPTH=      5.6

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    18FEB99      08:25:29                                                                                    PAGE   33

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

 *SECNO 11.386

 3301 HV CHANGED MORE THAN HVINS

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1233.46 ELREA=      1238.40

     11.386       8.00    1231.10        .00        .00    1232.06        .96       1.71        .06    1233.46
    10350.0         .0    10350.0         .0         .0     1319.1         .0      646.9      116.2     1238.40
        .63        .00       7.85        .00       .000       .035       .000       .000    1223.10    9870.23
    .003584       440.       450.       420.          3          0          0        .00     240.44   10110.68

 FLOW DISTRIBUTION FOR SECNO=     11.39          CWSEL=    1231.10

 STA=    9870.   10134.
   PER Q=    100.0
    AREA=   1319.1
     VEL=      7.8
   DEPTH=      5.5

 *SECNO 11.481

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1236.77 ELREA=      1240.19

     11.481       8.11    1232.92        .00        .00    1233.63        .72       1.55        .02    1236.77
    10350.0         .0    10350.0         .0         .0     1523.0         .0      663.9      119.2     1240.19
        .65        .00       6.80        .00       .000       .035       .000       .000    1224.81    9859.00
    .002515       480.       520.       540.          2          0          0        .00     264.94   10123.94

 FLOW DISTRIBUTION FOR SECNO=     11.48          CWSEL=    1232.92

 STA=    9859.   10215.
   PER Q=    100.0
    AREA=   1523.0
     VEL=      6.8
   DEPTH=      5.7

 *SECNO 11.566
1
    18FEB99      08:25:29                                                                                    PAGE   34

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


 3265 DIVIDED FLOW

     11.566       5.91    1234.23        .00        .00    1234.53        .30        .85        .04    1240.00
    10350.0         .0    10350.0         .0         .0     2373.8         .0      684.5      123.4     1243.30
        .68        .00       4.36        .00       .000       .035       .000       .000    1228.32    9351.74
    .001419       280.       460.       530.          2          0          0        .00     525.37   10039.30

 FLOW DISTRIBUTION FOR SECNO=     11.57          CWSEL=    1234.23

 STA=    9352.   10060.
   PER Q=    100.0
    AREA=   2373.8
     VEL=      4.4
   DEPTH=      4.5

 *SECNO 11.759

 3265 DIVIDED FLOW


 3301 HV CHANGED MORE THAN HVINS

 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
     11.759       4.95    1236.97    1236.97        .00    1238.22       1.26       3.33        .29    1243.77
    10350.0         .0    10350.0         .0         .0     1150.8         .0      725.7      135.1     1246.50
        .71        .00       8.99        .00       .000       .035       .000       .000    1232.02    9455.03
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   .013910     1050.     1020.      980.         4        15         0       .00    475.20  10110.09

FLOW DISTRIBUTION FOR SECNO=     11.76          CWSEL=   1236.97

STA=    9455.   10133.
  PER Q=    100.0
   AREA=   1150.8
    VEL=      9.0
  DEPTH=      2.4

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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*SECNO 11.949

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.92

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1248.70 ELREA=      1242.65

    11.949      5.33   1244.23       .00       .00   1244.82       .59      6.54       .07   1248.70
   10350.0        .0   10082.6     267.4        .0    1614.6     141.2     759.1     147.0   1242.65
       .75       .00      6.24      1.89      .000      .035      .060      .000   1238.90   9782.60
   .003782     990.      1000.     1000.         5         0         0       .00    565.31  10396.78

FLOW DISTRIBUTION FOR SECNO=     11.95          CWSEL=   1244.23

STA=    9783.   10236.   10261.   10319.   10367.   10388.   10397.
  PER Q=     97.4       .6       .3       .3      1.2       .2
   AREA=   1614.6     33.5     29.7     19.5     47.5     11.0
    VEL=      6.2      1.8      1.0      1.6      2.7      1.7
  DEPTH=      3.7      1.3       .5       .4      2.3      1.2

*SECNO 12.125

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1254.31 ELREA=      1254.40

    12.125      3.93   1248.58       .00       .00   1249.38       .80      4.50       .06   1254.31
   10350.0        .0   10350.0        .0        .0    1444.8        .0     793.4     158.2   1254.40
       .79       .00      7.16       .00      .000      .035      .000      .000   1244.65   9838.71
   .006382     910.      930.      1000.         4         0         0       .00    470.40  10309.12

FLOW DISTRIBUTION FOR SECNO=     12.13          CWSEL=   1248.58

STA=    9839.   10336.
  PER Q=    100.0
   AREA=   1444.8
    VEL=      7.2
  DEPTH=      3.1

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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*SECNO 12.313

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .70

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1258.50 ELREA=      1258.14

    12.313      5.87   1256.34   1256.27       .00   1257.92      1.58      8.30       .23   1258.50
    9800.0        .0    9800.0        .0        .0    972.4        .0     820.8     166.9   1258.14
       .82       .00     10.08       .00      .000      .035      .000      .000   1250.47   9943.17
   .011736     1010.      990.      980.        10        14         0       .00    298.08  10241.25

FLOW DISTRIBUTION FOR SECNO=     12.31          CWSEL=   1256.34

STA=    9943.   10248.
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  PER Q=    100.0
   AREA=    972.4
    VEL=     10.1
  DEPTH=      3.3

*SECNO 12.511

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.84


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1263.00 ELREA=      1264.63

    12.511      8.75   1263.55       .00       .00   1264.15       .61      6.14       .10   1263.00
    9800.0      90.4    9709.6        .0      90.5    1546.1        .0     852.4     177.2   1264.63
       .86      1.00      6.28       .00       .060      .035      .000      .000   1254.80   9496.97
   .003460     1000.     1056.     1020.         4         0         0       .00    559.26  10256.28


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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

FLOW DISTRIBUTION FOR SECNO=     12.51          CWSEL=   1263.55

STA=    9497.    9730.    9798.    9830.   10297.
  PER Q=       .3       .5       .1     99.1
   AREA=     32.7     43.6     14.3   1546.1
    VEL=       .9      1.1       .8      6.3
  DEPTH=       .1       .6       .4      4.0

*SECNO 12.701

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1271.92 ELREA=      1269.00

    12.701      7.74   1267.84       .00       .00   1268.72       .88      4.48       .08   1271.92
    9800.0        .0    9800.0        .0        .0    1299.5        .0     886.1     188.0   1269.00
       .90       .00      7.54       .00       .000      .035      .000      .000   1260.10   9760.41
   .006042     1030.     1000.     1020.         3         0         0       .00    374.87  10135.28


FLOW DISTRIBUTION FOR SECNO=     12.70          CWSEL=   1267.84

STA=    9760.   10268.
  PER Q=    100.0
   AREA=   1299.5
    VEL=      7.5
  DEPTH=      3.5

*SECNO 12.896

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.50


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1278.41 ELREA=      1273.00

    12.896      8.06   1270.56       .00       .00   1270.81       .26      2.03       .06   1278.41
    9800.0        .0    9800.0        .0        .0    2411.3        .0     930.0     197.7   1273.00
       .97       .00      4.06       .00       .000      .035      .000      .000   1262.50   9865.93
   .000964     1010.     1030.     1010.         4         0         0       .00    442.78  10308.71


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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

FLOW DISTRIBUTION FOR SECNO=     12.90          CWSEL=   1270.56

STA=    9866.   10345.
  PER Q=    100.0
   AREA=   2411.3
    VEL=      4.1
  DEPTH=      5.4

*SECNO 13.076
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3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1279.35 ELREA=      1272.00

    13.076      8.86   1271.23       .00       .00   1271.35       .12       .52       .01   1279.35
    7900.0        .0    7900.0        .0        .0    2830.3        .0     987.2     206.9   1272.00
      1.07       .00      2.79       .00      .000      .035      .000      .000   1262.37   9685.33
   .000326      950.      950.      980.         3         0         0       .00    403.96  10089.29


FLOW DISTRIBUTION FOR SECNO=     13.08          CWSEL=   1271.23

STA=    9685.   10103.
  PER Q=    100.0
   AREA=   2830.3
    VEL=      2.8
  DEPTH=      7.0

*SECNO 13.277

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    13.277      4.13   1279.02   1279.02       .00   1280.58      1.57       .77       .43   1282.54
    7900.0        .0    7900.0        .0        .0     786.3        .0    1020.4     212.9   1288.90
      1.09       .00     10.05       .00      .000      .035      .000      .000   1274.89   9950.33
   .012568      800.      800.      670.        20        14         0       .00    255.51  10205.84


FLOW DISTRIBUTION FOR SECNO=     13.28          CWSEL=   1279.02

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

STA=    9950.   10240.
  PER Q=    100.0
   AREA=    786.3
    VEL=     10.0
  DEPTH=      3.1

*SECNO 13.420

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1288.33 ELREA=      1289.98

    13.420      8.17   1285.60       .00       .00   1286.38       .78      5.71       .08   1288.33
    7900.0        .0    7900.0        .0        .0    1118.1        .0    1042.7     218.5   1289.98
      1.13       .00      7.07       .00      .000      .035      .000      .000   1277.43   9853.99
   .003155      970.     1020.     1000.         4         0         0       .00    217.46  10071.45


FLOW DISTRIBUTION FOR SECNO=     13.42          CWSEL=   1285.60

STA=    9854.   10081.
  PER Q=    100.0
   AREA=   1118.1
    VEL=      7.1
  DEPTH=      5.1

*SECNO 13.619

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.47

    13.619      4.90   1288.37       .00       .00   1288.61       .24      2.18       .05   1294.77
    7900.0        .0    7900.0        .0        .0    2009.6        .0    1080.6     227.6   1291.19
      1.20       .00      3.93       .00      .000      .035      .000      .000   1283.47   9796.56
   .001460     1090.     1056.     1020.         5         0         0       .00    531.56  10328.12


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   18FEB99      08:25:29                                                                          PAGE   40

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST
```

FLOW DISTRIBUTION FOR SECNO= 13.62 CWSEL= 1288.37

STA= 9797. 10336.
PER Q= 100.0
AREA= 2009.6
VEL= 3.9
DEPTH= 3.8

*SECNO 13.818

3265 DIVIDED FLOW

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1290.76 ELREA= 1288.00

13.818	2.36	1290.36	.00	.00	1290.50	.14	1.88	.01	1290.76
7900.0	.0	4162.3	3737.7	.0	1184.3	1692.7	1139.7	251.8	1288.00
1.30	.00	3.51	2.21	.000	.035	.050	.000	1288.00	9823.63
.002216	1050.	1056.	1050.	1	0	0	.00	1471.66	11398.81

FLOW DISTRIBUTION FOR SECNO= 13.82 CWSEL= 1290.36

STA= 9824. 10331. 10465. 10699. 10864. 10910. 10999. 11085. 11269. 11399.
PER Q= 52.7 9.9 4.8 14.1 3.4 5.9 3.4 3.4 2.4
AREA= 1184.3 315.6 197.6 424.8 108.3 197.2 134.8 186.1 128.2
VEL= 3.5 2.5 1.9 2.6 2.5 2.4 2.0 1.4 1.5
DEPTH= 2.3 2.4 .8 2.6 2.4 2.2 1.6 1.0 1.0

*SECNO 14.013

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

14.013	5.83	1301.63	1301.63	.00	1302.93	1.31	4.02	.35	1305.60
6100.0	.0	6059.1	40.9	.0	658.3	24.9	1182.3	273.4	1303.66
1.34	.00	9.20	1.64	.000	.035	.050	.000	1295.80	9809.34
.011528	1020.	1030.	1055.	20	20	0	.00	330.46	10759.09

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 14.01 CWSEL= 1301.63

STA= 9809. 10046. 10337. 10485. 10497. 10508. 10546. 10548. 10759.
PER Q= 99.3 .1 .0 .3 .2 .1 .0 .0
AREA= 658.3 4.9 1.0 7.5 5.3 5.3 .5 .2
VEL= 9.2 .7 .6 2.3 2.0 1.5 1.4 .7
DEPTH= 2.9 .0 .0 .6 .5 .1 .3 .0

*SECNO 14.197

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.60

14.197	7.32	1309.22	.00	.00	1309.60	.38	6.57	.09	1309.62
6100.0	62.2	4618.9	1418.9	40.7	846.0	497.9	1205.0	285.7	1310.80
1.39	1.53	5.46	2.85	.050	.035	.050	.000	1301.90	9773.30
.004494	990.	970.	920.	7	0	0	.00	798.20	11310.21

FLOW DISTRIBUTION FOR SECNO= 14.20 CWSEL= 1309.22

STA= 9773. 9879. 10263. 10552. 10901. 10942. 10971. 11069. 11310.
PER Q= 1.0 75.7 5.1 4.2 7.1 3.4 3.2 .3
AREA= 40.7 846.0 112.1 137.9 110.7 63.4 60.2 13.7
VEL= 1.5 5.5 2.8 1.8 3.9 3.3 3.2 1.4
DEPTH= .4 2.7 .4 .4 2.7 2.1 .6 .1

*SECNO 14.379

3265 DIVIDED FLOW

14.379	6.10	1314.10	.00	.00	1314.60	.51	4.97	.04	1316.30
6100.0	.0	4125.9	1974.1	.0	621.3	675.2	1235.1	306.0	1312.77
1.44	.00	6.64	2.92	.000	.035	.050	.000	1308.00	9642.42
.005887	940.	960.	1000.	3	0	0	.00	996.37	11306.89

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 14.38 CWSEL= 1314.10

STA=	9642.	10107.	10174.	10404.	10442.	10819.	10918.	10962.	11307.
PER Q=	67.6	3.0	4.2	3.7	5.3	3.7	11.1	1.4	
AREA=	621.3	75.6	130.5	67.0	139.9	83.9	138.0	40.2	
VEL=	6.6	2.5	2.0	3.3	2.3	2.7	4.9	2.1	
DEPTH=	3.0	1.1	.6	1.8	.4	.9	3.1	.1	

*SECNO 14.559

3265 DIVIDED FLOW

14.559	4.52	1319.59	.00	.00	1320.00	.41	5.39	.01	1321.63
6100.0	.5	5804.7	294.8	1.0	1106.4	192.4	1263.1	326.3	1320.94
1.49	.53	5.25	1.53	.050	.035	.050	.000	1315.07	9001.67
.005539	950.	950.	915.	5	0	0	.00	912.30	11216.92

FLOW DISTRIBUTION FOR SECNO= 14.56 CWSEL= 1319.59

STA=	9002.	9011.	10019.	11074.	11217.
PER Q=	.0	95.2	3.8	1.1	
AREA=	1.0	1106.4	139.2	53.2	
VEL=	.5	5.2	1.6	1.2	
DEPTH=	.1	2.2	.1	.4	

*SECNO 14.752

3265 DIVIDED FLOW

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1326.53 ELREA= 1327.21

14.752	5.36	1324.94	.00	.00	1325.38	.44	5.37	.01	1326.53
6100.0	.0	6100.0	.0	.0	1151.5	.0	1291.8	342.7	1327.21
1.55	.00	5.30	.00	.000	.035	.000	.000	1319.58	9672.80
.005014	1010.	1020.	1010.	3	0	0	.00	489.30	10164.68

FLOW DISTRIBUTION FOR SECNO= 14.75 CWSEL= 1324.94

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

STA=	9673.	10174.
PER Q=	100.0	
AREA=	1151.5	
VEL=	5.3	
DEPTH=	2.4	

*SECNO 14.945

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .67

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1329.50 ELREA= 1330.40

14.945	14.67	1329.96	.00	.00	1330.70	.73	5.23	.09	1329.50
4200.0	4.9	4195.1	.0	6.0	610.8	.0	1312.5	350.9	1330.40
1.59	.82	6.87	.00	.050	.035	.000	.000	1315.29	9813.70
.005291	1005.	1020.	1000.	2	0	0	.00	208.50	10022.21

FLOW DISTRIBUTION FOR SECNO= 14.94 CWSEL= 1329.96

STA=	9814.	9839.	10024.
PER Q=	.1	99.9	
AREA=	6.0	610.8	
VEL=	.8	6.9	
DEPTH=	.2	3.3	

*SECNO 15.144

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1336.54 ELREA= 1333.51

15.144	5.59	1334.79	.00	.00	1335.12	.33	4.38	.04	1336.54

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    4200.0        .0    4141.3      58.7        .0     889.7      32.8    1331.0     357.8   1333.51
      1.65       .00      4.65      1.79      .000      .035      .050      .000   1329.20   9620.13
    .003349     900.      1056.      890.         2         0         0       .00    372.24   9992.37


 FLOW DISTRIBUTION FOR SECNO=     15.14          CWSEL=   1334.79

 STA=    9620.    9960.    9988.    9992.
   PER Q=     98.6      1.3       .1
    AREA=    889.7     30.5      2.3
     VEL=      4.7      1.8      1.0
   DEPTH=      2.6      1.1       .5

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     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


 *SECNO 15.333

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1340.10 ELREA=      1342.68

    15.333      4.92   1338.56       .00        .00   1339.01       .45      3.85       .03   1340.10
    4200.0        .0    4200.0        .0         .0     781.7        .0    1350.6     365.5   1342.68
      1.70       .00      5.37       .00       .000      .035      .000      .000   1333.64   9747.95
    .004491     900.      1000.      890.         3         0         0       .00    299.92  10047.88


 FLOW DISTRIBUTION FOR SECNO=     15.33          CWSEL=   1338.56

 STA=    9748.   10057.
   PER Q=    100.0
    AREA=    781.7
     VEL=      5.4
   DEPTH=      2.6

 *SECNO 15.506

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.80

    15.506      5.42   1340.93       .00        .00   1341.12       .19      2.09       .03   1342.22
    4200.0        .0    4200.0        .0         .0    1186.6        .0    1371.1     372.3   1344.94
      1.77       .00      3.54       .00       .000      .035      .000      .000   1335.51   9680.14
    .001388     871.      911.       891.         3         0         0       .00    353.38  10033.52


 FLOW DISTRIBUTION FOR SECNO=     15.51          CWSEL=   1340.93

 STA=    9680.   10049.
   PER Q=    100.0
    AREA=   1186.6
     VEL=      3.5
   DEPTH=      3.4

 *SECNO 15.699

 3265 DIVIDED FLOW

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     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


 3301 HV CHANGED MORE THAN HVINS

 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
    15.699      3.35   1347.91   1347.91       .00   1348.98      1.07      3.15       .26   1349.39
    4200.0     289.9    3789.5     120.6      59.8     439.8      46.8    1391.4     379.8   1349.70
      1.81      4.84       8.62      2.57      .050      .035      .050      .000   1344.56   9791.01
    .011972    1004.      1019.      989.        20        14         0       .00    290.33  10789.01


 FLOW DISTRIBUTION FOR SECNO=     15.70          CWSEL=   1347.91

 STA=    9791.    9801.    9813.    9828.   10058.   10768.   10784.   10789.
   PER Q=      1.5      4.2      1.2     90.2      1.1      1.6       .3
    AREA=     15.5     29.0     15.4    439.8     24.6     18.1      4.1
     VEL=      4.1      6.0      3.3      8.6      1.8      3.6      2.6
   DEPTH=      1.5      2.5      1.0      2.5        .0      1.2       .7

 *SECNO 15.966
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3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

15.966	5.01	1356.85	.00	.00	1356.96	.12	7.89	.09	1359.10
2350.0	.0	1991.6	358.4	.0	692.7	175.4	1413.8	392.9	1356.72
1.95	.00	2.88	2.04	.000	.035	.050	.000	1351.84	9704.62
.002334	1450.	1410.	1200.	6	0	0	.00	552.51	10378.39

FLOW DISTRIBUTION FOR SECNO= 15.97 CWSEL= 1356.85

STA=	9705.	10154.	10276.	10282.	10317.	10329.	10370.	10378.
PER Q=	84.7	.7	.7	9.6	1.2	2.3	.7	
AREA=	692.7	20.1	9.2	85.7	16.3	33.6	10.5	
VEL=	2.9	.8	1.8	2.6	1.8	1.6	1.6	
DEPTH=	1.7	.2	1.5	2.5	1.4	.8	1.2	

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 16.066

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .63

16.066	4.28	1358.68	.00	.00	1358.89	.21	1.90	.03	1360.66
2350.0	6.3	1126.1	1217.6	6.2	279.1	362.1	1423.1	399.1	1359.90
1.99	1.02	4.03	3.36	.050	.035	.050	.000	1354.40	9596.77
.005909	565.	570.	480.	3	0	0	.00	452.17	10444.39

FLOW DISTRIBUTION FOR SECNO= 16.07 CWSEL= 1358.68

STA=	9597.	9599.	9601.	9649.	9654.	10125.	10218.	10233.	10264.	10289.	10365.	10431.	10444.
PER Q=	.0	.0	.2	.1	47.9	.0	.6	3.0	11.5	26.0	9.1	1.7	
AREA=	.4	.5	3.7	1.5	279.1	.5	8.7	31.0	63.0	162.3	80.9	15.7	
VEL=	.8	.8	1.1	1.1	4.0	.6	1.6	2.3	4.3	3.8	2.6	2.5	
DEPTH=	.2	.2	.1	.3	1.4	.0	.6	1.0	2.6	2.1	1.2	1.1	

*SECNO 16.167

3265 DIVIDED FLOW

16.167	4.52	1362.12	.00	.00	1362.48	.36	3.54	.04	1364.28
2350.0	.0	1155.6	1194.4	.0	209.4	297.1	1430.2	404.1	1362.35
2.02	.00	5.52	4.02	.000	.035	.050	.000	1357.60	9910.34
.007613	530.	530.	530.	4	0	0	.00	360.36	10757.59

FLOW DISTRIBUTION FOR SECNO= 16.17 CWSEL= 1362.12

STA=	9910.	10078.	10469.	10504.	10525.	10540.	10758.
PER Q=	49.2	10.1	17.0	15.6	6.1	2.1	
AREA=	209.4	88.4	85.8	66.1	32.9	23.9	
VEL=	5.5	2.7	4.7	5.6	4.3	2.0	
DEPTH=	1.8	.2	2.4	3.2	2.3	.1	

*SECNO 16.248

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3265 DIVIDED FLOW

16.248	4.33	1364.53	.00	.00	1364.96	.44	2.46	.02	1361.19
2350.0	28.3	1678.2	643.5	10.2	278.1	237.4	1434.7	407.0	1364.02
2.04	2.77	6.03	2.71	.050	.035	.050	.000	1360.20	9951.30
.005202	450.	430.	340.	3	0	0	.00	346.34	10651.75

FLOW DISTRIBUTION FOR SECNO= 16.25 CWSEL= 1364.53

STA=	9951.	9957.	10058.	10274.	10296.	10323.	10625.	10639.	10652.
PER Q=	1.2	71.4	4.7	6.0	3.0	5.4	5.8	2.4	
AREA=	10.2	278.1	53.5	43.1	30.4	55.7	34.6	20.0	
VEL=	2.8	6.0	2.1	3.3	2.3	2.3	3.9	2.8	
DEPTH=	1.7	2.8	.2	1.9	1.1	.2	2.5	1.5	

*SECNO 16.328

3265 DIVIDED FLOW

16.328	3.99	1366.59	.00	.00	1366.89	.30	1.91	.01	1366.93
2350.0	41.9	2132.8	175.3	22.9	470.7	68.1	1439.3	409.7	1367.77
2.07	1.83	4.53	2.58	.050	.035	.050	.000	1362.60	9754.93
.004801	440.	410.	250.	2	0	0	.00	325.66	10372.87

FLOW DISTRIBUTION FOR SECNO= 16.33 CWSEL= 1366.59

STA=	9755.	9762.	9782.	10237.	10293.	10307.	10360.	10366.	10373.
PER Q=	.4	1.3	90.8	1.0	1.2	2.4	2.4	.5	
AREA=	5.8	17.1	470.7	11.8	13.7	21.4	15.1	6.2	
VEL=	1.8	1.8	4.5	2.0	2.0	2.6	3.7	1.9	
DEPTH=	.8	.8	1.9	.2	1.0	.4	2.4	.9	

*SECNO 16.411

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1369.50 ELREA= 1371.45

16.411	4.46	1368.73	.00	.00	1369.35	.62	2.37	.10	1369.50
2350.0	.0	2350.0	.0	.0	372.0	.0	1444.0	412.0	1371.45
2.09	.00	6.32	.00	.000	.035	.000	.000	1364.27	9902.28
.005872	510.	450.	350.	1	0	0	.00	136.31	10038.58

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 16.41 CWSEL= 1368.73

STA=	9902.	10044.
PER Q=	100.0	
AREA=	372.0	
VEL=	6.3	
DEPTH=	2.7	

*SECNO 16.504

3265 DIVIDED FLOW

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1370.28 ELREA= 1373.87

16.504	4.22	1371.11	.00	.00	1371.43	.32	2.05	.03	1370.28
2350.0	38.1	2311.9	.0	27.3	506.8	.0	1449.1	414.1	1373.87
2.12	1.40	4.56	.00	.050	.035	.000	.000	1366.89	9681.31
.003130	460.	490.	300.	2	0	0	.00	236.43	10070.77

FLOW DISTRIBUTION FOR SECNO= 16.50 CWSEL= 1371.11

STA=	9681.	9687.	9688.	9697.	9702.	9841.	9849.	9855.	9881.	10078.
PER Q=	.3	.3	.7	.1	.1	.2	.0	.1	98.4	
AREA=	4.3	2.8	9.7	1.6	1.7	3.7	.9	2.5	506.8	
VEL=	1.4	2.2	1.7	.8	.8	1.0	.5	.9	4.6	
DEPTH=	.8	1.5	1.1	.4	.0	.5	.1	.1	2.7	

*SECNO 16.608

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1377.10 ELREA= 1373.62

16.608	4.62	1373.16	.00	.00	1373.58	.42	2.12	.03	1377.10
2350.0	.0	2350.0	.0	.0	451.8	.0	1455.1	416.8	1373.62
2.14	.00	5.20	.00	.000	.035	.000	.000	1368.54	9833.57
.005283	485.	530.	450.	1	0	0	.00	205.35	10038.92

FLOW DISTRIBUTION FOR SECNO= 16.61 CWSEL= 1373.16

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

STA=	9834.	10042.
PER Q=	100.0	
AREA=	451.8	
VEL=	5.2	
DEPTH=	2.2	

*SECNO 16.732

3265 DIVIDED FLOW

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1379.90 ELREA= 1376.94

16.732	4.09	1377.02	.00	.00	1377.54	.52	3.93	.03	1379.90
2350.0	.0	2221.9	128.1	.0	372.6	68.9	1461.9	420.3	1376.94
2.18	.00	5.96	1.86	.000	.035	.050	.000	1372.93	9887.27
.006403	640.	685.	420.	4	0	0	.00	291.35	10416.48

FLOW DISTRIBUTION FOR SECNO= 16.73 CWSEL= 1377.02

STA=	9887.	10046.	10398. 10416.
PER Q=	94.5	3.7	1.7
AREA=	372.6	52.1	16.8
VEL=	6.0	1.7	2.4
DEPTH=	2.3	.1	.9

*SECNO 16.818

3265 DIVIDED FLOW

16.818	4.42	1379.42	.00	.00	1379.74	.32	2.18	.02	1379.60
2350.0	.0	2224.6	125.4	.0	478.2	67.3	1467.5	423.9	1379.34
2.21	.00	4.65	1.86	.000	.035	.050	.000	1375.00	9895.00
.003501	430.	455.	750.	2	0	0	.00	265.30	10167.75

FLOW DISTRIBUTION FOR SECNO= 16.82 CWSEL= 1379.42

STA=	9895.	10084.	10109.	10113.	10138.	10147.	10155.	10155.	10168.
PER Q=	94.7	.1	.1	1.5	1.0	1.6	.0	1.0	
AREA=	478.2	4.2	2.2	21.8	11.4	14.0	.2	13.4	
VEL=	4.7	.8	1.3	1.6	2.1	2.6	2.9	1.8	
DEPTH=	2.5	.2	.6	.8	1.3	1.8	2.1	1.1	

THIS RUN EXECUTED 18FEB99 08:25:31

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HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

FEMA/COE MODEL UPDATE

SUMMARY PRINTOUT

	SECNO	Q	CWSEL	STCHL	VLOB	VCH	VROB	STCHR	ENDST	TOPWID
	8.655	21000.00	1170.38	9530.01	.20	2.41	.27	10103.54	10332.00	929.15
	8.731	12000.00	1170.48	9668.92	.90	1.12	.10	10132.76	10366.79	909.82
*	8.807	12000.00	1170.37	9793.80	.00	3.55	.35	10113.26	10151.35	350.88
*	8.883	12000.00	1170.36	9857.59	.00	5.74	.00	10117.10	10116.88	244.21
	8.936	12000.00	1170.72	9831.06	.00	5.49	.00	10130.27	10129.99	288.21
	8.977	12000.00	1170.87	9865.94	.00	6.55	.00	10117.99	10115.54	241.68
	9.009	12000.00	1171.43	9805.01	.00	4.81	.00	10189.89	10179.29	346.06
	9.047	12000.00	1171.67	9865.24	.00	4.27	.00	10286.83	10272.30	378.64
	9.129	12000.00	1172.00	9828.71	.00	3.95	.00	10330.52	10306.54	440.63
*	9.318	12000.00	1174.70	9775.17	.00	10.59	.00	10151.89	10140.95	338.89
*	9.492	11450.00	1179.91	9800.21	.00	5.20	.00	10307.96	10294.05	475.61
*	9.692	11450.00	1182.90	9915.96	.00	8.36	.00	10315.20	10300.88	361.19
*	9.889	11450.00	1191.59	9919.80	.00	12.49	.00	10132.31	10120.25	191.86
*	9.953	11450.00	1194.89	9867.22	.00	11.40	.00	10153.45	10134.46	250.71
	9.967	11450.00	1196.03	19825.00	.00	12.84	.00	20110.00	20070.17	225.26
*	10.096	11450.00	1200.62	9708.29	.00	5.97	.00	10160.97	10124.69	405.46

*	10.271	10900.00	1203.23	9841.02	.00	9.08	.00	10310.47	10302.24	431.40

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	SECNO	Q	CWSEL	STCHL	VLOB	VCH	VROB	STCHR	ENDST	TOPWID
	10.433	10900.00	1209.49	9881.10	.00	8.08	.00	10287.96	10281.69	393.57
	10.612	10900.00	1213.89	9910.15	.00	8.70	.00	10254.01	10249.31	317.94
	10.803	10900.00	1219.57	9873.61	.00	9.70	.00	10202.20	10192.37	308.84
	10.989	10900.00	1224.72	9767.58	.00	9.35	.00	10035.76	10020.82	223.52
*	11.129	10900.00	1227.11	9825.90	.00	6.46	.00	10117.76	10106.29	266.94
	11.188	10350.00	1227.50	9868.66	.00	7.62	.00	10127.63	10108.24	221.68
	11.301	10350.00	1228.78	9889.57	.00	9.87	.00	10113.79	10090.84	186.96
	11.386	10350.00	1231.10	9864.13	.00	7.85	.00	10133.77	10110.68	240.44
	11.481	10350.00	1232.92	9846.96	.00	6.80	.00	10215.16	10123.94	264.94
	11.566	10350.00	1234.23	9218.65	.00	4.36	.00	10060.00	10039.30	525.37
*	11.759	10350.00	1236.97	9428.04	.00	8.99	.00	10132.96	10110.09	475.20
*	11.949	10350.00	1244.23	9678.36	.00	6.24	1.89	10235.82	10396.78	565.31
	12.125	10350.00	1248.58	9742.17	.00	7.16	.00	10335.82	10309.12	470.40
*	12.313	9800.00	1256.34	9806.87	.00	10.08	.00	10248.19	10241.25	298.08
*	12.511	9800.00	1263.55	9830.00	1.00	6.28	.00	10296.93	10256.28	559.26
	12.701	9800.00	1267.84	9748.20	.00	7.54	.00	10268.00	10135.28	374.87
*	12.896	9800.00	1270.56	9833.94	.00	4.06	.00	10345.00	10308.71	442.78
	13.076	7900.00	1271.23	9665.58	.00	2.79	.00	10103.00	10089.29	403.96
*	13.277	7900.00	1279.02	9941.62	.00	10.05	.00	10240.18	10205.84	255.51
*	13.420	7900.00	1285.60	9844.81	.00	7.07	.00	10080.79	10071.45	217.46
*	13.619	7900.00	1288.37	9762.99	.00	3.93	.00	10335.67	10328.12	531.56
	13.818	7900.00	1290.36	9821.63	.00	3.51	2.21	10331.30	11398.81	1471.66
*	14.013	6100.00	1301.63	9785.60	.00	9.20	1.64	10046.46	10759.09	330.46
*	14.197	6100.00	1309.22	9934.14	1.53	5.46	2.85	10263.32	11310.21	798.20
	14.379	6100.00	1314.10	9551.00	.00	6.64	2.92	10106.58	11306.89	996.37
	14.559	6100.00	1319.59	9196.31	.53	5.25	1.53	10019.18	11216.92	912.30

1

	SECNO	Q	CWSEL	STCHL	VLOB	VCH	VROB	STCHR	ENDST	TOPWID
	14.752	6100.00	1324.94	9669.41	.00	5.30	.00	10173.79	10164.68	489.30
*	14.945	4200.00	1329.96	9839.00	.82	6.87	.00	10023.75	10022.21	208.50
	15.144	4200.00	1334.79	9612.61	.00	4.65	1.79	9960.20	9992.37	372.24
	15.333	4200.00	1338.56	9735.16	.00	5.37	.00	10057.01	10047.88	299.92
*	15.506	4200.00	1340.93	9583.60	.00	3.54	.00	10049.31	10033.52	353.38
*	15.699	4200.00	1347.91	9838.14	4.84	8.62	2.57	10057.68	10789.01	290.33
	15.966	2350.00	1356.85	9697.82	.00	2.88	2.04	10153.85	10378.39	552.51
*	16.066	2350.00	1358.68	9745.57	1.02	4.03	3.36	10125.00	10444.39	452.17
	16.167	2350.00	1362.12	9900.11	.00	5.52	4.02	10077.88	10757.59	360.36
	16.248	2350.00	1364.53	9957.43	2.77	6.03	2.71	10057.86	10651.75	346.34
	16.328	2350.00	1366.59	9900.83	1.83	4.53	2.58	10236.68	10372.87	325.66
	16.411	2350.00	1368.73	9876.84	.00	6.32	.00	10044.45	10038.58	136.31
	16.504	2350.00	1371.11	9881.12	1.40	4.56	.00	10077.88	10070.77	236.43
	16.608	2350.00	1373.16	9819.07	.00	5.20	.00	10042.20	10038.92	205.35

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      16.732   2350.00   1377.02   9875.39       .00      5.96      1.86  10046.16  10416.48    291.35

      16.818   2350.00   1379.42   9890.87       .00      4.65      1.86  10084.40  10167.75    265.30
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SUMMARY OF ERRORS AND SPECIAL NOTES

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WARNING SECNO=      8.807  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      8.883  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=      9.318  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      9.318  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      9.318  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=      9.492  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      9.692  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=      9.889  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      9.889  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      9.953  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      9.953  PROFILE=  1  MINIMUM SPECIFIC ENERGY

WARNING SECNO=     10.096  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     10.271  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     11.129  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     11.759  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     11.759  PROFILE=  1  MINIMUM SPECIFIC ENERGY

WARNING SECNO=     11.949  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     12.313  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     12.511  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     12.896  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     13.277  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     13.277  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     13.277  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=     13.420  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     13.619  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     14.013  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     14.013  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     14.013  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=     14.197  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     14.945  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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WARNING SECNO=     15.506  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     15.699  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     15.699  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     15.699  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=     16.066  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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HEC-2 FILE CORPS1.PRN

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1*****************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *                                        *
 *  Version   4.6.2;  May 1991            *
 *                                        *
 *  RUN DATE    18FEB99    TIME   08:23:59 *
 *****************************************
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*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616-4687     *
*          (916) 756-1104           *
*************************************
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X     X  XXXXXXX   XXXXX             XXXXX
X     X  X        X     X           X     X
X     X  X        X                       X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX             XXXXXXX
```

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1
   18FEB99      08:23:59                                                    PAGE    1


                                                    THIS RUN EXECUTED 18FEB99    08:23:59

 ************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
 ************************************

        MODEL REFLECTS NEW TOPOGRAPHIC DATA ALONG ORIGINAL FEMA
        CROSS SECTION ALIGNMENTS.  N-VALUES AND EXPANSIONS AND CONTRACTION
        COEFFICIENTS REMAIN THE SAME AS IN THE ORIGINAL FEMA MODEL.

        NO BRIDGES MODELED


T1      NEW RIVER ABOVE SKUNK CREEK                          JULY 1998
T2      MIDDLE NEW RIVER WATERCOURSE MASTER PLAN        STANTEC # 28900058
T3      FEMA/COE MODEL UPDATE                           FILE CORPS1.PRN

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
                2                                                                  1170.38
J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
                        -1                                                                     15

J3  VARIABLE CODES FOR SUMMARY PRINTOUT
     38        43         1         21        55        26        56        22        54        4

QT       1      21000
NC   0.045     0.045     0.035     0.20      0.40

X1    8.655     94.00   9530.01  10103.54     0.00      0.00      0.00
X3       10
GR   1178.0   9170.87   1175.14   9186.78   1171.38   9207.89   1171.05   9239.90   1170.66   9274.99
GR   1170.6   9288.99   1169.65   9422.73   1169.63   9424.24   1169.63   9426.29   1169.86   9530.01
GR   1162.4   9556.56   1155.64   9578.45   1154.62   9626.75   1154.35   9637.48   1154.20   9654.43
GR   1154.2   9668.25   1154.15   9678.08   1153.90   9685.57   1153.29   9714.69   1152.61   9736.46
GR   1152.5   9745.47   1152.89   9753.88   1153.40   9765.26   1153.42   9773.51   1153.56   9788.22
GR   1154.6   9861.07   1154.50   9881.94   1154.53   9889.33   1154.35   9908.38   1153.85   9935.01
GR   1154.5   9943.17   1154.59   9964.33   1154.50   9976.54   1154.22  10000.00   1154.56  10029.77
GR   1154.6  10066.05   1154.67  10078.08   1165.32  10097.35   1168.79  10103.54   1168.91  10107.06
GR   1169.9  10125.73   1169.67  10139.65   1169.64  10144.07   1170.43  10148.74   1171.10  10153.01
GR   1171.1  10157.54   1171.21  10180.85   1171.39  10195.32   1170.26  10235.61   1170.24  10237.66
GR   1170.2  10239.84   1170.18  10242.13   1170.14  10244.55   1170.10  10247.09   1170.07  10249.75
GR   1170.0  10252.52   1169.98  10255.39   1169.95  10257.98   1169.95  10258.23   1169.93  10260.11
GR   1169.9  10261.89   1169.91  10263.57   1169.89  10265.17   1169.90  10265.84   1169.91  10267.30
GR   1169.9  10268.72   1169.92  10270.09   1169.93  10271.44   1169.93  10272.77   1169.93  10274.07
GR   1169.9  10275.37   1169.92  10276.66   1169.91  10277.95   1169.91  10279.24   1169.90  10280.54
1
   18FEB99      08:23:59                                                    PAGE    2

GR   1169.9  10281.86   1169.87  10283.20   1169.85  10284.57   1169.83  10285.96   1169.81  10287.40
GR   1169.8  10288.88   1169.76  10290.42   1169.73  10292.02   1169.69  10293.69   1169.66  10295.44
GR   1169.6  10297.29   1169.57  10299.24   1169.52  10301.33   1169.47  10303.56   1169.40  10305.97
GR   1169.3  10308.25   1169.35  10309.12   1169.29  10322.28   1169.04  10332.00

QT       1   12000.00
NC   0.045     0.045     0.035     0.10      0.30
```

X1	8.731	62.00	9668.92	10132.76	400.00	400.00	400.00			
X3	10									
GR	1184.0	9263.83	1183.89	9273.67	1183.82	9278.67	1183.43	9279.35	1182.05	9286.70
GR	1175.7	9324.78	1171.67	9332.34	1157.57	9359.81	1157.41	9361.45	1157.20	9368.22
GR	1155.9	9372.24	1154.97	9374.22	1155.24	9385.88	1154.88	9415.00	1154.83	9423.41
GR	1154.8	9426.92	1154.03	9453.17	1153.75	9484.88	1153.59	9495.55	1153.94	9509.78
GR	1154.2	9515.58	1154.75	9556.08	1155.22	9601.05	1155.37	9614.42	1155.38	9620.01
GR	1155.6	9635.10	1155.81	9638.01	1155.82	9640.41	1156.95	9668.92	1155.80	9705.62
GR	1155.7	9708.91	1155.55	9712.12	1155.51	9740.10	1155.30	9751.11	1154.92	9793.53
GR	1154.7	9806.20	1154.63	9821.61	1155.62	9889.11	1155.91	9906.50	1155.83	9931.57
GR	1155.8	9955.78	1155.61	9975.19	1155.47	10000.00	1155.55	10011.03	1155.67	10038.24
GR	1155.9	10077.08	1156.24	10098.62	1156.22	10110.26	1159.25	10115.42	1169.55	10132.76
GR	1169.9	10146.25	1170.06	10156.45	1169.88	10168.79	1169.88	10168.85	1169.89	10168.91
GR	1171.7	10181.70	1171.37	10202.65	1171.33	10206.10	1170.89	10260.47	1170.70	10279.56
GR	1169.6	10358.16	1169.54	10366.79						

X1	8.807	62.00	9793.8	10113.26	400.00	390.00	400.00			
GR	1178.0	9421.80	1177.73	9423.19	1172.85	9451.67	1172.82	9452.67	1172.52	9479.22
GR	1172.5	9484.61	1173.51	9490.41	1175.79	9504.85	1175.92	9513.90	1175.95	9527.01
GR	1175.8	9545.24	1173.99	9563.44	1173.82	9565.21	1173.11	9572.08	1173.18	9578.47
GR	1172.9	9590.10	1172.78	9602.56	1172.76	9612.01	1172.86	9624.06	1173.16	9629.64
GR	1173.2	9639.35	1172.97	9681.99	1172.56	9696.14	1172.07	9708.18	1171.58	9720.28
GR	1171.9	9725.73	1172.76	9733.58	1173.00	9746.88	1172.98	9754.53	1172.90	9758.85
GR	1173.0	9768.60	1173.15	9787.35	1173.10	9792.80	1172.65	9793.80	1166.57	9811.60
GR	1158.5	9831.40	1158.04	9853.48	1158.11	9870.59	1158.32	9890.76	1158.66	9904.47
GR	1159.4	9931.62	1158.96	9957.85	1158.45	9967.74	1158.11	9994.95	1158.05	10000.00
GR	1158.1	10003.84	1159.09	10063.74	1159.30	10084.73	1159.38	10094.13	1164.35	10103.63
GR	1169.7	10113.26	1169.91	10133.74	1170.04	10141.61	1170.36	10151.30	1171.37	10155.28
GR	1172.7	10160.68	1172.91	10181.74	1172.92	10182.92	1172.66	10222.09	1172.44	10246.42
GR	1171.7	10326.10	1171.59	10355.30						

X1	8.883	52.00	9857.59	10117.1	280.00	400.00	400.00			
GR	1180.0	9480.17	1174.28	9513.30	1174.18	9513.83	1173.93	9535.87	1173.92	9538.06
GR	1174.0	9539.20	1174.30	9545.92	1174.84	9558.22	1175.03	9560.57	1176.61	9577.40
GR	1176.7	9581.33	1176.81	9600.19	1176.78	9630.42	1176.57	9665.33	1176.11	9698.90
GR	1175.9	9707.94	1176.00	9715.96	1176.22	9740.14	1176.43	9770.13	1176.62	9799.18
GR	1176.6	9815.43	1176.78	9851.43	1176.79	9857.59	1174.81	9861.82	1163.02	9890.54
GR	1161.7	9909.03	1161.63	9910.73	1161.63	9911.28	1161.63	9911.97	1161.63	9915.33
GR	1161.3	9957.94	1161.49	9963.86	1161.95	9976.81	1160.27	9982.67	1159.44	9985.06
GR	1159.4	10000.00	1159.72	10005.60	1160.42	10019.83	1160.61	10045.59	1160.95	10081.26
GR	1161.2	10095.72	1166.60	10108.75	1170.46	10117.10	1170.87	10137.60	1171.40	10158.29
GR	1174.2	10170.22	1175.80	10176.74	1175.89	10181.64	1175.86	10194.61	1176.10	10207.65
GR	1176.0	10213.14	1176.38	10366.19						

X1	8.936	54.00	9831.06	10130.27	300.00	300.00	290.00			
GR	1182.0	9514.24	1179.95	9525.82	1178.24	9533.71	1175.36	9550.47	1174.57	9570.14
GR	1174.4	9573.79	1174.20	9582.33	1174.29	9608.34	1174.65	9618.37	1174.63	9625.17
GR	1174.9	9663.71	1174.94	9669.82	1174.92	9674.90	1174.96	9709.09	1174.94	9711.68
GR	1174.9	9713.50	1174.75	9762.72	1174.58	9812.18	1174.57	9813.66	1174.57	9813.91
GR	1174.6	9814.19	1174.56	9815.34	1174.58	9831.06	1166.59	9853.27	1165.27	9857.16
GR	1164.5	9900.49	1164.45	9901.99	1164.42	9904.21	1164.40	9905.71	1164.39	9906.52
GR	1164.2	9914.52	1163.65	9943.73	1162.78	9982.18	1161.34	9985.69	1159.99	9989.50
GR	1160.0	10009.86	1159.94	10014.00	1160.40	10019.99	1161.34	10035.61	1161.40	10046.22
GR	1161.5	10064.28	1161.81	10084.06	1162.21	10111.08	1168.65	10125.67	1170.86	10130.27
GR	1171.1	10138.05	1172.10	10160.75	1174.75	10173.52	1177.20	10185.13	1177.40	10200.84
GR	1177.4	10216.10	1177.63	10219.87	1177.69	10241.23	1177.64	10379.42		

X1	8.977	60.00	9865.94	10117.99	220.00	200.00	210.00			
GR	1182.0	9530.75	1177.22	9556.56	1178.22	9576.50	1178.28	9579.92	1175.65	9597.09
GR	1175.6	9597.47	1175.60	9599.29	1175.59	9649.12	1175.13	9678.97	1175.44	9701.50
GR	1176.0	9778.76	1175.85	9795.45	1175.77	9823.92	1175.80	9838.68	1175.87	9862.76
GR	1175.9	9864.92	1175.30	9865.94	1164.27	9885.67	1164.26	9886.42	1164.10	9899.10
GR	1163.8	9907.50	1163.70	9912.61	1162.66	9952.88	1162.61	9959.70	1162.59	9968.65
GR	1162.2	9970.48	1161.67	9972.96	1161.61	9977.66	1161.50	9985.29	1161.42	9990.29
GR	1161.4	9992.62	1161.29	10000.00	1161.82	10032.38	1162.26	10054.60	1162.25	10064.69
GR	1162.4	10087.81	1163.03	10088.26	1166.51	10093.03	1168.22	10095.00	1167.77	10108.40
GR	1167.6	10110.95	1169.02	10112.97	1172.63	10117.99	1172.90	10124.82	1173.24	10133.91
GR	1173.6	10142.57	1174.48	10149.30	1175.52	10157.00	1176.85	10168.79	1177.41	10174.44
GR	1178.0	10180.27	1178.01	10189.22	1178.00	10198.79	1178.02	10204.88	1178.11	10210.71
GR	1178.1	10212.97	1178.11	10213.49	1178.11	10224.37	1178.64	10343.05	1178.49	10365.12

X1	9.009	73.00	9805.01	10189.89	330.00	180.00	180.00			
X3	10									
GR	1182.0	9625.05	1180.47	9635.32	1177.71	9652.46	1177.27	9672.23	1177.16	9676.47
GR	1177.2	9772.91	1177.16	9775.63	1177.17	9777.62	1177.18	9778.09	1177.19	9778.95
GR	1177.2	9780.54	1177.21	9785.92	1177.09	9804.50	1177.10	9805.01	1177.26	9807.82
GR	1175.2	9815.50	1174.38	9819.47	1166.70	9855.25	1166.21	9858.00	1166.19	9858.53
GR	1166.0	9861.88	1165.71	9865.43	1164.62	9887.86	1164.55	9889.75	1164.36	9893.90
GR	1164.2	9897.12	1164.13	9899.07	1164.01	9901.79	1163.29	9946.76	1162.99	9962.95
GR	1162.9	9967.84	1162.06	10000.00	1162.25	10022.13	1162.27	10032.36	1162.28	10032.57
GR	1164.3	10086.05	1164.29	10087.22	1164.32	10088.08	1164.33	10088.44	1164.35	10088.80
GR	1164.4	10089.02	1164.35	10089.18	1164.35	10089.23	1164.36	10089.29	1164.36	10090.81
GR	1164.3	10092.26	1163.24	10146.14	1163.75	10149.21	1164.38	10153.09	1171.03	10177.52
GR	1171.6	10180.05	1172.26	10183.43	1173.14	10188.26	1173.35	10189.22	1173.37	10189.89
GR	1173.9	10211.96	1173.76	10212.35	1173.62	10212.64	1173.45	10213.08	1168.23	10227.40
GR	1167.4	10228.46	1167.47	10239.95	1165.37	10249.36	1162.81	10268.27	1164.30	10277.40

```
GR   1164.5   10279.55    1164.56   10280.76    1166.29   10316.71    1166.38   10336.17    1166.90   10403.32
GR   1166.8   10427.02    1166.71   10445.63    1166.59   10514.93

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    18FEB99      08:23:59                                                                              PAGE    4


X1    9.047      60.00    9865.24   10286.83     280.00     160.00     200.00
GR   1182.0    9716.66    1180.57    9727.55    1177.81    9745.93    1177.65    9751.49    1177.31    9760.47
GR   1177.6    9804.59    1177.83    9855.29    1177.73    9861.06    1177.69    9865.24    1168.94    9906.55
GR   1162.7    9936.12    1162.79    9941.54    1162.95    9947.00    1162.78    9969.17    1161.64   10000.00
GR   1162.7   10011.16    1163.01   10013.40    1163.59   10018.72    1163.57   10022.22    1163.64   10026.40
GR   1164.0   10044.67    1163.63   10050.79    1163.12   10058.45    1162.89   10061.27    1162.49   10069.43
GR   1162.4   10074.85    1162.07   10086.72    1162.18   10090.35    1162.14   10094.04    1162.19   10100.98
GR   1162.8   10127.62    1163.12   10131.63    1163.65   10139.42    1164.42   10165.05    1164.82   10178.76
GR   1165.1   10188.88    1165.17   10191.87    1165.76   10210.64    1165.85   10221.29    1166.42   10261.29
GR   1169.8   10268.59    1173.62   10276.16    1174.87   10286.83    1178.89   10322.18    1180.42   10335.05
GR   1179.7   10340.89    1175.80   10372.69    1173.58   10381.73    1172.99   10384.53    1172.98   10397.84
GR   1173.0   10432.14    1172.87   10454.59    1172.83   10469.88    1172.72   10507.64    1172.72   10509.11
GR   1172.7   10512.25    1173.80   10519.20    1178.86   10545.75    1179.00   10554.76    1178.63   10593.95

NC    0.045      0.06      0.035       0.10       0.30

X1    9.129      67.00    9828.71   10330.52     290.00     460.00     420.00
GR   1184.0    9717.85    1181.94    9731.54    1179.46    9747.14    1178.59    9763.28    1178.16    9773.21
GR   1179.3    9808.31    1179.36    9811.66    1179.38    9812.50    1179.44    9814.13    1180.07    9828.71
GR   1179.2    9832.93    1176.76    9843.99    1166.68    9890.36    1163.97    9903.21    1163.87    9907.39
GR   1163.8    9911.78    1163.70    9913.42    1163.67    9921.37    1163.16   10000.00    1163.82   10042.71
GR   1163.9   10048.34    1164.70   10140.88    1164.70   10142.41    1164.69   10144.15    1164.68   10144.91
GR   1164.7   10145.57    1164.66   10149.28    1164.61   10172.67    1165.78   10207.44    1166.32   10222.25
GR   1166.4   10225.51    1167.13   10244.20    1167.26   10248.22    1167.28   10249.62    1167.38   10279.08
GR   1167.5   10297.38    1168.47   10299.33    1175.40   10313.49    1176.88   10330.52    1177.08   10333.89
GR   1177.6   10342.56    1177.23   10346.13    1176.89   10348.95    1176.39   10362.86    1172.93   10376.80
GR   1172.5   10378.60    1172.27   10380.95    1172.26   10387.21    1172.28   10394.53    1172.29   10398.10
GR   1172.3   10403.78    1172.18   10412.57    1172.02   10424.54    1172.01   10426.19    1173.51   10435.79
GR   1174.1   10439.81    1174.85   10443.80    1176.48   10451.16    1176.37   10455.64    1175.98   10459.61
GR   1175.8   10461.26    1176.01   10468.18    1177.37   10532.47    1178.21   10639.30    1178.71   10710.84
GR   1178.0   10809.06    1177.80   10841.21

NC     0.05      0.06      0.035       0.10       0.30

X1    9.318      96.00    9775.17   10151.89    1000.00    1000.00    1000.00
GR   1188.0    9564.00    1185.42    9588.02    1184.89    9592.68    1184.89    9595.73    1184.95    9598.50
GR   1184.6    9657.59    1184.56    9667.45    1184.37    9688.21    1184.36    9689.48    1184.36    9690.35
GR   1184.4    9691.19    1184.12    9695.63    1184.09    9695.84    1184.11    9696.22    1184.22    9702.06
GR   1184.0    9748.35    1184.15    9752.08    1184.42    9755.88    1184.48    9761.69    1184.94    9770.41
GR   1185.1    9775.17    1184.64    9776.39    1184.37    9777.15    1180.91    9785.01    1174.89    9801.56
GR   1174.1    9803.59    1173.59    9805.10    1173.37    9816.72    1173.30    9821.43    1173.26    9822.72
GR   1173.2    9832.97    1173.17    9833.59    1173.17    9843.47    1173.15    9844.04    1173.25    9850.48
GR   1173.2    9861.59    1173.24    9862.59    1173.05    9874.65    1172.96    9876.03    1172.17    9894.25
GR   1172.0    9898.62    1171.68    9903.77    1171.01    9919.04    1170.82    9923.59    1170.79    9924.27
GR   1170.6    9926.80    1170.78    9934.87    1171.05    9943.61    1170.96    9948.02    1170.81    9955.00
GR   1170.7    9956.03    1170.68    9961.43    1170.29    9966.81    1169.13    9986.33    1169.03    9988.29
GR   1168.9    9991.12    1168.58    9996.75    1168.51    9997.74    1168.35   10000.00    1168.45   10001.32
GR   1168.5   10001.96    1168.47   10003.38    1168.60   10009.24    1169.94   10020.45    1170.00   10020.98
GR   1170.0   10023.97    1170.37   10059.13    1170.45   10067.22    1170.88   10092.46    1171.67   10109.31
GR   1172.4   10119.60    1173.80   10139.29    1177.40   10145.92    1180.57   10151.89    1181.40   10167.33
GR   1181.9   10173.54    1181.60   10176.41    1181.47   10179.72    1181.31   10187.22    1181.03   10195.98
1
    18FEB99      08:23:59                                                                              PAGE    5


GR   1176.5   10219.99    1176.49   10220.00    1176.49   10220.10    1176.35   10227.26    1176.55   10228.54
GR   1179.9   10251.06    1180.00   10255.25    1179.98   10257.19    1179.84   10259.23    1179.48   10262.60
GR   1180.0   10318.68    1180.66   10385.16    1180.86   10518.99    1181.14   10587.20    1181.14   10655.17
GR   1181.4   10700.10

QT       1   11450.00

X1    9.492      97.00    9800.21   10307.96     910.00     890.00     920.00
GR   1192.0    9761.25    1191.92    9761.95    1191.39    9766.56    1190.68    9772.37    1189.11    9784.84
GR   1188.8    9789.52    1188.11    9800.21    1175.20    9828.88    1174.71    9829.98    1174.72    9830.81
GR   1174.9    9848.19    1174.98    9856.36    1175.06    9874.07    1174.85    9906.20    1174.69    9924.14
GR   1174.6    9928.83    1174.63    9934.07    1174.63    9938.50    1174.59    9943.89    1174.57    9947.08
GR   1174.6    9957.07    1174.01    9996.51    1173.96    9998.33    1173.96    9998.64    1173.96    9998.88
GR   1174.0    9999.10    1173.94   10000.00    1174.33   10052.34    1174.54   10065.68    1174.54   10065.71
GR   1174.6   10068.58    1174.64   10078.53    1174.65   10085.68    1174.78   10113.97    1174.92   10142.62
GR   1175.1   10146.09    1175.73   10158.36    1175.92   10163.47    1176.00   10165.59    1176.03   10166.27
GR   1176.1   10180.40    1176.23   10241.37    1176.16   10243.69    1177.15   10260.82    1177.70   10273.34
GR   1178.4   10289.54    1182.48   10301.78    1184.43   10307.96    1187.23   10331.92    1187.60   10336.05
GR   1184.7   10366.14    1184.55   10367.66    1184.54   10368.22    1184.53   10368.70    1184.45   10374.02
GR   1184.4   10376.34    1184.45   10379.87    1184.47   10381.95    1184.51   10389.37    1184.51   10397.96
GR   1184.5   10398.48    1184.49   10399.08    1184.49   10399.78    1184.48   10400.58    1184.48   10401.50
GR   1184.5   10402.54    1184.47   10403.71    1184.47   10405.03    1184.42   10409.65    1184.43   10410.48
GR   1184.4   10411.42    1184.44   10412.49    1184.46   10413.68    1184.47   10415.01    1184.48   10416.46
GR   1184.5   10416.56    1184.49   10416.56    1184.49   10416.70    1184.51   10417.95    1184.67   10427.19
GR   1184.7   10429.02    1185.06   10446.99    1185.08   10492.66    1184.82   10505.63    1184.82   10505.77
GR   1184.8   10505.89    1184.82   10506.00    1184.81   10506.09    1184.81   10507.90    1184.82   10510.04
GR   1185.2   10567.65    1185.75   10649.48    1185.88   10667.20    1185.99   10863.02    1186.00   10867.19
GR   1186.0   10871.37    1186.09   10972.79
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X1     9.692       80.00     9915.96   10315.20     1050.00     1040.00     1056.00
GR    1204.0     9861.60     1201.34     9875.13     1197.39     9897.49     1193.92     9915.96     1191.19     9921.53
GR    1179.0     9948.26     1179.25     9977.32     1179.27     9978.97     1179.39     9981.96     1178.95     9986.75
GR    1177.7    10000.00     1178.51    10013.68     1178.51    10017.43     1178.63    10030.48     1178.64    10031.95
GR    1178.7    10032.84     1179.04    10039.03     1179.11    10040.39     1179.35    10044.25     1179.21    10045.66
GR    1178.1    10060.07     1178.08    10061.25     1178.07    10062.08     1177.93    10069.53     1177.92    10071.10
GR    1177.8    10079.10     1177.66    10085.13     1177.56    10092.83     1177.53    10096.87     1177.44    10099.74
GR    1177.3    10107.63     1177.25    10115.40     1177.21    10118.66     1177.41    10129.75     1177.41    10130.24
GR    1177.5    10133.00     1177.48    10134.36     1177.90    10143.25     1177.66    10154.67     1177.67    10158.28
GR    1177.6    10161.99     1178.01    10170.13     1177.61    10175.56     1178.70    10190.01     1181.55    10223.71
GR    1181.6    10225.35     1181.57    10230.38     1181.54    10254.68     1181.60    10272.70     1180.90    10286.70
GR    1180.6    10296.41     1184.43    10303.83     1190.03    10315.20     1190.14    10320.70     1190.30    10324.72
GR    1190.8    10329.42     1190.83    10330.50     1193.74    10340.37     1194.71    10343.47     1194.58    10344.24
GR    1193.7    10346.94     1193.97    10362.82     1194.26    10368.69     1194.19    10385.51     1194.02    10436.64
GR    1194.0    10458.23     1194.05    10482.29     1193.98    10516.43     1194.04    10557.30     1194.09    10598.97
GR    1194.1    10631.43     1194.22    10686.11     1193.12    10724.85     1192.65    10768.69     1192.64    10812.53
GR    1192.8    10968.71     1192.78    11124.94     1192.84    11168.70     1192.84    11212.42     1192.84    11272.71

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   18FEB99      08:23:59                                                                                    PAGE     6


NC      0.06        0.06       0.035       0.30        0.50

X1     9.889       85.00      9919.8   10132.31     1100.00     1050.00     1040.00
GR    1228.0     9462.41     1227.56     9464.40     1226.05     9470.65     1222.98     9480.70     1200.17     9556.32
GR    1200.1     9562.12     1200.14     9571.81     1199.87     9582.70     1199.68     9592.25     1198.76     9603.06
GR    1198.5     9608.01     1197.93     9649.41     1197.90     9653.45     1197.75     9735.27     1197.60     9753.46
GR    1197.8     9772.49     1198.03     9821.73     1197.71     9828.64     1197.34     9839.65     1196.72     9852.59
GR    1197.5     9855.86     1201.40     9867.38     1197.96     9888.44     1196.64     9899.42     1196.38     9904.11
GR    1195.1     9919.80     1190.99     9929.84     1186.28     9941.82     1187.77     9953.49     1188.30     9959.31
GR    1188.6     9961.49     1188.26     9964.99     1187.11     9977.98     1187.47     9978.66     1186.71     9982.33
GR    1185.4    10000.00     1186.09    10010.63     1186.19    10041.78     1186.29    10063.89     1186.45    10089.18
GR    1186.3    10104.47     1186.13    10111.12     1189.86    10117.00     1198.00    10132.31     1198.31    10138.92
GR    1198.5    10142.87     1197.77    10166.17     1197.58    10167.20     1197.67    10168.68     1197.98    10183.32
GR    1198.1    10184.48     1198.13    10187.08     1198.41    10212.99     1198.89    10238.67     1199.27    10263.28
GR    1199.5    10272.98     1200.09    10312.14     1200.08    10328.53     1199.79    10401.98     1199.65    10409.88
GR    1199.3    10440.90     1199.10    10462.98     1199.11    10463.29     1199.11    10463.64     1199.11    10464.01
GR    1198.7    10493.35     1198.66    10498.72     1198.76    10500.52     1199.10    10505.35     1200.17    10532.01
GR    1200.0    10536.58     1199.82    10542.54     1199.82    10545.66     1200.30    10563.46     1200.42    10567.76
GR    1200.4    10568.80     1200.42    10569.93     1199.62    10593.83     1199.07    10601.01     1198.67    10608.94
GR    1199.4    10640.72     1199.77    10653.47     1200.16    10666.45     1201.54    10744.94     1201.50    10762.97

NC      0.06        0.06       0.03        0.30        0.50

X1     9.953       44.00      9867.22  10153.45      225.00      225.00      225.00
GR    1215.3     9378.87     1207.02     9394.52     1204.35     9409.14     1204.42     9444.71     1204.18     9475.92
GR    1203.5     9523.12     1203.71     9568.11     1203.13     9590.73     1202.72     9651.10     1201.61     9658.09
GR    1201.2     9671.72     1201.17     9692.70     1200.73     9721.18     1199.80     9744.56     1199.65     9757.39
GR    1200.4     9809.66     1201.00     9832.09     1202.16     9867.22     1191.04     9892.51     1190.66    10000.00
GR    1190.8    10020.48     1190.53    10075.79     1189.68    10090.73     1189.38    10113.72     1194.58    10127.03
GR    1195.0    10137.12     1201.10    10153.45     1202.77    10171.08     1203.14    10182.78     1202.69    10193.94
GR    1203.0    10218.64     1202.91    10282.67     1202.53    10371.93     1202.91    10415.01     1202.96    10452.97
GR    1202.4    10522.62     1202.85    10588.61     1202.70    10614.87     1201.99    10624.50     1201.61    10636.89
GR    1203.8    10671.74     1201.25    10718.20     1200.19    10772.35     1200.19    10784.55

NC      0.06        0.06       0.03        0.10        0.30

X1    10.096       47.00      9708.29  10160.97         685         725         720
X3        10
GR    1230.0     9192.34     1220.42     9252.51     1220.05     9257.18     1210.63     9333.68     1207.84     9345.89
GR    1207.4     9362.31     1206.31     9372.38     1205.47     9472.01     1205.03     9497.21     1204.01     9581.54
GR    1203.1     9630.78     1198.95     9652.50     1198.89     9695.35     1202.63     9708.29     1195.62     9746.45
GR    1194.3     9773.08     1196.82     9825.16     1195.19     9835.67     1196.89     9853.23     1196.33     9890.36
GR    1196.0     9970.71     1193.96     9988.16     1193.85    10015.00     1195.15    10028.41     1194.87    10069.10
GR    1196.2    10081.93     1197.46    10117.94     1203.56    10130.98     1203.96    10160.97     1204.02    10183.80
GR    1204.6    10242.79     1205.08    10276.80     1205.41    10338.36     1205.00    10380.47     1204.56    10508.76
GR    1204.8    10543.63     1205.27    10578.69     1205.25    10594.62     1204.02    10622.95     1204.24    10649.64
GR    1203.9    10676.60     1201.92    10709.55     1201.78    10727.27     1202.72    10751.06     1202.82    10778.60
GR    1203.9    10809.36     1204.78    10888.22

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QT        1    10900.00

X1    10.271       48.00      9841.02  10310.47         920.00      925.00      925.00
GR    1214.0     9405.66     1213.57     9453.75     1213.17     9461.98     1210.26     9490.82     1207.94     9503.08
GR    1207.3     9527.51     1208.72     9564.74     1208.98     9616.22     1208.56     9687.09     1209.12     9741.87
GR    1210.1     9776.46     1211.43     9798.99     1211.82     9827.72     1212.19     9841.02     1212.65     9842.31
GR    1210.1     9850.49     1202.58     9872.73     1201.74     9896.52     1202.23     9915.47     1202.49     9929.65
GR    1201.6     9945.79     1198.31     9971.00     1198.42    10034.95     1200.07    10056.51     1200.78    10069.29
GR    1200.7    10095.95     1200.70    10120.73     1201.73    10131.70     1201.02    10154.33     1201.41    10190.25
GR    1201.3    10213.20     1199.58    10230.03     1199.25    10289.87     1205.86    10310.47     1205.28    10335.72
GR    1204.9    10418.16     1204.04    10463.15     1204.44    10506.27     1204.87    10525.73     1205.86    10616.21
GR    1206.3    10717.06     1206.42    10818.51     1206.07    10853.93     1206.85    10911.97     1206.99    11004.40
GR    1206.9    11029.27     1207.61    11195.06     1208.47    11415.17
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X1   10.433      51.00    9881.10   10287.96     930.00     900.00     910.00
GR   1214.0    9289.29    1213.40    9293.38    1213.29    9316.20    1212.49    9394.80    1213.10    9400.31
GR   1212.0    9419.74    1211.72    9505.37    1211.49    9530.29    1210.71    9552.88    1210.43    9569.10
GR   1224.2    9617.52    1227.16    9633.39    1228.50    9666.92    1229.34    9694.63    1227.87    9714.45
GR   1224.9    9725.41    1219.55    9750.82    1216.73    9763.22    1217.48    9772.48    1217.98    9800.53
GR   1210.5    9843.87    1210.53    9881.10    1207.90    9898.70    1207.09    9902.21    1206.62    9959.77
GR   1204.6    9982.00    1205.81   10025.42    1206.35   10109.86    1206.29   10151.26    1205.28   10208.74
GR   1205.3   10269.70    1211.67   10287.96    1213.65   10320.24    1212.83   10415.71    1212.69   10423.73
GR   1212.4   10489.83    1211.09   10518.99    1211.26   10546.89    1211.39   10598.78    1211.73   10625.16
GR   1211.5   10642.10    1211.75   10664.79    1211.43   10706.62    1211.57   10730.05    1212.00   10917.23
GR   1212.1   11008.08    1212.62   11124.27    1213.17   11214.03    1212.77   11325.24    1211.94   11413.33
GR   1211.6   11511.19

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GR   1218.6    9210.30    1218.55    9211.71    1218.49    9260.74    1218.42    9321.42    1218.28    9390.62
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GR   1218.1    9703.80    1218.12    9713.37    1217.22    9802.55    1217.11    9805.65    1217.09    9806.28
GR   1217.0    9807.74    1216.90    9810.55    1216.42    9822.55    1216.43    9826.33    1216.38    9830.91
GR   1216.4    9832.78    1216.36    9834.23    1216.39    9841.11    1221.18    9862.90    1221.43    9863.98
GR   1221.5    9864.09    1221.49    9864.30    1221.50    9864.56    1221.67    9879.68    1221.66    9884.34
GR   1221.5    9895.48    1221.45    9904.78    1221.31    9906.77    1221.17    9908.25    1221.09    9909.90
GR   1221.1    9910.13    1221.05    9910.15    1221.01    9912.41    1220.86    9912.81    1214.68    9929.05
GR   1208.8    9946.36    1208.79    9956.56    1208.75    9978.00    1208.77    9999.95    1208.88   10004.41
GR   1209.0   10008.65    1209.37   10021.79    1209.51   10028.24    1209.56   10030.15    1209.65   10035.60
GR   1210.9   10098.97    1210.75   10103.25    1210.28   10121.81    1210.08   10143.11    1210.02   10179.56
GR   1210.1   10185.45    1210.03   10193.86    1210.00   10197.15    1209.98   10238.72    1210.91   10241.09
GR   1215.6   10254.01    1215.80   10341.23    1215.83   10356.80    1214.27   10378.24    1213.67   10389.18
GR   1213.7   10397.56    1213.84   10404.43    1213.75   10409.77    1213.73   10419.44    1214.34   10439.53
GR   1214.4   10440.27    1214.44   10504.91    1214.44   10510.40    1214.97   10585.88    1214.88   10600.03
GR   1216.5   10811.64    1216.49   10814.54    1215.58   11001.69    1215.59   11007.48    1216.81   11203.97
GR   1217.0   11214.80    1216.75   11223.36    1216.02   11410.35    1215.58   11480.23    1214.27   11601.22

1
    18FEB99      08:23:59                                                                              PAGE    8

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GR   1224.6    9098.12    1224.49    9176.13    1224.45    9190.70    1224.47    9207.47    1224.53    9298.23
GR   1224.4    9371.35    1224.34    9389.18    1223.77    9479.46    1223.68    9498.18    1223.56    9512.69
GR   1223.0    9590.03    1222.94    9597.04    1222.79    9609.97    1225.19    9617.88    1227.10    9623.72
GR   1227.5    9650.01    1227.58    9660.55    1227.82    9664.81    1228.24    9672.82    1228.24    9673.13
GR   1228.5    9703.84    1220.18    9749.65    1219.97    9750.83    1219.93    9751.30    1218.42    9774.67
GR   1219.2    9781.00    1220.90    9797.52    1220.95    9802.46    1220.76    9818.21    1220.72    9823.02
GR   1220.7    9823.75    1220.70    9826.33    1220.69    9826.66    1220.69    9826.93    1220.03    9845.56
GR   1219.9    9848.84    1219.89    9850.23    1219.87    9850.90    1219.71    9851.98    1219.76    9855.07
GR   1219.8    9859.44    1220.07    9873.61    1219.86    9877.75    1219.62    9882.61    1219.49    9885.13
GR   1219.1    9892.61    1218.78    9898.99    1217.91    9915.94    1217.45    9921.40    1217.38    9924.57
GR   1217.4    9927.52    1215.32    9937.57    1214.56    9941.16    1214.53    9945.85    1214.42    9952.98
GR   1214.5    9955.42    1214.60    9975.62    1214.70    9989.53    1214.53    9992.66    1214.10   10000.00
GR   1215.1   10005.38    1216.05   10010.56    1216.46   10031.62    1217.05   10051.93    1215.59   10075.18
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GR   1215.1   10133.28    1215.19   10141.12    1215.44   10157.48    1215.76   10181.69    1218.41   10189.63
GR   1220.0   10193.38    1219.96   10202.20    1220.15   10212.15    1220.34   10217.89    1220.24   10271.81
GR   1220.2   10293.27    1219.95   10384.32    1219.94   10386.29    1219.90   10395.34    1219.66   10493.26
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GR   1229.5    9275.37    1229.00    9315.71    1228.87    9330.22    1228.68    9355.13    1228.27    9417.46
GR   1228.1    9440.98    1228.32    9489.16    1228.36    9502.59    1228.48    9518.87    1228.65    9564.24
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GR   1220.5    9812.81    1219.35    9816.92    1219.35    9817.09    1219.36    9826.40    1219.34    9829.76
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GR   1229.0   10179.05    1229.02   10180.21    1229.01   10181.32    1229.00   10182.40    1228.99   10183.42
GR   1229.0   10184.39    1228.97   10185.30    1228.88   10195.99    1228.87   10197.24    1228.86   10198.44
GR   1228.9   10199.58    1228.84   10200.65    1228.84   10201.67    1228.83   10202.62    1228.83   10203.51
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NC    0.045       0.045        0.03

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GR   1230.0    9274.53    1229.94    9279.83    1229.83    9368.23    1229.87    9378.04    1229.84    9385.44
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    18FEB99       08:23:59                                                                                  PAGE    9

GR   1230.5    9596.85    1227.20    9617.44    1226.87    9619.06    1226.11    9634.45    1225.42    9638.64
GR   1225.3    9666.53    1225.18    9693.16    1224.86    9713.88    1224.37    9738.10    1224.75    9748.54
GR   1225.4    9763.26    1226.00    9766.70    1228.16    9780.03    1231.57    9793.85    1231.53    9797.40
GR   1231.1    9823.74    1231.30    9825.90    1224.42    9848.01    1220.98    9859.01    1220.70    9877.10
GR   1220.7    9888.72    1221.52    9925.80    1221.06    9929.89    1220.76    9932.58    1219.44    9944.53
GR   1219.4    9956.12    1219.39   10016.41    1219.39   10037.00    1219.71   10041.50    1220.31   10049.49
GR   1221.5   10066.24    1221.67   10086.88    1221.69   10092.45    1222.96   10096.04    1231.76   10117.76
GR   1230.7   10150.32    1230.02   10182.69    1230.18   10223.11    1230.46   10283.89    1231.22   10342.92
GR   1231.9   10385.09    1232.28   10401.10    1232.35   10405.73    1230.75   10414.07    1229.78   10419.29
GR   1230.7   10433.31    1232.18   10456.24    1232.56   10482.89    1232.67   10488.99    1232.52   10496.79
GR   1232.0   10513.53

QT        1   10350.00

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GR   1231.3    9195.59    1231.29    9323.60    1231.26    9344.72    1231.02    9423.75    1231.39    9453.21
GR   1231.4    9463.24    1231.45    9468.41    1231.43    9475.56    1231.49    9482.12    1231.66    9488.78
GR   1232.1    9498.93    1232.21    9501.61    1233.82    9505.69    1233.88    9507.28    1235.74    9520.34
GR   1235.2    9532.26    1233.01    9544.01    1233.13    9544.71    1235.23    9561.01    1235.23    9563.22
GR   1235.3    9579.44    1235.15    9579.93    1233.34    9585.20    1233.19    9588.18    1232.45    9593.19
GR   1232.5    9600.40    1232.06    9614.98    1231.99    9617.84    1231.59    9629.26    1224.94    9651.24
GR   1218.9    9670.08    1218.66    9709.57    1218.53    9730.02    1218.56    9739.49    1218.51    9753.00
GR   1218.8    9803.24    1228.08    9831.44    1231.38    9841.83    1231.23    9860.22    1231.20    9861.74
GR   1231.3    9862.13    1232.77    9868.66    1228.92    9881.82    1221.37    9907.00    1221.67    9927.77
GR   1221.7    9927.99    1221.68    9928.81    1221.62    9956.02    1220.38    9964.53    1219.84    9970.00
GR   1219.1    9976.70    1219.22   10016.30    1219.24   10022.95    1220.13   10036.55    1220.82   10046.63
GR   1221.0   10049.68    1222.01   10060.28    1221.96   10064.64    1221.74   10084.10    1221.70   10086.79
GR   1227.0   10106.28    1230.75   10120.96    1232.93   10127.63    1232.64   10132.41    1231.84   10140.54
GR   1231.7   10177.77    1231.65   10225.13    1231.95   10290.77    1232.20   10325.42    1233.08   10384.01
GR   1233.5   10425.70    1233.74   10441.69    1233.80   10447.04    1233.06   10451.14    1230.85   10460.65
GR   1232.7   10486.34    1233.51   10496.91    1233.74   10518.29    1233.88   10533.48    1233.54   10544.98
GR   1233.0   10563.12    1232.56   10567.72    1232.44   10568.94    1232.34   10570.30    1232.16   10572.18
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GR   1235.0    9074.08    1235.11    9076.94    1234.98    9087.93    1234.94    9093.80    1234.97    9097.45
GR   1234.6    9114.11    1233.70    9143.57    1232.39    9185.42    1232.26    9193.02    1231.81    9302.24
GR   1231.8    9306.97    1231.82    9312.68    1233.12    9322.58    1233.33    9326.69    1232.37    9331.95
GR   1231.9    9335.33    1232.14    9353.03    1232.18    9385.71    1231.22    9460.20    1230.68    9489.90
GR   1226.3    9505.98    1223.69    9516.20    1223.69    9834.81    1230.17    9860.30    1231.02    9863.45
GR   1231.0    9864.73    1231.01    9865.28    1231.12    9876.51    1231.34    9878.48    1232.87    9889.57
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GR   1222.1    9967.38    1221.63    9982.20    1221.54    9993.66    1221.52    9995.88    1221.46    9999.75
GR   1221.3   10016.66    1221.27   10019.50    1221.95   10025.40    1222.77   10031.72    1223.83   10043.03
GR   1223.8   10047.51    1223.68   10070.27    1232.54   10105.97    1234.82   10113.79    1234.94   10133.53
GR   1235.3   10206.71    1235.47   10261.02    1235.71   10307.53    1235.91   10340.01    1236.33   10390.55
GR   1236.4   10395.17    1236.27   10408.36    1236.72   10468.62    1237.00   10516.30    1237.09   10527.62
GR   1235.8   10533.20    1233.53   10543.79    1233.82   10546.69    1233.87   10548.08    1234.05   10549.91
1
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GR   1235.5   10567.06    1235.75   10569.03    1235.92   10571.22    1236.00   10572.29    1236.01   10572.54

NC    0.045        0.06       0.035

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GR   1231.0    9280.89    1228.94    9287.65    1229.45    9308.60    1229.75    9395.04    1229.81    9401.57
GR   1228.9    9482.30    1229.01    9516.32    1230.04    9537.23    1230.05    9594.06    1229.96    9610.32
GR   1230.2    9690.40    1230.22    9712.37    1230.37    9789.85    1229.50    9849.97    1233.46    9864.13
GR   1226.3    9882.67    1223.19    9891.77    1226.78    9931.82    1223.57    9967.77    1223.55    9973.97
GR   1223.1   10045.00    1229.38   10066.11    1228.89   10090.41    1230.94   10110.16    1238.40   10133.77
GR   1238.1   10238.00    1238.23   10273.37    1242.54   10303.74    1241.68   10314.41    1238.11   10333.31
GR   1238.0   10363.59    1239.24   10432.93    1239.15   10468.29    1239.39   10532.90    1239.44   10583.29
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GR   1233.7    9455.24    1229.09    9464.81    1229.38    9489.35    1228.69    9517.47    1232.91    9532.83
GR   1233.9    9538.22    1233.72    9542.85    1228.96    9556.56    1229.99    9570.25    1230.12    9631.80
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GR   1225.7    9879.26    1224.81    9915.00    1227.89    9947.19    1226.04    9987.71    1225.45   10011.59
GR   1226.5   10018.54    1227.81   10065.44    1228.66   10108.35    1234.10   10128.28    1233.97   10151.66
GR   1234.0   10180.39    1237.23   10199.67    1240.19   10215.16    1240.78   10245.66    1240.70   10262.73
GR   1241.5   10326.11

X1   11.566       55.00    9218.65    10060.0     280.00     530.00     460.00
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GR   1235.4    9343.19   1233.44    9357.53   1240.89    9370.03   1241.33    9381.64   1233.84    9409.90
GR   1233.6    9429.84   1236.00    9442.86   1235.92    9457.18   1235.04    9468.76   1234.83    9497.07
GR   1234.3    9510.70   1234.96    9524.83   1234.44    9544.66   1232.21    9557.78   1231.97    9566.70
GR   1229.3    9592.00   1229.37    9614.00   1228.55    9675.39   1229.76    9728.73   1228.48    9771.51
GR   1228.6    9789.18   1229.71    9844.48   1229.50    9860.07   1230.00    9885.27   1229.58    9914.65
GR   1229.0    9933.74   1229.69    9963.83   1228.58    9989.27   1228.32   10025.00   1234.13   10039.07
GR   1243.3   10060.00   1243.56   10069.74   1243.57   10097.73   1243.75   10158.54   1243.26   10197.61
GR   1242.7   10217.53   1242.04   10255.73   1243.29   10267.02   1242.98   10282.72   1242.85   10288.39
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GR   1235.0    9598.67   1234.80    9613.81   1234.66    9627.49   1234.63    9638.35   1234.75    9658.70
GR   1235.2    9680.28   1241.75    9694.91   1244.58    9701.38   1243.20    9711.39   1242.92    9713.12
GR   1243.2    9725.09   1242.88    9729.94   1241.70    9734.24   1237.86    9746.64   1236.32    9751.56
GR   1242.6    9770.23   1244.09    9774.09   1244.29    9781.79   1244.46    9794.01   1244.35    9808.02
GR   1244.4    9810.38   1240.79    9821.83   1242.57    9825.93   1239.32    9831.92   1239.15    9832.17
GR   1239.2    9832.42   1242.12    9841.94   1239.59    9850.36   1238.77    9852.45   1240.38    9857.44
1
    18FEB99      08:23:59                                                                              PAGE   11

GR   1241.1    9860.94   1237.16    9867.80   1235.26    9870.37   1234.17    9872.41   1234.23    9896.51
GR   1234.2    9930.98   1234.01    9939.39   1234.19    9946.48   1234.71    9962.84   1235.17    9992.88
GR   1233.0    9997.66   1232.02   10000.00   1232.21   10037.32   1232.25   10044.61   1233.90   10058.04
GR   1234.3   10061.70   1234.15   10079.75   1234.19   10097.62   1233.97   10103.10   1235.85   10107.42
GR   1246.5   10132.96   1246.85   10144.86   1246.94   10170.62   1247.07   10228.34   1246.92   10248.16
GR   1246.3   10307.05   1245.92   10353.90   1245.66   10385.76   1245.69   10459.63   1245.66   10464.46
GR   1245.7   10478.53   1245.48   10543.18   1245.39   10565.37   1245.12   10586.18   1244.09   10642.42
GR   1243.8   10651.03   1243.61   10658.52   1243.57   10659.92   1243.55   10664.91   1243.52   10670.15
GR   1243.1   10710.11   1242.93   10755.37   1242.89   10766.12   1243.52   10810.32   1243.59   10831.93
GR   1243.6   10848.27   1245.80   10985.76

NC     0.06       0.06      0.035

X1   11.949      59.00   9678.36   10235.82     990.00    1000.00    1000.00
X3       10
GR   1252.0    9324.61   1252.72    9344.99   1252.27    9358.68   1251.06    9384.12   1251.34    9392.95
GR   1250.0    9430.95   1249.50    9447.90   1244.15    9462.71   1243.17    9546.84   1243.06    9568.51
GR   1244.3    9589.46   1247.72    9655.12   1248.70    9678.36   1247.84    9710.30   1247.26    9743.04
GR   1245.3    9758.43   1246.42    9770.12   1245.82    9777.57   1241.28    9791.94   1242.45    9809.76
GR   1242.0    9840.86   1244.24    9883.54   1245.13    9897.82   1239.71    9920.26   1239.00    9979.53
GR   1239.1   10055.23   1239.17   10084.45   1238.90   10110.00   1241.77   10124.84   1241.04   10141.53
GR   1239.5   10192.93   1242.65   10235.82   1243.20   10261.47   1244.39   10327.99   1244.81   10329.81
GR   1244.7   10346.06   1242.00   10367.25   1241.81   10387.69   1247.16   10407.79   1248.88   10417.24
GR   1248.8   10432.61   1247.94   10447.26   1247.93   10483.97   1248.75   10502.58   1248.81   10558.55
GR   1247.9   10633.88   1249.14   10682.15   1250.23   10716.46   1249.78   10764.38   1249.64   10864.12
GR   1249.5   10901.37   1249.65   10963.14   1249.59   11022.34   1249.72   11077.87   1250.05   11158.14
GR   1249.9   11215.28   1250.91   11279.44   1248.33   11382.78   1245.43   11580.12

  CROSS SECTION ADJUSTED PER FLETCHER HEIGHTS GRADING PLAN

X1   12.125          63   9742.17   10335.82     910.00    1000.00     930.00
X3       10
GR   1252.0    9047.18   1255.00    9066.41   1254.82    9095.00   1245.20    9125.19   1245.27    9142.02
GR   1255.0    9176.47   1255.40    9199.99   1255.24    9245.66   1255.66    9368.18   1256.01    9399.64
GR   1256.0    9510.06   1256.65    9573.26   1258.35    9585.20   1256.14    9606.41   1255.76    9623.32
GR   1255.5    9652.10   1255.96    9683.52   1254.31    9742.17   1253.38    9746.28   1250.29    9765.66
GR   1249.9    9805.27   1249.75    9820.38   1247.19    9860.67   1246.14    9872.18   1245.84    9891.41
GR   1245.2    9903.18   1244.96    9961.51   1245.05   10009.40   1244.65   10085.42   1245.48   10124.23
GR   1245.6   10186.60   1245.07   10215.26   1245.25   10225.00   1246.6    10300.00   1254.4    10335.82
GR   1256.2   10435.97   1255.79   10451.59   1255.3    10495.79   1255.2    10526.95   1257.2    10538.34
GR   1256.9   10655.92   1256.80   10730.16   1257.1    10827.97   1256.8    10911.91   1257.0    10981.78
GR   1257.0   11044.99   1256.79   11132.25   1256.4    11189.41   1256.6    11225.19   1255.8    11303.26
GR   1255.9   11319.04   1255.28   11375.71   1254.1    11403.70   1253.9    11418.38   1253.8    11455.25
GR   1254.4   11502.50   1253.34   11579.35   1253.4    11605.90   1254.5    11627.74   1254.6    11639.08
GR   1255.8   11646.02   1253.99   11671.16   1253.4    11706.36

1
    18FEB99      08:23:59                                                                              PAGE   12

QT       1    9800.00

X1   12.313          58   9806.87   10248.19    1010.00     980.00     990.00
X3       10
GR   1261.9    8592.00   1261.37    8778.39   1261.34    8847.05   1261.95    8867.85   1260.97    8953.64
GR   1260.7    9059.42   1260.08    9165.19   1259.44    9359.00   1258.03    9581.32   1258.57    9695.16
GR   1258.5    9806.87   1261.90    9827.49   1260.35    9853.29   1257.19    9869.41   1257.38    9902.43
GR   1256.0    9956.58   1250.87    9978.49   1250.47   10014.55   1252.75   10028.94   1254.62   10117.83
GR   1255.1   10153.23   1254.01   10161.35   1253.55   10169.65   1250.91   10188.34   1250.75   10215.26
GR   1251.1   10221.02   1258.14   10248.19   1258.88   10262.30   1259.86   10274.15   1259.67   10300.55
GR   1259.9   10366.21   1258.66   10398.74   1258.78   10433.60   1259.55   10479.53   1258.42   10553.69
GR   1258.2   10647.77   1259.20   10670.89   1258.64   10733.75   1258.45   10737.89   1258.11   10784.80
GR   1258.3   10803.17   1258.51   10886.66   1258.58   11009.52   1258.33   11047.73   1260.16   11072.80
GR   1260.0   11173.31   1254.56   11200.24   1259.17   11230.71   1260.13   11250.41   1259.58   11356.76
GR   1258.1   11383.87   1258.11   11413.73   1259.93   11444.10   1260.01   11543.99   1258.24   11563.01
GR   1258.4   11679.69   1259.36   11747.48   1259.06   11847.23
```

ADDED IN STA. 9830 CODED OUT PIT AT STA'S 9170.56 AND 9196.30

```
X1   12.511        95   9830.00  10296.93    1000.00    1020.00    1056.00
X3       10
GR   1265.3   8690.00   1265.72   8722.98   1265.04   8800.78   1266.46   8877.93   1266.49   8890.38
GR   1266.0   8981.85   1265.46   9039.65   1265.57   9069.51   1266.12   9085.08   1268.85   9115.14
GR   1264.3   9130.04   1266.04   9156.70   1265.00   9170.56   1265.00   9196.30   1265.36   9213.06
GR   1265.1   9233.08   1265.01   9269.17   1265.12   9306.39   1264.21   9384.01   1264.06   9435.16
GR   1263.6   9495.33   1263.43   9500.45   1265.12   9523.52   1264.00   9531.84   1263.64   9577.67
GR   1263.7   9644.25   1263.41   9672.29   1262.59   9730.15   1263.21   9797.63   1263.00   9830.00
GR   1262.2   9871.16   1261.0    9883.86   1259.32   9894.60   1258.82   9930.99   1257.37   9939.13
GR   1257.3   9949.46   1256.1   10006.26   1258.76  10014.94   1258.45  10030.45   1258.03  10040.27
GR   1255.2  10046.61   1254.8   10065.39   1259.67  10081.46   1262.29  10098.86   1265.39  10111.39
GR   1262.9  10128.79   1262.4   10163.12   1268.36  10179.88   1258.77  10197.79   1258.52  10223.11
GR   1261.1  10235.23   1264.3   10262.78   1264.16  10285.66   1264.63  10296.93   1264.04  10330.81
GR   1263.4  10343.83   1260.2   10356.42   1262.92  10377.50   1259.40  10390.66   1258.90  10428.38
GR   1263.8  10451.62   1264.0   10472.33   1263.86  10545.08   1264.81  10579.02   1263.12  10625.09
GR   1263.1  10712.44   1263.5   10731.12   1261.71  10768.22   1261.65  10793.64   1261.65  10799.50
GR   1263.4  10822.58   1263.5   10851.82   1263.27  10915.50   1263.51  11032.53   1263.88  11133.36
GR   1263.9  11225.85   1263.7   11305.59   1264.04  11370.37   1264.60  11419.42   1263.34  11432.45
GR   1263.7  11448.20   1263.2   11464.10   1264.34  11496.85   1264.85  11600.66   1262.96  11616.13
GR   1262.4  11637.84   1262.7   11664.06   1262.29  11700.31   1262.83  11719.63   1263.84  11740.75
GR   1264.6  11805.36   1264.3   11905.36   1264.14  12105.70   1265.05  12143.78   1265.51  12181.04
```

ADDED IN STA. 10268

```
X1   12.701        54   9748.20  10268.00    1030.00    1020.00    1000.00
X3       10
GR   1270.6   8679.69   1270.78   8721.34   1270.39   8761.23   1269.90   8833.88   1270.26   8937.48
GR   1270.4   9012.64   1270.30   9085.61   1270.35   9213.01   1269.98   9339.41   1268.84   9353.58
GR   1268.8   9385.62   1270.11   9401.02   1269.68   9469.49   1268.53   9566.70   1268.60   9597.16
GR   1270.6   9611.57   1271.46   9662.01   1271.92   9720.40   1271.92   9748.20   1266.65   9763.96
GR   1265.6   9795.42   1265.27   9811.44   1264.93   9881.27   1266.19   9897.84   1266.58   9928.05
GR   1260.1   9962.00   1260.60  10022.54   1262.09  10056.78   1267.52  10087.73   1267.63  10119.94
1
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GR   1268.1  10154.63   1269.00  10268.00   1269.79  10320.67   1270.31  10438.54   1268.11  10464.36
GR   1268.0  10495.14   1268.7   10531.67   1269.90  10586.85   1270.31  10635.58   1269.74  10648.20
GR   1270.0  10667.88   1270.6   10703.92   1270.38  10759.91   1269.97  10796.17   1268.94  10830.95
GR   1268.5  10836.90   1269.0   10865.29   1269.75  10900.36   1268.83  10938.96   1270.17  10954.33
GR   1270.0  10961.64   1268.3   10969.83   1261.37  11007.01   1268.74  11046.65
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ADDED STA 10345

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X1   12.896       70.00   9833.94     10345    1010.00       1010       1030
X3       10
GR   1274.9   8580.93   1274.87   8673.09   1274.38   8704.21   1274.04   8723.05   1274.49   8749.93
GR   1274.0   8793.37   1275.30   8802.34   1275.29   8836.56   1274.95   8904.16   1274.68   8975.01
GR   1275.0   9098.79   1275.18   9207.36   1274.81   9315.93   1275.06   9424.49   1274.72   9576.94
GR   1274.9   9659.17   1274.71   9701.13   1274.17   9717.06   1276.06   9744.07   1276.58   9773.97
GR   1276.8   9804.07   1277.11   9814.91   1278.41   9833.94   1269.60   9869.82   1269.25   9888.98
GR   1267.4   9898.23   1263.73   9911.98   1262.67   9944.78   1262.50  10045.00   1269.15  10086.34
GR   1264.4  10098.25   1265.88  10158.03   1265.26  10183.14   1266.51  10194.99   1265.26  10222.79
GR   1264.8  10272.92   1269.56  10303.90   1273.04  10320.71   1273.00  10345.00   1273.48  10382.41
GR   1272.8  10468.19   1270.9   10496.62   1270.12  10518.59   1273.41  10536.41   1275.23  10549.79
GR   1274.9  10608.82   1274.9   10654.72   1274.88  10686.20   1273.87  10715.79   1274.02  10765.87
GR   1275.2  10787.15   1274.3   10834.35   1276.17  10841.05   1274.01  10846.05   1274.44  10942.72
GR   1273.6  10963.87   1274.0   10991.43   1274.13  11093.97   1274.27  11154.66   1274.62  11205.89
GR   1269.6  11225.58   1271.8   11254.72   1268.42  11276.71   1270.68  11291.08   1264.52  11313.83
GR   1264.4  11321.49   1273.2   11373.42   1275.02  11385.37   1276.40  11406.68   1274.00  11416.06

QT       1   7900.00
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ADDED IN STA 10103.00

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X1   13.076        87   9665.58  10103.00     950.00     980.00     950.00
X3       10
GR   1277.7   8630.49   1277.44   8676.33   1277.70   8705.97   1278.00   8765.27   1279.13   8916.61
GR   1279.5   8992.75   1281.42   9191.97   1281.52   9237.48   1280.17   9250.04   1279.43   9278.28
GR   1279.8   9299.93   1279.75   9347.01   1280.46   9377.28   1278.04   9389.74   1279.96   9415.68
GR   1280.3   9455.36   1280.27   9487.90   1280.59   9551.21   1280.45   9601.71   1279.35   9665.58
GR   1271.3   9685.17   1265.52   9698.48   1263.66   9726.61   1264.63   9754.41   1264.26   9798.96
GR   1262.5   9822.49   1262.56   9828.92   1264.46   9847.65   1264.35   9863.37   1264.56   9881.24
GR   1263.8   9901.55   1263.96   9916.59   1262.75   9931.23   1263.05   9943.82   1264.01   9965.53
GR   1263.4   9977.95   1262.37   9993.24   1262.37  10010.00   1264.10  10024.82   1266.15  10035.77
GR   1263.2  10056.03   1263.91  10067.46   1269.18  10082.40   1271.82  10091.28   1272.00  10103.00
GR   1272.7  10124.75   1278.5   10147.95   1278.65  10190.41   1279.48  10257.54   1279.91  10298.86
GR   1288.2  10346.02   1288.6   10355.91   1279.32  10406.59   1279.27  10454.49   1279.00  10511.71
GR   1279.8  10542.50   1279.8   10568.00   1280.15  10660.38   1280.46  10674.73   1280.56  10713.34
GR   1279.8  10728.07   1278.7   10773.12   1279.18  10811.36   1279.20  10863.83   1279.05  10898.25
GR   1277.8  10989.63   1279.2   11080.51   1279.38  11169.90   1279.83  11188.28   1279.34  11241.84
GR   1278.8  11290.22   1278.9   11310.13   1278.68  11329.33   1280.21  11339.95   1278.01  11347.13
GR   1278.5  11364.15   1278.9   11420.15   1278.71  11457.78   1278.89  11497.66   1278.79  11549.18
GR   1278.6  11565.40   1271.0   11591.43   1272.96  11595.64   1279.13  11613.05   1278.04  11672.02
GR   1278.2  11684.58   1279.7   11702.70
1
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```
X1   13.277      38.00    9941.62   10240.18     800.00     670.00     800.00
GR   1284.9    9165.00    1284.99    9241.52    1285.38    9289.32    1283.69    9296.67    1284.00    9321.40
GR   1283.9    9356.28    1283.54    9389.83    1282.86    9404.65    1283.57    9426.27    1282.78    9447.55
GR   1283.0    9490.68    1282.15    9666.80    1283.34    9688.67    1283.56    9747.20    1283.85    9773.52
GR   1282.8    9880.37    1281.61    9932.49    1282.54    9941.62    1277.72    9953.53    1275.80    9957.06
GR   1274.9    9981.17    1274.89   10018.22    1275.57   10043.46    1276.31   10056.44    1275.84   10106.97
GR   1275.4   10131.61    1275.40   10146.04    1278.72   10204.81    1288.90   10240.18    1284.60   10256.67
GR   1284.4   10269.09    1283.30   10378.02    1283.33   10413.98    1283.16   10573.42    1283.26   10647.07
GR   1283.2   10742.80    1283.42   10887.18    1283.40   10898.50

X1   13.420      61.00    9844.81   10080.79     970.00    1000.00    1020.00
X3       10
GR   1288.0    9393.95    1288.06    9422.91    1287.97    9476.16    1287.26    9512.85    1286.57    9531.16
GR   1286.6    9555.11    1286.46    9581.00    1287.25    9612.16    1287.96    9630.03    1287.45    9654.45
GR   1288.3    9698.67    1288.27    9721.87    1288.92    9790.25    1288.27    9812.77    1290.55    9826.19
GR   1288.5    9839.34    1288.33    9844.81    1283.51    9861.07    1282.43    9879.68    1281.07    9893.21
GR   1280.6    9905.75    1280.99    9958.28    1278.03    9982.45    1277.43   10000.00    1277.80   10023.40
GR   1280.3   10035.18    1281.57   10062.82    1289.98   10080.79    1286.40   10088.73    1288.72   10112.21
GR   1287.3   10120.29    1287.71   10127.18    1289.33   10140.65    1293.38   10167.45    1288.58   10185.23
GR   1288.4   10235.98    1289.23   10251.21    1288.32   10275.01    1287.05   10307.20    1287.28   10343.83
GR   1287.3   10387.62    1286.94   10428.70    1286.93   10456.27    1286.66   10479.60    1285.71   10519.63
GR   1286.1   10542.23    1285.79   10562.51    1285.76   10630.46    1286.54   10651.09    1285.93   10671.99
GR   1284.5   10714.62    1285.10   10725.10    1286.77   10744.50    1287.02   10796.78    1286.96   10826.83
GR   1287.8   10841.87    1288.10   10914.83    1286.27   10944.13    1286.26   10984.26    1285.96   10993.76
GR   1286.0   11020.50

NC    0.05       0.05      0.035

X1   13.619      70.00    9762.99   10335.67    1090.00    1020.00    1056.00
GR   1292.0    9585.58    1292.36    9652.88    1294.25    9663.46    1292.78    9684.96    1292.79    9698.41
GR   1295.2    9717.05    1294.77    9762.99    1285.43    9812.00    1283.79    9822.71    1284.12    9888.90
GR   1283.5    9958.86    1284.45    9977.80    1284.14    9990.76    1283.47   10000.00    1283.51   10019.40
GR   1285.3   10030.04    1285.13   10072.28    1284.73   10100.28    1284.43   10157.81    1285.02   10214.32
GR   1285.2   10243.58    1284.80   10318.54    1291.19   10335.67    1290.25   10340.98    1291.11   10347.83
GR   1289.7   10359.68    1289.46   10385.47    1293.88   10414.58    1294.38   10461.27    1294.70   10501.93
GR   1298.4   10511.38    1301.80   10518.60    1294.49   10535.37    1302.40   10556.34    1303.98   10575.18
GR   1305.0   10602.28    1298.27   10624.37    1299.33   10646.64    1293.68   10663.54    1293.71   10676.04
GR   1295.2   10679.49    1296.02   10695.91    1297.61   10705.90    1296.63   10710.74    1293.79   10717.43
GR   1293.7   10742.73    1300.02   10754.19    1295.94   10762.56    1299.93   10771.34    1296.25   10778.68
GR   1299.7   10786.15    1295.97   10792.43    1298.87   10800.95    1296.19   10806.96    1298.73   10813.69
GR   1294.5   10822.00    1295.37   10883.55    1294.78   10912.66    1293.58   10965.70    1293.06   11026.77
GR   1292.3   11080.63    1293.20   11147.56    1293.04   11193.48    1293.10   11258.34    1292.94   11263.80
GR   1292.9   11297.22    1293.53   11360.29    1293.84   11378.44    1293.64   11427.12    1293.09   11457.26

  INCREASED GR ELEV. TO 1268 FOR STA'S 9835.48 TO 10465.00 TO MODEL FLOW
  CONVEYED IN GRAVEL PIT
1
   18FEB99      08:23:59                                                                                    PAGE   15

X1   13.818      51.00    9821.63   10331.30    1050.00    1050.00    1056.00
X3       10
GR   1298.0    9457.90    1298.87    9473.66    1298.90    9499.95    1299.46    9580.20    1299.62    9584.73
GR   1296.7    9613.64    1297.12    9655.26    1293.55    9668.81    1295.18    9692.29    1295.29    9699.65
GR   1294.1    9717.53    1292.98    9751.46    1293.68    9766.86    1293.89    9783.00    1293.17    9784.20
GR   1291.3    9801.73    1290.67    9810.69    1290.76    9821.63    1288.00    9835.48    1288.00   10331.30
GR   1288.0   10465.00    1292.32   10478.72    1289.20   10487.96    1288.71   10531.93    1288.81   10545.65
GR   1289.9   10555.25    1294.94   10582.72    1299.17   10607.46    1299.63   10636.15    1289.07   10651.08
GR   1287.8   10698.65    1287.78   10863.93    1288.22   10909.82    1288.02   10933.29    1288.23   10943.55
GR   1288.1   10998.98    1288.49   11034.12    1289.44   11062.87    1289.29   11085.09    1289.55   11105.80
GR   1289.0   11188.14    1290.12   11224.24    1288.42   11268.57    1289.97   11374.44    1290.35   11398.66
GR   1291.8   11419.65    1291.96   11430.08    1290.64   11444.56    1292.34   11454.84    1290.56   11460.29
GR   1290.7   11483.66

QT        1    6100.00

X1   14.013      56.00     9785.6   10046.46    1020.00    1055.00    1030.00
GR   1308.1    8885.04    1307.16    9001.97    1306.76    9131.69    1305.89    9262.54    1305.46    9463.27
GR   1305.1    9536.52    1305.80    9581.14    1306.33    9612.59    1306.46    9656.69    1306.04    9718.42
GR   1306.1    9748.58    1305.60    9785.60    1302.88    9789.55    1300.12    9833.18    1299.23    9894.80
GR   1299.0    9926.31    1296.71    9935.80    1298.47    9952.05    1298.12    9980.15    1295.83    9992.04
GR   1295.8   10012.00    1303.66   10046.46    1301.65   10069.05    1302.58   10079.46    1303.94   10111.70
GR   1302.3   10139.56    1303.71   10182.19    1304.23   10259.71    1304.30   10279.45    1301.54   10291.09
GR   1301.5   10336.66    1303.38   10390.98    1303.41   10452.40    1301.81   10469.00    1301.44   10484.76
GR   1300.6   10497.18    1302.40   10515.30    1301.77   10525.22    1301.01   10546.39    1305.31   10558.44
GR   1305.3   10629.80    1304.00   10640.75    1305.46   10654.41    1302.58   10668.11    1305.64   10686.15
GR   1305.4   10737.82    1301.43   10757.14    1303.93   10781.78    1304.52   10809.46    1304.49   10869.87
GR   1304.7   10926.68    1302.78   10964.28    1305.71   10999.97    1305.99   11074.48    1306.06   11178.36
GR   1306.3   11224.99

X1   14.197      61.00    9934.14   10263.32     990.00     920.00     970.00
GR   1312.3    9057.99    1312.02    9128.57    1311.52    9237.56    1310.88    9437.57    1310.21    9532.53
GR   1310.3    9637.37    1310.21    9657.85    1311.02    9737.58    1307.66    9804.07    1309.41    9819.00
GR   1309.3    9843.53    1308.78    9876.36    1310.08    9883.82    1309.84    9923.14    1309.62    9934.14
GR   1301.9   10000.00    1305.91   10027.15    1306.24   10040.69    1307.57   10146.12    1307.88   10191.01
GR   1306.7   10232.33    1306.60   10241.44    1310.80   10263.32    1310.54   10339.42    1310.58   10440.82
GR   1311.3   10476.46    1307.35   10489.70    1307.95   10523.02    1306.79   10552.35    1310.79   10569.56
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GR   1310.4   10637.65   1311.00   10699.75   1307.71   10710.61   1309.41   10730.06   1308.86   10747.01
GR   1308.7   10768.64   1308.79   10824.52   1309.04   10833.97   1307.85   10851.15   1308.97   10865.21
GR   1308.2   10879.45   1308.37   10885.68   1306.28   10900.92   1306.70   10941.53   1307.57   10957.62
GR   1306.5   10971.36   1306.28   10983.48   1310.33   10998.91   1308.97   11010.87   1310.26   11031.15
GR   1310.4   11043.96   1309.97   11055.73   1307.38   11069.33   1310.82   11083.15   1310.54   11145.23
GR   1309.3   11242.46   1309.56   11282.63   1308.63   11293.26   1309.91   11330.36   1310.51   11362.09
GR   1310.8   11433.55

  ADDED STA 9551

1
   18FEB99      08:23:59                                                                          PAGE   16


X1   14.379         61   9551.00   10106.58    940.00    1000.00    960.00
GR   1318.0    9021.00   1317.77    9154.20   1317.61    9206.43   1316.99    9283.44   1316.45    9406.46
GR   1316.3    9506.48    1316.3    9551.00   1314.22    9638.45   1313.33    9668.13   1310.91    9681.78
GR   1308.7    9689.35    1308.0    9709.34   1313.09    9717.56   1316.83    9728.26   1316.30    9806.52
GR   1316.2    9841.49    1316.3    9906.34   1316.58    9969.41   1309.18    9984.55   1312.77   10106.58
GR   1313.2   10174.33    1313.3   10201.48   1313.78   10213.27   1313.61   10241.58   1313.00   10265.72
GR   1313.9   10292.66    1314.5   10320.38   1313.12   10381.49   1312.38   10403.95   1312.27   10441.69
GR   1314.9   10495.75    1315.2   10507.24   1315.69   10565.84   1316.10   10604.25   1313.89   10615.71
GR   1315.0   10641.45    1313.6   10657.55   1313.74   10707.28   1314.33   10747.70   1312.73   10786.97
GR   1312.1   10819.27    1312.7   10839.42   1314.96   10852.38   1313.25   10888.47   1312.47   10917.80
GR   1310.8   10929.98    1310.7   10962.21   1315.13   10980.38   1314.82   11009.50   1314.20   11106.74
GR   1313.9   11217.17    1314.1   11306.78   1314.17   11315.40   1314.33   11406.81   1315.42   11433.49
GR   1315.8   11482.38    1314.7   11492.85   1314.40   11500.18   1315.63   11528.39   1316.23   11610.10
GR   1316.2   11673.33

X1   14.559       62.00   9196.31   10019.18    950.00     915.00    950.00
GR   1324.0    8495.79   1322.75    8664.22   1321.18    8894.09   1319.94    8991.46   1319.36    9008.48
GR   1320.7    9020.18   1320.60    9064.19   1321.01    9160.13   1321.63    9196.31   1317.65    9222.14
GR   1316.9    9228.26   1316.40    9262.17   1319.40    9312.00   1320.19    9362.65   1320.04    9395.71
GR   1316.7    9411.74   1316.68    9423.78   1317.23    9461.28   1316.68    9491.89   1318.79    9514.37
GR   1319.7    9519.38   1320.64    9594.67   1321.19    9664.84   1320.92    9730.31   1316.14    9762.62
GR   1319.4    9778.27   1316.60    9861.71   1317.84    9883.52   1317.90    9910.45   1316.97    9960.73
GR   1317.1    9971.30   1315.45    9978.63   1315.07   10012.00   1320.94   10019.18   1320.59   10033.36
GR   1319.0   10041.58   1319.71   10057.25   1320.69   10079.35   1320.59   10109.16   1320.32   10136.44
GR   1321.0   10160.03   1320.77   10171.58   1319.57   10184.86   1320.83   10197.69   1320.34   10240.72
GR   1321.0   10254.93   1320.60   10364.18   1320.13   10469.94   1319.94   10569.66   1319.55   10668.02
GR   1320.3   10763.60   1320.45   10833.72   1318.88   10881.72   1318.80   10943.49   1318.60   10965.71
GR   1319.1   10978.76   1319.03   11074.35   1319.20   11164.21   1319.86   11252.94   1320.72   11283.69
GR   1320.4   11351.62   1320.72   11386.29

X1   14.752       65.00   9669.41   10173.79    1010.00    1010.00    1020.00
X3       10
GR   1331.2    8715.21   1329.70    8914.54   1329.18    8947.03   1327.13    9096.14   1326.85    9163.26
GR   1327.0    9195.27   1326.95    9274.26   1326.24    9303.35   1324.99    9321.45   1326.34    9337.23
GR   1326.4    9384.46   1326.26    9388.85   1326.37    9439.29   1326.02    9476.49   1326.72    9542.71
GR   1326.6    9574.84   1325.48    9586.69   1326.69    9606.65   1326.52    9617.95   1326.53    9669.41
GR   1320.3    9682.79   1320.23    9691.15   1320.90    9736.76   1324.02    9770.44   1323.71    9784.07
GR   1324.3    9871.80   1323.24    9904.36   1320.32    9920.65   1320.76    9953.54   1321.51    9970.20
GR   1320.4    9991.13   1319.58   10000.00   1323.60   10015.77   1321.53   10040.26   1322.79   10075.99
GR   1325.0   10094.92   1322.43   10113.09   1324.99   10120.12   1324.14   10161.40   1327.21   10173.79
GR   1327.3   10270.77   1327.07   10308.99   1326.21   10423.48   1325.58   10499.08   1326.14   10551.63
GR   1326.3   10587.38   1326.03   10710.57   1326.00   10810.98   1325.52   10911.41   1325.27   10987.37
GR   1324.7   11087.27   1324.61   11162.30   1324.64   11187.38   1324.54   11261.88   1324.46   11320.93
GR   1325.5   11363.17   1324.61   11462.41   1324.25   11487.39   1324.48   11513.89   1324.92   11614.30
GR   1325.1   11687.38   1325.46   11752.29   1326.53   11803.18   1327.49   11820.73   1327.40   11837.08

1
   18FEB99      08:23:59                                                                          PAGE   17


QT        1   4200.00

  ADDED STA 9839

X1   14.945         75   9839.00   10023.75    1005.00    1000.00    1020.00
X3       10
GR   1337.4    8999.01   1335.96    9178.64   1335.87    9210.42   1334.83    9345.17   1334.57    9425.61
GR   1334.9    9466.09   1334.24    9472.12   1333.97    9493.38   1333.94    9570.05   1334.00    9588.29
GR   1332.5    9642.74   1331.70    9650.26   1331.54    9663.27   1331.93    9695.22   1331.29    9762.79
GR   1330.3    9796.07    1329.5    9839.00   1328.89    9877.10   1326.10    9921.75   1325.07    9948.82
GR   1323.8   10000.00    1330.4   10023.75   1334.24   10035.51   1333.91   10057.71   1334.66   10064.42
GR   1331.0   10076.08    1331.1   10088.10   1330.34   10156.77   1330.23   10194.65   1329.53   10223.38
GR   1328.7   10241.17    1330.4   10273.61   1330.11   10307.97   1328.77   10339.39   1327.07   10373.92
GR   1329.4   10421.76    1332.1   10437.68   1331.21   10475.64   1330.73   10477.68   1319.80   10512.02
GR   1318.1   10523.52    1318.3   10536.53   1315.80   10573.45   1315.29   10653.00   1315.52   10678.70
GR   1316.2   10698.94    1315.9   10716.85   1317.97   10733.82   1323.73   10752.62   1324.37   10757.42
GR   1330.0   10775.43    1334.6   10792.58   1332.01   10810.57   1328.18   10823.84   1331.81   10833.35
GR   1332.5   10909.04    1332.8   10917.18   1332.36   10962.34   1331.38   11038.61   1331.18   11122.23
GR   1330.9   11195.19    1330.8   11317.78   1331.40   11323.88   1331.61   11337.82   1331.33   11378.73
GR   1331.3   11418.52    1331.2   11478.73   1331.57   11537.95   1331.65   11578.73   1331.90   11608.73
GR   1331.8   11683.66    1331.5   11714.73   1331.89   11760.92   1332.47   11820.91   1332.72   11855.79

X1   15.144       67.00   9723.35    10113.9        900        890       1056        .89
X3       10
GR   1344.8    8716.59   1343.81    8820.25   1343.32    8897.84   1342.60    8922.58   1342.69    8975.04
GR   1342.4    9018.53   1342.24    9064.13   1342.47    9114.12   1342.14    9147.99   1341.46    9185.91
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GR   1340.6    9201.25    1341.56    9220.79    1340.71    9323.48    1340.31    9338.05    1340.14    9369.16
GR   1337.8    9384.69    1343.14    9399.44    1340.89    9406.83    1338.89    9418.73    1338.12    9442.32
GR   1339.6    9470.84    1339.58    9483.84    1334.16    9501.70    1334.32    9520.77    1333.90    9560.76
GR   1334.8    9571.73    1335.11    9596.84    1330.96    9612.59    1334.70    9634.42    1335.25    9662.11
GR   1335.5    9692.78    1336.01    9697.39    1336.54    9723.35    1332.16    9744.51    1329.50    9760.15
GR   1332.5    9826.27    1333.17    9847.25    1333.34    9899.86    1333.72    9920.28    1331.93    9975.33
GR   1329.2    9990.00    1329.48    10004.50   1331.32    10018.00   1332.04    10059.31   1333.02    10073.27
GR   1333.6    10091.46   1333.51    10113.90   1333.84    10144.63   1337.37    10164.78   1337.10    10179.27
GR   1338.3    10233.80   1338.70    10304.95   1337.91    10367.80   1337.41    10469.23   1339.61    10505.02
GR   1338.2    10522.90   1337.73    10596.56   1337.68    10697.97   1337.48    10767.91   1337.52    10828.29
GR   1337.1    10967.09   1336.92    10997.98   1337.26    11066.70   1337.28    11197.98   1337.52    11265.91
GR   1337.8    11297.98   1338.01    11409.74

X1   15.333      60.00    9735.16    10057.01    900.00     890.00     1000.00
X3       10
GR   1351.7    8464.49    1351.51    8472.80    1349.69    8652.71    1349.78    8673.82    1348.61    8756.93
GR   1348.3    8781.17    1348.29    8801.56    1348.63    8847.99    1347.57    8867.39    1347.83    8876.73
GR   1347.0    8888.90    1344.52    8899.15    1343.91    8907.37    1342.60    8913.09    1347.93    8929.97
GR   1347.4    8947.12    1346.13    9004.70    1347.89    9012.84    1348.26    9028.93    1347.91    9055.96
GR   1347.7    9067.71    1346.77    9074.32    1346.50    9123.37    1346.55    9187.96    1346.08    9257.25
GR   1346.1    9263.81    1345.49    9334.96    1344.19    9436.51    1343.84    9471.48    1343.67    9541.61
GR   1343.5    9567.08    1344.26    9614.64    1339.61    9631.52    1337.97    9657.39    1340.24    9675.69
GR   1340.1    9735.16    1337.04    9760.57    1338.11    9786.05    1336.76    9801.56    1335.73    9857.56
GR   1337.7    9907.45    1335.14    9949.64    1333.64    10000.00   1333.69    10037.09   1342.68    10057.01
GR   1343.2    10238.20   1342.68    10352.19   1342.64    10376.59   1342.91    10452.18   1342.25    10551.85
1
    18FEB99      08:23:59                                                                              PAGE   18

GR   1342.1    10627.11   1342.21    10677.42   1342.49    10761.98   1343.26    10826.87   1343.27    10843.69
GR   1342.4    10926.33   1342.48    10978.26   1342.86    11052.20   1342.79    11078.53   1343.16    11154.04

  MOVED CORPS SECTION 15.519

X1   15.506      59.00     9583.6    10049.31    871.00     891.00     911.00
GR   1350.0    9130.00    1349.44    9171.07    1350.54    9182.01    1350.66    9202.41    1347.15    9217.14
GR   1347.3    9223.91    1349.18    9232.83    1350.84    9248.80    1350.14    9280.76    1350.43    9287.50
GR   1349.5    9305.29    1349.40    9315.08    1349.84    9338.82    1349.61    9343.51    1349.38    9374.47
GR   1349.7    9389.56    1348.85    9428.85    1348.12    9450.68    1347.86    9477.02    1346.09    9513.68
GR   1347.7    9533.28    1347.34    9555.18    1347.14    9572.45    1342.22    9583.60    1341.34    9599.78
GR   1341.6    9636.79    1341.32    9678.54    1339.53    9685.93    1336.71    9702.65    1337.26    9725.18
GR   1337.4    9762.02    1338.00    9814.88    1337.80    9845.64    1338.23    9921.79    1337.81    9955.94
GR   1336.1    9971.61    1335.51    10012.16   1344.94    10049.31   1343.76    10065.07   1341.35    10073.20
GR   1341.6    10095.56   1345.28    10114.17   1345.62    10162.54   1345.24    10212.26   1345.49    10228.33
GR   1346.5    10254.16   1346.56    10278.85   1346.52    10310.77   1347.06    10414.90   1346.99    10431.44
GR   1347.4    10531.31   1348.24    10614.89   1347.71    10712.84   1347.39    10803.97   1347.31    10830.24
GR   1346.6    10979.95   1346.66    11008.75   1348.16    11044.31   1348.00    11056.79

X1   15.699      51.00    9838.14    10057.68    1004.00    989.00     1019.00
GR   1357.8    9294.63    1357.18    9382.00    1356.18    9404.08    1353.62    9413.31    1355.37    9423.79
GR   1356.2    9445.86    1355.86    9485.88    1355.33    9573.79    1355.32    9586.67    1354.24    9623.78
GR   1353.4    9684.70    1353.65    9704.79    1353.35    9758.40    1353.25    9773.37    1350.58    9780.33
GR   1348.9    9787.61    1344.92    9801.35    1345.84    9812.79    1349.39    9838.14    1348.42    9870.89
GR   1344.9    9896.59    1345.54    9925.79    1344.56    9985.00    1345.17    10011.60   1345.49    10035.50
GR   1349.7    10057.68   1348.74    10067.78   1349.47    10086.36   1349.17    10107.77   1351.14    10147.74
GR   1351.1    10180.81   1349.62    10270.66   1348.85    10296.67   1350.51    10326.41   1351.69    10339.43
GR   1349.6    10419.89   1348.33    10474.04   1350.09    10495.52   1349.67    10553.48   1349.34    10580.45
GR   1349.5    10595.12   1348.47    10678.67   1348.26    10684.54   1347.08    10767.98   1346.42    10783.55
GR   1349.5    10794.80   1353.10    10806.43   1353.63    10890.74   1353.87    10984.55   1354.58    11083.58
GR   1354.5    11100.01

QT        1    2350.00

X1   15.966      49.00    9697.82    10153.85    1450.00    1200.00    1410.00
GR   1364.6    8803.71    1363.92    8858.64    1363.40    8930.26    1363.36    8981.35    1363.04    9077.11
GR   1362.6    9107.52    1362.11    9166.44    1361.40    9212.48    1360.34    9317.45    1360.44    9395.39
GR   1359.5    9474.97    1358.94    9599.89    1358.93    9615.07    1357.42    9618.57    1358.95    9624.43
GR   1358.6    9662.18    1359.10    9697.82    1353.46    9714.88    1358.90    9731.13    1358.21    9750.01
GR   1355.4    9768.33    1355.12    9800.44    1355.85    9809.20    1356.22    9832.96    1353.69    9862.72
GR   1355.6    9934.10    1354.00    9949.05    1351.84    10000.00   1356.10    10022.16   1356.70    10077.24
GR   1355.7    10102.69   1356.62    10119.29   1356.72    10153.85   1357.74    10167.67   1357.77    10179.16
GR   1356.0    10276.04   1354.72    10282.19   1354.06    10316.99   1357.75    10332.42   1354.40    10369.79
GR   1360.1    10389.77   1360.53    10400.65   1360.90    10554.12   1360.95    10626.14   1361.13    10708.32
GR   1361.4    10758.56   1361.58    10785.80   1361.51    10832.49   1361.23    10876.66

  ADDED STA 10125

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X1   16.066         60     9745.57    10125.00    565.00     480.00     570.00
GR   1368.8    8772.49    1367.91    8866.84    1367.20    8906.41    1367.03    9007.86    1366.60    9081.51
GR   1366.1    9128.64    1365.08    9215.30    1364.57    9296.22    1363.38    9380.44    1363.04    9417.94
GR   1363.5    9463.39    1363.10    9524.88    1362.18    9546.14    1361.42    9583.36    1358.27    9598.81
GR   1359.3    9604.63    1359.35    9613.54    1358.86    9634.17    1358.05    9649.10    1360.07    9664.39
GR   1361.1    9679.01    1361.05    9686.77    1359.84    9709.52    1360.88    9736.10    1360.66    9745.57
GR   1356.7    9759.97    1355.87    9784.07    1356.38    9791.10    1358.19    9832.99    1359.68    9850.83
GR   1357.9    9906.63    1358.91    9914.54    1357.80    9927.13    1358.94    9940.31    1359.73    9982.54
GR   1354.4    10000.00   1357.24    10017.40   1357.22    10032.34   1359.30    10057.91   1359.74    10073.96
```

GR	1359.5	10113.48	1359.90	10125.00	1360.12	10156.35	1360.91	10175.37	1359.58	10203.84
GR	1358.4	10218.23	1357.8	10233.04	1357.58	10264.16	1354.63	10288.59	1358.50	10365.15
GR	1356.4	10430.62	1360.5	10455.33	1361.31	10479.14	1361.89	10520.47	1362.27	10529.56
GR	1362.7	10575.64	1363.6	10658.99	1363.80	10691.58	1363.92	10778.20	1364.08	10889.77
X1	16.167	45.00	9900.11	10077.88	530.00	530.00	530.00			
GR	1373.8	8675.00	1373.46	8712.70	1373.12	8770.73	1371.96	8857.49	1370.68	8949.38
GR	1370.4	9103.19	1368.64	9201.68	1368.20	9287.71	1368.09	9417.14	1366.39	9632.59
GR	1365.8	9740.33	1365.21	9795.77	1365.02	9859.36	1364.28	9900.11	1360.34	9918.75
GR	1360.0	9958.46	1360.72	9983.59	1358.98	10005.76	1363.49	10033.48	1362.35	10077.88
GR	1361.9	10107.27	1361.08	10125.89	1363.40	10147.81	1363.36	10161.08	1363.72	10187.34
GR	1364.0	10190.97	1363.05	10215.38	1362.94	10236.86	1363.28	10267.76	1361.99	10356.63
GR	1361.4	10386.59	1362.61	10415.86	1361.88	10437.85	1359.11	10468.61	1360.31	10504.24
GR	1357.6	10525.16	1364.83	10548.47	1364.65	10598.82	1362.48	10615.75	1360.59	10635.66
GR	1364.2	10661.51	1364.79	10707.32	1361.52	10755.37	1366.85	10775.20	1366.50	10800.44
X1	16.248	51.00	9957.43	10057.86	450.00	340.00	430.00			
GR	1373.8	8929.89	1373.03	9039.11	1373.18	9078.71	1371.36	9204.99	1370.73	9268.70
GR	1370.6	9353.53	1370.58	9421.45	1369.86	9478.31	1369.56	9539.01	1369.31	9563.12
GR	1367.7	9629.78	1367.91	9670.50	1365.93	9686.92	1368.11	9701.38	1367.95	9738.42
GR	1366.5	9747.22	1367.35	9764.28	1366.79	9878.48	1366.86	9947.02	1361.19	9957.43
GR	1360.2	9992.00	1363.10	10034.92	1364.02	10057.86	1364.29	10071.03	1365.40	10164.01
GR	1363.5	10192.65	1365.07	10228.71	1365.31	10253.52	1361.33	10273.93	1363.88	10296.34
GR	1362.7	10314.86	1365.85	10329.02	1365.68	10363.06	1364.42	10406.01	1365.60	10427.20
GR	1364.3	10446.00	1363.73	10466.47	1365.10	10475.95	1365.33	10484.17	1364.11	10494.07
GR	1365.5	10505.40	1364.79	10544.69	1365.25	10583.37	1363.26	10604.84	1362.54	10624.69
GR	1361.5	10638.50	1367.47	10664.63	1366.99	10740.80	1367.36	10804.88	1367.25	10821.88
GR	1366.5	10831.32								
X1	16.328	39.00	9900.83	10236.68	440.00	250.00	410.00			
GR	1374.7	8934.01	1374.32	9047.42	1374.03	9088.99	1373.27	9138.59	1373.44	9155.00
GR	1373.0	9213.23	1372.97	9262.62	1372.08	9370.24	1371.34	9444.24	1370.75	9521.26
GR	1370.3	9585.45	1369.96	9685.81	1369.74	9717.60	1369.51	9743.16	1364.90	9761.75
GR	1366.7	9783.29	1367.06	9795.52	1366.85	9868.87	1366.93	9900.83	1363.81	9917.19
GR	1365.3	9941.02	1364.02	9968.74	1362.60	10010.00	1364.96	10050.34	1365.59	10099.97
GR	1365.8	10129.81	1366.98	10157.41	1367.61	10184.26	1367.77	10236.68	1367.06	10278.40
GR	1364.6	10293.06	1368.32	10318.66	1366.61	10345.50	1363.65	10360.13	1364.70	10366.36
GR	1368.9	10380.82	1367.56	10424.04	1368.01	10446.38	1368.74	10532.04		

X1	16.411	76.00	9876.84	10044.45	510.00	350.00	450.00			
X3	10									
GR	1373.0	9223.86	1372.98	9228.12	1372.88	9238.11	1372.74	9257.53	1372.07	9340.57
GR	1371.4	9428.37	1371.07	9452.99	1371.08	9460.90	1371.10	9476.27	1370.90	9538.60
GR	1371.4	9569.87	1370.94	9582.75	1371.07	9624.62	1371.17	9635.44	1371.39	9639.59
GR	1371.4	9639.67	1371.55	9642.19	1371.45	9642.69	1371.16	9645.85	1370.12	9651.09
GR	1368.2	9659.28	1367.98	9668.71	1367.73	9677.04	1367.66	9679.18	1367.64	9680.43
GR	1367.5	9691.66	1367.46	9698.63	1368.21	9705.94	1368.59	9711.62	1368.97	9716.55
GR	1369.4	9721.48	1369.40	9735.40	1369.51	9752.09	1369.62	9780.92	1369.65	9790.33
GR	1369.5	9876.84	1369.46	9891.31	1368.86	9900.51	1368.60	9904.21	1368.53	9905.19
GR	1367.5	9924.59	1366.46	9945.29	1366.13	9953.56	1365.29	9975.54	1365.18	9978.90
GR	1365.0	9991.56	1364.58	10013.82	1364.41	10022.71	1364.27	10030.00	1369.30	10039.67
GR	1371.4	10043.83	1371.45	10044.45	1371.35	10095.80	1371.29	10124.59	1371.29	10126.85
GR	1371.3	10127.53	1371.29	10127.64	1371.29	10127.96	1371.28	10128.37	1371.29	10129.67
GR	1370.9	10189.72	1370.61	10196.89	1370.60	10197.34	1370.32	10199.28	1367.85	10216.22
GR	1367.6	10218.17	1368.63	10224.76	1369.82	10237.22	1369.89	10243.35	1370.26	10249.59
GR	1370.5	10255.82	1370.69	10260.05	1370.74	10281.20	1370.54	10293.01	1370.50	10309.89
GR	1370.5	10322.42								
X1	16.504	69.00	9881.12	10077.88	460.00	300.00	490.00			
X3	10									
GR	1377.9	8925.65	1377.58	8954.73	1376.72	9019.98	1376.62	9028.35	1376.48	9043.57
GR	1375.8	9134.13	1375.45	9175.57	1374.98	9248.24	1374.98	9251.00	1374.56	9350.63
GR	1374.3	9374.74	1374.06	9399.84	1373.99	9404.40	1373.99	9405.05	1374.00	9405.55
GR	1374.0	9406.67	1374.02	9408.16	1373.95	9434.31	1373.96	9447.20	1373.96	9452.54
GR	1374.0	9476.58	1374.17	9543.67	1374.31	9590.73	1374.09	9624.22	1374.23	9645.24
GR	1374.3	9647.80	1374.35	9653.27	1374.00	9670.32	1374.00	9671.76	1373.83	9672.29
GR	1369.5	9686.66	1369.65	9688.47	1370.41	9697.42	1371.80	9706.64	1373.43	9718.30
GR	1373.0	9729.77	1372.62	9750.13	1372.61	9750.33	1372.64	9750.96	1372.69	9794.14
GR	1372.8	9806.61	1372.86	9810.14	1372.90	9815.58	1372.92	9818.32	1372.55	9822.19
GR	1370.5	9840.78	1370.82	9848.90	1371.41	9861.47	1371.72	9867.69	1371.80	9870.05
GR	1371.1	9875.11	1370.28	9881.12	1369.90	9884.12	1369.86	9896.18	1369.80	9901.88
GR	1369.2	9933.18	1368.17	9978.39	1367.53	10004.10	1366.99	10027.02	1366.89	10030.00
GR	1367.2	10041.54	1367.78	10062.76	1369.44	10066.46	1373.87	10077.88	1373.37	10101.92
GR	1373.3	10104.39	1374.39	10120.99	1374.45	10122.19	1374.27	10133.96		
X1	16.608	87.0	9819.07	10042.2	485.00	450.00	530.00			
X3	10									
GR	1382.1	8857.46	1382.13	8865.57	1382.23	8871.34	1381.99	8872.87	1381.78	8875.43
GR	1381.5	8877.83	1381.06	8885.78	1381.22	8890.37	1381.24	8890.79	1381.33	8892.90
GR	1381.9	8900.42	1381.80	8913.68	1381.58	8927.84	1381.19	8930.40	1379.80	8939.52
GR	1380.5	8943.79	1381.37	8949.97	1381.32	8951.64	1381.23	8955.17	1380.90	8989.41
GR	1380.7	9028.58	1380.26	9064.73	1379.90	9154.19	1379.75	9178.52	1379.75	9185.72
GR	1379.6	9199.00	1379.06	9259.47	1378.93	9292.29	1378.61	9333.22	1377.96	9406.05
GR	1377.9	9408.63	1377.41	9480.73	1377.06	9519.86	1376.91	9554.47	1376.89	9618.23
GR	1376.9	9633.65	1376.77	9699.36	1376.98	9740.39	1377.17	9771.04	1377.26	9775.79

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GR   1377.3    9780.57    1377.27    9787.55    1377.28    9796.91    1377.23    9802.00    1377.06    9818.05
GR   1377.1    9819.07    1373.42    9832.69    1371.67    9838.45    1371.60    9843.02    1371.33    9850.30
GR   1371.2    9853.48    1371.87    9886.36    1371.82    9889.17    1371.83    9891.72    1372.17    9901.02
GR   1370.4    9909.72    1369.70    9912.80    1369.52    9914.23    1368.88    9918.79    1369.27    9922.16
GR   1369.7    9927.57    1370.52    9935.27    1371.21    9943.78    1371.49    9964.01    1371.62    9974.05
1
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GR   1370.8    9982.91    1368.54   10005.00    1368.66   10006.09    1368.71   10006.47    1369.84   10014.62
GR   1370.4   10019.36    1371.11   10024.67    1372.82   10036.62    1373.08   10038.41    1373.62   10042.20
GR   1373.7   10047.84    1373.48   10060.74    1373.21   10066.14    1372.48   10073.69    1371.35   10083.94
GR   1371.0   10087.86    1370.93   10089.62    1370.13   10094.99    1370.97   10099.81    1372.83   10106.61
GR   1373.7   10110.59    1374.03   10113.41

X1   16.732      93.00    9875.39   10046.16     640.00     420.00     685.00
X3       10
GR   1387.1    9124.64    1386.21    9177.30    1385.91    9195.11    1385.59    9225.14    1385.04    9268.07
GR   1384.8    9293.40    1384.39    9324.36    1384.41    9328.79    1384.25    9354.58    1384.23    9356.39
GR   1384.0    9357.74    1382.66    9365.43    1383.13    9368.02    1384.31    9374.66    1384.16    9392.81
GR   1384.1    9403.62    1384.06    9406.55    1384.02    9408.29    1383.98    9409.59    1383.83    9421.95
GR   1382.9    9487.14    1382.62    9525.62    1382.31    9560.18    1381.83    9618.74    1381.68    9633.21
GR   1381.6    9641.75    1380.94    9706.23    1380.48    9757.84    1380.33    9774.15    1380.32    9775.71
GR   1380.3    9779.34    1380.36    9782.88    1380.13    9805.47    1380.12    9810.26    1380.10    9813.42
GR   1380.1    9836.20    1380.07    9871.53    1379.92    9872.21    1379.90    9873.23    1379.89    9873.98
GR   1379.9    9875.39    1379.87    9876.55    1379.85    9877.46    1379.83    9878.10    1378.19    9882.57
GR   1373.1    9902.92    1373.11    9903.50    1373.15    9905.22    1373.54    9920.99    1373.81    9927.30
GR   1375.8    9964.79    1376.00    9969.85    1376.38    9977.28    1373.49    9996.06    1372.93   10000.00
GR   1373.4   10003.81    1375.42   10018.75    1374.55   10024.76    1373.99   10030.08    1376.94   10046.16
GR   1378.1   10052.49    1378.18   10056.15    1378.23   10058.17    1378.40   10068.80    1378.94   10085.52
GR   1379.1   10089.78    1378.77   10100.16    1378.62   10105.79    1378.28   10122.43    1377.31   10141.98
GR   1378.4   10168.08    1379.03   10191.45    1379.04   10192.88    1379.26   10221.05    1379.26   10222.68
GR   1379.3   10227.60    1379.18   10242.45    1378.19   10246.58    1376.60   10252.70    1376.62   10254.49
GR   1376.6   10255.87    1376.65   10257.50    1376.97   10287.04    1377.08   10295.55    1377.20   10304.95
GR   1377.2   10310.91    1377.13   10318.01    1376.45   10352.95    1376.01   10398.13    1375.82   10409.80
GR   1376.6   10414.13    1379.34   10429.60    1378.69   10451.67

X1   16.818      76.00    9890.87    10084.4     430.00     750.00     455.00
GR   1386.3    9368.72    1386.31    9373.42    1386.32    9383.92    1386.27    9400.71    1385.74    9449.63
GR   1385.1    9516.71    1383.71    9624.93    1383.60    9634.21    1383.57    9636.26    1383.54    9639.96
GR   1382.6    9751.70    1382.64    9778.62    1382.77    9800.20    1382.45    9801.00    1382.04    9803.60
GR   1382.2    9804.12    1382.92    9807.44    1387.05    9825.73    1390.32    9835.58    1387.05    9842.98
GR   1381.8    9858.11    1379.92    9863.70    1379.68    9864.81    1380.17    9867.81    1380.81    9876.00
GR   1380.9    9876.58    1380.85    9876.75    1380.81    9877.29    1379.69    9886.29    1379.60    9890.87
GR   1379.5    9894.37    1379.10    9897.73    1379.08    9901.74    1379.10    9905.76    1379.15    9908.37
GR   1378.8    9914.12    1378.74    9917.88    1378.42    9921.17    1377.92    9925.40    1377.63    9927.37
GR   1376.9    9937.00    1376.66    9946.61    1375.75    9988.86    1375.46   10010.05    1375.47   10014.10
GR   1375.2   10023.74    1375.00   10035.00    1377.56   10057.56    1378.84   10068.25    1379.04   10077.77
GR   1379.1   10079.35    1379.07   10079.86    1379.10   10080.84    1379.34   10084.40    1379.49   10088.34
GR   1379.6   10089.50    1378.86   10109.00    1378.77   10112.68    1378.39   10138.42    1377.91   10147.36
GR   1377.3   10155.06    1377.30   10155.16    1380.14   10171.98    1379.88   10183.83    1379.70   10193.69
GR   1379.8   10197.38    1380.23   10219.01    1380.25   10236.00    1380.33   10244.00    1380.36   10246.97
GR   1380.3   10247.71    1380.46   10281.11    1380.54   10289.81    1380.58   10297.31    1380.38   10305.36
GR   1380.0   10314.84


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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

 *PROF 1
0

 CCHV=      .200 CEHV=      .400
 *SECNO 8.655

 3265 DIVIDED FLOW

 3280 CROSS SECTION       8.65 EXTENDED       1.34 FEET

      8.655      17.88    1170.38        .00    1170.38    1170.47        .09        .00        .00    1169.86
    21000.0       21.6    20951.2       27.1      106.0     8677.3      100.3         .0         .0    1168.79
       .00         .20       2.41        .27        .045       .035       .045       .000    1152.50    9319.96
    .000088        0.         0.         0.          0          0          0        .00     929.15   10332.00

 FLOW DISTRIBUTION FOR SECNO=       8.65          CWSEL=    1170.38

 STA=     9320.     9530.    10104.    10332.
   PER Q=         .1      99.8         .1
    AREA=     106.0    8677.3     100.3
     VEL=         .2       2.4         .3
   DEPTH=         .5      15.1         .4

 CCHV=      .100 CEHV=      .300
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*SECNO 8.731

3265 DIVIDED FLOW

3280 CROSS SECTION      8.73 EXTENDED       .94 FEET

     8.731     16.89   1170.48       .00       .00   1170.50       .02       .02       .01   1156.95
   12000.0    4464.8    7529.5       5.7    4971.8    6750.7      58.2      94.9       8.4   1169.55
       .11       .90      1.12       .10       .045      .035      .045      .000   1153.59   9334.66
   .000020      400.      400.      400.         2         0         0       .00    909.82  10366.79


FLOW DISTRIBUTION FOR SECNO=      8.73          CWSEL=   1170.48

STA=    9335.    9386.    9415.    9453.    9485.    9510.    9556.    9601.    9635.    9669.   10133.   10367.
  PER Q=     3.3      3.4      4.7      4.2      3.3      5.8      5.3      3.8      3.4     62.7       .0
   AREA=   537.8    449.0    608.0    526.0    417.2    743.3    696.7    513.6    480.0   6750.7     58.2
    VEL=      .7       .9       .9      1.0      1.0       .9       .9       .9       .9      1.1       .1
  DEPTH=    10.5     15.4     15.9     16.6     16.8     16.1     15.5     15.1     14.2     14.6       .2

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


*SECNO 8.807

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .26

     8.807     12.33   1170.37       .00       .00   1170.57       .20       .02       .05   1172.65
   12000.0       .0   11994.2       5.8       .0    3374.4      16.4     164.5      14.2   1169.70
       .14       .00      3.55       .35       .000      .035      .045      .000   1158.04   9800.47
   .000300      400.      400.      390.         2         0         0       .00    350.88  10151.35


FLOW DISTRIBUTION FOR SECNO=      8.81          CWSEL=   1170.37

STA=    9800.   10113.   10134.   10151.
  PER Q=    100.0       .0       .0
   AREA=   3374.4     11.6      4.8
    VEL=      3.6       .4       .3
  DEPTH=    10.8       .6       .3

*SECNO 8.883

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .53

     8.883     10.96   1170.36       .00       .00   1170.87       .51       .20       .09   1176.79
   12000.0       .0   12000.0       .0        .0    2090.4       .0      189.7      16.9   1170.46
       .16       .00      5.74       .00       .000      .035      .000      .000   1159.40   9872.67
   .001066      280.      400.      400.         2         0         0       .00    244.21  10116.88


FLOW DISTRIBUTION FOR SECNO=      8.88          CWSEL=   1170.36

STA=    9873.   10117.
  PER Q=    100.0
   AREA=   2090.4
    VEL=      5.7
  DEPTH=      8.6

*SECNO 8.936
     8.936     10.78   1170.72       .00       .00   1171.19       .47       .32       .00   1174.58
   12000.0       .0   12000.0       .0        .0    2184.4       .0      203.9      18.7   1170.86
       .17       .00      5.49       .00       .000      .035      .000      .000   1159.94   9841.78
   .001142      300.      290.      300.         2         0         0       .00    288.21  10129.99


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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=      8.94          CWSEL=   1170.72

STA=    9842.   10130.
  PER Q=    100.0
   AREA=   2184.4
    VEL=      5.5
  DEPTH=      7.6

*SECNO 8.977
     8.977      9.58   1170.87       .00       .00   1171.54       .67       .29       .06   1175.30
   12000.0       .0   12000.0       .0        .0    1831.0       .0      213.6      20.0   1172.63
       .18       .00      6.55       .00       .000      .035      .000      .000   1161.29   9873.86
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   .001646      220.      210.      200.         2         0         0       .00    241.68  10115.54

FLOW DISTRIBUTION FOR SECNO=      8.98          CWSEL=   1170.87

STA=    9874.   10118.
  PER Q=    100.0
   AREA=   1831.0
    VEL=      6.6
  DEPTH=      7.6

*SECNO 9.009
3280 CROSS SECTION      9.01 EXTENDED      4.84 FEET

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1177.10 ELREA=      1173.37

     9.009      9.37   1171.43       .00       .00   1171.79       .36       .22       .03   1177.10
   12000.0         .0   12000.0         .0        .0   2495.9         .0     222.5      21.2   1173.37
       .19       .00      4.81       .00      .000      .035      .000      .000   1162.06   9833.22
   .000926      330.      180.      180.         2         0         0       .00    346.06  10179.29

FLOW DISTRIBUTION FOR SECNO=      9.01          CWSEL=   1171.43

STA=    9833.   10190.
  PER Q=    100.0
   AREA=   2495.9
    VEL=      4.8
  DEPTH=      7.2

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*SECNO 9.047
     9.047     10.03   1171.67       .00       .00   1171.95       .28       .16       .01   1177.69
   12000.0         .0   12000.0         .0        .0   2810.7         .0     234.7      22.9   1174.87
       .21       .00      4.27       .00      .000      .035      .000      .000   1161.64   9893.65
   .000704      280.      200.      160.         2         0         0       .00    378.64  10272.30

FLOW DISTRIBUTION FOR SECNO=      9.05          CWSEL=   1171.67

STA=    9894.   10287.
  PER Q=    100.0
   AREA=   2810.7
    VEL=      4.3
  DEPTH=      7.4

CCHV=      .100 CEHV=      .300
*SECNO 9.129
     9.129      8.84   1172.00       .00       .00   1172.25       .24       .29       .00   1180.07
   12000.0         .0   12000.0         .0        .0   3037.6         .0     262.9      26.8   1176.88
       .23       .00      3.95       .00      .000      .035      .000      .000   1163.16   9865.90
   .000664      290.      420.      460.         1         0         0       .00    440.63  10306.54

FLOW DISTRIBUTION FOR SECNO=      9.13          CWSEL=   1172.00

STA=    9866.   10331.
  PER Q=    100.0
   AREA=   3037.6
    VEL=      4.0
  DEPTH=      6.9

CCHV=      .100 CEHV=      .300
*SECNO 9.318

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     9.318      6.35   1174.70   1174.70       .00   1176.44      1.74      1.75       .45   1185.10
   12000.0         .0   12000.0         .0        .0   1133.3         .0     310.8      35.8   1180.57
       .26       .00     10.59       .00      .000      .035      .000      .000   1168.35   9802.05
   .012475     1000.     1000.     1000.        20        19         0       .00    338.89  10140.95

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST
```

FLOW DISTRIBUTION FOR SECNO= 9.32 CWSEL= 1174.70

STA= 9802. 10152.
PER Q= 100.0
AREA= 1133.3
VEL= 10.6
DEPTH= 3.3

*SECNO 9.492

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.42

9.492	5.97	1179.91	.00	.00	1180.33	.42	3.76	.13	1188.11
11450.0	.0	11450.0	.0	.0	2203.5	.0	346.0	44.4	1184.43
.31	.00	5.20	.00	.000	.035	.000	.000	1173.94	9818.44
.001947	910.	920.	890.	5	0	0	.00	475.61	10294.05

FLOW DISTRIBUTION FOR SECNO= 9.49 CWSEL= 1179.91

STA= 9818. 10308.
PER Q= 100.0
AREA= 2203.5
VEL= 5.2
DEPTH= 4.6

CCHV= .100 CEHV= .300
*SECNO 9.692

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .54

9.692	5.69	1182.90	.00	.00	1183.99	1.09	3.46	.20	1193.92
11450.0	.0	11450.0	.0	.0	1368.9	.0	389.3	54.5	1190.03
.35	.00	8.36	.00	.000	.035	.000	.000	1177.21	9939.69
.006612	1050.	1056.	1040.	3	0	0	.00	361.19	10300.88

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 9.69 CWSEL= 1182.90

STA= 9940. 10315.
PER Q= 100.0
AREA= 1368.9
VEL= 8.4
DEPTH= 3.8

CCHV= .300 CEHV= .500
*SECNO 9.889

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

9.889	6.19	1191.59	1191.59	.00	1194.01	2.42	8.72	.67	1195.10
11450.0	.0	11450.0	.0	.0	916.6	.0	416.6	61.1	1198.00
.37	.00	12.49	.00	.000	.035	.000	.000	1185.40	9928.38
.010982	1100.	1040.	1050.	10	8	0	.00	191.86	10120.25

FLOW DISTRIBUTION FOR SECNO= 9.89 CWSEL= 1191.59

STA= 9928. 10132.
PER Q= 100.0
AREA= 916.6
VEL= 12.5
DEPTH= 4.8

CCHV= .300 CEHV= .500
*SECNO 9.953
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

9.953	5.51	1194.89	1194.89	.00	1196.91	2.02	2.15	.12	1202.16
11450.0	.0	11450.0	.0	.0	1004.4	.0	421.6	62.3	1201.10
.37	.00	11.40	.00	.000	.030	.000	.000	1189.38	9883.76
.008404	225.	225.	225.	2	11	0	.00	250.71	10134.46

FLOW DISTRIBUTION FOR SECNO= 9.95 CWSEL= 1194.89

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

STA= 9884. 10153.
PER Q= 100.0
AREA= 1004.4
VEL= 11.4
DEPTH= 4.0

CCHV= .100 CEHV= .300
*SECNO 10.096

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.60

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1202.63 ELREA= 1203.96

10.096	5.97	1199.82	.00	.00	1200.62	.79	3.59	.12	1202.63
11450.0	.0	11450.0	.0	.0	1600.7	.0	443.1	67.6	1203.96
.40	.00	7.15	.00	.000	.030	.000	.000	1193.85	9723.54
.003293	685.	720.	725.	2	0	0	.00	399.46	10123.00

FLOW DISTRIBUTION FOR SECNO= 10.10 CWSEL= 1199.82

STA= 9724. 10161.
PER Q= 100.0
AREA= 1600.7
VEL= 7.2
DEPTH= 4.0

*SECNO 10.271

10.271	5.28	1203.59	.00	.00	1204.59	1.00	3.91	.06	1212.19
10900.0	.0	10900.0	.0	.0	1361.2	.0	474.6	76.5	1205.86
.43	.00	8.01	.00	.000	.030	.000	.000	1198.31	9869.74
.005709	920.	925.	925.	3	0	0	.00	433.66	10303.40

FLOW DISTRIBUTION FOR SECNO= 10.27 CWSEL= 1203.59

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

STA= 9870. 10310.
PER Q= 100.0
AREA= 1361.2
VEL= 8.0
DEPTH= 3.1

*SECNO 10.433

10.433	4.57	1209.17	.00	.00	1210.40	1.22	5.74	.07	1210.53
10900.0	.0	10900.0	.0	.0	1227.4	.0	501.6	85.1	1211.67
.46	.00	8.88	.00	.000	.030	.000	.000	1204.60	9890.20
.007006	930.	910.	900.	3	0	0	.00	390.59	10280.79

FLOW DISTRIBUTION FOR SECNO= 10.43 CWSEL= 1209.17

STA= 9890. 10288.
PER Q= 100.0
AREA= 1227.4
VEL= 8.9
DEPTH= 3.1

*SECNO 10.612

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1221.05 ELREA= 1215.60

10.612	5.36	1214.11	.00	.00	1215.16	1.06	4.75	.02	1221.05
10900.0	.0	10900.0	.0	.0	1321.1	.0	527.6	92.3	1215.60
.49	.00	8.25	.00	.000	.030	.000	.000	1208.75	9930.74
.004203	880.	890.	900.	3	0	0	.00	319.16	10249.90

FLOW DISTRIBUTION FOR SECNO= 10.61 CWSEL= 1214.11

STA= 9931. 10254.
PER Q= 100.0

```
   AREA=   1321.1
    VEL=      8.3
  DEPTH=      4.1

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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*SECNO 10.803

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1220.07 ELREA=      1219.96

    10.803      5.30   1219.40       .00       .00   1221.01      1.60      5.68       .16   1220.07
   10900.0        .0   10900.0        .0        .0   1073.3         .0     555.4      99.6   1219.96
       .52        .00     10.16       .00       .000     .030       .000      .000   1214.10   9886.72
   .007905    1020.     1010.     1010.          2         0          0       .00    305.26  10191.98

FLOW DISTRIBUTION FOR SECNO=     10.80          CWSEL=   1219.40

STA=    9887.   10202.
  PER Q=    100.0
   AREA=   1073.3
    VEL=     10.2
  DEPTH=      3.5

*SECNO 10.989

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.46

    10.989      6.27   1224.84       .00       .00   1226.14      1.29      5.10       .03   1231.02
   10900.0        .0   10900.0        .0        .0   1194.9         .0     580.9     105.5   1229.10
       .55        .00      9.12       .00       .000     .030       .000      .000   1218.57   9796.82
   .003684     920.      980.     1000.          2         0          0       .00    224.43  10021.26

FLOW DISTRIBUTION FOR SECNO=     10.99          CWSEL=   1224.84

STA=    9797.   10036.
  PER Q=    100.0
   AREA=   1194.9
    VEL=      9.1
  DEPTH=      5.3

*SECNO 11.129
1
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.58

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1231.30 ELREA=      1231.76

    11.129      7.73   1227.12       .00       .00   1227.77       .65      1.57       .06   1231.30
   10900.0        .0   10900.0        .0        .0   1688.5         .0     604.4     109.5   1231.76
       .58        .00      6.46       .00       .000     .030       .000      .000   1219.39   9839.33
   .001468     710.      710.      710.          3         0          0       .00    266.98  10106.31

FLOW DISTRIBUTION FOR SECNO=     11.13          CWSEL=   1227.12

STA=    9839.   10118.
  PER Q=    100.0
   AREA=   1688.5
    VEL=      6.5
  DEPTH=      6.3

*SECNO 11.188

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1232.77 ELREA=      1232.93

    11.188      8.40   1227.50       .00       .00   1228.40       .90       .56       .08   1232.77
   10350.0        .0   10350.0        .0        .0   1360.1         .0     615.6     111.3   1232.93
       .59        .00      7.61       .00       .000     .030       .000      .000   1219.10   9886.54
   .002126     310.      320.      310.          2         0          0       .00    221.71  10108.26
```

FLOW DISTRIBUTION FOR SECNO= 11.19 CWSEL= 1227.50

STA= 9887. 10128.
PER Q= 100.0
AREA= 1360.1
VEL= 7.6
DEPTH= 6.1

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 11.301

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1232.87 ELREA= 1234.82

11.301	7.52	1228.79	.00	.00	1230.30	1.51	1.71	.18	1232.87
10350.0	.0	10350.0	.0	.0	1049.4	.0	632.2	114.2	1234.82
.61	.00	9.86	.00	.000	.030	.000	.000	1221.27	9903.87
.004028	600.	600.	600.	2	0	0	.00	186.98	10090.85

FLOW DISTRIBUTION FOR SECNO= 11.30 CWSEL= 1228.79

STA= 9904. 10114.
PER Q= 100.0
AREA= 1049.4
VEL= 9.9
DEPTH= 5.6

*SECNO 11.386

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1233.46 ELREA= 1238.40

11.386	8.00	1231.10	.00	.00	1232.06	.96	1.71	.06	1233.46
10350.0	.0	10350.0	.0	.0	1319.1	.0	644.4	116.4	1238.40
.62	.00	7.85	.00	.000	.035	.000	.000	1223.10	9870.23
.003583	440.	450.	420.	3	0	0	.00	240.44	10110.68

FLOW DISTRIBUTION FOR SECNO= 11.39 CWSEL= 1231.10

STA= 9870. 10134.
PER Q= 100.0
AREA= 1319.1
VEL= 7.8
DEPTH= 5.5

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 11.481

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1236.77 ELREA= 1240.19

11.481	8.11	1232.92	.00	.00	1233.63	.72	1.55	.02	1236.77
10350.0	.0	10350.0	.0	.0	1523.0	.0	661.4	119.4	1240.19
.65	.00	6.80	.00	.000	.035	.000	.000	1224.81	9859.00
.002515	480.	520.	540.	2	0	0	.00	264.94	10123.94

FLOW DISTRIBUTION FOR SECNO= 11.48 CWSEL= 1232.92

STA= 9859. 10215.
PER Q= 100.0
AREA= 1523.0
VEL= 6.8
DEPTH= 5.7

*SECNO 11.566

3265 DIVIDED FLOW

11.566	5.91	1234.23	.00	.00	1234.53	.30	.85	.04	1240.00

```
   10350.0        .0   10350.0        .0        .0    2373.8        .0     682.0     123.6   1243.30
       .68        .00       4.36       .00       .000      .035       .000      .000   1228.32   9351.74
   .001419      280.      460.      530.         2         0         0       .00    525.37  10039.30


FLOW DISTRIBUTION FOR SECNO=     11.57          CWSEL=    1234.23

STA=     9352.   10060.
  PER Q=     100.0
   AREA=    2373.8
    VEL=       4.4
  DEPTH=       4.5

*SECNO 11.759

3265 DIVIDED FLOW

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    11.759       4.95   1236.97   1236.97        .00   1238.22       1.26       3.33       .29   1243.77
   10350.0         .0   10350.0        .0        .0    1150.8         .0      723.2      135.3   1246.50
       .71        .00       8.99       .00       .000      .035       .000      .000   1232.02   9455.03
   .013910     1050.     1020.      980.         4        15         0       .00    475.20  10110.09


FLOW DISTRIBUTION FOR SECNO=     11.76          CWSEL=    1236.97

STA=     9455.   10133.
  PER Q=     100.0
   AREA=    1150.8
    VEL=       9.0
  DEPTH=       2.4

*SECNO 11.949

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.92


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1248.70 ELREA=      1242.65

    11.949       5.33   1244.23        .00        .00   1244.82        .59       6.54       .07   1248.70
   10350.0         .0   10082.6      267.4         .0    1614.6      141.2      756.6      147.2   1242.65
       .75        .00       6.24       1.89       .000      .035       .060      .000   1238.90   9782.60
   .003782      990.     1000.     1000.         5         0         0       .00    565.31  10396.78


FLOW DISTRIBUTION FOR SECNO=     11.95          CWSEL=    1244.23

STA=     9783.   10236.   10261.   10319.   10367.   10388.   10397.
  PER Q=      97.4       .6       .3       .3      1.2       .2
   AREA=    1614.6     33.5     29.7     19.5     47.5     11.0
    VEL=       6.2      1.8      1.0      1.6      2.7      1.7
  DEPTH=       3.7      1.3       .5       .4      2.3      1.2

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


*SECNO 12.125

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1254.31 ELREA=      1254.40

    12.125       3.93   1248.58        .00        .00   1249.38        .80       4.50       .06   1254.31
   10350.0         .0   10350.0        .0        .0    1444.8         .0      790.9      158.4   1254.40
       .79        .00       7.16       .00       .000      .035       .000      .000   1244.65   9838.71
   .006382      910.      930.     1000.         4         0         0       .00    470.40  10309.12


FLOW DISTRIBUTION FOR SECNO=     12.13          CWSEL=    1248.58
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```
 STA=    9839.   10336.
   PER Q=     100.0
    AREA=    1444.8
     VEL=       7.2
   DEPTH=       3.1

 *SECNO 12.313

 3301 HV CHANGED MORE THAN HVINS


 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .70


 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1258.50 ELREA=      1258.14

     12.313      5.87   1256.34   1256.27       .00   1257.92      1.58      8.30       .23   1258.50
     9800.0        .0    9800.0        .0        .0     972.4        .0     818.3     167.1   1258.14
        .82       .00     10.08       .00      .000      .035      .000      .000   1250.47   9943.17
    .011736     1010.      990.      980.        10        14         0       .00    298.08  10241.25


 FLOW DISTRIBUTION FOR SECNO=     12.31          CWSEL=   1256.34

 STA=    9943.   10248.
   PER Q=     100.0
    AREA=     972.4
     VEL=      10.1
   DEPTH=       3.3

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    18FEB99      08:23:59                                                                          PAGE   36

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


 *SECNO 12.511

 3265 DIVIDED FLOW


 3301 HV CHANGED MORE THAN HVINS


 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.84


 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1263.00 ELREA=      1264.63

     12.511      8.75   1263.55       .00       .00   1264.15       .61      6.14       .10   1263.00
     9800.0      90.4    9709.6        .0      90.5    1546.1        .0     849.9     177.4   1264.63
        .86      1.00      6.28       .00      .060      .035      .000      .000   1254.80   9496.97
    .003460     1000.      1056.     1020.         4         0         0       .00    559.26  10256.28


 FLOW DISTRIBUTION FOR SECNO=     12.51          CWSEL=   1263.55

 STA=    9497.    9730.    9798.    9830.   10297.
   PER Q=       .3       .5       .1      99.1
    AREA=     32.7     43.6     14.3   1546.1
     VEL=       .9      1.1       .8      6.3
   DEPTH=       .1       .6       .4      4.0

 *SECNO 12.701

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1271.92 ELREA=      1269.00

     12.701      7.74   1267.84       .00       .00   1268.72       .88      4.48       .08   1271.92
     9800.0        .0    9800.0        .0        .0    1299.5        .0     883.6     188.2   1269.00
        .90       .00      7.54       .00      .000      .035      .000      .000   1260.10   9760.41
    .006042     1030.      1000.     1020.         3         0         0       .00    374.87  10135.28


 FLOW DISTRIBUTION FOR SECNO=     12.70          CWSEL=   1267.84

 STA=    9760.   10268.
   PER Q=     100.0
    AREA=    1299.5
     VEL=       7.5
   DEPTH=       3.5

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    18FEB99      08:23:59                                                                          PAGE   37

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST
```

*SECNO 12.896

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.50

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1278.41 ELREA= 1273.00

12.896	8.06	1270.56	.00	.00	1270.81	.26	2.03	.06	1278.41
9800.0	.0	9800.0	.0	.0	2411.3	.0	927.5	197.8	1273.00
.97	.00	4.06	.00	.000	.035	.000	.000	1262.50	9865.93
.000964	1010.	1030.	1010.	4	0	0	.00	442.78	10308.71

FLOW DISTRIBUTION FOR SECNO= 12.90 CWSEL= 1270.56

STA= 9866. 10345.
PER Q= 100.0
AREA= 2411.3
VEL= 4.1
DEPTH= 5.4

*SECNO 13.076

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1279.35 ELREA= 1272.00

13.076	8.86	1271.23	.00	.00	1271.35	.12	.52	.01	1279.35
7900.0	.0	7900.0	.0	.0	2830.3	.0	984.7	207.1	1272.00
1.06	.00	2.79	.00	.000	.035	.000	.000	1262.37	9685.33
.000326	950.	950.	980.	3	0	0	.00	403.96	10089.29

FLOW DISTRIBUTION FOR SECNO= 13.08 CWSEL= 1271.23

STA= 9685. 10103.
PER Q= 100.0
AREA= 2830.3
VEL= 2.8
DEPTH= 7.0

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 13.277

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

13.277	4.13	1279.02	1279.02	.00	1280.58	1.57	.77	.43	1282.54
7900.0	.0	7900.0	.0	.0	786.3	.0	1017.9	213.1	1288.90
1.09	.00	10.05	.00	.000	.035	.000	.000	1274.89	9950.33
.012568	800.	800.	670.	20	14	0	.00	255.51	10205.84

FLOW DISTRIBUTION FOR SECNO= 13.28 CWSEL= 1279.02

STA= 9950. 10240.
PER Q= 100.0
AREA= 786.3
VEL= 10.0
DEPTH= 3.1

*SECNO 13.420

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1288.33 ELREA= 1289.98

13.420	8.17	1285.60	.00	.00	1286.38	.78	5.71	.08	1288.33
7900.0	.0	7900.0	.0	.0	1118.1	.0	1040.2	218.7	1289.98
1.13	.00	7.07	.00	.000	.035	.000	.000	1277.43	9853.99
.003155	970.	1020.	1000.	4	0	0	.00	217.46	10071.45

FLOW DISTRIBUTION FOR SECNO= 13.42 CWSEL= 1285.60

STA= 9854. 10081.
PER Q= 100.0
AREA= 1118.1
VEL= 7.1

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  DEPTH=       5.1

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*SECNO 13.619

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.47

    13.619      4.90   1288.37       .00       .00   1288.61       .24      2.18       .05   1294.77
    7900.0       .0    7900.0        .0        .0    2009.6        .0    1078.1     227.7   1291.19
      1.20      .00       3.93       .00      .000      .035      .000      .000   1283.47   9796.56
   .001460    1090.     1056.     1020.         5         0         0       .00    531.56  10328.12

FLOW DISTRIBUTION FOR SECNO=     13.62          CWSEL=   1288.37

STA=     9797.   10336.
  PER Q=     100.0
   AREA=    2009.6
    VEL=       3.9
  DEPTH=       3.8

*SECNO 13.818

3265 DIVIDED FLOW

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1290.76 ELREA=      1288.00

    13.818      2.36   1290.36       .00       .00   1290.50       .14      1.88       .01   1290.76
    7900.0       .0    4162.3    3737.7        .0    1184.3    1692.7    1137.2     252.0   1288.00
      1.30      .00       3.51       2.21      .000      .035      .050      .000   1288.00   9823.63
   .002216    1050.     1056.     1050.         1         0         0       .00   1471.66  11398.81

FLOW DISTRIBUTION FOR SECNO=     13.82          CWSEL=   1290.36

STA=     9824.   10331.   10465.   10699.   10864.   10910.   10999.   11085.   11269.   11399.
  PER Q=      52.7      9.9      4.8     14.1      3.4      5.9      3.4      3.4      2.4
   AREA=    1184.3    315.6    197.6    424.8    108.3    197.2    134.8    186.1    128.2
    VEL=       3.5      2.5      1.9      2.6      2.5      2.4      2.0      1.4      1.5
  DEPTH=       2.3      2.4       .8      2.6      2.4      2.2      1.6      1.0      1.0

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*SECNO 14.013

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    14.013      5.83   1301.63   1301.63       .00   1302.93       1.31      4.02       .35   1305.60
    6100.0       .0    6059.1      40.9        .0     658.3       24.9    1179.8     273.6   1303.66
      1.33      .00       9.20       1.64      .000      .035      .050      .000   1295.80   9809.34
   .011528    1020.     1030.     1055.        20        20         0       .00    330.46  10759.09

FLOW DISTRIBUTION FOR SECNO=     14.01          CWSEL=   1301.63

STA=     9809.   10046.   10337.   10485.   10497.   10508.   10546.   10548.   10759.
  PER Q=      99.3       .1       .0       .3       .2       .1       .0       .0
   AREA=     658.3      4.9      1.0      7.5      5.3      5.3       .5       .2
    VEL=       9.2       .7       .6      2.3      2.0      1.5      1.4       .7
  DEPTH=       2.9       .0       .0       .6       .5       .1       .3       .0

*SECNO 14.197

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS
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3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.60

    14.197      7.32   1309.22       .00       .00   1309.60       .38      6.57       .09   1309.62
    6100.0      62.2    4618.9    1418.9      40.7     846.0     497.9    1202.5     285.9   1310.80
      1.39      1.53      5.46      2.85       .050      .035      .050      .000   1301.90   9773.30
   .004494      990.      970.      920.         7         0         0       .00    798.20  11310.21


FLOW DISTRIBUTION FOR SECNO=     14.20          CWSEL=   1309.22

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   18FEB99      08:23:59                                                                          PAGE   41

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


STA=    9773.    9879.   10263.   10552.   10901.   10942.   10971.   11069.   11310.
  PER Q=     1.0     75.7      5.1      4.2      7.1      3.4      3.2       .3
   AREA=    40.7    846.0    112.1    137.9    110.7     63.4     60.2     13.7
    VEL=     1.5      5.5      2.8      1.8      3.9      3.3      3.2      1.4
  DEPTH=      .4      2.7       .4       .4      2.7      2.1       .6       .1

*SECNO 14.379

3265 DIVIDED FLOW

    14.379      6.10   1314.10       .00       .00   1314.60       .51      4.97       .04   1316.30
    6100.0        .0    4125.9    1974.1        .0     621.3     675.2    1232.6     306.2   1312.77
      1.44       .00      6.64      2.92       .000      .035      .050      .000   1308.00   9642.42
   .005887      940.      960.     1000.         3         0         0       .00    996.37  11306.89


FLOW DISTRIBUTION FOR SECNO=     14.38          CWSEL=   1314.10

STA=    9642.   10107.   10174.   10404.   10442.   10819.   10918.   10962.   11307.
  PER Q=    67.6      3.0      4.2      3.7      5.3      3.7     11.1      1.4
   AREA=   621.3     75.6    130.5     67.0    139.9     83.9    138.0     40.2
    VEL=     6.6      2.5      2.0      3.3      2.3      2.7      4.9      2.1
  DEPTH=     3.0      1.1       .6      1.8       .4       .9      3.1       .1

*SECNO 14.559

3265 DIVIDED FLOW

    14.559      4.52   1319.59       .00       .00   1320.00       .41      5.39       .01   1321.63
    6100.0        .5    5804.7     294.8       1.0    1106.4     192.4    1260.6     326.5   1320.94
      1.49       .53      5.25      1.53       .050      .035      .050      .000   1315.07   9001.67
   .005539      950.      950.      915.         5         0         0       .00    912.30  11216.92


FLOW DISTRIBUTION FOR SECNO=     14.56          CWSEL=   1319.59

STA=    9002.    9011.   10019.   11074.   11217.
  PER Q=       .0     95.2      3.8      1.1
   AREA=      1.0   1106.4    139.2     53.2
    VEL=       .5      5.2      1.6      1.2
  DEPTH=       .1      2.2       .1       .4

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   18FEB99      08:23:59                                                                          PAGE   42

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


*SECNO 14.752

3265 DIVIDED FLOW


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1326.53 ELREA=      1327.21

    14.752      5.36   1324.94       .00       .00   1325.38       .44      5.37       .01   1326.53
    6100.0        .0    6100.0        .0        .0    1151.5        .0    1289.2     342.9   1327.21
      1.54       .00      5.30       .00       .000      .035      .000      .000   1319.58   9672.80
   .005014     1010.     1020.     1010.         3         0         0       .00    489.30  10164.68


FLOW DISTRIBUTION FOR SECNO=     14.75          CWSEL=   1324.94

STA=    9673.   10174.
  PER Q=   100.0
   AREA=   1151.5
    VEL=      5.3
  DEPTH=      2.4

*SECNO 14.945
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 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .67

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1329.50 ELREA=      1330.40

     14.945     14.67   1329.96       .00       .00   1330.70       .73      5.23       .09   1329.50
     4200.0       4.9    4195.1        .0       6.0     610.8        .0    1309.9     351.0    1330.40
       1.59       .82      6.87       .00      .050      .035      .000      .000   1315.29    9813.70
    .005291     1005.     1020.     1000.         2         0         0       .00    208.50   10022.21


 FLOW DISTRIBUTION FOR SECNO=     14.94          CWSEL=   1329.96

 STA=    9814.    9839.   10024.
   PER Q=        .1      99.9
    AREA=       6.0     610.8
     VEL=        .8       6.9
   DEPTH=        .2       3.3

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    18FEB99      08:23:59                                                                          PAGE   43

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


 *SECNO 15.144

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1336.54 ELREA=      1333.51

     15.144       5.59   1334.79       .00       .00   1335.12       .33      4.38       .04   1336.54
     4200.0         .0    4141.3      58.7         .0     889.7      32.8    1328.5     358.0    1333.51
       1.65       .00      4.65      1.79      .000      .035      .050      .000   1329.20    9620.13
    .003349      900.     1056.      890.         2         0         0       .00    372.24    9992.37


 FLOW DISTRIBUTION FOR SECNO=     15.14          CWSEL=   1334.79

 STA=    9620.    9960.    9988.    9992.
   PER Q=      98.6       1.3        .1
    AREA=     889.7      30.5       2.3
     VEL=       4.7       1.8       1.0
   DEPTH=       2.6       1.1        .5

 *SECNO 15.333

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1340.10 ELREA=      1342.68

     15.333       4.92   1338.56       .00       .00   1339.01       .45      3.85       .03   1340.10
     4200.0         .0    4200.0        .0         .0     781.7        .0    1348.1     365.6    1342.68
       1.70       .00      5.37       .00      .000      .035      .000      .000   1333.64    9747.95
    .004491      900.     1000.      890.         3         0         0       .00    299.92   10047.88


 FLOW DISTRIBUTION FOR SECNO=     15.33          CWSEL=   1338.56

 STA=    9748.   10057.
   PER Q=     100.0
    AREA=     781.7
     VEL=       5.4
   DEPTH=       2.6

 *SECNO 15.506

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.80

     15.506       5.42   1340.93       .00       .00   1341.12       .19      2.09       .03   1342.22
     4200.0         .0    4200.0        .0         .0    1186.6        .0    1368.6     372.5    1344.94
       1.77       .00      3.54       .00      .000      .035      .000      .000   1335.51    9680.14
    .001388      871.      911.      891.         3         0         0       .00    353.38   10033.52


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     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


 FLOW DISTRIBUTION FOR SECNO=     15.51          CWSEL=   1340.93

 STA=    9680.   10049.
   PER Q=     100.0
    AREA=    1186.6
     VEL=       3.5
   DEPTH=       3.4

 *SECNO 15.699
```

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

15.699	3.35	1347.91	1347.91	.00	1348.98	1.07	3.15	.26	1349.39
4200.0	289.9	3789.5	120.6	59.8	439.8	46.8	1388.9	380.0	1349.70
1.81	4.84	8.62	2.57	.050	.035	.050	.000	1344.56	9791.01
.011972	1004.	1019.	989.	20	14	0	.00	290.33	10789.01

FLOW DISTRIBUTION FOR SECNO= 15.70 CWSEL= 1347.91

STA=	9791.	9801.	9813.	9828.	10058.	10768.	10784.	10789.
PER Q=	1.5	4.2	1.2	90.2	1.1	1.6	.3	
AREA=	15.5	29.0	15.4	439.8	24.6	18.1	4.1	
VEL=	4.1	6.0	3.3	8.6	1.8	3.6	2.6	
DEPTH=	1.5	2.5	1.0	2.5	.0	1.2	.7	

*SECNO 15.966

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

15.966	5.01	1356.85	.00	.00	1356.96	.12	7.89	.09	1359.10
2350.0	.0	1991.6	358.4	.0	692.7	175.4	1411.3	393.1	1356.72
1.95	.00	2.88	2.04	.000	.035	.050	.000	1351.84	9704.62
.002334	1450.	1410.	1200.	6	0	0	.00	552.51	10378.39

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 15.97 CWSEL= 1356.85

STA=	9705.	10154.	10276.	10282.	10317.	10329.	10370.	10378.
PER Q=	84.7	.7	.7	9.6	1.2	2.3	.7	
AREA=	692.7	20.1	9.2	85.7	16.3	33.6	10.5	
VEL=	2.9	.8	1.8	2.6	1.8	1.6	1.6	
DEPTH=	1.7	.2	1.5	2.5	1.4	.8	1.2	

*SECNO 16.066

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .63

16.066	4.28	1358.68	.00	.00	1358.89	.21	1.90	.03	1360.66
2350.0	6.3	1126.1	1217.6	6.2	279.1	362.1	1420.6	399.3	1359.90
1.99	1.02	4.03	3.36	.050	.035	.050	.000	1354.40	9596.77
.005909	565.	570.	480.	3	0	0	.00	452.17	10444.39

FLOW DISTRIBUTION FOR SECNO= 16.07 CWSEL= 1358.68

STA=	9597.	9599.	9601.	9649.	9654.	10125.	10218.	10233.	10264.	10289.	10365.	10431.	10444.
PER Q=	.0	.0	.2	.1	47.9	.0	.6	3.0	11.5	26.0	9.1	1.7	
AREA=	.4	.5	3.7	1.5	279.1	.5	8.7	31.0	63.0	162.3	80.9	15.7	
VEL=	.8	.8	1.1	1.1	4.0	.6	1.6	2.3	4.3	3.8	2.6	2.5	
DEPTH=	.2	.2	.1	.3	1.4	.0	.6	1.0	2.6	2.1	1.2	1.1	

*SECNO 16.167

3265 DIVIDED FLOW

16.167	4.52	1362.12	.00	.00	1362.48	.36	3.54	.04	1364.28
2350.0	.0	1155.6	1194.4	.0	209.4	297.1	1427.6	404.2	1362.35
2.02	.00	5.52	4.02	.000	.035	.050	.000	1357.60	9910.34
.007613	530.	530.	530.	4	0	0	.00	360.36	10757.59

FLOW DISTRIBUTION FOR SECNO= 16.17 CWSEL= 1362.12

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

```
STA=    9910.   10078.   10469.   10504.   10525.   10540.   10758.
  PER Q=     49.2     10.1     17.0     15.6      6.1      2.1
   AREA=    209.4     88.4     85.8     66.1     32.9     23.9
    VEL=      5.5      2.7      4.7      5.6      4.3      2.0
  DEPTH=      1.8       .2      2.4      3.2      2.3       .1

*SECNO 16.248

3265 DIVIDED FLOW

    16.248      4.33   1364.53       .00       .00   1364.96       .44      2.46       .02   1361.19
    2350.0      28.3    1678.2     643.5      10.2     278.1     237.4    1432.2     407.2   1364.02
      2.04      2.77      6.03      2.71      .050      .035      .050      .000   1360.20   9951.30
   .005202      450.      430.      340.         3         0         0       .00    346.34  10651.75


FLOW DISTRIBUTION FOR SECNO=     16.25          CWSEL=   1364.53

STA=    9951.    9957.   10058.   10274.   10296.   10323.   10625.   10639.   10652.
  PER Q=      1.2     71.4      4.7      6.0      3.0      5.4      5.8      2.4
   AREA=     10.2    278.1     53.5     43.1     30.4     55.7     34.6     20.0
    VEL=      2.8      6.0      2.1      3.3      2.3      2.3      3.9      2.8
  DEPTH=      1.7      2.8       .2      1.9      1.1       .2      2.5      1.5

*SECNO 16.328

3265 DIVIDED FLOW

    16.328      3.99   1366.59       .00       .00   1366.89       .30      1.91       .01   1366.93
    2350.0      41.9    2132.8     175.3      22.9     470.7      68.1    1436.8     409.9   1367.77
      2.07      1.83      4.53      2.58      .050      .035      .050      .000   1362.60   9754.93
   .004801      440.      410.      250.         2         0         0       .00    325.66  10372.87


FLOW DISTRIBUTION FOR SECNO=     16.33          CWSEL=   1366.59

STA=    9755.    9762.    9782.   10237.   10293.   10307.   10360.   10366.   10373.
  PER Q=       .4      1.3     90.8      1.0      1.2      2.4      2.4       .5
   AREA=       5.8     17.1    470.7     11.8     13.7     21.4     15.1      6.2
    VEL=      1.8      1.8      4.5      2.0      2.0      2.6      3.7      1.9
  DEPTH=       .8       .8      1.9       .2      1.0       .4      2.4       .9

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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


*SECNO 16.411

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1369.50 ELREA=      1371.45

    16.411      4.46   1368.73       .00       .00   1369.35       .62      2.37       .10   1369.50
    2350.0        .0    2350.0        .0        .0     372.0        .0    1441.5     412.2   1371.45
      2.08       .00      6.32       .00      .000      .035      .000      .000   1364.27   9902.28
   .005872      510.      450.      350.         1         0         0       .00    136.31  10038.58


FLOW DISTRIBUTION FOR SECNO=     16.41          CWSEL=   1368.73

STA=    9902.   10044.
  PER Q=    100.0
   AREA=    372.0
    VEL=      6.3
  DEPTH=      2.7

*SECNO 16.504

3265 DIVIDED FLOW


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1370.28 ELREA=      1373.87

    16.504      4.22   1371.11       .00       .00   1371.43       .32      2.05       .03   1370.28
    2350.0      38.1    2311.9        .0      27.3     506.8        .0    1446.6     414.3   1373.87
      2.11      1.40      4.56       .00      .050      .035      .000      .000   1366.89   9681.31
   .003130      460.      490.      300.         2         0         0       .00    236.43  10070.77


FLOW DISTRIBUTION FOR SECNO=     16.50          CWSEL=   1371.11

STA=    9681.    9687.    9688.    9697.    9702.    9841.    9849.    9855.    9881.   10078.
  PER Q=       .3       .3       .7       .1       .1       .2       .0       .1     98.4
   AREA=       4.3      2.8      9.7      1.6      1.7      3.7       .9      2.5    506.8
    VEL=      1.4      2.2      1.7       .8       .8      1.0       .5       .9      4.6
  DEPTH=       .8      1.5      1.1       .4       .0       .5       .1       .1      2.7

*SECNO 16.608
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1377.10 ELREA= 1373.62

16.608	4.62	1373.16	.00	.00	1373.58	.42	2.12	.03	1377.10
2350.0	.0	2350.0	.0	.0	451.8	.0	1452.6	416.9	1373.62
2.14	.00	5.20	.00	.000	.035	.000	.000	1368.54	9833.57
.005283	485.	530.	450.	1	0	0	.00	205.35	10038.92

FLOW DISTRIBUTION FOR SECNO= 16.61 CWSEL= 1373.16

STA=	9834.	10042.
PER Q=	100.0	
AREA=	451.8	
VEL=	5.2	
DEPTH=	2.2	

*SECNO 16.732

3265 DIVIDED FLOW

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1379.90 ELREA= 1376.94

16.732	4.09	1377.02	.00	.00	1377.54	.52	3.93	.03	1379.90
2350.0	.0	2221.9	128.1	.0	372.6	68.9	1459.4	420.4	1376.94
2.18	.00	5.96	1.86	.000	.035	.050	.000	1372.93	9887.27
.006403	640.	685.	420.	4	0	0	.00	291.35	10416.48

FLOW DISTRIBUTION FOR SECNO= 16.73 CWSEL= 1377.02

STA=	9887.	10046.	10398. 10416.
PER Q=	94.5	3.7	1.7
AREA=	372.6	52.1	16.8
VEL=	6.0	1.7	2.4
DEPTH=	2.3	.1	.9

*SECNO 16.818

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3265 DIVIDED FLOW

16.818	4.42	1379.42	.00	.00	1379.74	.32	2.18	.02	1379.60
2350.0	.0	2224.6	125.4	.0	478.2	67.3	1465.0	424.1	1379.34
2.21	.00	4.65	1.86	.000	.035	.050	.000	1375.00	9895.00
.003501	430.	455.	750.	2	0	0	.00	265.30	10167.75

FLOW DISTRIBUTION FOR SECNO= 16.82 CWSEL= 1379.42

STA=	9895.	10084.	10109.	10113.	10138.	10147.	10155.	10155. 10168.
PER Q=	94.7	.1	.1	1.5	1.0	1.6	.0	1.0
AREA=	478.2	4.2	2.2	21.8	11.4	14.0	.2	13.4
VEL=	4.7	.8	1.3	1.6	2.1	2.6	2.9	1.8
DEPTH=	2.5	.2	.6	.8	1.3	1.8	2.1	1.1

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THIS RUN EXECUTED 18FEB99 08:24:01

****
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

FEMA/COE MODEL UPDATE

SUMMARY PRINTOUT

	SECNO	Q	CWSEL	STCHL	VLOB	VCH	VROB	STCHR	ENDST	TOPWID
	8.655	21000.00	1170.38	9530.01	.20	2.41	.27	10103.54	10332.00	929.15
	8.731	12000.00	1170.48	9668.92	.90	1.12	.10	10132.76	10366.79	909.82
*	8.807	12000.00	1170.37	9793.80	.00	3.55	.35	10113.26	10151.35	350.88
*	8.883	12000.00	1170.36	9857.59	.00	5.74	.00	10117.10	10116.88	244.21
	8.936	12000.00	1170.72	9831.06	.00	5.49	.00	10130.27	10129.99	288.21
	8.977	12000.00	1170.87	9865.94	.00	6.55	.00	10117.99	10115.54	241.68
	9.009	12000.00	1171.43	9805.01	.00	4.81	.00	10189.89	10179.29	346.06
	9.047	12000.00	1171.67	9865.24	.00	4.27	.00	10286.83	10272.30	378.64
	9.129	12000.00	1172.00	9828.71	.00	3.95	.00	10330.52	10306.54	440.63
*	9.318	12000.00	1174.70	9775.17	.00	10.59	.00	10151.89	10140.95	338.89
*	9.492	11450.00	1179.91	9800.21	.00	5.20	.00	10307.96	10294.05	475.61
*	9.692	11450.00	1182.90	9915.96	.00	8.36	.00	10315.20	10300.88	361.19
*	9.889	11450.00	1191.59	9919.80	.00	12.49	.00	10132.31	10120.25	191.86
*	9.953	11450.00	1194.89	9867.22	.00	11.40	.00	10153.45	10134.46	250.71
*	10.096	11450.00	1199.82	9708.29	.00	7.15	.00	10160.97	10123.00	399.46
	10.271	10900.00	1203.59	9841.02	.00	8.01	.00	10310.47	10303.40	433.66
	10.433	10900.00	1209.17	9881.10	.00	8.88	.00	10287.96	10280.79	390.59

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	SECNO	Q	CWSEL	STCHL	VLOB	VCH	VROB	STCHR	ENDST	TOPWID
	10.612	10900.00	1214.11	9910.15	.00	8.25	.00	10254.01	10249.90	319.16
	10.803	10900.00	1219.40	9873.61	.00	10.16	.00	10202.20	10191.98	305.26
*	10.989	10900.00	1224.84	9767.58	.00	9.12	.00	10035.76	10021.26	224.43
*	11.129	10900.00	1227.12	9825.90	.00	6.46	.00	10117.76	10106.31	266.98
	11.188	10350.00	1227.50	9868.66	.00	7.61	.00	10127.63	10108.26	221.71
	11.301	10350.00	1228.79	9889.57	.00	9.86	.00	10113.79	10090.85	186.98
	11.386	10350.00	1231.10	9864.13	.00	7.85	.00	10133.77	10110.68	240.44
	11.481	10350.00	1232.92	9846.96	.00	6.80	.00	10215.16	10123.94	264.94
	11.566	10350.00	1234.23	9218.65	.00	4.36	.00	10060.00	10039.30	525.37
*	11.759	10350.00	1236.97	9428.04	.00	8.99	.00	10132.96	10110.09	475.20
*	11.949	10350.00	1244.23	9678.36	.00	6.24	1.89	10235.82	10396.78	565.31
	12.125	10350.00	1248.58	9742.17	.00	7.16	.00	10335.82	10309.12	470.40
*	12.313	9800.00	1256.34	9806.87	.00	10.08	.00	10248.19	10241.25	298.08
*	12.511	9800.00	1263.55	9830.00	1.00	6.28	.00	10296.93	10256.28	559.26
	12.701	9800.00	1267.84	9748.20	.00	7.54	.00	10268.00	10135.28	374.87
*	12.896	9800.00	1270.56	9833.94	.00	4.06	.00	10345.00	10308.71	442.78
	13.076	7900.00	1271.23	9665.58	.00	2.79	.00	10103.00	10089.29	403.96
*	13.277	7900.00	1279.02	9941.62	.00	10.05	.00	10240.18	10205.84	255.51
*	13.420	7900.00	1285.60	9844.81	.00	7.07	.00	10080.79	10071.45	217.46
*	13.619	7900.00	1288.37	9762.99	.00	3.93	.00	10335.67	10328.12	531.56
	13.818	7900.00	1290.36	9821.63	.00	3.51	2.21	10331.30	11398.81	1471.66
*	14.013	6100.00	1301.63	9785.60	.00	9.20	1.64	10046.46	10759.09	330.46
*	14.197	6100.00	1309.22	9934.14	1.53	5.46	2.85	10263.32	11310.21	798.20
	14.379	6100.00	1314.10	9551.00	.00	6.64	2.92	10106.58	11306.89	996.37
	14.559	6100.00	1319.59	9196.31	.53	5.25	1.53	10019.18	11216.92	912.30
	14.752	6100.00	1324.94	9669.41	.00	5.30	.00	10173.79	10164.68	489.30

	SECNO	Q	CWSEL	STCHL	VLOB	VCH	VROB	STCHR	ENDST	TOPWID
*	14.945	4200.00	1329.96	9839.00	.82	6.87	.00	10023.75	10022.21	208.50
	15.144	4200.00	1334.79	9612.61	.00	4.65	1.79	9960.20	9992.37	372.24
	15.333	4200.00	1338.56	9735.16	.00	5.37	.00	10057.01	10047.88	299.92
*	15.506	4200.00	1340.93	9583.60	.00	3.54	.00	10049.31	10033.52	353.38
*	15.699	4200.00	1347.91	9838.14	4.84	8.62	2.57	10057.68	10789.01	290.33
	15.966	2350.00	1356.85	9697.82	.00	2.88	2.04	10153.85	10378.39	552.51
*	16.066	2350.00	1358.68	9745.57	1.02	4.03	3.36	10125.00	10444.39	452.17
	16.167	2350.00	1362.12	9900.11	.00	5.52	4.02	10077.88	10757.59	360.36
	16.248	2350.00	1364.53	9957.43	2.77	6.03	2.71	10057.86	10651.75	346.34
	16.328	2350.00	1366.59	9900.83	1.83	4.53	2.58	10236.68	10372.87	325.66
	16.411	2350.00	1368.73	9876.84	.00	6.32	.00	10044.45	10038.58	136.31
	16.504	2350.00	1371.11	9881.12	1.40	4.56	.00	10077.88	10070.77	236.43
	16.608	2350.00	1373.16	9819.07	.00	5.20	.00	10042.20	10038.92	205.35
	16.732	2350.00	1377.02	9875.39	.00	5.96	1.86	10046.16	10416.48	291.35
	16.818	2350.00	1379.42	9890.87	.00	4.65	1.86	10084.40	10167.75	265.30

SUMMARY OF ERRORS AND SPECIAL NOTES

```
WARNING SECNO=      8.807  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      8.883  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=      9.318  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      9.318  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      9.318  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=      9.492  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      9.692  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=      9.889  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      9.889  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      9.953  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      9.953  PROFILE=  1  MINIMUM SPECIFIC ENERGY

WARNING SECNO=     10.096  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     10.989  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     11.129  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     11.759  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     11.759  PROFILE=  1  MINIMUM SPECIFIC ENERGY

WARNING SECNO=     11.949  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     12.313  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     12.511  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     12.896  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     13.277  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     13.277  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     13.277  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=     13.420  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     13.619  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     14.013  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     14.013  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     14.013  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=     14.197  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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 WARNING SECNO=     14.945  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
1
    18FEB99      08:23:59                                                                                    PAGE   54


 WARNING SECNO=     15.506  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=     15.699  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=     15.699  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=     15.699  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

 WARNING SECNO=     16.066  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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HEC-2 FILE CORPSBR2.PRN

```
1*****************************************
*  HEC-2 WATER SURFACE PROFILES           *
*                                         *
*  Version   4.6.2;  May 1991             *
*                                         *
*  RUN DATE    18FEB99    TIME   08:36:32  *
*****************************************
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*****************************************
*  U.S. ARMY CORPS OF ENGINEERS           *
*  HYDROLOGIC ENGINEERING CENTER          *
*  609 SECOND STREET, SUITE D             *
*  DAVIS, CALIFORNIA 95616-4687           *
*          (916) 756-1104                 *
*****************************************
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X     X  XXXXXXX   XXXXX             XXXXX
X     X  X        X     X           X     X
X     X  X        X                       X
XXXXXXX  XXXX     X          XXXXX   XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX             XXXXXXX
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THIS RUN EXECUTED 18FEB99 08:36:32

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************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
************************************
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MODEL REFLECTS NEW TOPOGRAPHIC DATA ALONG ORIGINAL FEMA
CROSS SECTION ALIGNMENTS. N-VALUES AND EXPANSION AND CONTRACTION
COEFFICIENTS REMAIN THE SAME AS IN THE ORIGINAL MODEL

BRIDGE DATA FOR BELL ROAD BRIDGE REVISED AND UPDATED OVER ORIGINAL MODEL

UNION HILLS BRIDGE CODED IN

```
T1      NEW RIVER ABOVE SKUNK CREEK                        JULY 1998
T2      MIDDLE NEW RIVER WATERCOURSE MASTER PLAN        STANTEC #28900058
T3      FEMA/COE MODEL UPDATE                           FILE CORPSBR2.PRN
```

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		2							1170.38	
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
			-1							15

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

38	43	1	21	55	26	56	22	54	4

QT	1	41000								
NC	0.045	0.045	0.035	0.20	0.40					
X1	8.655	94.00	9530.01	10103.54	0.00	0.00	0.00			
X3	10									
GR	1178.0	9170.87	1175.14	9186.78	1171.38	9207.89	1171.05	9239.90	1170.66	9274.99
GR	1170.6	9288.99	1169.65	9422.73	1169.63	9424.24	1169.63	9426.29	1169.86	9530.01
GR	1162.4	9556.56	1155.64	9578.45	1154.62	9626.75	1154.35	9637.48	1154.20	9654.43
GR	1154.2	9668.25	1154.15	9678.08	1153.90	9685.57	1153.29	9714.69	1152.61	9736.46
GR	1152.5	9745.47	1152.89	9753.88	1153.40	9765.26	1153.42	9773.51	1153.56	9788.22
GR	1154.6	9861.07	1154.50	9881.94	1154.53	9889.33	1154.35	9908.38	1153.85	9935.01
GR	1154.5	9943.17	1154.59	9964.33	1154.50	9976.54	1154.22	10000.00	1154.56	10029.77
GR	1154.6	10066.05	1154.67	10078.08	1165.32	10097.35	1168.79	10103.54	1168.91	10107.06
GR	1169.9	10125.73	1169.67	10139.65	1169.64	10144.07	1170.43	10148.74	1171.10	10153.01
GR	1171.1	10157.54	1171.21	10180.85	1171.39	10195.32	1170.26	10235.61	1170.24	10237.66
GR	1170.2	10239.84	1170.18	10242.13	1170.14	10244.55	1170.10	10247.09	1170.07	10249.75
GR	1170.0	10252.52	1169.98	10255.39	1169.95	10257.98	1169.95	10258.23	1169.93	10260.11
GR	1169.9	10261.89	1169.91	10263.57	1169.89	10265.17	1169.90	10265.84	1169.91	10267.30
GR	1169.9	10268.72	1169.92	10270.09	1169.93	10271.44	1169.93	10272.77	1169.93	10274.07
GR	1169.9	10275.37	1169.92	10276.66	1169.91	10277.95	1169.91	10279.24	1169.90	10280.54

GR	1169.9	10281.86	1169.87	10283.20	1169.85	10284.57	1169.83	10285.96	1169.81	10287.40
GR	1169.8	10288.88	1169.76	10290.42	1169.73	10292.02	1169.69	10293.69	1169.66	10295.44
GR	1169.6	10297.29	1169.57	10299.24	1169.52	10301.33	1169.47	10303.56	1169.40	10305.97
GR	1169.3	10308.25	1169.35	10309.12	1169.29	10322.28	1169.04	10332.00		

QT	1	12000				
NC	0.045	0.045	0.035	0.10	0.30	

X1	8.731	62.00	9668.92	10132.76	400.00	400.00	400.00			
X3	10									
GR	1184.0	9263.83	1183.89	9273.67	1183.82	9278.67	1183.43	9279.35	1182.05	9286.70
GR	1175.7	9324.78	1171.67	9332.34	1157.57	9359.81	1157.41	9361.45	1157.20	9368.22
GR	1155.9	9372.24	1154.97	9374.22	1155.24	9385.88	1154.88	9415.00	1154.83	9423.41
GR	1154.8	9426.92	1154.03	9453.17	1153.75	9484.88	1153.59	9495.55	1153.94	9509.78
GR	1154.2	9515.58	1154.75	9556.08	1155.22	9601.05	1155.37	9614.42	1155.38	9620.01
GR	1155.6	9635.10	1155.81	9638.01	1155.82	9640.41	1156.95	9668.92	1155.80	9705.62
GR	1155.7	9708.91	1155.55	9712.12	1155.51	9740.10	1155.30	9751.11	1154.92	9793.53
GR	1154.7	9806.20	1154.63	9821.61	1155.62	9889.11	1155.91	9906.50	1155.83	9931.57
GR	1155.8	9955.78	1155.61	9975.19	1155.47	10000.00	1155.55	10011.03	1155.67	10038.24
GR	1155.9	10077.08	1156.24	10098.62	1156.22	10110.26	1159.25	10115.42	1169.55	10132.76
GR	1169.9	10146.25	1170.06	10156.45	1169.88	10168.79	1169.88	10168.85	1169.89	10168.91
GR	1171.7	10181.70	1171.37	10202.65	1171.33	10206.10	1170.89	10260.47	1170.70	10279.56
GR	1169.6	10358.16	1169.54	10366.79						

X1	8.807	62.00	9793.8	10113.26	400.00	390.00	400.00			
GR	1178.0	9421.80	1177.73	9423.19	1172.85	9451.67	1172.82	9452.67	1172.52	9479.22
GR	1172.5	9484.61	1173.51	9490.41	1175.79	9504.85	1175.92	9513.90	1175.95	9527.01
GR	1175.8	9545.24	1173.99	9563.44	1173.82	9565.21	1173.11	9572.08	1173.18	9578.47
GR	1172.9	9590.10	1172.78	9602.56	1172.76	9612.01	1172.86	9624.06	1173.16	9629.64
GR	1173.2	9639.35	1172.97	9681.99	1172.56	9696.14	1172.07	9708.18	1171.58	9720.28
GR	1171.9	9725.73	1172.76	9733.58	1173.00	9746.88	1172.98	9754.53	1172.90	9758.85
GR	1173.0	9768.60	1173.15	9787.35	1173.10	9792.80	1172.65	9793.80	1166.57	9811.60
GR	1158.5	9831.40	1158.04	9853.48	1158.11	9870.59	1158.32	9890.76	1158.66	9904.47
GR	1159.4	9931.62	1158.96	9957.85	1158.45	9967.74	1158.11	9994.95	1158.05	10000.00
GR	1158.1	10003.84	1159.09	10063.74	1159.30	10084.73	1159.38	10094.13	1164.35	10103.63
GR	1169.7	10113.26	1169.91	10133.74	1170.04	10141.61	1170.36	10151.30	1171.37	10155.28
GR	1172.7	10160.68	1172.91	10181.74	1172.92	10182.92	1172.66	10222.09	1172.44	10246.42
GR	1171.7	10326.10	1171.59	10355.30						

X1	8.883	52.00	9857.59	10117.1	280.00	400.00	400.00			
GR	1180.0	9480.17	1174.28	9513.30	1174.18	9513.83	1173.93	9535.87	1173.92	9538.06
GR	1174.0	9539.20	1174.30	9545.92	1174.84	9558.22	1175.03	9560.57	1176.61	9577.40
GR	1176.7	9581.33	1176.81	9600.19	1176.78	9630.42	1176.57	9665.33	1176.11	9698.90
GR	1175.9	9707.94	1176.00	9715.96	1176.22	9740.14	1176.43	9770.13	1176.62	9799.18
GR	1176.6	9815.43	1176.78	9851.43	1176.79	9857.59	1174.81	9861.82	1163.02	9890.54
GR	1161.7	9909.03	1161.63	9910.73	1161.63	9911.28	1161.63	9911.97	1161.63	9915.33
GR	1161.3	9957.94	1161.49	9963.86	1161.95	9976.81	1160.27	9982.67	1159.44	9985.06
GR	1159.4	10000.00	1159.72	10005.60	1160.42	10019.83	1160.61	10045.59	1160.95	10081.26
GR	1161.2	10095.72	1166.60	10108.75	1170.46	10117.10	1170.87	10137.60	1171.40	10158.29
GR	1174.2	10170.22	1175.80	10176.74	1175.89	10181.64	1175.86	10194.61	1176.10	10207.65
GR	1176.0	10213.14	1176.38	10366.19						

1

X1	8.936	54.00	9831.06	10130.27	300.00	300.00	290.00			
GR	1182.0	9514.24	1179.95	9525.82	1178.24	9533.71	1175.36	9550.47	1174.57	9570.14
GR	1174.4	9573.79	1174.20	9582.33	1174.29	9608.34	1174.65	9618.37	1174.63	9625.17
GR	1174.9	9663.71	1174.94	9669.82	1174.92	9674.90	1174.96	9709.09	1174.94	9711.68
GR	1174.9	9713.50	1174.75	9762.72	1174.58	9812.18	1174.57	9813.66	1174.57	9813.91
GR	1174.6	9814.19	1174.56	9815.34	1174.58	9831.06	1166.59	9853.27	1165.27	9857.16
GR	1164.5	9900.49	1164.45	9901.99	1164.42	9904.21	1164.40	9905.71	1164.39	9906.52
GR	1164.2	9914.52	1163.65	9943.73	1162.78	9982.18	1161.34	9985.69	1159.99	9989.50
GR	1160.0	10009.86	1159.94	10014.00	1160.40	10019.99	1161.34	10035.61	1161.40	10046.22
GR	1161.5	10064.28	1161.81	10084.06	1162.21	10111.08	1168.65	10125.67	1170.86	10130.27
GR	1171.1	10138.05	1172.10	10160.75	1174.75	10173.52	1177.20	10185.13	1177.40	10200.84
GR	1177.4	10216.10	1177.63	10219.87	1177.69	10241.23	1177.64	10379.42		

X1	8.977	60.00	9865.94	10117.99	220.00	200.00	210.00			
GR	1182.0	9530.75	1177.22	9556.56	1178.22	9576.50	1178.28	9579.92	1175.65	9597.09
GR	1175.6	9597.47	1175.60	9599.29	1175.59	9649.12	1175.13	9678.97	1175.44	9701.50
GR	1176.0	9778.76	1175.85	9795.45	1175.77	9823.92	1175.80	9838.68	1175.87	9862.76
GR	1175.9	9864.92	1175.30	9865.94	1164.27	9885.67	1164.26	9886.42	1164.10	9899.10
GR	1163.8	9907.50	1163.70	9912.61	1162.66	9952.88	1162.61	9959.70	1162.59	9968.65
GR	1162.2	9970.48	1161.67	9972.96	1161.61	9977.66	1161.50	9985.29	1161.42	9990.29
GR	1161.4	9992.62	1161.29	10000.00	1161.82	10032.38	1162.26	10054.60	1162.25	10064.69
GR	1162.4	10087.81	1163.03	10088.26	1166.51	10093.03	1168.22	10095.00	1167.77	10108.40
GR	1167.6	10110.95	1169.02	10112.97	1172.63	10117.99	1172.90	10124.82	1173.24	10133.91
GR	1173.6	10142.57	1174.48	10149.30	1175.52	10157.00	1176.85	10168.79	1177.41	10174.44
GR	1178.0	10180.27	1178.01	10189.22	1178.00	10198.79	1178.02	10204.88	1178.11	10210.71
GR	1178.1	10212.97	1178.11	10213.49	1178.11	10224.37	1178.64	10343.05	1178.49	10365.12

X1	9.009	73.00	9805.01	10189.89	330.00	180.00	180.00			
X3	10									
GR	1182.0	9625.05	1180.47	9635.32	1177.71	9652.46	1177.27	9672.23	1177.16	9676.47
GR	1177.2	9772.91	1177.16	9775.63	1177.17	9777.62	1177.18	9778.09	1177.19	9778.95
GR	1177.2	9780.54	1177.21	9785.92	1177.09	9804.50	1177.10	9805.01	1177.26	9807.82
GR	1175.2	9815.50	1174.38	9819.47	1166.70	9855.25	1166.21	9858.00	1166.19	9858.53
GR	1166.0	9861.88	1165.71	9865.43	1164.62	9887.86	1164.55	9889.75	1164.36	9893.90
GR	1164.2	9897.12	1164.13	9899.07	1164.01	9901.79	1163.29	9946.76	1162.99	9962.95
GR	1162.9	9967.84	1162.06	10000.00	1162.25	10022.13	1162.27	10032.36	1162.28	10032.57
GR	1164.3	10086.05	1164.29	10087.22	1164.32	10088.08	1164.33	10088.44	1164.35	10088.80
GR	1164.4	10089.02	1164.35	10089.18	1164.35	10089.23	1164.36	10089.29	1164.36	10090.81
GR	1164.3	10092.26	1163.24	10146.14	1163.75	10149.21	1164.38	10153.09	1171.03	10177.52
GR	1171.6	10180.05	1172.26	10183.43	1173.14	10188.26	1173.35	10189.22	1173.37	10189.89
GR	1173.9	10211.96	1173.76	10212.35	1173.62	10212.64	1173.45	10213.08	1168.23	10227.40
GR	1167.4	10228.46	1167.47	10239.95	1165.37	10249.36	1162.81	10268.27	1164.30	10277.40

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GR   1164.5   10279.55   1164.56   10280.76   1166.29   10316.71   1166.38   10336.17   1166.90   10403.32
GR   1166.8   10427.02   1166.71   10445.63   1166.59   10514.93

1
    18FEB99      08:36:32                                                                          PAGE    4


X1    9.047      60.00   9865.24   10286.83    280.00     160.00     200.00
GR   1182.0    9716.66   1180.57    9727.55   1177.81    9745.93   1177.65    9751.49   1177.31    9760.47
GR   1177.6    9804.59   1177.83    9855.29   1177.73    9861.06   1177.69    9865.24   1168.94    9906.55
GR   1162.7    9936.12   1162.79    9941.54   1162.95    9947.00   1162.78    9969.17   1161.64   10000.00
GR   1162.7   10011.16   1163.01   10013.40   1163.59   10018.72   1163.57   10022.22   1163.64   10026.40
GR   1164.0   10044.67   1163.63   10050.79   1163.12   10058.45   1162.89   10061.27   1162.49   10069.43
GR   1162.4   10074.85   1162.07   10086.72   1162.18   10090.35   1162.14   10094.04   1162.19   10100.98
GR   1162.8   10127.62   1163.12   10131.63   1163.65   10139.42   1164.42   10165.05   1164.82   10178.76
GR   1165.1   10188.88   1165.17   10191.87   1165.76   10210.64   1165.85   10221.29   1166.42   10261.29
GR   1169.8   10268.59   1173.62   10276.16   1174.87   10286.83   1178.89   10322.18   1180.42   10335.05
GR   1179.7   10340.89   1175.80   10372.69   1173.58   10381.73   1172.99   10384.53   1172.98   10397.84
GR   1173.0   10432.14   1172.87   10454.59   1172.83   10469.88   1172.72   10507.64   1172.72   10509.11
GR   1172.7   10512.25   1173.80   10519.20   1178.86   10545.75   1179.00   10554.76   1178.63   10593.95

NC    0.045      0.06     0.035       0.10       0.30

X1    9.129      67.00   9828.71   10330.52    290.00     460.00     420.00
GR   1184.0    9717.85   1181.94    9731.54   1179.46    9747.14   1178.59    9763.28   1178.16    9773.21
GR   1179.3    9808.31   1179.36    9811.66   1179.38    9812.50   1179.44    9814.13   1180.07    9828.71
GR   1179.2    9832.93   1176.76    9843.99   1166.68    9890.36   1163.97    9903.21   1163.87    9907.39
GR   1163.8    9911.78   1163.70    9913.42   1163.67    9921.37   1163.16   10000.00   1163.82   10042.71
GR   1163.9   10048.34   1164.70   10140.88   1164.70   10142.41   1164.69   10144.15   1164.68   10144.91
GR   1164.7   10145.57   1164.66   10149.28   1164.61   10172.67   1165.78   10207.44   1166.32   10222.25
GR   1166.4   10225.51   1167.13   10244.20   1167.26   10248.22   1167.28   10249.62   1167.38   10279.08
GR   1167.5   10297.38   1168.47   10299.33   1175.40   10313.49   1176.88   10330.52   1177.08   10333.89
GR   1177.6   10342.56   1177.23   10346.13   1176.89   10348.95   1176.39   10362.86   1172.93   10376.80
GR   1172.5   10378.60   1172.27   10380.95   1172.26   10387.21   1172.28   10394.53   1172.29   10398.10
GR   1172.3   10403.78   1172.18   10412.57   1172.02   10424.54   1172.01   10426.19   1173.51   10435.79
GR   1174.1   10439.81   1174.85   10443.80   1176.48   10451.16   1176.37   10455.64   1175.98   10459.61
GR   1175.8   10461.26   1176.01   10468.18   1177.37   10532.47   1178.21   10639.30   1178.71   10710.84
GR   1178.0   10809.06   1177.80   10841.21

NC     0.05      0.06     0.035       0.10       0.30

X1    9.318      96.00   9775.17   10151.89    1000.00    1000.00    1000.00
GR   1188.0    9564.00   1185.42    9588.02   1184.89    9592.68   1184.89    9595.73   1184.95    9598.50
GR   1184.6    9657.59   1184.56    9667.45   1184.37    9688.21   1184.36    9689.48   1184.36    9690.35
GR   1184.4    9691.19   1184.12    9695.63   1184.09    9695.84   1184.11    9696.22   1184.22    9702.06
GR   1184.0    9748.35   1184.15    9752.08   1184.42    9755.88   1184.48    9761.69   1184.94    9770.41
GR   1185.1    9775.17   1184.64    9776.39   1184.37    9777.15   1180.91    9785.01   1174.89    9801.56
GR   1174.1    9803.59   1173.59    9805.10   1173.37    9816.72   1173.30    9821.43   1173.26    9822.72
GR   1173.2    9832.97   1173.17    9833.59   1173.17    9843.47   1173.15    9844.04   1173.25    9850.48
GR   1173.2    9861.59   1173.24    9862.59   1173.05    9874.65   1172.96    9876.03   1172.17    9894.25
GR   1172.0    9898.62   1171.68    9903.77   1171.01    9919.04   1170.82    9923.59   1170.79    9924.27
GR   1170.6    9926.80   1170.78    9934.87   1171.05    9943.61   1170.96    9948.02   1170.81    9955.00
GR   1170.7    9956.03   1170.68    9961.43   1170.29    9966.81   1169.13    9986.33   1169.03    9988.29
GR   1168.9    9991.12   1168.58    9996.75   1168.51    9997.74   1168.35   10000.00   1168.45   10001.32
GR   1168.5   10001.96   1168.47   10003.38   1168.60   10009.24   1169.94   10020.45   1170.00   10020.98
GR   1170.0   10023.97   1170.37   10059.13   1170.45   10067.22   1170.88   10092.46   1171.67   10109.31
GR   1172.4   10119.60   1173.80   10139.29   1177.40   10145.92   1180.57   10151.89   1181.40   10167.33
GR   1181.9   10173.54   1181.60   10176.41   1181.47   10179.72   1181.31   10187.22   1181.03   10195.98
1
    18FEB99      08:36:32                                                                          PAGE    5


GR   1176.5   10219.99   1176.49   10220.00   1176.49   10220.10   1176.35   10227.26   1176.55   10228.54
GR   1179.9   10251.06   1180.00   10255.25   1179.98   10257.19   1179.84   10259.23   1179.48   10262.60
GR   1180.0   10318.68   1180.66   10385.16   1180.86   10518.99   1181.14   10587.20   1181.14   10655.17
GR   1181.4   10700.10

QT         1      11450

X1    9.492      97.00   9800.21   10307.96     910.00     890.00     920.00
GR   1192.0    9761.25   1191.92    9761.95   1191.39    9766.56   1190.68    9772.37   1189.11    9784.84
GR   1188.8    9789.52   1188.11    9800.21   1175.20    9828.88   1174.71    9829.98   1174.72    9830.81
GR   1174.9    9848.19   1174.98    9856.36   1175.06    9874.07   1174.85    9906.20   1174.69    9924.14
GR   1174.6    9928.83   1174.63    9934.07   1174.63    9938.50   1174.59    9943.89   1174.57    9947.08
GR   1174.6    9957.07   1174.01    9996.51   1173.96    9998.33   1173.96    9998.64   1173.96    9998.88
GR   1174.0    9999.10   1173.94   10000.00   1174.33   10052.34   1174.54   10065.68   1174.54   10065.71
GR   1174.6   10068.58   1174.64   10078.53   1174.65   10085.68   1174.78   10113.97   1174.92   10142.62
GR   1175.1   10146.09   1175.73   10158.36   1175.92   10163.47   1176.00   10165.59   1176.03   10166.27
GR   1176.1   10180.40   1176.23   10241.37   1176.16   10243.69   1177.15   10260.82   1177.70   10273.34
GR   1178.4   10289.54   1182.48   10301.78   1184.43   10307.96   1187.23   10331.92   1187.60   10336.05
GR   1184.7   10366.14   1184.55   10367.66   1184.54   10368.22   1184.53   10368.70   1184.45   10374.02
GR   1184.4   10376.34   1184.45   10379.87   1184.47   10381.95   1184.51   10389.37   1184.51   10397.96
GR   1184.5   10398.48   1184.49   10399.08   1184.49   10399.78   1184.48   10400.58   1184.48   10401.50
GR   1184.5   10402.54   1184.47   10403.71   1184.47   10405.03   1184.42   10409.65   1184.43   10410.48
GR   1184.4   10411.42   1184.44   10412.49   1184.46   10413.68   1184.47   10415.01   1184.48   10416.46
GR   1184.5   10416.56   1184.49   10416.56   1184.49   10416.70   1184.51   10417.95   1184.67   10427.19
GR   1184.7   10429.02   1185.06   10446.99   1185.08   10492.66   1184.82   10505.63   1184.82   10505.77
GR   1184.8   10505.89   1184.82   10506.00   1184.81   10506.09   1184.81   10507.90   1184.82   10510.04
GR   1185.2   10567.65   1185.75   10649.48   1185.88   10667.20   1185.99   10863.02   1186.00   10867.19
GR   1186.0   10871.37   1186.09   10972.79
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NC	0.04	0.06	0.035	0.10	0.30					
X1	9.692	80.00	9915.96	10315.20	1050.00	1040.00	1056.00			
GR	1204.0	9861.60	1201.34	9875.13	1197.39	9897.49	1193.92	9915.96	1191.19	9921.53
GR	1179.0	9948.26	1179.25	9977.32	1179.27	9978.97	1179.39	9981.96	1178.95	9986.75
GR	1177.7	10000.00	1178.51	10013.68	1178.51	10017.43	1178.63	10030.48	1178.64	10031.95
GR	1178.7	10032.84	1179.04	10039.03	1179.11	10040.39	1179.35	10044.25	1179.21	10045.66
GR	1178.1	10060.07	1178.08	10061.25	1178.07	10062.08	1177.93	10069.53	1177.92	10071.10
GR	1177.8	10079.10	1177.66	10085.13	1177.56	10092.83	1177.53	10096.87	1177.44	10099.74
GR	1177.3	10107.63	1177.25	10115.40	1177.21	10118.66	1177.41	10129.75	1177.41	10130.24
GR	1177.5	10133.00	1177.48	10134.36	1177.90	10143.25	1177.66	10154.67	1177.67	10158.28
GR	1177.6	10161.99	1178.01	10170.13	1177.61	10175.56	1178.70	10190.01	1181.55	10223.71
GR	1181.6	10225.35	1181.57	10230.38	1181.54	10254.68	1181.60	10272.70	1180.90	10286.70
GR	1180.6	10296.41	1184.43	10303.83	1190.03	10315.20	1190.14	10320.70	1190.30	10324.72
GR	1190.8	10329.42	1190.83	10330.50	1193.74	10340.37	1194.71	10343.47	1194.58	10344.24
GR	1193.7	10346.94	1193.97	10362.82	1194.26	10368.69	1194.19	10385.51	1194.02	10436.64
GR	1194.0	10458.23	1194.05	10482.29	1193.98	10516.43	1194.04	10557.30	1194.09	10598.97
GR	1194.1	10631.43	1194.22	10686.11	1193.12	10724.85	1192.65	10768.69	1192.64	10812.53
GR	1192.8	10968.71	1192.78	11124.94	1192.84	11168.70	1192.84	11212.42	1192.84	11272.71

NC	0.06	0.06	0.035	0.30	0.50					
X1	9.889	85.00	9919.8	10132.31	1100.00	1050.00	1040.00			
GR	1228.0	9462.41	1227.56	9464.40	1226.05	9470.65	1222.98	9480.70	1200.17	9556.32
GR	1200.1	9562.12	1200.14	9571.81	1199.87	9582.70	1199.68	9592.25	1198.76	9603.06
GR	1198.5	9608.01	1197.93	9649.41	1197.90	9653.45	1197.75	9735.27	1197.60	9753.46
GR	1197.8	9772.49	1198.03	9821.73	1197.71	9828.64	1197.34	9839.65	1196.72	9852.59
GR	1197.5	9855.86	1201.40	9867.38	1197.96	9888.44	1196.64	9899.42	1196.38	9904.11
GR	1195.1	9919.80	1190.99	9929.84	1186.28	9941.82	1187.77	9953.49	1188.30	9959.31
GR	1188.6	9961.49	1188.26	9964.99	1187.11	9977.98	1187.47	9978.66	1186.71	9982.33
GR	1185.4	10000.00	1186.09	10010.63	1186.19	10041.78	1186.29	10063.89	1186.45	10089.18
GR	1186.3	10104.47	1186.13	10111.12	1189.86	10117.00	1198.00	10132.31	1198.31	10138.92
GR	1198.5	10142.87	1197.77	10166.17	1197.58	10167.20	1197.67	10168.68	1197.98	10183.32
GR	1198.1	10184.48	1198.13	10187.08	1198.41	10212.99	1198.89	10238.67	1199.27	10263.28
GR	1199.5	10272.98	1200.09	10312.14	1200.08	10328.53	1199.79	10401.98	1199.65	10409.88
GR	1199.3	10440.90	1199.10	10462.98	1199.11	10463.29	1199.11	10463.64	1199.11	10464.01
GR	1198.7	10493.35	1198.66	10498.72	1198.76	10500.52	1199.10	10505.35	1200.17	10532.01
GR	1200.0	10536.58	1199.82	10542.54	1199.82	10545.66	1200.30	10563.46	1200.42	10567.76
GR	1200.4	10568.80	1200.42	10569.93	1199.62	10593.83	1199.07	10601.01	1198.67	10608.94
GR	1199.4	10640.72	1199.77	10653.47	1200.16	10666.45	1201.54	10744.94	1201.50	10762.97

NC	0.06	0.06	0.03	0.30	0.50					
X1	9.953	44.00	9867.22	10153.45	225.00	225.00	225.00			
X3	10									
GR	1215.3	9378.87	1207.02	9394.52	1204.35	9409.14	1204.42	9444.71	1204.18	9475.92
GR	1203.5	9523.12	1203.71	9568.11	1203.13	9590.73	1202.72	9651.10	1201.61	9658.09
GR	1201.2	9671.72	1201.17	9692.70	1200.73	9721.18	1199.80	9744.56	1199.65	9757.39
GR	1200.4	9809.66	1201.00	9832.09	1202.16	9867.22	1191.04	9892.51	1190.66	10000.00
GR	1190.6	10020.48	1190.53	10075.79	1189.68	10090.73	1189.38	10113.72	1194.58	10127.03
GR	1195.0	10137.12	1201.10	10153.45	1202.77	10171.08	1203.14	10182.78	1202.69	10193.94
GR	1203.0	10218.64	1202.91	10282.67	1202.53	10371.93	1202.91	10415.01	1202.96	10452.97
GR	1202.4	10522.62	1202.85	10588.61	1202.70	10614.87	1201.99	10624.50	1201.61	10636.89
GR	1203.8	10671.74	1201.25	10718.20	1200.19	10772.35	1200.19	10784.55		

SB	0.90	1.6	2.68	0	230	4.7	2496.3	2	1191.15	1191.04
X1	9.978	26	9864	10178	137	137	137			
X2			1	1200.8	1204.7					
X3	10							1204.7	1204.7	
BT	-6	9738.64	1205		9864	1204.7	1204.7	9864.01	1204.7	1200.8
BT		10177.99	1204.7	1200.8	10178	1204.7	1204.7	10410	1204.6	1204.6
GR	1205.0	9738.64	1204.7	9864.00	1202.8	9868.72	1202.3	9872.03	1201.2	9875.51
GR	1200.6	9876.70	1199.3	9880.42	1193.6	9892.83	1191.3	9898.16	1191.3	9946.68
GR	1191.2	9960.28	1191.1	10000.00	1191.3	10073.24	1191.3	10082.02	1191.2	10095.37
GR	1191.3	10115.21	1190.9	10130.27	1192.1	10134.40	1194.2	10140.93	1194.0	10148.48
GR	1194.0	10148.99	1194.2	10149.34	1194.2	10149.66	1204.0	10173.16	1204.7	10178.00
GR	1204.6	10410.68								

NC	0.06	0.06	0.03	0.10	0.30					
X1	10.096	47.00	9708.29	10160.97	650	600	600			
X3	10									
GR	1230.0	9192.34	1220.42	9252.51	1220.05	9257.18	1210.63	9333.68	1207.84	9345.89
GR	1207.4	9362.31	1206.31	9372.38	1205.47	9472.01	1205.03	9497.21	1204.01	9581.54
GR	1203.1	9630.78	1198.95	9652.50	1198.89	9695.35	1202.63	9708.29	1195.62	9746.45
GR	1194.3	9773.08	1196.82	9825.16	1195.19	9835.67	1196.89	9853.23	1196.33	9890.36
GR	1196.0	9970.71	1193.96	9988.16	1193.85	10015.00	1195.15	10028.41	1194.87	10069.10
GR	1196.2	10081.93	1197.46	10117.94	1203.56	10130.98	1203.96	10160.97	1204.02	10183.80
GR	1204.6	10242.79	1205.08	10276.80	1205.41	10338.36	1205.00	10380.47	1204.56	10508.76
GR	1204.8	10543.63	1205.27	10578.69	1205.25	10594.62	1204.02	10622.95	1204.24	10649.64
GR	1203.9	10676.60	1201.92	10709.55	1201.78	10727.27	1202.72	10751.06	1202.82	10778.60

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GR   1203.9   10809.36    1204.78   10888.22

QT        1      10900

X1   10.271      48.00   9841.02   10310.47      920.00      925.00      925.00
GR   1214.0    9405.66   1213.57    9453.75   1213.17    9461.98   1210.26    9490.82   1207.94    9503.08
GR   1207.3    9527.51   1208.72    9564.74   1208.98    9616.22   1208.56    9687.09   1209.12    9741.87
GR   1210.1    9776.46   1211.43    9798.99   1211.82    9827.72   1212.19    9841.02   1212.65    9842.31
GR   1210.1    9850.49   1202.58    9872.73   1201.74    9896.52   1202.23    9915.47   1202.49    9929.65
GR   1201.6    9945.79   1198.31    9971.00   1198.42   10034.95   1200.07   10056.51   1200.78   10069.29
GR   1200.7   10095.95   1200.70   10120.73   1201.73   10131.70   1201.02   10154.33   1201.41   10190.25
GR   1201.3   10213.20   1199.58   10230.03   1199.25   10289.87   1205.86   10310.47   1205.28   10335.72
GR   1204.9   10418.16   1204.04   10463.15   1204.44   10506.27   1204.87   10525.73   1205.86   10616.21
GR   1206.3   10717.06   1206.42   10818.51   1206.07   10853.93   1206.85   10911.97   1206.99   11004.40
GR   1206.9   11029.27   1207.61   11195.06   1208.47   11415.17

X1   10.433      51.00   9881.10   10287.96      930.00      900.00      910.00
GR   1214.0    9289.29   1213.40    9293.38   1213.29    9316.20   1212.49    9394.80   1213.10    9400.31
GR   1212.0    9419.74   1211.72    9505.37   1211.49    9530.29   1210.71    9552.88   1210.43    9569.10
GR   1224.2    9617.52   1227.16    9633.39   1228.50    9666.92   1229.34    9694.63   1227.87    9714.45
GR   1224.9    9725.41   1219.55    9750.82   1216.73    9763.22   1217.48    9772.48   1217.98    9800.53
GR   1210.5    9843.87   1210.53    9881.10   1207.90    9898.70   1207.09    9902.21   1206.62    9959.77
GR   1204.6    9982.00   1205.81   10025.42   1206.35   10109.86   1206.29   10151.26   1205.28   10208.74
GR   1205.3   10269.70   1211.67   10287.96   1213.65   10320.24   1212.83   10415.71   1212.69   10423.73
GR   1212.4   10489.83   1211.09   10518.99   1211.26   10546.89   1211.39   10598.78   1211.73   10625.16
GR   1211.5   10642.10   1211.75   10664.79   1211.43   10706.62   1211.57   10730.05   1212.00   10917.23
GR   1212.1   11008.08   1212.62   11124.27   1213.17   11214.03   1212.77   11325.24   1211.94   11413.33
GR   1211.6   11511.19

X1   10.612      95.00   9910.15   10254.01      880.00      900.00      890.00
X3       10
GR   1218.0    9025.95   1218.17    9035.68   1218.18    9044.61   1219.31    9048.60   1220.05    9051.51
GR   1219.0    9057.32   1218.43    9060.65   1218.44    9077.11   1218.76    9106.70   1218.80    9113.00
GR   1218.6    9210.30   1218.55    9211.71   1218.49    9260.74   1218.42    9321.42   1218.28    9390.62
GR   1218.2    9410.24   1218.24    9410.91   1218.32    9498.74   1218.09    9538.25   1217.54    9634.59
GR   1218.1    9703.80   1218.12    9713.37   1217.22    9802.55   1217.11    9805.65   1217.09    9806.28
GR   1217.0    9807.74   1216.90    9810.55   1216.42    9822.55   1216.43    9826.33   1216.38    9830.91
1
    18FEB99      08:36:32                                                                                PAGE    8

GR   1216.4    9832.78   1216.36    9834.23   1216.39    9841.11   1221.18    9862.90   1221.43    9863.98
GR   1221.5    9864.09   1221.49    9864.30   1221.50    9864.56   1221.67    9879.68   1221.66    9884.34
GR   1221.5    9895.48   1221.45    9904.78   1221.31    9906.77   1221.17    9908.25   1221.09    9909.90
GR   1221.1    9910.13   1221.05    9910.15   1221.01    9912.41   1220.86    9912.81   1214.68    9929.05
GR   1208.8    9946.36   1208.79    9956.56   1208.75    9978.00   1208.77    9999.95   1208.88   10004.41
GR   1209.0   10008.65   1209.37   10021.79   1209.51   10028.24   1209.56   10030.15   1209.65   10035.60
GR   1210.9   10098.97   1210.75   10103.25   1210.28   10121.81   1210.08   10143.11   1210.02   10179.56
GR   1210.1   10185.45   1210.03   10193.86   1210.00   10197.15   1209.98   10238.72   1210.91   10241.09
GR   1215.6   10254.01   1215.80   10341.23   1215.83   10356.80   1214.27   10378.24   1213.67   10389.18
GR   1213.7   10397.56   1213.84   10404.43   1213.75   10409.77   1213.73   10419.44   1214.34   10439.53
GR   1214.4   10440.27   1214.44   10504.91   1214.44   10510.40   1214.97   10585.88   1214.88   10600.03
GR   1216.5   10811.64   1216.49   10814.54   1215.58   11001.69   1215.59   11007.48   1216.81   11203.97
GR   1217.0   11214.80   1216.75   11223.36   1216.02   11410.35   1215.58   11480.23   1214.27   11601.22

X1   10.803      98.00   9873.61   10202.20      1020.00     1010.00     1010.00
X3       10
GR   1224.0    8856.91   1224.06    8893.12   1224.32    8975.49   1224.37    8991.58   1224.51    9080.42
GR   1224.6    9098.12   1224.49    9176.13   1224.45    9190.70   1224.47    9207.47   1224.53    9298.23
GR   1224.4    9371.35   1224.34    9389.18   1223.77    9479.46   1223.68    9498.18   1223.56    9512.69
GR   1223.0    9590.03   1222.94    9597.04   1222.79    9609.97   1225.19    9617.88   1227.10    9623.72
GR   1227.5    9650.01   1227.58    9660.55   1227.82    9664.81   1228.24    9672.82   1228.24    9673.13
GR   1228.5    9703.84   1220.18    9749.65   1219.97    9750.83   1219.93    9751.30   1218.42    9774.67
GR   1219.2    9781.00   1220.90    9797.52   1220.95    9802.46   1220.76    9818.21   1220.72    9823.02
GR   1220.7    9823.75   1220.70    9826.33   1220.69    9826.66   1220.69    9826.93   1220.03    9845.56
GR   1219.9    9848.84   1219.89    9850.23   1219.87    9850.90   1219.71    9851.98   1219.76    9855.07
GR   1219.8    9859.44   1220.07    9873.61   1219.86    9877.75   1219.62    9882.61   1219.49    9885.13
GR   1219.1    9892.61   1218.78    9898.99   1217.91    9915.94   1217.45    9921.40   1217.38    9924.57
GR   1217.4    9927.52   1215.32    9937.57   1214.56    9941.16   1214.53    9945.85   1214.42    9952.98
GR   1214.5    9955.42   1214.60    9975.62   1214.70    9989.53   1214.53    9992.66   1214.10   10000.00
GR   1215.1   10005.38   1216.05   10010.56   1216.46   10031.62   1217.05   10051.93   1215.59   10075.18
GR   1215.5   10076.01   1215.53   10076.15   1215.51   10076.54   1215.51   10076.74   1214.99   10108.50
GR   1215.0   10109.75   1214.98   10112.36   1215.05   10116.86   1215.08   10119.78   1215.00   10128.98
GR   1215.1   10133.28   1215.19   10141.12   1215.44   10157.48   1215.76   10181.69   1218.41   10189.63
GR   1220.0   10193.38   1219.96   10202.20   1220.15   10212.15   1220.34   10217.89   1220.24   10271.81
GR   1220.2   10293.27   1219.95   10384.32   1219.94   10386.29   1219.90   10395.34   1219.66   10493.26
GR   1220.0   10506.60   1220.03   10589.79   1219.94   10615.24

X1   10.979      72.00   9876.59   10116.64          870         950         930
X3       10                                                                  1228.47   1229.05
GR   1228.0    9561.08   1228.01    9562.63   1227.87    9573.30   1227.77    9582.89   1227.39    9640.22
GR   1227.3    9651.26   1227.28    9661.12   1227.65    9709.90   1227.43    9721.43   1227.39    9731.92
GR   1227.5    9742.30   1227.16    9786.84   1227.45    9811.70   1227.79    9842.14   1227.55    9875.68
GR   1227.6    9875.95   1227.57    9876.05   1227.41    9876.59   1219.27    9903.97   1219.28    9905.56
GR   1219.3    9907.01   1219.35    9908.95   1219.49    9922.51   1219.47    9926.07   1219.46    9926.71
GR   1219.5    9926.82   1219.46    9926.88   1219.33    9959.68   1219.30    9965.73   1219.08    9987.50
GR   1218.8   10000.00   1218.76   10011.73   1218.72   10027.06   1218.60   10035.63   1218.60   10054.18
GR   1218.6   10087.26   1218.59   10088.04   1218.62   10088.45   1223.70   10105.53   1226.67   10116.64
GR   1227.9   10120.91   1228.67   10125.65   1229.01   10152.63   1229.28   10161.13   1229.31   10180.70
GR   1229.3   10184.88   1229.31   10195.42   1228.99   10217.83   1228.39   10241.07   1228.38   10242.08
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GR   1228.4   10243.11   1228.36   10244.17   1228.35   10245.24   1228.34   10246.35   1228.33   10247.50
GR   1228.3   10248.68   1228.31   10249.91   1228.29   10251.20   1228.28   10252.55   1228.27   10253.96
GR   1228.3   10255.46   1228.25   10257.06   1228.23   10258.76   1228.22   10260.59   1228.21   10262.57
1
    18FEB99      08:36:32                                                                          PAGE    9

GR   1228.2   10264.73   1228.17   10267.09   1228.16   10269.70   1228.15   10270.02   1228.14   10271.60
GR   1228.1   10273.25   1228.00   10288.51

SB     1.05        1.6        2.8                186.22          2     1932.34          2     1219.00     1218.59

X1   10.999         24     9853.84   10126.19        100         100         100
X2                             1     1228.23    1228.47
X3       10                                                                  1229.32     1229.05
BT      -31     9209.00     1232.3                9227.18      1232.1                9284.39      1231.3
BT              9363.47    1230.13                9391.57     1229.66                9491.57     1228.59
BT              9591.57    1228.47                9691.57     1230.33                9800.44     1230.73
BT              9820.12    1233.04                9839.42     1233.24                9855.82     1233.39
BT              9872.00    1233.52    1227.82     9880.42     1233.59    1227.88     9905.02     1233.75      1228.0
BT              9937.82    1233.90    1228.19     9970.62     1233.99    1228.28    10003.43        1234      1228.2
BT             10036.23    1233.94    1228.23    10069.03     1233.82    1228.11    10101.83     1233.63      1227.9
BT             10115.13    1233.53    1227.82    10126.65     1233.44               10134.65     1233.37
BT             10142.29     1233.3               10167.44     1233.03               10200.24     1232.64
BT             10233.05    1232.24               10263.48     1231.84                10263.5     1229.76
BT             10429.91    1229.05

  CHANGED ELEVATION AT 10088.13 TO 1219.00 WAS 1218.83

GR   1231.1     9209.00   1230.81     9227.18   1229.62     9284.39   1228.17     9402.46   1228.02     9451.40
GR   1227.8     9497.37   1227.67     9550.83   1227.31     9585.84   1227.37     9603.87   1227.25     9654.95
GR   1228.5     9768.63   1228.46     9800.00   1229.32     9853.84   1227.00     9873.71   1221.24     9896.54
GR   1219.4     9905.41   1219.05     9999.82   1219.00    10088.13   1228.88    10126.19   1229.62    10175.10
GR   1229.5    10207.23   1229.17    10245.64   1227.87    10252.93   1229.05    10429.91

NC    0.045       0.045        0.03

X1   11.129        76.00      9825.9   10117.76         680         710.00         700
X3       10
GR   1230.0     9001.61   1231.31     9019.86   1230.94     9039.30   1230.34     9086.18   1230.21     9091.30
GR   1230.2     9101.65   1230.28     9177.79   1230.28     9190.39   1230.27     9203.23   1230.01     9262.69
GR   1230.0     9274.53   1229.94     9279.83   1229.83     9368.23   1229.87     9378.04   1229.84     9385.44
GR   1230.0     9437.65   1230.18     9464.66   1230.22     9466.98   1230.44     9478.21   1230.35     9485.63
GR   1230.3     9491.24   1230.50     9548.84   1230.66     9573.75   1230.74     9576.39   1231.13     9594.44
GR   1230.5     9596.85   1227.20     9617.44   1226.87     9619.06   1226.11     9634.45   1225.42     9638.64
GR   1225.3     9666.53   1225.18     9693.16   1224.86     9713.88   1224.37     9738.10   1224.75     9748.54
GR   1225.4     9763.26   1226.00     9766.70   1228.16     9780.03   1231.57     9793.85   1231.53     9797.40
GR   1231.1     9823.74   1231.30     9825.90   1224.42     9848.01   1220.98     9859.01   1220.70     9877.10
GR   1220.7     9888.72   1221.52     9925.80   1221.06     9929.89   1220.76     9932.58   1219.44     9944.53
GR   1219.4     9956.12   1219.39    10016.41   1219.39    10037.00   1219.71    10041.50   1220.31    10049.49
GR   1221.5    10066.24   1221.67    10086.88   1221.69    10092.45   1222.96    10096.04   1231.76    10117.76
GR   1230.7    10150.32   1230.02    10182.69   1230.18    10223.11   1230.46    10283.89   1231.22    10342.92
GR   1231.9    10385.09   1232.28    10401.10   1232.35    10405.73   1230.75    10414.07   1229.78    10419.29
GR   1230.7    10433.31   1232.18    10456.24   1232.56    10482.89   1232.67    10488.99   1232.52    10496.79
GR   1232.0    10513.53

1
    18FEB99      08:36:32                                                                          PAGE   10

QT         1   10350.00

X1   11.188          92     9868.66   10127.63         310         310.00         320
X3       10
GR   1232.0     9044.13   1231.80     9061.50   1231.15     9118.22   1231.24     9132.07   1231.27     9137.75
GR   1231.3     9195.59   1231.29     9323.60   1231.26     9344.72   1231.02     9423.75   1231.39     9453.21
GR   1231.4     9463.24   1231.45     9468.41   1231.43     9475.56   1231.49     9482.12   1231.66     9488.78
GR   1232.1     9498.93   1232.21     9501.61   1233.82     9505.69   1233.88     9507.28   1235.74     9520.34
GR   1235.2     9532.26   1233.01     9544.01   1233.13     9544.71   1235.23     9561.01   1235.23     9563.22
GR   1235.3     9579.44   1235.15     9579.93   1233.34     9585.20   1233.19     9588.18   1232.45     9593.19
GR   1232.5     9600.40   1232.06     9614.98   1231.99     9617.84   1231.59     9629.26   1224.94     9651.24
GR   1218.9     9670.08   1218.66     9709.57   1218.53     9730.02   1218.56     9739.49   1218.51     9753.00
GR   1218.8     9803.24   1228.08     9831.44   1231.38     9841.83   1231.23     9860.22   1231.20     9861.74
GR   1231.3     9862.13   1232.77     9868.66   1228.92     9881.82   1221.37     9907.00   1221.67     9927.77
GR   1221.7     9927.99   1221.68     9928.81   1221.62     9956.02   1220.38     9964.53   1219.84     9970.00
GR   1219.1     9976.70   1219.22    10016.30   1219.24    10022.95   1220.13    10036.55   1220.82    10046.63
GR   1221.0    10049.68   1222.01    10060.28   1221.96    10064.64   1221.74    10084.10   1221.70    10086.79
GR   1227.0    10106.28   1230.75    10120.96   1232.93    10127.63   1232.64    10132.41   1231.84    10140.54
GR   1231.7    10177.77   1231.65    10225.13   1231.95    10290.77   1232.20    10325.42   1233.08    10384.01
GR   1233.5    10425.70   1233.74    10441.69   1233.80    10447.04   1233.06    10451.14   1230.85    10460.65
GR   1232.7    10486.34   1233.51    10496.91   1233.74    10518.29   1233.88    10533.48   1233.54    10544.98
GR   1233.0    10563.12   1232.56    10567.72   1232.44    10568.94   1232.34    10570.30   1232.16    10572.18
GR   1231.8    10575.61   1232.00    10576.52

X1   11.301        75.00     9889.57   10113.79         600         600.00         600
X3       10
GR   1234.0     9058.01   1234.36     9062.92   1234.59     9064.90   1234.70     9067.29   1234.85     9071.13
GR   1235.0     9074.08   1235.11     9076.94   1234.98     9087.93   1234.94     9093.80   1234.97     9097.45
GR   1234.6     9114.11   1233.70     9143.57   1232.39     9185.42   1232.26     9193.02   1231.81     9302.24
GR   1231.8     9306.97   1231.82     9312.68   1233.12     9322.58   1233.33     9326.69   1232.37     9331.95
GR   1231.9     9335.33   1232.14     9353.03   1232.18     9385.71   1231.22     9460.20   1230.68     9489.90
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GR   1226.3    9505.98   1223.69    9516.20   1223.69    9834.81   1230.17    9860.30   1231.02    9863.45
GR   1231.0    9864.73   1231.01    9865.28   1231.12    9876.51   1231.34    9878.48   1232.87    9889.57
GR   1226.4    9912.23   1221.78    9927.66   1222.87    9934.95   1222.68    9943.95   1221.92    9957.12
GR   1222.1    9967.38   1221.63    9982.20   1221.54    9993.66   1221.52    9995.88   1221.46    9999.75
GR   1221.3   10016.66   1221.27   10019.50   1221.95   10025.40   1222.77   10031.72   1223.83   10043.03
GR   1223.8   10047.51   1223.68   10070.27   1232.54   10105.97   1234.82   10113.79   1234.94   10133.53
GR   1235.3   10206.71   1235.47   10261.02   1235.71   10307.53   1235.91   10340.01   1236.33   10390.55
GR   1236.4   10395.17   1236.27   10408.36   1236.72   10468.62   1237.00   10516.30   1237.09   10527.62
GR   1235.8   10533.20   1233.53   10543.79   1233.82   10546.69   1233.87   10548.08   1234.05   10549.91
GR   1235.5   10567.06   1235.75   10569.03   1235.92   10571.22   1236.00   10572.29   1236.01   10572.54

NC     0.045      0.06     0.035

X1    11.386     44.00   9864.13   10133.77    440.00    420.00    450.00
X3        10
GR   1238.0    9104.46   1238.00    9124.19   1226.67    9192.06   1225.61    9220.58   1225.95    9257.28
GR   1231.0    9280.89   1228.94    9287.65   1229.45    9308.60   1229.75    9395.04   1229.81    9401.57
GR   1228.9    9482.30   1229.01    9516.32   1230.04    9537.23   1230.05    9594.06   1229.96    9610.32
GR   1230.2    9690.40   1230.22    9712.37   1230.37    9789.85   1229.50    9849.97   1233.46    9864.13
GR   1226.3    9882.67   1223.19    9891.77   1226.78    9931.82   1223.57    9967.77   1223.55    9973.97
1
    18FEB99      08:36:32                                                                          PAGE   11

GR   1223.1   10045.00   1229.38   10066.11   1228.89   10090.41   1230.94   10110.16   1238.40   10133.77
GR   1238.1   10238.00   1238.23   10273.37   1242.54   10303.74   1241.68   10314.41   1238.11   10333.31
GR   1238.0   10363.59   1239.24   10432.93   1239.15   10468.29   1239.39   10532.90   1239.44   10583.29
GR   1239.6   10609.56   1234.78   10629.53   1238.14   10669.77   1238.00   10711.04

X1    11.481     41.00   9846.96   10215.16    480.00    540.00    520.00
X3        10
GR   1240.0    9217.89   1231.30    9263.96   1230.96    9294.11   1230.07    9299.13   1228.64    9317.01
GR   1228.4    9356.30   1229.22    9385.44   1234.43    9401.62   1229.72    9410.77   1230.75    9445.99
GR   1233.7    9455.24   1229.09    9464.81   1229.38    9489.35   1228.69    9517.47   1232.91    9532.83
GR   1233.9    9538.22   1233.72    9542.85   1228.96    9556.56   1229.99    9570.25   1230.12    9631.80
GR   1231.1    9704.68   1231.84    9774.45   1232.16    9831.41   1236.77    9846.96   1234.57    9854.35
GR   1225.7    9879.26   1224.81    9915.00   1227.89    9947.19   1226.04    9987.71   1225.45   10011.59
GR   1226.5   10018.54   1227.81   10065.44   1228.66   10108.35   1234.10   10128.28   1233.97   10151.66
GR   1234.0   10180.39   1237.23   10199.67   1240.19   10215.16   1240.78   10245.66   1240.70   10262.73
GR   1241.5   10326.11

X1    11.566     55.00   9218.65   10060.0     280.00    530.00    460.00
GR   1240.0    9218.65   1241.94    9245.26   1243.12    9264.73   1235.34    9309.39   1235.06    9330.03
GR   1235.4    9343.19   1233.44    9357.53   1240.89    9370.03   1241.33    9381.64   1233.84    9409.90
GR   1233.6    9429.84   1236.00    9442.86   1235.92    9457.18   1235.04    9468.76   1234.83    9497.07
GR   1234.3    9510.70   1234.96    9524.83   1234.44    9544.66   1232.21    9557.78   1231.97    9566.70
GR   1229.3    9592.00   1229.37    9614.00   1228.55    9675.39   1229.76    9728.73   1228.48    9771.51
GR   1228.6    9789.18   1229.71    9844.48   1229.50    9860.07   1230.00    9885.27   1229.58    9914.65
GR   1229.0    9933.74   1229.69    9963.83   1228.58    9989.27   1228.32   10025.00   1234.13   10039.07
GR   1243.3   10060.00   1243.56   10069.74   1243.57   10097.73   1243.75   10158.54   1243.26   10197.61
GR   1242.7   10217.53   1242.04   10255.73   1243.29   10267.02   1242.98   10282.72   1242.85   10288.39
GR   1242.9   10381.88   1243.85   10482.19   1244.38   10569.60   1244.26   10703.01   1244.43   10786.66
GR   1244.5   10881.47   1244.38   10913.54   1245.20   10928.59   1243.14   10937.14   1243.29   10981.58

X1    11.759     87.00   9428.04   10132.96   1050.00    980.00   1020.00
GR   1246.0    9382.57   1246.26    9386.80   1247.01    9404.19   1247.47    9414.42   1243.77    9428.04
GR   1237.1    9451.29   1235.64    9491.80   1235.12    9508.08   1235.13    9518.41   1234.93    9554.62
GR   1235.0    9598.67   1234.80    9613.81   1234.66    9627.49   1234.63    9638.35   1234.75    9658.70
GR   1235.2    9680.28   1241.75    9694.91   1244.58    9701.38   1243.20    9711.39   1242.92    9713.12
GR   1243.2    9725.09   1242.88    9729.94   1241.70    9734.24   1237.86    9746.64   1236.32    9751.56
GR   1242.6    9770.23   1244.09    9774.09   1244.29    9781.79   1244.46    9794.01   1244.35    9808.02
GR   1244.4    9810.38   1240.79    9821.83   1242.57    9825.93   1239.32    9831.92   1239.15    9832.17
GR   1239.2    9832.42   1242.12    9841.94   1239.59    9850.36   1238.77    9852.45   1240.38    9857.44
GR   1241.1    9860.94   1237.16    9867.80   1235.26    9870.37   1234.17    9872.41   1234.23    9896.51
GR   1234.2    9930.98   1234.01    9939.39   1234.19    9946.48   1234.71    9962.84   1235.17    9992.88
GR   1233.0    9997.66   1232.02   10000.00   1232.21   10037.32   1232.25   10044.61   1233.90   10058.04
GR   1234.3   10061.70   1234.15   10079.75   1234.19   10097.62   1233.97   10103.10   1235.85   10107.42
GR   1246.5   10132.96   1246.85   10144.86   1246.94   10170.62   1247.07   10228.34   1246.92   10248.16
GR   1246.3   10307.05   1245.92   10353.90   1245.66   10385.76   1245.69   10459.63   1245.66   10464.46
GR   1245.7   10478.53   1245.48   10543.18   1245.39   10565.37   1245.12   10586.18   1244.09   10642.42
GR   1243.8   10651.03   1243.61   10658.52   1243.57   10659.92   1243.55   10664.91   1243.52   10670.15
GR   1243.1   10710.11   1242.93   10755.37   1242.89   10766.12   1243.52   10810.32   1243.59   10831.93
GR   1243.6   10848.27   1245.80   10985.76

1
    18FEB99      08:36:32                                                                          PAGE   12

NC      0.06      0.06     0.035

X1    11.949     59.00   9678.36   10235.82    990.00   1000.00   1000.00
X3        10
GR   1252.0    9324.61   1252.72    9344.99   1252.27    9358.68   1251.06    9384.12   1251.34    9392.95
GR   1250.0    9430.95   1249.50    9447.90   1244.15    9462.71   1243.17    9546.84   1243.06    9568.51
GR   1244.3    9589.46   1247.72    9655.12   1248.70    9678.36   1247.84    9710.30   1247.26    9743.04
GR   1245.3    9758.43   1246.42    9770.12   1245.82    9777.57   1241.28    9791.94   1242.45    9809.76
GR   1242.0    9840.86   1244.24    9883.54   1245.13    9897.82   1239.71    9920.26   1239.00    9979.53
GR   1239.1   10055.23   1239.17   10084.45   1238.90   10110.00   1241.77   10124.84   1241.04   10141.53
GR   1239.5   10192.93   1242.65   10235.82   1243.20   10261.47   1244.39   10327.99   1244.81   10329.81
GR   1244.7   10346.06   1242.00   10367.25   1241.81   10387.69   1247.16   10407.79   1248.88   10417.24
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GR   1248.8   10432.61   1247.94   10447.26   1247.93   10483.97   1248.75   10502.58   1248.81   10558.55
GR   1247.9   10633.88   1249.14   10682.15   1250.23   10716.46   1249.78   10764.38   1249.64   10864.12
GR   1249.5   10901.37   1249.65   10963.14   1249.59   11022.34   1249.72   11077.87   1250.05   11158.14
GR   1249.9   11215.28   1250.91   11279.44   1248.33   11382.78   1245.43   11580.12
```

CROSS SECTION ADJUSTED PER FLETCHER HEIGHTS GRADING PLAN

```
X1   12.125         63   9742.17   10335.82    910.00    1000.00    930.00
X3        10
GR   1252.0    9047.18   1255.00    9066.41   1254.82    9095.00   1245.20    9125.19   1245.27    9142.02
GR   1255.0    9176.47   1255.40    9199.99   1255.24    9245.66   1255.66    9368.18   1256.01    9399.64
GR   1256.0    9510.06   1256.65    9573.26   1258.35    9585.20   1256.14    9606.41   1255.76    9623.32
GR   1255.5    9652.10   1255.96    9683.52   1254.31    9742.17   1253.38    9746.28   1250.29    9765.66
GR   1249.9    9805.27   1249.75    9820.38   1247.19    9860.67   1246.14    9872.18   1245.84    9891.41
GR   1245.2    9903.18   1244.96    9961.51   1245.05   10009.40   1244.65   10085.42   1245.48   10124.23
GR   1245.6   10186.60   1245.07   10215.26   1245.25   10225.00   1246.6    10300.00   1254.4    10335.82
GR   1256.2   10435.97   1255.79   10451.59   1255.3    10495.79   1255.2    10526.95   1257.2    10538.34
GR   1256.9   10655.92   1256.80   10730.16   1257.1    10827.97   1256.8    10911.91   1257.0    10981.78
GR   1257.0   11044.99   1256.79   11132.25   1256.4    11189.41   1256.6    11225.19   1255.8    11303.26
GR   1255.9   11319.04   1255.28   11375.71   1254.1    11403.70   1253.9    11418.38   1253.8    11455.25
GR   1254.4   11502.50   1253.34   11579.35   1253.4    11605.90   1254.5    11627.74   1254.6    11639.08
GR   1255.8   11646.02   1253.99   11671.16   1253.4    11706.36

QT         1    9800.00

X1   12.313         58   9806.87   10248.19    1010.00    980.00    990.00
X3        10
GR   1261.9    8592.00   1261.37    8778.39   1261.34    8847.05   1261.95    8867.85   1260.97    8953.64
GR   1260.7    9059.42   1260.08    9165.19   1259.44    9359.00   1258.03    9581.32   1258.57    9695.16
GR   1258.5    9806.87   1261.90    9827.49   1260.35    9853.29   1257.19    9869.41   1257.38    9902.43
GR   1256.0    9956.58   1250.87    9978.49   1250.47   10014.55   1252.75   10028.94   1254.62   10117.83
GR   1255.1   10153.23   1254.01   10161.35   1253.55   10169.65   1250.91   10188.34   1250.75   10215.26
GR   1251.1   10221.02   1258.14   10248.19   1258.88   10262.30   1259.86   10274.15   1259.67   10300.55
GR   1259.9   10366.21   1258.66   10398.74   1258.78   10433.60   1259.55   10479.53   1258.42   10553.69
GR   1258.2   10647.77   1259.20   10670.89   1258.64   10733.75   1258.45   10737.89   1258.11   10784.80
GR   1258.3   10803.17   1258.51   10886.66   1258.58   11009.52   1258.33   11047.73   1260.16   11072.80
GR   1260.0   11173.31   1254.56   11200.24   1259.17   11230.71   1260.13   11250.41   1259.58   11356.76
GR   1258.1   11383.87   1258.11   11413.73   1259.93   11444.10   1260.01   11543.99   1258.24   11563.01
GR   1258.4   11679.69   1259.36   11747.48   1259.06   11847.23
1
```


ADDED IN STA. 9830 CODED OUT PIT AT STA'S 9170.56 AND 9196.30

```
X1   12.511         95   9830.00   10296.93    1000.00    1020.00    1056.00
X3        10
GR   1265.3    8690.00   1265.72    8722.98   1265.04    8800.78   1266.46    8877.93   1266.49    8890.38
GR   1266.0    8981.85   1265.46    9039.65   1265.57    9069.51   1266.12    9085.08   1268.85    9115.14
GR   1264.3    9130.04   1266.04    9156.70   1265.00    9170.56   1265.00    9196.30   1265.36    9213.06
GR   1265.1    9233.08   1265.01    9269.17   1265.12    9306.39   1264.21    9384.01   1264.06    9435.16
GR   1263.6    9495.33   1263.43    9500.45   1265.12    9523.52   1264.00    9531.84   1263.64    9577.67
GR   1263.7    9644.25   1263.41    9672.29   1262.59    9730.15   1263.21    9797.63   1263.00    9830.00
GR   1262.2    9871.16   1261.0     9883.86   1259.32    9894.60   1258.82    9930.99   1257.37    9939.13
GR   1257.3    9949.46   1256.1    10006.26   1258.76   10014.94   1258.45   10030.45   1258.03   10040.27
GR   1255.2   10046.61   1254.8    10065.39   1259.67   10081.46   1262.29   10098.86   1265.39   10111.39
GR   1262.9   10128.79   1262.4    10163.12   1268.36   10179.88   1258.77   10197.79   1258.52   10223.11
GR   1261.1   10235.23   1264.3    10262.78   1264.16   10285.66   1264.63   10296.93   1264.04   10330.81
GR   1263.4   10343.83   1260.2    10356.42   1262.92   10377.50   1259.40   10390.66   1258.90   10428.38
GR   1263.8   10451.62   1264.0    10472.33   1263.86   10545.08   1264.81   10579.02   1263.12   10625.09
GR   1263.1   10712.44   1263.5    10731.12   1261.71   10768.22   1261.65   10793.64   1261.65   10799.50
GR   1263.4   10822.58   1263.5    10851.82   1263.27   10915.50   1263.51   11032.53   1263.88   11133.36
GR   1263.9   11225.85   1263.7    11305.59   1264.04   11370.37   1264.60   11419.42   1263.34   11432.45
GR   1263.7   11448.20   1263.2    11464.10   1264.34   11496.85   1264.85   11600.66   1262.96   11616.13
GR   1262.4   11637.84   1262.7    11664.06   1262.29   11700.31   1262.83   11719.63   1263.84   11740.75
GR   1264.6   11805.36   1264.3    11905.36   1264.14   12105.70   1265.05   12143.78   1265.51   12181.04
```

ADDED IN STA. 10268

```
X1   12.701         54   9748.20   10268.00    1030.00    1020.00    1000.00
X3        10
GR   1270.6    8679.69   1270.78    8721.34   1270.39    8761.23   1269.90    8833.88   1270.26    8937.48
GR   1270.4    9012.64   1270.30    9085.61   1270.35    9213.01   1269.98    9339.41   1268.84    9353.58
GR   1268.8    9385.62   1270.11    9401.02   1269.68    9469.49   1268.53    9566.70   1268.60    9597.16
GR   1270.6    9611.57   1271.46    9662.01   1271.92    9720.40   1271.92    9748.20   1266.65    9763.96
GR   1265.6    9795.42   1265.27    9811.44   1264.93    9881.27   1266.19    9897.84   1266.58    9928.05
GR   1260.1    9962.00   1260.60   10022.54   1262.09   10056.78   1267.52   10087.73   1267.63   10119.94
GR   1268.1   10154.63   1269.00   10268.00   1269.79   10320.67   1270.31   10438.54   1268.11   10464.36
GR   1268.0   10495.14   1268.7    10531.67   1269.90   10586.85   1270.31   10635.58   1269.74   10648.20
GR   1270.0   10667.88   1270.6    10703.92   1270.38   10759.91   1269.97   10796.17   1268.94   10830.95
GR   1268.5   10836.90   1269.0    10865.29   1269.75   10900.36   1268.83   10938.96   1270.17   10954.33
GR   1270.0   10961.64   1268.3    10969.83   1261.37   11007.01   1268.74   11046.65
```

ADDED STA 10345

```
X1   12.896       70.00   9833.94      10345    1010.00       1010       1030
X3        10
GR   1274.9    8580.93   1274.87    8673.09   1274.38    8704.21   1274.04    8723.05   1274.49    8749.93
GR   1274.0    8793.37   1275.30    8802.34   1275.29    8836.56   1274.95    8904.16   1274.68    8975.01
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GR   1275.0    9098.79   1275.18    9207.36   1274.81    9315.93   1275.06    9424.49   1274.72    9576.94
GR   1274.9    9659.17   1274.71    9701.13   1274.17    9717.06   1276.06    9744.07   1276.58    9773.97
GR   1276.8    9804.07   1277.11    9814.91   1278.41    9833.94   1269.60    9869.82   1269.25    9888.98
GR   1267.4    9898.23   1263.73    9911.98   1262.67    9944.78   1262.50   10045.00   1269.15   10086.34
1
    18FEB99      08:36:32                                                                          PAGE   14

GR   1264.4   10098.25   1265.88   10158.03   1265.26   10183.14   1266.51   10194.99   1265.26   10222.79
GR   1264.8   10272.92   1269.56   10303.90   1273.04   10320.71   1273.00   10345.00   1273.48   10382.41
GR   1272.8   10468.19    1270.9   10496.62   1270.12   10518.59   1273.41   10536.41   1275.23   10549.79
GR   1274.9   10608.82   1274.9    10654.72   1274.88   10686.20   1273.87   10715.79   1274.02   10765.87
GR   1275.2   10787.15   1274.3    10834.35   1276.17   10841.05   1274.01   10846.05   1274.44   10942.72
GR   1273.6   10963.87   1274.0    10991.43   1274.13   11093.97   1274.27   11154.66   1274.62   11205.89
GR   1269.6   11225.58   1271.8    11254.72   1268.42   11276.71   1270.68   11291.08   1264.52   11313.83
GR   1264.4   11321.49   1273.2    11373.42   1275.02   11385.37   1276.40   11406.68   1274.00   11416.06

QT       1    7900.00

  ADDED IN STA 10103.00

X1   13.076         87   9665.58   10103.00     950.00     980.00     950.00
X3       10
GR   1277.7    8630.49   1277.44    8676.33   1277.70    8705.97   1278.00    8765.27   1279.13    8916.61
GR   1279.5    8992.75   1281.42    9191.97   1281.52    9237.48   1280.17    9250.04   1279.43    9278.28
GR   1279.8    9299.93   1279.75    9347.01   1280.46    9377.28   1278.04    9389.74   1279.96    9415.68
GR   1280.3    9455.36   1280.27    9487.90   1280.59    9551.21   1280.45    9601.71   1279.35    9665.58
GR   1271.3    9685.17   1265.52    9698.48   1263.66    9726.61   1264.63    9754.41   1264.26    9798.96
GR   1262.5    9822.49   1262.56    9828.92   1264.46    9847.65   1264.35    9863.37   1264.56    9881.24
GR   1263.8    9901.55   1263.96    9916.59   1262.75    9931.23   1263.05    9943.82   1264.01    9965.53
GR   1263.4    9977.95   1262.37    9993.24   1262.37   10010.00   1264.10   10024.82   1266.15   10035.77
GR   1263.2   10056.03   1263.91   10067.46   1269.18   10082.40   1271.82   10091.28   1272.00   10103.00
GR   1272.7   10124.75    1278.5   10147.95   1278.65   10190.41   1279.48   10257.54   1279.91   10298.86
GR   1288.2   10346.02   1288.6    10355.91   1279.32   10406.59   1279.27   10454.49   1279.00   10511.71
GR   1279.8   10542.50   1279.8    10568.00   1280.15   10660.38   1280.46   10674.73   1280.56   10713.34
GR   1279.8   10728.07   1278.7    10773.12   1279.18   10811.36   1279.20   10863.83   1279.05   10898.25
GR   1277.8   10989.63   1279.2    11080.51   1279.38   11169.90   1279.83   11188.28   1279.34   11241.84
GR   1278.8   11290.22   1278.9    11310.13   1278.68   11329.33   1280.21   11339.95   1278.01   11347.13
GR   1278.5   11364.15   1278.9    11420.15   1278.71   11457.78   1278.89   11497.66   1278.79   11549.18
GR   1278.6   11565.40   1271.0    11591.43   1272.96   11595.64   1279.13   11613.05   1278.04   11672.02
GR   1278.2   11684.58   1279.7    11702.70

X1   13.277        38.00   9941.62   10240.18     800.00     670.00     800.00
GR   1284.9    9165.00   1284.99    9241.52   1285.38    9289.32   1283.69    9296.67   1284.00    9321.40
GR   1283.9    9356.28   1283.54    9389.83   1282.86    9404.65   1283.57    9426.27   1282.78    9447.55
GR   1283.0    9490.68   1282.15    9666.80   1283.34    9688.67   1283.56    9747.20   1283.85    9773.52
GR   1282.8    9880.37   1281.61    9932.49   1282.54    9941.62   1277.72    9953.53   1275.80    9957.06
GR   1274.9    9981.17   1274.89   10018.22   1275.57   10043.46   1276.31   10056.44   1275.84   10106.97
GR   1275.4   10131.61   1275.40   10146.04   1278.72   10204.81   1288.90   10240.18   1284.60   10256.67
GR   1284.4   10269.09   1283.30   10378.02   1283.33   10413.98   1283.16   10573.42   1283.26   10647.07
GR   1283.2   10742.80   1283.42   10887.18   1283.40   10898.50

X1   13.420        61.00   9844.81   10080.79     970.00    1000.00    1020.00
X3       10
GR   1288.0    9393.95   1288.06    9422.91   1287.97    9476.16   1287.26    9512.85   1286.57    9531.16
GR   1286.6    9555.11   1286.46    9581.00   1287.25    9612.16   1287.96    9630.03   1287.45    9654.45
GR   1288.3    9698.67   1288.27    9721.87   1288.92    9790.25   1288.27    9812.77   1290.55    9826.19
GR   1288.5    9839.34   1288.33    9844.81   1283.51    9861.07   1282.43    9879.68   1281.07    9893.21
GR   1280.6    9905.75   1280.99    9958.28   1278.03    9982.45   1277.43   10000.00   1277.80   10023.40
1
    18FEB99      08:36:32                                                                          PAGE   15

GR   1280.3   10035.18   1281.57   10062.82   1289.98   10080.79   1286.40   10088.73   1288.72   10112.21
GR   1287.3   10120.29   1287.71   10127.18   1289.33   10140.65   1293.38   10167.45   1288.58   10185.23
GR   1288.4   10235.98   1289.23   10251.21   1288.32   10275.01   1287.05   10307.20   1287.28   10343.83
GR   1287.3   10387.62   1286.94   10428.70   1286.93   10456.27   1286.66   10479.60   1285.71   10519.63
GR   1286.1   10542.23   1285.79   10562.51   1285.76   10630.46   1286.54   10651.09   1285.93   10671.99
GR   1284.5   10714.62   1285.10   10725.10   1286.77   10744.50   1287.02   10796.78   1286.96   10826.83
GR   1287.8   10841.87   1288.10   10914.83   1286.27   10944.13   1286.26   10984.26   1285.96   10993.76
GR   1286.0   11020.50

NC      0.05       0.05      0.035

X1   13.619        70.00   9762.99   10335.67    1090.00    1020.00    1056.00
GR   1292.0    9585.58   1292.36    9652.88   1294.25    9663.46   1292.78    9684.96   1292.79    9698.41
GR   1295.2    9717.05   1294.77    9762.99   1285.43    9812.00   1283.79    9822.71   1284.12    9888.90
GR   1283.5    9958.86   1284.45    9977.80   1284.14    9990.76   1283.47   10000.00   1283.51   10019.40
GR   1285.3   10030.04   1285.13   10072.28   1284.73   10100.28   1284.43   10157.81   1285.02   10214.32
GR   1285.2   10243.58   1284.80   10318.54   1291.19   10335.67   1290.25   10340.98   1291.11   10347.83
GR   1289.7   10359.68   1289.46   10385.47   1293.88   10414.58   1294.38   10461.27   1294.70   10501.93
GR   1298.4   10511.38   1301.80   10518.60   1294.49   10535.37   1302.40   10556.34   1303.98   10575.18
GR   1305.0   10602.28   1298.27   10624.37   1299.33   10646.64   1293.68   10663.54   1293.71   10676.04
GR   1295.2   10679.49   1296.02   10695.91   1297.61   10705.90   1296.63   10710.74   1293.79   10717.43
GR   1293.7   10742.73   1300.02   10754.19   1295.94   10762.56   1299.93   10771.34   1296.25   10778.68
GR   1299.7   10786.15   1295.97   10792.43   1298.87   10800.95   1296.19   10806.96   1298.73   10813.69
GR   1294.5   10822.00   1295.37   10883.55   1294.78   10912.66   1293.58   10965.70   1293.06   11026.77
GR   1292.3   11080.63   1293.20   11147.56   1293.04   11193.48   1293.10   11258.34   1292.94   11263.80
GR   1292.9   11297.22   1293.53   11360.29   1293.84   11378.44   1293.64   11427.12   1293.09   11457.26

  INCREASED GR ELEV. TO 1268 FOR STA'S 9835.48 TO 10465.00 TO MODEL FLOW
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CONVEYED IN GRAVEL PIT

```
X1   13.818      51.00    9821.63   10331.30     1050.00     1050.00     1056.00
X3        10
GR   1298.0    9457.90   1298.87    9473.66    1298.90    9499.95    1299.46    9580.20   1299.62    9584.73
GR   1296.7    9613.64   1297.12    9655.26    1293.55    9668.81    1295.18    9692.29   1295.29    9699.65
GR   1294.1    9717.53   1292.98    9751.46    1293.68    9766.86    1293.89    9783.00   1293.17    9784.20
GR   1291.3    9801.73   1290.67    9810.69    1290.76    9821.63    1288.00    9835.48   1288.00   10331.30
GR   1288.0   10465.00   1292.32   10478.72    1289.20   10487.96    1288.71   10531.93   1288.81   10545.65
GR   1289.9   10555.25   1294.94   10582.72    1299.17   10607.46    1299.63   10636.15   1289.07   10651.08
GR   1287.8   10698.65   1287.78   10863.93    1288.22   10909.82    1288.02   10933.29   1288.23   10943.55
GR   1288.1   10998.98   1288.49   11034.12    1289.44   11062.87    1289.29   11085.09   1289.55   11105.80
GR   1289.0   11188.14   1290.12   11224.24    1288.42   11268.57    1289.97   11374.44   1290.35   11398.66
GR   1291.8   11419.65   1291.96   11430.08    1290.64   11444.56    1292.34   11454.84   1290.56   11460.29
GR   1290.7   11483.66

QT        1    6100.00

X1   14.013      56.00    9785.6    10046.46    1020.00     1055.00     1030.00
GR   1308.1    8885.04   1307.16    9001.97    1306.76    9131.69    1305.89    9262.54   1305.46    9463.27
GR   1305.1    9536.52   1305.80    9581.14    1306.33    9612.59    1306.46    9656.69   1306.04    9718.42
GR   1306.1    9748.58   1305.60    9785.60    1302.88    9789.55    1300.12    9833.18   1299.23    9894.80
GR   1299.0    9926.31   1296.71    9935.80    1298.47    9952.05    1298.12    9980.15   1295.83    9992.04
GR   1295.8   10012.00   1303.66   10046.46    1301.65   10069.05    1302.58   10079.46   1303.94   10111.70
1
   18FEB99      08:36:32                                                                                  PAGE   16

GR   1302.3   10139.56   1303.71   10182.19    1304.23   10259.71    1304.30   10279.45   1301.54   10291.09
GR   1301.5   10336.66   1303.38   10390.98    1303.41   10452.40    1301.81   10469.00   1301.44   10484.76
GR   1300.6   10497.18   1302.40   10515.30    1301.77   10525.22    1301.01   10546.39   1305.31   10558.44
GR   1305.3   10629.80   1304.00   10640.75    1305.46   10654.41    1302.58   10668.11   1305.64   10686.15
GR   1305.4   10737.82   1301.43   10757.14    1303.93   10781.78    1304.52   10809.46   1304.49   10869.87
GR   1304.7   10926.68   1302.78   10964.28    1305.71   10999.97    1305.99   11074.48   1306.06   11178.36
GR   1306.3   11224.99

X1   14.197      61.00    9934.14   10263.32     990.00      920.00      970.00
GR   1312.3    9057.99   1312.02    9128.57    1311.52    9237.56    1310.88    9437.57   1310.21    9532.53
GR   1310.3    9637.37   1310.21    9657.85    1311.02    9737.58    1307.66    9804.07   1309.41    9819.00
GR   1309.3    9843.53   1308.78    9876.36    1310.08    9883.82    1309.84    9923.14   1309.62    9934.14
GR   1301.9   10000.00   1305.91   10027.15    1306.24   10040.69    1307.57   10146.12   1307.88   10191.01
GR   1306.7   10232.33   1306.60   10241.44    1310.80   10263.32    1310.54   10339.42   1310.58   10440.82
GR   1311.3   10476.46   1307.35   10489.70    1307.95   10523.02    1306.79   10552.35   1310.79   10569.56
GR   1310.4   10637.65   1311.00   10699.75    1307.71   10710.61    1309.41   10730.06   1308.86   10747.01
GR   1308.7   10768.64   1308.79   10824.52    1309.04   10833.97    1307.85   10851.15   1308.97   10865.21
GR   1308.2   10879.45   1308.37   10885.68    1306.28   10900.92    1306.70   10941.53   1307.57   10957.62
GR   1306.5   10971.36   1306.28   10983.48    1310.33   10998.91    1308.97   11010.87   1310.26   11031.15
GR   1310.4   11043.96   1309.97   11055.73    1307.38   11069.33    1310.82   11083.15   1310.54   11145.23
GR   1309.3   11242.46   1309.56   11282.63    1308.63   11293.26    1309.91   11330.36   1310.51   11362.09
GR   1310.8   11433.55
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ADDED STA 9551

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X1   14.379         61    9551.00   10106.58     940.00     1000.00      960.00
GR   1318.0    9021.00   1317.77    9154.20    1317.61    9206.43    1316.99    9283.44   1316.45    9406.46
GR   1316.3    9506.48    1316.3    9551.00    1314.22    9638.45    1313.33    9668.13   1310.91    9681.78
GR   1308.7    9689.35    1308.0    9709.34    1313.09    9717.56    1316.83    9728.26   1316.30    9806.52
GR   1316.2    9841.49    1316.3    9906.34    1316.58    9969.41    1309.18    9984.55   1312.77   10106.58
GR   1313.2   10174.33    1313.3   10201.48    1313.78   10213.27    1313.61   10241.58   1313.00   10265.72
GR   1313.9   10292.66    1314.5   10320.38    1313.12   10381.49    1312.38   10403.95   1312.27   10441.69
GR   1314.9   10495.75    1315.2   10507.24    1315.69   10565.84    1316.10   10604.25   1313.89   10615.71
GR   1315.0   10641.45    1313.6   10657.55    1313.74   10707.28    1314.33   10747.70   1312.73   10786.97
GR   1312.1   10819.27    1312.7   10839.42    1314.96   10852.38    1313.25   10888.47   1312.47   10917.80
GR   1310.8   10929.98    1310.7   10962.21    1315.13   10980.38    1314.82   11009.50   1314.20   11106.74
GR   1313.9   11217.17    1314.1   11306.78    1314.17   11315.40    1314.33   11406.81   1315.42   11433.49
GR   1315.8   11482.38    1314.7   11492.85    1314.40   11500.18    1315.63   11528.39   1316.23   11610.10
GR   1316.2   11673.33

X1   14.559      62.00    9196.31   10019.18     950.00      915.00      950.00
GR   1324.0    8495.79   1322.75    8664.22    1321.18    8894.09    1319.94    8991.46   1319.36    9008.48
GR   1320.7    9020.18   1320.60    9064.19    1321.01    9160.13    1321.63    9196.31   1317.65    9222.14
GR   1316.9    9228.26   1316.40    9262.17    1319.40    9312.00    1320.19    9362.65   1320.04    9395.71
GR   1316.7    9411.74   1316.68    9423.78    1317.23    9461.28    1316.68    9491.89   1318.79    9514.37
GR   1319.7    9519.38   1320.64    9594.67    1321.19    9664.84    1320.92    9730.31   1316.14    9762.62
GR   1319.4    9778.27   1316.60    9861.71    1317.84    9883.52    1317.90    9910.45   1316.97    9960.73
GR   1317.1    9971.30   1315.45    9978.63    1315.07   10012.00    1320.94   10019.18   1320.59   10033.36
GR   1319.0   10041.58   1319.71   10057.25    1320.69   10079.35    1320.59   10109.16   1320.32   10136.44
GR   1321.0   10160.03   1320.77   10171.58    1319.57   10184.86    1320.83   10197.69   1320.34   10240.72
GR   1321.0   10254.93   1320.60   10364.18    1320.13   10469.94    1319.94   10569.66   1319.55   10668.02
1
   18FEB99      08:36:32                                                                                  PAGE   17

GR   1320.3   10763.60   1320.45   10833.72    1318.88   10881.72    1318.80   10943.49   1318.60   10965.71
GR   1319.1   10978.76   1319.03   11074.35    1319.20   11164.21    1319.86   11252.94   1320.72   11283.69
GR   1320.4   11351.62   1320.72   11386.29

X1   14.752      65.00    9669.41   10173.79    1010.00     1010.00     1020.00
X3        10
GR   1331.2    8715.21   1329.70    8914.54    1329.18    8947.03    1327.13    9096.14   1326.85    9163.26
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GR   1327.0    9195.27    1326.95    9274.26    1326.24    9303.35    1324.99    9321.45    1326.34    9337.23
GR   1326.4    9384.46    1326.26    9388.85    1326.37    9439.29    1326.02    9476.49    1326.72    9542.71
GR   1326.6    9574.84    1325.48    9586.69    1326.69    9606.65    1326.52    9617.95    1326.53    9669.41
GR   1320.3    9682.79    1320.23    9691.15    1320.90    9736.76    1324.02    9770.44    1323.71    9784.07
GR   1324.3    9871.80    1323.24    9904.36    1320.32    9920.65    1320.76    9953.54    1321.51    9970.20
GR   1320.4    9991.13    1319.58   10000.00    1323.60   10015.77    1321.53   10040.26    1322.79   10075.99
GR   1325.0   10094.92    1322.43   10113.09    1324.99   10120.12    1324.14   10161.40    1327.21   10173.79
GR   1327.3   10270.77    1327.07   10308.99    1326.21   10423.48    1325.58   10499.08    1326.14   10551.63
GR   1326.3   10587.38    1326.03   10710.57    1326.00   10810.98    1325.52   10911.41    1325.27   10987.37
GR   1324.7   11087.27    1324.61   11162.30    1324.64   11187.38    1324.54   11261.88    1324.46   11320.93
GR   1325.5   11363.17    1324.61   11462.41    1324.25   11487.39    1324.48   11513.89    1324.92   11614.30
GR   1325.1   11687.38    1325.46   11752.29    1326.53   11803.18    1327.49   11820.73    1327.40   11837.08


QT        1    4200.00

  ADDED STA 9839

X1   14.945         75    9839.00   10023.75    1005.00    1000.00    1020.00
X3       10
GR   1337.4    8999.01    1335.96    9178.64    1335.87    9210.42    1334.83    9345.17    1334.57    9425.61
GR   1334.9    9466.09    1334.24    9472.12    1333.97    9493.38    1333.94    9570.05    1334.00    9588.29
GR   1332.5    9642.74    1331.70    9650.26    1331.54    9663.27    1331.93    9695.22    1331.29    9762.79
GR   1330.3    9796.07    1329.5     9839.00    1328.89    9877.10    1326.10    9921.75    1325.07    9948.82
GR   1323.8   10000.00    1330.4    10023.75    1334.24   10035.51    1333.91   10057.71    1334.66   10064.42
GR   1331.0   10076.08    1331.1    10088.10    1330.34   10156.77    1330.23   10194.65    1329.53   10223.38
GR   1328.7   10241.17    1330.4    10273.61    1330.11   10307.97    1328.77   10339.39    1327.07   10373.92
GR   1329.4   10421.76    1332.1    10437.68    1331.21   10475.64    1330.73   10477.68    1319.80   10512.02
GR   1318.1   10523.52    1318.3    10536.53    1315.80   10573.45    1315.29   10653.00    1315.52   10678.70
GR   1316.2   10698.94    1315.9    10716.85    1317.97   10733.82    1323.73   10752.62    1324.37   10757.42
GR   1330.0   10775.43    1334.6    10792.58    1332.01   10810.57    1328.18   10823.84    1331.81   10833.35
GR   1332.5   10909.04    1332.8    10917.18    1332.36   10962.34    1331.38   11038.61    1331.18   11122.23
GR   1330.9   11195.19    1330.8    11317.78    1331.40   11323.88    1331.61   11337.82    1331.33   11378.73
GR   1331.3   11418.52    1331.2    11478.73    1331.57   11537.95    1331.65   11578.73    1331.90   11608.73
GR   1331.8   11683.66    1331.5    11714.73    1331.89   11760.92    1332.47   11820.91    1332.72   11855.79


X1   15.144       67.00    9723.35    10113.9        900        890       1056        .89
X3       10
GR   1344.8    8716.59    1343.81    8820.25    1343.32    8897.84    1342.60    8922.58    1342.69    8975.04
GR   1342.4    9018.53    1342.24    9064.13    1342.47    9114.12    1342.14    9147.99    1341.46    9185.91
GR   1340.6    9201.25    1341.56    9220.79    1340.71    9323.48    1340.31    9338.05    1340.14    9369.16
GR   1337.8    9384.69    1343.14    9399.44    1340.89    9406.83    1338.89    9418.73    1338.12    9442.32
GR   1339.6    9470.84    1339.58    9483.84    1334.16    9501.70    1334.32    9520.77    1333.90    9560.76
GR   1334.8    9571.73    1335.11    9596.84    1330.96    9612.59    1334.70    9634.42    1335.25    9662.11
GR   1335.5    9692.78    1336.01    9697.39    1336.54    9723.35    1332.16    9744.51    1329.50    9760.15
1
   18FEB99      08:36:32                                                                                  PAGE   18

GR   1332.5    9826.27    1333.17    9847.25    1333.34    9899.86    1333.72    9920.28    1331.93    9975.33
GR   1329.2    9990.00    1329.48   10004.50    1331.32   10018.00    1332.04   10059.31    1333.02   10073.27
GR   1333.6   10091.46    1333.51   10113.90    1333.84   10144.63    1337.37   10164.78    1337.10   10179.27
GR   1338.3   10233.80    1338.70   10304.95    1337.91   10367.80    1337.41   10469.23    1339.61   10505.02
GR   1338.2   10522.90    1337.73   10596.56    1337.68   10697.97    1337.48   10767.91    1337.52   10828.29
GR   1337.1   10967.09    1336.92   10997.98    1337.26   11066.70    1337.28   11197.98    1337.52   11265.91
GR   1337.8   11297.98    1338.01   11409.74


X1   15.333       60.00    9735.16    10057.01      900.00     890.00    1000.00
X3       10
GR   1351.7    8464.49    1351.51    8472.80    1349.69    8652.71    1349.78    8673.82    1348.61    8756.93
GR   1348.3    8781.17    1348.29    8801.56    1348.63    8847.99    1347.57    8867.39    1347.83    8876.73
GR   1347.0    8888.90    1344.52    8899.15    1343.91    8907.37    1342.60    8913.09    1347.93    8929.97
GR   1347.4    8947.12    1346.13    9004.70    1347.89    9012.84    1348.26    9028.93    1347.91    9055.96
GR   1347.7    9067.71    1346.77    9074.32    1346.50    9123.37    1346.55    9187.96    1346.08    9257.25
GR   1346.1    9263.81    1345.49    9334.96    1344.19    9436.51    1343.84    9471.48    1343.67    9541.61
GR   1343.5    9567.08    1344.26    9614.64    1339.61    9631.52    1337.97    9657.39    1340.24    9675.69
GR   1340.1    9735.16    1337.04    9760.57    1338.11    9786.05    1336.76    9801.56    1335.73    9857.56
GR   1337.7    9907.45    1335.14    9949.64    1333.64   10000.00    1333.69   10037.09    1342.68   10057.01
GR   1343.2   10238.20    1342.68   10352.19    1342.64   10376.59    1342.91   10452.18    1342.25   10551.85
GR   1342.1   10627.11    1342.21   10677.42    1342.49   10761.98    1343.26   10826.87    1343.27   10843.69
GR   1342.4   10926.33    1342.48   10978.26    1342.86   11052.20    1342.79   11078.53    1343.16   11154.04

  MOVED CORPS SECTION 15.519


X1   15.506       59.00     9583.6    10049.31      871.00     891.00     911.00
GR   1350.0    9130.00    1349.44    9171.07    1350.54    9182.01    1350.66    9202.41    1347.15    9217.14
GR   1347.3    9223.91    1349.18    9232.83    1350.84    9248.80    1350.14    9280.76    1350.43    9287.50
GR   1349.5    9305.29    1349.40    9315.08    1349.84    9338.82    1349.61    9343.51    1349.38    9374.47
GR   1349.7    9389.56    1348.85    9428.85    1348.12    9450.68    1347.86    9477.02    1346.09    9513.68
GR   1347.7    9533.28    1347.34    9555.18    1347.14    9572.45    1342.22    9583.60    1341.34    9599.78
GR   1341.6    9636.79    1341.32    9678.54    1339.53    9685.93    1336.71    9702.65    1337.26    9725.18
GR   1337.4    9762.02    1338.00    9814.88    1337.80    9845.64    1338.23    9921.79    1337.81    9955.94
GR   1336.1    9971.61    1335.51   10012.16    1344.94   10049.31    1343.76   10065.07    1341.35   10073.20
GR   1341.6   10095.56    1345.28   10114.17    1345.62   10162.54    1345.24   10212.26    1345.49   10228.33
GR   1346.5   10254.16    1346.56   10278.85    1346.52   10310.77    1347.06   10414.90    1346.99   10431.44
GR   1347.4   10531.31    1348.24   10614.89    1347.71   10712.84    1347.39   10803.97    1347.31   10830.24
GR   1346.6   10979.95    1346.66   11008.75    1348.16   11044.31    1348.00   11056.79


X1   15.699       51.00    9838.14    10057.68     1004.00     989.00    1019.00
GR   1357.8    9294.63    1357.18    9382.00    1356.18    9404.08    1353.62    9413.31    1355.37    9423.79
GR   1356.2    9445.86    1355.86    9485.88    1355.33    9573.79    1355.32    9586.67    1354.24    9623.78
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GR   1353.4    9684.70   1353.65    9704.79   1353.35    9758.40   1353.25    9773.37   1350.58    9780.33
GR   1348.9    9787.61   1344.92    9801.35   1345.84    9812.79   1349.39    9838.14   1348.42    9870.89
GR   1344.9    9896.59   1345.54    9925.79   1344.56    9985.00   1345.17   10011.60   1345.49   10035.50
GR   1349.7   10057.68   1348.74   10067.78   1349.47   10086.36   1349.17   10107.77   1351.14   10147.74
GR   1351.1   10180.81   1349.62   10270.66   1348.85   10296.67   1350.51   10326.41   1351.69   10339.43
GR   1349.6   10419.89   1348.33   10474.04   1350.09   10495.52   1349.67   10553.48   1349.34   10580.45
GR   1349.5   10595.12   1348.47   10678.67   1348.26   10684.54   1347.08   10767.98   1346.42   10783.55
GR   1349.5   10794.80   1353.10   10806.43   1353.63   10890.74   1353.87   10984.55   1354.58   11083.58
GR   1354.5   11100.01
1
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QT        1    2350.00

X1   15.966      49.00   9697.82   10153.85   1450.00    1200.00   1410.00
GR   1364.6    8803.71   1363.92    8858.64   1363.40    8930.26   1363.36    8981.35   1363.04    9077.11
GR   1362.6    9107.52   1362.11    9166.44   1361.40    9212.48   1360.34    9317.45   1360.44    9395.39
GR   1359.5    9474.97   1358.94    9599.89   1358.93    9615.07   1357.42    9618.57   1358.95    9624.43
GR   1358.6    9662.18   1359.10    9697.82   1353.46    9714.88   1358.90    9731.13   1358.21    9750.01
GR   1355.4    9768.33   1355.12    9800.44   1355.85    9809.20   1356.22    9832.96   1353.69    9862.72
GR   1355.6    9934.10   1354.00    9949.05   1351.84   10000.00   1356.10   10022.16   1356.70   10077.24
GR   1355.7   10102.69   1356.62   10119.29   1356.72   10153.85   1357.74   10167.67   1357.77   10179.16
GR   1356.0   10276.04   1354.72   10282.19   1354.06   10316.99   1357.75   10332.42   1354.40   10369.79
GR   1360.1   10389.77   1360.53   10400.65   1360.90   10554.12   1360.95   10626.14   1361.13   10708.32
GR   1361.4   10758.56   1361.58   10785.80   1361.51   10832.49   1361.23   10876.66

  ADDED STA 10125

X1   16.066         60   9745.57   10125.00    565.00     480.00    570.00
GR   1368.8    8772.49   1367.91    8866.84   1367.20    8906.41   1367.03    9007.86   1366.60    9081.51
GR   1366.1    9128.64   1365.08    9215.30   1364.57    9296.22   1363.38    9380.44   1363.04    9417.94
GR   1363.5    9463.39   1363.10    9524.88   1362.18    9546.14   1361.42    9583.36   1358.27    9598.81
GR   1359.3    9604.63   1359.35    9613.54   1358.86    9634.17   1358.05    9649.10   1360.07    9664.39
GR   1361.1    9679.01   1361.05    9686.77   1359.84    9709.52   1360.88    9736.10   1360.66    9745.57
GR   1356.7    9759.97   1355.87    9784.07   1356.38    9791.10   1358.19    9832.99   1359.68    9850.83
GR   1357.9    9906.63   1358.91    9914.54   1357.80    9927.13   1358.94    9940.31   1359.73    9982.54
GR   1354.4   10000.00   1357.24   10017.40   1357.22   10032.34   1359.30   10057.91   1359.74   10073.96
GR   1359.5   10113.48   1359.90   10125.00   1360.12   10156.35   1360.91   10175.37   1359.58   10203.84
GR   1358.4   10218.23    1357.8   10233.04   1357.58   10264.16   1354.63   10288.59   1358.50   10365.15
GR   1356.4   10430.62    1360.5   10455.33   1361.31   10479.14   1361.89   10520.47   1362.27   10529.56
GR   1362.7   10575.64    1363.6   10658.99   1363.80   10691.58   1363.92   10778.20   1364.08   10889.77

X1   16.167      45.00   9900.11   10077.88    530.00     530.00    530.00
GR   1373.8    8675.00   1373.46    8712.70   1373.12    8770.73   1371.96    8857.49   1370.68    8949.38
GR   1370.4    9103.19   1368.64    9201.68   1368.20    9287.71   1368.09    9417.14   1366.39    9632.59
GR   1365.8    9740.33   1365.21    9795.77   1365.02    9859.36   1364.28    9900.11   1360.34    9918.75
GR   1360.0    9958.46   1360.72    9983.59   1358.98   10005.76   1363.49   10033.48   1362.35   10077.88
GR   1361.9   10107.27   1361.08   10125.89   1363.40   10147.81   1363.36   10161.08   1363.72   10187.34
GR   1364.0   10190.97   1363.05   10215.38   1362.94   10236.86   1363.28   10267.76   1361.99   10356.63
GR   1361.4   10386.59   1362.61   10415.86   1361.88   10437.85   1359.11   10468.61   1360.31   10504.24
GR   1357.6   10525.16   1364.83   10548.47   1364.65   10598.82   1362.48   10615.75   1360.59   10635.66
GR   1364.2   10661.51   1364.79   10707.32   1361.52   10755.37   1366.85   10775.20   1366.50   10800.44

X1   16.248      51.00   9957.43   10057.86    450.00     340.00    430.00
GR   1373.8    8929.89   1373.03    9039.11   1373.18    9078.71   1371.36    9204.99   1370.73    9268.70
GR   1370.6    9353.53   1370.58    9421.45   1369.86    9478.31   1369.56    9539.01   1369.31    9563.12
GR   1367.7    9629.78   1367.91    9670.50   1365.93    9686.92   1368.11    9701.38   1367.95    9738.42
GR   1366.5    9747.22   1367.35    9764.28   1366.79    9878.48   1366.86    9947.02   1361.19    9957.43
GR   1360.2    9992.00   1363.10   10034.92   1364.02   10057.86   1364.29   10071.03   1365.40   10164.01
GR   1363.5   10192.65   1365.07   10228.71   1365.31   10253.52   1361.33   10273.93   1363.88   10296.34
GR   1362.7   10314.86   1365.85   10329.02   1365.68   10363.06   1364.42   10406.01   1365.60   10427.20
1
    18FEB99      08:36:32                                                                          PAGE   20

GR   1364.3   10446.00   1363.73   10466.47   1365.10   10475.95   1365.33   10484.17   1364.11   10494.07
GR   1365.5   10505.40   1364.79   10544.69   1365.25   10583.37   1363.26   10604.84   1362.54   10624.69
GR   1361.5   10638.50   1367.47   10664.63   1366.99   10740.80   1367.36   10804.88   1367.25   10821.88
GR   1366.5   10831.32

X1   16.328      39.00   9900.83   10236.68    440.00     250.00    410.00
GR   1374.7    8934.01   1374.32    9047.42   1374.03    9088.99   1373.27    9138.59   1373.44    9155.00
GR   1373.0    9213.23   1372.97    9262.62   1372.08    9370.24   1371.34    9444.24   1370.75    9521.26
GR   1370.3    9585.45   1369.96    9685.81   1369.74    9717.60   1369.51    9743.16   1364.90    9761.75
GR   1366.7    9783.29   1367.06    9795.52   1366.85    9868.87   1366.93    9900.83   1363.81    9917.19
GR   1365.3    9941.02   1364.02    9968.74   1362.60   10010.00   1364.96   10050.34   1365.59   10099.97
GR   1365.8   10129.81   1366.98   10157.41   1367.61   10184.26   1367.77   10236.68   1367.06   10278.40
GR   1364.6   10293.06   1368.32   10318.66   1366.61   10345.50   1363.65   10360.13   1364.70   10366.36
GR   1368.9   10380.82   1367.56   10424.04   1368.01   10446.38   1368.74   10532.04

X1   16.411      76.00   9876.84   10044.45    510.00     350.00    450.00
X3        10
GR   1373.0    9223.86   1372.98    9228.12   1372.88    9238.11   1372.74    9257.53   1372.07    9340.57
GR   1371.4    9428.37   1371.07    9452.99   1371.08    9460.90   1371.10    9476.27   1370.90    9538.60
GR   1371.4    9569.87   1370.94    9582.75   1371.07    9624.62   1371.17    9635.44   1371.39    9639.59
GR   1371.4    9639.67   1371.55    9642.19   1371.45    9642.69   1371.16    9645.85   1370.12    9651.09
GR   1368.2    9659.28   1367.98    9668.71   1367.73    9677.04   1367.66    9679.18   1367.64    9680.43
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GR	1367.5	9691.66	1367.46	9698.63	1368.21	9705.94	1368.59	9711.62	1368.97	9716.55
GR	1369.4	9721.48	1369.40	9735.40	1369.51	9752.09	1369.62	9780.92	1369.65	9790.33
GR	1369.5	9876.84	1369.46	9891.31	1368.86	9900.51	1368.60	9904.21	1368.53	9905.19
GR	1367.5	9924.59	1366.46	9945.29	1366.13	9953.56	1365.29	9975.54	1365.18	9978.90
GR	1365.0	9991.56	1364.58	10013.82	1364.41	10022.71	1364.27	10030.00	1369.30	10039.67
GR	1371.4	10043.83	1371.45	10044.45	1371.35	10095.80	1371.29	10124.59	1371.29	10126.85
GR	1371.3	10127.53	1371.29	10127.64	1371.29	10127.96	1371.28	10128.37	1371.29	10129.67
GR	1370.9	10189.72	1370.61	10196.89	1370.60	10197.34	1370.32	10199.28	1367.85	10216.22
GR	1367.6	10218.17	1368.63	10224.76	1369.82	10237.22	1369.89	10243.35	1370.26	10249.59
GR	1370.5	10255.82	1370.69	10260.05	1370.74	10281.20	1370.54	10293.01	1370.50	10309.89
GR	1370.5	10322.42								

X1	16.504	69.00	9881.12	10077.88	460.00	300.00	490.00
X3	10						

GR	1377.9	8925.65	1377.58	8954.73	1376.72	9019.98	1376.62	9028.35	1376.48	9043.57
GR	1375.8	9134.13	1375.45	9175.57	1374.98	9248.24	1374.98	9251.00	1374.56	9350.63
GR	1374.3	9374.74	1374.06	9399.84	1373.99	9404.40	1373.99	9405.05	1374.00	9405.55
GR	1374.0	9406.67	1374.02	9408.16	1373.95	9434.31	1373.96	9447.20	1373.96	9452.54
GR	1374.0	9476.58	1374.17	9543.67	1374.31	9590.73	1374.09	9624.22	1374.23	9645.24
GR	1374.3	9647.80	1374.35	9653.27	1374.00	9670.32	1374.00	9671.76	1373.83	9672.29
GR	1369.5	9686.66	1369.65	9688.47	1370.41	9697.42	1371.80	9706.64	1373.43	9718.30
GR	1373.0	9729.77	1372.62	9750.13	1372.61	9750.33	1372.64	9750.96	1372.69	9794.14
GR	1372.8	9806.61	1372.86	9810.14	1372.90	9815.58	1372.92	9818.32	1372.55	9822.19
GR	1370.5	9840.78	1370.82	9848.90	1371.41	9861.47	1371.72	9867.69	1371.80	9870.05
GR	1371.1	9875.11	1370.28	9881.12	1369.90	9884.12	1369.86	9896.18	1369.80	9901.88
GR	1369.2	9933.18	1368.17	9978.39	1367.53	10004.10	1366.99	10027.02	1366.89	10030.00
GR	1367.2	10041.54	1367.78	10062.76	1369.44	10066.46	1373.87	10077.88	1373.37	10101.92
GR	1373.3	10104.39	1374.39	10120.99	1374.45	10122.19	1374.27	10133.96		

1

X1	16.608	87.0	9819.07	10042.2	485.00	450.00	530.00
X3	10						

GR	1382.1	8857.46	1382.13	8865.57	1382.23	8871.34	1381.99	8872.87	1381.78	8875.43
GR	1381.5	8877.83	1381.06	8885.78	1381.22	8890.37	1381.24	8890.79	1381.33	8892.90
GR	1381.9	8900.42	1381.80	8913.68	1381.58	8927.84	1381.19	8930.40	1379.80	8939.52
GR	1380.5	8943.79	1381.37	8949.97	1381.32	8951.64	1381.23	8955.17	1380.90	8989.41
GR	1380.7	9028.58	1380.26	9064.73	1379.90	9154.19	1379.75	9178.52	1379.75	9185.72
GR	1379.6	9199.00	1379.06	9259.47	1378.93	9292.29	1378.61	9333.22	1377.96	9406.05
GR	1377.9	9408.63	1377.41	9480.73	1377.06	9519.86	1376.91	9554.47	1376.89	9618.23
GR	1376.9	9633.65	1376.77	9699.36	1376.98	9740.39	1377.17	9771.04	1377.26	9775.79
GR	1377.3	9780.57	1377.27	9787.55	1377.28	9796.91	1377.23	9802.00	1377.06	9818.05
GR	1377.1	9819.07	1373.42	9832.69	1371.67	9838.45	1371.60	9843.02	1371.33	9850.30
GR	1371.2	9853.48	1371.87	9886.36	1371.82	9889.17	1371.83	9891.72	1372.17	9901.02
GR	1370.4	9909.72	1369.70	9912.80	1369.52	9914.23	1368.88	9918.79	1369.27	9922.16
GR	1369.7	9927.57	1370.52	9935.27	1371.21	9943.78	1371.49	9964.01	1371.62	9974.05
GR	1370.8	9982.91	1368.54	10005.00	1368.66	10006.09	1368.71	10006.47	1369.84	10014.62
GR	1370.4	10019.36	1371.11	10024.67	1372.82	10036.62	1373.08	10038.41	1373.62	10042.20
GR	1373.7	10047.84	1373.48	10060.74	1373.21	10066.14	1372.48	10073.69	1371.35	10083.94
GR	1371.0	10087.86	1370.93	10089.62	1370.13	10094.99	1370.97	10099.81	1372.83	10106.61
GR	1373.7	10110.59	1374.03	10113.41						

X1	16.732	93.00	9875.39	10046.16	640.00	420.00	685.00
X3	10						

GR	1387.1	9124.64	1386.21	9177.30	1385.91	9195.11	1385.59	9225.14	1385.04	9268.07
GR	1384.8	9293.40	1384.39	9324.36	1384.41	9328.79	1384.25	9354.58	1384.23	9356.39
GR	1384.0	9357.74	1382.66	9365.43	1383.13	9368.02	1384.31	9374.66	1384.16	9392.81
GR	1384.1	9403.62	1384.06	9406.55	1384.02	9408.29	1383.98	9409.59	1383.83	9421.95
GR	1382.9	9487.14	1382.62	9525.62	1382.31	9560.18	1381.83	9618.74	1381.68	9633.21
GR	1381.6	9641.75	1380.94	9706.23	1380.48	9757.84	1380.33	9774.15	1380.32	9775.71
GR	1380.3	9779.34	1380.36	9782.88	1380.13	9805.47	1380.12	9810.26	1380.10	9813.42
GR	1380.1	9836.20	1380.07	9871.53	1379.92	9872.21	1379.90	9873.23	1379.89	9873.98
GR	1379.9	9875.39	1379.87	9876.55	1379.85	9877.46	1379.83	9878.10	1378.19	9882.57
GR	1373.1	9902.92	1373.11	9903.50	1373.15	9905.22	1373.54	9920.99	1373.81	9927.30
GR	1375.8	9964.79	1376.00	9969.85	1376.38	9977.28	1373.49	9996.06	1372.93	10000.00
GR	1373.4	10003.81	1375.42	10018.75	1374.55	10024.76	1373.99	10030.08	1376.94	10046.16
GR	1378.1	10052.49	1378.18	10056.15	1378.23	10058.17	1378.40	10068.80	1378.94	10085.52
GR	1379.1	10089.78	1378.77	10100.16	1378.62	10105.79	1378.28	10122.43	1377.31	10141.98
GR	1378.4	10168.08	1379.03	10191.45	1379.04	10192.88	1379.26	10221.05	1379.26	10222.68
GR	1379.3	10227.60	1379.18	10242.45	1378.19	10246.58	1376.60	10252.70	1376.62	10254.49
GR	1376.6	10255.87	1376.65	10257.50	1376.97	10287.04	1377.08	10295.55	1377.20	10304.95
GR	1377.2	10310.91	1377.13	10318.01	1376.45	10352.95	1376.01	10398.13	1375.82	10409.80
GR	1376.6	10414.13	1379.34	10429.60	1378.69	10451.67				

X1	16.818	76.00	9890.87	10084.4	430.00	750.00	455.00

GR	1386.3	9368.72	1386.31	9373.42	1386.32	9383.92	1386.27	9400.71	1385.74	9449.63
GR	1385.1	9516.71	1383.71	9624.93	1383.60	9634.21	1383.57	9636.26	1383.54	9639.96
GR	1382.6	9751.70	1382.64	9778.62	1382.77	9800.20	1382.45	9801.00	1382.04	9803.60
GR	1382.2	9804.12	1382.92	9807.44	1387.05	9825.73	1390.32	9835.58	1387.05	9842.98
GR	1381.8	9858.11	1379.92	9863.70	1379.68	9864.81	1380.17	9867.81	1380.81	9876.00
GR	1380.9	9876.58	1380.85	9876.75	1380.81	9877.29	1379.69	9886.29	1379.60	9890.87
GR	1379.5	9894.37	1379.10	9897.73	1379.08	9901.74	1379.10	9905.76	1379.15	9908.37

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GR	1378.8	9914.12	1378.74	9917.88	1378.42	9921.17	1377.92	9925.40	1377.63	9927.37
GR	1376.9	9937.00	1376.66	9946.61	1375.75	9988.86	1375.46	10010.05	1375.47	10014.10
GR	1375.2	10023.74	1375.00	10035.00	1377.56	10057.56	1378.84	10068.25	1379.04	10077.77

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GR   1379.1   10079.35   1379.07   10079.86   1379.10   10080.84   1379.34   10084.40   1379.49   10088.34
GR   1379.6   10089.50   1378.86   10109.00   1378.77   10112.68   1378.39   10138.42   1377.91   10147.36
GR   1377.3   10155.06   1377.30   10155.16   1380.14   10171.98   1379.88   10183.83   1379.70   10193.69
GR   1379.8   10197.38   1380.23   10219.01   1380.25   10236.00   1380.33   10244.00   1380.36   10246.97
GR   1380.3   10247.71   1380.46   10281.11   1380.54   10289.81   1380.58   10297.31   1380.38   10305.36
GR   1380.0   10314.84
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF 1
0

CCHV=     .200 CEHV=     .400
*SECNO 8.655

3265 DIVIDED FLOW

3280 CROSS SECTION      8.65 EXTENDED      1.34 FEET

     8.655     17.88   1170.38       .00   1170.38   1170.72       .34       .00       .00   1169.86
   41000.0      42.2   40904.8      53.0     106.0    8677.3     100.3        .0        .0   1168.79
      .00       .40      4.71       .53      .045      .035      .045      .000   1152.50   9319.96
   .000334       0.        0.        0.         0         0         0       .00    929.15  10332.00


FLOW DISTRIBUTION FOR SECNO=      8.65          CWSEL=   1170.38

STA=    9320.    9530.   10104.   10332.
  PER Q=       .1      99.8        .1
   AREA=    106.0    8677.3     100.3
    VEL=       .4       4.7        .5
  DEPTH=       .5      15.1        .4

CCHV=     .100 CEHV=     .300
*SECNO 8.731

3265 DIVIDED FLOW

3280 CROSS SECTION      8.73 EXTENDED      1.25 FEET

     8.731     17.20   1170.79       .00       .00   1170.80       .02       .04       .03   1156.95
   12000.0    4457.7    7530.9      11.3    5074.3    6892.9      96.3      96.2       8.6   1169.55
      .11       .88      1.09       .12      .045      .035      .045      .000   1153.59   9334.06
   .000018      400.      400.      400.         2         0         0       .00    936.96  10366.79


FLOW DISTRIBUTION FOR SECNO=      8.73          CWSEL=   1170.79

STA=    9334.    9386.    9415.    9453.    9485.    9510.    9556.    9601.    9635.    9669.   10133.   10367.
  PER Q=       3.3      3.4      4.7      4.2      3.3      5.7      5.3      3.8      3.4     62.8       .1
   AREA=    553.6    457.9    619.7    535.7    424.8    757.5    710.5    524.0    490.4   6892.9     96.3
    VEL=       .7       .9       .9       .9       .9       .9       .9       .9       .8      1.1        .1
  DEPTH=      10.7     15.7     16.2     16.9     17.1     16.4     15.8     15.4     14.5     14.9        .4
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*SECNO 8.807

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .26

     8.807     12.65   1170.69       .00       .00   1170.87       .18       .02       .05   1172.65
   12000.0        .0   11986.9      13.1        .0    3472.2      28.5     167.6      14.5   1169.70
      .14       .00      3.45       .46      .000      .035      .045      .000   1158.04   9799.55
   .000274      400.      400.      390.         2         0         0       .00    353.03  10152.58


FLOW DISTRIBUTION FOR SECNO=      8.81          CWSEL=   1170.69

STA=    9800.   10113.   10134.   10142.   10151.   10153.
  PER Q=      99.9       .1       .0       .0       .0
   AREA=    3472.2     18.0      5.6      4.7       .2
    VEL=       3.5       .5       .4       .3       .2
  DEPTH=      11.1       .9       .7       .5       .2

*SECNO 8.883
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3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .54

8.883	11.27	1170.67	.00	.00	1171.14	.48	.19	.09	1176.79
12000.0	.0	11999.8	.2	.0	2166.3	1.1	193.6	17.3	1170.46
.16	.00	5.54	.22	.000	.035	.045	.000	1159.40	9871.91
.000952	280.	400.	400.	2	0	0	.00	255.53	10127.44

FLOW DISTRIBUTION FOR SECNO= 8.88 CWSEL= 1170.67

STA=	9872.	10117.	10127.
PER Q=	100.0	.0	
AREA=	2166.3	1.1	
VEL=	5.5	.2	
DEPTH=	8.8	.1	

*SECNO 8.936

8.936	11.06	1171.00	.00	.00	1171.43	.44	.29	.00	1174.58
12000.0	.0	11999.9	.1	.0	2262.8	.3	208.4	19.1	1170.86
.18	.00	5.30	.18	.000	.035	.045	.000	1159.94	9841.02
.001020	300.	290.	300.	2	0	0	.00	293.66	10134.68

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 8.94 CWSEL= 1171.00

STA=	9841.	10130.	10135.
PER Q=	100.0	.0	
AREA=	2262.8	.3	
VEL=	5.3	.2	
DEPTH=	7.8	.1	

*SECNO 8.977

8.977	9.83	1171.12	.00	.00	1171.75	.63	.26	.06	1175.30
12000.0	.0	12000.0	.0	.0	1891.4	.0	218.4	20.4	1172.63
.19	.00	6.34	.00	.000	.035	.000	.000	1161.29	9873.42
.001484	220.	210.	200.	2	0	0	.00	242.47	10115.89

FLOW DISTRIBUTION FOR SECNO= 8.98 CWSEL= 1171.12

STA=	9873.	10118.
PER Q=	100.0	
AREA=	1891.4	
VEL=	6.3	
DEPTH=	7.8	

*SECNO 9.009
3280 CROSS SECTION 9.01 EXTENDED 5.04 FEET

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1177.10 ELREA= 1173.37

9.009	9.57	1171.63	.00	.00	1171.97	.34	.20	.03	1177.10
12000.0	.0	12000.0	.0	.0	2567.3	.0	227.6	21.6	1173.37
.20	.00	4.67	.00	.000	.035	.000	.000	1162.06	9832.27
.000849	330.	180.	180.	2	0	0	.00	347.96	10180.22

FLOW DISTRIBUTION FOR SECNO= 9.01 CWSEL= 1171.63

STA=	9832.	10190.
PER Q=	100.0	
AREA=	2567.3	
VEL=	4.7	
DEPTH=	7.4	

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 9.047

9.047	10.22	1171.86	.00	.00	1172.13	.27	.15	.01	1177.69
12000.0	.0	12000.0	.0	.0	2881.5	.0	240.1	23.3	1174.87
.21	.00	4.16	.00	.000	.035	.000	.000	1161.64	9892.77
.000651	280.	200.	160.	2	0	0	.00	379.90	10272.67

FLOW DISTRIBUTION FOR SECNO= 9.05 CWSEL= 1171.86

```
STA=    9893.   10287.
  PER Q=    100.0
   AREA=   2881.5
    VEL=      4.2
  DEPTH=      7.6

CCHV=     .100 CEHV=     .300
*SECNO 9.129

3265 DIVIDED FLOW

     9.129      9.01   1172.17       .00       .00   1172.40       .23       .27       .00   1180.07
   12000.0        .0   11999.9        .1        .0    3109.0       1.0     269.0      27.3   1176.88
       .24       .00      3.86       .11      .000      .035      .060      .000   1163.16   9865.16
   .000616      290.      420.      460.         1         0         0       .00    454.65  10427.14


FLOW DISTRIBUTION FOR SECNO=      9.13          CWSEL=   1172.17

STA=    9865.   10331.   10427.
  PER Q=    100.0       .0
   AREA=   3109.0      1.0
    VEL=      3.9       .1
  DEPTH=      7.0       .0

CCHV=     .100 CEHV=     .300
*SECNO 9.318

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
1
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3720 CRITICAL DEPTH ASSUMED
     9.318      6.35   1174.70   1174.70       .00   1176.44      1.74      1.65       .45   1185.10
   12000.0        .0   12000.0        .0        .0    1133.6        .0     317.7      36.4   1180.57
       .27       .00     10.59       .00      .000      .035      .000      .000   1168.35   9802.05
   .012462     1000.      1000.     1000.        20        19         0       .00    338.90  10140.95


FLOW DISTRIBUTION FOR SECNO=      9.32          CWSEL=   1174.70

STA=    9802.   10152.
  PER Q=    100.0
   AREA=   1133.6
    VEL=     10.6
  DEPTH=      3.3

*SECNO 9.492

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.41

     9.492      5.97   1179.91       .00       .00   1180.33       .42      3.76       .13   1188.11
   11450.0        .0   11450.0        .0        .0    2203.3        .0     353.0      45.0   1184.43
       .32       .00      5.20       .00      .000      .035      .000      .000   1173.94   9818.44
   .001948      910.      920.      890.         5         0         0       .00    475.61  10294.05


FLOW DISTRIBUTION FOR SECNO=      9.49          CWSEL=   1179.91

STA=    9818.   10308.
  PER Q=    100.0
   AREA=   2203.3
    VEL=      5.2
  DEPTH=      4.6

CCHV=     .100 CEHV=     .300
*SECNO 9.692

3301 HV CHANGED MORE THAN HVINS

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .54
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     9.692      5.69   1182.90       .00       .00   1183.99      1.09      3.46       .20   1193.92
   11450.0        .0   11450.0        .0        .0    1369.0        .0     396.3      55.2   1190.03
      .35        .00      8.36       .00      .000      .035      .000      .000   1177.21   9939.69
   .006611     1050.     1056.     1040.         3         0         0       .00    361.19  10300.88


FLOW DISTRIBUTION FOR SECNO=      9.69          CWSEL=   1182.90

STA=    9940.   10315.
  PER Q=    100.0
   AREA=   1369.0
    VEL=      8.4
  DEPTH=      3.8

CCHV=     .300 CEHV=     .500
*SECNO 9.889

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     9.889      6.19   1191.59   1191.59       .00   1194.01      2.42      8.72       .67   1195.10
   11450.0        .0   11450.0        .0        .0     916.6        .0     423.5      61.8   1198.00
      .37        .00     12.49       .00      .000      .035      .000      .000   1185.40   9928.38
   .010982     1100.     1040.     1050.        10         8         0       .00    191.86  10120.25


FLOW DISTRIBUTION FOR SECNO=      9.89          CWSEL=   1191.59

STA=    9928.   10132.
  PER Q=    100.0
   AREA=    916.6
    VEL=     12.5
  DEPTH=      4.8

CCHV=     .300 CEHV=     .500
*SECNO 9.953
7185 MINIMUM SPECIFIC ENERGY
1
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1202.16 ELREA=      1201.10

     9.953      5.51   1194.89   1194.89       .00   1196.91      2.02      2.15       .12   1202.16
   11450.0        .0   11450.0        .0        .0    1004.4        .0     428.5      62.9   1201.10
      .38        .00     11.40       .00      .000      .030      .000      .000   1189.38   9883.76
   .008404      225.      225.      225.         2        11         0       .00    250.71  10134.46


FLOW DISTRIBUTION FOR SECNO=      9.95          CWSEL=   1194.89

STA=    9884.   10153.
  PER Q=    100.0
   AREA=   1004.4
    VEL=     11.4
  DEPTH=      4.0


SPECIAL BRIDGE

5227 DOWNSTREAM ELEV IS    1194.81 , NOT    1194.89 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

SB  XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
      .90       1.60       2.68        .00     230.00       4.70    2496.30       2.00    1191.15    1191.04

*SECNO 9.978

3301 HV CHANGED MORE THAN HVINS

CLASS B LOW FLOW

3420 BRIDGE W.S.=    1195.35 BRIDGE VELOCITY=      11.50     CALCULATED CHANNEL AREA=       982.

 EGPRS       EGLWC       H3         QWEIR      QLOW       BAREA     TRAPEZOID AREA      ELLC       ELTRD      WEIRLN
       .00    1197.45        .00         0.     11450.      2496.      2360.      1200.80    1204.70         0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1204.70 ELREA=      1204.70

     9.978      5.16   1196.06       .00       .00   1197.45      1.40       .55       .00   1204.70
   11450.0        .0   11450.0        .0        .0    1208.0        .0     432.0      63.7   1204.70
      .38        .00      9.48       .00      .000      .030      .000      .000   1190.90   9887.48
   .004932      137.      137.      137.         0         0         0       .00    266.64  10154.12
```

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 9.98 CWSEL= 1196.06

STA= 9887. 10178.
PER Q= 100.0
AREA= 1208.0
VEL= 9.5
DEPTH= 4.5

CCHV= .100 CEHV= .300
*SECNO 10.096

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1202.63 ELREA= 1203.96

10.096	5.55	1199.40	.00	.00	1200.39	1.00	2.90	.04	1202.63
11450.0	.0	11450.0	.0	.0	1430.0	.0	450.2	68.3	1203.96
.40	.00	8.01	.00	.000	.030	.000	.000	1193.85	9725.88
.004741	650.	600.	600.	3	0	0	.00	396.21	10122.08

FLOW DISTRIBUTION FOR SECNO= 10.10 CWSEL= 1199.40

STA= 9726. 10161.
PER Q= 100.0
AREA= 1430.0
VEL= 8.0
DEPTH= 3.6

*SECNO 10.271

10.271	5.52	1203.83	.00	.00	1204.69	.86	4.28	.01	1212.19
10900.0	.0	10900.0	.0	.0	1463.0	.0	480.9	77.1	1205.86
.44	.00	7.45	.00	.000	.030	.000	.000	1198.31	9869.05
.004510	920.	925.	925.	2	0	0	.00	435.08	10304.13

FLOW DISTRIBUTION FOR SECNO= 10.27 CWSEL= 1203.83

STA= 9869. 10310.
PER Q= 100.0
AREA= 1463.0
VEL= 7.5
DEPTH= 3.4

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 10.433

3301 HV CHANGED MORE THAN HVINS

10.433	4.38	1208.98	.00	.00	1210.37	1.39	5.52	.16	1210.53
10900.0	.0	10900.0	.0	.0	1151.7	.0	508.2	85.7	1211.67
.47	.00	9.46	.00	.000	.030	.000	.000	1204.60	9891.50
.008607	930.	910.	900.	3	0	0	.00	388.74	10280.24

FLOW DISTRIBUTION FOR SECNO= 10.43 CWSEL= 1208.98

STA= 9892. 10288.
PER Q= 100.0
AREA= 1151.7
VEL= 9.5
DEPTH= 3.0

*SECNO 10.612

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.52

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1221.05 ELREA= 1215.60

10.612	5.51	1214.26	.00	.00	1215.24	.98	4.83	.04	1221.05
10900.0	.0	10900.0	.0	.0	1370.4	.0	533.9	93.0	1215.60
.50	.00	7.95	.00	.000	.030	.000	.000	1208.75	9930.28
.003734	880.	890.	900.	3	0	0	.00	320.04	10250.32

FLOW DISTRIBUTION FOR SECNO= 10.61 CWSEL= 1214.26

STA= 9930. 10254.
PER Q= 100.0
AREA= 1370.4
VEL= 8.0
DEPTH= 4.3

*SECNO 10.803

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .65

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1220.07 ELREA= 1219.96

10.803	5.18	1219.28	1219.24	.00	1221.00	1.72	5.54	.22	1220.07
10900.0	.0	10900.0	.0	.0	1035.1	.0	561.8	100.2	1219.96
.52	.00	10.53	.00	.000	.030	.000	.000	1214.10	9889.13
.008813	1020.	1010.	1010.	4	10	0	.00	302.56	10191.69

FLOW DISTRIBUTION FOR SECNO= 10.80 CWSEL= 1219.28

STA= 9889. 10202.
PER Q= 100.0
AREA= 1035.1
VEL= 10.5
DEPTH= 3.4

*SECNO 10.979

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.54

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1228.47 ELREA= 1229.05

10.979	6.23	1224.82	.00	.00	1226.11	1.30	5.07	.04	1227.41
10900.0	.0	10900.0	.0	.0	1193.1	.0	585.6	105.8	1226.67
.55	.00	9.14	.00	.000	.030	.000	.000	1218.59	9885.31
.003703	870.	930.	950.	2	0	0	.00	224.41	10109.71

FLOW DISTRIBUTION FOR SECNO= 10.98 CWSEL= 1224.82

STA= 9885. 10117.
PER Q= 100.0
AREA= 1193.1
VEL= 9.1
DEPTH= 5.3

1

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.05	1.60	2.80	.00	186.22	2.00	1932.34	2.00	1219.00	1218.59

*SECNO 10.999
CLASS A LOW FLOW

3420 BRIDGE W.S.= 1224.99 BRIDGE VELOCITY= 8.95 CALCULATED CHANNEL AREA= 1175.

EGPRS	EGLWC	H3	QWEIR	QLOW	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
.00	1226.20	.07	0.	10900.	1932.	1871.	1228.23	1228.47	0.

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1229.32 ELREA= 1229.05

10.999	5.89	1224.89	.00	.00	1226.20	1.31	.09	.00	1229.32
10900.0	.0	10900.0	.0	.0	1185.8	.0	588.4	106.3	1228.88
.55	.00	9.19	.00	.000	.030	.000	.000	1219.00	9882.09

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   .003869      100.      100.      100.         0         0         0       .00    228.72  10110.81

 FLOW DISTRIBUTION FOR SECNO=     11.00          CWSEL=   1224.89

 STA=    9882.   10126.
   PER Q=    100.0
    AREA=   1185.8
     VEL=      9.2
   DEPTH=      5.2

 *SECNO 11.129

 3301 HV CHANGED MORE THAN HVINS


 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.65


 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1231.30 ELREA=      1231.76

    11.129       7.79   1227.18       .00       .00   1227.81       .64      1.55       .07   1231.30
   10900.0         .0   10900.0         .0        .0    1703.2        .0     611.6     110.3   1231.76
       .59        .00      6.40       .00      .000      .030      .000      .000   1219.39   9839.15
   .001428      680.      700.      710.         2         0         0       .00    267.30  10106.45


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     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

 FLOW DISTRIBUTION FOR SECNO=     11.13          CWSEL=   1227.18

 STA=    9839.   10118.
   PER Q=    100.0
    AREA=   1703.2
     VEL=      6.4
   DEPTH=      6.4

 *SECNO 11.188

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1232.77 ELREA=      1232.93

    11.188       8.45   1227.55       .00       .00   1228.43       .89       .54       .07   1232.77
   10350.0         .0   10350.0         .0        .0    1370.2        .0     622.9     112.1   1232.93
       .60        .00      7.55       .00      .000      .030      .000      .000   1219.10   9886.39
   .002078      310.      320.      310.         2         0         0       .00    222.05  10108.43


 FLOW DISTRIBUTION FOR SECNO=     11.19          CWSEL=   1227.55

 STA=    9886.   10128.
   PER Q=    100.0
    AREA=   1370.2
     VEL=      7.6
   DEPTH=      6.2

 *SECNO 11.301

 3301 HV CHANGED MORE THAN HVINS


 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1232.87 ELREA=      1234.82

    11.301       7.53   1228.80       .00       .00   1230.30      1.50      1.68       .19   1232.87
   10350.0         .0   10350.0         .0        .0    1051.9        .0     639.5     114.9   1234.82
       .61        .00      9.84       .00      .000      .030      .000      .000   1221.27   9903.82
   .004000      600.      600.      600.         2         0         0       .00    187.08  10090.90


 FLOW DISTRIBUTION FOR SECNO=     11.30          CWSEL=   1228.80

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     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

 STA=    9904.   10114.
   PER Q=    100.0
    AREA=   1051.9
     VEL=      9.8
   DEPTH=      5.6

 *SECNO 11.386
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3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1233.46 ELREA=      1238.40

    11.386      8.00   1231.10       .00       .00   1232.06       .96      1.70       .05   1233.46
   10350.0        .0   10350.0        .0        .0   1319.1         .0     651.8     117.1   1238.40
       .63        .00      7.85       .00      .000      .035      .000      .000   1223.10   9870.23
   .003584      440.      450.      420.         3         0         0       .00    240.44  10110.68


FLOW DISTRIBUTION FOR SECNO=     11.39          CWSEL=   1231.10

STA=    9870.   10134.
  PER Q=    100.0
   AREA=   1319.1
    VEL=      7.8
  DEPTH=      5.5

*SECNO 11.481

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1236.77 ELREA=      1240.19

    11.481      8.11   1232.92       .00       .00   1233.63       .72      1.55       .02   1236.77
   10350.0        .0   10350.0        .0        .0   1523.0         .0     668.7     120.1   1240.19
       .65        .00      6.80       .00      .000      .035      .000      .000   1224.81   9859.00
   .002515      480.      520.      540.         2         0         0       .00    264.94  10123.94


FLOW DISTRIBUTION FOR SECNO=     11.48          CWSEL=   1232.92

STA=    9859.   10215.
  PER Q=    100.0
   AREA=   1523.0
    VEL=      6.8
  DEPTH=      5.7

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


*SECNO 11.566

3265 DIVIDED FLOW

    11.566      5.91   1234.23       .00       .00   1234.53       .30       .85       .04   1240.00
   10350.0        .0   10350.0        .0        .0   2373.8         .0     689.3     124.3   1243.30
       .68        .00      4.36       .00      .000      .035      .000      .000   1228.32   9351.74
   .001419      280.      460.      530.         2         0         0       .00    525.36  10039.30


FLOW DISTRIBUTION FOR SECNO=     11.57          CWSEL=   1234.23

STA=    9352.   10060.
  PER Q=    100.0
   AREA=   2373.8
    VEL=      4.4
  DEPTH=      4.5

*SECNO 11.759

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    11.759      4.95   1236.97   1236.97       .00   1238.22      1.26      3.33       .29   1243.77
   10350.0        .0   10350.0        .0        .0   1150.8         .0     730.6     136.0   1246.50
       .71        .00      8.99       .00      .000      .035      .000      .000   1232.02   9455.03
   .013910     1050.     1020.      980.         4        15         0       .00    475.20  10110.09


FLOW DISTRIBUTION FOR SECNO=     11.76          CWSEL=   1236.97

STA=    9455.   10133.
  PER Q=    100.0
   AREA=   1150.8
    VEL=      9.0
  DEPTH=      2.4

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   18FEB99      08:36:32                                                                    PAGE   37

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
```

TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 11.949

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.92

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1248.70 ELREA= 1242.65

11.949	5.33	1244.23	.00	.00	1244.82	.59	6.54	.07	1248.70
10350.0	.0	10082.6	267.4	.0	1614.6	141.2	763.9	148.0	1242.65
.76	.00	6.24	1.89	.000	.035	.060	.000	1238.90	9782.60
.003782	990.	1000.	1000.	5	0	0	.00	565.31	10396.78

FLOW DISTRIBUTION FOR SECNO= 11.95 CWSEL= 1244.23

STA=	9783.	10236.	10261.	10319.	10367.	10388.	10397.
PER Q=	97.4	.6	.3	.3	1.2	.2	
AREA=	1614.6	33.5	29.7	19.5	47.5	11.0	
VEL=	6.2	1.8	1.0	1.6	2.7	1.7	
DEPTH=	3.7	1.3	.5	.4	2.3	1.2	

*SECNO 12.125

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1254.31 ELREA= 1254.40

12.125	3.93	1248.58	.00	.00	1249.38	.80	4.50	.06	1254.31
10350.0	.0	10350.0	.0	.0	1444.8	.0	798.2	159.1	1254.40
.79	.00	7.16	.00	.000	.035	.000	.000	1244.65	9838.71
.006382	910.	930.	1000.	4	0	0	.00	470.40	10309.12

FLOW DISTRIBUTION FOR SECNO= 12.13 CWSEL= 1248.58

STA=	9839.	10336.
PER Q=	100.0	
AREA=	1444.8	
VEL=	7.2	
DEPTH=	3.1	

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 12.313

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .70

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1258.50 ELREA= 1258.14

12.313	5.87	1256.34	1256.27	.00	1257.92	1.58	8.30	.23	1258.50
9800.0	.0	9800.0	.0	.0	972.4	.0	825.7	167.9	1258.14
.82	.00	10.08	.00	.000	.035	.000	.000	1250.47	9943.17
.011736	1010.	990.	980.	10	14	0	.00	298.08	10241.25

FLOW DISTRIBUTION FOR SECNO= 12.31 CWSEL= 1256.34

STA=	9943.	10248.
PER Q=	100.0	
AREA=	972.4	
VEL=	10.1	
DEPTH=	3.3	

*SECNO 12.511

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.84

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1263.00 ELREA= 1264.63

```
    12.511      8.75   1263.55       .00       .00   1264.15       .61      6.14       .10   1263.00
    9800.0      90.4    9709.6        .0      90.5    1546.1        .0     857.3     178.1   1264.63
       .87      1.00      6.28       .00      .060      .035      .000      .000   1254.80   9496.97
   .003460     1000.     1056.     1020.         4         0         0       .00    559.26  10256.28


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     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 FLOW DISTRIBUTION FOR SECNO=     12.51          CWSEL=   1263.55

 STA=    9497.    9730.    9798.    9830.   10297.
   PER Q=       .3       .5       .1     99.1
    AREA=     32.7     43.6     14.3   1546.1
     VEL=       .9      1.1       .8      6.3
   DEPTH=       .1       .6       .4      4.0

 *SECNO 12.701

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1271.92 ELREA=      1269.00

    12.701      7.74   1267.84       .00       .00   1268.72       .88      4.48       .08   1271.92
    9800.0        .0    9800.0        .0        .0    1299.5        .0     891.0     188.9   1269.00
       .90       .00      7.54       .00      .000      .035      .000      .000   1260.10   9760.41
   .006042     1030.     1000.     1020.         3         0         0       .00    374.87  10135.28


 FLOW DISTRIBUTION FOR SECNO=     12.70          CWSEL=   1267.84

 STA=    9760.   10268.
   PER Q=    100.0
    AREA=   1299.5
     VEL=      7.5
   DEPTH=      3.5

 *SECNO 12.896

 3301 HV CHANGED MORE THAN HVINS


 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.50


 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1278.41 ELREA=      1273.00

    12.896      8.06   1270.56       .00       .00   1270.81       .26      2.03       .06   1278.41
    9800.0        .0    9800.0        .0        .0    2411.3        .0     934.9     198.6   1273.00
       .97       .00      4.06       .00      .000      .035      .000      .000   1262.50   9865.93
   .000964     1010.     1030.     1010.         4         0         0       .00    442.78  10308.71


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     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 FLOW DISTRIBUTION FOR SECNO=     12.90          CWSEL=   1270.56

 STA=    9866.   10345.
   PER Q=    100.0
    AREA=   2411.3
     VEL=      4.1
   DEPTH=      5.4

 *SECNO 13.076

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1279.35 ELREA=      1272.00

    13.076      8.86   1271.23       .00       .00   1271.35       .12       .52       .01   1279.35
    7900.0        .0    7900.0        .0        .0    2830.3        .0     992.0     207.8   1272.00
      1.07       .00      2.79       .00      .000      .035      .000      .000   1262.37   9685.33
   .000326      950.      950.      980.         3         0         0       .00    403.96  10089.29


 FLOW DISTRIBUTION FOR SECNO=     13.08          CWSEL=   1271.23

 STA=    9685.   10103.
   PER Q=    100.0
    AREA=   2830.3
     VEL=      2.8
   DEPTH=      7.0
```

*SECNO 13.277

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

13.277	4.13	1279.02	1279.02	.00	1280.58	1.57	.77	.43	1282.54
7900.0	.0	7900.0	.0	.0	786.3	.0	1025.2	213.9	1288.90
1.09	.00	10.05	.00	.000	.035	.000	.000	1274.89	9950.33
.012568	800.	800.	670.	20	14	0	.00	255.51	10205.84

FLOW DISTRIBUTION FOR SECNO= 13.28 CWSEL= 1279.02

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

STA= 9950. 10240.
PER Q= 100.0
AREA= 786.3
VEL= 10.0
DEPTH= 3.1

*SECNO 13.420

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1288.33 ELREA= 1289.98

13.420	8.17	1285.60	.00	.00	1286.38	.78	5.71	.08	1288.33
7900.0	.0	7900.0	.0	.0	1118.1	.0	1047.5	219.4	1289.98
1.13	.00	7.07	.00	.000	.035	.000	.000	1277.43	9853.99
.003155	970.	1020.	1000.	4	0	0	.00	217.46	10071.45

FLOW DISTRIBUTION FOR SECNO= 13.42 CWSEL= 1285.60

STA= 9854. 10081.
PER Q= 100.0
AREA= 1118.1
VEL= 7.1
DEPTH= 5.1

*SECNO 13.619

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.47

13.619	4.90	1288.37	.00	.00	1288.61	.24	2.18	.05	1294.77
7900.0	.0	7900.0	.0	.0	2009.6	.0	1085.4	228.5	1291.19
1.21	.00	3.93	.00	.000	.035	.000	.000	1283.47	9796.56
.001460	1090.	1056.	1020.	5	0	0	.00	531.56	10328.12

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 13.62 CWSEL= 1288.37

STA= 9797. 10336.
PER Q= 100.0
AREA= 2009.6
VEL= 3.9
DEPTH= 3.8

*SECNO 13.818

3265 DIVIDED FLOW

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1290.76 ELREA= 1288.00

13.818	2.36	1290.36	.00	.00	1290.50	.14	1.88	.01	1290.76
7900.0	.0	4162.3	3737.7	.0	1184.3	1692.7	1144.6	252.7	1288.00

```
      1.31       .00      3.51      2.21       .000       .035       .050       .000   1288.00   9823.63
    .002216     1050.     1056.     1050.          1          0          0        .00   1471.66  11398.81


 FLOW DISTRIBUTION FOR SECNO=     13.82          CWSEL=   1290.36

 STA=    9824.   10331.   10465.   10699.   10864.   10910.   10999.   11085.   11269.   11399.
   PER Q=     52.7      9.9      4.8     14.1      3.4      5.9      3.4      3.4      2.4
    AREA=   1184.3    315.6    197.6    424.8    108.3    197.2    134.8    186.1    128.2
     VEL=      3.5      2.5      1.9      2.6      2.5      2.4      2.0      1.4      1.5
   DEPTH=      2.3      2.4       .8      2.6      2.4      2.2      1.6      1.0      1.0

 *SECNO 14.013

 3265 DIVIDED FLOW


 3301 HV CHANGED MORE THAN HVINS

 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
    14.013      5.83   1301.63   1301.63       .00   1302.93      1.31      4.02       .35   1305.60
    6100.0        .0    6059.1      40.9        .0     658.3      24.9    1187.1     274.3   1303.66
      1.34       .00      9.20      1.64       .000       .035       .050       .000   1295.80   9809.34
    .011528     1020.     1030.     1055.         20         20          0        .00    330.46  10759.09


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     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


 FLOW DISTRIBUTION FOR SECNO=     14.01          CWSEL=   1301.63

 STA=    9809.   10046.   10337.   10485.   10497.   10508.   10546.   10548.   10759.
   PER Q=     99.3       .1       .0       .3       .2       .1       .0       .0
    AREA=    658.3      4.9      1.0      7.5      5.3      5.3       .5       .2
     VEL=      9.2       .7       .6      2.3      2.0      1.5      1.4       .7
   DEPTH=      2.9       .0       .0       .6       .5       .1       .3       .0

 *SECNO 14.197

 3265 DIVIDED FLOW


 3301 HV CHANGED MORE THAN HVINS


 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.60

    14.197      7.32   1309.22       .00        .00   1309.60       .38      6.57       .09   1309.62
    6100.0      62.2    4618.9    1418.9       40.7     846.0     497.9    1209.9     286.6   1310.80
      1.39      1.53      5.46      2.85       .050       .035       .050       .000   1301.90   9773.30
    .004494      990.      970.      920.          7          0          0        .00    798.20  11310.21


 FLOW DISTRIBUTION FOR SECNO=     14.20          CWSEL=   1309.22

 STA=    9773.    9879.   10263.   10552.   10901.   10942.   10971.   11069.   11310.
   PER Q=      1.0     75.7      5.1      4.2      7.1      3.4      3.2       .3
    AREA=     40.7    846.0    112.1    137.9    110.7     63.4     60.2     13.7
     VEL=      1.5      5.5      2.8      1.8      3.9      3.3      3.2      1.4
   DEPTH=       .4      2.7       .4       .4      2.7      2.1       .6       .1

 *SECNO 14.379

 3265 DIVIDED FLOW

    14.379      6.10   1314.10       .00        .00   1314.60       .51      4.97       .04   1316.30
    6100.0        .0    4125.9    1974.1         .0     621.3     675.2    1240.0     306.9   1312.77
      1.44       .00      6.64      2.92       .000       .035       .050       .000   1308.00   9642.42
    .005887      940.      960.     1000.          3          0          0        .00    996.37  11306.89


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     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


 FLOW DISTRIBUTION FOR SECNO=     14.38          CWSEL=   1314.10

 STA=    9642.   10107.   10174.   10404.   10442.   10819.   10918.   10962.   11307.
   PER Q=     67.6      3.0      4.2      3.7      5.3      3.7     11.1      1.4
    AREA=    621.3     75.6    130.5     67.0    139.9     83.9    138.0     40.2
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    VEL=      6.6      2.5      2.0      3.3      2.3      2.7      4.9      2.1
  DEPTH=      3.0      1.1       .6      1.8       .4       .9      3.1       .1

*SECNO 14.559

3265 DIVIDED FLOW

    14.559     4.52  1319.59      .00      .00  1320.00      .41     5.39      .01  1321.63
    6100.0       .5   5804.7    294.8      1.0   1106.4    192.4   1267.9     327.3  1320.94
      1.50      .53     5.25     1.53     .050     .035     .050     .000  1315.07   9001.67
   .005539     950.     950.     915.        5        0        0      .00   912.30  11216.92


FLOW DISTRIBUTION FOR SECNO=     14.56          CWSEL=   1319.59

STA=    9002.    9011.   10019.   11074.   11217.
  PER Q=        .0     95.2      3.8      1.1
   AREA=       1.0   1106.4    139.2     53.2
    VEL=        .5      5.2      1.6      1.2
  DEPTH=        .1      2.2       .1       .4

*SECNO 14.752

3265 DIVIDED FLOW


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1326.53 ELREA=      1327.21

    14.752     5.36  1324.94      .00      .00  1325.38      .44     5.37      .01  1326.53
    6100.0       .0   6100.0       .0       .0   1151.5       .0   1296.6     343.6  1327.21
      1.55      .00     5.30      .00     .000     .035     .000     .000  1319.58   9672.80
   .005014     1010.    1020.    1010.        3        0        0      .00   489.30  10164.68


FLOW DISTRIBUTION FOR SECNO=     14.75          CWSEL=   1324.94

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


STA=    9673.   10174.
  PER Q=    100.0
   AREA=   1151.5
    VEL=      5.3
  DEPTH=      2.4

*SECNO 14.945

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =    .67


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1329.50 ELREA=      1330.40

    14.945    14.67  1329.96      .00      .00  1330.70      .73     5.23      .09  1329.50
    4200.0       4.9   4195.1       .0       6.0    610.8       .0   1317.3     351.8  1330.40
      1.59      .82     6.87      .00     .050     .035     .000     .000  1315.29   9813.70
   .005291     1005.    1020.    1000.        2        0        0      .00   208.50  10022.21


FLOW DISTRIBUTION FOR SECNO=     14.94          CWSEL=   1329.96

STA=    9814.    9839.   10024.
  PER Q=        .1     99.9
   AREA=       6.0    610.8
    VEL=        .8      6.9
  DEPTH=        .2      3.3

*SECNO 15.144

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1336.54 ELREA=      1333.51

    15.144     5.59  1334.79      .00      .00  1335.12      .33     4.38      .04  1336.54
    4200.0       .0   4141.3     58.7       .0    889.7     32.8   1335.9     358.7  1333.51
      1.65      .00     4.65     1.79     .000     .035     .050     .000  1329.20   9620.13
   .003349      900.    1056.     890.        2        0        0      .00   372.24   9992.37


FLOW DISTRIBUTION FOR SECNO=     15.14          CWSEL=   1334.79

STA=    9620.    9960.    9988.    9992.
  PER Q=      98.6      1.3       .1
   AREA=     889.7     30.5      2.3
    VEL=       4.7      1.8      1.0
  DEPTH=       2.6      1.1       .5

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 15.333

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1340.10 ELREA= 1342.68

15.333	4.92	1338.56	.00	.00	1339.01	.45	3.85	.03	1340.10
4200.0	.0	4200.0	.0	.0	781.7	.0	1355.4	366.4	1342.68
1.71	.00	5.37	.00	.000	.035	.000	.000	1333.64	9747.95
.004491	900.	1000.	890.	3	0	0	.00	299.92	10047.88

FLOW DISTRIBUTION FOR SECNO= 15.33 CWSEL= 1338.56

STA=	9748.	10057.
PER Q=	100.0	
AREA=	781.7	
VEL=	5.4	
DEPTH=	2.6	

*SECNO 15.506

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.80

15.506	5.42	1340.93	.00	.00	1341.12	.19	2.09	.03	1342.22
4200.0	.0	4200.0	.0	.0	1186.6	.0	1376.0	373.2	1344.94
1.78	.00	3.54	.00	.000	.035	.000	.000	1335.51	9680.14
.001388	871.	911.	891.	3	0	0	.00	353.38	10033.52

FLOW DISTRIBUTION FOR SECNO= 15.51 CWSEL= 1340.93

STA=	9680.	10049.
PER Q=	100.0	
AREA=	1186.6	
VEL=	3.5	
DEPTH=	3.4	

*SECNO 15.699

3265 DIVIDED FLOW

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

15.699	3.35	1347.91	1347.91	.00	1348.98	1.07	3.15	.26	1349.39
4200.0	289.9	3789.5	120.6	59.8	439.8	46.8	1396.2	380.7	1349.70
1.81	4.84	8.62	2.57	.050	.035	.050	.000	1344.56	9791.01
.011972	1004.	1019.	989.	20	14	0	.00	290.33	10789.01

FLOW DISTRIBUTION FOR SECNO= 15.70 CWSEL= 1347.91

STA=	9791.	9801.	9813.	9828.	10058.	10768.	10784.	10789.
PER Q=	1.5	4.2	1.2	90.2	1.1	1.6	.3	
AREA=	15.5	29.0	15.4	439.8	24.6	18.1	4.1	
VEL=	4.1	6.0	3.3	8.6	1.8	3.6	2.6	
DEPTH=	1.5	2.5	1.0	2.5	.0	1.2	.7	

*SECNO 15.966

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

15.966	5.01	1356.85	.00	.00	1356.96	.12	7.89	.09	1359.10
2350.0	.0	1991.6	358.4	.0	692.7	175.4	1418.6	393.9	1356.72
1.95	.00	2.88	2.04	.000	.035	.050	.000	1351.84	9704.62
.002334	1450.	1410.	1200.	6	0	0	.00	552.51	10378.39

FLOW DISTRIBUTION FOR SECNO= 15.97 CWSEL= 1356.85

STA=	9705.	10154.	10276.	10282.	10317.	10329.	10370.	10378.
PER Q=	84.7	.7	.7	9.6	1.2	2.3	.7	
AREA=	692.7	20.1	9.2	85.7	16.3	33.6	10.5	
VEL=	2.9	.8	1.8	2.6	1.8	1.6	1.6	

```
  DEPTH=      1.7       .2      1.5      2.5      1.4       .8      1.2

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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*SECNO 16.066

3265 DIVIDED FLOW

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .63

    16.066      4.28   1358.68       .00       .00   1358.89       .21      1.90       .03   1360.66
    2350.0       6.3    1126.1    1217.6       6.2     279.1     362.1    1428.0     400.1    1359.90
      1.99      1.02      4.03      3.36      .050      .035      .050      .000   1354.40    9596.77
   .005909      565.      570.      480.         3         0         0       .00    452.17   10444.39

FLOW DISTRIBUTION FOR SECNO=     16.07          CWSEL=   1358.68

STA=    9597.    9599.    9601.    9649.    9654.   10125.   10218.   10233.   10264.   10289.   10365.   10431.   10444.
  PER Q=      .0       .0       .2       .1     47.9       .0       .6      3.0     11.5     26.0      9.1      1.7
   AREA=      .4       .5      3.7      1.5    279.1       .5      8.7     31.0     63.0    162.3     80.9     15.7
    VEL=      .8       .8      1.1      1.1      4.0       .6      1.6      2.3      4.3      3.8      2.6      2.5
  DEPTH=      .2       .2       .1       .3      1.4       .0       .6      1.0      2.6      2.1      1.2      1.1

*SECNO 16.167

3265 DIVIDED FLOW

    16.167      4.52   1362.12       .00       .00   1362.48       .36      3.54       .04   1364.28
    2350.0        .0    1155.6    1194.4        .0     209.4     297.1    1435.0     405.0    1362.35
      2.02       .00      5.52      4.02      .000      .035      .050      .000   1357.60    9910.34
   .007613      530.      530.      530.         4         0         0       .00    360.36   10757.59

FLOW DISTRIBUTION FOR SECNO=     16.17          CWSEL=   1362.12

STA=    9910.   10078.   10469.   10504.   10525.   10540.   10758.
  PER Q=     49.2     10.1     17.0     15.6      6.1      2.1
   AREA=    209.4     88.4     85.8     66.1     32.9     23.9
    VEL=      5.5      2.7      4.7      5.6      4.3      2.0
  DEPTH=      1.8       .2      2.4      3.2      2.3       .1

*SECNO 16.248
1
   18FEB99      08:36:32                                                                                    PAGE   49

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


3265 DIVIDED FLOW

    16.248      4.33   1364.53       .00       .00   1364.96       .44      2.46       .02   1361.19
    2350.0      28.3    1678.2    643.5      10.2     278.1     237.4    1439.5     408.0    1364.02
      2.05      2.77      6.03      2.71      .050      .035      .050      .000   1360.20    9951.30
   .005202      450.      430.      340.         3         0         0       .00    346.34   10651.75

FLOW DISTRIBUTION FOR SECNO=     16.25          CWSEL=   1364.53

STA=    9951.    9957.   10058.   10274.   10296.   10323.   10625.   10639.   10652.
  PER Q=      1.2     71.4      4.7      6.0      3.0      5.4      5.8      2.4
   AREA=     10.2    278.1     53.5     43.1     30.4     55.7     34.6     20.0
    VEL=      2.8      6.0      2.1      3.3      2.3      2.3      3.9      2.8
  DEPTH=      1.7      2.8       .2      1.9      1.1       .2      2.5      1.5

*SECNO 16.328

3265 DIVIDED FLOW

    16.328      3.99   1366.59       .00       .00   1366.89       .30      1.91       .01   1366.93
    2350.0      41.9    2132.8    175.3      22.9     470.7      68.1    1444.1     410.6    1367.77
      2.07      1.83      4.53      2.58      .050      .035      .050      .000   1362.60    9754.93
   .004801      440.      410.      250.         2         0         0       .00    325.66   10372.87

FLOW DISTRIBUTION FOR SECNO=     16.33          CWSEL=   1366.59

STA=    9755.    9762.    9782.   10237.   10293.   10307.   10360.   10366.   10373.
  PER Q=      .4      1.3     90.8      1.0      1.2      2.4      2.4       .5
   AREA=      5.8     17.1    470.7     11.8     13.7     21.4     15.1      6.2
    VEL=      1.8      1.8      4.5      2.0      2.0      2.6      3.7      1.9
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  DEPTH=       .8       .8      1.9       .2      1.0       .4      2.4       .9

*SECNO 16.411

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1369.50 ELREA=      1371.45

    16.411      4.46   1368.73       .00       .00   1369.35       .62      2.37       .10   1369.50
    2350.0        .0    2350.0        .0        .0     372.0        .0    1448.9     413.0   1371.45
      2.09       .00      6.32       .00      .000      .035      .000      .000   1364.27   9902.28
   .005872      510.      450.      350.         1         0         0       .00    136.31  10038.58


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   18FEB99      08:36:32                                                                          PAGE   50

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

FLOW DISTRIBUTION FOR SECNO=     16.41          CWSEL=   1368.73

STA=     9902.   10044.
  PER Q=     100.0
   AREA=     372.0
    VEL=       6.3
  DEPTH=       2.7

*SECNO 16.504

3265 DIVIDED FLOW


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1370.28 ELREA=      1373.87

    16.504      4.22   1371.11       .00       .00   1371.43       .32      2.05       .03   1370.28
    2350.0      38.1    2311.9        .0      27.3     506.8        .0    1454.0     415.1   1373.87
      2.12      1.40      4.56       .00      .050      .035      .000      .000   1366.89   9681.31
   .003130      460.      490.      300.         2         0         0       .00    236.43  10070.77


FLOW DISTRIBUTION FOR SECNO=     16.50          CWSEL=   1371.11

STA=     9681.     9687.     9688.     9697.     9702.     9841.     9849.     9855.     9881.   10078.
  PER Q=       .3        .3        .7        .1        .1        .2        .0        .1      98.4
   AREA=      4.3       2.8       9.7      1.6       1.7       3.7        .9       2.5     506.8
    VEL=      1.4       2.2       1.7        .8        .8       1.0        .5        .9       4.6
  DEPTH=       .8       1.5       1.1        .4        .0        .5        .1        .1       2.7

*SECNO 16.608

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1377.10 ELREA=      1373.62

    16.608      4.62   1373.16       .00       .00   1373.58       .42      2.12       .03   1377.10
    2350.0        .0    2350.0        .0        .0     451.8        .0    1459.9     417.7   1373.62
      2.15       .00      5.20       .00      .000      .035      .000      .000   1368.54   9833.57
   .005283      485.      530.      450.         1         0         0       .00    205.35  10038.92


FLOW DISTRIBUTION FOR SECNO=     16.61          CWSEL=   1373.16

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   18FEB99      08:36:32                                                                          PAGE   51

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


STA=     9834.   10042.
  PER Q=     100.0
   AREA=     451.8
    VEL=       5.2
  DEPTH=       2.2

*SECNO 16.732

3265 DIVIDED FLOW


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1379.90 ELREA=      1376.94

    16.732      4.09   1377.02       .00       .00   1377.54       .52      3.93       .03   1379.90
    2350.0        .0    2221.9     128.1        .0     372.6      68.9    1466.8     421.2   1376.94
      2.18       .00      5.96      1.86      .000      .035      .050      .000   1372.93   9887.27
   .006403      640.      685.      420.         4         0         0       .00    291.35  10416.48


FLOW DISTRIBUTION FOR SECNO=     16.73          CWSEL=   1377.02

STA=     9887.   10046.   10398.   10416.
```

PER Q=	94.5	3.7	1.7
AREA=	372.6	52.1	16.8
VEL=	6.0	1.7	2.4
DEPTH=	2.3	.1	.9

*SECNO 16.818

3265 DIVIDED FLOW

16.818	4.42	1379.42	.00	.00	1379.74	.32	2.18	.02	1379.60
2350.0	.0	2224.6	125.4	.0	478.2	67.3	1472.4	424.8	1379.34
2.21	.00	4.65	1.86	.000	.035	.050	.000	1375.00	9895.00
.003501	430.	455.	750.	2	0	0	.00	265.30	10167.75

FLOW DISTRIBUTION FOR SECNO= 16.82 CWSEL= 1379.42

STA=	9895.	10084.	10109.	10113.	10138.	10147.	10155.	10155.	10168.
PER Q=	94.7	.1	.1	1.5	1.0	1.6	.0	1.0	
AREA=	478.2	4.2	2.2	21.8	11.4	14.0	.2	13.4	
VEL=	4.7	.8	1.3	1.6	2.1	2.6	2.9	1.8	
DEPTH=	2.5	.2	.6	.8	1.3	1.8	2.1	1.1	

THIS RUN EXECUTED 18FEB99 08:36:34

****
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

FEMA/COE MODEL UPDATE

SUMMARY PRINTOUT

	SECNO	Q	CWSEL	STCHL	VLOB	VCH	VROB	STCHR	ENDST	TOPWID
	8.655	41000.00	1170.38	9530.01	.40	4.71	.53	10103.54	10332.00	929.15
	8.731	12000.00	1170.79	9668.92	.88	1.09	.12	10132.76	10366.79	936.96
*	8.807	12000.00	1170.69	9793.80	.00	3.45	.46	10113.26	10152.58	353.03
*	8.883	12000.00	1170.67	9857.59	.00	5.54	.22	10117.10	10127.44	255.53
	8.936	12000.00	1171.00	9831.06	.00	5.30	.18	10130.27	10134.68	293.66
	8.977	12000.00	1171.12	9865.94	.00	6.34	.00	10117.99	10115.89	242.47
	9.009	12000.00	1171.63	9805.01	.00	4.67	.00	10189.89	10180.22	347.96
	9.047	12000.00	1171.86	9865.24	.00	4.16	.00	10286.83	10272.67	379.90
	9.129	12000.00	1172.17	9828.71	.00	3.86	.11	10330.52	10427.14	454.65
*	9.318	12000.00	1174.70	9775.17	.00	10.59	.00	10151.89	10140.95	338.90
*	9.492	11450.00	1179.91	9800.21	.00	5.20	.00	10307.96	10294.05	475.61
*	9.692	11450.00	1182.90	9915.96	.00	8.36	.00	10315.20	10300.88	361.19
*	9.889	11450.00	1191.59	9919.80	.00	12.49	.00	10132.31	10120.25	191.86
*	9.953	11450.00	1194.89	9867.22	.00	11.40	.00	10153.45	10134.46	250.71
*	9.978	11450.00	1196.06	9864.00	.00	9.48	.00	10178.00	10154.12	266.64
	10.096	11450.00	1199.40	9708.29	.00	8.01	.00	10160.97	10122.08	396.21
	10.271	10900.00	1203.83	9841.02	.00	7.45	.00	10310.47	10304.13	435.08

	SECNO	Q	CWSEL	STCHL	VLOB	VCH	VROB	STCHR	ENDST	TOPWID
	10.433	10900.00	1208.98	9881.10	.00	9.46	.00	10287.96	10280.24	388.74
*	10.612	10900.00	1214.26	9910.15	.00	7.95	.00	10254.01	10250.32	320.04
*	10.803	10900.00	1219.28	9873.61	.00	10.53	.00	10202.20	10191.69	302.56
*	10.979	10900.00	1224.82	9876.59	.00	9.14	.00	10116.64	10109.71	224.41

	10.999	10900.00	1224.89	9853.84	.00	9.19	.00	10126.19	10110.81	228.72
*	11.129	10900.00	1227.18	9825.90	.00	6.40	.00	10117.76	10106.45	267.30
	11.188	10350.00	1227.55	9868.66	.00	7.55	.00	10127.63	10108.43	222.05
	11.301	10350.00	1228.80	9889.57	.00	9.84	.00	10113.79	10090.90	187.08
	11.386	10350.00	1231.10	9864.13	.00	7.85	.00	10133.77	10110.68	240.44
	11.481	10350.00	1232.92	9846.96	.00	6.80	.00	10215.16	10123.94	264.94
	11.566	10350.00	1234.23	9218.65	.00	4.36	.00	10060.00	10039.30	525.36
*	11.759	10350.00	1236.97	9428.04	.00	8.99	.00	10132.96	10110.09	475.20
*	11.949	10350.00	1244.23	9678.36	.00	6.24	1.89	10235.82	10396.78	565.31
	12.125	10350.00	1248.58	9742.17	.00	7.16	.00	10335.82	10309.12	470.40
*	12.313	9800.00	1256.34	9806.87	.00	10.08	.00	10248.19	10241.25	298.08
*	12.511	9800.00	1263.55	9830.00	1.00	6.28	.00	10296.93	10256.28	559.26
	12.701	9800.00	1267.84	9748.20	.00	7.54	.00	10268.00	10135.28	374.87
*	12.896	9800.00	1270.56	9833.94	.00	4.06	.00	10345.00	10308.71	442.78
	13.076	7900.00	1271.23	9665.58	.00	2.79	.00	10103.00	10089.29	403.96
*	13.277	7900.00	1279.02	9941.62	.00	10.05	.00	10240.18	10205.84	255.51
*	13.420	7900.00	1285.60	9844.81	.00	7.07	.00	10080.79	10071.45	217.46
*	13.619	7900.00	1288.37	9762.99	.00	3.93	.00	10335.67	10328.12	531.56
	13.818	7900.00	1290.36	9821.63	.00	3.51	2.21	10331.30	11398.81	1471.66
*	14.013	6100.00	1301.63	9785.60	.00	9.20	1.64	10046.46	10759.09	330.46
*	14.197	6100.00	1309.22	9934.14	1.53	5.46	2.85	10263.32	11310.21	798.20
	14.379	6100.00	1314.10	9551.00	.00	6.64	2.92	10106.58	11306.89	996.37

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	SECNO	Q	CWSEL	STCHL	VLOB	VCH	VROB	STCHR	ENDST	TOPWID
	14.559	6100.00	1319.59	9196.31	.53	5.25	1.53	10019.18	11216.92	912.30
	14.752	6100.00	1324.94	9669.41	.00	5.30	.00	10173.79	10164.68	489.30
*	14.945	4200.00	1329.96	9839.00	.82	6.87	.00	10023.75	10022.21	208.50
	15.144	4200.00	1334.79	9612.61	.00	4.65	1.79	9960.20	9992.37	372.24
	15.333	4200.00	1338.56	9735.16	.00	5.37	.00	10057.01	10047.88	299.92
*	15.506	4200.00	1340.93	9583.60	.00	3.54	.00	10049.31	10033.52	353.38
*	15.699	4200.00	1347.91	9838.14	4.84	8.62	2.57	10057.68	10789.01	290.33
	15.966	2350.00	1356.85	9697.82	.00	2.88	2.04	10153.85	10378.39	552.51
*	16.066	2350.00	1358.68	9745.57	1.02	4.03	3.36	10125.00	10444.39	452.17
	16.167	2350.00	1362.12	9900.11	.00	5.52	4.02	10077.88	10757.59	360.36
	16.248	2350.00	1364.53	9957.43	2.77	6.03	2.71	10057.86	10651.75	346.34
	16.328	2350.00	1366.59	9900.83	1.83	4.53	2.58	10236.68	10372.87	325.66
	16.411	2350.00	1368.73	9876.84	.00	6.32	.00	10044.45	10038.58	136.31
	16.504	2350.00	1371.11	9881.12	1.40	4.56	.00	10077.88	10070.77	236.43
	16.608	2350.00	1373.16	9819.07	.00	5.20	.00	10042.20	10038.92	205.35
	16.732	2350.00	1377.02	9875.39	.00	5.96	1.86	10046.16	10416.48	291.35
	16.818	2350.00	1379.42	9890.87	.00	4.65	1.86	10084.40	10167.75	265.30

1
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SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO= 8.807 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

```
 WARNING SECNO=      8.883  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=      9.318  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=      9.318  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=      9.318  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

 WARNING SECNO=      9.492  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=      9.692  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=      9.889  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=      9.889  PROFILE=  1  MINIMUM SPECIFIC ENERGY

 CAUTION SECNO=      9.953  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=      9.953  PROFILE=  1  MINIMUM SPECIFIC ENERGY

 CAUTION SECNO=      9.978  PROFILE=  1  HYDRAULIC JUMP D.S.

 WARNING SECNO=     10.612  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     10.803  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     10.979  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     11.129  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=     11.759  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=     11.759  PROFILE=  1  MINIMUM SPECIFIC ENERGY

 WARNING SECNO=     11.949  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     12.313  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     12.511  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     12.896  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=     13.277  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=     13.277  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=     13.277  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

 WARNING SECNO=     13.420  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     13.619  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=     14.013  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=     14.013  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=     14.013  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
1
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 WARNING SECNO=     14.197  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     14.945  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     15.506  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=     15.699  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=     15.699  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=     15.699  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

 WARNING SECNO=     16.066  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
```

HEC-2 FILE NEWBR.IH2

```
1*****************************************
 *  HEC-2 WATER SURFACE PROFILES           *
 *                                         *
 *  Version   4.6.2;  May 1991             *
 *                                         *
 *  RUN DATE    25FEB99    TIME   15:48:53  *
 *****************************************
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*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616-4687     *
*          (916) 756-1104           *
*************************************
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X     X  XXXXXXX   XXXXX             XXXXX
X     X  X        X     X           X     X
X     X  X        X                       X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX             XXXXXXX
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   25FEB99      15:48:53                                                                    PAGE    1
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THIS RUN EXECUTED 25FEB99 15:48:53

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 ************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
 ************************************
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```
        MODEL REFLECTS NEW TOPOGRAPHIC DATA ALONG ORIGINAL FEMA
        CROSS SECTIONS ALIGMENTS.  N-VALUE AND EXPANSION AND CONTRACTION
        COEFFICIENTS REMAIN THE SAME AS ORIGINAL FEMA MODEL

        BRIDGE DATA FOR BELL ROAD BRIDGE REVISED AND UPDATED OVER ORIGIN
        FEMA MODEL
        UNION HILLS ROAD BRIDGE MODELED
        ADDITIONAL CROSS SECTIONS ADDED TO MODEL
        MODEL THUNDERBIRD ROAD BRIDGE
        START MODEL AT THUNDERBIRD ROAD BRIDGE

T1      NEW RIVER ABOVE THUNDERBIRD ROAD                    AUGUST 1998
T2      MIDDLE NEW RIVER WATERCOURSE MASTER PLAN        STANTEC #28900058
T3      FEMA/COE MODEL UPDATE                           FILE NEWBR.IH2
T3      START NEW RIVER Q OF 12000 AT X-SEC 8.807
```

```
J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                2                                                           1150.5

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

                        -1                                                                    15

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

     38        43         1         21        55        26        56        22        54         4
      8

QT       1      41000
NC   0.045      0.045     0.035       .3        .5

X1   7.728         20      9900     10222
X3      10                                                            1157.5    1157.5
GR  1160.0    9887.00   1159.68   9895.29   1157.98   9899.88      1154      9900   1146.00   9931.12
GR  1136.5    9958.45    1135.4   9962.95   1135.91  10073.21   1136.49  10130.56   1136.50  10159.07
GR  1140.5   10176.73   1144.2    10189.17     1154     10222   1158.14  10228.35   1159.02  10276.12
GR  1158.3   10320.83   1157.5    10337.19    1155.9   10406.88   1156.63  10412.97   1155.99  10448.47
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   25FEB99      15:48:53                                                                    PAGE    2
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SB   1.05        1.6       2.68         0       202         9    4805.23         2    1135.3    1135.4

X1   7.751         16    9919.35  10239.55       115       110     121.70
X2                          1.    1155.7   1159.26
X3      10                                                        1161.15   1159.26
BT     -15    9892.86   1161.15              9912.86   1163.35                9925   1163.42  1155.391
BT           9944.75   1163.52   1155.49    9981.55   1163.65   1155.62  10021.55   1163.73    1155.7
BT          10061.55   1163.74   1155.71   10101.55   1163.67   1155.64  10141.55   1163.53   1155.50
BT          10181.55   1163.32   1155.29   10221.55  1163.041   1155.01     10225   1163.01   1154.98
BT          10241.55   1162.87             10242.86   1162.86             10372.86   1159.26
GR  1161.1   9892.86    1160.0   9895.00   1159.53   9915.55   1157.94   9919.35   1155.49   9944.75
GR  1140.7   9965.55    1135.3   9978.33    1135.8   10034.63  1136.03  10077.55   1136.99  10176.70
GR  1151.4  10220.40   1154.98     10225    1158.9   10239.55   1159.5  10278.43   1160.00  10320.22
```

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GR   1159.2   10372.86

X1     7.800        22    9857.12   10243.64        230        355      259.16
GR    1153.5    9736.00   1153.41    9764.38    1157.33    9780.03    1156.96    9795.93    1155.45    9805.92
GR    1158.1    9832.22   1158.52    9857.12    1150.65    9893.02    1147.75    9908.87    1142.94    9931.81
GR    1142.1    9943.11   1138.01    9965.96    1135.77    9974.38    1135.65    9977.75    1136.12   10030.71
GR    1136.9   10090.50   1137.57   10128.41    1142.89   10160.65    1157.07   10243.64    1156.78   10269.64
GR    1157.2   10311.28   1157.09   10330.96

NC                                        .1         .3

X1     7.920        23    9855.37   10258.56        615        655      631.37
GR    1160.4    9836.00   1160.45    9855.37    1156.67    9868.90    1155.58    9880.63    1148.19    9919.94
GR    1141.6    9962.13   1139.05    9980.61    1135.74    9991.30    1136.14   10011.40    1137.04   10036.41
GR    1136.7   10060.91   1139.35   10072.06    1138.66   10080.58    1136.53   10088.54    1136.63   10104.58
GR    1140.4   10137.77   1141.40   10148.13    1150.48   10206.92    1158.75   10253.04    1160.29   10258.56
GR    1159.6   10273.87   1160.43   10308.49    1160.02   10319.77

X1     8.006        22    9848.52   10252.11        445        505      463.28
GR    1158.0    9813.00   1158.06    9822.82    1159.57    9836.05    1159.66    9848.52    1157.00    9864.41
GR    1156.8    9872.33   1151.07    9899.09    1140.44    9978.90    1136.11    9995.88    1136.65   10014.86
GR    1138.1   10043.49   1137.68   10056.74    1139.34   10072.31    1139.08   10086.47    1137.10   10091.99
GR    1137.8   10110.36   1142.23   10145.00    1158.45   10236.11    1161.51   10252.11    1160.37   10268.56
GR    1161.3   10301.55   1160.84   10324.12

X1     8.052        22     9848.5   10251.73        225        255      236.58
GR    1158.5    9812.00   1160.52    9848.50    1158.04    9858.22    1157.59    9871.97    1156.11    9879.48
GR    1145.9    9941.09   1140.15    9975.40    1136.42    9990.32    1137.44   10013.47    1139.20   10041.37
GR    1138.3   10061.51   1140.17   10069.50    1139.86   10082.68    1137.02   10092.14    1138.06   10113.77
GR    1143.3   10148.19   1148.16   10177.35    1157.36   10230.27    1161.72   10251.73    1161.26   10264.08
GR    1162.3   10301.26   1161.40   10320.82

1
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X1     8.120        24    9882.49   10260.19        365        370      370.41
GR    1162.2    9841.00   1162.60    9858.45    1159.87    9870.72    1159.32    9882.49    1157.08    9893.84
GR    1149.6    9934.41   1140.42    9990.41    1138.00    9998.97    1138.25   10012.37    1137.97   10036.29
GR    1141.0   10050.72   1139.87   10069.18    1141.37   10081.41    1141.36   10100.66    1138.47   10109.14
GR    1138.9   10131.16   1141.90   10138.76    1146.68   10172.82    1150.55   10195.97    1163.50   10260.19
GR    1162.9   10278.49   1162.95   10317.31    1162.26   10354.77    1162.02   10372.33

X1     8.220        25    9863.78   10241.56        485        565      512.82
GR    1163.2    9844.00   1161.40    9853.02    1160.58    9863.78    1152.10    9903.79    1150.30    9912.99
GR    1145.8    9942.26   1144.16    9957.57    1140.67    9978.73    1138.78    9982.77    1138.87    9997.52
GR    1140.4   10022.85   1140.41   10030.36    1141.62   10059.20    1140.73   10073.77    1141.12   10098.68
GR    1142.6   10111.36   1142.70   10121.98    1154.46   10195.80    1164.55   10241.56    1164.03   10257.47
GR    1164.3   10293.89   1164.02   10325.89    1165.33   10356.69    1165.40   10382.29    1164.23   10492.32

X1     8.330        16    9800.42   10176.69        555        545      565.26
GR    1166.4    9780.00   1164.42    9787.92    1164.00    9800.42    1156.43    9829.07    1147.97    9874.97
GR    1144.1    9898.66   1142.94    9954.30    1140.59   10025.59    1142.53   10060.91    1148.05   10088.64
GR    1166.4   10176.69   1165.88   10193.23    1165.42   10260.92    1165.43   10341.08    1164.73   10388.98
GR    1164.6   10416.78

X1     8.390        30    9814.94   10190.49        310        305      308.23
GR    1168.0    9792.00   1165.60    9802.80    1165.05    9814.94    1161.22    9828.78    1156.70    9850.73
GR    1147.2    9900.76   1142.10    9926.76    1142.01    9950.40    1141.32    9968.87    1140.92    9998.25
GR    1141.6   10028.95   1141.40   10035.16    1142.45   10058.42    1152.07   10114.24    1167.41   10190.49
GR    1166.6   10211.61   1166.65   10240.54    1166.45   10279.51    1166.87   10290.31    1165.32   10298.53
GR    1163.6   10401.70   1163.46   10431.35    1164.03   10515.87    1164.60   10577.34    1164.51   10632.74
GR    1164.5   10712.67   1164.41   10774.86    1164.40   10829.78    1164.60   10932.22    1164.00   10946.60

X1     8.457        38    9788.33   10193.92        365        355      361.88
GR    1167.7    9671.00   1168.03    9683.56    1168.79    9692.73    1168.66    9781.82    1168.74    9788.33
GR    1164.9    9805.47   1164.20    9818.92    1155.76    9863.11    1141.79    9935.63    1141.57    9966.53
GR    1141.1    9997.45   1141.49   10030.06    1142.73   10060.82    1147.58   10091.35    1168.40   10193.92
GR    1166.3   10250.52   1165.62   10262.83    1164.40   10335.04    1163.84   10341.20    1166.10   10367.82
GR    1166.5   10371.10   1161.57   10407.65    1161.57   10475.04    1164.60   10493.68    1164.74   10503.74
GR    1166.2   10527.60   1166.42   10556.27    1166.15   10564.70    1166.17   10598.14    1166.08   10619.41
GR    1164.8   10699.88   1165.03   10770.72    1164.81   10863.67    1165.26   10911.53    1164.44   10978.23
GR    1164.8   11020.28   1165.31   11034.69    1164.50   11083.15

X1     8.516        21    9847.43   10155.21        280        305      287.90
GR    1168.0    9756.00   1168.52    9821.59    1168.60    9847.43    1159.08    9856.48    1149.31    9867.16
GR    1144.0    9873.77   1141.97    9877.40    1141.87    9926.46    1141.93    9990.48    1141.55   10000.75
GR    1142.0   10005.50   1141.81   10108.38    1141.70   10123.56    1148.62   10134.03    1160.73   10146.98
GR    1167.5   10155.21   1168.00   10179.14    1169.03   10219.02    1168.75   10232.17    1167.28   10280.12
GR    1167.2   10287.22

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X1    8.548        18    9843.20   10155.64        165        150      166.63
GR    1168.0   9702.00    1168.14    9729.40    1167.88    9753.58    1167.19    9843.20    1152.60    9858.92
GR    1152.2   9870.39    1152.60    9988.56    1149.77   10000.91    1152.74   10006.50    1152.86   10046.28
GR    1152.5  10123.07    1152.20   10136.24    1166.85   10155.64    1168.63   10213.59    1169.11   10238.52
GR    1169.1  10256.77    1168.30   10274.28    1168.30   10349.53

NC                                       .2          .4

X1    8.655        41    9515.14   10088.67        675        340      461.08
X3       10
GR    1178.0   9156.00    1171.38    9193.02    1170.55    9274.12    1169.63    9411.41    1169.87    9515.14
GR    1162.4   9541.69    1155.64    9563.58    1154.34    9622.61    1154.18    9653.38    1153.29    9699.82
GR    1152.5   9730.60    1153.40    9750.39    1153.56    9773.35    1154.59    9846.20    1154.35    9893.51
GR    1153.8   9920.14    1154.54    9928.30    1154.49    9961.67    1154.22    9985.13    1154.56   10014.90
GR    1154.7  10063.21    1168.79   10088.67    1169.89   10110.86    1169.64   10129.20    1171.10   10138.14
GR    1171.4  10180.45    1171.19   10207.95    1169.31   10298.21    1169.31   10317.50    1168.75   10334.85
GR    1167.7  10399.74    1167.24   10417.47    1168.43   10452.79    1168.36   10540.39    1166.14   10569.97
GR    1166.2  10589.76    1165.62   10623.68    1166.94   10637.85    1167.02   10646.38    1166.55   10717.01
GR    1166.2  10727.13

NC    0.045     0.045     0.035       0.10        0.30

X1    8.731        52    9663.09   10126.93        500        395      401.71
X3       10
GR    1184.0   9258.00    1183.82    9272.84    1182.05    9280.87    1175.72    9318.95    1157.57    9353.98
GR    1157.2   9362.39    1154.97    9368.39    1155.24    9380.05    1154.77    9421.09    1154.03    9447.34
GR    1153.6   9489.72    1154.23    9509.75    1155.22    9595.22    1155.58    9629.27    1156.95    9663.09
GR    1155.6   9706.29    1155.51    9734.27    1154.92    9787.70    1154.63    9815.78    1155.91    9900.67
GR    1155.5   9994.17    1155.88   10071.25    1156.22   10104.43    1169.55   10126.93    1170.06   10150.62
GR    1169.9  10163.08    1171.74   10175.87    1171.36   10205.91    1170.95   10263.45    1169.81   10327.81
GR    1169.2  10373.84    1169.05   10406.75    1169.06   10441.92    1168.49   10449.19    1168.37   10479.66
GR    1168.8  10491.05    1169.84   10507.51    1169.35   10531.04    1169.12   10587.59    1169.35   10590.13
GR    1167.6  10606.64    1166.97   10631.25    1166.24   10673.26    1168.29   10686.54    1167.90   10767.61
GR    1167.1  10792.48    1167.94   10800.70    1167.13   10817.41    1168.07   10833.84    1168.07   10853.03
GR    1167.3  10912.88    1165.88   10950.96

QT        1      12000

X1    8.807        61    9793.00   10160.88        425        395      404.72
X3       10
GR    1178.0   9422.00    1172.82    9452.87    1172.51    9484.81    1175.79    9505.05    1175.95    9527.20
GR    1175.8   9545.44    1173.82    9565.41    1173.11    9572.28    1172.76    9612.21    1173.19    9639.55
GR    1173.0   9682.19    1171.58    9720.48    1172.76    9733.78    1173.10    9793.00    1166.57    9811.80
GR    1158.5   9831.60    1158.04    9853.68    1158.32    9890.96    1159.43    9931.82    1158.96    9958.05
GR    1158.5   9967.94    1158.11   10004.04    1159.09   10063.94    1159.38   10094.33    1169.68   10113.46
GR    1170.0  10141.81    1170.36   10151.50    1172.75   10160.88    1172.96   10182.52    1173.57   10200.99
GR    1173.6  10214.56    1172.75   10222.29    1173.13   10250.46    1172.75   10299.98    1172.34   10353.42
GR    1171.8  10384.63    1171.99   10434.39    1169.93   10501.15    1169.41   10511.28    1169.01   10544.56
GR    1169.4  10564.32    1168.99   10583.58    1169.88   10611.19    1170.25   10664.99    1170.62   10705.82
GR    1170.6  10714.50    1168.50   10733.13    1167.55   10775.91    1166.99   10819.70    1169.32   10835.44
1
    25FEB99      15:48:53                                                                                PAGE    5

GR    1169.2  10941.38    1168.29   10976.18    1168.63   10997.22    1167.83   11020.47    1168.45   11044.88
GR    1167.8  11062.57    1168.53   11135.17    1167.31   11155.80    1166.88   11186.21    1167.96   11206.55
GR    1168.0  11275.50

X1    8.883        58    9858.42   10177.57        410        400      401.10
GR    1180.0   9481.00    1174.18    9514.66    1174.02    9540.03    1175.03    9561.40    1176.73    9582.16
GR    1176.8   9631.25    1176.58    9666.16    1175.86    9708.77    1176.62    9800.01    1176.56    9816.25
GR    1176.8   9858.42    1174.81    9862.65    1163.02    9891.37    1161.63    9916.17    1161.27    9958.77
GR    1162.0   9977.64    1159.44    9985.89    1159.72   10006.43    1160.42   10020.66    1160.96   10082.09
GR    1161.2  10096.55    1166.60   10109.58    1170.46   10117.93    1171.40   10159.12    1175.80   10177.57
GR    1176.1  10208.49    1175.88   10260.47    1174.83   10288.75    1175.03   10304.81    1174.81   10318.05
GR    1176.7  10340.17    1176.78   10355.85    1176.47   10400.38    1176.72   10425.11    1175.70   10506.00
GR    1175.0  10550.70    1174.22   10617.09    1173.92   10683.59    1173.31   10732.97    1173.14   10786.03
GR    1172.4  10818.11    1172.26   10836.81    1170.35   10880.96    1170.82   10901.07    1170.15   10936.80
GR    1170.4  10959.70    1170.07   10999.43    1170.72   11031.75    1170.53   11048.37    1169.57   11069.52
GR    1170.0  11089.04    1169.36   11104.20    1171.83   11122.29    1171.74   11172.68    1172.03   11243.31
GR    1172.4  11270.51    1172.33   11294.15    1171.24   11317.02

X1    8.936        52    9827.82   10181.89        285        290      289.58
GR    1182.0   9511.00    1178.24    9530.47    1175.36    9547.23    1174.35    9570.55    1174.29    9605.10
GR    1174.6   9621.93    1174.92    9671.66    1174.94    9710.26    1174.56    9812.10    1174.58    9827.82
GR    1165.3   9853.92    1163.65    9940.49    1162.78    9978.94    1159.99    9986.26    1159.94   10010.76
GR    1161.3  10032.37    1161.81   10080.82    1162.21   10107.84    1170.86   10127.03    1172.10   10157.51
GR    1177.2  10181.89    1177.63   10216.63    1177.63   10231.99    1177.98   10271.58    1176.66   10300.91
GR    1176.9  10315.19    1176.41   10330.20    1178.12   10343.10    1177.93   10380.73    1178.00   10398.49
GR    1177.4  10500.52    1177.19   10589.84    1176.92   10635.09    1176.86   10680.16    1176.56   10686.65
GR    1176.9  10709.66    1176.76   10769.13    1175.37   10783.65    1175.16   10817.77    1175.07   10855.97
GR    1174.6  10874.42    1172.88   10898.18    1172.77   10958.71    1172.46   10976.21    1175.26   11002.97
GR    1175.5  11063.39    1174.63   11113.29    1174.81   11185.43    1173.34   11210.28    1173.39   11232.69
GR    1173.1  11239.90    1174.39   11266.18

X1    8.977        44    9866.17   10181.52        220        215      211.76
GR    1182.0   9532.00    1177.22    9557.81    1178.28    9581.17    1175.60    9600.54    1175.58    9650.37
GR    1175.1   9680.22    1175.44    9702.75    1175.95    9780.00    1175.80    9839.92    1175.88    9866.17
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GR   1164.3    9886.92    1163.70    9913.86    1162.66    9954.13    1162.59    9969.90    1161.61    9978.91
GR   1161.3   10001.25    1162.26   10055.85    1162.38   10089.06    1168.22   10096.25    1167.63   10112.20
GR   1172.6   10119.24    1173.57   10143.82    1177.97   10181.52    1178.26   10228.23    1178.85   10266.31
GR   1177.3   10308.85    1177.26   10359.51    1177.01   10415.34    1176.84   10486.99    1176.11   10594.64
GR   1175.8   10696.98    1175.33   10795.43    1174.74   10893.98    1174.86   10927.22    1175.44   10986.43
GR   1175.5   11069.72    1175.77   11095.45    1175.60   11175.75    1174.59   11208.07    1174.34   11232.44
GR   1176.5   11261.82    1176.22   11300.09    1176.33   11343.00    1175.94   11386.37

X1     8.994         50    9890.28   10200.81         90         85       91.57
GR   1182.0    9562.00    1177.14    9589.37    1176.06    9619.14    1175.80    9696.02    1176.77    9761.44
GR   1176.4    9772.73    1176.11    9819.77    1175.52    9881.52    1175.69    9890.28    1164.93    9930.75
GR   1162.2    9975.49    1161.65   10000.06    1162.24   10036.81    1162.57   10081.18    1162.48   10111.15
GR   1162.6   10121.44    1173.12   10132.61    1173.83   10167.33    1178.73   10200.81    1178.77   10247.03
GR   1179.1   10279.21    1179.41   10322.84    1179.12   10357.58    1178.71   10382.84    1178.78   10414.68
GR   1179.0   10444.28    1178.89   10472.76    1178.28   10526.98    1178.38   10597.94    1178.16   10618.06
GR   1178.3   10690.64    1178.01   10747.87    1177.64   10782.45    1177.78   10812.52    1177.48   10815.38
1
    25FEB99      15:48:53                                                                              PAGE     6

GR   1177.7   10847.36    1177.39   10906.26    1177.59   10930.91    1177.25   10985.95    1177.14   11025.58
GR   1177.3   11080.59    1177.65   11123.17    1177.43   11175.96    1176.94   11204.18    1174.97   11224.37
GR   1174.7   11254.77    1176.14   11275.48    1176.57   11277.96    1176.06   11321.66    1176.00   11343.06

X1     9.047         45    9869.58   10339.39        355        270      330.86
GR   1182.0    9721.00    1177.81    9750.27    1177.31    9764.81    1177.64    9808.93    1177.83    9859.63
GR   1177.7    9869.58    1162.68    9940.46    1162.95    9951.34    1162.78    9973.51    1161.64   10004.34
GR   1163.6   10023.06    1163.96   10049.01    1162.36   10079.20    1162.19   10105.32    1163.12   10135.97
GR   1163.6   10143.76    1165.76   10214.97    1166.42   10265.63    1173.62   10280.50    1180.42   10339.39
GR   1175.8   10377.03    1172.99   10388.87    1173.06   10455.66    1172.71   10516.59    1173.80   10523.55
GR   1178.9   10550.09    1179.10   10587.62    1179.30   10662.01    1177.59   10694.15    1178.05   10712.99
GR   1177.8   10741.37    1179.13   10771.31    1179.20   10856.69    1179.27   10864.44    1175.63   10881.41
GR   1175.6   10895.82    1176.05   10900.87    1176.11   11034.50    1176.31   11099.88    1175.31   11109.01
GR   1176.7   11119.53    1176.22   11190.99    1176.19   11245.59    1176.31   11340.23    1176.07   11368.29

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X1     9.129         37    9830.86   10344.71        370        430      394.40
GR   1184.0    9720.00    1179.46    9749.29    1178.16    9775.36    1179.45    9816.28    1180.07    9830.86
GR   1164.0    9905.36    1163.67    9923.52    1163.16   10002.15    1163.90   10050.49    1164.66   10151.43
GR   1164.6   10174.82    1167.28   10251.77    1167.47   10299.53    1175.40   10315.64    1177.56   10344.71
GR   1176.9   10351.10    1176.39   10365.01    1172.27   10383.10    1172.01   10428.34    1174.85   10445.95
GR   1176.5   10453.31    1175.81   10463.41    1176.14   10480.45    1175.85   10493.92    1178.61   10506.97
GR   1177.9   10519.63    1177.82   10568.67    1178.12   10638.34    1178.06   10659.28    1178.68   10731.58
GR   1178.9   10749.80    1179.56   10825.29    1180.37   10845.14    1177.21   10861.55    1178.18   10889.54
GR   1177.8   10914.60    1178.08   10918.36

NC                                        .3          .5

X1     9.193         35    9804.33   10329.05        400        390      391.34
GR   1185.9    9718.00    1182.17    9748.25    1181.04    9780.36    1182.05    9804.33    1164.92    9877.67
GR   1165.9    9930.03    1165.85    9969.01    1164.54    9989.97    1166.12   10026.06    1166.12   10045.86
GR   1165.9   10080.36    1165.91   10132.33    1168.22   10255.75    1168.23   10313.83    1176.06   10329.05
GR   1178.9   10362.99    1183.20   10405.01    1177.29   10453.10    1177.06   10455.89    1177.78   10473.29
GR   1177.3   10485.97    1179.46   10498.31    1179.67   10545.04    1180.13   10593.55    1180.53   10612.05
GR   1181.0   10658.42    1181.39   10737.84    1181.87   10846.55    1179.50   10858.48    1179.84   10889.38
GR   1181.5   10930.81    1181.63   10972.81    1181.59   11052.85    1181.24   11088.51    1181.77   11199.38

X1     9.289         48    9848.61   10205.10        470        455      506.29
GR   1188.0    9545.00    1184.99    9571.72    1184.89    9601.48    1184.51    9634.60    1183.91    9668.37
GR   1183.9    9696.69    1183.42    9750.80    1183.70    9780.74    1183.51    9806.45    1183.70    9822.78
GR   1183.1    9848.61    1180.25    9871.29    1177.85    9882.70    1175.25    9902.64    1172.80    9921.40
GR   1170.0    9951.27    1168.92    9980.74    1167.90    9998.22    1168.80   10012.66    1170.18   10021.42
GR   1172.4   10119.40    1172.57   10136.14    1179.18   10152.77    1182.83   10183.39    1185.00   10205.10
GR   1179.1   10256.90    1178.79   10266.01    1179.59   10277.66    1179.77   10298.30    1181.00   10307.28
GR   1180.7   10352.43    1181.00   10427.40    1181.11   10497.00    1181.47   10601.19    1181.87   10641.11
GR   1182.4   10675.62    1182.70   10715.74    1181.44   10734.04    1181.72   10770.02    1181.51   10791.79
GR   1183.1   10811.81    1183.04   10838.80    1183.44   10897.24    1183.41   10928.92    1184.11   11036.72
GR   1184.2   11060.22    1184.15   11126.69    1184.22   11157.27

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    25FEB99      15:48:53                                                                              PAGE     7

NC      0.05        0.06       0.035

X1     9.318         49    9773.17   10171.54        185        155      155.57
X3        10
GR   1188.0    9562.00    1184.89    9590.68    1184.94    9596.50    1184.35    9689.19    1183.97    9746.34
GR   1185.1    9773.17    1180.91    9783.01    1173.59    9803.10    1173.15    9842.04    1172.96    9874.03
GR   1170.6    9924.80    1170.96    9946.02    1170.29    9964.81    1168.35    9998.00    1168.60   10007.24
GR   1170.0   10021.97    1170.45   10065.22    1170.87   10090.47    1172.44   10117.60    1173.80   10137.29
GR   1180.6   10149.89    1181.87   10171.54    1181.03   10193.98    1176.49   10218.10    1176.55   10226.54
GR   1179.9   10249.06    1179.48   10260.60    1179.98   10291.96    1181.97   10308.64    1181.74   10341.42
GR   1181.9   10442.77    1182.40   10552.04    1182.82   10599.04    1182.90   10670.86    1182.79   10679.86
GR   1183.2   10723.08    1187.24   10735.63    1186.21   10763.87    1182.97   10774.62    1181.84   10806.59
GR   1182.3   10837.58    1181.92   10864.09    1184.14   10882.89    1184.36   10957.44    1184.38   11015.60
GR   1183.0   11068.72    1182.56   11128.61    1183.59   11166.27    1183.96   11248.10
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NC                                        .1          .3

X1    9.367         46    9718.30   10241.56         540         465      489.74
GR   1190.0    9612.00    1190.86    9641.28     1191.27     9665.48     1186.83    9703.09    1186.28    9718.30
GR   1172.3    9751.14    1172.29    9793.90     1171.72     9851.94     1172.20    9901.31    1173.01    9950.67
GR   1171.9    9967.49    1171.33   10004.69     1173.18    10070.88     1174.08   10145.08    1177.93   10199.32
GR   1183.4   10212.32    1184.23   10241.56     1182.71    10251.13     1181.83   10269.29    1180.40   10280.07
GR   1180.3   10291.49    1182.17   10301.94     1182.21    10314.10     1181.53   10321.59    1181.98   10339.56
GR   1181.7   10351.69    1184.85   10370.27     1185.00    10391.68     1184.72   10429.12    1184.37   10516.63
GR   1184.7   10709.59    1184.68   10857.67     1185.26    10991.59     1186.18   11007.80    1184.24   11015.70
GR   1184.3   11041.56    1184.00   11056.78     1185.43    11087.36     1185.67   11150.97    1185.80   11192.90
GR   1185.5   11200.60    1184.22   11211.42     1184.64    11244.19     1184.35   11276.25    1187.02   11293.46
GR   1187.3   11362.92

QT        1      11450

X1    9.492         27    9804.96   10312.71         430         425      463.47
GR   1192.0    9766.00    1189.11    9789.59     1188.11     9804.96     1174.71    9834.73    1175.05    9878.82
GR   1174.6    9951.83    1174.64    9961.82     1173.94    10004.75     1174.33   10057.09    1174.65   10090.43
GR   1174.9   10147.37    1176.03   10171.02     1176.23    10246.12     1178.38   10294.29    1184.43   10312.71
GR   1187.6   10340.80    1184.53   10373.45     1185.06    10451.75     1185.08   10497.41    1184.96   10520.61
GR   1185.2   10572.40    1185.39   10700.14     1185.96    10920.51     1186.65   11149.45    1186.79   11245.21
GR   1187.9   11474.04    1187.88   11492.54

X1    9.592         30    9949.30   10341.98         535         580      606.90
GR   1196.3    9895.00    1191.42    9930.13     1190.23     9949.30     1176.49    9980.97    1175.72    9984.10
GR   1175.7   10014.25    1177.78   10022.18     1177.70    10048.25     1178.01   10070.28    1178.06   10099.28
GR   1178.5   10155.62    1179.17   10199.49     1179.47    10304.78     1179.78   10311.21    1189.15   10341.98
GR   1189.6   10408.29    1190.76   10425.13     1189.38    10465.51     1184.40   10489.80    1184.06   10561.95
GR   1187.3   10588.75    1187.70   10656.59     1187.92    10662.08     1188.33   10704.93    1189.04   11002.34
GR   1189.4   11102.56    1189.48   11233.47     1189.82    11325.77     1190.26   11465.83    1190.32   11563.00

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    25FEB99      15:48:53                                                                          PAGE     8

NC      0.04       0.06      0.035       0.10       0.30

X1    9.692         19    9916.36   10315.60         525         520      565.23
GR   1204.0    9862.00    1201.34    9875.53     1193.92     9916.36     1191.19    9921.93    1178.95    9948.66
GR   1179.4    9982.36    1177.74   10000.40     1178.51    10017.83     1179.35   10044.65    1178.07   10062.48
GR   1177.2   10119.06    1177.90   10143.65     1177.64    10162.39     1178.01   10170.53    1177.61   10175.96
GR   1181.6   10224.11    1181.60   10273.10     1180.55    10296.81     1190.03   10315.60

X1    9.794         31    9922.42   10262.30         550         555      557.04
GR   1218.0    9672.00    1211.53    9695.42     1203.40     9722.62     1204.00    9736.39    1203.81    9758.28
GR   1202.9    9764.97    1198.69    9802.49     1198.51     9810.78     1197.77    9889.42    1196.86    9922.42
GR   1194.0    9941.48    1180.98    9974.59     1180.40     9988.74     1181.05    9995.18    1180.23   10015.96
GR   1181.2   10035.05    1184.45   10105.79     1184.20    10149.12     1184.75   10184.62    1184.03   10191.73
GR   1183.6   10213.30    1192.72   10232.02     1192.96    10247.71     1195.79   10262.30    1195.24   10267.56
GR   1194.8   10290.99    1194.89   10382.07     1195.23    10488.22     1195.11   10588.25    1193.64   10642.77
GR   1194.2   10676.74

NC      0.06       0.06      0.035       0.30       0.50

X1    9.889         35    9864.97   10129.90         485         495      501.31
GR   1228.0    9460.00    1226.05    9468.24     1200.17     9553.91     1199.68    9589.84    1198.55    9605.60
GR   1197.9    9651.04    1197.75    9732.86     1197.60     9751.05     1198.03    9819.32    1196.72    9850.18
GR   1201.4    9864.97    1197.96    9886.03     1196.38     9901.70     1195.14    9917.39    1186.28    9939.41
GR   1188.6    9959.08    1187.11    9975.57     1185.42     9997.59     1186.09   10008.22    1186.45   10086.77
GR   1186.1   10108.71    1189.86   10114.59     1198.00    10129.90     1198.51   10140.46    1197.67   10166.27
GR   1198.1   10184.67    1198.41   10210.58     1199.51    10270.57     1200.09   10309.73    1199.79   10399.57
GR   1199.3   10438.49    1198.66   10496.31     1200.17    10529.60     1199.82   10543.25    1200.45   10566.39

X1    9.908         43    9882.40   10138.47         120          65      103.32
X3                        9882.41    1196.38
GR   1214.0    9419.00    1204.81    9458.13     1202.80     9469.16     1202.99    9509.07    1202.36    9533.71
GR   1202.3    9535.44    1202.95    9613.28     1198.85     9638.57     1198.71    9645.54    1199.70    9693.66
GR   1199.4    9699.65    1199.36    9717.94     1198.77     9721.18     1198.72    9737.04    1199.79    9749.36
GR   1198.3    9789.16    1196.85    9824.32     1196.22     9831.87     1194.27    9839.16    1194.07    9850.44
GR   1196.3    9869.71    1196.38    9882.40     1193.67     9900.20     1194.67    9907.13    1193.34    9915.24
GR   1190.0    9927.43    1189.82    9932.44     1189.13    10003.11     1189.47   10079.45    1189.05   10121.40
GR   1198.8   10138.47    1199.94   10162.78     1200.01    10172.91     1200.38   10215.44    1200.70   10241.56
GR   1201.1   10299.09    1201.00   10327.48     1201.13    10402.04     1201.35   10422.35    1201.06   10506.02
GR   1201.6   10527.75    1200.89   10553.27     1201.40    10573.77

NC      0.06       0.06       0.03       0.30       0.50

X1    9.953         37    9870.35   10185.91         175         215      189.16
GR   1215.3    9382.00    1207.02    9397.65     1204.35     9412.27     1204.42    9447.84    1204.18    9479.05
GR   1203.5    9526.25    1203.71    9571.23     1203.13     9593.86     1202.72    9654.23    1201.61    9661.22
GR   1201.2    9674.85    1201.17    9695.83     1200.73     9724.31     1199.80    9747.69    1199.65    9760.52
GR   1200.4    9812.79    1201.00    9835.22     1202.16     9870.35     1191.04    9895.64    1190.66   10003.13
GR   1190.8   10023.61    1190.54   10078.92     1189.68    10093.86     1189.38   10116.85    1194.58   10130.16
GR   1195.0   10140.25    1201.10   10156.58     1202.77    10174.21     1203.14   10185.91    1202.69   10197.07
1
    25FEB99      15:48:53                                                                          PAGE     9
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GR   1203.0   10221.77   1202.91   10285.80   1202.53   10375.06   1202.91   10418.14   1202.96   10456.10
GR   1202.4   10525.75   1202.85   10591.74

X1     9.958         24   9865.41   10168.40         22         28      27.43
X3        10                                                        1202.12   1202.12
GR   1205.9    9380.00   1205.03    9385.73   1205.06    9416.73   1204.76    9444.33   1204.40    9494.19
GR   1204.6    9505.79   1204.02    9595.82   1203.88    9663.50   1204.37    9691.98   1204.43    9803.99
GR   1204.2    9841.32   1203.19    9865.41   1191.18    9895.12   1190.70   10063.77   1190.47   10088.68
GR   1190.5   10125.43   1194.07   10135.81   1194.05   10143.30   1203.03   10168.40   1204.13   10186.27
GR   1204.2   10197.69   1203.75   10206.53   1203.60   10221.59   1204.01   10267.47

SB     0.90        1.6       2.68          0        240        4.7    2496.3          2   1191.15   1191.04

X1     9.984         26   9864.55   10172.35        130        129     133.96
X2                            1.0    1200.24    1204.01
X3        10                                                        1204.9   1204.01
BT        -9    9334.00    1204.9                 9589     1206.8                9600   1206.75
BT          9738.64    1206.5                 9864     1206.67   1206.67    9864.01   1206.67    1200.24
BT         10177.99    1206.67    1200.24    10178     1206.67   1206.67   10409.02   1204.01
GR   1204.9    9334.00   1204.82    9419.99   1205.11    9434.19   1204.38    9579.64   1204.19    9673.54
GR   1204.3    9723.58   1203.67    9755.46   1203.59    9826.00   1203.16    9864.55   1199.30    9878.79
GR   1191.3    9896.50   1191.26    9960.11   1191.15    9998.46   1191.28   10081.52   1191.33   10115.82
GR   1191.0   10128.83   1194.14   10139.49   1194.07   10147.33   1195.57   10151.89   1204.00   10172.35
GR   1204.3   10199.25   1203.86   10218.46   1204.21   10258.03   1204.44   10309.80   1204.15   10359.68
GR   1204.0   10409.02

X1     9.997         35   9879.59   10166.10         51        104      74.24
GR   1214.2    9340.00   1207.00    9352.35   1204.45    9371.82   1204.48    9407.13   1205.45    9446.64
GR   1204.8    9482.27   1204.52    9519.13   1204.10    9525.68   1203.58    9576.77   1203.88    9668.50
GR   1203.9    9684.88   1205.05    9714.68   1203.31    9777.46   1201.10    9815.94   1199.69    9834.40
GR   1200.6    9851.88   1200.73    9879.59   1197.27    9888.55   1191.71    9904.24   1192.29   10023.36
GR   1192.1   10055.84   1192.39   10096.68   1192.61   10102.64   1192.73   10130.11   1198.06   10144.96
GR   1198.4   10154.62   1200.72   10166.10   1201.00   10192.70   1201.65   10346.90   1201.81   10426.32
GR   1202.3   10522.07   1202.25   10547.88   1203.25   10577.25   1202.82   10592.47   1203.20   10614.94

NC     0.06        0.06       0.03          0.10          0.30

X1    10.096         38   9718.95   10149.13        535        555      543.99
X3        10
GR   1217.8    9294.00   1210.57    9335.91   1208.38    9371.68   1205.88    9398.45   1205.34    9406.41
GR   1205.0    9459.94   1205.07    9538.72   1204.73    9563.14   1202.94    9615.70   1202.75    9648.79
GR   1199.1    9677.65   1198.08    9704.94   1202.39    9718.95   1194.25    9764.70   1194.44    9773.46
GR   1195.9    9808.57   1195.57    9819.17   1194.76    9827.41   1196.68    9850.49   1196.23    9882.89
GR   1196.1    9962.59   1193.96    9980.59   1193.84   10013.00   1195.17   10023.31   1195.35   10061.23
GR   1196.6   10078.07   1197.65   10109.46   1203.53   10121.70   1204.41   10149.13   1204.68   10194.54
GR   1206.0   10267.79   1206.09   10281.64   1205.16   10387.24   1204.95   10451.00   1205.11   10501.24
GR   1205.0   10517.76   1204.51   10526.38   1204.65   10541.18

1
    25FEB99      15:48:53                                                                          PAGE   10

X1    10.176         37   9720.47   10129.28        510        550      553.29
X3        10
GR   1218.0    9320.00   1215.79    9342.15   1209.77    9367.97   1205.27    9382.78   1204.52    9445.62
GR   1204.1    9501.34   1207.57    9521.03   1208.61    9540.11   1209.57    9564.44   1207.20    9587.25
GR   1205.0    9634.90   1203.40    9667.17   1202.83    9706.95   1200.98    9713.81   1203.68    9720.47
GR   1200.4    9737.82   1200.25    9765.52   1199.95    9779.43   1198.70    9872.33   1198.38    9955.39
GR   1198.5    9960.20   1195.87    9979.28   1195.57   10010.54   1198.88   10027.61   1199.59   10058.83
GR   1199.7   10063.89   1198.79   10070.72   1200.22   10118.38   1205.57   10129.28   1204.93   10153.39
GR   1205.3   10165.28   1206.12   10227.18   1206.86   10301.40   1207.18   10426.08   1207.13   10440.36
GR   1207.5   10508.37   1206.97   10569.25

QT        1      10900

X1    10.271         37   9854.54   10280.99        460        455      491.26
GR   1216.1    9491.00   1205.79    9536.53   1205.96    9586.12   1205.36    9692.04   1205.92    9782.47
GR   1210.9    9804.37   1211.60    9818.13   1212.14    9836.60   1211.43    9854.54   1202.76    9880.46
GR   1202.0    9920.70   1202.76    9933.62   1201.68    9949.76   1198.26    9971.38   1198.40   10022.21
GR   1199.6   10032.36   1200.82   10053.82   1201.25   10079.66   1201.45   10127.98   1201.33   10141.27
GR   1202.1   10153.03   1202.09   10182.74   1200.36   10200.52   1199.90   10215.05   1199.52   10259.70
GR   1206.6   10280.99   1206.06   10310.32   1206.03   10388.32   1205.83   10406.86   1205.11   10415.69
GR   1205.7   10468.77   1205.90   10517.17   1207.15   10670.08   1207.50   10750.84   1207.62   10782.79
GR   1206.6   10818.50   1207.07   10843.70

X1    10.348         38   9957.23   10382.66        510        385      523.00
GR   1226.0    9565.00   1212.07    9618.55   1211.15    9631.61   1210.07    9706.38   1209.95    9729.72
GR   1209.8    9835.72   1209.73    9854.32   1215.57    9874.56   1213.46    9912.21   1212.49    9923.35
GR   1212.7    9957.23   1202.30    9976.86   1202.15   10001.99   1205.11   10047.79   1204.47   10062.98
GR   1205.2   10081.57   1204.48   10097.56   1202.41   10129.49   1202.97   10146.71   1201.21   10176.03
GR   1201.4   10193.48   1204.29   10208.49   1202.45   10232.55   1202.54   10249.81   1202.58   10351.23
GR   1202.7   10361.56   1208.90   10382.66   1208.48   10417.97   1208.05   10467.24   1208.18   10511.03
GR   1207.7   10517.01   1208.11   10530.55   1207.80   10547.77   1208.43   10660.30   1208.70   10793.20
GR   1209.6   10844.58   1207.96   10878.78   1208.32   10904.64
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X1   10.443        38    9875.81   10314.96        475        420     494.83
GR   1214.0    9284.00    1213.40    9288.09    1213.28    9310.91    1212.49    9389.51    1213.10    9395.02
GR   1212.0    9414.45    1211.73    9500.08    1211.50    9525.00    1210.71    9547.59    1210.43    9563.81
GR   1224.2    9612.23    1227.16    9628.10    1228.50    9661.63    1229.34    9689.34    1227.87    9709.16
GR   1224.9    9720.12    1219.55    9745.53    1216.73    9757.93    1217.48    9767.19    1217.98    9795.24
GR   1210.5    9838.58    1210.53    9875.81    1207.90    9893.41    1207.09    9896.92    1206.62    9954.48
GR   1204.6    9976.71    1205.81   10020.13    1206.35   10104.56    1206.29   10145.97    1205.28   10203.45
GR   1205.3   10264.41    1211.67   10282.67    1213.65   10314.96    1212.83   10410.42    1212.69   10418.45
GR   1212.4   10484.54    1211.09   10513.70    1211.26   10541.40

X1   10.517        27    9771.20   10108.57        425        480     519.30
X3       10
GR   1216.7    9005.00    1216.66    9170.01    1216.37    9274.41    1215.89    9375.16    1215.95    9464.87
GR   1216.1    9519.11    1213.87    9534.66    1212.93    9572.86    1219.44    9615.29    1220.64    9648.11
GR   1218.3    9669.21    1211.50    9688.22    1209.61    9749.23    1218.09    9771.20    1208.22    9801.49
GR   1209.6    9818.46    1210.44    9871.90    1209.63    9927.54    1208.21    9969.81    1207.43   10018.11
1
    25FEB99      15:48:53                                                                                  PAGE   11

GR   1208.6   10036.17    1208.26   10046.63    1207.56   10095.36    1212.41   10108.57    1211.06   10133.19
GR   1211.8   10236.89    1212.00   10315.07

X1   10.612        29    9908.43   10249.66        490        435     504.93
X3       10
GR   1219.9    9048.00    1218.43    9056.24    1218.80    9108.47    1218.55    9207.24    1218.42    9317.08
GR   1218.2    9406.44    1218.32    9494.41    1217.53    9630.26    1218.12    9709.10    1217.22    9798.17
GR   1216.4    9829.94    1216.39    9836.78    1221.50    9860.25    1221.45    9900.45    1220.88    9908.43
GR   1214.6    9924.93    1208.81    9941.99    1208.77    9995.58    1209.65   10031.37    1210.88   10094.63
GR   1210.3   10117.43    1210.09   10138.78    1210.14   10181.06    1210.00   10192.84    1209.98   10234.38
GR   1215.6   10249.66    1215.84   10352.46    1213.68   10384.84    1213.84   10400.09

X1   10.699        35    9958.52   10251.21        460        460     462.24
GR   1218.0    8912.00    1220.57    8926.34    1221.50    8934.06    1220.97    8945.19    1220.81    9012.40
GR   1220.6    9058.23    1220.40    9149.10    1220.12    9281.44    1220.09    9395.19    1219.95    9494.65
GR   1220.0    9554.71    1219.97    9617.05    1219.52    9667.31    1219.26    9713.93    1219.49    9781.25
GR   1220.1    9790.75    1220.67    9831.40    1221.76    9856.59    1219.62    9874.77    1223.65    9908.51
GR   1223.8    9924.34    1223.54    9940.54    1222.81    9958.52    1209.46    9985.14    1209.49   10026.34
GR   1211.3   10059.24    1212.67   10102.30    1214.69   10147.70    1213.51   10179.34    1213.36   10238.84
GR   1218.2   10251.21    1218.83   10283.08    1218.30   10358.76    1216.71   10386.54    1216.85   10402.20

X1   10.803        36    9795.08   10215.45        555        555     567.30
X3       10
GR   1224.1    8729.00    1225.00    8733.57    1223.73    8741.50    1223.93    8812.35    1224.06    8890.69
GR   1224.4    8989.13    1224.56    9095.68    1224.47    9205.03    1224.54    9295.79    1224.34    9386.74
GR   1223.6    9510.25    1222.79    9607.53    1227.10    9621.28    1227.58    9658.11    1228.24    9670.69
GR   1228.5    9701.40    1219.93    9748.86    1218.42    9772.23    1220.90    9795.08    1220.69    9824.49
GR   1219.8    9852.63    1220.07    9871.17    1217.91    9913.50    1217.36    9925.08    1214.56    9938.72
GR   1214.7    9987.09    1214.10    9997.56    1216.05   10008.12    1217.05   10049.49    1215.50   10074.31
GR   1215.0   10126.54    1215.76   10179.25    1219.99   10190.94    1220.34   10215.45    1220.21   10290.82
GR   1220.0   10364.40

X1   10.862        41    9850.56   10118.76        265        360     313.15
X3       10
GR   1224.0    8693.00    1225.12    8699.30    1224.75    8711.18    1224.71    8812.47    1224.61    8877.06
GR   1225.1    8973.17    1225.28    9052.06    1225.46    9109.55    1225.36    9197.22    1225.52    9272.18
GR   1225.6    9337.49    1225.46    9371.66    1224.37    9479.31    1224.09    9565.38    1223.33    9621.60
GR   1226.3    9635.85    1224.89    9685.37    1225.68    9696.76    1224.75    9713.74    1224.05    9738.95
GR   1222.7    9781.15    1222.82    9823.51    1222.96    9836.85    1224.34    9840.35    1228.35    9850.56
GR   1216.6    9875.49    1216.54    9892.85    1217.66    9912.50    1215.89    9934.73    1215.97    9968.60
GR   1215.6    9999.37    1215.43   10003.08    1216.49   10020.00    1215.66   10082.87    1220.97   10097.01
GR   1223.2   10118.76    1223.26   10157.02    1223.37   10185.23    1221.21   10237.67    1221.66   10253.88
GR   1221.0   10268.53

1
    25FEB99      15:48:53                                                                                  PAGE   12

X1   10.917        31    9808.72   10200.72        265        300     292.21
X3       10
GR   1225.9    8805.00    1225.85    8972.29    1226.22    9066.58    1226.57    9263.12    1226.02    9375.59
GR   1225.4    9461.75    1224.76    9571.45    1224.20    9661.22    1223.54    9750.80    1223.78    9767.16
GR   1226.6    9781.35    1225.99    9800.80    1223.78    9808.72    1221.71    9818.09    1220.39    9847.62
GR   1219.0    9875.50    1218.10    9910.70    1216.74    9945.80    1216.73   10009.70    1216.95   10046.04
GR   1217.7   10099.87    1217.95   10106.64    1222.78   10122.36    1222.53   10144.60    1223.11   10164.12
GR   1224.5   10200.72    1224.19   10214.25    1224.42   10220.10    1224.63   10299.07    1222.75   10368.52
GR   1223.0   10384.10

NC                                        .3         .5

X1   10.980        37    9869.32   10118.92        445        300     357.93
X3       10                                                          1228.38    1228.38
GR   1236.2    8902.00    1235.03    9009.48    1233.52    9081.57    1230.68    9197.15    1230.24    9238.17
GR   1228.2    9329.77    1228.20    9376.07    1228.17    9408.17    1227.95    9436.53    1228.30    9492.53
GR   1228.3    9514.74    1227.77    9576.16    1227.28    9654.38    1227.65    9703.17    1227.39    9725.18
GR   1227.5    9735.57    1227.16    9780.11    1227.79    9835.41    1227.57    9869.32    1219.27    9897.23
GR   1219.5    9920.15    1219.08    9980.77    1218.60   10028.89    1218.62   10081.72    1223.70   10098.80
GR   1227.9   10114.18    1228.67   10118.92    1229.28   10154.40    1229.31   10188.69    1228.99   10211.10
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GR   1228.1   10266.51    1227.81   10365.25     1228.17    10374.35     1228.11    10413.39     1228.32    10441.35
GR   1228.6   10502.20    1228.33   10524.42

  CHANGED ELEVATION 1218.19 TO 1216.61 A T STA 10088.04


SB     1.05        1.6         2.8                186.22           8     1932.34           3     1218.61    1218.60

X1   10.996         38     9873.61   10127.60         128         127      129.13
X2                             1     1228.23     1228.47
X3       10                                                                1228.47    1229.05
BT      -31     9209.00      1232.3                9227.18      1232.1                9284.39     1231.3
BT              9363.47     1230.13                9391.57     1229.66                9491.57    1228.59
BT              9591.57     1228.47                9691.57     1230.33                9800.44    1230.73
BT              9820.12     1233.04                9839.42     1233.24                9855.82    1233.39
BT              9872.00     1233.52     1227.82    9880.42     1233.59     1227.88    9905.02    1233.75     1228.0
BT              9937.82     1233.90     1228.19    9970.62     1233.99     1228.28   10003.43       1234     1228.2
BT             10036.23     1233.94     1228.23   10069.03     1233.82     1228.11   10101.83    1233.63     1227.9
BT             10115.13     1233.53     1227.82   10126.65     1233.44      1227.8   10134.65    1233.37
BT             10142.29      1233.3                10167.44     1233.03                10200.24    1232.64
BT             10233.05     1232.24                10263.48     1231.84                10263.5     1229.76
BT             10429.91     1229.05
GR   1236.2     8929.00     1235.80     8960.26    1234.20     8986.64     1232.98     9020.24    1231.82     9058.54
GR   1230.2     9146.85     1229.61     9203.88    1229.12     9235.52     1228.93     9311.85    1228.65     9380.46
GR   1227.8     9409.74     1227.61     9556.72    1227.24     9592.30     1227.13     9662.76    1227.60     9786.01
GR   1227.8     9831.36     1228.24     9850.57    1228.19     9873.61     1222.31     9901.51    1219.40     9916.21
GR   1218.8    10057.67     1218.61    10088.04    1222.44    10105.10     1228.55    10127.60    1229.36    10176.84
GR   1229.0    10254.12     1227.94    10258.07    1226.56    10272.53     1228.84    10293.62    1228.56    10310.22
GR   1228.0    10392.84     1229.07    10435.68    1228.86    10471.63     1228.17    10501.42    1228.41    10521.96
GR   1229.8    10532.52     1229.41    10548.27    1229.35    10566.57

1
    25FEB99      15:48:53                                                                                  PAGE   13


X1   11.030         38     9909.05   10139.94         200         140      167.81
GR   1234.0     8960.00     1233.58     8980.68    1230.12     9011.25     1228.86     9085.72    1228.64     9109.21
GR   1228.7     9184.36     1228.44     9234.32    1227.90     9309.21     1228.17     9393.14    1229.16     9417.45
GR   1228.3     9441.08     1229.45     9478.71    1227.99     9491.57     1227.25     9680.85    1227.22     9708.72
GR   1226.7     9781.31     1226.64     9809.22    1226.85     9838.37     1228.08     9885.45    1229.05     9909.05
GR   1223.5     9929.79     1219.37     9943.87    1219.40    10037.48     1220.02    10088.04    1227.65    10134.60
GR   1228.9    10139.94     1229.13    10166.44    1229.84    10249.08     1229.95    10323.92    1230.20    10333.76
GR   1227.8    10347.89     1229.15    10375.57    1229.08    10449.73     1229.94    10479.19    1230.20    10547.18
GR   1230.3    10575.45     1230.89    10628.86    1230.00    10644.42

NC    0.045       0.045        0.03          .1          .3

X1   11.129         48     9828.29   10120.15         565         495      516.79
X3       10
GR   1230.0     9004.00     1231.31     9022.25    1230.94     9041.69     1230.21     9093.69    1230.27     9205.62
GR   1229.9     9282.22     1229.84     9387.83    1230.22     9469.37     1230.51     9551.22    1230.74     9578.78
GR   1231.1     9596.83     1226.87     9621.45    1226.11     9636.84     1225.42     9641.03    1225.18     9695.55
GR   1224.4     9740.49     1225.40     9765.65    1228.16     9782.42     1231.57     9796.24    1231.15     9826.13
GR   1231.3     9828.29     1220.98     9861.40    1220.68     9891.10     1221.52     9928.19    1219.44     9946.92
GR   1219.4    10018.80     1219.39    10039.39    1221.52    10068.63     1221.69    10094.84    1231.76    10120.15
GR   1230.7    10152.71     1230.03    10185.08    1230.46    10286.28     1231.22    10345.31    1231.87    10387.47
GR   1232.3    10408.12     1229.78    10421.68    1232.18    10458.63     1232.67    10491.38    1231.71    10524.76
GR   1230.9    10538.53     1233.94    10554.59    1233.34    10584.41     1233.48    10642.87    1230.38    10670.33
GR   1230.8    10695.41     1230.28    10713.99    1232.00    10737.37

QT       1       10350

X1   11.188         55     9865.77   10124.74         305         300      309.44
X3       10
GR   1232.0     9041.00     1231.15     9115.33    1231.27     9134.84     1231.29     9320.71    1231.02     9420.86
GR   1231.5     9479.22     1232.21     9498.73    1233.89     9504.38     1235.75     9517.47    1235.25     9529.42
GR   1233.1     9541.87     1235.22     9560.31    1235.15     9577.03     1232.45     9590.29    1231.59     9626.37
GR   1224.9     9648.41     1218.92     9667.19    1218.53     9727.11     1218.51     9750.16    1218.78     9800.35
GR   1231.4     9838.94     1231.31     9859.24    1232.77     9865.77     1221.37     9904.11    1221.68     9925.94
GR   1221.6     9953.13     1219.14     9973.81    1219.24    10020.06     1221.04    10046.79    1221.96    10061.75
GR   1221.7    10083.91     1230.75    10118.07    1232.93    10124.74     1231.84    10137.65    1231.65    10222.24
GR   1231.9    10287.91     1232.20    10322.53    1233.08    10381.16     1233.47    10422.81    1233.80    10444.15
GR   1230.8    10457.76     1233.51    10494.01    1233.88    10530.59     1233.00    10560.22    1231.82    10572.71
GR   1234.9    10588.37     1233.35    10672.97    1234.21    10681.83     1232.85    10688.27    1232.72    10698.88
GR   1232.1    10716.12     1232.45    10726.76    1231.70    10748.02     1233.46    10770.25    1234.00    10813.49

X1   11.243         46     9887.62   10109.22         295         335      314.34
X3       10
GR   1231.8     9045.00     1233.38     9054.46    1231.28     9149.54     1231.14     9247.85    1231.21     9286.87
GR   1231.1     9356.70     1231.67     9443.04    1231.72     9460.96     1231.08     9487.11    1218.35     9529.07
GR   1218.4     9677.97     1218.42     9816.78    1231.14     9861.96     1231.21     9873.99    1232.84     9882.80
GR   1233.7     9887.62     1224.76     9917.39    1222.23     9925.15     1221.10     9966.73    1219.13     9985.42
GR   1219.2    10011.89     1223.23    10043.76    1222.86    10075.46     1234.30    10109.22    1233.46    10121.84
GR   1233.1    10165.28     1233.51    10276.72    1234.48    10371.05     1235.87    10492.94    1234.10    10502.21
GR   1232.6    10509.53     1234.99    10539.77    1234.83    10547.78     1235.56    10581.98    1234.98    10612.73
1
    25FEB99      15:48:53                                                                                  PAGE   14


GR   1233.9    10625.25     1236.74    10643.35    1236.46    10667.70     1236.29    10713.47    1236.03    10734.03
GR   1235.5    10744.01     1233.91    10761.90    1234.31    10780.34     1235.02    10822.13    1234.82    10909.68
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GR   1234.6   10940.42

X1   11.301         45    9883.56   10107.77         300         275       289.90
X3        10
GR   1234.0    9052.00   1235.11    9070.93    1234.97    9091.44    1233.70    9137.56    1232.26    9187.01
GR   1231.8    9300.96   1231.82    9306.67    1233.33    9320.68    1231.94    9329.32    1232.14    9347.02
GR   1232.2    9379.69   1231.22    9454.18    1230.68    9483.89    1223.69    9510.19    1223.69    9828.80
GR   1231.0    9857.44   1231.34    9872.47    1232.87    9883.56    1221.78    9921.65    1222.87    9928.94
GR   1221.9    9951.10   1222.05    9961.37    1221.27   10013.49    1223.83   10037.02    1223.68   10064.26
GR   1232.5   10099.96   1234.82   10107.77    1235.33   10200.70    1235.47   10255.01    1235.90   10334.00
GR   1236.4   10389.16   1236.27   10402.35    1236.72   10462.61    1237.09   10521.61    1233.53   10537.78
GR   1236.0   10566.27   1236.33   10579.08    1236.51   10611.66    1236.17   10643.13    1235.99   10658.31
GR   1238.0   10672.93   1237.72   10709.94    1238.30   10812.37    1238.30   10841.78    1238.02   10853.55

NC    0.045       0.06      0.035

X1   11.386         43    9863.67   10133.31         445         415       436.60
X3        10
GR   1238.0    9104.00   1238.00    9123.73    1226.67    9191.60    1225.61    9220.12    1225.95    9256.82
GR   1231.0    9280.43   1228.94    9287.19    1229.46    9308.14    1229.76    9394.57    1229.82    9401.11
GR   1228.9    9481.84   1229.01    9515.86    1230.04    9536.77    1230.05    9593.60    1229.96    9609.85
GR   1230.2    9689.93   1230.22    9711.91    1230.37    9789.39    1229.50    9849.51    1233.46    9863.67
GR   1226.3    9882.21   1223.19    9891.31    1226.78    9931.36    1223.57    9967.31    1223.55    9973.51
GR   1223.1   10044.54   1229.38   10065.65    1228.89   10089.95    1230.94   10109.70    1238.40   10133.31
GR   1238.1   10237.54   1238.23   10272.91    1242.54   10303.28    1241.68   10313.95    1238.11   10332.85
GR   1238.0   10363.13   1239.24   10432.47    1239.15   10467.83    1239.39   10532.44    1239.58   10609.10
GR   1234.8   10629.07   1238.14   10669.31    1238.20   10700.17

X1   11.481         49    9842.07   10210.27         510         555       523.22
X3        10
GR   1240.0    9213.00   1231.30    9259.07    1230.96    9289.22    1230.07    9294.24    1228.64    9312.12
GR   1228.4    9351.41   1229.22    9380.55    1234.43    9396.73    1229.72    9405.88    1230.75    9441.10
GR   1233.7    9450.35   1229.09    9459.92    1229.38    9484.46    1228.69    9512.58    1232.91    9527.94
GR   1233.9    9533.33   1233.72    9537.96    1228.96    9551.67    1229.99    9565.36    1230.13    9626.91
GR   1231.1    9699.79   1231.84    9769.56    1232.16    9826.52    1236.77    9842.07    1234.57    9849.46
GR   1225.7    9874.37   1224.81    9910.11    1227.89    9942.30    1226.04    9982.82    1225.45   10006.70
GR   1226.5   10013.65   1227.81   10060.55    1228.66   10103.46    1234.10   10123.39    1233.97   10146.77
GR   1234.0   10175.50   1237.23   10194.78    1240.19   10210.27    1240.78   10240.77    1240.70   10257.84
GR   1241.5   10321.22   1242.00   10371.31    1242.04   10427.88    1242.11   10499.82    1242.36   10600.96
GR   1241.8   10713.02   1241.98   10765.73    1241.28   10778.90    1241.64   10811.84

  Left Overbank is affected by expansion(11.566)

1
   25FEB99      15:48:53                                                                                    PAGE   15

X1   11.566         64    9523.18   10058.35         565         545       468.92
GR   1240.0    9217.00   1241.94    9243.61    1243.12    9263.08    1235.34    9307.74    1235.06    9328.39
GR   1235.4    9341.54   1233.44    9355.88    1240.89    9368.38    1241.33    9379.99    1233.84    9408.25
GR   1233.6    9428.19   1236.00    9441.21    1235.92    9455.53    1235.04    9467.11    1234.83    9495.42
GR   1234.3    9509.06   1234.96    9523.18    1234.44    9543.01    1232.21    9556.13    1231.97    9565.05
GR   1229.3    9590.35   1229.37    9612.35    1228.55    9673.74    1229.76    9727.08    1228.48    9769.86
GR   1228.6    9787.53   1229.71    9842.83    1229.49    9858.42    1230.00    9883.62    1229.58    9913.00
GR   1229.0    9932.09   1229.69    9962.18    1228.59    9987.62    1228.32   10023.35    1234.13   10037.42
GR   1243.3   10058.35   1243.56   10068.09    1243.57   10096.08    1243.75   10156.89    1243.26   10195.96
GR   1242.7   10215.88   1242.04   10254.08    1243.29   10265.37    1242.98   10281.07    1242.85   10286.74
GR   1242.9   10380.23   1243.85   10480.60    1244.38   10567.95    1244.25   10701.36    1244.43   10785.01
GR   1244.5   10879.83   1244.41   10910.88    1245.20   10926.94    1243.14   10935.49    1243.04   10944.13
GR   1243.9   10964.63   1243.45   11006.16    1243.45   11021.48    1242.43   11034.46    1244.55   11055.81
GR   1244.1   11100.69   1243.81   11144.02    1241.95   11171.29    1241.91   11174.93

  LEFT OVERBANK WAS SET DUE TO EXPANSION(11.664)

X1   11.664         49    9730.43   10052.37         535         515       513.83
GR   1242.1    9320.00   1243.88    9340.74    1245.57    9371.82    1242.97    9388.89    1239.19    9409.19
GR   1236.8    9488.20   1243.40    9510.42    1241.47    9516.13    1237.15    9531.47    1235.87    9573.54
GR   1236.2    9662.56   1232.61    9717.06    1232.30    9730.43    1231.61    9787.16    1231.67    9815.35
GR   1232.0    9824.67   1230.40    9884.86    1230.85    9920.74    1231.01    9952.14    1228.99    9964.99
GR   1228.8   10014.00   1244.86   10052.37    1245.52   10098.66    1245.38   10205.55    1244.63   10278.51
GR   1244.7   10364.72   1245.00   10404.73    1243.98   10464.97    1244.36   10536.07    1244.47   10559.65
GR   1245.8   10585.61   1245.26   10594.36    1245.23   10650.67    1246.12   10723.36    1246.24   10751.60
GR   1246.1   10826.22   1246.81   10911.07    1246.85   10942.04    1246.27   11022.64    1246.40   11133.10
GR   1246.6   11161.18   1246.99   11173.53    1245.08   11183.38    1246.27   11206.23    1246.02   11270.25
GR   1244.6   11284.98   1246.44   11298.78    1246.56   11315.55    1246.01   11344.37

X1   11.759         65    9858.37   10130.39         485         470       501.24
GR   1246.0    9380.00   1247.47    9411.85    1237.12    9448.72    1235.12    9505.51    1234.93    9552.05
GR   1235.0    9596.10   1234.63    9635.78    1234.75    9656.13    1235.20    9677.71    1244.58    9698.81
GR   1242.9    9710.55   1242.88    9727.37    1236.32    9748.99    1244.09    9771.52    1244.46    9791.44
GR   1244.4    9807.81   1240.79    9819.26    1242.57    9823.36    1239.21    9829.85    1242.12    9839.37
GR   1238.8    9849.88   1241.08    9858.37    1234.17    9869.84    1234.21    9928.41    1234.19    9943.92
GR   1234.7    9960.27   1235.17    9990.31    1232.02    9997.43    1232.25   10042.04    1234.27   10059.13
GR   1234.2   10095.05   1233.97   10100.53    1246.55   10130.39    1246.85   10142.30    1247.06   10225.77
GR   1246.3   10304.48   1245.66   10383.19    1245.66   10475.98    1245.39   10562.80    1245.41   10575.61
GR   1244.8   10625.75   1243.57   10657.35    1243.55   10662.34    1243.90   10768.32    1244.38   10868.46
GR   1244.6   10915.38   1247.80   10938.13    1248.02   11050.27    1248.14   11085.38    1248.07   11275.36
GR   1248.0   11369.50   1248.45   11404.60    1249.21   11412.55    1249.52   11417.07    1247.86   11430.62
GR   1248.6   11447.94   1248.74   11479.92    1247.94   11515.93    1247.12   11526.98    1247.48   11541.06
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GR   1245.0   11546.12   1244.56   11556.70   1244.78   11576.66   1244.54   11597.61   1246.56   11620.05


X1   11.864         69   9832.97   10118.56        605        665    615.28
GR   1242.0    9457.00   1241.63    9513.08   1241.74    9602.35   1239.18    9617.01   1239.11    9623.30
GR   1239.7    9660.06   1241.11    9692.74   1241.15    9749.87   1241.34    9791.41   1241.22    9832.97
GR   1240.6    9856.60   1240.43    9887.29   1235.84    9896.12   1235.57    9921.44   1236.26    9925.06
GR   1237.0    9951.56   1236.65    9960.02   1237.05   10035.33   1236.97   10064.50   1236.26   10092.91
GR   1240.0   10106.90   1240.45   10118.56   1237.51   10130.48   1248.09   10155.03   1250.39   10162.06
1
    25FEB99      15:48:53                                                                          PAGE   16


GR   1250.8   10181.61   1250.63   10186.50   1251.79   10208.62   1253.30   10218.70   1242.98   10241.04
GR   1247.1   10267.88   1246.37   10306.91   1246.91   10315.52   1246.20   10361.53   1246.18   10381.98
GR   1246.9   10411.28   1247.53   10492.53   1247.45   10507.94   1247.40   10526.95   1248.25   10540.69
GR   1248.0   10646.53   1248.14   10746.82   1247.87   10807.84   1247.80   10845.75   1248.09   10951.51
GR   1248.2   10972.51   1248.38   11053.19   1248.17   11108.97   1248.26   11132.09   1248.27   11266.94
GR   1247.8   11275.43   1251.01   11292.83   1250.30   11308.40   1250.17   11399.39   1250.22   11448.86
GR   1250.6   11553.79   1250.35   11642.08   1250.36   11679.66   1250.76   11783.75   1250.90   11791.44
GR   1251.5   11795.97   1249.79   11809.30   1251.19   11825.54   1251.70   11859.76   1250.97   11891.49
GR   1249.9   11905.10   1250.65   11917.77   1247.54   11923.48   1247.15   11941.26


NC     0.06       0.06      0.035

X1   11.949         79   9673.75   10428.00        565        380    452.25
X3       10
GR   1252.0    9320.00   1252.72    9340.38   1252.27    9354.07   1251.06    9379.51   1251.34    9388.34
GR   1250.0    9426.34   1249.50    9443.29   1244.15    9458.10   1243.17    9542.24   1243.06    9563.90
GR   1244.3    9584.85   1247.72    9650.51   1248.70    9673.75   1247.84    9705.69   1247.26    9738.43
GR   1245.3    9753.82   1246.42    9765.51   1245.82    9772.96   1241.28    9787.33   1242.45    9805.15
GR   1242.0    9836.25   1244.24    9878.93   1245.13    9893.21   1239.71    9915.65   1239.00    9974.92
GR   1239.1   10050.62   1239.17   10079.84   1238.90   10105.39   1241.77   10120.23   1241.04   10136.92
GR   1239.5   10188.32   1242.65   10231.21   1243.20   10256.85   1244.39   10323.37   1244.81   10325.20
GR   1244.7   10341.45   1242.00   10362.64   1241.81   10383.08   1247.16   10403.18   1248.88   10412.63
GR   1248.8   10428.00   1247.94   10442.64   1247.93   10479.36   1248.75   10497.97   1248.81   10553.94
GR   1247.9   10629.27   1249.14   10677.54   1250.23   10711.85   1249.78   10759.77   1249.64   10859.51
GR   1249.5   10896.76   1249.65   10958.52   1249.59   11017.72   1249.86   11090.31   1249.84   11248.77
GR   1250.0   11341.52   1249.91   11373.85   1250.17   11462.35   1250.16   11480.12   1249.37   11487.38
GR   1252.3   11500.60   1252.55   11507.16   1251.71   11515.49   1251.91   11611.62   1251.73   11753.21
GR   1252.0   11833.41   1252.12   11947.81   1252.13   11997.03   1252.91   12004.41   1251.76   12006.99
GR   1253.4   12010.55   1252.41   12024.24   1252.87   12041.68   1253.11   12070.93   1252.12   12110.93
GR   1252.1   12115.68   1254.23   12129.85   1251.78   12148.74   1251.95   12170.55

  CODED OUT TRENCH ADJACENT TO FLETCHER HEIGHTS


X1   12.034         72   9568.41   10210.39        485        615    539.66
X3       10
GR   1254.0    9213.00   1253.38    9220.00   1254.54    9235.21   1253.68    9286.76   1252.80    9376.99
GR   1252.4    9501.88   1253.86    9557.44   1253.64    9568.41   1253.36    9608.98   1252.99    9631.85
GR   1251.9    9683.23   1250.55    9719.47   1248.73    9732.10   1247.48    9744.74   1246.55    9778.46
GR   1245.1    9814.00   1242.62    9844.50   1241.73    9952.09   1241.47    9997.91   1242.27   10060.49
GR   1242.6   10072.37   1246.28   10086.14    1244.5   10172.6    1250.90   10186.14   1250.96   10210.39
GR   1252.2   10222.61   1252.66   10240.53   1255.52   10269.53   1255.70   10297.52   1255.55   10345.02
GR   1255.7   10414.46   1256.41   10507.80   1254.81   10543.63   1255.10   10625.84   1255.07   10669.22
GR   1255.4   10717.05   1254.99   10828.77   1254.69   10929.62   1253.80   10939.84   1253.38   10970.08
GR   1255.1   10999.45   1255.18   11091.42   1254.69   11104.05   1253.30   11111.71   1252.52   11126.93
GR   1252.3   11153.59   1253.52   11222.48   1249.43   11237.43   1250.00   11285.65   1250.29   11292.32
GR   1250.4   11359.58   1250.61   11396.92   1250.61   11497.53   1251.00   11531.69   1256.33   11572.18
GR   1254.0   11589.75   1254.34   11658.39   1254.31   11710.68   1254.80   11761.30   1254.29   11791.91
GR   1256.7   11802.96   1256.42   11878.86   1256.47   11919.14   1256.80   11970.78   1256.74   12042.08
GR   1256.9   12129.06   1256.79   12181.35   1257.28   12296.42   1257.20   12330.15   1256.99   12357.20
GR   1257.9   12385.72   1257.82   12389.41

  CROSS SECTION ADJUSTED PER FLETCHER HEIGTHS GRADING PLAN
1
    25FEB99      15:48:53                                                                          PAGE   17


X1   12.125         81   9685.34   10437.79        535        365    461.89
X3       10
GR   1252.0    9049.00   1255.00    9068.23   1254.82    9096.82   1245.20    9127.01   1245.27    9143.84
GR   1255.0    9178.29   1255.39    9201.81   1255.24    9247.47   1255.67    9370.00   1256.01    9401.46
GR   1256.0    9511.87   1256.65    9575.08   1258.35    9587.02   1256.14    9608.23   1255.76    9625.14
GR   1255.5    9653.92   1255.96    9685.34   1254.31    9743.99   1253.38    9748.10   1250.29    9767.48
GR   1249.9    9807.09   1249.75    9822.20   1247.19    9862.49   1246.14    9874.00   1245.84    9893.23
GR   1245.2    9905.00   1244.96    9963.33   1245.05   10011.22   1244.65   10087.24   1245.48   10126.05
GR   1245.6   10188.42   1245.07   10217.08    1246.6   10300.00    1254.4   10337.64    1256.2   10437.79
GR   1255.7   10453.41   1255.30   10497.61    1255.3   10528.77    1257.2   10540.16    1256.9   10657.73
GR   1256.8   10731.98   1257.11   10829.79    1256.9   10913.73    1257.0   10983.60    1257.0   11046.81
GR   1256.7   11134.07   1256.50   11191.23    1256.6   11236.54    1255.8   11305.08    1255.9   11320.86
GR   1255.2   11377.53   1254.10   11405.52    1254.0   11455.47    1254.6   11505.70    1253.7   11586.69
GR   1253.4   11602.34   1257.00   11623.01    1257.9   11651.29    1258.3   11676.10    1255.0   11687.04
GR   1253.6   11701.25   1253.10   11718.54    1260.6   11732.36    1261.5   11739.55    1257.3   11763.57
GR   1258.4   11774.93   1262.90   11788.09    1259.8   11812.51    1253.9   11828.47    1254.5   11884.73
GR   1255.9   11923.03   1256.30   11970.87    1256.7   12015.67    1257.3   12040.30    1252.8   12071.27
GR   1253.0   12117.23   1257.50   12147.77    1256.9   12178.36    1259.0   12188.58    1258.7   12252.96
GR   1259.0   12350.20

  CROSS SECTION ADJUSTED PER FLETCHER HEIGTHS GRADING PLAN
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X1   12.194        71    9831.37   10282.89        370        330      337.73
X3       10
GR   1259.5    8672.00   1259.01    8712.33    1258.82    8737.02    1258.43    8837.03    1258.37    8898.06
GR   1258.1    8937.03   1258.12    9037.00    1257.93    9137.01    1257.33    9273.14    1257.03    9374.95
GR   1256.6    9433.06   1256.69    9462.14    1257.87    9471.89    1257.34    9522.08    1257.53    9564.57
GR   1258.5    9579.29   1258.45    9627.53    1259.53    9755.43    1259.62    9831.37    1253.17    9850.32
GR   1252.2    9877.34   1249.04    9889.54    1250.11    9930.45    1250.58    9934.41    1250.13    9961.21
GR   1248.0    9968.74   1248.39   10040.44    1249.92   10059.15    1249.65   10108.03    1248.45   10126.99
GR   1249.8   10268.0    1257.60   10282.89    1258.0    10357.49    1257.9    10377.00    1256.4    10468.20
GR   1256.4   10548.46   1256.66   10625.97    1256.3    10706.62    1256.3    10779.02    1255.9    10950.21
GR   1256.0   10957.31   1256.02   10996.42    1255.9    11051.10    1256.3    11135.52    1256.5    11207.14
GR   1256.4   11266.14   1256.69   11320.63    1256.6    11348.71    1257.3    11367.39    1256.1    11383.45
GR   1256.3   11435.96   1257.28   11493.32    1257.2    11521.15    1256.7    11557.11    1257.3    11620.37
GR   1258.3   11654.50   1257.99   11691.53    1257.7    11705.13    1257.9    11780.58    1258.4    11867.52
GR   1259.1   12078.16   1259.60   12191.99    1258.9    12211.69    1260.7    12219.00    1260.1    12238.25
GR   1260.8   12248.25   1261.01   12259.89    1255.5    12283.23    1255.0    12320.96    1261.4    12350.30
GR   1259.9   12385.23


QT       1       9800

X1   12.313        79    9877.14   10260.61        750        585      685.08
X3       10
GR   1262.2    8911.00   1262.73    8923.98    1261.52    9012.36    1261.02    9114.22    1260.76    9215.07
GR   1260.1    9317.71   1259.46    9418.58    1258.59    9521.44    1258.43    9656.01    1258.52    9698.04
GR   1258.2    9773.36   1258.60    9818.33    1262.47    9843.21    1262.03    9863.96    1260.51    9877.14
GR   1257.6    9914.61   1256.72    9926.12    1255.59    9959.40    1250.88    9979.52    1250.47   10015.02
GR   1252.7   10027.71   1253.88   10085.83    1254.58   10136.24    1254.35   10145.32    1250.91   10172.03
GR   1250.7   10209.29   1258.61   10237.98    1259.84   10260.61    1259.46   10325.64    1259.12   10358.25
1
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GR   1258.4   10383.80   1258.24   10407.94    1259.28   10424.35    1258.95   10555.79    1258.64   10695.97
GR   1258.7   10714.29   1257.33   10732.29    1257.23   10762.67    1259.27   10789.42    1259.09   10866.17
GR   1259.2   10886.46   1253.03   10920.68    1255.90   10949.10    1256.40   10979.09    1256.15   11040.79
GR   1256.3   11045.95   1256.49   11097.10    1258.17   11164.64    1258.23   11221.00    1258.50   11277.52
GR   1258.6   11305.70   1259.40   11348.84    1259.13   11422.49    1259.99   11500.27    1257.87   11510.39
GR   1257.3   11529.67   1257.30   11550.15    1257.30   11582.66    1257.76   11627.75    1258.09   11639.64
GR   1258.3   11753.95   1259.50   11771.62    1258.49   11786.29    1258.41   11816.42    1259.06   11918.18
GR   1259.3   11973.14   1259.32   12019.77    1259.58   12086.75    1259.64   12121.34    1259.52   12222.93
GR   1260.0   12313.37   1259.69   12346.84    1259.50   12353.96    1260.79   12361.90    1260.49   12380.30
GR   1261.3   12392.93   1261.03   12403.57    1255.70   12426.17    1255.55   12455.15


X1   12.420        85    9768.60   10079.26        600        665      578.07
X3       10
GR   1262.8    8970.00   1262.84    8995.74    1263.05    9031.93    1262.68    9063.82    1262.62    9138.82
GR   1262.3    9186.80   1261.52    9249.06    1262.21    9327.82    1262.01    9372.12    1261.12    9408.46
GR   1259.2    9418.10   1261.28    9432.27    1261.31    9461.13    1259.29    9471.85    1261.27    9503.62
GR   1260.7    9537.40   1261.31    9588.38    1261.24    9629.55    1260.94    9686.71    1261.80    9741.61
GR   1262.3    9768.60   1260.52    9787.66    1259.54    9809.52    1259.44    9833.82    1259.91    9864.46
GR   1259.6    9879.23   1256.26    9892.06    1255.77    9936.50    1255.38    9965.68    1254.66    9986.22
GR   1254.5   10057.78   1263.54   10079.26    1258.79   10090.34    1258.25   10116.23    1263.92   10131.13
GR   1255.8   10148.99   1256.04   10176.35    1256.15   10195.53    1255.30   10247.56    1258.02   10261.05
GR   1258.8   10270.00   1264.04   10294.39    1262.28   10315.54    1261.76   10330.07    1261.42   10388.05
GR   1261.4   10468.87   1259.96   10507.52    1260.05   10560.42    1260.39   10630.82    1260.37   10752.60
GR   1260.5   10875.12   1260.76   10965.90    1260.75   11105.43    1261.21   11179.53    1261.65   11240.84
GR   1261.7   11255.41   1262.72   11276.88    1262.73   11329.43    1262.53   11367.68    1260.97   11396.98
GR   1261.0   11429.38   1262.37   11459.64    1262.73   11532.97    1262.55   11582.61    1262.33   11603.00
GR   1259.9   11613.43   1259.11   11633.66    1259.14   11682.80    1260.06   11714.44    1261.73   11750.89
GR   1261.9   11804.41   1262.36   11853.81    1262.12   11888.68    1262.79   11910.74    1262.20   11996.14
GR   1262.3   12195.66   1262.44   12281.63    1262.43   12335.41    1262.58   12388.49    1262.57   12455.76
GR   1262.6   12481.27   1263.49   12489.77    1263.01   12519.87    1258.21   12542.11    1258.05   12555.45

  CODED OUT LOW AREA BETWEEN STA'S 9170 TO 9196


X1   12.511        97    9871.16   10111.39        455        435      467.59
X3       10
GR   1265.3    8690.00   1265.72    8722.98    1265.05    8800.78    1266.47    8877.93    1266.49    8890.38
GR   1266.0    8981.86   1265.46    9039.65    1265.57    9069.52    1266.11    9085.08    1268.85    9115.14
GR   1264.3    9130.07   1266.04    9156.70    1265.36    9213.05    1265.1     9233.07    1265.0     9269.19
GR   1265.1    9306.39   1264.21    9384.01    1264.06    9435.15    1263.6     9495.38    1263.4     9500.47
GR   1265.1    9523.53   1264.00    9531.83    1263.64    9577.67    1263.7     9644.25    1263.4     9672.29
GR   1262.5    9730.13   1263.21    9797.63    1262.26    9871.16    1261.0     9883.90    1259.3     9894.61
GR   1258.8    9930.98   1257.37    9939.14    1257.32    9949.45    1256.1    10006.29    1258.7    10014.97
GR   1258.4   10030.43   1258.05   10040.23    1255.26   10046.60    1254.8    10065.40    1259.6    10081.47
GR   1262.2   10098.86   1265.39   10111.39    1262.95   10128.79    1262.4    10163.12    1268.3    10179.88
GR   1258.7   10197.80   1258.52   10223.09    1261.20   10235.25    1264.3    10263.05    1264.1    10285.63
GR   1264.6   10296.97   1264.03   10330.85    1263.48   10343.82    1260.2    10356.41    1262.9    10377.48
GR   1262.0   10380.84   1259.42   10389.62    1258.91   10422.92    1263.9    10445.29    1264.0    10496.80
GR   1263.8   10540.37   1264.32   10566.77    1263.61   10579.76    1262.9    10630.51    1263.0    10681.68
GR   1262.8   10712.46   1261.79   10743.72    1261.65   10774.49    1263.1    10794.84    1262.9    10853.81
GR   1262.7   10983.83   1262.98   11088.30    1262.95   11205.62    1263.4    11282.68    1263.0    11394.61
GR   1263.6   11437.19   1262.94   11454.35    1263.19   11473.97    1263.8    11515.22    1263.2    11550.92
GR   1262.6   11567.64   1263.13   11601.02    1262.22   11632.58    1262.6    11658.99    1261.9    11682.22
1
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GR   1261.3   11690.38   1261.87   11719.06    1261.66   11747.07    1262.0    11777.83    1263.0    11801.49
GR   1263.4   11979.14   1263.75   12063.88    1263.46   12080.25    1263.9    12124.63    1264.9    12138.43
GR   1263.9   12163.30   1264.10   12308.79
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X1   12.606        83    9830.21   10454.31        555        545     582.30
X3       10
GR   1271.3    8672.00   1271.16    8718.88    1271.27    8847.88    1270.93    8952.99    1271.04    8973.43
GR   1273.2    8993.98   1271.05    9003.15    1269.60    9028.62    1270.71    9035.21    1269.48    9039.08
GR   1269.7    9102.66   1269.56    9154.40    1269.28    9201.43    1267.51    9275.63    1266.42    9296.46
GR   1267.2    9340.88   1266.98    9427.50    1268.01    9462.39    1267.42    9495.37    1267.18    9517.89
GR   1267.3    9533.36   1271.37    9543.58    1266.42    9556.36    1266.78    9620.55    1266.81    9680.55
GR   1267.2    9725.43   1267.14    9830.21    1266.35    9892.62    1264.34    9947.62    1258.90    9982.32
GR   1258.9   10018.64   1261.67   10049.91    1262.01   10071.58    1262.70   10087.37    1261.82   10107.56
GR   1261.7   10129.45   1261.98   10144.64    1262.96   10168.55    1264.03   10184.12    1264.48   10204.94
GR   1264.0   10279.52   1263.65   10302.48    1265.82   10329.34    1265.93   10354.50    1266.91   10391.91
GR   1266.0   10408.71   1265.81   10425.58    1267.91   10454.31    1267.85   10484.03    1267.09   10546.29
GR   1266.0   10585.93   1265.28   10606.50    1265.49   10660.51    1265.57   10676.56    1264.85   10695.53
GR   1263.5   10715.39   1260.43   10728.80    1260.18   10748.11    1262.91   10764.66    1264.74   10771.78
GR   1265.1   10790.79   1266.85   10824.07    1266.76   10845.22    1265.75   10861.31    1265.36   10881.60
GR   1267.9   10886.82   1268.17   10951.49    1267.86   11032.15    1267.51   11194.39    1267.38   11343.08
GR   1267.3   11434.76   1267.43   11497.82    1266.03   11600.22    1268.03   11624.87    1267.32   11703.86
GR   1264.7   11721.38   1264.00   11755.43    1263.78   11870.61    1266.81   12034.70    1268.16   12173.40
GR   1268.3   12249.99   1268.18   12351.98    1267.86   12359.19

  Additional point added in cross section for left overbank.

X1   12.701        82     9752.0   10320.98        495        525     505.60
X3       10
GR   1270.6    8680.00   1270.78    8721.65    1270.39    8761.54    1269.91    8834.19    1270.27    8937.79
GR   1270.4    9012.95   1270.30    9085.93    1270.35    9213.32    1269.98    9339.72    1268.84    9353.89
GR   1268.8    9385.93   1270.11    9401.33    1269.69    9469.80    1268.52    9567.00    1268.60    9597.47
GR   1270.6    9611.88   1271.47    9662.32    1271.92    9720.70    1271.92    9748.51    1270.00    9752.0
GR   1266.7    9764.27   1265.60    9795.73    1265.27    9811.75    1264.93    9881.58    1266.19    9898.15
GR   1266.6    9928.36   1260.10    9962.31    1260.60   10022.85    1262.09   10057.09    1267.52   10088.04
GR   1267.6   10120.25   1268.10   10154.93    1269.79   10320.98    1269.49   10401.53    1270.40   10441.01
GR   1268.1   10464.67   1268.00   10495.45    1268.74   10531.98    1269.90   10587.16    1270.31   10635.89
GR   1269.7   10648.51   1270.00   10668.19    1270.59   10704.23    1270.38   10760.22    1269.97   10796.48
GR   1268.9   10831.26   1268.60   10837.21    1268.99   10865.60    1269.75   10900.67    1268.83   10939.27
GR   1270.2   10954.64   1270.10   10961.95    1268.26   10970.14    1261.37   11007.32    1270.15   11042.66
GR   1269.7   11062.80   1269.60   11118.03    1269.62   11156.57    1269.85   11186.33    1268.13   11211.37
GR   1268.4   11240.08   1269.00   11255.17    1268.36   11353.40    1268.35   11380.25    1268.12   11465.73
GR   1268.2   11520.29   1267.40   11611.90    1267.11   11616.72    1267.06   11655.52    1267.77   11695.16
GR   1268.2   11751.92   1268.00   11802.89    1268.30   11831.52    1267.66   11854.32    1268.28   11863.24
GR   1267.0   11949.36   1267.00   12049.56    1267.08   12081.11    1267.47   12149.73    1267.44   12210.25
GR   1267.6   12247.63   1268.00   12274.40

1
    25FEB99      15:48:53                                                                              PAGE   20


X1   12.801        80    9884.48   10602.96        565        535     524.61
X3       10
GR   1270.9    8567.00   1272.13    8583.83    1272.02    8614.59    1272.02    8749.74    1272.26    8884.25
GR   1272.3    8942.46   1272.53    9094.94    1272.62    9196.57    1272.47    9284.07    1272.72    9430.16
GR   1272.6    9499.01   1272.24    9573.63    1269.64    9591.81    1271.67    9618.77    1269.88    9670.91
GR   1269.0    9706.70   1269.10    9758.35    1269.69    9795.76    1274.94    9814.71    1275.01    9884.48
GR   1266.0    9902.50   1265.26    9934.52    1261.09    9956.10    1260.23   10017.58    1268.40   10059.56
GR   1267.1   10104.27   1268.17   10131.07    1265.39   10174.10    1265.92   10193.94    1267.75   10248.52
GR   1268.5   10317.64   1268.12   10351.80    1265.51   10405.16    1268.46   10445.30    1268.72   10453.44
GR   1268.3   10495.79   1266.81   10544.02    1272.07   10571.00    1272.57   10602.96    1272.60   10647.74
GR   1272.0   10710.39   1271.80   10766.01    1271.57   10784.75    1272.14   10820.84    1272.59   10864.11
GR   1272.4   10928.04   1272.41   10937.12    1275.58   10952.31    1270.94   10963.24    1268.30   10977.39
GR   1269.2   11019.29   1272.23   11032.48    1272.37   11073.10    1272.78   11094.16    1271.18   11110.08
GR   1268.0   11125.36   1263.72   11140.13    1263.09   11151.97    1263.05   11177.43    1272.74   11202.48
GR   1273.1   11254.68   1273.07   11286.14    1272.83   11298.47    1271.55   11315.03    1271.34   11373.02
GR   1271.4   11424.11   1271.17   11461.44    1271.37   11487.97    1271.41   11544.60    1271.05   11573.06
GR   1271.5   11628.44   1273.32   11637.25    1273.12   11679.97    1273.22   11762.70    1271.94   11887.91
GR   1271.9   11975.26   1273.21   12022.13    1273.91   12094.51    1272.30   12123.08    1272.78   12156.91

X1   12.896        86    9833.84   10320.61        540        495     508.24
X3       10
GR   1274.0    8717.00   1274.49    8749.83    1273.96    8793.27    1275.30    8802.24    1275.29    8836.46
GR   1275.0    8904.06   1274.68    8974.91    1275.01    9098.69    1275.18    9207.26    1274.81    9315.82
GR   1275.1    9424.38   1274.72    9576.84    1274.89    9659.07    1274.71    9701.03    1274.17    9716.95
GR   1276.1    9743.96   1276.58    9773.87    1276.83    9803.97    1277.11    9814.81    1278.41    9833.84
GR   1269.6    9869.72   1269.25    9888.88    1267.44    9898.12    1263.73    9911.88    1262.67    9944.67
GR   1262.5   10044.90   1269.15   10086.23    1264.41   10098.15    1265.88   10157.92    1265.26   10183.04
GR   1266.5   10194.89   1265.26   10222.69    1264.82   10272.81    1269.56   10303.80    1273.04   10320.61
GR   1273.5   10382.30   1272.85   10468.09    1270.90   10496.52    1270.12   10518.49    1273.41   10536.31
GR   1275.2   10549.69   1274.93   10608.72    1274.92   10654.62    1274.88   10686.10    1273.87   10715.69
GR   1274.0   10765.77   1275.22   10787.05    1274.33   10834.25    1276.17   10840.95    1274.01   10845.95
GR   1274.8   10865.73   1274.53   10878.01    1274.37   10925.58    1274.44   10942.62    1273.60   10963.76
GR   1274.0   10991.33   1274.13   11093.87    1274.27   11154.56    1274.62   11205.78    1269.64   11225.48
GR   1271.8   11254.61   1268.42   11276.61    1270.68   11290.98    1264.52   11313.73    1264.42   11321.39
GR   1269.2   11341.82   1275.30   11369.54    1275.01   11385.26    1276.40   11406.58    1273.09   11420.81
GR   1274.8   11491.04   1276.82   11509.31    1276.75   11523.80    1275.39   11596.48    1275.47   11719.14
GR   1275.7   11796.68   1276.40   11870.25    1274.78   11884.03    1274.97   11963.70    1273.32   11983.85
GR   1272.9   11998.17   1273.17   12017.52    1272.97   12029.09    1273.47   12075.31    1273.64   12209.08
GR   1274.0   12274.40
```

X1	12.991	91	9734.08	10268.84	595	535	527.02			
X3	10									
GR	1277.8	9109.00	1277.40	9125.68	1277.29	9230.38	1276.96	9285.05	1276.25	9292.43
GR	1277.2	9314.01	1277.48	9346.40	1277.27	9363.64	1277.06	9433.70	1277.21	9508.50
GR	1277.5	9532.83	1277.61	9600.49	1278.19	9620.61	1278.00	9631.17	1273.76	9650.22
GR	1277.6	9675.18	1277.73	9718.08	1277.59	9734.08	1264.19	9760.85	1263.68	9804.76
GR	1265.1	9866.56	1265.75	9922.72	1266.02	9928.62	1265.67	9943.89	1262.37	9957.87
GR	1262.4	10166.57	1263.32	10192.90	1266.33	10211.52	1270.75	10235.94	1264.83	10250.37
GR	1268.6	10257.02	1274.41	10268.84	1274.73	10314.62	1275.20	10322.13	1274.65	10372.12
GR	1275.0	10423.27	1275.86	10458.40	1277.34	10469.64	1277.67	10475.62	1276.26	10485.97
GR	1276.0	10528.43	1275.91	10590.90	1276.32	10622.82	1275.94	10665.92	1276.29	10739.76
GR	1276.5	10783.70	1275.80	10803.83	1276.91	10858.51	1277.50	11022.81	1278.19	11081.00
GR	1276.7	11118.65	1276.53	11166.51	1277.52	11173.79	1275.99	11179.58	1276.13	11199.94
GR	1276.1	11227.08	1276.53	11303.67	1276.49	11322.82	1276.73	11369.44	1276.22	11404.86
GR	1276.2	11424.60	1276.51	11439.49	1276.39	11515.64	1276.13	11527.22	1275.37	11559.36
GR	1266.9	11593.09	1266.93	11597.27	1277.03	11620.09	1277.23	11633.86	1276.91	11683.68
GR	1277.5	11749.85	1277.49	11771.21	1278.40	11892.81	1279.26	11915.63	1279.24	11995.72
GR	1279.3	12027.37	1279.29	12063.73	1278.94	12145.14	1279.01	12161.49	1278.69	12214.68
GR	1278.4	12228.89	1278.67	12239.87	1277.40	12251.44	1277.94	12282.64	1277.94	12331.27
GR	1276.0	12348.40	1276.49	12375.66	1276.37	12416.43	1276.45	12478.51	1277.15	12569.18
GR	1278.0	12640.45								

QT	1	7900

X1	13.076	94	9671.60	10153.97	520	455	454.21			
X3	10									
GR	1280.0	9262.00	1279.43	9284.29	1279.76	9305.95	1279.75	9353.03	1280.46	9383.30
GR	1278.0	9395.75	1279.96	9421.73	1280.29	9461.38	1280.27	9493.93	1280.58	9557.24
GR	1280.4	9607.76	1279.35	9671.60	1271.27	9691.22	1265.52	9704.51	1263.66	9732.62
GR	1264.6	9760.43	1264.26	9804.98	1262.51	9828.51	1262.56	9834.95	1264.46	9853.67
GR	1264.3	9869.40	1264.56	9887.26	1263.80	9907.57	1263.96	9922.62	1262.75	9937.25
GR	1263.1	9949.84	1264.01	9971.55	1263.42	9983.97	1262.37	9999.25	1262.37	10016.02
GR	1264.1	10030.84	1266.15	10041.79	1263.23	10062.05	1263.91	10073.48	1269.18	10088.42
GR	1271.8	10097.30	1272.78	10130.78	1278.53	10153.97	1278.65	10196.43	1279.48	10263.57
GR	1279.9	10302.23	1289.03	10351.20	1289.66	10357.34	1288.77	10363.55	1279.06	10418.15
GR	1278.8	10482.31	1278.80	10511.62	1280.01	10548.87	1279.08	10574.50	1279.17	10655.70
GR	1278.1	10727.03	1277.92	10780.10	1279.02	10801.44	1278.31	10890.52	1277.98	10978.72
GR	1277.8	10989.61	1278.83	11090.55	1279.09	11192.51	1278.12	11294.05	1277.40	11330.55
GR	1279.2	11338.30	1278.86	11343.15	1277.51	11348.03	1278.10	11368.97	1277.89	11452.28
GR	1277.0	11521.72	1277.39	11595.07	1277.57	11610.08	1277.79	11623.16	1269.50	11643.76
GR	1270.1	11651.89	1277.77	11676.25	1277.45	11699.15	1278.68	11721.59	1279.13	11735.23
GR	1278.6	11741.88	1278.51	11808.21	1278.66	11914.17	1278.69	12002.75	1279.72	12076.22
GR	1279.9	12103.32	1280.03	12165.57	1279.92	12257.85	1279.82	12276.59	1279.98	12332.23
GR	1279.6	12353.90	1280.12	12381.78	1279.17	12391.07	1280.14	12469.46	1280.09	12473.91
GR	1277.9	12489.28	1278.75	12517.38	1278.43	12536.39	1280.00	12543.98		

X1	13.151	92	9746.00	10187.38	520	370	393.13			
GR	1283.4	9058.00	1283.94	9159.76	1283.98	9240.17	1283.04	9289.92	1282.20	9302.23
GR	1282.7	9337.98	1282.65	9380.65	1282.96	9394.79	1284.50	9403.86	1285.29	9412.45
GR	1282.2	9421.65	1281.96	9458.29	1282.57	9499.64	1282.00	9569.32	1281.32	9594.33
GR	1280.4	9619.08	1279.96	9652.65	1279.66	9676.17	1280.00	9696.02	1278.50	9723.06
GR	1278.6	9740.99	1279.07	9746.00	1273.37	9760.92	1270.15	9773.47	1267.90	9799.83
GR	1265.9	9808.73	1264.66	9829.94	1263.33	9848.13	1262.93	9857.53	1263.88	9866.92
GR	1262.2	9882.66	1262.20	9958.44	1264.32	9979.64	1262.70	9988.47	1263.34	10021.52
GR	1265.2	10032.89	1266.80	10069.78	1267.62	10083.97	1267.96	10111.44	1270.32	10148.84
GR	1272.8	10175.73	1277.21	10187.38	1280.97	10192.79	1278.92	10199.57	1279.64	10224.70
GR	1280.3	10305.26	1280.29	10361.06	1283.51	10366.73	1280.58	10374.07	1280.72	10391.58
GR	1282.9	10396.83	1280.48	10403.87	1280.90	10487.48	1280.77	10531.61	1280.33	10625.65
GR	1280.7	10692.47	1281.44	10717.98	1280.34	10752.22	1279.90	10801.20	1279.73	10871.60
GR	1279.9	10895.53	1280.60	10996.09	1279.66	11071.71	1279.73	11075.74	1279.05	11128.71
GR	1279.1	11136.57	1278.89	11232.60	1278.92	11257.18	1278.87	11285.51	1280.74	11300.32
GR	1280.5	11316.52	1279.21	11324.52	1279.74	11354.50	1279.72	11383.93	1279.94	11416.27
GR	1279.7	11490.94	1279.69	11530.92	1277.47	11539.50	1273.61	11550.90	1279.32	11574.03
GR	1279.8	11587.70	1279.97	11609.34	1279.31	11638.72	1279.77	11664.46	1281.30	11685.96
GR	1281.0	11720.15	1280.83	11762.38	1281.08	11826.04	1280.91	11880.75	1281.17	11960.20
GR	1281.2	12105.17	1281.07	12158.86						

X1	13.161	50	9737.87	10244.12	55	70	51.06			
GR	1284.7	8898.00	1284.22	8969.41	1283.76	9114.29	1283.93	9144.54	1283.52	9161.51
GR	1283.3	9249.24	1283.19	9290.04	1283.17	9327.39	1282.51	9373.82	1283.04	9393.66
GR	1283.1	9413.16	1281.11	9573.20	1280.87	9644.14	1280.81	9737.87	1279.90	9782.29
GR	1276.4	9873.96	1275.44	9907.29	1275.20	9933.89	1274.65	9965.75	1274.78	10043.50
GR	1275.2	10080.57	1276.08	10124.23	1277.03	10151.97	1280.25	10209.33	1281.51	10244.12
GR	1281.7	10266.74	1281.60	10323.36	1281.38	10368.03	1281.38	10475.00	1281.46	10532.18
GR	1281.4	10620.05	1281.45	10703.46	1281.53	10751.25	1281.31	10780.07	1281.27	10829.33
GR	1281.4	10885.47	1281.47	10918.04	1281.19	10988.58	1280.97	11093.76	1281.01	11246.85
GR	1281.8	11387.32	1281.65	11437.47	1280.51	11505.24	1280.00	11555.61	1280.49	11596.67
GR	1280.3	11663.43	1280.31	11722.35	1280.64	11839.85	1280.96	11930.31	1281.38	12128.02

X1	13.185	22	9742.20	10245.97	35	32	33.56			

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GR   1282.0    9531.00    1281.61    9580.66    1281.67    9631.21    1281.38    9661.38    1281.83    9719.60
GR   1281.8    9742.20    1281.08    9773.40    1279.67    9812.09    1279.30    9817.12    1277.52    9857.31
GR   1276.2    9890.49    1275.33    9931.33    1274.89    9959.09    1274.89    10034.43   1274.98    10078.37
GR   1275.6    10124.98   1277.27    10167.33   1278.30    10192.55   1281.28    10227.07   1281.93    10245.97
GR   1282.3    10259.87   1282.00    10293.43

  Additional point added for left overbank

X1   13.227         55    9945.65    10223.75        335         350      315.32
X3       10
GR   1284.0    9299.00    1283.71    9303.82    1284.00    9325.43    1283.88    9360.31    1283.54    9393.86
GR   1282.9    9408.68    1283.57    9430.29    1282.78    9451.58    1282.97    9494.70    1282.15    9670.83
GR   1283.3    9692.69    1283.56    9751.23    1283.85    9777.54    1282.76    9884.39    1281.61    9936.51
GR   1282.5    9945.65    1277.72    9957.55    1275.80    9961.08    1274.89    9985.19    1274.89    10022.24
GR   1275.6    10047.48   1276.31    10060.47   1275.84    10111.00   1275.43    10135.64   1275.40    10150.07
GR   1278.7    10208.83   1283.00    10223.75   1288.90    10244.21   1284.61    10260.70   1284.39    10273.12
1
    25FEB99      15:48:53                                                                              PAGE   23

GR   1283.3    10382.10   1283.30    10418.01   1283.16    10577.44   1283.27    10651.09   1283.16    10746.83
GR   1283.4    10891.21   1283.30    11019.74   1283.17    11184.80   1282.99    11250.25   1282.92    11388.15
GR   1282.9    11487.05   1283.40    11521.31   1283.92    11544.11   1274.82    11566.13   1274.89    11576.35
GR   1283.0    11597.94   1282.70    11611.67   1282.53    11668.93   1282.35    11688.14   1282.39    11759.44
GR   1282.4    11873.09   1282.60    11895.89   1283.41    12032.49   1283.85    12237.81   1284.03    12299.29

X1   13.325         57    9867.77    10134.99        555         545      571.01
X3       10
GR   1286.0    9272.00    1285.55    9320.30    1285.13    9372.63    1285.11    9408.38    1285.22    9416.58
GR   1284.2    9457.31    1283.81    9486.84    1283.97    9527.30    1283.64    9544.73    1282.07    9560.67
GR   1284.2    9579.99    1284.50    9604.04    1292.51    9618.16    1301.03    9633.92    1301.23    9655.29
GR   1302.5    9722.72    1302.27    9757.72    1301.33    9807.64    1300.59    9838.03    1299.87    9853.17
GR   1291.0    9867.77    1282.20    9882.41    1280.59    9896.14    1277.86    9926.63    1280.40    9955.50
GR   1277.4    9977.65    1277.40    10016.57   1278.21    10045.01   1276.70    10064.07   1277.98    10082.82
GR   1278.3    10111.69   1288.10    10134.99   1287.00    10142.65   1289.33    10150.48   1289.91    10164.78
GR   1290.1    10170.47   1287.20    10183.27   1287.12    10195.74   1286.24    10219.94   1285.67    10474.24
GR   1285.7    10562.34   1286.00    10736.53   1286.08    10829.36   1285.70    10942.15   1285.63    11229.36
GR   1285.4    11329.35   1285.30    11424.41   1285.88    11473.91   1278.02    11492.57   1277.89    11506.86
GR   1283.8    11520.53   1286.40    11525.37   1285.10    11541.38   1285.32    11629.34   1285.44    11739.52
GR   1285.5    11826.82   1286.00    11912.41

X1   13.420         99    9845.86    10081.84        515         495      514.13
X3       10
GR   1288.0    9395.00    1288.07    9423.96    1287.97    9477.21    1287.26    9513.90    1286.57    9532.21
GR   1286.6    9556.16    1286.46    9582.05    1287.25    9613.21    1287.96    9631.08    1287.45    9655.50
GR   1288.3    9699.72    1288.27    9722.92    1288.92    9791.30    1288.27    9813.82    1290.55    9827.24
GR   1288.5    9840.39    1288.33    9845.86    1283.51    9862.12    1282.43    9880.73    1281.07    9894.26
GR   1280.6    9906.80    1280.99    9959.33    1278.03    9983.50    1277.43    10001.06   1277.80    10024.47
GR   1280.3    10036.23   1281.57    10063.88   1289.98    10081.84   1286.40    10089.78   1288.73    10113.31
GR   1287.3    10121.36   1287.71    10128.19   1289.33    10141.72   1293.39    10168.52   1288.58    10186.33
GR   1288.4    10237.05   1289.23    10252.26   1288.32    10276.97   1287.05    10308.19   1287.28    10345.14
GR   1287.3    10388.39   1286.94    10429.90   1286.93    10457.00   1286.64    10480.94   1285.68    10512.07
GR   1286.1    10543.20   1285.79    10563.93   1285.75    10631.63   1286.53    10651.86   1285.91    10673.18
GR   1284.5    10715.52   1285.11    10726.52   1286.74    10745.47   1287.01    10797.71   1286.96    10827.96
GR   1287.8    10843.39   1288.11    10915.91   1286.27    10945.44   1286.38    10983.68   1285.95    10995.12
GR   1286.2    11031.99   1286.06    11056.81   1286.71    11096.76   1287.34    11131.85   1287.33    11193.12
GR   1287.8    11212.33   1286.85    11276.48   1286.92    11336.18   1285.83    11397.94   1286.33    11420.53
GR   1284.4    11476.18   1284.06    11503.97   1284.18    11554.68   1283.65    11563.74   1281.69    11582.11
GR   1282.4    11594.34   1284.66    11609.37   1286.97    11631.71   1287.12    11647.43   1286.55    11676.33
GR   1285.9    11684.88   1286.43    11698.97   1286.44    11770.93   1284.91    11801.36   1283.03    11846.69
GR   1287.1    11928.45   1287.18    11948.35   1287.78    12019.57   1287.68    12043.31   1286.82    12067.16
GR   1287.2    12087.53   1287.00    12136.62   1287.55    12201.47   1287.60    12271.53   1287.99    12295.07
GR   1285.5    12353.62   1284.32    12397.71   1284.07    12461.22   1286.00    12488.90

X1   13.524         94    9858.03    10221.34        605         500      522.56
X3       10
GR   1291.3    9448.00    1290.03    9454.37    1289.55    9508.29    1291.53    9523.62    1290.64    9555.54
GR   1292.0    9575.63    1291.36    9598.72    1291.56    9609.69    1291.28    9650.51    1291.26    9693.45
GR   1292.1    9734.83    1291.90    9791.94    1291.20    9825.00    1291.61    9851.09    1292.81    9858.03
GR   1283.4    9877.26    1282.60    9891.18    1282.60    9957.87    1283.21    9972.60    1283.77    10018.98
GR   1282.6    10028.68   1282.67    10047.89   1283.80    10059.95   1283.82    10081.31   1281.99    10117.75
1
    25FEB99      15:48:53                                                                              PAGE   24

GR   1281.9    10137.15   1286.97    10162.05   1288.15    10165.76   1291.71    10221.34   1288.53    10236.72
GR   1288.8    10264.54   1290.67    10273.99   1290.66    10287.01   1291.16    10291.26   1290.25    10351.78
GR   1291.6    10376.49   1290.45    10419.81   1291.72    10446.96   1296.56    10472.14   1290.83    10478.74
GR   1289.7    10494.98   1289.95    10514.86   1290.94    10526.43   1290.82    10557.78   1290.31    10573.55
GR   1289.6    10581.04   1290.81    10634.38   1301.13    10651.91   1300.61    10662.52   1298.34    10667.92
GR   1296.2    10675.41   1290.87    10685.96   1290.59    10716.77   1290.41    10758.66   1290.76    10840.28
GR   1290.4    10886.63   1290.86    10904.99   1291.63    10921.81   1291.32    10957.21   1290.01    11016.88
GR   1289.7    11102.37   1289.84    11116.92   1290.17    11216.95   1290.49    11261.54   1290.40    11316.98
GR   1290.1    11325.20   1290.07    11408.44   1289.46    11445.30   1290.73    11517.06   1291.42    11566.71
GR   1286.9    11600.63   1286.12    11620.62   1292.72    11642.39   1291.34    11652.84   1290.00    11697.54
GR   1290.5    11737.67   1290.13    11759.00   1290.30    11827.51   1290.04    11892.97   1289.02    11918.09
GR   1290.0    11977.44   1289.64    12013.71   1289.81    12086.33   1289.56    12106.77   1289.95    12129.98
GR   1290.4    12144.25   1290.26    12182.87   1290.13    12243.57   1290.22    12264.75   1289.07    12285.59
GR   1289.6    12301.57   1289.51    12317.61   1289.98    12380.13   1290.02    12409.58
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NC      0.05       0.05       0.035

X1   13.619         96    9739.41   10391.00        565        495     505.64
GR   1292.0    9562.00    1292.36    9629.30    1294.25    9639.88    1292.78    9661.38    1292.79    9674.83
GR   1295.2    9693.47    1294.77    9739.41    1285.43    9788.42    1283.79    9799.13    1284.12    9865.32
GR   1283.5    9935.28    1284.45    9954.22    1284.14    9967.18    1283.47    9976.42    1283.51    9995.82
GR   1285.3   10006.46    1285.13   10048.70    1284.72   10076.70    1284.43   10134.23    1285.02   10190.74
GR   1285.2   10219.99    1284.80   10294.96    1291.19   10312.09    1290.25   10317.40    1291.11   10324.25
GR   1289.7   10336.10    1289.46   10361.89    1293.88   10391.00    1294.38   10437.69    1294.70   10478.35
GR   1298.4   10487.80    1301.80   10495.02    1294.49   10511.79    1302.40   10532.76    1303.98   10551.60
GR   1305.0   10578.70    1298.27   10600.79    1299.33   10623.06    1293.68   10639.96    1293.71   10652.46
GR   1295.2   10655.91    1296.02   10672.33    1297.61   10682.32    1296.63   10687.16    1293.79   10693.85
GR   1293.7   10719.15    1300.02   10730.61    1295.94   10738.98    1299.93   10747.76    1296.25   10755.10
GR   1299.7   10762.57    1295.97   10768.85    1298.87   10777.37    1296.19   10783.38    1298.73   10790.11
GR   1294.5   10798.42    1295.37   10859.97    1294.78   10889.08    1293.58   10942.12    1293.07   11003.19
GR   1292.3   11057.05    1293.20   11123.97    1293.04   11169.90    1293.10   11234.76    1292.94   11240.22
GR   1292.9   11273.64    1293.53   11336.71    1293.84   11354.86    1293.64   11403.54    1292.96   11443.98
GR   1294.1   11504.21    1293.58   11528.18    1290.60   11539.04    1289.65   11544.35    1290.52   11565.78
GR   1290.2   11594.34    1293.62   11621.42    1293.51   11641.40    1293.91   11665.37    1293.05   11687.55
GR   1293.0   11730.32    1292.86   11738.32    1294.22   11807.73    1293.43   11833.85    1293.33   11878.84
GR   1293.3   11929.21    1293.65   12009.04    1293.48   12045.43    1292.81   12123.83    1292.94   12135.85
GR   1292.5   12212.03    1293.26   12253.55    1293.02   12338.41    1293.05   12364.23    1292.30   12394.05
GR   1292.7   12413.20

X1   13.680         80    9591.03   10317.81        320        315     331.09
GR   1296.8    9322.00    1297.07    9356.46    1295.43    9385.60    1296.98    9417.80    1297.29    9479.95
GR   1297.5    9485.63    1296.86    9495.23    1293.73    9528.80    1293.03    9551.69    1289.41    9568.06
GR   1292.5    9582.07    1292.88    9591.03    1290.80    9613.38    1289.19    9648.83    1288.62    9671.63
GR   1288.2    9722.36    1287.28    9796.47    1287.06    9826.79    1286.91    9883.94    1286.40    9919.92
GR   1285.8    9939.41    1285.50    9984.53    1285.51   10023.54    1286.19   10077.15    1286.29   10123.24
GR   1286.1   10152.41    1286.44   10190.29    1287.26   10222.53    1289.88   10265.88    1291.25   10283.02
GR   1292.8   10317.81    1293.22   10368.57    1292.53   10398.99    1292.61   10434.15    1292.29   10477.35
GR   1292.5   10529.74    1292.90   10615.42    1292.93   10647.52    1293.07   10711.24    1293.39   10820.69
GR   1293.3   10865.19    1293.41   10884.17    1292.98   10938.51    1293.36   10974.42    1293.72   10989.05
GR   1293.8   11017.31    1294.16   11050.34    1294.20   11107.98    1294.37   11135.27    1294.07   11160.10
GR   1293.8   11248.44    1293.96   11275.04    1294.71   11314.65    1294.80   11340.48    1294.56   11345.46
GR   1294.5   11413.21    1294.75   11447.00    1294.25   11476.07    1294.87   11499.87    1294.85   11540.28
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GR   1295.0   11627.90    1294.75   11680.45    1295.11   11724.22    1295.04   11772.94    1295.23   11815.45
GR   1294.8   11852.94    1295.12   11880.39    1295.02   11903.62    1293.97   11973.31    1293.92   12041.77
GR   1294.6   12088.13    1294.29   12090.19    1294.62   12119.52    1294.34   12147.76    1294.19   12185.46
GR   1294.3   12223.78    1294.05   12270.24    1294.27   12373.64    1294.41   12409.48    1294.76   12454.94

  Additional point was added at invert to account for expansion at 13.918
  This point was used in the left bank.
  BOTTOM OF CHANNEL SET AT OVERTOPING ELEVATION OF 1288.  SEE DOWN STREAM X-SEC

X1   13.742         85    9760.00   10379.63        430        400     353.72
X3      10
GR   1296.8    9354.00    1296.55    9370.67    1297.62    9384.46    1297.63    9483.28    1299.44    9497.01
GR   1293.9    9531.00    1294.10    9554.38    1289.54    9577.58    1288.87    9634.50    1287.86    9648.28
GR     1288    9680.80       1288    9700.02       1288    9760.00       1288   10197.76    1289.38   10241.99
GR   1290.5   10254.48    1290.30   10268.29    1292.96   10308.28    1294.41   10321.65    1297.50   10343.75
GR   1299.5   10379.63    1299.90   10399.95    1300.31   10408.16    1300.18   10436.03    1299.10   10442.12
GR   1296.8   10459.79    1295.50   10475.06    1290.69   10506.06    1288.54   10532.73    1288.71   10558.39
GR   1289.5   10598.63    1290.70   10669.55    1290.88   10723.24    1306.22   10748.29    1319.96   10770.75
GR   1309.3   10788.50    1294.40   10816.13    1290.17   10826.64    1290.04   10886.49    1292.33   10894.56
GR   1298.4   10909.82    1300.80   10922.28    1301.51   10930.63    1298.44   10944.77    1289.25   10962.63
GR   1288.8   11011.30    1288.60   11043.43    1288.17   11069.82    1289.44   11101.46    1289.48   11132.43
GR   1295.6   11152.30    1296.00   11197.31    1296.05   11240.82    1296.58   11285.44    1296.73   11324.28
GR   1297.1   11365.59    1296.80   11409.29    1297.49   11469.34    1296.99   11529.55    1296.97   11566.62
GR   1296.8   11581.98    1297.20   11645.17    1297.52   11669.97    1296.90   11698.77    1297.04   11764.32
GR   1296.7   11812.47    1292.70   11878.03    1292.10   11914.78    1291.65   11924.59    1287.93   11975.00
GR   1286.5   11988.35    1285.60   12038.04    1288.36   12070.37    1289.66   12076.59    1288.46   12098.39
GR   1288.7   12119.06    1289.00   12153.65    1295.14   12164.88    1296.68   12205.17    1297.08   12283.01
GR   1297.0   12327.32    1297.10   12339.26    1296.67   12407.76    1296.70   12420.60    1298.01   12438.39

  BOTTOM OF CHANNEL SET AT OVERTOPING ELEVATION OF 1288.  SEE DOWN STREAM X-SEC

X1   13.818         80    9912.00   10482.82        395        435     406.30
X3      10
GR   1298.0    9462.00    1298.87    9477.76    1298.90    9504.05    1299.46    9584.30    1299.62    9588.83
GR   1296.7    9617.74    1297.12    9659.36    1293.55    9672.91    1295.18    9696.39    1295.29    9703.75
GR   1294.1    9721.63    1292.98    9755.56    1293.68    9770.96    1293.89    9787.10    1293.17    9788.30
GR   1291.3    9805.83    1290.67    9814.79    1290.76    9825.73       1288    9839.58       1288    9912.00
GR     1288   10335.40       1288   10469.10    1292.32   10482.82    1289.20   10492.06    1288.71   10536.03
GR   1288.8   10549.75    1289.90   10559.35    1294.94   10586.82    1299.17   10611.56    1299.63   10640.25
GR   1289.1   10655.18    1287.80   10702.75    1287.78   10868.03    1288.22   10913.91    1288.02   10937.39
GR   1288.2   10947.65    1288.10   11003.07    1288.49   11038.22    1289.44   11066.97    1289.29   11089.19
GR   1289.6   11109.90    1289.00   11192.24    1290.12   11228.34    1288.42   11272.67    1289.97   11378.54
GR   1290.4   11402.76    1291.80   11423.75    1291.96   11434.18    1290.64   11448.66    1292.34   11458.94
GR   1290.6   11464.39    1290.70   11487.76    1290.54   11520.45    1290.47   11569.55    1290.23   11616.61
GR   1290.4   11645.04    1300.20   11670.09    1301.07   11676.56    1296.82   11689.63    1297.87   11700.15
GR   1298.4   11706.11    1296.10   11712.53    1289.88   11722.98    1290.55   11747.42    1289.86   11801.18
GR   1300.4   11817.69    1286.90   11848.75    1287.21   11915.57    1286.97   11946.27    1285.83   11983.10
GR   1286.4   12002.23    1286.90   12078.57    1286.18   12129.51    1286.11   12189.27    1286.61   12247.67
GR   1299.1   12281.97    1299.20   12312.95    1298.93   12326.03    1299.36   12411.99    1299.98   12562.08

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X1   13.918        74    9953.70   10177.83         595         955      656.30
X3        10
GR    1305.6    8690.00   1305.41    8756.38    1305.02    8823.10    1304.84    8885.68    1303.86    8948.25
GR    1303.7    8999.95   1303.54    9020.77    1303.86    9044.04    1303.87    9068.28    1303.42    9096.57
GR    1303.5    9116.11   1303.77    9127.28    1303.13    9160.88    1303.67    9214.63    1303.46    9287.48
GR    1303.3    9318.62   1302.59    9346.45    1302.64    9411.57    1302.20    9493.34    1302.18    9532.93
GR    1302.5    9610.44   1301.79    9645.68    1301.87    9654.69    1303.56    9662.27    1301.78    9670.94
GR    1301.9    9690.31   1301.65    9740.18    1301.58    9838.42    1301.34    9849.35    1300.90    9910.10
GR    1300.7    9953.70   1300.59    9960.57    1293.23    9971.16    1290.60    9986.59    1289.83   10006.54
GR    1296.2   10021.74   1297.69   10053.13    1297.81   10074.08    1295.96   10092.92    1293.03   10112.54
GR    1293.3   10117.50   1298.55   10147.50    1300.33   10168.14    1302.28   10177.83    1301.61   10191.01
GR    1300.6   10203.56   1301.14   10225.34    1300.97   10274.90    1301.17   10292.57    1302.65   10338.15
GR    1301.9   10356.67   1299.88   10375.47    1299.96   10385.00    1299.34   10417.63    1300.18   10429.28
GR    1300.2   10461.49   1299.06   10503.98    1298.56   10534.06    1297.97   10541.44    1295.74   10550.72
GR    1294.1   10561.42   1292.27   10589.82    1293.15   10607.55    1292.91   10623.66    1293.40   10643.70
GR    1295.9   10654.48   1302.29   10674.21    1302.17   10681.03    1302.08   10738.74    1302.26   10785.14
GR    1302.9   10882.16   1302.24   10980.53    1302.41   11085.57    1302.37   11252.08

QT         1       6100

X1   14.013        78    9743.54   10041.42         620         485      514.07
GR    1310.9    8525.00   1309.19    8541.70    1309.09    8570.76    1309.75    8582.50    1310.60    8606.66
GR    1310.4    8621.35   1310.50    8648.37    1310.50    8692.44    1310.87    8720.08    1309.49    8733.42
GR    1309.7    8777.54   1309.37    8820.32    1308.08    8863.07    1307.94    8902.86    1307.48    8937.44
GR    1307.5    8965.25   1307.69    9009.34    1307.63    9098.15    1307.80    9141.73    1307.54    9238.48
GR    1307.4    9289.98   1307.46    9347.91    1306.04    9364.47    1306.56    9382.02    1306.22    9411.06
GR    1307.1    9433.96   1307.01    9480.97    1306.80    9500.90    1306.83    9579.11    1306.63    9597.26
GR    1306.5    9651.60   1306.05    9743.54    1305.60    9780.56    1302.93    9784.17    1302.82    9802.62
GR    1300.1    9828.14   1299.23    9889.76    1299.00    9921.27    1296.71    9930.76    1298.47    9947.01
GR    1298.1    9975.11   1295.83    9987.00    1295.75   10006.96    1303.66   10041.42    1301.65   10064.01
GR    1302.6   10074.42   1303.94   10106.66    1302.29   10134.52    1303.71   10177.15    1304.23   10254.67
GR    1304.6   10273.37   1301.54   10286.06    1301.51   10331.62    1303.38   10385.94    1303.41   10447.36
GR    1301.8   10463.96   1301.44   10479.72    1300.59   10492.14    1302.40   10510.26    1301.77   10520.18
GR    1301.0   10541.35   1305.31   10553.40    1305.27   10624.76    1304.00   10635.71    1305.46   10649.37
GR    1302.6   10663.07   1305.64   10681.11    1305.37   10732.78    1301.43   10752.10    1303.93   10776.74
GR    1304.5   10804.42   1304.49   10864.83    1304.67   10921.65    1302.78   10959.24    1305.71   10994.93
GR    1306.0   11069.44   1306.06   11173.31    1306.31   11219.95

X1   14.103        83    9764.43   10088.39         540         515      520.68
GR    1314.0    8482.00   1313.81    8510.08    1314.17    8523.94    1313.52    8549.49    1313.03    8586.27
GR    1311.6    8599.67   1311.80    8629.88    1312.89    8656.28    1312.92    8725.18    1313.32    8770.35
GR    1310.9    8789.81   1311.00    8837.87    1310.88    8883.79    1310.60    8939.35    1310.39    8952.61
GR    1310.7    9032.01   1310.50    9087.45    1310.14    9125.80    1310.44    9187.24    1310.15    9236.68
GR    1310.1    9315.24   1308.89    9333.67    1308.70    9390.43    1310.12    9400.08    1309.73    9429.81
GR    1310.0    9489.07   1309.88    9532.52    1309.30    9581.48    1309.14    9622.09    1308.87    9668.19
GR    1309.1    9707.83   1309.53    9720.37    1309.48    9755.08    1308.94    9764.43    1306.87    9770.45
GR    1306.7    9786.95   1302.91    9806.67    1302.87    9818.91    1303.56    9902.96    1299.87    9930.06
GR    1301.0    9960.73   1299.72    9997.55    1300.68   10026.47    1301.42   10067.94    1307.38   10088.39
GR    1307.9   10149.94   1308.32   10209.06    1308.07   10298.29    1307.13   10310.73    1308.53   10326.25
GR    1307.7   10400.57   1307.39   10410.45    1307.92   10445.28    1307.96   10457.93    1307.38   10471.61
GR    1307.5   10507.04   1303.25   10530.20    1303.16   10592.95    1305.63   10627.85    1305.27   10636.01
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GR    1306.2   10653.59   1305.71   10661.82    1308.50   10680.36    1308.22   10688.06    1307.47   10753.83
GR    1307.3   10780.11   1304.97   10795.67    1306.43   10823.65    1305.44   10846.31    1306.90   10861.54
GR    1304.3   10877.59   1305.62   10905.63    1307.16   10932.90    1306.58   10964.23    1308.56   10977.08
GR    1308.3   10985.98   1307.44   11049.41    1306.89   11083.90    1307.92   11097.61    1308.08   11113.27
GR    1306.9   11144.60   1308.12   11160.37    1307.99   11239.53

X1   14.197        66    9935.15   10264.33         465         470      479.63
GR    1313.6    8909.00   1314.34    8915.32    1313.27    9038.55    1312.59    9122.52    1312.09    9147.10
GR    1312.6    9151.88   1311.98    9246.33    1311.85    9345.34    1311.29    9445.16    1311.53    9543.27
GR    1311.2    9638.59   1311.04    9745.61    1311.25    9791.44    1307.75    9805.82    1309.41    9820.01
GR    1309.3    9844.53   1308.78    9877.37    1310.09    9884.83    1309.84    9924.15    1309.62    9935.15
GR    1301.9   10001.01   1305.91   10028.16    1306.24   10041.70    1307.57   10147.14    1307.88   10192.02
GR    1306.7   10233.34   1306.60   10242.45    1310.80   10264.33    1310.54   10340.43    1310.58   10441.83
GR    1311.3   10477.47   1307.35   10490.71    1307.95   10524.03    1306.79   10553.36    1310.79   10570.57
GR    1310.4   10638.66   1311.00   10700.76    1307.71   10711.62    1309.41   10731.07    1308.86   10748.02
GR    1308.7   10769.66   1308.79   10825.53    1309.04   10834.98    1307.85   10852.16    1308.97   10866.22
GR    1308.2   10880.46   1308.37   10886.69    1306.28   10901.93    1306.70   10942.54    1307.57   10958.63
GR    1306.5   10972.37   1306.28   10984.49    1310.33   10999.92    1308.97   11011.88    1310.26   11032.16
GR    1310.4   11044.97   1309.97   11056.74    1307.38   11070.34    1310.82   11084.16    1310.54   11146.24
GR    1309.3   11243.47   1309.56   11283.64    1308.63   11294.27    1309.91   11331.37    1310.51   11363.10
GR    1310.9   11444.99

X1   14.284        77    9832.37   10052.65         495         485      498.98
GR    1316.0    8572.00   1314.69    8690.39    1313.76    8702.61    1314.96    8714.39    1314.56    8737.63
GR    1313.7    8836.33   1313.52    8924.48    1312.85    8931.58    1313.46    8940.77    1313.10    9036.33
GR    1312.9    9152.12   1312.76    9236.20    1312.63    9312.20    1312.12    9324.11    1312.72    9343.29
GR    1312.7    9450.45   1312.30    9546.21    1312.37    9556.68    1312.53    9580.41    1308.45    9608.38
GR    1307.5    9637.64   1308.89    9659.03    1309.20    9677.62    1307.90    9689.94    1309.50    9703.98
GR    1310.8    9714.36   1311.87    9786.70    1312.13    9832.37    1309.36    9847.97    1308.37    9877.34
GR    1306.6    9907.28   1312.79    9923.81    1312.97    9945.19    1312.92    9960.84    1308.60    9975.83
GR    1307.0   10005.31   1305.79   10016.02    1305.40   10030.96    1309.96   10046.66    1311.30   10052.65
GR    1311.3   10078.67   1311.37   10106.77    1310.98   10125.87    1308.99   10168.70    1309.04   10190.02
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GR   1311.5   10230.88   1310.77   10246.59   1310.88   10272.31   1312.90   10303.30   1313.07   10352.16
GR   1311.9   10375.49   1310.92   10390.23   1310.53   10412.97   1311.08   10422.51   1309.94   10472.27
GR   1309.5   10480.46   1309.69   10502.30   1312.58   10526.77   1311.13   10626.65   1311.07   10681.51
GR   1309.0   10742.33   1309.13   10764.17   1311.81   10784.83   1311.69   10802.10   1310.94   10827.12
GR   1310.0   10882.64   1310.35   10916.41   1309.21   10925.93   1308.80   10941.61   1312.59   10957.60
GR   1312.3   11052.02   1311.92   11066.30   1310.24   11073.88   1311.65   11087.96   1311.38   11094.07
GR   1311.9   11163.22   1312.62   11215.66

X1   14.379         70   9565.28   10321.28        515        490     505.75
GR   1317.9    8862.00   1317.02    8877.86   1318.32    8889.61   1318.08    8913.38   1318.04    8962.56
GR   1317.6    9056.52   1316.78    9062.14   1317.66    9072.18   1317.45    9107.40   1317.54    9155.18
GR   1317.3    9245.43   1316.99    9284.44   1316.46    9407.47   1316.35    9507.48   1316.50    9565.28
GR   1311.7    9578.59   1312.54    9595.64   1313.79    9614.48   1313.33    9669.20   1310.93    9682.72
GR   1308.7    9690.38   1307.97    9710.37   1313.21    9718.80   1316.83    9729.29   1316.29    9807.52
GR   1316.2    9842.38   1316.27    9907.34   1316.58    9970.44   1309.18    9985.59   1312.77   10107.59
GR   1313.3   10175.50   1313.28   10202.48   1313.78   10214.19   1313.61   10242.77   1313.00   10266.63
GR   1314.0   10293.86   1314.49   10321.28   1313.34   10375.86   1312.38   10404.88   1312.27   10442.62
GR   1315.0   10496.85   1315.24   10508.25   1315.69   10567.01   1316.10   10605.13   1313.89   10616.59
GR   1315.0   10642.59   1313.64   10658.44   1313.74   10708.14   1314.33   10748.70   1312.72   10788.08
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    25FEB99      15:48:53                                                                          PAGE    28

GR   1312.1   10820.11   1312.72   10840.28   1314.97   10853.23   1313.20   10890.66   1312.46   10918.74
GR   1310.9   10930.89   1310.66   10963.11   1315.13   10981.31   1315.05   11004.24   1314.82   11010.56
GR   1314.2   11107.74   1313.95   11226.69   1313.99   11307.79   1314.13   11385.61   1314.43   11407.83
GR   1315.2   11426.71   1315.85   11483.58   1314.61   11495.37   1314.40   11501.57   1315.43   11525.15

X1   14.495         74   9287.09   10222.87        605        455     561.68
GR   1322.1    8746.00   1321.22    8814.24   1320.81    8914.44   1320.56    9014.65   1319.83    9122.94
GR   1319.0    9226.20   1319.46    9262.39   1315.24    9271.03   1317.51    9287.09   1314.75    9295.53
GR   1313.9    9328.02   1315.46    9371.50   1317.44    9402.37   1316.78    9476.40   1317.94    9507.27
GR   1318.0    9554.76   1317.02    9581.47   1317.85    9595.83   1317.85    9658.33   1316.62    9668.11
GR   1317.7    9678.15   1316.24    9686.69   1317.89    9703.20   1318.48    9750.29   1317.61    9812.03
GR   1319.5    9837.15   1318.90    9848.98   1317.61    9876.26   1317.58    9931.87   1312.16    9950.73
GR   1313.6    9997.38   1313.20   10023.70   1316.68   10074.78   1316.67   10099.45   1316.28   10112.66
GR   1315.9   10145.77   1314.81   10170.62   1316.89   10196.86   1317.71   10222.87   1317.39   10268.69
GR   1316.7   10339.16   1316.16   10380.09   1317.11   10407.71   1316.75   10434.51   1315.88   10455.08
GR   1314.6   10463.36   1317.21   10482.94   1317.19   10531.26   1317.37   10550.55   1315.96   10568.94
GR   1316.7   10593.29   1313.20   10605.75   1317.15   10627.44   1315.42   10658.39   1314.50   10670.52
GR   1315.4   10686.02   1315.37   10694.44   1317.70   10703.41   1316.62   10868.79   1316.91   10966.28
GR   1315.7   11032.99   1316.54   11067.02   1317.37   11121.45   1317.62   11140.74   1316.49   11148.87
GR   1316.1   11234.70   1315.81   11255.52   1316.22   11278.54   1316.65   11409.22   1316.53   11478.48
GR   1316.7   11488.62   1318.38   11529.01   1318.16   11550.53   1318.45   11568.78

X1   14.599         84   9200.52   10023.39        400        585     542.23
X3       10
GR   1326.1    8240.00   1325.44    8266.56   1325.44    8305.08   1324.61    8336.99   1325.16    8357.98
GR   1324.9    8399.45   1324.19    8443.76   1324.22    8456.01   1323.43    8467.96   1324.12    8480.18
GR   1323.9    8512.75   1322.95    8615.79   1322.75    8668.50   1321.96    8696.94   1321.86    8710.55
GR   1321.1    8752.41   1320.54    8820.39   1320.27    8846.94   1321.13    8876.58   1320.74    8910.12
GR   1320.5    8947.48   1319.40    8962.12   1320.73    8985.25   1320.45    9001.45   1319.36    9012.69
GR   1320.7    9024.39   1320.60    9068.40   1321.02    9164.35   1321.63    9200.52   1316.40    9210.66
GR   1316.6    9227.66   1316.92    9232.47   1316.40    9266.38   1319.40    9316.21   1320.19    9366.86
GR   1320.0    9399.92   1316.66    9415.95   1316.68    9427.99   1317.23    9465.49   1316.68    9496.10
GR   1318.8    9518.58   1319.68    9523.59   1320.64    9598.97   1321.19    9669.05   1320.92    9734.52
GR   1316.1    9766.83   1319.35    9782.48   1316.60    9865.92   1317.83    9887.73   1317.89    9914.67
GR   1317.0    9964.94   1317.10    9975.51   1315.45    9982.84   1315.07   10016.21   1320.94   10023.39
GR   1320.6   10037.57   1319.03   10045.79   1319.71   10061.46   1320.69   10083.56   1320.59   10113.37
GR   1320.3   10140.65   1321.00   10164.24   1320.77   10175.79   1319.57   10189.07   1320.83   10201.90
GR   1320.3   10244.93   1321.02   10259.14   1320.60   10368.39   1320.13   10474.16   1319.95   10573.87
GR   1319.5   10672.23   1320.28   10767.81   1320.45   10837.93   1318.88   10885.93   1318.80   10947.70
GR   1318.6   10969.92   1319.06   10982.97   1319.04   11078.55   1319.21   11168.42   1319.86   11257.15
GR   1320.7   11287.90   1320.45   11355.83   1320.90   11402.99   1321.73   11440.44

X1   14.653         71   9196.03   10208.13        465        525     536.63
X3       10
GR   1328.0    8405.00   1327.43    8484.47   1327.06    8555.82   1325.66    8562.57   1326.90    8569.74
GR   1326.6    8635.91   1326.31    8689.15   1326.00    8708.73   1325.85    8748.88   1325.52    8767.27
GR   1325.4    8797.99   1325.05    8836.84   1324.44    8955.25   1324.39    8996.03   1323.68    9088.14
GR   1323.5    9112.97   1324.47    9196.03   1324.04    9264.89   1320.22    9284.94   1321.97    9306.41
GR   1322.2    9352.02   1322.62    9396.53   1322.42    9411.27   1322.53    9439.14   1322.34    9463.09
GR   1322.5    9474.71   1323.44    9514.93   1323.28    9561.79   1322.57    9612.22   1319.41    9621.40
GR   1320.5    9629.48   1320.83    9681.44   1321.85    9700.04   1321.39    9730.50   1321.45    9761.33
1
    25FEB99      15:48:53                                                                          PAGE    29

GR   1322.7    9807.22   1322.71    9818.79   1322.76    9838.39   1320.42    9897.91   1319.16    9953.86
GR   1317.9   10001.73   1320.54   10030.22   1319.22   10059.01   1321.77   10070.65   1322.81   10091.47
GR   1323.9   10138.00   1324.03   10148.59   1321.53   10177.83   1324.02   10208.13   1323.60   10236.25
GR   1323.7   10305.81   1322.93   10416.54   1323.39   10439.30   1323.17   10536.59   1323.45   10652.50
GR   1323.2   10719.38   1323.13   10805.83   1323.03   10902.38   1321.95   10919.50   1321.23   11001.15
GR   1321.5   11083.34   1322.98   11113.08   1322.85   11124.74   1322.86   11205.84   1322.24   11256.36
GR   1321.7   11305.83   1321.96   11405.82   1322.41   11456.38   1322.96   11555.29   1323.38   11611.12
GR   1323.5   11641.85

X1   14.752         64   9552.93   10106.03        530        565     547.53
X3       10
GR   1330.0    8593.00   1329.42    8629.02   1329.26    8725.36   1328.52    8852.44   1328.20    8885.67
```

GR	1327.8	8952.52	1326.77	9083.06	1325.92	9186.25	1326.66	9216.66	1326.35	9255.08
GR	1325.3	9273.58	1324.03	9278.76	1325.52	9287.25	1325.56	9304.16	1325.14	9352.83
GR	1324.7	9459.42	1325.66	9511.18	1326.04	9552.93	1325.69	9634.07	1324.65	9638.42
GR	1320.3	9649.11	1320.50	9701.10	1323.31	9734.32	1323.71	9767.06	1323.58	9825.51
GR	1324.1	9878.81	1323.18	9905.85	1321.52	9916.44	1320.26	9937.72	1320.30	9949.57
GR	1321.6	9973.25	1319.77	9999.77	1323.44	10013.34	1321.69	10056.24	1322.94	10086.46
GR	1325.2	10106.03	1324.80	10111.72	1323.86	10128.53	1325.10	10136.65	1324.43	10182.64
GR	1327.4	10198.87	1327.69	10246.24	1327.13	10302.94	1326.98	10374.41	1325.98	10513.13
GR	1326.6	10602.93	1326.37	10702.93	1326.15	10770.52	1326.15	10869.57	1325.59	10968.62
GR	1325.0	11102.86	1324.90	11138.88	1324.98	11202.96	1324.93	11239.92	1324.63	11302.93
GR	1324.7	11351.07	1325.61	11393.28	1325.15	11445.00	1324.30	11502.98	1324.82	11562.84
GR	1325.2	11661.89	1325.56	11757.54	1325.87	11819.84	1327.98	11851.27		

X1	14.850	85	9568.17	10218.90	545	515	536.65
X3	10						

GR	1334.0	8512.00	1333.16	8594.73	1332.86	8672.10	1332.88	8722.52	1332.41	8793.44
GR	1331.9	8832.84	1330.90	8893.33	1329.77	8906.63	1331.44	8923.67	1331.58	8948.28
GR	1331.5	9006.96	1330.83	9103.41	1330.87	9112.55	1330.06	9225.91	1329.76	9266.94
GR	1330.1	9316.16	1329.39	9401.46	1329.02	9464.08	1329.49	9529.33	1329.29	9568.17
GR	1328.1	9589.89	1325.44	9606.71	1327.30	9618.71	1325.58	9630.19	1325.67	9637.53
GR	1325.3	9686.98	1326.62	9731.72	1325.75	9755.20	1324.33	9799.87	1326.00	9829.96
GR	1325.4	9872.76	1322.51	9897.23	1323.70	9902.26	1324.81	9912.64	1325.52	9930.02
GR	1323.4	10004.15	1324.16	10021.33	1323.06	10040.27	1325.59	10053.96	1324.00	10077.19
GR	1325.5	10093.99	1326.31	10135.50	1328.24	10165.55	1328.67	10218.90	1326.50	10237.08
GR	1328.9	10259.90	1329.27	10279.26	1330.57	10285.60	1332.85	10295.94	1331.43	10302.83
GR	1330.3	10350.90	1328.27	10547.89	1328.45	10553.67	1328.80	10620.16	1328.70	10623.03
GR	1333.4	10643.24	1335.69	10656.80	1332.09	10669.54	1330.18	10678.61	1329.94	10721.07
GR	1330.6	10761.65	1329.86	10848.52	1329.63	10948.54	1329.53	11048.53	1329.03	11244.87
GR	1329.0	11348.49	1328.67	11450.18	1329.27	11554.65	1329.44	11582.61	1331.05	11621.12
GR	1330.9	11634.13	1330.01	11650.12	1327.75	11680.47	1327.02	11761.48	1326.95	11777.81
GR	1328.6	11815.30	1328.77	11825.88	1327.87	11832.09	1327.56	11852.90	1327.63	11890.70
GR	1327.4	11965.62	1328.76	12042.47	1329.04	12071.33	1328.94	12144.20	1329.12	12166.34

QT	1	4200

1

X1	14.945	92	9587.29	10043.50	585	535	529.39
X3				9587.29	1333.98	10445.67	1332.1

GR	1340.0	8607.00	1339.40	8642.82	1339.09	8695.66	1338.66	8726.69	1339.15	8779.56
GR	1338.8	8834.35	1337.63	8981.64	1337.31	9008.04	1336.56	9095.79	1336.46	9133.80
GR	1335.9	9209.74	1335.56	9279.25	1335.58	9312.58	1335.04	9366.01	1334.93	9409.76
GR	1334.1	9471.19	1333.93	9505.43	1333.98	9587.29	1333.31	9623.18	1332.42	9651.65
GR	1331.5	9673.72	1332.08	9725.79	1330.74	9794.09	1330.21	9807.98	1328.77	9883.08
GR	1328.4	9903.94	1328.64	9918.25	1325.51	9946.82	1325.07	9956.81	1323.89	10007.99
GR	1330.4	10031.74	1334.24	10043.50	1333.91	10065.70	1334.66	10072.41	1331.00	10084.07
GR	1331.1	10096.09	1330.34	10164.76	1330.23	10202.65	1329.53	10231.37	1328.70	10249.16
GR	1330.4	10281.60	1330.10	10315.96	1328.77	10347.38	1327.07	10381.91	1329.42	10429.75
GR	1332.1	10445.67	1331.21	10483.63	1330.73	10485.67	1319.80	10520.01	1318.11	10531.51
GR	1318.3	10544.52	1315.80	10581.44	1315.29	10660.99	1315.52	10686.69	1316.24	10706.93
GR	1315.9	10724.84	1317.97	10741.81	1323.73	10760.61	1324.37	10765.41	1330.05	10783.42
GR	1334.6	10800.57	1332.01	10818.56	1328.18	10831.83	1331.81	10841.34	1332.55	10917.03
GR	1332.8	10925.17	1332.36	10970.34	1331.38	11046.60	1331.18	11130.22	1330.90	11203.18
GR	1330.8	11325.77	1331.40	11331.87	1331.61	11345.81	1331.33	11386.71	1331.39	11426.50
GR	1331.2	11486.72	1331.25	11527.35	1331.65	11586.72	1331.90	11616.72	1331.85	11691.66
GR	1331.5	11722.72	1331.89	11768.91	1332.47	11828.90	1332.64	11872.66	1331.78	11939.95
GR	1331.8	11985.06	1331.92	12007.44	1331.13	12043.63	1329.45	12057.89	1329.87	12097.42
GR	1330.0	12143.43	1330.64	12216.02						

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X3	10						

GR	1340.0	8829.00	1339.24	8854.47	1339.39	8859.96	1339.65	8954.29	1338.27	9043.54
GR	1337.8	9084.55	1338.44	9143.50	1338.02	9239.51	1337.61	9250.65	1337.05	9345.62
GR	1336.7	9397.76	1336.41	9459.83	1334.87	9497.14	1335.08	9539.05	1334.72	9551.64
GR	1334.0	9559.67	1335.00	9591.62	1334.29	9605.07	1335.70	9616.15	1335.30	9623.27
GR	1334.2	9628.41	1334.84	9646.97	1334.52	9687.43	1332.95	9700.13	1336.86	9713.64
GR	1333.2	9729.52	1334.23	9747.65	1334.98	9776.61	1334.75	9785.74	1333.92	9815.49
GR	1329.8	9841.54	1332.42	9866.89	1332.45	9877.40	1332.72	9881.68	1329.37	9898.08
GR	1327.9	9932.25	1324.49	9984.77	1323.95	10007.10	1331.45	10033.76	1331.51	10082.56
GR	1331.2	10100.70	1331.47	10107.14	1332.01	10146.60	1331.64	10167.15	1332.50	10228.43
GR	1332.7	10247.99	1333.04	10307.49	1333.20	10317.83	1331.61	10336.03	1332.50	10419.06
GR	1332.3	10464.72	1330.90	10483.97	1332.82	10528.59	1333.43	10555.31	1334.31	10565.71
GR	1334.6	10599.17	1335.05	10620.37	1334.61	10637.95	1332.17	10670.40	1330.41	10696.73
GR	1330.5	10698.59	1328.50	10731.07	1330.51	10743.84	1330.76	10749.02	1335.91	10783.37
GR	1338.1	10810.36	1339.26	10840.75	1342.69	10859.67	1333.88	10883.26	1333.48	10945.64
GR	1333.4	11047.28	1333.26	11211.60	1333.13	11247.28	1333.23	11282.59	1333.05	11412.64
GR	1332.9	11447.28	1333.31	11581.07	1333.64	11647.28	1333.61	11747.28	1333.77	11847.29
GR	1334.0	11879.54	1334.03	11964.25	1333.39	11984.46	1332.81	12004.45		

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X3	10						

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GR	1341.7	9276.33	1342.04	9297.33	1341.09	9316.67	1340.53	9323.00	1341.12	9335.59
GR	1340.9	9379.14	1340.17	9420.45	1339.97	9443.17	1340.48	9522.36	1339.34	9543.89
GR	1341.0	9558.92	1340.52	9589.13	1340.41	9626.50	1339.69	9682.39	1339.16	9700.13
GR	1337.6	9718.38	1342.20	9732.06	1339.03	9755.78	1338.67	9796.81	1338.63	9826.61
GR	1338.9	9830.19	1338.55	9850.15	1337.55	9869.32	1335.21	9875.91	1327.47	9895.24
GR	1328.0	9911.59	1329.43	9925.44	1327.09	9937.88	1328.79	9958.15	1329.26	10005.27
GR	1329.4	10038.85	1332.30	10088.54	1332.53	10099.72	1332.63	10145.22	1332.82	10186.65

GR	1330.1	10215.33	1332.16	10241.83	1332.23	10262.77	1333.77	10304.20	1333.59	10323.99
GR	1334.2	10364.11	1333.94	10448.21	1330.69	10469.63	1333.75	10487.95	1333.75	10521.85
GR	1333.4	10550.22	1333.49	10604.38	1333.30	10658.78	1330.92	10681.71	1337.74	10701.99
GR	1334.9	10723.90	1326.08	10745.24	1331.81	10755.50	1335.75	10761.42	1333.63	10784.67
GR	1334.0	10792.91	1323.89	10824.40	1321.64	10830.89	1321.29	10860.78	1322.78	10887.11
GR	1325.3	10910.02	1342.82	10952.56	1346.57	10963.00	1342.20	10968.38	1342.28	10970.74
GR	1340.5	10981.93	1335.60	10996.42	1335.89	10999.16	1335.90	11028.51	1335.33	11040.00
GR	1335.3	11064.53	1335.43	11160.25	1335.35	11260.25	1335.15	11327.08	1335.19	11360.25
GR	1335.1	11427.85	1334.87	11460.26	1335.09	11560.27	1335.09	11660.27	1335.60	11730.16
GR	1335.9	11760.27	1336.07	11830.93	1335.99	11860.28	1336.00	11931.69	1335.69	11975.93
GR	1336.1	11991.39	1336.21	12046.44						

X1	15.144	86	9744.00	10121.97	485	505	493.15			
X3				9744.00	1338.07	10277.7	1343.91			
GR	1346.0	8669.00	1345.82	8700.55	1344.21	8758.97	1344.95	8778.66	1344.82	8842.85
GR	1344.3	8943.02	1343.62	9044.97	1342.54	9089.30	1343.17	9103.30	1342.21	9249.02
GR	1341.7	9299.28	1339.33	9320.50	1344.36	9335.15	1339.65	9351.51	1338.62	9367.32
GR	1340.8	9381.11	1338.67	9390.14	1336.83	9394.39	1336.48	9437.13	1336.17	9454.45
GR	1333.4	9461.12	1334.80	9468.22	1335.38	9486.07	1333.17	9489.48	1333.59	9494.37
GR	1335.9	9504.48	1336.42	9582.28	1335.77	9595.46	1336.84	9615.39	1336.34	9644.55
GR	1335.8	9658.80	1337.14	9683.54	1337.99	9718.58	1337.15	9730.83	1338.07	9744.00
GR	1338.0	9749.22	1337.91	9764.51	1330.84	9794.51	1333.44	9802.80	1333.39	9834.97
GR	1333.6	9852.59	1331.11	9866.24	1333.02	9901.03	1334.05	9947.25	1331.77	9991.45
GR	1329.2	10003.49	1329.50	10015.25	1331.43	10024.63	1331.56	10054.33	1335.83	10090.64
GR	1336.2	10121.97	1334.49	10196.15	1333.79	10227.56	1333.82	10233.76	1331.89	10243.14
GR	1331.7	10244.49	1343.91	10277.70	1337.30	10300.05	1337.01	10310.29	1336.76	10368.35
GR	1343.9	10399.70	1337.74	10421.86	1334.83	10433.54	1335.18	10437.08	1334.83	10453.46
GR	1341.9	10474.77	1345.17	10504.05	1346.11	10522.22	1345.53	10527.95	1346.69	10541.11
GR	1346.8	10560.90	1346.15	10580.58	1346.23	10595.60	1337.08	10615.20	1337.27	10645.53
GR	1336.3	10695.46	1336.36	10717.04	1336.87	10772.56	1336.65	10847.76	1336.65	10896.68
GR	1336.5	10972.55	1336.13	11050.48	1336.07	11192.71	1337.00	11372.55	1337.02	11488.74
GR	1337.1	11572.61								

X1	15.248	72	9757.56	10074.95	405	530	496.77			
X3	10									
GR	1352.0	8173.00	1351.64	8194.83	1351.07	8282.31	1349.21	8348.78	1350.34	8402.52
GR	1350.0	8459.13	1349.33	8494.82	1349.45	8537.90	1348.68	8595.79	1348.23	8664.69
GR	1347.7	8712.02	1346.30	8804.27	1345.29	8830.71	1346.00	8852.24	1346.20	8907.46
GR	1342.2	8929.51	1344.30	8959.30	1348.35	8971.35	1348.20	8980.41	1346.81	8993.79
GR	1344.8	9004.85	1343.49	9046.00	1345.25	9057.93	1343.11	9068.29	1345.81	9080.26
GR	1342.6	9188.09	1339.79	9214.55	1342.28	9222.57	1339.76	9230.28	1338.90	9260.33
GR	1338.1	9312.29	1337.83	9340.46	1337.53	9416.02	1337.52	9519.20	1340.23	9561.12
GR	1340.1	9570.30	1339.52	9661.91	1336.86	9671.05	1337.14	9707.33	1338.63	9727.74
GR	1338.5	9757.56	1338.15	9796.97	1335.33	9883.09	1336.49	9899.49	1331.18	9929.77
GR	1332.3	9953.39	1333.39	10001.52	1333.23	10028.97	1332.65	10059.37	1339.32	10074.95
GR	1339.5	10100.82	1340.12	10146.88	1340.38	10170.67	1340.55	10187.23	1340.04	10212.73
GR	1340.2	10280.35	1340.54	10296.89	1339.92	10361.08	1340.08	10419.48	1340.56	10461.22
GR	1339.9	10496.69	1340.07	10543.39	1339.80	10639.79	1339.45	10717.31	1339.54	10839.78
GR	1339.9	10917.31	1339.85	10939.78	1339.35	11017.31	1339.59	11117.31	1339.50	11139.79
GR	1339.5	11217.31	1339.65	11317.31						

X1	15.333	64	9724.67	10046.52	375	480	453.40			
X3	10									
GR	1351.6	8454.00	1350.25	8515.50	1348.97	8530.32	1349.76	8547.94	1346.41	8559.95
GR	1350.3	8580.72	1350.33	8589.49	1350.12	8638.21	1348.61	8746.44	1348.31	8770.68
GR	1348.3	8791.07	1348.63	8837.50	1347.57	8856.90	1347.83	8866.24	1347.01	8878.41
GR	1344.5	8888.66	1343.91	8896.88	1342.60	8902.60	1347.93	8919.48	1347.44	8936.63
GR	1346.1	8994.21	1347.89	9002.35	1348.26	9018.44	1347.91	9045.47	1347.68	9057.22
GR	1346.8	9063.83	1346.50	9112.87	1346.54	9177.48	1346.08	9246.76	1346.13	9253.32
GR	1345.5	9324.47	1344.19	9426.02	1343.85	9460.99	1343.67	9531.13	1343.48	9556.59
GR	1344.3	9604.15	1339.61	9621.03	1337.97	9646.90	1340.24	9665.20	1340.08	9724.67
GR	1337.0	9750.08	1338.11	9775.56	1336.76	9791.07	1335.73	9847.07	1337.68	9896.96
GR	1335.1	9939.15	1333.64	9989.51	1333.69	10026.60	1342.68	10046.52	1343.15	10227.71
GR	1342.7	10341.69	1342.95	10417.14	1342.77	10466.38	1342.25	10541.37	1342.14	10616.62
GR	1342.2	10666.92	1342.49	10751.49	1343.26	10816.38	1343.27	10833.20	1342.36	10915.84
GR	1342.5	10967.77	1342.86	11041.71	1342.79	11068.03	1343.16	11143.55		

X1	15.416	76	9780.18	10115.94	310	465	448.62			
X3	10									
GR	1351.7	8600.00	1353.40	8606.92	1353.28	8629.86	1351.99	8655.62	1353.36	8679.28
GR	1351.4	8751.29	1349.02	8818.80	1348.74	8835.78	1350.10	8846.08	1350.25	8857.51
GR	1350.0	8879.06	1351.09	8896.09	1351.35	8928.81	1350.19	9027.64	1348.75	9066.08
GR	1344.0	9089.49	1348.43	9103.24	1347.66	9127.16	1346.79	9181.88	1348.77	9189.25
GR	1348.9	9226.47	1348.46	9327.63	1347.77	9355.75	1347.11	9373.75	1346.26	9384.85
GR	1344.1	9406.25	1345.24	9431.16	1345.29	9465.10	1343.65	9477.56	1345.15	9491.16
GR	1345.9	9526.61	1346.26	9534.41	1339.33	9549.88	1340.33	9567.47	1340.50	9616.78
GR	1340.5	9638.26	1341.47	9722.76	1341.67	9764.78	1342.02	9780.18	1335.54	9799.96
GR	1335.2	9848.86	1335.69	9868.55	1334.99	9883.40	1336.20	9893.42	1335.57	9902.66
GR	1336.9	9917.75	1337.55	9948.99	1333.40	9974.13	1334.28	10046.80	1334.28	10060.45
GR	1338.5	10092.66	1342.34	10115.94	1342.49	10120.14	1343.63	10172.80	1343.81	10220.26
GR	1344.5	10285.88	1345.33	10338.16	1345.24	10443.18	1344.77	10481.74	1344.21	10494.13
GR	1345.5	10532.96	1346.44	10573.06	1351.58	10606.55	1345.86	10641.82	1345.91	10691.57
GR	1344.9	10715.69	1344.88	10742.49	1344.58	10785.92	1344.66	10827.51	1344.52	10885.92

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GR   1344.7   10982.89    1345.25   11014.79    1346.24   11051.36    1344.97   11089.03    1344.99   11113.45
GR   1345.7   11222.68

X1   15.475         55    9705.46   10056.25         510         260      319.63
GR   1350.0    9157.00    1349.44    9198.07    1350.54    9209.08    1350.67    9229.38    1347.08    9245.82
GR   1347.3    9250.90    1349.17    9259.75    1350.84    9275.83    1350.14    9307.72    1350.43    9314.50
GR   1349.5    9332.25    1349.40    9341.89    1349.84    9365.79    1349.61    9370.52    1349.38    9401.44
GR   1349.7    9416.67    1348.86    9455.68    1348.12    9477.73    1347.86    9503.99    1346.09    9540.74
GR   1347.7    9560.29    1347.34    9582.52    1347.12    9599.39    1342.21    9610.67    1341.34    9626.58
GR   1341.6    9664.10    1341.32    9705.46    1338.84    9716.87    1336.67    9728.62    1337.25    9752.31
GR   1337.3    9781.12    1338.08    9847.02    1337.44    9959.73    1335.06    9973.89    1335.92   10020.83
GR   1341.5   10056.25    1342.21   10097.34    1343.30   10121.69    1344.36   10151.77    1344.03   10180.94
GR   1344.0   10260.23    1345.24   10313.56    1346.51   10413.86    1346.68   10460.22    1346.71   10506.32
GR   1346.5   10560.22    1347.12   10660.22    1346.92   10714.74    1346.55   10760.25    1346.87   10815.03
GR   1346.7   10860.23    1346.04   10915.32    1346.04   10960.23    1346.44   11098.29    1347.09   11134.47

1
    25FEB99      15:48:53                                                                              PAGE    33

X1   15.596         58    9926.47   10212.94         460         775      677.66
GR   1352.1    9227.00    1351.49    9286.29    1351.40    9339.59    1349.90    9362.26    1349.19    9391.52
GR   1348.9    9411.74    1349.54    9424.70    1349.34    9446.73    1349.35    9470.51    1345.94    9479.00
GR   1349.2    9489.28    1348.08    9518.40    1345.62    9525.76    1348.75    9542.40    1348.00    9566.90
GR   1347.4    9622.54    1347.44    9642.37    1348.25    9657.79    1348.35    9689.11    1348.27    9713.32
GR   1348.0    9734.14    1348.44    9776.97    1348.24    9796.93    1348.20    9840.22    1347.97    9867.96
GR   1348.4    9893.94    1348.64    9926.47    1346.05    9936.59    1344.28    9951.29    1340.53    9958.57
GR   1340.0    9974.55    1338.38    9990.68    1340.46   10040.87    1341.37   10070.78    1341.48   10085.86
GR   1340.7   10104.64    1345.86   10125.69    1345.11   10136.01    1344.10   10161.47    1344.90   10178.16
GR   1345.6   10193.67    1347.78   10212.94    1348.77   10274.80    1348.71   10331.79    1346.71   10354.38
GR   1346.6   10371.49    1346.55   10470.92    1347.10   10570.91    1347.48   10670.92    1348.14   10770.92
GR   1347.8   10789.91    1348.17   10872.72    1346.17   10895.37    1345.62   10931.84    1352.28   10953.24
GR   1351.7   11027.50    1351.61   11072.65    1351.79   11170.94

X1   15.623         79    9949.16   10136.16         475         205      505.65
GR   1356.6    9318.00    1356.12    9323.95    1352.99    9331.78    1351.18    9386.87    1352.92    9398.18
GR   1352.4    9440.31    1352.07    9494.82    1351.33    9498.50    1352.10    9508.04    1349.97    9517.30
GR   1352.6    9525.37    1352.97    9554.41    1353.00    9642.50    1352.56    9690.19    1352.10    9801.75
GR   1353.1    9824.47    1352.59    9877.27    1351.94    9930.01    1351.97    9949.16    1342.06    9961.51
GR   1340.0    9962.84    1341.13    9982.30    1341.11   10011.88    1343.12   10043.47    1343.83   10049.19
GR   1344.1   10086.79    1345.12   10097.68    1344.54   10103.38    1346.86   10115.75    1346.92   10125.97
GR   1348.7   10136.16    1345.73   10154.16    1346.80   10166.78    1347.83   10199.38    1347.44   10212.27
GR   1347.0   10247.85    1345.84   10269.85    1349.10   10283.93    1349.68   10296.67    1348.99   10313.36
GR   1349.4   10315.84    1348.82   10345.62    1347.74   10363.48    1348.55   10414.67    1347.29   10427.12
GR   1348.9   10447.66    1349.00   10497.95    1349.08   10545.69    1346.23   10560.13    1345.78   10582.80
GR   1347.9   10599.59    1346.97   10633.17    1346.86   10675.59    1348.17   10704.51    1347.87   10725.87
GR   1346.2   10741.04    1348.78   10788.78    1348.91   10818.10    1351.05   10850.88    1349.23   10868.19
GR   1350.4   10905.65    1350.68   10942.53    1349.73   10961.91    1349.28   10980.87    1350.19   11005.87
GR   1348.5   11023.38    1346.33   11039.77    1346.00   11058.38    1346.48   11085.01    1348.63   11095.88
GR   1351.7   11102.88    1350.94   11115.35    1351.93   11119.44    1351.76   11131.49    1352.38   11166.70
GR   1353.3   11227.40    1353.43   11251.11    1352.84   11320.83    1352.87   11337.20

X1   15.699         63    9874.71   10044.10         485         240      413.60
GR   1358.1    9256.00    1357.15    9266.09    1358.11    9282.59    1356.26    9326.59    1356.49    9335.31
GR   1356.1    9340.59    1357.54    9350.90    1357.07    9406.43    1356.61    9463.66    1355.47    9563.65
GR   1355.3    9671.99    1354.18    9710.26    1354.38    9735.10    1353.56    9757.70    1351.26    9770.34
GR   1345.7    9788.07    1350.56    9797.17    1347.50    9804.33    1348.52    9816.60    1347.89    9831.05
GR   1349.0    9855.63    1349.99    9874.71    1349.08    9903.39    1345.89    9921.35    1344.71    9982.14
GR   1345.4   10027.02    1349.76   10044.10    1348.55   10069.22    1350.42   10099.66    1350.44   10129.06
GR   1352.5   10139.36    1353.43   10149.46    1351.40   10156.88    1348.91   10172.37    1350.71   10204.12
GR   1350.5   10210.28    1351.10   10264.93    1348.70   10281.24    1349.01   10309.55    1349.07   10319.29
GR   1350.5   10345.58    1349.44   10422.21    1347.70   10491.03    1348.88   10505.89    1349.00   10544.84
GR   1350.2   10566.95    1347.07   10578.72    1346.50   10599.47    1348.84   10621.48    1349.24   10656.83
GR   1348.8   10679.76    1348.40   10706.38    1347.87   10721.41    1346.25   10813.35    1346.25   10832.99
GR   1351.7   10850.80    1351.70   10858.87    1352.89   10884.29    1352.96   10911.30    1353.59   10981.91
GR   1353.7   11012.23    1354.40   11112.68    1354.31   11130.18

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    25FEB99      15:48:53                                                                              PAGE    34

X1   15.792         70    9922.85   10073.97         430         560      472.66
GR   1357.9    9168.00    1357.39    9203.65    1357.00    9214.01    1357.11    9268.42    1356.51    9312.99
GR   1356.0    9337.76    1356.21    9368.60    1355.53    9387.84    1355.56    9405.54    1354.36    9447.91
GR   1351.5    9469.29    1354.10    9480.60    1355.02    9495.88    1356.34    9508.29    1355.96    9530.07
GR   1353.8    9566.08    1350.44    9620.50    1352.07    9634.25    1352.32    9648.55    1352.19    9683.78
GR   1352.3    9725.88    1352.05    9791.07    1352.29    9825.91    1353.17    9850.91    1351.96    9860.93
GR   1352.8    9868.00    1353.08    9899.90    1353.50    9922.85    1347.81    9939.06    1347.87    9946.04
GR   1345.2   10002.05    1350.33   10034.91    1350.22   10060.20    1352.11   10073.97    1352.69   10127.71
GR   1352.8   10160.12    1349.46   10176.02    1349.92   10190.22    1353.04   10202.57    1350.80   10242.67
GR   1350.0   10254.44    1352.51   10267.14    1352.84   10283.39    1352.42   10292.86    1349.55   10303.63
GR   1351.0   10316.45    1352.57   10323.35    1352.35   10385.32    1352.09   10417.82    1352.00   10421.64
GR   1349.1   10435.06    1348.34   10452.82    1351.78   10470.05    1352.40   10523.42    1351.25   10539.06
GR   1353.9   10553.37    1353.65   10569.57    1353.80   10593.97    1352.09   10609.33    1354.72   10630.81
GR   1354.7   10662.46    1354.17   10669.80    1354.99   10683.15    1355.81   10751.70    1355.24   10811.74
GR   1355.3   10822.54    1356.98   10868.95    1357.97   10903.34    1357.35   10952.93    1357.44   11008.26

X1   15.885         39    9960.59   10153.32         525         475      509.42
X3       10
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GR   1360.0    9393.00    1359.75    9456.26    1358.69    9533.52    1358.51    9586.21    1358.05    9653.18
GR   1356.2    9670.80    1357.52    9688.72    1357.26    9742.60    1356.87    9773.97    1357.00    9780.43
GR   1355.3    9787.42    1357.29    9797.88    1356.29    9841.90    1355.99    9875.75    1356.36    9960.59
GR   1348.4    9993.59    1350.35   10022.82    1352.32   10043.13    1352.79   10080.48    1351.11   10097.44
GR   1354.8   10123.51    1353.52   10141.21    1355.11   10153.32    1354.89   10233.75    1354.82   10292.58
GR   1354.8   10351.99    1354.34   10383.48    1351.55   10395.76    1351.35   10435.00    1356.03   10456.42
GR   1355.7   10467.88    1357.24   10493.20    1357.95   10526.90    1358.08   10531.97    1358.33   10630.47
GR   1358.2   10707.49    1357.89   10760.99    1358.46   10924.53    1358.43   10992.75

QT        1        2350

X1   15.966          48    9732.42   10168.96         515         415      429.98
GR   1363.9    8884.00    1363.62    8899.06    1363.40    8931.55    1363.36    8982.64    1363.04    9078.40
GR   1362.6    9108.81    1362.11    9167.73    1361.39    9213.77    1360.33    9318.74    1360.44    9396.68
GR   1359.5    9476.26    1358.94    9601.17    1358.93    9616.36    1357.42    9619.86    1358.95    9625.72
GR   1358.6    9663.48    1359.10    9699.11    1353.46    9716.17    1358.90    9732.42    1358.21    9751.30
GR   1355.4    9769.62    1355.12    9801.73    1355.85    9810.49    1356.22    9834.25    1353.69    9864.01
GR   1355.6    9935.39    1354.00    9950.33    1351.84   10001.29    1356.10   10023.45    1356.70   10078.54
GR   1355.7   10103.98    1356.62   10120.58    1356.72   10155.14    1357.74   10168.96    1357.77   10180.45
GR   1356.0   10277.33    1354.72   10283.48    1354.06   10318.28    1357.75   10333.71    1354.40   10371.08
GR   1360.1   10391.06    1360.53   10401.94    1360.89   10555.41    1360.95   10627.42    1361.13   10709.60
GR   1361.5   10788.34    1361.28   10863.73    1361.15   10882.38

X1   16.066          53    9577.02   10067.61         610         505      584.23
GR   1364.0    9330.00    1363.30    9395.88    1361.39    9412.63    1363.18    9425.48    1363.50    9457.05
GR   1363.1    9518.54    1362.18    9539.80    1361.42    9577.02    1358.27    9592.47    1359.33    9598.29
GR   1359.3    9607.20    1358.86    9627.82    1358.05    9642.76    1360.07    9658.05    1361.08    9672.67
GR   1361.1    9680.42    1359.84    9703.18    1360.88    9729.76    1360.66    9739.23    1356.71    9753.63
GR   1355.9    9777.73    1356.38    9784.76    1358.19    9826.64    1359.68    9844.48    1357.90    9900.29
GR   1358.9    9908.20    1357.80    9920.79    1358.94    9933.97    1359.73    9976.20    1354.42    9993.66
GR   1357.2   10011.06    1357.22   10026.00    1359.30   10051.57    1359.74   10067.61    1359.54   10107.14
GR   1360.1   10150.01    1360.91   10169.03    1359.58   10197.50    1358.49   10211.89    1357.75   10226.70
1
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GR   1357.6   10257.82    1354.63   10282.25    1358.50   10358.80    1356.45   10424.28    1360.48   10448.99
GR   1361.3   10472.80    1361.89   10514.13    1362.27   10523.21    1362.73   10569.30    1363.60   10652.65
GR   1363.8   10685.24    1363.92   10771.86    1364.08   10883.43

X1   16.167          42    9897.21   10144.90         540         535      590.83
GR   1368.0    9428.00    1366.39    9629.69    1366.07    9715.53    1365.21    9792.86    1365.02    9856.46
GR   1364.3    9897.21    1360.34    9915.84    1359.96    9955.56    1360.72    9980.69    1358.98   10002.86
GR   1363.5   10030.58    1362.35   10074.98    1361.91   10104.37    1361.08   10122.99    1363.40   10144.90
GR   1363.4   10174.60    1363.80   10191.10    1362.80   10199.04    1363.10   10225.53    1363.06   10252.32
GR   1362.5   10275.89    1361.29   10342.34    1360.37   10382.68    1359.64   10402.57    1360.99   10428.98
GR   1358.5   10453.37    1358.81   10472.28    1358.32   10512.09    1358.22   10540.84    1363.69   10561.93
GR   1364.0   10608.91    1362.66   10625.17    1362.37   10651.98    1363.97   10674.62    1363.14   10721.87
GR   1362.6   10741.72    1361.31   10754.11    1366.28   10771.51    1366.43   10793.58    1366.16   10805.79
GR   1366.6   10813.45    1366.57   10899.23

X1   16.248          43    9943.37   10160.36         435         495      436.54
GR   1370.0    9465.00    1369.86    9474.66    1369.57    9535.36    1369.31    9559.46    1367.71    9626.12
GR   1367.9    9666.85    1365.93    9683.27    1368.11    9697.73    1367.95    9734.77    1366.50    9743.57
GR   1367.4    9760.62    1366.79    9874.83    1366.86    9943.37    1361.19    9953.78    1360.22    9988.35
GR   1363.1   10031.27    1364.02   10054.21    1364.29   10067.38    1365.40   10160.36    1363.52   10189.00
GR   1365.1   10225.06    1365.31   10249.87    1361.33   10270.28    1363.88   10292.69    1362.69   10311.21
GR   1365.8   10325.37    1365.68   10359.41    1364.42   10402.36    1365.60   10423.55    1364.34   10442.35
GR   1363.7   10462.82    1365.10   10472.30    1365.33   10480.52    1364.11   10490.42    1365.53   10501.75
GR   1364.8   10541.04    1365.25   10579.72    1363.26   10601.19    1362.54   10621.04    1361.49   10634.85
GR   1367.5   10660.98    1366.99   10737.15    1367.36   10801.23

X1   16.348          37    9841.03   10144.93         595         310      497.94
GR   1374.0    9141.00    1372.84    9232.51    1371.70    9453.27    1370.65    9551.83    1370.89    9579.59
GR   1370.5    9643.66    1370.54    9658.59    1368.00    9669.77    1368.25    9678.81    1366.77    9684.21
GR   1366.7    9700.54    1368.28    9728.13    1368.33    9798.00    1368.31    9841.03    1366.74    9911.88
GR   1366.9    9924.93    1364.63    9944.09    1365.07    9956.73    1363.99    9965.77    1363.10    9990.28
GR   1362.6    9996.65    1364.90   10031.10    1365.56   10113.20    1367.73   10144.93    1367.08   10175.58
GR   1366.1   10214.84    1367.01   10241.49    1365.56   10260.35    1366.06   10273.85    1365.81   10289.61
GR   1363.0   10355.80    1367.88   10392.74    1367.17   10445.21    1366.84   10458.55    1367.55   10515.81
GR   1368.5   10622.19    1368.85   10660.66

X1   16.411          28    9686.22   10049.69         395         535      481.78
X3        10
GR   1375.9    8995.00    1375.05    9120.20    1374.58    9159.97    1373.44    9270.57    1372.46    9345.53
GR   1371.9    9370.95    1371.12    9417.94    1370.98    9460.54    1371.07    9512.40    1371.41    9560.04
GR   1371.7    9640.55    1372.29    9686.22    1368.45    9702.90    1367.29    9721.58    1369.72    9758.22
GR   1369.9    9775.40    1369.50    9894.49    1366.28    9956.88    1365.08    9987.15    1364.41   10035.01
GR   1371.3   10049.69    1370.95   10130.70    1370.52   10196.76    1367.04   10215.73    1369.85   10234.00
GR   1369.5   10249.38    1370.19   10309.65    1370.22   10371.55

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X1   16.504          30    9811.68   10070.55         500         475      481.43
X3        10
GR   1377.9    8925.00    1376.71    9025.45    1375.98    9108.49    1375.17    9222.68    1375.15    9288.95
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GR   1375.0    9331.82    1374.45    9394.72    1374.09    9464.83    1374.40    9565.32    1374.29    9582.92
GR   1374.8    9656.27    1374.97    9665.50    1369.67    9679.46    1370.53    9691.84    1373.39    9713.71
GR   1372.0    9731.63    1372.92    9749.68    1373.02    9808.13    1373.13    9811.68    1370.78    9833.45
GR   1371.8    9860.80    1369.98    9873.94    1369.77    9895.68    1368.09    9972.28    1366.82   10021.02
GR   1367.8   10053.11    1373.91   10070.55    1373.16   10097.93    1374.45   10112.12    1374.29   10124.71

X1   16.608         32    9854.88   10075.05         385         555      500.72
X3       10
GR   1380.0    9007.00    1379.51    9048.38    1379.03    9104.16    1378.52    9199.80    1378.06    9275.58
GR   1378.0    9323.12    1376.40    9542.06    1376.43    9660.33    1376.65    9760.99    1376.69    9833.01
GR   1376.9    9854.88    1375.11    9860.37    1369.14    9874.28    1371.43    9901.31    1368.87    9913.86
GR   1371.0    9943.45    1371.58    9967.37    1368.69    9995.55    1371.97   10018.19    1371.98   10032.53
GR   1370.5   10054.12    1372.97   10066.45    1375.37   10075.05    1375.02   10099.35    1374.62   10112.94
GR   1373.1   10130.85    1374.54   10142.98    1374.25   10150.42    1370.41   10181.47    1372.61   10194.23
GR   1373.3   10239.89    1375.29   10262.60

X1   16.637         38    9796.37   10091.69         240         235      231.78
X3       10
GR   1380.0    9215.00    1380.08    9287.91    1378.64    9456.47    1378.02    9539.78    1377.61    9650.70
GR   1377.5    9755.49    1377.95    9796.37    1375.23    9800.03    1372.29    9803.59    1374.36    9822.14
GR   1374.1    9845.09    1373.64    9868.07    1371.87    9891.63    1371.96    9902.54    1373.76    9912.51
GR   1373.8    9933.34    1372.61    9962.46    1370.17    9997.45    1374.99   10020.98    1376.21   10075.83
GR   1376.9   10091.69    1375.18   10192.99    1377.23   10207.79    1376.28   10244.30    1376.42   10259.44
GR   1375.3   10266.52    1374.98   10298.74    1373.56   10307.01    1375.69   10319.69    1376.55   10340.77
GR   1377.0   10352.47    1374.28   10383.15    1373.37   10400.42    1372.15   10409.17    1372.52   10430.44
GR   1377.0   10440.96    1377.15   10453.89    1377.76   10480.52

X1   16.732         50    9872.89   10091.14         535         460      475.63
X3       10
GR   1387.1    9126.00    1385.91    9196.46    1384.39    9325.73    1384.23    9357.75    1382.66    9366.79
GR   1384.3    9376.02    1383.83    9423.31    1382.90    9488.50    1381.83    9620.10    1380.94    9707.59
GR   1380.4    9784.24    1380.10    9814.78    1380.07    9872.89    1379.83    9879.46    1378.19    9883.93
GR   1373.1    9904.86    1373.81    9928.66    1376.38    9978.64    1372.93   10001.36    1375.42   10020.11
GR   1374.0   10031.44    1378.13   10053.85    1379.11   10091.14    1378.28   10123.79    1377.31   10143.34
GR   1378.4   10169.44    1379.04   10194.24    1379.27   10228.96    1379.18   10243.81    1376.65   10258.86
GR   1377.2   10312.27    1377.17   10316.43    1375.87   10380.28    1375.63   10401.27    1379.13   10413.50
GR   1378.8   10454.52    1378.26   10472.41    1378.98   10507.22    1377.05   10521.90    1378.03   10539.82
GR   1377.6   10558.41    1375.08   10568.68    1374.73   10589.51    1379.34   10611.09    1378.70   10635.50
GR   1379.4   10716.95    1378.64   10801.92    1376.71   10820.44    1376.69   10844.30    1379.75   10863.91

X1   16.829         47    9839.28   10093.75         430         550      525.69
X3       10
GR   1384.0    9597.00    1383.63    9624.11    1383.38    9671.43    1382.26    9793.51    1382.01    9808.18
GR   1382.0    9839.28    1381.32    9857.43    1380.14    9878.20    1379.44    9897.06    1378.50    9940.12
GR   1377.9    9950.38    1376.18    9966.48    1375.32    9983.91    1375.61   10035.56    1375.52   10040.25
GR   1374.9   10062.80    1381.48   10093.75    1380.76   10124.12    1381.24   10158.92    1379.86   10173.60
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GR   1379.0   10224.80    1379.52   10238.09    1380.57   10256.30    1381.03   10320.59    1380.86   10343.63
GR   1378.3   10360.06    1377.11   10380.09    1378.19   10400.25    1378.62   10438.67    1377.65   10454.22
GR   1376.3   10488.15    1380.62   10503.43    1380.37   10535.22    1380.44   10565.72    1378.63   10579.72
GR   1378.5   10603.94    1379.06   10625.18    1381.25   10639.95    1381.77   10707.04    1381.21   10733.80
GR   1380.7   10747.09    1380.10   10779.71    1381.59   10826.95    1381.63   10847.56    1378.47   10858.61
GR   1381.4   10875.40    1381.95   10885.60

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     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

 *PROF 1
0

 CCHV=      .300 CEHV=      .500
 *SECNO 7.728

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1157.50 ELREA=      1157.50

      7.728      15.10    1150.50        .00    1150.50    1152.52       2.02        .00        .00    1154.00
    41000.0         .0    41000.0         .0         .0     3593.6         .0         .0         .0    1154.00
       .00        .00      11.41        .00       .000       .035       .000       .000    1135.40    9913.62
    .002644         0.         0.         0.          0          0          0        .00     296.66   10210.28

 FLOW DISTRIBUTION FOR SECNO=       7.73          CWSEL=    1150.50

 STA=     9914.    10222.
   PER Q=     100.0
    AREA=    3593.6
     VEL=      11.4
   DEPTH=      12.1
```

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.05	1.60	2.68	.00	202.00	9.00	4805.23	2.00	1135.30	1135.40

*SECNO 7.751
CLASS A LOW FLOW

3420 BRIDGE W.S.= 1150.19 BRIDGE VELOCITY= 12.41 CALCULATED CHANNEL AREA= 3317.

EGPRS	EGLWC	H3	QWEIR	QLOW	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
.00	1153.00	.29	0.	41000.	4805.	4769.	1155.70	1159.26	0.

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1161.15 ELREA= 1159.26

7.751	15.49	1150.79	.00	.00	1153.00	2.21	.48	.00	1157.94
41000.0	.0	41000.0	.0	.0	3437.3	.0	9.8	.8	1158.90
.00	.00	11.93	.00	.000	.035	.000	.000	1135.30	9951.35
.002704	115.	122.	110.	0	0	0	.00	267.21	10218.56

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 7.75 CWSEL= 1150.79

STA= 9951. 10240.
PER Q= 100.0
AREA= 3437.3
VEL= 11.9
DEPTH= 12.9

*SECNO 7.800

7.800	16.22	1151.87	.00	.00	1153.79	1.92	.71	.09	1158.52
41000.0	.0	41000.0	.0	.0	3684.2	.0	31.0	2.6	1157.07
.01	.00	11.13	.00	.000	.035	.000	.000	1135.65	9887.43
.002737	230.	259.	355.	2	0	0	.00	325.80	10213.24

FLOW DISTRIBUTION FOR SECNO= 7.80 CWSEL= 1151.87

STA= 9887. 10244.
PER Q= 100.0
AREA= 3684.2
VEL= 11.1
DEPTH= 11.3

CCHV= .100 CEHV= .300
*SECNO 7.920

7.920	17.96	1153.70	.00	.00	1155.42	1.72	1.60	.02	1160.45
41000.0	.0	41000.0	.0	.0	3894.3	.0	85.9	7.3	1160.29
.03	.00	10.53	.00	.000	.035	.000	.000	1135.74	9890.65
.002361	615.	631.	655.	2	0	0	.00	334.21	10224.86

FLOW DISTRIBUTION FOR SECNO= 7.92 CWSEL= 1153.70

STA= 9891. 10259.
PER Q= 100.0
AREA= 3894.3
VEL= 10.5
DEPTH= 11.7

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 8.006

8.006	18.71	1154.82	.00	.00	1156.49	1.67	1.07	.01	1159.66
41000.0	.0	41000.0	.0	.0	3955.5	.0	127.7	10.9	1161.51
.04	.00	10.37	.00	.000	.035	.000	.000	1136.11	9881.58
.002240	445.	463.	505.	2	0	0	.00	334.14	10215.72

FLOW DISTRIBUTION FOR SECNO= 8.01 CWSEL= 1154.82

STA= 9882. 10252.
PER Q= 100.0
AREA= 3955.5

```
    VEL=      10.4
  DEPTH=      11.8

*SECNO 8.052
     8.052     18.96   1155.38       .00       .00   1157.01      1.63       .52       .00   1160.52
   41000.0        .0   41000.0        .0        .0    4001.5        .0     149.3      12.7   1161.72
      .04       .00     10.25       .00      .000      .035      .000      .000   1136.42   9883.91
   .002165      225.      237.      255.         1         0         0       .00    334.94  10218.85


FLOW DISTRIBUTION FOR SECNO=      8.05          CWSEL=   1155.38

STA=     9884.   10252.
  PER Q=     100.0
   AREA=    4001.5
    VEL=      10.2
  DEPTH=      11.9

*SECNO 8.120
     8.120     18.16   1156.13       .00       .00   1157.89      1.76       .84       .04   1159.32
   41000.0        .0   41000.0        .0        .0    3855.3        .0     182.7      15.5   1163.50
      .05       .00     10.63       .00      .000      .035      .000      .000   1137.97   9898.99
   .002357      365.      370.      370.         2         0         0       .00    324.66  10223.65


FLOW DISTRIBUTION FOR SECNO=      8.12          CWSEL=   1156.13

STA=     9899.   10260.
  PER Q=     100.0
   AREA=    3855.3
    VEL=      10.6
  DEPTH=      11.9

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


*SECNO 8.220
     8.220     18.62   1157.40       .00       .00   1159.06      1.65      1.16       .01   1160.58
   41000.0        .0   41000.0        .0        .0    3972.1        .0     228.8      19.4   1164.55
      .07       .00     10.32       .00      .000      .035      .000      .000   1138.78   9878.77
   .002174      485.      513.      565.         2         0         0       .00    330.38  10209.15


FLOW DISTRIBUTION FOR SECNO=      8.22          CWSEL=   1157.40

STA=     9879.   10242.
  PER Q=     100.0
   AREA=    3972.1
    VEL=      10.3
  DEPTH=      12.0

*SECNO 8.330
     8.330     18.00   1158.59       .00       .00   1160.33      1.74      1.25       .03   1164.00
   41000.0        .0   41000.0        .0        .0    3875.6        .0     279.7      23.6   1166.40
      .08       .00     10.58       .00      .000      .035      .000      .000   1140.59   9820.88
   .002245      555.      565.      545.         2         0         0       .00    318.35  10139.23


FLOW DISTRIBUTION FOR SECNO=      8.33          CWSEL=   1158.59

STA=     9821.   10177.
  PER Q=     100.0
   AREA=    3875.6
    VEL=      10.6
  DEPTH=      12.2

*SECNO 8.390
     8.390     18.37   1159.29       .00       .00   1161.01      1.72       .68       .00   1165.05
   41000.0        .0   41000.0        .0        .0    3897.4        .0     307.2      25.8   1167.41
      .09       .00     10.52       .00      .000      .035      .000      .000   1140.92   9838.19
   .002146      310.      308.      305.         1         0         0       .00    311.90  10150.09


FLOW DISTRIBUTION FOR SECNO=      8.39          CWSEL=   1159.29

STA=     9838.   10190.
  PER Q=     100.0
   AREA=    3897.4
    VEL=      10.5
  DEPTH=      12.5

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   25FEB99      15:48:53                                                                    PAGE   42

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
```

```
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*SECNO 8.457
     8.457     19.06    1160.16       .00        .00    1161.75       1.59        .73        .01    1168.74
   41000.0        .0   41000.0        .0         .0     4048.0         .0      340.2       28.4    1168.40
       .10        .00      10.13       .00       .000      .035       .000       .000    1141.10    9840.07
   .001904      365.       362.       355.         2          0          0        .00     313.26   10153.33


FLOW DISTRIBUTION FOR SECNO=       8.46          CWSEL=    1160.16

STA=     9840.   10194.
  PER Q=     100.0
   AREA=    4048.0
    VEL=      10.1
  DEPTH=      12.9

*SECNO 8.516

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.57

     8.516     19.65    1161.20       .00        .00    1162.15        .95        .33        .06    1168.60
   41000.0        .0   41000.0        .0         .0     5246.2         .0      370.9       30.4    1167.50
       .11        .00       7.82       .00       .000      .035       .000       .000    1141.55    9854.46
   .000770      280.       288.       305.         2          0          0        .00     293.09   10147.55


FLOW DISTRIBUTION FOR SECNO=       8.52          CWSEL=    1161.20

STA=     9854.   10155.
  PER Q=     100.0
   AREA=    5246.2
    VEL=       7.8
  DEPTH=      17.9

*SECNO 8.548

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
1
   25FEB99      15:48:53                                                                                  PAGE   43

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     8.548     11.36    1161.13    1161.13       .00    1165.31       4.19        .31        .97    1167.19
   41000.0        .0   41000.0        .0         .0     2496.9         .0      385.7       31.5    1166.85
       .11        .00      16.42       .00       .000      .035       .000       .000    1149.77    9849.73
   .009094      165.       167.       150.        20         11          0        .00     298.33   10148.06


FLOW DISTRIBUTION FOR SECNO=       8.55          CWSEL=    1161.13

STA=     9850.   10156.
  PER Q=     100.0
   AREA=    2496.9
    VEL=      16.4
  DEPTH=       8.4

CCHV=      .200 CEHV=      .400
*SECNO 8.655
3280 CROSS SECTION       8.65 EXTENDED       .14 FEET


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.19


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1169.87 ELREA=      1168.79

     8.655     13.84    1166.34       .00        .00    1166.98        .64        .95        .71    1169.87
   41000.0        .0   41000.0        .0         .0     6387.4         .0      432.7       36.1    1168.79
       .13        .00       6.42       .00       .000      .035       .000       .000    1152.50    9527.70
   .000893      675.       461.       340.         2          0          0        .00     556.53   10084.24


FLOW DISTRIBUTION FOR SECNO=       8.65          CWSEL=    1166.34

STA=     9528.   10089.
  PER Q=     100.0
   AREA=    6387.4
    VEL=       6.4
```

```
  DEPTH=     11.5

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    25FEB99      15:48:53                                                                                    PAGE   44

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 CCHV=     .100 CEHV=     .300
 *SECNO 8.731
 3280 CROSS SECTION      8.73 EXTENDED      1.09 FEET

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1156.95 ELREA=      1169.55

      8.731     13.36   1166.96       .00       .00   1167.30       .34       .29       .03   1156.95
    41000.0   15464.3   25535.7        .0    3811.3    5126.6        .0     507.7      42.6   1169.55
       .16      4.06      4.98       .00      .045      .035      .000      .000   1153.60   9335.84
    .000557     500.      402.      395.         2         0         0       .00    786.73  10122.57

 FLOW DISTRIBUTION FOR SECNO=      8.73          CWSEL=   1166.96

 STA=    9336.    9354.    9362.    9368.    9380.    9421.    9447.    9490.    9510.    9595.    9629.    9663.   10127.
   PER Q=      .4       .7       .6      1.4      4.9      3.4      5.9      2.8     10.6      3.8      3.3     62.3
    AREA=    85.2     80.6     65.3    138.3    490.9    329.9    557.4    261.4   1046.4    393.9    362.0   5126.6
     VEL=     2.0      3.5      3.7      4.1      4.1      4.2      4.3      4.3      4.1      4.0      3.8      5.0
   DEPTH=     4.7      9.6     10.9     11.9     12.0     12.6     13.2     13.1     12.2     11.6     10.7     11.2

 *SECNO 8.807

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .23

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1173.10 ELREA=      1172.75

      8.807      9.14   1167.18       .00       .00   1167.57       .39       .25       .02   1173.10
    12000.0        .0   12000.0        .0        .0    2388.2        .0     561.2      47.7   1172.75
       .18       .00      5.02       .00      .000      .035      .000      .000   1158.04   9810.05
    .000891     425.      405.      395.         2         0         0       .00    298.75  10108.81

 FLOW DISTRIBUTION FOR SECNO=      8.81          CWSEL=   1167.18

 STA=    9810.   10161.
   PER Q=    100.0
    AREA=   2388.2
     VEL=      5.0
   DEPTH=      8.0

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    25FEB99      15:48:53                                                                                    PAGE   45

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *SECNO 8.883

 3301 HV CHANGED MORE THAN HVINS

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .46

      8.883      7.82   1167.26       .00       .00   1168.49      1.23       .67       .25   1176.80
    12000.0        .0   12000.0        .0        .0    1349.8        .0     578.4      50.2   1175.80
       .19       .00      8.89       .00      .000      .035      .000      .000   1159.44   9881.04
    .004202     410.      401.      400.         2         0         0       .00    229.98  10111.01

 FLOW DISTRIBUTION FOR SECNO=      8.88          CWSEL=   1167.26

 STA=    9881.   10178.
   PER Q=    100.0
    AREA=   1349.8
     VEL=      8.9
   DEPTH=      5.9

 *SECNO 8.936
      8.936      8.74   1168.68       .00       .00   1169.55       .87      1.03       .04   1174.58
    12000.0        .0   12000.0        .0        .0    1603.8        .0     588.2      51.9   1177.20
       .21       .00      7.48       .00      .000      .035      .000      .000   1159.94   9844.41
    .003035     285.      290.      290.         3         0         0       .00    277.79  10122.20

 FLOW DISTRIBUTION FOR SECNO=      8.94          CWSEL=   1168.68

 STA=    9844.   10182.
```

```
  PER Q=    100.0
   AREA=   1603.8
    VEL=      7.5
  DEPTH=      5.8

*SECNO 8.977
     8.977      7.93   1169.23       .00       .00   1170.31      1.09       .70       .06   1175.88
   12000.0        .0   12000.0        .0        .0    1435.3        .0     595.6      53.1   1177.97
       .21       .00      8.36       .00      .000      .035      .000      .000   1161.30   9878.09
   .003578      220.      212.      215.         2         0         0       .00    236.38  10114.46


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   25FEB99      15:48:53                                                                          PAGE   46

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

FLOW DISTRIBUTION FOR SECNO=      8.98          CWSEL=   1169.23

STA=    9878.   10182.
  PER Q=    100.0
   AREA=   1435.3
    VEL=      8.4
  DEPTH=      6.1

*SECNO 8.994
     8.994      7.85   1169.50       .00       .00   1170.66      1.15       .32       .02   1175.69
   12000.0        .0   12000.0        .0        .0    1392.2        .0     598.6      53.6   1178.73
       .22       .00      8.62       .00      .000      .035      .000      .000   1161.65   9913.51
   .003493       90.       92.       85.         1         0         0       .00    215.27  10128.78

FLOW DISTRIBUTION FOR SECNO=      8.99          CWSEL=   1169.50

STA=    9914.   10201.
  PER Q=    100.0
   AREA=   1392.2
    VEL=      8.6
  DEPTH=      6.5

*SECNO 9.047

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.88

     9.047      9.30   1170.94       .00       .00   1171.29       .35       .56       .08   1177.70
   12000.0        .0   12000.0        .0        .0    2527.2        .0     613.5      55.8   1180.42
       .23       .00      4.75       .00      .000      .035      .000      .000   1161.64   9901.46
   .000985      355.      331.      270.         2         0         0       .00    373.51  10274.97

FLOW DISTRIBUTION FOR SECNO=      9.05          CWSEL=   1170.94

STA=    9901.   10339.
  PER Q=    100.0
   AREA=   2527.2
    VEL=      4.7
  DEPTH=      6.8

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   25FEB99      15:48:53                                                                          PAGE   47

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


CCHV=     .100 CEHV=     .300
*SECNO 9.129
     9.129      8.22   1171.38       .00       .00   1171.67       .29       .37       .01   1180.07
   12000.0        .0   12000.0        .0        .0    2768.1        .0     637.4      59.5   1177.56
       .26       .00      4.34       .00      .000      .035      .000      .000   1163.16   9871.16
   .000892      370.      394.      430.         2         0         0       .00    436.31  10307.47

FLOW DISTRIBUTION FOR SECNO=      9.13          CWSEL=   1171.38

STA=    9871.   10345.
  PER Q=    100.0
   AREA=   2768.1
    VEL=      4.3
  DEPTH=      6.3

CCHV=     .300 CEHV=     .500
*SECNO 9.193
     9.193      7.24   1171.78       .00       .00   1172.15       .37       .44       .04   1182.05
```

```
   12000.0        .0   12000.0        .0        .0    2452.7        .0     660.9      63.6   1176.06
       .28        .00       4.89       .00       .000      .035       .000       .000   1164.54   9848.30
   .001484      400.       391.       390.         2         0         0        .00    472.43  10320.73


FLOW DISTRIBUTION FOR SECNO=      9.19          CWSEL=    1171.78

STA=     9848.    10329.
  PER Q=     100.0
   AREA=    2452.7
    VEL=       4.9
  DEPTH=       5.2

*SECNO 9.289

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     9.289       7.36   1175.26   1175.26       .00   1177.39       2.14       1.61        .88   1183.10
   12000.0         .0   12000.0        .0        .0    1022.8         .0      681.1       67.7   1185.00
       .29        .00      11.73       .00       .000      .035       .000       .000   1167.90   9902.60
   .011130      470.       506.       455.        20         5         0        .00    240.30  10142.90


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   25FEB99      15:48:53                                                                                PAGE   48

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=      9.29          CWSEL=    1175.26

STA=     9903.    10205.
  PER Q=     100.0
   AREA=    1022.8
    VEL=      11.7
  DEPTH=       4.3

*SECNO 9.318

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.88


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1185.10 ELREA=      1181.87

     9.318       9.57   1177.92        .00        .00   1178.36        .44        .46        .51   1185.10
   12000.0         .0   12000.0        .0        .0    2255.9         .0      686.9       68.8   1181.87
       .30        .00       5.32       .00       .000      .035       .000       .000   1168.35   9791.21
   .001338      185.       156.       155.         2         0         0        .00    353.72  10144.93


FLOW DISTRIBUTION FOR SECNO=      9.32          CWSEL=    1177.92

STA=     9791.    10172.
  PER Q=     100.0
   AREA=    2255.9
    VEL=       5.3
  DEPTH=       6.4

CCHV=      .100 CEHV=      .300
*SECNO 9.367
     9.367       7.32   1178.65        .00        .00   1178.97        .32        .60        .01   1186.28
   12000.0         .0   12000.0        .0        .0    2641.2         .0      714.5       73.4   1184.23
       .33        .00       4.54       .00       .000      .035       .000       .000   1171.33   9736.21
   .001135      540.       490.       465.         3         0         0        .00    464.83  10201.04


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   25FEB99      15:48:53                                                                                PAGE   49

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=      9.37          CWSEL=    1178.65

STA=     9736.    10242.
  PER Q=     100.0
   AREA=    2641.2
    VEL=       4.5
  DEPTH=       5.7

*SECNO 9.492
```

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .58

9.492	5.36	1179.30	.00	.00	1179.85	.55	.80	.07	1188.11
11450.0	.0	11450.0	.0	.0	1919.1	.0	738.7	78.4	1184.43
.35	.00	5.97	.00	.000	.035	.000	.000	1173.94	9824.54
.003058	430.	463.	425.	2	0	0	.00	472.53	10297.08

FLOW DISTRIBUTION FOR SECNO= 9.49 CWSEL= 1179.30

STA= 9825. 10313.
PER Q= 100.0
AREA= 1919.1
VEL= 6.0
DEPTH= 4.1

*SECNO 9.592

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .54

9.592	6.08	1181.78	.00	.00	1183.24	1.47	3.12	.27	1190.23
11450.0	.0	11450.0	.0	.0	1178.1	.0	760.3	84.1	1189.15
.37	.00	9.72	.00	.000	.035	.000	.000	1175.70	9968.78
.010417	535.	607.	580.	4	0	0	.00	348.98	10317.77

FLOW DISTRIBUTION FOR SECNO= 9.59 CWSEL= 1181.78

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

STA= 9969. 10342.
PER Q= 100.0
AREA= 1178.1
VEL= 9.7
DEPTH= 3.4

CCHV= .100 CEHV= .300
*SECNO 9.692

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.44

9.692	7.65	1184.85	.00	.00	1185.33	.48	1.99	.10	1193.92
11450.0	.0	11450.0	.0	.0	2060.9	.0	781.3	88.7	1190.03
.40	.00	5.56	.00	.000	.035	.000	.000	1177.20	9935.79
.001748	525.	565.	520.	2	0	0	.00	369.53	10305.32

FLOW DISTRIBUTION FOR SECNO= 9.69 CWSEL= 1184.85

STA= 9936. 10316.
PER Q= 100.0
AREA= 2060.9
VEL= 5.6
DEPTH= 5.6

*SECNO 9.794

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

9.794	6.70	1186.93	1186.93	.00	1188.93	2.00	2.03	.46	1196.86
11450.0	.0	11450.0	.0	.0	1009.1	.0	801.0	92.8	1195.79
.41	.00	11.35	.00	.000	.035	.000	.000	1180.23	9959.46
.011876	550.	557.	555.	20	15	0	.00	260.67	10220.13

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 9.79 CWSEL= 1186.93

```
STA=    9959.   10262.
  PER Q=    100.0
   AREA=   1009.1
    VEL=     11.3
  DEPTH=      3.9

CCHV=     .300 CEHV=     .500
*SECNO 9.889
     9.889      6.53   1191.95       .00       .00   1194.04      2.10      5.07       .05   1201.40
  11450.0        .0   11450.0        .0        .0     985.3        .0     812.4      95.4   1198.00
      .42       .00     11.62       .00      .000      .035      .000      .000   1185.42   9925.32
   .008710      485.      501.      495.         3         0         0       .00    193.20  10118.52


FLOW DISTRIBUTION FOR SECNO=      9.89          CWSEL=   1191.95

STA=    9925.   10130.
  PER Q=    100.0
   AREA=    985.3
    VEL=     11.6
  DEPTH=      5.1

*SECNO 9.908

3265 DIVIDED FLOW

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9882.4   10573.8  TYPE=      1  TARGET=    -9882.410
 ELENCL=   1196.38  ELENCR= 100000.00
     9.908      5.03   1194.08   1194.08       .00   1196.25      2.17      1.02       .04   1196.38
  11450.0        .0   11450.0        .0        .0     967.6        .0     814.7      95.9   1198.80
      .43       .00     11.83       .00      .000      .035      .000      .000   1189.05   9897.51
   .011233      120.      103.       65.        20        15         0       .00    225.00  10130.21


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   25FEB99      15:48:53                                                                          PAGE   52

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


FLOW DISTRIBUTION FOR SECNO=      9.91          CWSEL=   1194.08

STA=    9898.   10138.
  PER Q=    100.0
   AREA=    967.6
    VEL=     11.8
  DEPTH=      4.3

CCHV=     .300 CEHV=     .500
*SECNO 9.953

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.02

     9.953      7.16   1196.54       .00       .00   1197.54      1.00       .93       .35   1202.16
  11450.0        .0   11450.0        .0        .0    1429.3        .0     819.9      96.9   1203.14
      .43       .00      8.01       .00      .000      .030      .000      .000   1189.38   9883.12
   .002747      175.      189.      215.         2         0         0       .00    261.26  10144.38


FLOW DISTRIBUTION FOR SECNO=      9.95          CWSEL=   1196.54

STA=    9883.   10186.
  PER Q=    100.0
   AREA=   1429.3
    VEL=      8.0
  DEPTH=      5.5

*SECNO 9.958

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1202.12 ELREA=      1202.12

     9.958      6.19   1196.66       .00       .00   1197.62       .96       .07       .01   1203.19
  11450.0        .0   11450.0        .0        .0    1454.5        .0     820.9      97.1   1203.03
      .43       .00      7.87       .00      .000      .030      .000      .000   1190.47   9881.56
   .002689       22.       27.       28.         2         0         0       .00    269.03  10150.59


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   25FEB99      15:48:53                                                                          PAGE   53

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
```

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    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

FLOW DISTRIBUTION FOR SECNO=       9.96          CWSEL=    1196.66

STA=     9882.    10168.
  PER Q=     100.0
   AREA=    1454.5
    VEL=       7.9
  DEPTH=       5.4


SPECIAL BRIDGE

SB  XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
      .90        1.60       2.68        .00     240.00       4.70    2496.30       2.00    1191.15    1191.04

*SECNO 9.984
CLASS A LOW FLOW

3420 BRIDGE W.S.=     1196.65 BRIDGE VELOCITY=        8.36      CALCULATED CHANNEL AREA=       1355.

 EGPRS       EGLWC        H3         QWEIR      QLOW       BAREA      TRAPEZOID      ELLC       ELTRD      WEIRLN
                                                                        AREA
       .00    1197.79         .07         0.     11450.      2496.      2304.      1200.24    1204.01         0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       1204.90 ELREA=       1204.01

      9.984       5.73    1196.73         .00        .00    1197.79        1.07        .17        .00    1203.16
    11450.0          .0    11450.0          .0         .0    1381.8           .0      825.2       97.9    1204.00
       .44         .00        8.29        .00        .000       .030        .000        .000    1191.00    9884.49
    .003209       130.       134.        129.          0          0           0         .00     270.20   10154.69


FLOW DISTRIBUTION FOR SECNO=       9.98          CWSEL=    1196.73

STA=     9884.    10172.
  PER Q=     100.0
   AREA=    1381.8
    VEL=       8.3
  DEPTH=       5.1

*SECNO 9.997
1
    25FEB99       15:48:53                                                                                    PAGE   54

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3301 HV CHANGED MORE THAN HVINS

      9.997       5.02    1196.73         .00        .00    1198.44        1.72        .33        .33    1200.73
    11450.0          .0    11450.0          .0         .0    1088.5           .0      827.3       98.4    1200.72
       .44         .00       10.52        .00        .000       .030        .000        .000    1191.71    9890.07
    .006436        51.         74.        104.          2          0           0         .00     251.18   10141.25


FLOW DISTRIBUTION FOR SECNO=      10.00          CWSEL=    1196.73

STA=     9890.    10166.
  PER Q=     100.0
   AREA=    1088.5
    VEL=      10.5
  DEPTH=       4.3

CCHV=      .100 CEHV=      .300
*SECNO 10.096

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.47


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       1202.39 ELREA=       1204.41

     10.096       6.22    1200.06         .00        .00    1200.83         .77       2.29        .09    1202.39
    11450.0          .0    11450.0          .0         .0    1622.5           .0      844.2       102.3    1204.41
       .46         .00        7.06        .00        .000       .030        .000        .000    1193.84    9732.11
    .002970       535.       544.        555.          2          0           0         .00     382.35   10114.45


FLOW DISTRIBUTION FOR SECNO=      10.10          CWSEL=    1200.06

STA=     9732.    10149.
  PER Q=     100.0
   AREA=    1622.5
    VEL=       7.1
```

DEPTH= 4.2

1

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 10.176

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .66

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1203.68 ELREA= 1205.57

10.176	6.54	1202.11	.00	.00	1203.34	1.24	2.37	.14	1203.68
11450.0	.0	11450.0	.0	.0	1283.8	.0	862.7	107.3	1205.57
.48	.00	8.92	.00	.000	.030	.000	.000	1195.57	9728.79
.006726	510.	553.	550.	2	0	0	.00	393.44	10122.23

FLOW DISTRIBUTION FOR SECNO= 10.18 CWSEL= 1202.11

STA= 9729. 10129.
PER Q= 100.0
AREA= 1283.8
VEL= 8.9
DEPTH= 3.3

*SECNO 10.271

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.42

10.271	6.56	1204.82	.00	.00	1205.54	.72	2.15	.05	1211.43
10900.0	.0	10900.0	.0	.0	1599.3	.0	879.0	111.7	1206.60
.50	.00	6.82	.00	.000	.030	.000	.000	1198.26	9874.32
.003014	460.	491.	455.	2	0	0	.00	401.30	10275.62

FLOW DISTRIBUTION FOR SECNO= 10.27 CWSEL= 1204.82

STA= 9874. 10281.
PER Q= 100.0
AREA= 1599.3
VEL= 6.8
DEPTH= 4.0

1

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 10.348

10.348	5.39	1206.60	.00	.00	1207.51	.91	1.91	.06	1212.70
10900.0	.0	10900.0	.0	.0	1421.3	.0	897.1	116.6	1208.90
.52	.00	7.67	.00	.000	.030	.000	.000	1201.21	9968.77
.004543	510.	523.	385.	2	0	0	.00	406.03	10374.79

FLOW DISTRIBUTION FOR SECNO= 10.35 CWSEL= 1206.60

STA= 9969. 10383.
PER Q= 100.0
AREA= 1421.3
VEL= 7.7
DEPTH= 3.5

*SECNO 10.443

10.443	4.55	1209.15	.00	.00	1210.38	1.24	2.78	.10	1210.53
10900.0	.0	10900.0	.0	.0	1222.1	.0	912.1	121.1	1213.65
.53	.00	8.92	.00	.000	.030	.000	.000	1204.60	9885.00
.007105	475.	495.	420.	2	0	0	.00	390.46	10275.46

FLOW DISTRIBUTION FOR SECNO= 10.44 CWSEL= 1209.15

STA= 9885. 10315.
PER Q= 100.0
AREA= 1222.1
VEL= 8.9
DEPTH= 3.1

*SECNO 10.517

```
3280 CROSS SECTION     10.52 EXTENDED       .60 FEET

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1218.09 ELREA=      1212.41

    10.517      5.16   1212.59   1212.55       .00   1213.85      1.26      3.46       .01   1218.09
   10900.0        .0   10513.6     386.4        .0    1148.7     197.4     927.3     126.5   1212.41
       .55       .00      9.15      1.96       .000      .030      .060      .000   1207.43   9788.05
   .006270      425.      519.      480.          4        10         0       .00    527.02  10315.07


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   25FEB99      15:48:53                                                                          PAGE   57

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

FLOW DISTRIBUTION FOR SECNO=      10.52          CWSEL=    1212.59

STA=     9788.    10109.    10133.    10237.    10315.
  PER Q=      96.5        .3       2.4        .8
   AREA=    1148.7      21.3     121.3      54.7
    VEL=       9.2       1.8       2.2       1.5
  DEPTH=       3.6        .9       1.2        .7

*SECNO 10.612
3280 CROSS SECTION     10.61 EXTENDED      1.13 FEET

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.66

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1220.88 ELREA=      1215.60

    10.612      6.20   1214.97       .00       .00   1215.69       .72      1.79       .05   1220.88
   10900.0        .0   10900.0        .0        .0    1596.0        .0     944.2     131.3   1215.60
       .57       .00      6.83       .00      .000      .030      .000      .000   1208.77   9923.96
   .002286      490.      505.      435.          3         0         0       .00    323.98  10247.94

FLOW DISTRIBUTION FOR SECNO=      10.61          CWSEL=    1214.97

STA=     9924.    10250.
  PER Q=     100.0
   AREA=    1596.0
    VEL=       6.8
  DEPTH=       4.9

*SECNO 10.699

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .52

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   25FEB99      15:48:53                                                                          PAGE   58

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


    10.699      6.57   1216.03   1215.98       .00   1217.86      1.82      1.83       .33   1222.81
   10900.0        .0   10900.0        .0        .0    1005.8        .0     958.0     134.4   1218.20
       .58       .00     10.84       .00       .000      .030      .000      .000   1209.46   9972.03
   .008528      460.      462.      460.          6         8         0       .00    273.66  10245.68

FLOW DISTRIBUTION FOR SECNO=      10.70          CWSEL=    1216.03

STA=     9972.    10251.
  PER Q=     100.0
   AREA=    1005.8
    VEL=      10.8
  DEPTH=       3.7

*SECNO 10.803
3280 CROSS SECTION     10.80 EXTENDED       .39 FEET

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1220.90 ELREA=      1220.34
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STA=    9881.   10119.
  PER Q=    100.0
   AREA=   1012.7
    VEL=     10.8
  DEPTH=      4.6


SPECIAL BRIDGE

5227 DOWNSTREAM ELEV IS    1222.58 , NOT    1224.01 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     1.05      1.60      2.80       .00    186.22      8.00   1932.34      3.00   1218.61   1218.60

*SECNO 10.996
CLASS B LOW FLOW

3420 BRIDGE W.S.=    1223.35 BRIDGE VELOCITY=      11.93     CALCULATED CHANNEL AREA=       912.

 EGPRS       EGLWC       H3        QWEIR       QLOW       BAREA    TRAPEZOID       ELLC      ELTRD      WEIRLN
                                                                        AREA
       .00   1226.03       .00         0.    10900.      1932.     1992.     1228.23   1228.47         0.


1
    25FEB99      15:48:53                                                                                    PAGE   61

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1228.47 ELREA=      1229.05

    10.996      5.72   1224.33       .00       .00   1226.03      1.69       .22       .00   1228.19
   10900.0        .0   10900.0        .0        .0    1043.9        .0    1006.0     147.5   1228.55
      .64        .00     10.44       .00      .000      .030      .000      .000   1218.61   9891.90
   .005618      128.      129.      127.         0         0         0       .00    220.17  10112.08

FLOW DISTRIBUTION FOR SECNO=     11.00          CWSEL=   1224.33

STA=    9892.   10128.
  PER Q=    100.0
   AREA=   1043.9
    VEL=     10.4
  DEPTH=      4.7

*SECNO 11.030
    11.030      5.81   1225.18       .00       .00   1227.19      2.01      1.00       .16   1229.05
   10900.0        .0   10900.0        .0        .0     958.9        .0    1009.9     148.3   1228.90
      .64        .00     11.37       .00      .000      .030      .000      .000   1219.37   9923.50
   .006396      200.      168.      140.         2         0         0       .00    196.05  10119.55

FLOW DISTRIBUTION FOR SECNO=     11.03          CWSEL=   1225.18

STA=    9924.   10140.
  PER Q=    100.0
   AREA=    958.9
    VEL=     11.4
  DEPTH=      4.9

CCHV=      .100 CEHV=      .300
*SECNO 11.129

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.50

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    25FEB99      15:48:53                                                                                    PAGE   62

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1231.30 ELREA=      1231.76

    11.129      8.51   1227.90       .00       .00   1228.42       .51      1.08       .15   1231.30
   10900.0        .0   10900.0        .0        .0    1894.0        .0    1026.8     151.0   1231.76
      .67        .00      5.76       .00      .000      .030      .000      .000   1219.39   9839.20
   .001024      565.      517.      495.         2         0         0       .00    271.25  10110.45

FLOW DISTRIBUTION FOR SECNO=     11.13          CWSEL=   1227.90
```

```
  10.803      6.30   1220.40       .00       .00   1221.35       .95      3.40       .09   1220.90
 10900.0        .0   10881.2      18.8        .0   1392.6       30.1     973.8      139.6   1220.34
    .60        .00      7.81       .62       .000     .030       .060      .000   1214.10   9833.88
 .004449      555.      567.      555.         2         0          0       .00    530.52  10364.40

FLOW DISTRIBUTION FOR SECNO=     10.80          CWSEL=   1220.40

STA=    9834.   10215.   10291.   10364.
  PER Q=     99.8        .0       .1
   AREA=   1392.6       8.9     21.2
    VEL=      7.8        .4       .7
  DEPTH=      3.6        .1       .3

*SECNO 10.862
3280 CROSS SECTION     10.86 EXTENDED       .49 FEET

1
   25FEB99      15:48:53                                                                                    PAGE   59

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1228.35 ELREA=      1223.20

  10.862      6.06   1221.49       .00       .00   1222.84      1.35      1.37       .12   1228.35
 10900.0        .0   10900.0        .0        .0   1168.9        .0     983.2      142.5   1223.20
    .61        .00      9.33       .00       .000     .030       .000      .000   1215.43   9865.11
 .004275      265.      313.      360.         2         0          0       .00    237.01  10102.11

FLOW DISTRIBUTION FOR SECNO=     10.86          CWSEL=   1221.49

STA=    9865.   10119.
  PER Q=    100.0
   AREA=   1168.9
    VEL=      9.3
  DEPTH=      4.9

*SECNO 10.917
3280 CROSS SECTION     10.92 EXTENDED       .13 FEET

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1223.78 ELREA=      1224.50

  10.917      6.40   1223.13       .00       .00   1223.88       .75       .98       .06   1223.78
 10900.0        .0   10900.0        .0        .0   1567.5        .0     992.3      144.5   1224.50
    .62        .00      6.95       .00       .000     .030       .000      .000   1216.73   9811.68
 .002709      265.      292.      300.         3         0          0       .00    352.85  10164.53

FLOW DISTRIBUTION FOR SECNO=     10.92          CWSEL=   1223.13

STA=    9812.   10201.
  PER Q=    100.0
   AREA=   1567.5
    VEL=      7.0
  DEPTH=      4.4

1
   25FEB99      15:48:53                                                                                    PAGE   60

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


CCHV=      .300 CEHV=      .500
*SECNO 10.980

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .66

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1228.38 ELREA=      1228.38

  10.980      5.41   1224.01       .00       .00   1225.80      1.80      1.40       .52   1227.57
 10900.0        .0   10900.0        .0        .0   1012.7        .0    1002.9      146.8   1228.67
    .63        .00     10.76       .00       .000     .030       .000      .000   1218.60   9881.29
 .006171      445.      358.      300.         2         0          0       .00    218.64  10099.93

FLOW DISTRIBUTION FOR SECNO=     10.98          CWSEL=   1224.01
```

STA= 9839. 10120.
PER Q= 100.0
AREA= 1894.0
VEL= 5.8
DEPTH= 7.0

*SECNO 11.188

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1232.77 ELREA= 1232.93

11.188	8.99	1228.13	.00	.00	1228.87	.73	.39	.07	1232.77
10350.0	.0	10350.0	.0	.0	1504.5	.0	1038.8	152.8	1232.93
.68	.00	6.88	.00	.000	.030	.000	.000	1219.14	9881.33
.001567	305.	309.	300.	2	0	0	.00	226.89	10108.23

FLOW DISTRIBUTION FOR SECNO= 11.19 CWSEL= 1228.13

STA= 9881. 10125.
PER Q= 100.0
AREA= 1504.5
VEL= 6.9
DEPTH= 6.6

*SECNO 11.243

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1233.70 ELREA= 1234.30

11.243	9.33	1228.46	.00	.00	1229.63	1.17	.63	.13	1233.70
10350.0	.0	10350.0	.0	.0	1194.5	.0	1048.6	154.3	1234.30
.69	.00	8.66	.00	.000	.030	.000	.000	1219.13	9905.07
.002621	295.	314.	335.	2	0	0	.00	186.91	10091.98

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 11.24 CWSEL= 1228.46

STA= 9905. 10109.
PER Q= 100.0
AREA= 1194.5
VEL= 8.7
DEPTH= 6.4

*SECNO 11.301

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1232.87 ELREA= 1234.82

11.301	7.93	1229.20	.00	.00	1230.51	1.30	.84	.04	1232.87
10350.0	.0	10350.0	.0	.0	1130.3	.0	1056.3	155.6	1234.82
.70	.00	9.16	.00	.000	.030	.000	.000	1221.27	9896.15
.003225	300.	290.	275.	2	0	0	.00	190.48	10086.62

FLOW DISTRIBUTION FOR SECNO= 11.30 CWSEL= 1229.20

STA= 9896. 10108.
PER Q= 100.0
AREA= 1130.3
VEL= 9.2
DEPTH= 5.9

*SECNO 11.386

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1233.46 ELREA= 1238.40

11.386	7.97	1231.07	.00	.00	1232.04	.97	1.50	.03	1233.46
10350.0	.0	10350.0	.0	.0	1310.9	.0	1068.6	157.7	1238.40
.71	.00	7.90	.00	.000	.035	.000	.000	1223.10	9869.86
.003655	445.	437.	415.	3	0	0	.00	240.25	10110.11

FLOW DISTRIBUTION FOR SECNO= 11.39 CWSEL= 1231.07

STA= 9870. 10133.
PER Q= 100.0
AREA= 1310.9
VEL= 7.9
DEPTH= 5.5

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV

```
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*SECNO 11.481

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1236.77 ELREA=      1240.19

    11.481      8.11   1232.92       .00       .00   1233.63       .72      1.57       .03   1236.77
   10350.0        .0   10350.0        .0        .0   1523.4         .0   1085.6      160.7   1240.19
       .73       .00      6.79       .00      .000      .035      .000      .000   1224.81   9854.10
   .002512      510.      523.      555.         2         0         0       .00    264.95  10119.06


FLOW DISTRIBUTION FOR SECNO=     11.48          CWSEL=   1232.92

STA=    9854.   10210.
  PER Q=    100.0
   AREA=   1523.4
    VEL=      6.8
  DEPTH=      5.7

*SECNO 11.566

3265 DIVIDED FLOW

    11.566      5.90   1234.22       .00       .00   1234.52       .30       .84       .04   1234.96
   10350.0        9.8   10340.2        .0      13.8    2350.1         .0   1106.5      165.0   1243.30
       .76        .71      4.40       .00      .045      .035      .000      .000   1228.32   9350.23
   .001345      565.      469.      545.         2         0         0       .00    524.88  10037.61


FLOW DISTRIBUTION FOR SECNO=     11.57          CWSEL=   1234.22

STA=    9350.    9356.    9428.    9432.   10058.
  PER Q=       .0       .1       .0     99.9
   AREA=      2.2     10.6      1.0   2350.1
    VEL=       .6       .7       .5      4.4
  DEPTH=       .4       .1       .3      4.8

*SECNO 11.664

3301 HV CHANGED MORE THAN HVINS

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    25FEB99      15:48:53                                                                                    PAGE   65

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .47

    11.664      6.16   1234.96       .00       .00   1236.02      1.05      1.27       .23   1232.30
   10350.0      278.3   10071.7        .0      75.7    1209.6         .0   1128.1      170.2   1244.86
       .78       3.68      8.33       .00      .045      .035      .000      .000   1228.80   9681.30
   .005986      535.      514.      515.         2         0         0       .00    347.43  10028.73


FLOW DISTRIBUTION FOR SECNO=     11.66          CWSEL=   1234.96

STA=    9681.    9717.    9730.   10052.
  PER Q=      1.2      1.5     97.3
   AREA=     42.1     33.6   1209.6
    VEL=      2.8      4.7      8.3
  DEPTH=      1.2      2.5      4.1

*SECNO 11.759

3265 DIVIDED FLOW

    11.759      5.99   1238.01       .00       .00   1238.70       .69      2.65       .04   1241.08
   10350.0     2997.9    7352.1        .0     660.5     998.1         .0   1144.9      175.0   1246.55
       .80       4.54      7.37       .00      .045      .035      .000      .000   1232.02   9445.53
   .004736      485.      501.      470.         2         0         0       .00    495.68  10110.13


FLOW DISTRIBUTION FOR SECNO=     11.76          CWSEL=   1238.01

STA=    9446.    9449.    9506.    9552.    9596.    9636.    9656.    9678.    9684.    9749.    9754.   10130.
  PER Q=       .0       3.6       6.3       6.2       6.1       3.3       3.0        .2        .1        .1      71.0
   AREA=      1.4     107.6     139.1     134.3     127.0      67.7      65.6       8.9       4.7       4.2     998.1
    VEL=      1.3       3.5       4.7       4.8       4.9       5.1       4.8       2.7       2.0       2.0       7.4
  DEPTH=       .4       1.9       3.0       3.0       3.2       3.3       3.0       1.4        .1        .8       4.0

*SECNO 11.864

3301 HV CHANGED MORE THAN HVINS

    11.864      5.81   1241.38   1241.10       .00   1242.59      1.21      3.74       .16   1241.22
   10350.0      568.5    9613.1     168.5     155.5    1055.9      45.9    1165.4      182.2   1240.45
```

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      .82      3.66      9.10      3.67      .045      .035      .060      .000   1235.57   9604.44
   .008107      605.      615.      665.         0        11         0       .00    535.01  10139.45
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

FLOW DISTRIBUTION FOR SECNO=     11.86          CWSEL=   1241.38

STA=    9604.    9617.    9623.    9660.    9693.    9750.    9791.    9833.   10119.   10130.   10139.
  PER Q=      .4       .7      3.3       .9       .2       .0       .0     92.9      1.1       .5
   AREA=    13.8     14.0     72.4     31.7     14.0      5.4      4.0   1055.9     28.6     17.3
    VEL=     3.1      5.1      4.7      2.9      1.2       .8       .6      9.1      3.9      3.3
  DEPTH=     1.1      2.2      2.0      1.0       .2       .1       .1      3.7      2.4      1.9

*SECNO 11.949

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.54


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1248.70 ELREA=      1248.80

    11.949      5.59   1244.49       .00       .00   1244.95       .46      2.28       .08   1248.70
   10350.0        .0   10350.0        .0        .0    1903.1        .0    1182.0     188.3   1248.80
       .84       .00      5.44       .00      .000      .035      .000      .000   1238.90   9777.18
   .003410      565.      452.      380.         1         0         0       .00    583.61  10393.13


FLOW DISTRIBUTION FOR SECNO=     11.95          CWSEL=   1244.49

STA=    9777.   10428.
  PER Q=    100.0
   AREA=   1903.1
    VEL=      5.4
  DEPTH=      3.3

*SECNO 12.034

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1253.64 ELREA=      1250.96

    12.034      5.21   1246.68       .00       .00   1247.62       .94      2.53       .14   1253.64
   10350.0        .0   10350.0        .0        .0    1332.2        .0    1202.0     194.4   1250.96
       .86       .00      7.77       .00      .000      .035      .000      .000   1241.47   9773.82
   .006833      485.      540.      615.         2         0         0       .00    403.39  10177.21
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

FLOW DISTRIBUTION FOR SECNO=     12.03          CWSEL=   1246.68

STA=    9774.   10210.
  PER Q=    100.0
   AREA=   1332.2
    VEL=      7.8
  DEPTH=      3.3

*SECNO 12.125

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.42


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1255.96 ELREA=      1256.20

    12.125      4.63   1249.28       .00       .00   1249.81       .53      2.15       .04   1255.96
   10350.0        .0   10350.0        .0        .0    1768.9        .0    1218.4     199.1   1256.20
       .89       .00      5.85       .00      .000      .035      .000      .000   1244.65   9829.68
   .003370      535.      462.      365.         2         0         0       .00    483.23  10312.91


FLOW DISTRIBUTION FOR SECNO=     12.13          CWSEL=   1249.28

STA=    9830.   10438.
  PER Q=    100.0
   AREA=   1768.9
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   VEL=       5.9
 DEPTH=       3.7

*SECNO 12.194

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1259.62 ELREA=      1257.60

    12.194      3.99   1251.99   1251.99       .00   1253.40      1.42      2.01       .27   1259.62
   10350.0        .0   10350.0        .0        .0   1084.0         .0    1229.5     202.5   1257.60
      .90        .00       9.55       .00       .000      .035       .000      .000   1248.00   9878.16
   .013177     370.      338.      330.        20        15          0       .00    394.01  10272.17


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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

FLOW DISTRIBUTION FOR SECNO=      12.19          CWSEL=   1251.99

STA=     9878.   10283.
  PER Q=     100.0
   AREA=    1084.0
    VEL=       9.5
  DEPTH=       2.8

*SECNO 12.313
3280 CROSS SECTION     12.31 EXTENDED      1.94 FEET

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.66

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1260.51 ELREA=      1259.84

    12.313      7.02   1257.49       .00       .00   1258.31       .82      4.84       .06   1260.51
    9800.0        .0    9800.0        .0        .0   1348.5         .0    1248.6     208.1   1259.84
      .92        .00       7.27       .00       .000      .035       .000      .000   1250.47   9916.08
   .004300     750.      685.      585.         3         0          0       .00    317.83  10233.91

FLOW DISTRIBUTION FOR SECNO=      12.31          CWSEL=   1257.49

STA=     9916.   10261.
  PER Q=     100.0
   AREA=    1348.5
    VEL=       7.3
  DEPTH=       4.2

*SECNO 12.420
3280 CROSS SECTION     12.42 EXTENDED      2.50 FEET

3301 HV CHANGED MORE THAN HVINS

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   25FEB99      15:48:53                                                                                PAGE   69

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .70

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1262.30 ELREA=      1263.54

    12.420      6.05   1260.55       .00       .00   1261.93      1.38      3.45       .17   1262.30
    9800.0        .0    9800.0        .0        .0   1038.9         .0    1264.5     212.1   1263.54
      .94        .00       9.43       .00       .000      .035       .000      .000   1254.50   9787.39
   .008857     600.      578.      665.         3         0          0       .00    284.75  10072.14

FLOW DISTRIBUTION FOR SECNO=      12.42          CWSEL=   1260.55

STA=     9787.   10079.
  PER Q=     100.0
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   AREA=   1038.9
    VEL=      9.4
  DEPTH=      3.6

*SECNO 12.511

3265 DIVIDED FLOW


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.59


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1262.26 ELREA=      1265.39

    12.511      8.74   1263.54       .00       .00   1264.44       .90      2.46       .05   1262.26
    9800.0     161.6    9638.4        .0     140.1    1257.4        .0    1277.5     216.0   1265.39
       .96      1.15      7.67       .00      .060      .035      .000      .000   1254.80   9496.99
   .003489      455.      468.      435.         1         0         0       .00    449.92  10104.11


FLOW DISTRIBUTION FOR SECNO=     12.51          CWSEL=   1263.54

STA=    9497.    9730.    9798.    9871.   10111.
  PER Q=      .4       .5       .8     98.4
   AREA=    35.2     46.0     58.9   1257.4
    VEL=     1.0      1.1      1.3      7.7
  DEPTH=      .2       .7       .8      5.4

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


*SECNO 12.606

3265 DIVIDED FLOW


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1267.14 ELREA=      1267.91

    12.606      7.38   1266.28       .00       .00   1266.92       .64      2.45       .03   1267.14
    9800.0        .0    9800.0        .0        .0    1527.7        .0    1297.0     222.3   1267.91
       .98       .00      6.41       .00      .000      .035      .000      .000   1258.90   9894.23
   .005199      555.      582.      545.         2         0         0       .00    502.87  10432.16


FLOW DISTRIBUTION FOR SECNO=     12.61          CWSEL=   1266.28

STA=    9894.   10454.
  PER Q=    100.0
   AREA=   1527.7
    VEL=      6.4
  DEPTH=      3.0

*SECNO 12.701
3280 CROSS SECTION     12.70 EXTENDED       .57 FEET


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1270.00 ELREA=      1269.79

    12.701      8.47   1268.57       .00       .00   1269.16       .58      2.23       .01   1270.00
    9800.0        .0    9800.0        .0        .0    1599.3        .0    1315.2     227.8   1269.79
      1.00       .00      6.13       .00      .000      .035      .000      .000   1260.10   9757.30
   .003790      495.      506.      525.         2         0         0       .00    444.12  10201.43


FLOW DISTRIBUTION FOR SECNO=     12.70          CWSEL=   1268.57

STA=    9757.   10321.
  PER Q=    100.0
   AREA=   1599.3
    VEL=      6.1
  DEPTH=      3.6

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    25FEB99      15:48:53                                                                          PAGE   71

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


*SECNO 12.801

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.57


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1275.01 ELREA=      1272.57
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    12.801      9.92   1270.15       .00       .00   1270.39       .24      1.20       .03   1275.01
    9800.0        .0    9800.0        .0        .0    2472.1        .0    1339.7     234.5   1272.57
      1.04       .00      3.96       .00      .000      .035      .000      .000   1260.23   9894.21
   .001528      565.      525.      535.         3         0         0       .00    666.93  10561.13


FLOW DISTRIBUTION FOR SECNO=     12.80          CWSEL=   1270.15

STA=    9894.   10603.
  PER Q=    100.0
   AREA=   2472.1
    VEL=      4.0
  DEPTH=      3.7

*SECNO 12.896

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1278.41 ELREA=      1273.04

    12.896      8.23   1270.73       .00       .00   1270.97       .24       .58       .00   1278.41
    9800.0        .0    9800.0        .0        .0    2484.2        .0    1368.6     241.0   1273.04
      1.08       .00      3.94       .00      .000      .035      .000      .000   1262.50   9865.15
   .000877      540.      508.      495.         2         0         0       .00    444.27  10309.42


FLOW DISTRIBUTION FOR SECNO=     12.90          CWSEL=   1270.73

STA=    9865.   10321.
  PER Q=    100.0
   AREA=   2484.2
    VEL=      3.9
  DEPTH=      5.6

*SECNO 12.991
1
   25FEB99      15:48:53                                                                          PAGE   72

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.69

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1277.59 ELREA=      1274.41

    12.991      8.75   1271.12       .00       .00   1271.24       .11       .26       .01   1277.59
    9800.0        .0    9800.0        .0        .0    3615.3        .0    1405.5     246.8   1274.41
      1.13       .00      2.71       .00      .000      .035      .000      .000   1262.37   9747.00
   .000308      595.      527.      535.         2         0         0       .00    515.15  10262.15


FLOW DISTRIBUTION FOR SECNO=     12.99          CWSEL=   1271.12

STA=    9747.   10269.
  PER Q=    100.0
   AREA=   3615.3
    VEL=      2.7
  DEPTH=      7.0

*SECNO 13.076

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1279.35 ELREA=      1278.53

    13.076      8.89   1271.26       .00       .00   1271.38       .12       .14       .00   1279.35
    7900.0        .0    7900.0        .0        .0    2843.3        .0    1439.2     251.6   1278.53
      1.18       .00      2.78       .00      .000      .035      .000      .000   1262.37   9691.24
   .000321      520.      454.      455.         2         0         0       .00    404.23  10095.47


FLOW DISTRIBUTION FOR SECNO=     13.08          CWSEL=   1271.26

STA=    9691.   10154.
  PER Q=    100.0
   AREA=   2843.3
    VEL=      2.8
  DEPTH=      7.0

*SECNO 13.151
    13.151      9.19   1271.39       .00       .00   1271.56       .17       .16       .01   1279.07
    7900.0        .0    7900.0        .0        .0    2398.6        .0    1462.8     255.2   1277.21
      1.21       .00      3.29       .00      .000      .035      .000      .000   1262.20   9768.62
   .000540      520.      393.      370.         0         0         0       .00    391.87  10160.49


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   25FEB99      15:48:53                                                                          PAGE   73

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
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```
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

FLOW DISTRIBUTION FOR SECNO=     13.15          CWSEL=   1271.39

STA=    9769.   10187.
  PER Q=    100.0
   AREA=   2398.6
    VEL=      3.3
  DEPTH=      6.1

*SECNO 13.161

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    13.161      3.59   1278.24   1278.24       .00   1279.51      1.28       .08       .33   1280.81
    7900.0        .0    7900.0        .0        .0     871.4        .0    1464.8     255.6   1281.51
      1.21       .00      9.07       .00      .000      .035      .000      .000   1274.65   9825.87
   .013391       55.       51.       70.        20        18         0       .00    347.58  10173.45


FLOW DISTRIBUTION FOR SECNO=     13.16          CWSEL=   1278.24

STA=    9826.   10244.
  PER Q=    100.0
   AREA=    871.4
    VEL=      9.1
  DEPTH=      2.5

*SECNO 13.185

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.60

    13.185      4.28   1279.17       .00       .00   1279.84       .67       .27       .06   1281.80
    7900.0        .0    7900.0        .0        .0    1200.4        .0    1465.5     255.9   1281.93
      1.21       .00      6.58       .00      .000      .035      .000      .000   1274.89   9820.25
   .005228       35.       34.       32.         3         0         0       .00    382.28  10202.53


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    25FEB99      15:48:53                                                                                PAGE   74

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


FLOW DISTRIBUTION FOR SECNO=     13.19          CWSEL=   1279.17

STA=    9820.   10246.
  PER Q=    100.0
   AREA=   1200.4
    VEL=      6.6
  DEPTH=      3.1

*SECNO 13.227

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1282.50 ELREA=      1283.00

    13.227      5.59   1280.48       .00       .00   1281.19       .71      1.34       .01   1282.50
    7900.0        .0    7900.0        .0        .0    1167.8        .0    1474.1     258.2   1283.00
      1.23       .00      6.76       .00      .000      .035      .000      .000   1274.89   9950.67
   .003527      335.      315.      350.         3         0         0       .00    264.36  10215.02


FLOW DISTRIBUTION FOR SECNO=     13.23          CWSEL=   1280.48

STA=    9951.   10224.
  PER Q=    100.0
   AREA=   1167.8
    VEL=      6.8
  DEPTH=      4.4

*SECNO 13.325

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1291.00 ELREA=      1288.10

    13.325      6.00   1282.70       .00       .00   1283.65       .95      2.39       .07   1291.00
    7900.0        .0    7900.0        .0        .0    1011.9        .0    1488.4     261.6   1288.10
      1.25       .00      7.81       .00      .000      .035      .000      .000   1276.70   9881.58
   .005025      555.      571.      545.         2         0         0       .00    240.57  10122.15


FLOW DISTRIBUTION FOR SECNO=     13.32          CWSEL=   1282.70

STA=    9882.   10135.
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  PER Q=    100.0
   AREA=   1011.9
    VEL=      7.8
  DEPTH=      4.2

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   25FEB99      15:48:53                                                                                    PAGE   75

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*SECNO 13.420

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1288.33 ELREA=      1289.98

    13.420      7.67   1285.10       .00        .00   1286.05        .95       2.41        .00   1288.33
    7900.0        .0    7900.0        .0         .0    1008.5         .0     1500.3      264.2   1289.98
      1.26       .00      7.83       .00       .000      .035       .000       .000    1277.43   9856.75
   .004369      515.      514.      495.          2         0          0        .00     214.67  10071.42

FLOW DISTRIBUTION FOR SECNO=     13.42          CWSEL=   1285.10

STA=    9857.   10082.
  PER Q=    100.0
   AREA=   1008.5
    VEL=      7.8
  DEPTH=      4.7

*SECNO 13.524

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1292.81 ELREA=      1291.71

    13.524      5.52   1287.42       .00        .00   1288.04        .62       1.95        .03   1292.81
    7900.0        .0    7900.0        .0         .0    1253.7         .0     1513.9      267.3   1291.71
      1.29       .00      6.30       .00       .000      .035       .000       .000    1281.90   9869.05
   .003216      605.      523.      500.          2         0          0        .00     294.41  10163.46

FLOW DISTRIBUTION FOR SECNO=     13.52          CWSEL=   1287.42

STA=    9869.   10221.
  PER Q=    100.0
   AREA=   1253.7
    VEL=      6.3
  DEPTH=      4.3

*SECNO 13.619

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.73

    13.619      5.28   1288.75       .00        .00   1288.95        .20        .87        .04   1294.77
    7900.0        .0    7900.0        .0         .0    2211.1         .0     1534.0      272.1   1293.88
      1.33       .00      3.57       .00       .000      .035       .000       .000    1283.47   9771.00
   .001070      565.      506.      495.          3         0          0        .00     534.55  10305.55

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   25FEB99      15:48:53                                                                                    PAGE   76

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

FLOW DISTRIBUTION FOR SECNO=     13.62          CWSEL=   1288.75

STA=    9771.   10391.
  PER Q=    100.0
   AREA=   2211.1
    VEL=      3.6
  DEPTH=      4.1

*SECNO 13.680

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .45

    13.680      3.74   1289.24       .00        .00   1289.70        .47        .67        .08   1292.88
    7900.0        .0    7900.0        .0         .0    1443.6         .0     1547.9      276.5   1292.80
      1.34       .00      5.47       .00       .000      .035       .000       .000    1285.50   9647.79
   .005240      320.      331.      315.          2         0          0        .00     607.45  10255.24

FLOW DISTRIBUTION FOR SECNO=     13.68          CWSEL=   1289.24

STA=    9648.   10318.
  PER Q=    100.0
   AREA=   1443.6
    VEL=      5.5
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  DEPTH=      2.4

*SECNO 13.742

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1288.00 ELREA=      1299.50

    13.742      5.28   1290.88       .00       .00   1291.19       .30      1.47       .02   1288.00
    7900.0    1463.6    6436.4         .0     458.8    1379.0         .0    1561.6     281.9   1299.50
      1.37      3.19      4.67       .00       .050      .035      .000      .000   1285.60   9570.76
   .003268      430.      354.      400.         2         0         0       .00    706.27  10277.02


FLOW DISTRIBUTION FOR SECNO=     13.74          CWSEL=   1290.88

STA=    9571.    9578.    9635.    9648.    9681.    9700.    9760.   10380.
  PER Q=      .1      2.9      1.4      4.2      2.4      7.5     81.5
   AREA=     4.6     95.4     34.7     96.0     55.4    172.8   1379.0
    VEL=     1.3      2.4      3.1      3.5      3.4      3.4      4.7
  DEPTH=      .7      1.7      2.5      3.0      2.9      2.9      2.7

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    25FEB99      15:48:53                                                                          PAGE   77

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*SECNO 13.818

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.71

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1288.00 ELREA=      1292.32

    13.818      5.92   1291.75       .00       .00   1291.92       .17       .72       .01   1288.00
    7900.0     725.7    7174.3         .0     323.6    2111.9         .0    1581.5     288.4   1292.32
      1.40      2.24      3.40       .00       .050      .035      .000      .000   1285.83   9801.60
   .001115      395.      406.      435.         3         0         0       .00    679.41  10481.01


FLOW DISTRIBUTION FOR SECNO=     13.82          CWSEL=   1291.75

STA=    9802.    9815.    9826.    9840.    9912.   10483.
  PER Q=      .1       .1       .7      8.2     90.8
   AREA=     7.8     11.3     32.8    271.6   2111.9
    VEL=      .8      1.0      1.7      2.4      3.4
  DEPTH=      .6      1.0      2.4      3.8      3.7

*SECNO 13.918

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1300.70 ELREA=      1302.28

    13.918      9.03   1298.86   1298.86       .00   1300.76      1.90      1.71       .52   1300.70
    7900.0        .0    7900.0         .0        .0     713.4         .0    1604.9     294.8   1302.28
      1.42       .00      11.07       .00       .000      .035      .000      .000   1289.83   9963.07
   .011824      595.      656.      955.        20        11         0       .00    187.97  10151.04


FLOW DISTRIBUTION FOR SECNO=     13.92          CWSEL=   1298.86

STA=    9963.   10178.
  PER Q=    100.0
   AREA=    713.4
    VEL=     11.1
  DEPTH=      3.8

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    25FEB99      15:48:53                                                                          PAGE   78

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*SECNO 14.013

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.66
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    14.013      7.44   1303.19       .00       .00   1303.60       .41      2.69       .15   1306.05
    6100.0        .0    5477.4     622.6        .0    1018.8     347.6    1617.1     299.3   1303.66
      1.45       .00      5.38      1.79      .000      .035      .050      .000   1295.75   9783.81
   .002559       620.      514.      485.         3         0         0       .00    585.22  10964.30


FLOW DISTRIBUTION FOR SECNO=     14.01          CWSEL=   1303.19

STA=     9784.   10041.   10332.   10492.   10752.   10964.
  PER Q=     89.8      3.7      3.1      3.1       .4
   AREA=   1018.8    129.8    103.2     96.4     18.1
    VEL=      5.4      1.7      1.8      2.0      1.2
  DEPTH=      4.0       .4       .6       .4       .1

*SECNO 14.103

3265 DIVIDED FLOW

    14.103      5.16   1304.88       .00       .00   1305.51       .62      1.84       .06   1308.94
    6100.0        .0    5721.2     378.8        .0     879.3     138.5    1631.3     305.1   1307.38
      1.47       .00      6.51      2.74      .000      .035      .050      .000   1299.72   9796.39
   .005216       540.      521.      515.         3         0         0       .00    395.55  10890.03


FLOW DISTRIBUTION FOR SECNO=     14.10          CWSEL=   1304.88

STA=     9796.   10088.   10530.   10593.   10617.   10878.   10890.
  PER Q=     93.8       .2      5.2       .7       .0       .1
   AREA=   879.3      7.3    105.5     21.0      1.1      3.6
    VEL=      6.5      1.9      3.0      1.9       .9       .9
  DEPTH=      3.1       .0      1.7       .9       .0       .3

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   25FEB99      15:48:53                                                                    PAGE   79

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


*SECNO 14.197

3265 DIVIDED FLOW


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .63

    14.197      6.61   1308.51   1308.50       .00   1309.35       .83      3.78       .06   1309.62
    6100.0        6.6    4931.4    1161.9       3.7     627.1     268.2    1641.8     310.3   1310.80
      1.49       1.79      7.86      4.33      .050      .035      .050      .000   1301.90   9802.68
   .013337       465.      480.      470.         9        11         0       .00    550.16  11074.90


FLOW DISTRIBUTION FOR SECNO=     14.20          CWSEL=   1308.51

STA=     9803.    9812.   10264.   10553.   10943.   10972.   11070.   11075.
  PER Q=        .1     80.8      3.6      9.2      3.0      3.1       .1
   AREA=       3.7    627.1     64.6    119.8     42.5     38.6      2.6
    VEL=       1.8      7.9      3.4      4.7      4.3      4.9      2.3
  DEPTH=        .4      2.0       .2       .3      1.4       .4       .6

*SECNO 14.284

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.22

    14.284      6.30   1311.70       .00       .00   1311.95       .25      2.54       .06   1312.13
    6100.0     1218.5    3076.0    1805.5     394.8     609.6     893.5    1657.6     319.9   1311.30
      1.52       3.09      5.05      2.02      .050      .035      .050      .000   1305.40   9586.07
   .002700       495.      499.      485.         3         0         0       .00    1157.32  11137.26


FLOW DISTRIBUTION FOR SECNO=     14.28          CWSEL=   1311.70

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   25FEB99      15:48:53                                                                    PAGE   80

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


STA=     9586.    9638.    9659.    9690.    9776.   10053.   10169.   10231.   10472.   10519.   10742.   10784.   10916.
  PER Q=      7.9      4.4      4.5      3.2     50.4      3.1      4.7      3.3      3.0      4.3      3.5      3.9
   AREA=    145.4     75.1     88.3     86.0    609.6    104.7    116.0    131.8     79.5    146.1     83.2    130.0
    VEL=      3.3      3.6      3.1      2.3      5.0      1.8      2.5      1.5      2.3      1.8      2.6      1.8
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  DEPTH=      2.8      3.5      2.9      1.0      3.5       .9      1.9       .5      1.7       .7      2.0      1.0

STA=   10916.   10954.   11137.
  PER Q=      3.4       .4
   AREA=     78.5     23.7
    VEL=      2.6      1.0
  DEPTH=      2.1       .1

*SECNO 14.379

3265 DIVIDED FLOW


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .52

    14.379      5.93   1313.90       .00       .00   1314.35       .45      2.34       .06   1316.50
    6100.0        .0    4384.2    1715.8        .0     754.7     417.9    1675.3     331.3   1314.49
      1.55       .00      5.81      4.11      .000      .035      .050      .000   1307.97   9572.49
   .009881      515.      506.      490.         3         0         0       .00    841.46  10976.30


FLOW DISTRIBUTION FOR SECNO=     14.38          CWSEL=   1313.90

STA=    9572.   10321.   10443.   10820.   10919.   10963.   10976.
  PER Q=     71.9      5.5      4.9      3.7     12.6      1.4
   AREA=    754.7     97.0    102.8     69.3    127.5     21.4
    VEL=      5.8      3.5      2.9      3.2      6.0      4.0
  DEPTH=      1.6       .8       .3       .7      2.9      1.6

*SECNO 14.495

3265 DIVIDED FLOW


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.55

    14.495      5.24   1317.40       .00       .00   1317.59       .19      3.22       .03   1317.51
    6100.0      42.1    3912.3    2145.6      21.4     964.9    1035.3    1694.1     346.0   1317.71
      1.59      1.97      4.05      2.07      .050      .035      .050      .000   1312.16   9266.60
   .004129      605.      562.      455.         2         0         0       .00   1724.81  11505.55


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   25FEB99      15:48:53                                                                                PAGE   81

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


FLOW DISTRIBUTION FOR SECNO=     14.49          CWSEL=   1317.40

STA=    9267.    9286.   10223.   10455.   10593.   10627.   10686.   10966.   11067.   11235.   11409.   11506.
  PER Q=       .7     64.1      3.2      3.5      4.3      5.0      3.3      4.1      3.7      6.3      1.8
   AREA=     21.4    964.9    121.5     99.3     78.9    102.3    134.4    117.0    122.7    188.8     70.4
    VEL=      2.0      4.1      1.6      2.1      3.3      3.0      1.5      2.1      1.8      2.0      1.6
  DEPTH=      1.1      1.8       .5       .7      2.3      1.7       .5      1.2       .7      1.1       .7

*SECNO 14.599

3265 DIVIDED FLOW


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1321.63 ELREA=      1320.94

    14.599      4.62   1319.69       .00       .00   1320.08       .39      2.43       .06   1321.63
    6100.0        .0    6100.0        .0        .0    1211.5        .0    1714.7     360.5   1320.94
      1.62       .00      5.04       .00      .000      .035      .000      .000   1315.07   9204.28
   .004748      400.      542.      585.         2         0         0       .00    532.67  10021.86


FLOW DISTRIBUTION FOR SECNO=     14.60          CWSEL=   1319.69

STA=    9204.   10023.
  PER Q=    100.0
   AREA=   1211.5
    VEL=      5.0
  DEPTH=      2.3

*SECNO 14.653

3265 DIVIDED FLOW


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1324.47 ELREA=      1324.02

    14.653      5.01   1322.91       .00       .00   1323.31       .40      3.22       .00   1324.47
    6100.0        .0    6100.0        .0        .0    1200.9        .0    1729.6     368.5   1324.02
      1.65       .00      5.08       .00      .000      .035      .000      .000   1317.90   9270.79
   .007842      465.      537.      525.         3         0         0       .00    763.15  10194.70


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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 14.65 CWSEL= 1322.91

STA= 9271. 10208.
PER Q= 100.0
AREA= 1200.9
VEL= 5.1
DEPTH= 1.6

*SECNO 14.752

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.77

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1326.04 ELREA= 1325.20

14.752	5.51	1325.28	.00	.00	1325.56	.27	2.24	.01	1326.04
6100.0	.0	5838.5	261.5	.0	1360.1	278.6	1747.5	380.7	1325.20
1.69	.00	4.29	.94	.000	.035	.050	.000	1319.77	9635.78
.002495	530.	548.	565.	3	0	0	.00	1144.64	11683.78

FLOW DISTRIBUTION FOR SECNO= 14.75 CWSEL= 1325.28

STA= 9636. 10106. 11503. 11684.
PER Q= 95.7 3.2 1.1
AREA= 1360.1 207.5 71.1
VEL= 4.3 .9 1.0
DEPTH= 2.9 .1 .4

*SECNO 14.850

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .62

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1329.29 ELREA= 1328.67

14.850	4.68	1327.19	.00	.00	1327.66	.47	2.04	.06	1329.29
6100.0	.0	6100.0	.0	.0	1114.4	.0	1764.3	390.9	1328.67
1.72	.00	5.47	.00	.000	.035	.000	.000	1322.51	9595.62
.006538	545.	537.	515.	3	0	0	.00	552.22	10149.25

FLOW DISTRIBUTION FOR SECNO= 14.85 CWSEL= 1327.19

STA= 9596. 10219.
PER Q= 100.0
AREA= 1114.4
VEL= 5.5
DEPTH= 2.0

*SECNO 14.945

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 9587.3 10445.7 TYPE= 1 TARGET= 858.380
ELENCL= 1333.98 ELENCR= 1332.10

14.945	14.92	1330.21	.00	.00	1330.65	.44	2.98	.00	1333.98
4200.0	.0	3494.9	705.1	.0	616.7	250.4	1776.4	396.9	1334.24
1.75	.00	5.67	2.82	.000	.035	.050	.000	1315.29	9808.05
.004619	585.	529.	535.	2	0	0	.00	428.33	10434.43

FLOW DISTRIBUTION FOR SECNO= 14.94 CWSEL= 1330.21

STA= 9808. 10044. 10231. 10249. 10278. 10347. 10382. 10430. 10434.
PER Q= 83.2 .2 1.0 .9 1.0 6.6 7.1 .0
AREA= 616.7 9.4 19.5 21.7 25.0 79.0 93.9 1.8
VEL= 5.7 1.0 2.1 1.7 1.7 3.5 3.2 1.1
DEPTH= 2.8 .1 1.1 .8 .4 2.3 2.0 .4

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*SECNO 14.983
1
   25FEB99      15:48:53                                                                                    PAGE   84

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


3265 DIVIDED FLOW

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1334.75 ELREA=      1333.04

    14.983      7.06   1331.01       .00       .00   1331.79       .78      1.04       .10   1334.75
    4200.0        .0    4200.0        .0        .0     592.3        .0    1780.0     398.4   1333.04
      1.75       .00      7.09       .00      .000      .035      .000      .000   1323.95   9833.90
   .004990      190.      216.      220.         3         0         0       .00    161.46  10032.19

FLOW DISTRIBUTION FOR SECNO=     14.98          CWSEL=   1331.01

STA=    9834.   10307.
  PER Q=    100.0
   AREA=    592.3
    VEL=      7.1
  DEPTH=      3.7

*SECNO 15.049

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.42

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1338.55 ELREA=      1337.74

    15.049      6.24   1333.33       .00       .00   1333.55       .21      1.70       .06   1338.55
    4200.0        .0    4200.0        .0        .0    1131.1        .0    1789.9     402.1   1337.74
      1.79       .00      3.71       .00      .000      .035      .000      .000   1327.09   9880.62
   .002474      585.      500.      355.         1         0         0       .00    482.37  10688.87

FLOW DISTRIBUTION FOR SECNO=     15.05          CWSEL=   1333.33

1
   25FEB99      15:48:53                                                                                    PAGE   85

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


STA=    9881.   10702.
  PER Q=    100.0
   AREA=   1131.1
    VEL=      3.7
  DEPTH=      2.3

*SECNO 15.144

3265 DIVIDED FLOW

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .67

3470 ENCROACHMENT STATIONS=      9744.0   10277.7  TYPE=       1  TARGET=       533.700
 ELENCL=   1338.07  ELENCR=   1343.91
    15.144      5.70   1334.90       .00       .00   1335.36       .46      1.74       .07   1338.07
    4200.0        .0    4011.2     188.8        .0     724.0      71.8    1800.8     407.0   1336.20
      1.82       .00      5.54      2.63      .000      .035      .050      .000   1329.20   9777.27
   .005433      485.      493.      505.         2         0         0       .00    380.40  10253.20

FLOW DISTRIBUTION FOR SECNO=     15.14          CWSEL=   1334.90

STA=    9777.   10122.   10196.   10228.   10234.   10243.   10244.   10253.
  PER Q=     95.5       .1      1.0       .4      1.6       .5      1.0
   AREA=    724.0      3.7     23.9      6.8     19.2      4.2     13.9
    VEL=      5.5       .8      1.8      2.3      3.5      4.6      2.9
  DEPTH=      2.4       .0       .8      1.1      2.0      3.1      1.6

*SECNO 15.248
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3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1338.50 ELREA=      1339.32

    15.248      5.94   1337.12       .00       .00   1337.60       .48      2.23       .01   1338.50
    4200.0        .0    4200.0        .0        .0     756.2        .0    1809.7     410.5   1339.32
      1.84       .00      5.55       .00      .000      .035      .000      .000   1331.18   9828.41
   .003765      405.      497.      530.         2         0         0       .00    241.40  10069.81


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   25FEB99      15:48:53                                                                          PAGE   86

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


FLOW DISTRIBUTION FOR SECNO=     15.25          CWSEL=   1337.12

STA=    9828.   10075.
  PER Q=    100.0
   AREA=    756.2
    VEL=      5.6
  DEPTH=      3.1

*SECNO 15.333

3496 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1340.08 ELREA=      1342.68

    15.333      5.19   1338.83       .00       .00   1339.19       .37      1.58       .01   1340.08
    4200.0        .0    4200.0        .0        .0     865.6        .0    1818.2     413.4   1342.68
      1.87       .00      4.85       .00      .000      .035      .000      .000   1333.64   9735.02
   .003242      375.      453.      480.         2         0         0       .00    302.95  10037.98


FLOW DISTRIBUTION FOR SECNO=     15.33          CWSEL=   1338.83

STA=    9735.   10047.
  PER Q=    100.0
   AREA=    865.6
    VEL=      4.9
  DEPTH=      2.9

*SECNO 15.416

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.96


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1342.02 ELREA=      1342.34

    15.416      6.32   1339.72       .00       .00   1339.88       .16       .66       .02   1342.02
    4200.0        .0    4200.0        .0        .0    1313.3        .0    1829.4     416.6   1342.34
      1.91       .00      3.20       .00      .000      .035      .000      .000   1333.40   9787.23
   .000843      310.      449.      465.         2         0         0       .00    312.78  10100.01


FLOW DISTRIBUTION FOR SECNO=     15.42          CWSEL=   1339.72

1
   25FEB99      15:48:53                                                                          PAGE   87

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


STA=    9787.   10116.
  PER Q=    100.0
   AREA=   1313.3
    VEL=      3.2
  DEPTH=      4.2

*SECNO 15.475

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .53

    15.475      5.00   1340.06       .00       .00   1340.39       .32       .46       .05   1341.32
    4200.0        .0    4200.0        .0        .0     924.9        .0    1837.6     418.9   1341.50
      1.93       .00      4.54       .00      .000      .035      .000      .000   1335.06   9711.22
   .002975      510.      320.      260.         2         0         0       .00    335.93  10047.16


FLOW DISTRIBUTION FOR SECNO=     15.48          CWSEL=   1340.06

STA=    9711.   10056.
  PER Q=    100.0
   AREA=    924.9
    VEL=      4.5
  DEPTH=      2.8

*SECNO 15.596
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3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

15.596	4.72	1343.10	1343.10	.00	1344.52	1.41	3.72	.33	1348.64
4200.0	.0	4200.0	.0	.0	440.2	.0	1848.2	422.8	1347.78
1.95	.00	9.54	.00	.000	.035	.000	.000	1338.38	9953.57
.013314	460.	678.	775.	6	11	0	.00	160.87	10114.45

FLOW DISTRIBUTION FOR SECNO= 15.60 CWSEL= 1343.10

STA=	9954.	10213.	
PER Q=	100.0		
AREA=	440.2		
VEL=	9.5		
DEPTH=	2.7		

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 15.623

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.00

15.623	7.03	1347.03	.00	.00	1347.57	.54	2.97	.09	1351.97
4200.0	.0	4041.2	158.8	.0	671.1	117.0	1854.9	425.2	1348.70
1.97	.00	6.02	1.36	.000	.035	.050	.000	1340.00	9955.32
.003340	475.	506.	205.	3	0	0	.00	389.04	11087.77

FLOW DISTRIBUTION FOR SECNO= 15.62 CWSEL= 1347.03

STA=	9955.	10136.	11058.	11088.
PER Q=	96.2	3.0	.7	
AREA=	671.1	95.3	21.7	
VEL=	6.0	1.3	1.4	
DEPTH=	3.9	.1	.7	

*SECNO 15.699

3265 DIVIDED FLOW

15.699	4.02	1348.73	.00	.00	1349.37	.64	1.77	.03	1349.99
4200.0	112.7	3041.7	1045.6	49.4	418.3	322.9	1861.6	428.4	1349.76
1.99	2.28	7.27	3.24	.050	.035	.050	.000	1344.71	9778.40
.006521	485.	414.	240.	2	0	0	.00	467.14	10841.10

FLOW DISTRIBUTION FOR SECNO= 15.70 CWSEL= 1348.73

STA=	9778.	9850.	10044.	10599.	10813.	10833.	10841.
PER Q=	2.7	72.4	4.9	14.3	5.1	.6	
AREA=	49.4	418.3	74.1	189.9	48.8	10.1	
VEL=	2.3	7.3	2.8	3.2	4.4	2.7	
DEPTH=	.7	3.1	.1	.9	2.5	1.2	

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 15.792

3265 DIVIDED FLOW

15.792	6.40	1351.60	.00	.00	1352.31	.71	2.92	.02	1353.50
4200.0	25.4	3584.4	590.2	16.7	497.0	189.2	1870.2	433.0	1352.11
2.01	1.52	7.21	3.12	.050	.035	.050	.000	1345.20	9468.53
.005490	430.	473.	560.	2	0	0	.00	312.57	10540.96

FLOW DISTRIBUTION FOR SECNO= 15.79 CWSEL= 1351.60

STA=	9469.	9630.	10074.	10197.	10435.	10453.	10541.
PER Q=	.6	85.3	3.0	3.7	5.4	1.9	
AREA=	16.6	497.0	43.6	66.5	51.2	27.8	

```
    VEL=       1.5       7.2       2.9       2.3       4.5       2.9
  DEPTH=        .1       3.5        .4        .3       2.9        .3

*SECNO 15.885

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1356.36 ELREA=      1355.11

    15.885      6.48   1354.88       .00       .00   1355.87       .99      3.48       .08   1356.36
    4200.0        .0    4200.0        .0        .0     526.8        .0    1877.3     435.8   1355.11
      2.03       .00      7.97       .00      .000      .035      .000      .000   1348.40   9966.72
   .008814      525.      509.      475.         2         0         0       .00    184.87  10151.58


FLOW DISTRIBUTION FOR SECNO=     15.89          CWSEL=   1354.88

STA=    9967.   10153.
  PER Q=    100.0
   AREA=    526.8
    VEL=      8.0
  DEPTH=      2.8

*SECNO 15.966

3265 DIVIDED FLOW

1
   25FEB99      15:48:53                                                                                    PAGE   90

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.56

    15.966      5.45   1357.29       .00       .00   1357.36       .07      1.40       .09   1358.90
    2350.0      65.6    1920.2     364.2      44.1     833.7     241.5    1885.4     439.7   1357.74
      2.08      1.49      2.30      1.51      .050      .035      .050      .000   1351.84   9704.58
   .001129      515.      430.      415.         3         0         0       .00    596.11  10381.21


FLOW DISTRIBUTION FOR SECNO=     15.97          CWSEL=   1357.29

STA=    9705.    9716.    9728.   10169.   10277.   10283.   10318.   10332.   10371.   10381.
  PER Q=      1.4      1.4     81.7      1.4        .8      8.7      1.3      2.5        .8
   AREA=     22.2     21.9    833.7     45.6     11.9    101.0     21.8     46.6     14.6
    VEL=      1.5      1.5      2.3        .7      1.5      2.0      1.3      1.3      1.2
  DEPTH=      1.9      1.9      2.1        .4      1.9      2.9      1.6      1.2      1.4

*SECNO 16.066

3265 DIVIDED FLOW


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .36

    16.066      4.09   1358.51       .00       .00   1358.78       .27      1.36       .06   1361.42
    2350.0        .0    1123.2    1226.8        .0     247.7     319.8    1896.2     446.2   1359.74
      2.12       .00      4.53      3.84      .000      .035      .050      .000   1354.42   9591.30
   .008634      610.      584.      505.         3         0         0       .00    424.96  10436.91


FLOW DISTRIBUTION FOR SECNO=     16.07          CWSEL=   1358.51

STA=    9591.   10068.   10227.   10258.   10282.   10359.   10424.   10437.
  PER Q=     47.8       .4      2.7     12.2     27.2      8.1      1.5
   AREA=    247.7      5.8     26.0     58.5    148.8     67.7     13.0
    VEL=      4.5      1.5      2.4      4.9      4.3      2.8      2.8
  DEPTH=      1.2        .0       .8      2.4      1.9      1.0      1.0

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   25FEB99      15:48:53                                                                                    PAGE   91

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


*SECNO 16.167

3265 DIVIDED FLOW


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.45

    16.167      3.58   1361.80       .00       .00   1361.99       .19      3.20       .01   1364.30
    2350.0        .0     615.5    1734.5        .0     183.9     488.7    1904.1     451.3   1363.40
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      2.16       .00      3.35      3.55      .000      .035      .050      .000   1358.22   9908.95
    .004114      540.      591.      535.         4         0         0       .00    381.50  10755.84

 FLOW DISTRIBUTION FOR SECNO=     16.17          CWSEL=   1361.80

 STA=    9909.   10145.   10342.   10383.   10403.   10429.   10453.   10472.   10512.   10541.   10555.   10754.   10756.
   PER Q=     26.2       .2      3.1      4.3      4.2      6.6     10.4     22.9     19.1      2.9       .0       .0
    AREA=    183.9      7.3     39.4     35.8     39.4     50.3     59.6    129.0    101.6     24.8      1.2       .4
     VEL=      3.3       .8      1.9      2.8      2.5      3.1      4.1      4.2      4.4      2.8       .7       .7
   DEPTH=      1.4       .0      1.0      1.8      1.5      2.1      3.2      3.2      3.5      1.8       .0       .2

 *SECNO 16.248

 3265 DIVIDED FLOW


 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .68

    16.248      4.03   1364.24       .00       .00   1364.82       .57      2.71       .12   1366.86
    2350.0        .0    1746.8     603.2        .0     258.4     176.3    1910.1     455.0   1365.40
      2.18       .00      6.76      3.42      .000      .035      .050      .000   1360.22   9948.18
   .008886      435.      437.      495.         2         0         0       .00    286.51  10646.81


 FLOW DISTRIBUTION FOR SECNO=     16.25          CWSEL=   1364.24

 STA=    9948.   10160.   10270.   10293.   10601.   10621.   10635.   10647.
   PER Q=     74.3      3.9      6.0      3.3      3.9      6.2      2.4
    AREA=    258.4     31.6     36.7     34.2     26.6     30.7     16.5
     VEL=      6.8      2.9      3.9      2.2      3.4      4.8      3.4
   DEPTH=      2.2       .3      1.6       .1      1.3      2.2      1.4

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    25FEB99      15:48:53                                                                                    PAGE   92

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


 *SECNO 16.348

 3265 DIVIDED FLOW


 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.67

    16.348      4.29   1366.89       .00       .00   1367.07       .18      2.21       .04   1368.31
    2350.0       1.4    1609.0     739.6       2.9     435.7     285.2    1915.8     458.4   1367.73
      2.22       .47      3.69      2.59      .050      .035      .050      .000   1362.60   9683.76
   .003177      595.      498.      310.         3         0         0       .00    450.65  10462.77


 FLOW DISTRIBUTION FOR SECNO=     16.35          CWSEL=   1366.89

 STA=    9684.    9701.    9704.   10145.   10215.   10238.   10260.   10274.   10290.   10356.   10385.   10463.
   PER Q=        .1       .0     68.5       .5       .4       .6      1.1      1.0     21.5      6.3       .0
    AREA=       2.6       .3    435.7     12.6      9.2     11.5     14.6     15.1    164.6     57.3       .1
     VEL=        .5       .4      3.7       .9       .9      1.3      1.8      1.6      3.1      2.6       .1
   DEPTH=        .2       .1      1.9       .2       .4       .5      1.1      1.0      2.5      1.9       .0

 *SECNO 16.411

 3265 DIVIDED FLOW


 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1372.29 ELREA=      1371.30

    16.411      4.38   1368.79       .00       .00   1369.32       .53      2.14       .10   1372.29
    2350.0        .0    2350.0        .0        .0     404.0        .0    1922.2     462.0   1371.30
      2.24       .00      5.82       .00      .000      .035      .000      .000   1364.41   9701.41
   .006394      395.      482.      535.         3         0         0       .00    178.96  10044.35


 FLOW DISTRIBUTION FOR SECNO=     16.41          CWSEL=   1368.79

 STA=    9701.   10050.
   PER Q=    100.0
    AREA=    404.0
     VEL=      5.8
   DEPTH=      2.3

1
    25FEB99      15:48:53                                                                                    PAGE   93

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST
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*SECNO 16.504

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.40

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1373.13 ELREA= 1373.91

16.504	4.35	1371.17	.00	.00	1371.47	.31	2.13	.02	1373.13
2350.0	.0	2350.0	.0	.0	528.2	.0	1927.3	464.1	1373.91
2.27	.00	4.45	.00	.000	.035	.000	.000	1366.82	9829.86
.003252	500.	481.	475.	1	0	0	.00	211.33	10062.72

FLOW DISTRIBUTION FOR SECNO= 16.50 CWSEL= 1371.17

STA= 9830. 10071.
PER Q= 100.0
AREA= 528.2
VEL= 4.4
DEPTH= 2.5

*SECNO 16.608

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1376.90 ELREA= 1375.37

16.608	4.33	1373.02	.00	.00	1373.41	.39	1.91	.02	1376.90
2350.0	.0	2350.0	.0	.0	470.0	.0	1933.0	466.5	1375.37
2.30	.00	5.00	.00	.000	.035	.000	.000	1368.69	9865.26
.004536	385.	501.	555.	2	0	0	.00	201.34	10066.60

FLOW DISTRIBUTION FOR SECNO= 16.61 CWSEL= 1373.02

STA= 9865. 10075.
PER Q= 100.0
AREA= 470.0
VEL= 5.0
DEPTH= 2.3

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 16.637

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .56

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1377.95 ELREA= 1376.90

16.637	4.34	1374.51	1374.43	.00	1375.25	.74	1.74	.11	1377.95
2350.0	.0	2350.0	.0	.0	340.7	.0	1935.2	467.6	1376.90
2.31	.00	6.90	.00	.000	.035	.000	.000	1370.17	9800.90
.014673	240.	232.	235.	6	5	0	.00	217.74	10018.64

FLOW DISTRIBUTION FOR SECNO= 16.64 CWSEL= 1374.51

STA= 9801. 10092.
PER Q= 100.0
AREA= 340.7
VEL= 6.9
DEPTH= 1.6

*SECNO 16.732

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.16

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1380.07 ELREA= 1379.11

16.732	4.79	1377.72	.00	.00	1378.08	.36	2.80	.04	1380.07
2350.0	.0	2350.0	.0	.0	485.3	.0	1939.7	469.7	1379.11
2.34	.00	4.84	.00	.000	.035	.000	.000	1372.93	9885.84
.003144	535.	476.	460.	3	0	0	.00	165.82	10051.66

FLOW DISTRIBUTION FOR SECNO= 16.73 CWSEL= 1377.72

STA= 9886. 10091.
PER Q= 100.0
AREA= 485.3
VEL= 4.8
DEPTH= 2.9

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 16.829

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1382.00 ELREA= 1381.48

16.829	4.53	1379.43	.00	.00	1379.77	.34	1.69	.00	1382.00
2350.0	.0	2350.0	.0	.0	500.9	.0	1945.7	471.9	1381.48
2.37	.00	4.69	.00	.000	.035	.000	.000	1374.90	9897.62
.003283	430.	526.	550.	3	0	0	.00	186.47	10084.10

FLOW DISTRIBUTION FOR SECNO= 16.83 CWSEL= 1379.43

STA= 9898. 10094.
PER Q= 100.0
AREA= 500.9
VEL= 4.7
DEPTH= 2.7

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THIS RUN EXECUTED 25FEB99 15:48:57

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HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

START NEW RIVER Q OF 120

SUMMARY PRINTOUT

	SECNO	Q	CWSEL	STCHL	VLOB	VCH	VROB	STCHR	ENDST	TOPWID	DEPTH
	7.728	41000.00	1150.50	9900.00	.00	11.41	.00	10222.00	10210.28	296.66	15.10
	7.751	41000.00	1150.79	9919.35	.00	11.93	.00	10239.55	10218.56	267.21	15.49
	7.800	41000.00	1151.87	9857.12	.00	11.13	.00	10243.64	10213.24	325.80	16.22
	7.920	41000.00	1153.70	9855.37	.00	10.53	.00	10258.56	10224.86	334.21	17.96
	8.006	41000.00	1154.82	9848.52	.00	10.37	.00	10252.11	10215.72	334.14	18.71
	8.052	41000.00	1155.38	9848.50	.00	10.25	.00	10251.73	10218.85	334.94	18.96
	8.120	41000.00	1156.13	9882.49	.00	10.63	.00	10260.19	10223.65	324.66	18.16
	8.220	41000.00	1157.40	9863.78	.00	10.32	.00	10241.56	10209.15	330.38	18.62
	8.330	41000.00	1158.59	9800.42	.00	10.58	.00	10176.69	10139.23	318.35	18.00
	8.390	41000.00	1159.29	9814.94	.00	10.52	.00	10190.49	10150.09	311.90	18.37
	8.457	41000.00	1160.16	9788.33	.00	10.13	.00	10193.92	10153.33	313.26	19.06
*	8.516	41000.00	1161.20	9847.43	.00	7.82	.00	10155.21	10147.55	293.09	19.65
*	8.548	41000.00	1161.13	9843.20	.00	16.42	.00	10155.64	10148.06	298.33	11.36
*	8.655	41000.00	1166.34	9515.14	.00	6.42	.00	10088.67	10084.24	556.53	13.84
	8.731	41000.00	1166.96	9663.09	4.06	4.98	.00	10126.93	10122.57	786.73	13.36
*	8.807	12000.00	1167.18	9793.00	.00	5.02	.00	10160.88	10108.81	298.75	9.14
*	8.883	12000.00	1167.26	9858.42	.00	8.89	.00	10177.57	10111.01	229.98	7.82

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SECNO	Q	CWSEL	STCHL	VLOB	VCH	VROB	STCHR	ENDST	TOPWID	DEPTH
8.936	12000.00	1168.68	9827.82	.00	7.48	.00	10181.89	10122.20	277.79	8.74
8.977	12000.00	1169.23	9866.17	.00	8.36	.00	10181.52	10114.46	236.38	7.93

	8.994	12000.00	1169.50	9890.28	.00	8.62	.00	10200.81	10128.78	215.27	7.85
*	9.047	12000.00	1170.94	9869.58	.00	4.75	.00	10339.39	10274.97	373.51	9.30
	9.129	12000.00	1171.38	9830.86	.00	4.34	.00	10344.71	10307.47	436.31	8.22
	9.193	12000.00	1171.78	9804.33	.00	4.89	.00	10329.05	10320.73	472.43	7.24
*	9.289	12000.00	1175.26	9848.61	.00	11.73	.00	10205.10	10142.90	240.30	7.36
*	9.318	12000.00	1177.92	9773.17	.00	5.32	.00	10171.54	10144.93	353.72	9.57
	9.367	12000.00	1178.65	9718.30	.00	4.54	.00	10241.56	10201.04	464.83	7.32
*	9.492	11450.00	1179.30	9804.96	.00	5.97	.00	10312.71	10297.08	472.53	5.36
*	9.592	11450.00	1181.78	9949.30	.00	9.72	.00	10341.98	10317.77	348.98	6.08
*	9.692	11450.00	1184.85	9916.36	.00	5.56	.00	10315.60	10305.32	369.53	7.65
*	9.794	11450.00	1186.93	9922.42	.00	11.35	.00	10262.30	10220.13	260.67	6.70
	9.889	11450.00	1191.95	9864.97	.00	11.62	.00	10129.90	10118.52	193.20	6.53
*	9.908	11450.00	1194.08	9882.40	.00	11.83	.00	10138.47	10130.21	225.00	5.03
*	9.953	11450.00	1196.54	9870.35	.00	8.01	.00	10185.91	10144.38	261.26	7.16
	9.958	11450.00	1196.66	9865.41	.00	7.87	.00	10168.40	10150.59	269.03	6.19
	9.984	11450.00	1196.73	9864.55	.00	8.29	.00	10172.35	10154.69	270.20	5.73
	9.997	11450.00	1196.73	9879.59	.00	10.52	.00	10166.10	10141.25	251.18	5.02
*	10.096	11450.00	1200.06	9718.95	.00	7.06	.00	10149.13	10114.45	382.35	6.22
*	10.176	11450.00	1202.11	9720.47	.00	8.92	.00	10129.28	10122.23	393.44	6.54
*	10.271	10900.00	1204.82	9854.54	.00	6.82	.00	10280.99	10275.62	401.30	6.56
	10.348	10900.00	1206.60	9957.23	.00	7.67	.00	10382.66	10374.79	406.03	5.39
	10.443	10900.00	1209.15	9875.81	.00	8.92	.00	10314.96	10275.46	390.46	4.55
	10.517	10900.00	1212.59	9771.20	.00	9.15	1.96	10108.57	10315.07	527.02	5.16
*	10.612	10900.00	1214.97	9908.43	.00	6.83	.00	10249.66	10247.94	323.98	6.20

	SECNO	Q	CWSEL	STCHL	VLOB	VCH	VROB	STCHR	ENDST	TOPWID	DEPTH
*	10.699	10900.00	1216.03	9958.52	.00	10.84	.00	10251.21	10245.68	273.66	6.57
	10.803	10900.00	1220.40	9795.08	.00	7.81	.62	10215.45	10364.40	530.52	6.30
	10.862	10900.00	1221.49	9850.56	.00	9.33	.00	10118.76	10102.11	237.01	6.06
	10.917	10900.00	1223.13	9808.72	.00	6.95	.00	10200.72	10164.53	352.85	6.40
*	10.980	10900.00	1224.01	9869.32	.00	10.76	.00	10118.92	10099.93	218.64	5.41
*	10.996	10900.00	1224.33	9873.61	.00	10.44	.00	10127.60	10112.08	220.17	5.72
	11.030	10900.00	1225.18	9909.05	.00	11.37	.00	10139.94	10119.55	196.05	5.81
*	11.129	10900.00	1227.90	9828.29	.00	5.76	.00	10120.15	10110.45	271.25	8.51
	11.188	10350.00	1228.13	9865.77	.00	6.88	.00	10124.74	10108.23	226.89	8.99
	11.243	10350.00	1228.46	9887.62	.00	8.66	.00	10109.22	10091.98	186.91	9.33
	11.301	10350.00	1229.20	9883.56	.00	9.16	.00	10107.77	10086.62	190.48	7.93
	11.386	10350.00	1231.07	9863.67	.00	7.90	.00	10133.31	10110.11	240.25	7.97
	11.481	10350.00	1232.92	9842.07	.00	6.79	.00	10210.27	10119.06	264.95	8.11
	11.566	10350.00	1234.22	9523.18	.71	4.40	.00	10058.35	10037.61	524.88	5.90
*	11.664	10350.00	1234.96	9730.43	3.68	8.33	.00	10052.37	10028.73	347.43	6.16
	11.759	10350.00	1238.01	9858.37	4.54	7.37	.00	10130.39	10110.13	495.68	5.99
	11.864	10350.00	1241.38	9832.97	3.66	9.10	3.67	10118.56	10139.45	535.01	5.81
*	11.949	10350.00	1244.49	9673.75	.00	5.44	.00	10428.00	10393.13	583.61	5.59
	12.034	10350.00	1246.68	9568.41	.00	7.77	.00	10210.39	10177.21	403.39	5.21
*	12.125	10350.00	1249.28	9685.34	.00	5.85	.00	10437.79	10312.91	483.23	4.63
*	12.194	10350.00	1251.99	9831.37	.00	9.55	.00	10282.89	10272.17	394.01	3.99

*	12.313	9800.00	1257.49	9877.14	.00	7.27	.00	10260.61	10233.91	317.83	7.02
*	12.420	9800.00	1260.55	9768.60	.00	9.43	.00	10079.26	10072.14	284.75	6.05
*	12.511	9800.00	1263.54	9871.16	1.15	7.67	.00	10111.39	10104.11	449.92	8.74
	12.606	9800.00	1266.28	9830.21	.00	6.41	.00	10454.31	10432.16	502.87	7.38
	12.701	9800.00	1268.57	9752.00	.00	6.13	.00	10320.98	10201.43	444.12	8.47

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	SECNO	Q	CWSEL	STCHL	VLOB	VCH	VROB	STCHR	ENDST	TOPWID	DEPTH
*	12.801	9800.00	1270.15	9884.48	.00	3.96	.00	10602.96	10561.13	666.93	9.92
	12.896	9800.00	1270.73	9833.84	.00	3.94	.00	10320.61	10309.42	444.27	8.23
*	12.991	9800.00	1271.12	9734.08	.00	2.71	.00	10268.84	10262.15	515.15	8.75
	13.076	7900.00	1271.26	9671.60	.00	2.78	.00	10153.97	10095.47	404.23	8.89
	13.151	7900.00	1271.39	9746.00	.00	3.29	.00	10187.38	10160.49	391.87	9.19
*	13.161	7900.00	1278.24	9737.87	.00	9.07	.00	10244.12	10173.45	347.58	3.59
*	13.185	7900.00	1279.17	9742.20	.00	6.58	.00	10245.97	10202.53	382.28	4.28
	13.227	7900.00	1280.48	9945.65	.00	6.76	.00	10223.75	10215.02	264.36	5.59
	13.325	7900.00	1282.70	9867.77	.00	7.81	.00	10134.99	10122.15	240.57	6.00
	13.420	7900.00	1285.10	9845.86	.00	7.83	.00	10081.84	10071.42	214.67	7.67
	13.524	7900.00	1287.42	9858.03	.00	6.30	.00	10221.34	10163.46	294.41	5.52
*	13.619	7900.00	1288.75	9739.41	.00	3.57	.00	10391.00	10305.55	534.55	5.28
*	13.680	7900.00	1289.24	9591.03	.00	5.47	.00	10317.81	10255.24	607.45	3.74
	13.742	7900.00	1290.88	9760.00	3.19	4.67	.00	10379.63	10277.02	706.27	5.28
*	13.818	7900.00	1291.75	9912.00	2.24	3.40	.00	10482.82	10481.01	679.41	5.92
*	13.918	7900.00	1298.86	9953.70	.00	11.07	.00	10177.83	10151.04	187.97	9.03
*	14.013	6100.00	1303.19	9743.54	.00	5.38	1.79	10041.42	10964.30	585.22	7.44
	14.103	6100.00	1304.88	9764.43	.00	6.51	2.74	10088.39	10890.03	395.55	5.16
*	14.197	6100.00	1308.51	9935.15	1.79	7.86	4.33	10264.33	11074.90	550.16	6.61
*	14.284	6100.00	1311.70	9832.37	3.09	5.05	2.02	10052.65	11137.26	1157.32	6.30
*	14.379	6100.00	1313.90	9565.28	.00	5.81	4.11	10321.28	10976.30	841.46	5.93
*	14.495	6100.00	1317.40	9287.09	1.97	4.05	2.07	10222.87	11505.55	1724.81	5.24
	14.599	6100.00	1319.69	9200.52	.00	5.04	.00	10023.39	10021.86	532.67	4.62
	14.653	6100.00	1322.91	9196.03	.00	5.08	.00	10208.13	10194.70	763.15	5.01
*	14.752	6100.00	1325.28	9552.93	.00	4.29	.94	10106.03	11683.78	1144.64	5.51
*	14.850	6100.00	1327.19	9568.17	.00	5.47	.00	10218.90	10149.25	552.22	4.68

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	SECNO	Q	CWSEL	STCHL	VLOB	VCH	VROB	STCHR	ENDST	TOPWID	DEPTH
	14.945	4200.00	1330.21	9587.29	.00	5.67	2.82	10043.50	10434.43	428.33	14.92
	14.983	4200.00	1331.01	9785.74	.00	7.09	.00	10307.49	10032.19	161.46	7.06
*	15.049	4200.00	1333.33	9850.15	.00	3.71	.00	10701.99	10688.87	482.37	6.24
*	15.144	4200.00	1334.90	9744.00	.00	5.54	2.63	10121.97	10253.20	380.40	5.70
	15.248	4200.00	1337.12	9757.56	.00	5.55	.00	10074.95	10069.81	241.40	5.94
	15.333	4200.00	1338.83	9724.67	.00	4.85	.00	10046.52	10037.98	302.95	5.19
*	15.416	4200.00	1339.72	9780.18	.00	3.20	.00	10115.94	10100.01	312.78	6.32
*	15.475	4200.00	1340.06	9705.46	.00	4.54	.00	10056.25	10047.16	335.93	5.00
*	15.596	4200.00	1343.10	9926.47	.00	9.54	.00	10212.94	10114.45	160.87	4.72
*	15.623	4200.00	1347.03	9949.16	.00	6.02	1.36	10136.16	11087.77	389.04	7.03

	15.699	4200.00	1348.73	9874.71	2.28	7.27	3.24	10044.10	10841.10	467.14	4.02
	15.792	4200.00	1351.60	9922.85	1.52	7.21	3.12	10073.97	10540.96	312.57	6.40
	15.885	4200.00	1354.88	9960.59	.00	7.97	.00	10153.32	10151.58	184.87	6.48
*	15.966	2350.00	1357.29	9732.42	1.49	2.30	1.51	10168.96	10381.21	596.11	5.45
*	16.066	2350.00	1358.51	9577.02	.00	4.53	3.84	10067.61	10436.91	424.96	4.09
*	16.167	2350.00	1361.80	9897.21	.00	3.35	3.55	10144.90	10755.84	381.50	3.58
*	16.248	2350.00	1364.24	9943.37	.00	6.76	3.42	10160.36	10646.81	286.51	4.03
*	16.348	2350.00	1366.89	9841.03	.47	3.69	2.59	10144.93	10462.77	450.65	4.29
	16.411	2350.00	1368.79	9686.22	.00	5.82	.00	10049.69	10044.35	178.96	4.38
*	16.504	2350.00	1371.17	9811.68	.00	4.45	.00	10070.55	10062.72	211.33	4.35
	16.608	2350.00	1373.02	9854.88	.00	5.00	.00	10075.05	10066.60	201.34	4.33
*	16.637	2350.00	1374.51	9796.37	.00	6.90	.00	10091.69	10018.64	217.74	4.34
*	16.732	2350.00	1377.72	9872.89	.00	4.84	.00	10091.14	10051.66	165.82	4.79
	16.829	2350.00	1379.43	9839.28	.00	4.69	.00	10093.75	10084.10	186.47	4.53

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SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO= 8.516 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO= 8.548 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 8.548 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 8.548 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO= 8.655 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 8.807 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 8.883 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 9.047 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO= 9.289 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 9.289 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 9.289 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO= 9.318 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 9.492 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 9.592 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 9.692 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO= 9.794 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 9.794 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 9.794 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= 9.908 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 9.908 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 9.908 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO= 9.953 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 10.096 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 10.176 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 10.271 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 10.612 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 10.699 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 10.980 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO= 10.996 PROFILE= 1 HYDRAULIC JUMP D.S.

WARNING SECNO= 11.129 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

1

WARNING SECNO= 11.664 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

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 WARNING SECNO=     11.949  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     12.125  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=     12.194  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=     12.194  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=     12.194  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

 WARNING SECNO=     12.313  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     12.420  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     12.511  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     12.801  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     12.991  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=     13.161  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=     13.161  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=     13.161  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

 WARNING SECNO=     13.185  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     13.619  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     13.680  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     13.818  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=     13.918  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=     13.918  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=     13.918  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

 WARNING SECNO=     14.013  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     14.197  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     14.284  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     14.379  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     14.495  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     14.752  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     14.850  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     15.049  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     15.144  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
1
    25FEB99      15:48:53                                                                                    PAGE  103


 WARNING SECNO=     15.416  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     15.475  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=     15.596  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=     15.596  PROFILE=  1  MINIMUM SPECIFIC ENERGY

 WARNING SECNO=     15.623  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     15.966  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     16.066  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     16.167  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     16.248  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     16.348  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     16.504  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     16.637  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=     16.732  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
```

HEC-RAS September 1998 Version 2.2
U.S. Army Corp of Engineers
Hydrologic Engineering Center
609 Second Street, Suite D
Davis, California 95616-4687
(916) 756-1104

```
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: Middle New River 1
Project File : final.prj
Run Date and Time: 3/8/00 2:23:05 PM

Project in English units

Project Description:
Middle New River EXISTING CONDITION MODEL

Profile 1 = FEMA Q100, Profile 2 =
COE 221 Future Q100, Profile 3 = Q10.

Revised Dec 1999 to reflect location
change in the conflunce with Rock Springs Creek.
Expansion and contraction
cofficients at Union Hills Bridge set at 0.1 an 0.3 -(Bridge does not constrict flow).

Model revised in March, 1999 to reflect Districts comments concerning
the location of channel bank stations and "n" value stations.

PRELIMINARY
MODEL (UPDATED JUNE 1999),

FEMA AND CORP'S 221 100-Q MODEL- PROFILE 1 =
FEMA Q's(Q100); PROFILE 2 = CORP'S 221 Q's(FUTURE Q100); PROFILE 3 =
INTERPOLATED FEMA Q10.

MANNING VALUES FOR CHANNEL ARE BASED ON A MOVEABLE
BED

PLAN DATA

Plan Title: Bank Station and n value Station Adjust
Plan File : p:\28900058\HEC-RAS\RAS2000\final.p04

Geometry Title: Bank and n value Station Change
Geometry File : p:\28900058\HEC-RAS\RAS2000\final.g03

Flow Title : FEMA & COE 100-YEAR Qs
Flow File : p:\28900058\HEC-RAS\RAS2000\final.f02

Plan Description:
This Plan Models Existing Conditions, Geometry files have been modified per Districts Comments (March 1999).

Plan Summary Information:
Number of: Cross Sections = 120 Mulitple Openings = 0

Culverts = 0 Inline Weirs = 0
Bridges = 3

Computational Information
Water surface calculation tolerance = 0.01
Critical depth calculaton tolerance = 0.01
Maximum number of interations = 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: Mixed Flow

FLOW DATA

Flow Title: FEMA & COE 100-YEAR Qs
Flow File : p:\28900058\HEC-RAS\RAS2000\final.f02

Flow Data (cfs)

River	Reach	RS	PF#1	PF#2	PF
RIVER-1	Reach-1	16.829	2350	2350	
RIVER-1	Reach-1	15.885	4200	4200	
RIVER-1	Reach-1	15.475	4200	6600	
RIVER-1	Reach-1	14.85	6100	6600	
RIVER-1	Reach-1	14.103	6100	8800	
RIVER-1	Reach-1	13.918	9800	12000	
RIVER-1	Reach-1	13.151	9800	12000	
RIVER-1	Reach-1	12.991	9800	12000	
RIVER-1	Reach-1	12.194	10350	13400	
RIVER-1	Reach-1	11.949	10350	13900	
RIVER-1	Reach-1	11.129	10900	13900	
RIVER-1	Reach-1	10.803	10900	15500	
RIVER-1	Reach-1	10.176	11450	15500	
RIVER-1	Reach-1	9.794	11450	19000	
RIVER-1	Reach-1	9.367	12000	19000	
RIVER-1	Reach-1	8.731	41000	41000	

Boundary Conditions

River	Reach	Profile	Upstream	
RIVER-1	Reach-1	PF#1	Critical	Known

GEOMETRY DATA

Geometry Title: Bank and n value Station Change

Geometry File : p:\28900058\HEC-RAS\RAS2000\final.g03

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 16.829

INPUT
Description: Blocked Obstruction used to block flow from that portion of the cross- section that does not receive subject flow.

Station Elevation Data num= 47

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9597	1384	9624.11	1383.63	9671.43	1383.38	9793.51	1382.26	9808.18	1382.01
9839.28	1382	9857.43	1381.32	9878.2	1380.14	9897.06	1379.44	9940.12	1378.5
9950.38	1377.9	9966.48	1376.18	9983.91	1375.32	10035.56	1375.61	10040.25	1375.52
10062.8	1374.9	10093.75	1381.48	10124.12	1380.76	10158.92	1381.24	10173.6	1379.86
10224.8	1379	10238.09	1379.52	10256.3	1380.57	10320.59	1381.03	10343.63	1380.86
10360.06	1378.3	10380.09	1377.11	10400.25	1378.19	10438.67	1378.62	10454.22	1377.65
10488.15	1376.3	10503.43	1380.62	10535.22	1380.37	10565.72	1380.44	10579.72	1378.63
10603.94	1378.5	10625.18	1379.06	10639.95	1381.25	10707.04	1381.77	10733.8	1381.21
10747.09	1380.7	10779.71	1380.11	10826.95	1381.59	10847.56	1381.63	10858.61	1378.47
10875.4	1381.4	10885.6	1381.95						

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
9597	.058	9839.28	.038	9940.12	.038	10093.75	.058

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9940.12 10093.75 430 525.69 550 .1 .3
Blocked Obstructions num= 1

Sta L	Sta R	Elev
10093.7	10885.6	1381.48

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 16.732

INPUT
Description:
Blocked Obstruction used to block flow from that portion of the cross- section that does not receive subject flow.

Station Elevation Data num= 50

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9126	1387.1	9196.46	1385.91	9325.73	1384.39	9357.75	1384.23	9366.79	1382.66
9376.02	1384.3	9423.31	1383.83	9488.5	1382.9	9620.1	1381.83	9707.59	1380.94
9784.24	1380.4	9814.78	1380.1	9872.89	1380.07	9879.46	1379.83	9883.93	1378.19
9904.86	1373.1	9928.66	1373.81	9978.64	1376.38	10001.36	1372.93	10020.11	1375.42
10031.44	1374	10053.85	1378.13	10093.37	1379.11	10123.79	1378.28	10143.34	1377.31
10169.44	1378.4	10194.24	1379.04	10228.96	1379.27	10243.81	1379.18	10258.86	1376.65
10312.27	1377.2	10316.43	1377.17	10380.28	1375.87	10401.27	1375.63	10413.5	1379.13
10454.52	1378.8	10472.41	1378.26	10507.22	1378.98	10521.9	1377.05	10539.82	1378.03
10558.41	1377.6	10568.68	1375.08	10589.51	1374.73	10611.09	1379.34	10635.5	1378.7
10716.95	1379.4	10801.92	1378.64	10820.44	1376.71	10844.3	1376.69	10863.91	1379.75

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9126	.058	9883.93	.038	10053.85	.058

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9883.93 10053.85 535 475.63 460 .1 .3
Blocked Obstructions num= 1

Sta L	Sta R	Elev
10093.37	10863.91	1379.14

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 16.637

INPUT
Description:
Blocked Obstruction used to block flow from that portion of the cross- section that does not receive subject flow.

Station Elevation Data num= 38

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9215	1380	9287.91	1380.08	9456.47	1378.64	9539.78	1378.02	9650.7	1377.61
9755.49	1377.5	9796.37	1377.95	9800.03	1375.23	9803.59	1372.29	9822.14	1374.36
9845.09	1374.1	9868.07	1373.64	9891.63	1371.87	9902.54	1371.96	9912.51	1373.76
9933.34	1373.8	9962.46	1372.61	9997.45	1370.1710020.98		1374.9910075.83		1376.21
10091.69	1376.910192.99		1375.1810207.79		1377.23	10244.3	1376.2810259.44		1376.42
10266.52	1375.310298.74		1374.9810307.01		1373.5610319.69		1375.6910340.77		1376.55
10352.47	137710383.15		1374.2810400.42		1373.3710409.17		1372.1510430.44		1372.52
10440.96	137710453.89		1377.1510480.52		1377.76				

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
9215	.058	9796.37	.03810020.98		.03810091.69		.058

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9796.3710020.98 240 231.78 235 .1 .3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
10089.7610480.52		1376.89

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 16.608

INPUT
Description: Blocked Obstruction used to block flow from that portion of the cross- section that does not receive subject flow.

Station Elevation Data num= 32

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9007	1380	9048.38	1379.51	9104.16	1379.03	9199.8	1378.52	9275.58	1378.06
9323.12	1378	9542.06	1376.4	9660.33	1376.43	9760.99	1376.65	9833.01	1376.69
9854.88	1376.9	9860.37	1375.11	9874.28	1369.14	9901.31	1371.43	9913.86	1368.87
9943.45	1371	9967.37	1371.58	9995.55	1368.6910018.19		1371.9710032.53		1371.98
10054.12	1370.510066.45		1372.9710075.05		1375.3710099.35		1375.0210112.94		1374.62
10130.85	1373.110142.98		1374.5410150.42		1374.2510181.47		1370.4110194.23		1372.61
10239.89	1373.3	10262.6	1375.29						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9007	.058	9854.88	.03810075.05		.058

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9854.8810075.05 385 500.72 555 .1 .3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
10075	10262.6	1375.37

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 16.504

INPUT
Description:

Station Elevation Data num= 30

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8925	1377.9	9025.45	1376.71	9108.49	1375.98	9222.68	1375.17	9288.95	1375.15
9331.82	1375	9394.72	1374.45	9464.83	1374.09	9565.32	1374.4	9582.92	1374.29
9656.27	1374.8	9665.5	1374.97	9679.46	1369.67	9691.84	1370.53	9713.71	1373.39
9731.63	1372	9749.68	1372.92	9808.13	1373.02	9811.68	1373.13	9833.45	1370.78
9860.8	1371.8	9873.94	1369.98	9895.68	1369.77	9972.28	1368.0910021.02		1366.82
10053.11	1367.810070.55		1373.9110097.93		1373.1610112.12		1374.4510124.71		1374.29

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
8925	.058	9860.8	.038	9895.68	.03810070.55		.058

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9860.810070.55 500 481.43 475 .1 .3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 16.411

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
cross- section that does not receive subject flow.

Station Elevation Data num= 28

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8995	1375.9	9120.2	1375.05	9159.97	1374.58	9270.57	1373.44	9345.53	1372.46
9370.95	1371.9	9417.94	1371.12	9460.54	1370.98	9512.4	1371.07	9560.04	1371.41
9640.55	1371.7	9686.22	1372.29	9702.9	1368.45	9721.58	1367.29	9758.22	1369.72
9775.4	1369.9	9894.49	1369.5	9956.88	1366.28	9987.15	1365.08	10035.01	1364.41
10049.69	1371.3	10130.7	1370.95	10196.76	1370.52	10215.73	1367.04	10234	1369.85
10249.38	1369.5	10309.65	1370.19	10371.55	1370.22				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8995	.058	9894.49	.038	10049.69	.058

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9894.49	10049.69	395 481.78	535	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
8995	9686.75	1372.28	10049.6	10371.55	1371.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 16.348

INPUT
Description:

Station Elevation Data num= 37

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9141	1374	9232.51	1372.84	9453.27	1371.7	9551.83	1370.65	9579.59	1370.89
9643.66	1370.5	9658.59	1370.54	9669.77	1368	9678.81	1368.25	9684.21	1366.77
9700.54	1366.7	9728.13	1368.28	9798	1368.33	9841.03	1368.31	9911.88	1366.74
9924.93	1366.9	9944.09	1364.63	9956.73	1365.07	9965.77	1363.99	9990.28	1363.1
9996.65	1362.6	10031.1	1364.9	10113.2	1365.56	10144.93	1367.73	10175.58	1367.08
10214.84	1366.1	10241.49	1367.01	10260.35	1365.56	10273.85	1366.06	10289.61	1365.81
10355.8	1363	10392.74	1367.88	10445.21	1367.17	10458.55	1366.84	10515.81	1367.55
10622.19	1368.5	10660.66	1368.85						

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
9141	.058	9924.93	.038	10031.1	.038	10144.93	.058	10289.61	.038
10392.74	.058								

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9924.93	10031.1	595 497.94	310	.1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 16.248

INPUT
Description:

Station Elevation Data num= 43

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9465	1370	9474.66	1369.86	9535.36	1369.57	9559.46	1369.31	9626.12	1367.71
9666.85	1367.9	9683.27	1365.93	9697.73	1368.11	9734.77	1367.95	9743.57	1366.5
9760.62	1367.4	9874.83	1366.79	9943.37	1366.86	9953.78	1361.19	9988.35	1360.22
10031.27	1363.1	10054.21	1364.02	10067.38	1364.29	10160.36	1365.4	10189	1363.52
10225.06	1365.1	10249.87	1365.31	10270.28	1361.33	10292.69	1363.88	10311.21	1362.69
10325.37	1365.8	10359.41	1365.68	10402.36	1364.42	10423.55	1365.6	10442.35	1364.34
10462.82	1363.7	10472.3	1365.1	10480.52	1365.33	10490.42	1364.11	10501.75	1365.53
10541.04	1364.8	10579.72	1365.25	10601.19	1363.26	10621.04	1362.54	10634.85	1361.49
10660.98	1367.5	10737.15	1366.99	10801.23	1367.36				

Manning's n Values num= 8

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val

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    9465    .058 9943.37    .03810054.21    .03810160.36    .05810249.87    .038
10325.37    .05810579.72    .03810660.98    .058

Bank Sta: Left   Right     Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9943.3710054.21                435  436.54     495             .1      .3

CROSS SECTION           RIVER: RIVER-1
REACH: Reach-1             RS: 16.167

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
             cross- section that does not receive subject flow.



Station Elevation Data    num=      42
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
    9428     1368 9629.69 1366.39 9715.53 1366.07 9792.86 1365.21 9856.46 1365.02
 9897.21   1364.3 9915.84 1360.34 9955.56 1359.96 9980.69 1360.7210002.86 1358.98
10030.58  1363.510074.98 1362.3510104.37 1361.9110122.99 1361.08 10144.9  1363.4
 10174.6   1363.4 10191.1  1363.810199.04  1362.810225.53  1363.110252.32 1363.06
10275.89  1362.510342.34 1361.2910382.68 1360.3710402.57 1359.6410428.98 1360.99
10453.37  1358.510472.28 1358.8110512.09 1358.3210540.84 1358.2210561.93 1363.69
10608.91    136410625.17 1362.6610651.98 1362.3710674.62 1363.9710721.87 1363.14
10741.72  1362.610754.11 1361.3110771.51 1366.2810793.58 1366.4310805.79 1366.16
10813.45  1366.610899.23 1366.57

Manning's n Values        num=       5
     Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val
    9428    .058 9897.21    .03810030.58    .05810428.98    .03810561.93    .06

Bank Sta: Left   Right     Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9897.2110030.58                540  590.83     535             .1      .3
Blocked Obstructions      num=       3
   Sta L    Sta R     Elev    Sta L    Sta R     Elev    Sta L    Sta R     Elev
10739.8210756.84 1362.6210756.7510757.81 1362.6210757.8110758.51 1362.62

CROSS SECTION           RIVER: RIVER-1
REACH: Reach-1             RS: 16.066

INPUT
Description:



Station Elevation Data    num=      53
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
    9330     1364 9395.88  1363.3 9412.63 1361.39 9425.48 1363.18 9457.05  1363.5
 9518.54   1363.1  9539.8 1362.18 9577.02 1361.42 9592.47 1358.27 9598.29 1359.33
  9607.2   1359.3 9627.82 1358.86 9642.76 1358.05 9658.05 1360.07 9672.67 1361.08
 9680.42   1361.1 9703.18 1359.84 9729.76 1360.88 9739.23 1360.66 9753.63 1356.71
 9777.73   1355.9 9784.76 1356.38 9826.64 1358.19 9844.48 1359.68 9900.29  1357.9
  9908.2   1358.9 9920.79  1357.8 9933.97 1358.94  9976.2 1359.73 9993.66 1354.42
10011.06   1357.2   10026 1357.2210051.57  1359.310067.61 1359.7410107.14 1359.54
10150.01  1360.110169.03 1360.91 10197.5 1359.5810211.89 1358.49 10226.7 1357.75
10257.82  1357.610282.25 1354.63 10358.8  1358.510424.28 1356.4510448.99 1360.48
 10472.8  1361.310514.13 1361.8910523.21 1362.27 10569.3 1362.7310652.65  1363.6
10685.24  1363.810771.86 1363.9210883.43 1364.08

Manning's n Values        num=       9
     Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val
    9330    .058 9739.23    .038 9844.48    .058  9976.2    .03810051.57    .058
10257.82    .038 10358.8    .03810448.99    .058 10569.3    .035

Bank Sta: Left   Right     Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9976.210051.57                610  584.23     505             .1      .3

CROSS SECTION           RIVER: RIVER-1
REACH: Reach-1             RS: 15.966

INPUT
Description:
```

Station Elevation Data num= 48

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8884	1363.9	8899.06	1363.62	8931.55	1363.4	8982.64	1363.36	9078.4	1363.04
9108.81	1362.6	9167.73	1362.11	9213.77	1361.39	9318.74	1360.33	9396.68	1360.44
9476.26	1359.5	9601.17	1358.94	9616.36	1358.93	9619.86	1357.42	9625.72	1358.95
9663.48	1358.6	9699.11	1359.1	9716.17	1353.46	9732.42	1358.9	9751.3	1358.21
9769.62	1355.4	9801.73	1355.12	9810.49	1355.85	9834.25	1356.22	9864.01	1353.69
9935.39	1355.6	9950.33	135410001.29		1351.8410023.45		1356.110078.54		1356.7
10103.98	1355.710120.58		1356.6210155.14		1356.7210168.96		1357.7410180.45		1357.77
10277.33	135610283.48		1354.7210318.28		1354.0610333.71		1357.7510371.08		1354.4
10391.06	1360.110401.94		1360.5310555.41		1360.8910627.42		1360.95	10709.6	1361.13
10788.34	1361.510863.73		1361.2810882.38		1361.15				

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
8884	.058	9834.25	.03810023.45		.05810277.33		.05810333.71		.058
10401.94	.035								

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9834.2510023.45		515 429.98	415	.1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 15.885

INPUT
Description:

Station Elevation Data num= 39

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9393	1360	9456.26	1359.75	9533.52	1358.69	9586.21	1358.51	9653.18	1358.05
9670.8	1356.2	9688.72	1357.52	9742.6	1357.26	9773.97	1356.87	9780.43	1357
9787.42	1355.3	9797.88	1357.29	9841.9	1356.29	9875.75	1355.99	9960.59	1356.36
9993.59	1348.410022.82		1350.3510043.13		1352.3210080.48		1352.7910097.44		1351.11
10123.51	1354.810141.21		1353.5210153.32		1355.1110233.75		1354.8910292.58		1354.82
10351.99	1354.810383.48		1354.3410395.76		1351.55	10435	1351.3510456.42		1356.03
10467.88	1355.7	10493.2	1357.24	10526.9	1357.9510531.97		1358.0810630.47		1358.33
10707.49	1358.210760.99		1357.8910924.53		1358.4610992.75		1358.43		

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
9393	.058	9960.59	.03810123.51		.05810351.99		.03810456.42		.058
10526.9	.035								

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9960.5910123.51		525 509.42	475	.1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 15.792

INPUT
Description:

Station Elevation Data num= 70

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9168	1357.9	9203.65	1357.39	9214.01	1357	9268.42	1357.11	9312.99	1356.51
9337.76	1356	9368.6	1356.21	9387.84	1355.53	9405.54	1355.56	9447.91	1354.36
9469.29	1351.5	9480.6	1354.1	9495.88	1355.02	9508.29	1356.34	9530.07	1355.96
9566.08	1353.8	9620.5	1350.44	9634.25	1352.07	9648.55	1352.32	9683.78	1352.19
9725.88	1352.3	9791.07	1352.05	9825.91	1352.29	9850.91	1353.17	9860.93	1351.96
9868	1352.8	9899.9	1353.08	9922.85	1353.5	9939.06	1347.81	9946.04	1347.87
10002.05	1345.210034.91		1350.33	10060.2	1350.2210073.97		1352.1110127.71		1352.69
10160.12	1352.810176.02		1349.4610190.22		1349.9210202.57		1353.0410242.67		1350.8
10254.44	135010267.14		1352.5110283.39		1352.8410292.86		1352.4210303.63		1349.55
10316.45	135110323.35		1352.5710385.32		1352.3510417.82		1352.0910421.64		1352
10435.06	1349.110452.82		1348.3410470.05		1351.7810523.42		1352.410539.06		1351.25

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10553.37  1353.910569.57 1353.6510593.97  1353.810609.33 1352.0910630.81 1354.72
10662.46  1354.7 10669.8 1354.1710683.15 1354.99 10751.7 1355.8110811.74 1355.24
10822.54  1355.310868.95 1356.9810903.34 1357.9710952.93 1357.3511008.26 1357.44

Manning's n Values        num=       6
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
    9168    .058 9922.85    .03810073.97    .05810417.82    .03810470.05    .0528
10630.81    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      9922.8510073.97              430  472.66     560             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 9448.33 9474.92 1353.12  9594.1  9635.9 1352.08

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1           RS: 15.699

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
             cross- section that does not receive subject flow.



Station Elevation Data    num=      63
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9256  1358.1 9266.09 1357.15 9282.59 1358.11 9326.59 1356.26 9335.31 1356.49
 9340.59  1356.1  9350.9 1357.54 9406.43 1357.07 9463.66 1356.61 9563.65 1355.47
 9671.99  1355.3 9710.26 1354.18  9735.1 1354.38  9757.7 1353.56 9770.34 1351.26
 9788.07  1345.7 9797.17 1350.56 9804.33  1347.5  9816.6 1348.52 9831.05 1347.89
 9855.63    1349 9874.71 1349.99 9903.39 1349.08 9921.35 1345.89 9982.14 1344.71
10027.02  1345.4 10044.1 1349.7610069.22 1348.5510099.66 1350.4210129.06 1350.44
10139.36  1352.510149.46 1353.4310156.88  1351.410172.37 1348.9110204.12 1350.71
10210.28  1350.510264.93  1351.110281.24  1348.710309.55 1349.0110319.29 1349.07
10345.58  1350.510422.21 1349.4410491.03  1347.710505.89 1348.8810544.84    1349
10566.95  1350.210578.72 1347.0710599.47  1346.510621.48 1348.8410656.83 1349.24
10679.76  1348.810706.38  1348.410721.41 1347.8710813.35 1346.2510832.99 1346.25
 10850.8  1351.710858.87  1351.710884.29 1352.89 10911.3 1352.9610981.91 1353.59
11012.23  1353.711112.68  1354.411130.18 1354.31

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
    9256    .058 9903.39    .056 10044.1    .05810679.76    .038 10850.8    .058

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      9903.39 10044.1              485   413.6     240             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
    9256 9877.26 1349.99

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1           RS: 15.623

INPUT
Description:



Station Elevation Data    num=      79
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9318  1356.6 9323.95 1356.12 9331.78 1352.99 9386.87 1351.18 9398.18 1352.92
 9440.31  1352.4 9494.82 1352.07  9498.5 1351.33 9508.04  1352.1  9517.3 1349.97
 9525.37  1352.6 9554.41 1352.97  9642.5    1353 9690.19 1352.56 9801.75  1352.1
 9824.47  1353.1 9877.27 1352.59 9930.01 1351.94 9949.16 1351.97 9961.51 1342.06
 9962.84    1340  9982.3 1341.1310011.88 1341.1110043.47 1343.1210049.19 1343.83
10086.79  1344.110097.68 1345.1210103.38 1344.5410115.75 1346.8610125.97 1346.92
10136.16  1348.710154.16 1345.7310166.78  1346.810199.38 1347.8310212.27 1347.44
10247.85    134710269.85 1345.8410283.93  1349.110296.67 1349.6810313.36 1348.99
10315.84  1349.410345.62 1348.8210363.48 1347.7410414.67 1348.5510427.12 1347.29
10447.66  1348.910497.95    134910545.69 1349.0810560.13 1346.23 10582.8 1345.78
10599.59  1347.910633.17 1346.9710675.59 1346.8610704.51 1348.1710725.87 1347.87
10741.04  1346.210788.78 1348.78 10818.1 1348.9110850.88 1351.0510868.19 1349.23
10905.65  1350.410942.53 1350.6810961.91 1349.7310980.87 1349.2811005.87 1350.19
11023.38  1348.511039.77 1346.3311058.38    134611085.01 1346.4811095.88 1348.63
11102.88  1351.711115.35 1350.9411119.44 1351.9311131.49 1351.76 11166.7 1352.38
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 11227.4  1353.311251.11 1353.4311320.83 1352.84 11337.2 1352.87

Manning's n Values        num=       5
     Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val
    9318    .058 9949.16    .05610136.16    .05811023.38    .03811102.88    .058

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9949.1610136.16               475  505.65     205             .1       .3

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 15.596

INPUT
Description:



Station Elevation Data    num=      58
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9227  1352.1 9286.29 1351.49 9339.59  1351.4 9362.26  1349.9 9391.52 1349.19
 9411.74  1348.9  9424.7 1349.54 9446.73 1349.34 9470.51 1349.35    9479 1345.94
 9489.28  1349.2  9518.4 1348.08 9525.76 1345.62  9542.4 1348.75  9566.9    1348
 9622.54  1347.4 9642.37 1347.44 9657.79 1348.25 9689.11 1348.35 9713.32 1348.27
 9734.14    1348 9776.97 1348.44 9796.93 1348.24 9840.22  1348.2 9867.96 1347.97
 9893.94  1348.4 9926.47 1348.64 9936.59 1346.05 9951.29 1344.28 9958.57 1340.53
 9974.55    1340 9990.68 1338.3810040.87 1340.4610070.78 1341.3710085.86 1341.48
10104.64  1340.710125.69 1345.8610136.01 1345.1110161.47  1344.110178.16  1344.9
10193.67  1345.610212.94 1347.78 10274.8 1348.7710331.79 1348.7110354.38 1346.71
10371.49  1346.610470.92 1346.5510570.91  1347.110670.92 1347.4810770.92 1348.14
10789.91  1347.810872.72 1348.1710895.37 1346.1710931.84 1345.6210953.24 1352.28
 11027.5  1351.711072.65 1351.6111170.94 1351.79

Manning's n Values        num=       7
     Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val
    9227    .058 9926.47    .056 9951.29    .05610125.69    .056 10274.8    .058
10872.72    .05610953.24    .053

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9951.2910125.69               460  677.66     775             .1       .3

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 15.475

INPUT
Description:



Station Elevation Data    num=      55
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9157    1350 9198.07 1349.44 9209.08 1350.54 9229.38 1350.67 9245.82 1347.08
  9250.9  1347.3 9259.75 1349.17 9275.83 1350.84 9307.72 1350.14  9314.5 1350.43
 9332.25  1349.5 9341.89  1349.4 9365.79 1349.84 9370.52 1349.61 9401.44 1349.38
 9416.67  1349.7 9455.68 1348.86 9477.73 1348.12 9503.99 1347.86 9540.74 1346.09
 9560.29  1347.7 9582.52 1347.34 9599.39 1347.12 9610.67 1342.21 9626.58 1341.34
  9664.1  1341.6 9705.46 1341.32 9716.87 1338.84 9728.62 1336.67 9752.31 1337.25
 9781.12  1337.3 9847.02 1338.08 9959.73 1337.44 9973.89 1335.0610020.83 1335.92
10056.25  1341.510097.34 1342.2110121.69  1343.310151.77 1344.3610180.94 1344.03
10260.23    134410313.56 1345.2410413.86 1346.5110460.22 1346.6810506.32 1346.71
10560.22  1346.510660.22 1347.1210714.74 1346.9210760.25 1346.5510815.03 1346.87
10860.23  1346.710915.32 1346.0410960.23 1346.0411098.29 1346.4411134.47 1347.09

Manning's n Values        num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
    9157    .038 9705.46    .03810056.25    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9705.4610056.25               510  319.63     260             .1       .3

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 15.416

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
             cross- section that does not receive subject flow.
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Station Elevation Data num= 76

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8600	1351.7	8606.92	1353.4	8629.86	1353.28	8655.62	1351.99	8679.28	1353.36
8751.29	1351.4	8818.8	1349.02	8835.78	1348.74	8846.08	1350.1	8857.51	1350.25
8879.06	1350	8896.09	1351.09	8928.81	1351.35	9027.64	1350.19	9066.08	1348.75
9089.49	1344	9103.24	1348.43	9127.16	1347.66	9181.88	1346.79	9189.25	1348.77
9226.47	1348.9	9327.63	1348.46	9355.75	1347.77	9373.75	1347.11	9384.85	1346.26
9406.25	1344.1	9431.16	1345.24	9465.1	1345.29	9477.56	1343.65	9491.16	1345.15
9526.61	1345.9	9534.41	1346.26	9549.88	1339.33	9567.47	1340.33	9616.78	1340.5
9638.26	1340.5	9722.76	1341.47	9764.78	1341.67	9780.18	1342.02	9799.96	1335.54
9848.86	1335.2	9868.55	1335.69	9883.4	1334.99	9893.42	1336.2	9902.66	1335.57
9917.75	1336.9	9948.99	1337.55	9974.13	1333.4	10046.8	1334.28	10060.45	1334.28
10092.66	1338.5	10115.94	1342.34	10120.14	1342.49	10172.8	1343.63	10220.26	1343.81
10285.88	1344.5	10338.16	1345.33	10443.18	1345.24	10481.74	1344.77	10494.13	1344.21
10532.96	1345.5	10573.06	1346.44	10606.55	1351.58	10641.82	1345.86	10691.57	1345.91
10715.69	1344.9	10742.49	1344.88	10785.92	1344.58	10827.51	1344.66	10885.92	1344.52
10982.89	1344.7	11014.79	1345.25	11051.36	1346.24	11089.03	1344.97	11113.45	1344.99
11222.68	1345.7								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8600	.058	9780.18	.038	10115.94	.035

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9780.18	10115.94	310	448.62	465	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
8600	9780.18	1342.02	10115.91	1222.68	1342.34

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 15.333

INPUT
Description:

Station Elevation Data num= 64

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8454	1351.6	8515.5	1350.25	8530.32	1348.97	8547.94	1349.76	8559.95	1346.41
8580.72	1350.3	8589.49	1350.33	8638.21	1350.12	8746.44	1348.61	8770.68	1348.31
8791.07	1348.3	8837.5	1348.63	8856.9	1347.57	8866.24	1347.83	8878.41	1347.01
8888.66	1344.5	8896.88	1343.91	8902.6	1342.6	8919.48	1347.93	8936.63	1347.44
8994.21	1346.1	9002.35	1347.89	9018.44	1348.26	9045.47	1347.91	9057.22	1347.68
9063.83	1346.8	9112.87	1346.5	9177.48	1346.54	9246.76	1346.08	9253.32	1346.13
9324.47	1345.5	9426.02	1344.19	9460.99	1343.85	9531.13	1343.67	9556.59	1343.48
9604.15	1344.3	9621.03	1339.61	9646.9	1337.97	9665.2	1340.24	9724.67	1340.08
9750.08	1337	9775.56	1338.11	9791.07	1336.76	9847.07	1335.73	9896.96	1337.68
9939.15	1335.1	9989.51	1333.64	10026.6	1333.69	10046.52	1342.68	10227.71	1343.15
10341.69	1342.7	10417.14	1342.95	10466.38	1342.77	10541.37	1342.25	10616.62	1342.14
10666.92	1342.2	10751.49	1342.49	10816.38	1343.26	10833.2	1343.27	10915.84	1342.36
10967.77	1342.5	11041.71	1342.86	11068.03	1342.79	11143.55	1343.16		

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
8454	.058	9604.15	.038	9724.67	.038	10046.52	.035

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9724.67	10046.52	375	453.4	480	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
8454	9724.67	1340.08

Blocked Obstructions num= 1

Sta L	Sta R	Elev
10046.51	1143.55	1342.68

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 15.248

INPUT
Description: Blocked Obstruction used to block flow from that portion of the cross- section that does not receive subject flow.

Station Elevation Data num= 72

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8173	1352	8194.83	1351.64	8282.31	1351.07	8348.78	1349.21	8402.52	1350.34
8459.13	1350	8494.82	1349.33	8537.9	1349.45	8595.79	1348.68	8664.69	1348.23
8712.02	1347.7	8804.27	1346.3	8830.71	1345.29	8852.24	1346	8907.46	1346.2
8929.51	1342.2	8959.3	1344.3	8971.35	1348.35	8980.41	1348.2	8993.79	1346.81
9004.85	1344.8	9046	1343.49	9057.93	1345.25	9068.29	1343.11	9080.26	1345.81
9188.09	1342.6	9214.55	1339.79	9222.57	1342.28	9230.28	1339.76	9260.33	1338.9
9312.29	1338.1	9340.46	1337.83	9416.02	1337.53	9519.2	1337.52	9561.12	1340.23
9570.3	1340.1	9661.91	1339.52	9671.05	1336.86	9707.33	1337.14	9727.74	1338.63
9757.56	1338.5	9796.97	1338.15	9883.09	1335.33	9899.49	1336.49	9929.77	1331.18
9953.39	1332.31	10001.52	1333.39	10028.97	1333.23	10059.37	1332.65	10074.95	1339.32
10100.82	1339.51	10146.88	1340.12	10170.67	1340.38	10187.23	1340.55	10212.73	1340.04
10280.35	1340.21	10296.89	1340.54	10361.08	1339.92	10419.48	1340.08	10461.22	1340.56
10496.69	1339.91	10543.39	1340.07	10639.79	1339.81	10717.31	1339.45	10839.78	1339.54
10917.31	1339.91	10939.78	1339.85	11017.31	1339.35	11117.31	1339.59	11139.79	1339.5
11217.31	1339.51	11317.31	1339.65						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8173	.058	9899.49	.038	10074.95	.058

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9899.49	10074.95	405 496.77	530	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
9228.72	9547.87	1339.87	10074.91	11317.31	1339.32

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 15.144

INPUT
Description: Blocked Obstruction used to block flow from that portion of the cross- section that does not receive subject flow.

Station Elevation Data num= 86

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8669	1346	8700.55	1345.82	8758.97	1344.21	8778.66	1344.95	8842.85	1344.82
8943.02	1344.3	9044.97	1343.62	9089.3	1342.54	9103.3	1343.17	9249.02	1342.21
9299.28	1341.7	9320.5	1339.33	9335.15	1344.36	9351.51	1339.65	9367.32	1338.62
9381.11	1340.8	9390.14	1338.67	9394.39	1336.83	9437.13	1336.48	9454.45	1336.17
9461.12	1333.4	9468.22	1334.8	9486.07	1335.38	9489.48	1333.17	9494.37	1333.59
9504.48	1335.9	9582.28	1336.42	9595.46	1335.77	9615.39	1336.84	9644.55	1336.34
9658.8	1335.8	9683.54	1337.14	9718.58	1337.99	9730.83	1337.15	9744	1338.07
9749.22	1338	9764.51	1337.91	9794.51	1330.84	9802.8	1333.44	9834.97	1333.39
9852.59	1333.6	9866.24	1331.11	9901.03	1333.02	9947.25	1334.05	9991.45	1331.77
10003.49	1329.21	10015.25	1329.51	10024.63	1331.43	10054.33	1331.56	10090.64	1335.83
10121.97	1336.21	10196.15	1334.49	10227.56	1333.79	10233.76	1333.82	10243.14	1331.89
10244.49	1331.7	10277.7	1343.91	10300.05	1337.31	10310.29	1337.01	10368.35	1336.76
10399.7	1343.91	10421.86	1337.74	10433.54	1334.83	10437.08	1335.18	10453.46	1334.83
10474.77	1341.91	10504.05	1345.17	10522.22	1346.11	10527.95	1345.53	10541.11	1346.69
10560.9	1346.81	10580.58	1346.15	10595.6	1346.23	10615.2	1337.08	10645.53	1337.27
10695.46	1336.31	10717.04	1336.36	10772.56	1336.87	10847.76	1336.65	10896.68	1336.65
10972.55	1336.51	11050.48	1336.13	11192.71	1336.07	11372.55	133711488.74		1337.02
11572.61	1337.1								

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
8669	.058	9744	.038	9852.59	.038	10090.64	.058	10277.7	.035

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9852.59	10090.64	485 493.15	505	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
8669	9722.89	1338.01	10276.36	11572.61	1343.85

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 15.049

INPUT

Description: Blocked Obstruction used to block flow from that portion of the
cross- section that does not receive subject flow.

Station Elevation Data num= 92

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9010	1344	9132.52	1343.1	9150.32	1342.89	9235.01	1342.26	9263.26	1342.09
9276.33	1341.7	9297.33	1342.04	9316.67	1341.09	9323	1340.53	9335.59	1341.12
9379.14	1340.9	9420.45	1340.17	9443.17	1339.97	9522.36	1340.48	9543.89	1339.34
9558.92	1341	9589.13	1340.52	9626.5	1340.41	9682.39	1339.69	9700.13	1339.16
9716.87	1337.46	9732.06	1342.2	9755.78	1339.03	9796.81	1338.67	9826.61	1338.63
9830.19	1338.9	9850.15	1338.55	9869.32	1337.55	9875.91	1335.21	9895.24	1327.47
9911.59	1328	9925.44	1329.43	9937.88	1327.09	9958.15	1328.7910005.27		1329.26
10038.85	1329.410088.54		1332.310099.72		1332.5310145.22		1332.6310186.65		1332.82
10215.33	1330.110241.83		1332.1610262.77		1332.23	10304.2	1333.7710323.99		1333.59
10364.11	1334.210448.21		1333.9410469.63		1330.6910487.95		1333.7510521.85		1333.75
10550.22	1333.410604.38		1333.4910658.78		1333.310681.71		1330.9210701.99		1337.74
10723.9	1334.910745.24		1326.08	10755.5	1331.8110761.42		1335.7510784.67		1333.63
10792.91	1334	10824.4	1323.8910830.89		1321.6410860.78		1321.2910887.11		1322.78
10910.02	1325.310952.56		1342.82	10963	1346.5710968.38		1342.210970.74		1342.28
10981.93	1340.510996.42		1335.610999.16		1335.8911028.51		1335.9	11040	1335.33
11064.53	1335.311160.25		1335.4311260.25		1335.3511327.08		1335.1511360.25		1335.19
11427.85	1335.111460.26		1334.8711560.27		1335.0911660.27		1335.0911730.16		1335.6
11760.27	1335.911830.93		1336.0711860.28		1335.9911931.69		133611975.93		1335.69
11991.39	1336.112046.44		1336.21						

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
9010	.058	9850.15	.056	9875.91	.05610088.54		.05810550.22		.035
10701.99	.06								

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9875.9110088.54		585 499.69	355	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
9010	9827.56	1338.0810702.5612046.44			1337.77

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 14.983

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
cross- section that does not receive subject flow.

Station Elevation Data num= 84

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8829	1340	8854.47	1339.24	8859.96	1339.39	8954.29	1339.65	9043.54	1338.27
9084.55	1337.8	9143.5	1338.44	9239.51	1338.02	9250.65	1337.61	9345.62	1337.05
9397.76	1336.7	9459.83	1336.41	9497.14	1334.87	9539.05	1335.08	9551.64	1334.72
9559.67	1334	9591.62	1335	9605.07	1334.29	9616.15	1335.7	9623.27	1335.3
9628.41	1334.2	9646.97	1334.84	9687.43	1334.52	9700.13	1332.95	9713.64	1336.86
9729.52	1333.2	9747.65	1334.23	9776.61	1334.98	9785.74	1334.75	9815.49	1333.92
9841.54	1329.8	9866.89	1332.42	9877.4	1332.45	9881.68	1332.72	9898.08	1329.37
9932.25	1327.9	9984.77	1324.49	10007.1	1323.9510033.76		1331.4510082.56		1331.51
10100.7	1331.210107.14		1331.47	10146.6	1332.0110167.15		1331.6410228.43		1332.5
10247.99	1332.710307.49		1333.0410317.83		1333.210336.03		1331.6110419.06		1332.5
10464.72	1332.310483.97		1330.910528.59		1332.8210555.31		1333.4310565.71		1334.31
10599.17	1334.610620.37		1335.0510637.95		1334.61	10670.4	1332.1710696.73		1330.41
10698.59	1330.510731.07		1328.510743.84		1330.5110749.02		1330.7610783.37		1335.91
10810.36	1338.110840.75		1339.2610859.67		1342.6910883.26		1333.8810945.64		1333.48
11047.28	1333.4	11211.6	1333.2611247.28		1333.1311282.59		1333.2311412.64		1333.05
11447.28	1332.911581.07		1333.3111647.28		1333.6411747.28		1333.6111847.29		1333.77
11879.54	133411964.25		1334.0311984.46		1333.3912004.45		1332.81		

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
8829	.058	9881.68	.03810033.76		.05810464.72		.035

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9881.6810033.76		190 216.48	220	.1	.3

Blocked Obstructions num= 1

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   Sta L   Sta R    Elev
10319.2812004.45 1333.01

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 14.945

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
             cross- section that does not receive subject flow.
Station Elevation Data    num=      92
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    8607    1340 8642.82  1339.4 8695.66 1339.09 8726.69 1338.66 8779.56 1339.15
 8834.35  1338.8 8981.64 1337.63 9008.04 1337.31 9095.79 1336.56  9133.8 1336.46
 9209.74  1335.9 9279.25 1335.56 9312.58 1335.58 9366.01 1335.04 9409.76 1334.93
 9471.19  1334.1 9505.43 1333.93 9587.29 1333.98 9623.18 1333.31 9651.65 1332.42
 9673.72  1331.5 9725.79 1332.08 9794.09 1330.74 9807.98 1330.21 9883.08 1328.77
 9903.94  1328.4 9918.25 1328.64 9946.82 1325.51 9956.81 1325.0710007.99 1323.89
10031.74  1330.4 10043.5 1334.24 10065.7 1333.9110072.41 1334.6610084.07    1331
10096.09  1331.110164.76 1330.3410202.65 1330.2310231.37 1329.5310249.16  1328.7
 10281.6  1330.410315.96  1330.110347.38 1328.7710381.91 1327.0710429.75 1329.42
10445.67  1332.110483.63 1331.2110485.67 1330.7310520.01  1319.810531.51 1318.11
10544.52  1318.310581.44  1315.810660.99 1315.2910686.69 1315.5210706.93 1316.24
10724.84  1315.910741.81 1317.9710760.61 1323.7310765.41 1324.3710783.42 1330.05
10800.57  1334.610818.56 1332.0110831.83 1328.1810841.34 1331.8110917.03 1332.55
10925.17  1332.810970.34 1332.36 11046.6 1331.3811130.22 1331.1811203.18  1330.9
11325.77  1330.811331.87  1331.411345.81 1331.6111386.71 1331.33 11426.5 1331.39
11486.72  1331.211527.35 1331.2511586.72 1331.6511616.72  1331.911691.66 1331.85
11722.72  1331.511768.91 1331.89 11828.9 1332.4711872.66 1332.6411939.95 1331.78
11985.06  1331.812007.44 1331.9212043.63 1331.1312057.89 1329.4512097.42 1329.87
12143.43    133012216.02 1330.64

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
    8607    .058 9903.94    .038 10043.5    .04310381.91    .03512143.43    .053

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9903.94 10043.5              585  529.39     535             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev
10451.8112216.02 1332.12
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
    8607 9536.14 1333.8510819.1312216.02  1332.1

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 14.85

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
             cross- section that does not receive subject flow.

Station Elevation Data    num=      85
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    8512    1334 8594.73 1333.16  8672.1 1332.86 8722.52 1332.88 8793.44 1332.41
 8832.84  1331.9 8893.33  1330.9 8906.63 1329.77 8923.67 1331.44 8948.28 1331.58
 9006.96  1331.5 9103.41 1330.83 9112.55 1330.87 9225.91 1330.06 9266.94 1329.76
 9316.16  1330.1 9401.46 1329.39 9464.08 1329.02 9529.33 1329.49 9568.17 1329.29
 9589.89  1328.1 9606.71 1325.44 9618.71  1327.3 9630.19 1325.58 9637.53 1325.67
 9686.98  1325.3 9731.72 1326.62  9755.2 1325.75 9799.87 1324.33 9829.96    1326
 9872.76  1325.4 9897.23 1322.51 9902.26  1323.7 9912.64 1324.81 9930.02 1325.52
10004.15  1323.410021.33 1324.1610040.27 1323.0610053.96 1325.5910077.19    1324
10093.99  1325.5 10135.5 1326.3110165.55 1328.24 10218.9 1328.6710237.08  1326.5
 10259.9  1328.910279.26 1329.27 10285.6 1330.5710295.94 1332.8510302.83 1331.43
 10350.9  1330.310547.89 1328.2710553.67 1328.4510620.16  1328.810623.03  1328.7
10643.24  1333.4 10656.8 1335.6910669.54 1332.0910678.61 1330.1810721.07 1329.94
10761.65  1330.610848.52 1329.8610948.54 1329.6311048.53 1329.5311244.87 1329.03
11348.49    132911450.18 1328.6711554.65 1329.2711582.61 1329.4411621.12 1331.05
11634.13  1330.911650.12 1330.0111680.47 1327.7511761.48 1327.0211777.81 1326.95
 11815.3  1328.611825.88 1328.7711832.09 1327.87 11852.9 1327.56 11890.7 1327.63
11965.62  1327.412042.47 1328.7612071.33 1329.04 12144.2 1328.9412166.34 1329.12

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
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    8512    .058 9568.17    .038 9930.02    .03810165.55    .03511650.12    .053

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9930.0210165.55               545  536.65     515             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
    8512 9506.02 1329.3610216.8712166.34 1328.68

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 14.752

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
             cross- section that does not receive subject flow.



Station Elevation Data    num=      64
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    8593    1330 8629.02 1329.42 8725.36 1329.26 8852.44 1328.52 8885.67  1328.2
 8952.52  1327.8 9083.06 1326.77 9186.25 1325.92 9216.66 1326.66 9255.08 1326.35
 9273.58  1325.3 9278.76 1324.03 9287.25 1325.52 9304.16 1325.56 9352.83 1325.14
 9459.42  1324.7 9511.18 1325.66 9552.93 1326.04 9634.07 1325.69 9638.42 1324.65
 9649.11  1320.3  9701.1  1320.5 9734.32 1323.31 9767.06 1323.71 9825.51 1323.58
 9878.81  1324.1 9905.85 1323.18 9916.44 1321.52 9937.72 1320.26 9949.57  1320.3
 9973.25  1321.6 9999.77 1319.7710013.34 1323.4410056.24 1321.6910086.46 1322.94
10106.03  1325.210111.72  1324.810128.53 1323.8610136.65  1325.110182.64 1324.43
10198.87  1327.410246.24 1327.6910302.94 1327.1310374.41 1326.9810513.13 1325.98
10602.93  1326.610702.93 1326.3710770.52 1326.1510869.57 1326.1510968.62 1325.59
11102.86   132511138.88  1324.911202.96 1324.9811239.92 1324.9311302.93 1324.63
11351.07  1324.711393.28 1325.61   11445 1325.1511502.98  1324.311562.84 1324.82
11661.89  1325.211757.54 1325.5611819.84 1325.8711851.27 1327.98

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
    8593     .58 9634.07    .03810106.03    .05810374.41    .03511562.84    .053

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9634.0710106.03               530  547.53     565             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev
10106.0311851.27  1325.2
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
   1080011851.27    1326

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 14.653

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
             cross- section that does not receive subject flow.



Station Elevation Data    num=      71
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    8405    1328 8484.47 1327.43 8555.82 1327.06 8562.57 1325.66 8569.74  1326.9
 8635.91  1326.6 8689.15 1326.31 8708.73    1326 8748.88 1325.85 8767.27 1325.52
 8797.99  1325.4 8836.84 1325.05 8955.25 1324.44 8996.03 1324.39 9088.14 1323.68
 9112.97  1323.5 9196.03 1324.47 9264.89 1324.04 9284.94 1320.22 9306.41 1321.97
 9352.02  1322.2 9396.53 1322.62 9411.27 1322.42 9439.14 1322.53 9463.09 1322.34
 9474.71  1322.5 9514.93 1323.44 9561.79 1323.28 9612.22 1322.57  9621.4 1319.41
 9629.48  1320.5 9681.44 1320.83 9700.04 1321.85  9730.5 1321.39 9761.33 1321.45
 9807.22  1322.7 9818.79 1322.71 9838.39 1322.76 9897.91 1320.42 9953.86 1319.16
10001.73  1317.910030.22 1320.5410059.01 1319.2210070.65 1321.7710091.47 1322.81
   10138  1323.910148.59 1324.0310177.83 1321.5310208.13 1324.0210236.25  1323.6
10305.81  1323.710416.54 1322.93 10439.3 1323.3910536.59 1323.17 10652.5 1323.45
10719.38  1323.210805.83 1323.1310902.38 1323.03 10919.5 1321.9511001.15 1321.23
11083.34  1321.511113.08 1322.9811124.74 1322.8511205.84 1322.8611256.36 1322.24
11305.83  1321.711405.82 1321.9611456.38 1322.4111555.29 1322.9611611.12 1323.38
11641.85  1323.5

Manning's n Values        num=       6
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     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
    8405    .058 9612.22    .038 9838.39    .03810091.47    .058 10439.3    .035
11124.74    .053

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9838.3910091.47              465  536.63     525             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
    8405 9192.77 1324.4310216.8711641.85 1324.03

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 14.599

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
             cross- section that does not receive subject flow.



Station Elevation Data    num=      84
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
    8240   1326.1 8266.56 1325.44 8305.08 1325.44 8336.99 1324.61 8357.98 1325.16
 8399.45   1324.9 8443.76 1324.19 8456.01 1324.22 8467.96 1323.43 8480.18 1324.12
 8512.75   1323.9 8615.79 1322.95  8668.5 1322.75 8696.94 1321.96 8710.55 1321.86
 8752.41   1321.1 8820.39 1320.54 8846.94 1320.27 8876.58 1321.13 8910.12 1320.74
 8947.48   1320.5 8962.12  1319.4 8985.25 1320.73 9001.45 1320.45 9012.69 1319.36
 9024.39   1320.7  9068.4  1320.6 9164.35 1321.02 9200.52 1321.63 9210.66  1316.4
 9227.66   1316.6 9232.47 1316.92 9266.38  1316.4 9316.21  1319.4 9366.86 1320.19
 9399.92     1320 9415.95 1316.66 9427.99 1316.68 9465.49 1317.23  9496.1 1316.68
 9518.58   1318.8 9523.59 1319.68 9598.97 1320.64 9669.05 1321.19 9734.52 1320.92
 9766.83   1316.1 9782.48 1319.35 9865.92  1316.6 9887.73 1317.83 9914.67 1317.89
 9964.94     1317 9975.51  1317.1 9982.84 1315.4510016.21 1315.0710023.39 1320.94
10037.57  1320.610045.79 1319.0310061.46 1319.7110083.56 1320.6910113.37 1320.59
10140.65  1320.310164.24    132110175.79 1320.7710189.07 1319.57 10201.9 1320.83
10244.93  1320.310259.14 1321.0210368.39  1320.610474.16 1320.1310573.87 1319.95
10672.23  1319.510767.81 1320.2810837.93 1320.4510885.93 1318.88 10947.7  1318.8
10969.92  1318.610982.97 1319.0611078.55 1319.0411168.42 1319.2111257.15 1319.86
 11287.9  1320.711355.83 1320.4511402.99  1320.911440.44 1321.73

Manning's n Values        num=       8
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
    8240    .058 9200.52    .038 9316.21    .058 9399.92    .038 9523.59    .058
 9734.52    .03810023.39    .05810573.87    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9734.5210023.39              400  542.23     585             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
    8240 9198.38  1321.6 10023.311440.44 1320.94

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 14.495

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
             cross- section that does not receive subject flow.



Station Elevation Data    num=      74
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
    8746   1322.1 8814.24 1321.22 8914.44 1320.81 9014.65 1320.56 9122.94 1319.83
  9226.2     1319 9262.39 1319.46 9271.03 1315.24 9287.09 1317.51 9295.53 1314.75
 9328.02   1313.9  9371.5 1315.46 9402.37 1317.44  9476.4 1316.78 9507.27 1317.94
 9554.76     1318 9581.47 1317.02 9595.83 1317.85 9658.33 1317.85 9668.11 1316.62
 9678.15   1317.7 9686.69 1316.24  9703.2 1317.89 9750.29 1318.48 9812.03 1317.61
 9837.15   1319.5 9848.98  1318.9 9876.26 1317.61 9931.87 1317.58 9950.73 1312.16
 9997.38   1313.6 10023.7  1313.210074.78 1316.6810099.45 1316.6710112.66 1316.28
10145.77  1315.910170.62 1314.8110196.86 1316.8910222.87 1317.7110268.69 1317.39
10339.16  1316.710380.09 1316.1610407.71 1317.1110434.51 1316.7510455.08 1315.88
10463.36  1314.610482.94 1317.2110531.26 1317.1910550.55 1317.3710568.94 1315.96
10593.29  1316.710605.75  1313.210627.44 1317.1510658.39 1315.4210670.52  1314.5
10686.02  1315.410694.44 1315.3710703.41  1317.710868.79 1316.6210966.28 1316.91
11032.99  1315.711067.02 1316.5411121.45 1317.3711140.74 1317.6211148.87 1316.49
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 11234.7  1316.111255.52 1315.8111278.54 1316.2211409.22 1316.6511478.48 1316.53
11488.62  1316.711529.01 1318.3811550.53 1318.1611568.78 1318.45

Manning's n Values          num=        9
     Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val
    8746     .058 9287.09     .038 9402.37     .058 9931.87     .03810074.78     .038
10222.87     .05810627.44     .03810703.41     .05811140.74     .053

Bank Sta: Left   Right     Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9931.8710074.78                605  561.68     455             .1       .3
Blocked Obstructions       num=        1
   Sta L   Sta R    Elev
   1070011568.78  1317.7

CROSS SECTION           RIVER: RIVER-1
REACH: Reach-1             RS: 14.379

INPUT
Description:


Station Elevation Data     num=       70
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
    8862  1317.9 8877.86 1317.02 8889.61 1318.32 8913.38 1318.08 8962.56 1318.04
 9056.52  1317.6 9062.14 1316.78 9072.18 1317.66  9107.4 1317.45 9155.18 1317.54
 9245.43  1317.3 9284.44 1316.99 9407.47 1316.46 9507.48 1316.35 9565.28  1316.5
 9578.59  1311.7 9595.64 1312.54 9614.48 1313.79  9669.2 1313.33 9682.72 1310.93
 9690.38  1308.7 9710.37 1307.97  9718.8 1313.21 9729.29 1316.83 9807.52 1316.29
 9842.38  1316.2 9907.34 1316.27 9970.44 1316.58 9985.59 1309.1810107.59 1312.77
 10175.5  1313.310202.48 1313.2810214.19 1313.7810242.77 1313.6110266.63    1313
10293.86    131410321.28 1314.4910375.86 1313.3410404.88 1312.3810442.62 1312.27
10496.85    131510508.25 1315.2410567.01 1315.6910605.13  1316.110616.59 1313.89
10642.59    131510658.44 1313.6410708.14 1313.74 10748.7 1314.3310788.08 1312.72
10820.11  1312.110840.28 1312.7210853.23 1314.9710890.66  1313.210918.74 1312.46
10930.89  1310.910963.11 1310.6610981.31 1315.1311004.24 1315.0511010.56 1314.82
11107.74  1314.211226.69 1313.9511307.79 1313.9911385.61 1314.1311407.83 1314.43
11426.71  1315.211483.58 1315.8511495.37 1314.6111501.57  1314.411525.15 1315.43

Manning's n Values          num=       10
     Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val
    8862     .058 9565.28     .038  9718.8     .058 9970.44     .03810214.19     .058
10321.28     .03810567.01     .05810853.23     .03810981.31     .05811407.83     .053

Bank Sta: Left   Right     Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9970.4410214.19                515  505.75     490             .1       .3
Blocked Obstructions       num=        1
   Sta L   Sta R    Elev
   1111111525.15 1314.15

CROSS SECTION           RIVER: RIVER-1
REACH: Reach-1             RS: 14.284

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
             cross- section that does not receive subject flow.


Station Elevation Data     num=       77
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
    8572     1316 8690.39 1314.69 8702.61 1313.76 8714.39 1314.96 8737.63 1314.56
 8836.33   1313.7 8924.48 1313.52 8931.58 1312.85 8940.77 1313.46 9036.33  1313.1
 9152.12   1312.9  9236.2 1312.76  9312.2 1312.63 9324.11 1312.12 9343.29 1312.72
 9450.45   1312.7 9546.21  1312.3 9556.68 1312.37 9580.41 1312.53 9608.38 1308.45
 9637.64   1307.5 9659.03 1308.89 9677.62  1309.2 9689.94  1307.9 9703.98  1309.5
 9714.36   1310.8  9786.7 1311.87 9832.37 1312.13 9847.97 1309.36 9877.34 1308.37
 9907.28   1306.6 9923.81 1312.79 9945.19 1312.97 9960.84 1312.92 9975.83  1308.6
10005.31    130710016.02 1305.7910030.96  1305.410046.66 1309.9610052.65  1311.3
10078.67  1311.310106.77 1311.3710125.87 1310.98 10168.7 1308.9910190.02 1309.04
10230.88  1311.510246.59 1310.7710272.31 1310.88 10303.3  1312.910352.16 1313.07
10375.49  1311.910390.23 1310.9210412.97 1310.5310422.51 1311.0810472.27 1309.94
10480.46  1309.5 10502.3 1309.6910526.77 1312.5810626.65 1311.1310681.51 1311.07
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10742.33    130910764.17 1309.1310784.83 1311.81 10802.1 1311.6910827.12 1310.94
10882.64    131010916.41 1310.3510925.93 1309.2110941.61  1308.8 10957.6 1312.59
11052.02  1312.3 11066.3 1311.9211073.88 1310.2411087.96 1311.6511094.07 1311.38
11163.22  1311.911215.66 1312.62

Manning's n Values          num=      13
     Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val
    8572    .058 9580.41    .038 9703.98    .058 9832.37    .038 9907.28    .058
 9960.84    .03810052.65    .05810352.16    .03810526.77    .05810681.51    .038
 10802.1    .038 10957.6    .058 11066.3    .053

Bank Sta: Left   Right     Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9960.8410052.65                 495  498.98     485             .1      .3
Blocked Obstructions       num=       1
   Sta L   Sta R    Elev
   1105011215.66  1311.9

CROSS SECTION            RIVER: RIVER-1
REACH: Reach-1              RS: 14.197

INPUT
Description:



Station Elevation Data     num=      66
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
    8909  1313.6 8915.32 1314.34 9038.55 1313.27 9122.52 1312.59  9147.1 1312.09
 9151.88  1312.6 9246.33 1311.98 9345.34 1311.85 9445.16 1311.29 9543.27 1311.53
 9638.59  1311.2 9745.61 1311.04 9791.44 1311.25 9805.82 1307.75 9820.01 1309.41
 9844.53  1309.3 9877.37 1308.78 9884.83 1310.09 9924.15 1309.84 9935.15 1309.62
10001.01  1301.910028.16 1305.91 10041.7 1306.2410147.14 1307.5710192.02 1307.88
10233.34  1306.710242.45  1306.610264.33  1310.810340.43 1310.5410441.83 1310.58
10477.47  1311.310490.71 1307.3510524.03 1307.9510553.36 1306.7910570.57 1310.79
10638.66  1310.410700.76    131110711.62 1307.7110731.07 1309.4110748.02 1308.86
10769.66  1308.710825.53 1308.7910834.98 1309.0410852.16 1307.8510866.22 1308.97
10880.46  1308.210886.69 1308.3710901.93 1306.2810942.54  1306.710958.63 1307.57
10972.37  1306.510984.49 1306.2810999.92 1310.3311011.88 1308.9711032.16 1310.26
11044.97  1310.411056.74 1309.9711070.34 1307.3811084.16 1310.8211146.24 1310.54
11243.47  1309.311283.64 1309.5611294.27 1308.6311331.37 1309.91 11363.1 1310.51
11444.99  1310.9

Manning's n Values          num=       7
     Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val
    8909    .058 9935.15    .03810264.33    .05810477.47    .03810570.57    .058
10866.22    .03810999.92    .058

Bank Sta: Left   Right     Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9935.1510264.33                 465  479.63     470             .1      .3
Blocked Obstructions       num=       1
   Sta L   Sta R    Elev
   1128011444.99  1308.8

CROSS SECTION            RIVER: RIVER-1
REACH: Reach-1              RS: 14.103

INPUT
Description:



Station Elevation Data     num=      83
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
    8482    1314 8510.08 1313.81 8523.94 1314.17 8549.49 1313.52 8586.27 1313.03
 8599.67  1311.6 8629.88  1311.8 8656.28 1312.89 8725.18 1312.92 8770.35 1313.32
 8789.81  1310.9 8837.87    1311 8883.79 1310.88 8939.35  1310.6 8952.61 1310.39
 9032.01  1310.7 9087.45  1310.5  9125.8 1310.14 9187.24 1310.44 9236.68 1310.15
 9315.24  1310.1 9333.67 1308.89 9390.43  1308.7 9400.08 1310.12 9429.81 1309.73
 9489.07    1310 9532.52 1309.88 9581.48  1309.3 9622.09 1309.14 9668.19 1308.87
 9707.83  1309.1 9720.37 1309.53 9755.08 1309.48 9764.43 1308.94 9770.45 1306.87
 9786.95  1306.7 9806.67 1302.91 9818.91 1302.87 9902.96 1303.56 9930.06 1299.87
 9960.73    1301 9997.55 1299.7210026.47 1300.6810067.94 1301.4210088.39 1307.38
10149.94  1307.910209.06 1308.3210298.29 1308.0710310.73 1307.1310326.25 1308.53
10400.57  1307.710410.45 1307.3910445.28 1307.9210457.93 1307.9610471.61 1307.38
10507.04  1307.5 10530.2 1303.2510592.95 1303.1610627.85 1305.6310636.01 1305.27
10653.59  1306.210661.82 1305.7110680.36  1308.510688.06 1308.2210753.83 1307.47
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10780.11  1307.310795.67 1304.9710823.65 1306.4310846.31 1305.4410861.54  1306.9
10877.59  1304.310905.63 1305.62 10932.9 1307.1610964.23 1306.5810977.08 1308.56
10985.98  1308.311049.41 1307.44 11083.9 1306.8911097.61 1307.9211113.27 1308.08
 11144.6  1306.911160.37 1308.1211239.53 1307.99

Manning's n Values        num=       6
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
    8482    .058 9786.95    .03810088.39    .05810507.04    .03810627.85    .058
11049.41    .053

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9786.9510088.39               540  520.68     515             .1       .3

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1           RS: 14.013

INPUT
Description:



Station Elevation Data    num=      79
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    8525  1310.9  8541.7 1309.19 8570.76 1309.09  8582.5 1309.75 8606.66  1310.6
 8621.35  1310.4 8648.37  1310.5 8692.44  1310.5 8720.08 1310.87 8733.42 1309.49
 8777.54  1309.7 8820.32 1309.37 8863.07 1308.08 8902.86 1307.94 8937.44 1307.48
 8965.25  1307.5 9009.34 1307.69 9098.15 1307.63 9141.73  1307.8 9238.48 1307.54
 9289.98  1307.4 9347.91 1307.46 9364.47 1306.04 9382.02 1306.56 9411.06 1306.22
 9433.96  1307.1 9480.97 1307.01  9500.9  1306.8 9579.11 1306.83 9597.26 1306.63
  9651.6  1306.5 9743.54 1306.05 9780.56  1305.6 9784.17 1302.93 9802.62 1302.82
 9828.14  1300.1 9889.76 1299.23 9921.27    1299 9930.76 1296.71 9947.01 1298.47
 9975.11  1298.1    9987 1295.8310006.96 1295.7510037.37 1302.8110041.42 1303.66
10064.01 1301.6510074.42  1302.610106.66 1303.9410134.52 1302.2910177.15 1303.71
10254.67 1304.2310273.37  1304.610286.06 1301.5410331.62 1301.5110385.94 1303.38
10447.36 1303.4110463.96  1301.810479.72 1301.4410492.14 1300.5910510.26  1302.4
10520.18 1301.7710541.35    1301 10553.4 1305.3110624.76 1305.2710635.71    1304
10649.37 1305.4610663.07  1302.610681.11 1305.6410732.78 1305.37 10752.1 1301.43
10776.74 1303.9310804.42  1304.510864.83 1304.4910921.65 1304.6710959.24 1302.78
10994.93 1305.7111069.44    130611173.31 1306.0611219.95 1306.31

Manning's n Values        num=       6
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
    8525    .058 9802.62    .03810037.37    .05810273.37    .03810385.94    .058
11069.44    .053

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9802.6210037.37               620  514.07     485             .1       .3

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1           RS: 13.918

INPUT
Description:



Station Elevation Data    num=      74
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
 8683.46  1305.6 8749.84 1305.41 8816.56 1305.02 8879.14 1304.84 8941.71 1303.86
 8993.41  1303.7 9014.23 1303.54  9037.5 1303.86 9061.74 1303.87 9090.03 1303.42
 9109.57  1303.5 9120.74 1303.77 9154.34 1303.13 9208.09 1303.67 9280.94 1303.46
 9312.08  1303.3 9339.91 1302.59 9405.03 1302.64  9486.8  1302.2 9526.39 1302.18
  9603.9  1302.5 9639.14 1301.79 9648.15 1301.87 9655.73 1303.56  9664.4 1301.78
 9683.77  1301.9 9733.64 1301.65 9831.88 1301.58 9842.81 1301.34 9903.56  1300.9
 9947.16  1300.7 9954.03 1300.59 9964.62 1293.23 9980.05  1290.6   10000 1289.83
 10015.2  1296.210046.59 1297.6910067.54 1297.8110086.38 1295.96   10106 1293.03
10110.96  1293.310140.96 1298.55 10161.6 1300.3310171.29 1302.2810184.47 1301.61
10197.02  1300.6 10218.8 1301.1410268.36 1300.9710286.03 1301.1710331.61 1302.65
10350.13  1301.910368.93 1299.8810378.46 1299.9610411.09 1299.3410422.74 1300.18
10454.95  1300.210497.44 1299.0610527.52 1298.56 10534.9 1297.9710544.18 1295.74
10554.88  1294.110583.28 1292.2710601.01 1293.1510617.12 1292.9110637.16  1293.4
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10647.94 1295.910667.67 1302.2910674.49 1302.17 10732.2 1302.08 10778.6 1302.26
10875.62 1302.910973.99 1302.2411079.03 1302.4111245.54 1302.37

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
8683.46	.058	9954.03	.03810046.59		.05810171.29		.05810497.44		.038
10667.67	.058								

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

9954.0310046.59	595	656.3	955	.1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 13.818

INPUT
Description: BOTTOM OF CHANNEL SET AT OVERTOPING ELEVATION OF 1288. SEE DOWN STREAM X-SEC

Station Elevation Data num= 80

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9462	1298	9477.76	1298.87	9504.05	1298.9	9584.3	1299.46	9588.83	1299.62
9617.74	1296.7	9659.36	1297.12	9672.91	1293.55	9696.39	1295.18	9703.75	1295.29
9721.63	1294.1	9755.56	1292.98	9770.96	1293.68	9787.1	1293.89	9788.3	1293.17
9805.83	1291.3	9814.79	1290.67	9825.73	1290.76	9839.58	1288	9912	1288
10335.4	1288	10469.1	128810482.82		1292.3210492.06		1289.210536.03		1288.71
10549.75	1288.810559.35		1289.910586.82		1294.9410611.56		1299.1710640.25		1299.63
10655.18	1289.110702.75		1287.810868.03		1287.7810913.91		1288.2210937.39		1288.02
10947.65	1288.211003.07		1288.111038.22		1288.4911066.97		1289.4411089.19		1289.29
11109.9	1289.611192.24		128911228.34		1290.1211272.67		1288.4211378.54		1289.97
11402.76	1290.411423.75		1291.811434.18		1291.9611448.66		1290.6411458.94		1292.34
11464.39	1290.611487.76		1290.711520.45		1290.5411569.55		1290.4711616.61		1290.23
11645.04	1290.411670.09		1300.211676.56		1301.0711689.63		1296.8211700.15		1297.87
11706.11	1298.411712.53		1296.111722.98		1289.8811747.42		1290.5511801.18		1289.86
11817.69	1300.411848.75		1286.911915.57		1287.2111946.27		1286.97 11983.1		1285.83
12002.23	1286.412078.57		1286.912129.51		1286.1812189.27		1286.1112247.67		1286.61
12281.97	1299.112312.95		1299.212326.03		1298.9312411.99		1299.3612562.08		1299.98

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9462	.05	9825.73	.03510482.82		.05

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

9825.7310482.82	395	406.3	435	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
9462	9825.3	1290.6510482.8212562.08			1292.32

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 13.742

INPUT
Description: Additional point was added at invert to account for expansion at 13.918

Station Elevation Data num= 85

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9354	1296.8	9370.67	1296.55	9384.46	1297.62	9483.28	1297.63	9497.01	1299.44
9531	1293.9	9564.01	1294.06	9577.58	1289.54	9634.5	1288.87	9648.28	1287.86
9680.8	1288	9700.02	1288	9760	128810197.76		128810241.99		1289.38
10254.48	1290.510268.29		1290.310308.28		1292.9610321.65		1294.4110343.75		1297.5
10379.63	1299.510399.95		1299.910408.16		1300.3110436.03		1300.1810442.12		1299.1
10459.79	1296.810475.06		1295.510506.06		1290.6910532.73		1288.5410558.39		1288.71
10598.63	1289.510669.55		1290.710723.24		1290.8810748.29		1306.2210770.75		1319.96
10788.5	1309.310816.13		1294.410826.64		1290.1710886.49		1290.0410894.56		1292.33
10909.82	1298.410922.28		1300.810930.63		1301.5110944.77		1298.4410962.63		1289.25
11011.3	1288.811043.43		1288.611069.82		1288.1711101.46		1289.4411132.43		1289.48
11152.3	1295.611197.31		129611240.82		1296.0511285.44		1296.5811324.28		1296.73
11365.59	1297.111409.29		1296.811469.34		1297.4911529.55		1296.9911566.62		1296.97
11581.98	1296.811645.17		1297.211669.97		1297.5211698.77		1296.911764.32		1297.04
11812.47	1296.711878.03		1292.711914.78		1292.111924.59		1291.65 11975		1287.93
11988.35	1286.512038.04		1285.612070.37		1288.3612076.59		1289.6612098.39		1288.46
12119.06	1288.712153.65		128912164.88		1295.1412205.17		1296.6812283.01		1297.08
12327.32	129712339.26		1297.112407.76		1296.67 12420.6		1296.712438.39		1298.01

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Manning's n Values          num=        3
     Sta   n Val      Sta   n Val      Sta   n Val
    9354      .05 9497.01    .03510343.75     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9497.0110343.75              430  353.72     400             .1       .3
Ineffective Flow      num=        2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
    9354 9495.48 1299.4510344.1312438.39 1297.47

CROSS SECTION           RIVER: RIVER-1
REACH: Reach-1             RS: 13.68

INPUT
Description:



Station Elevation Data     num=       81
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
    9322  1296.8 9356.46 1297.07  9385.6 1295.43  9417.8 1296.98 9479.95 1297.29
 9485.63  1297.5 9495.23 1296.86  9528.8 1293.73 9551.69 1293.03 9568.06 1289.41
 9582.07  1292.5 9591.03 1292.88 9613.38  1290.8 9648.83 1289.19 9671.63 1288.62
 9722.36  1288.2 9796.47 1287.28 9826.79 1287.06 9883.94 1286.91 9919.92  1286.4
 9939.41  1285.8 9984.53  1285.510023.54 1285.5110077.15 1286.1910123.24 1286.29
10152.41  1286.110190.29 1286.4410222.53 1287.2610254.52 1289.2110265.88 1289.88
10283.02 1291.2510317.81  1292.810368.57 1293.2210398.99 1292.5310434.15 1292.61
10477.35 1292.2910529.74  1292.510615.42  1292.910647.52 1292.9310711.24 1293.07
10820.69 1293.3910865.19  1293.310884.17 1293.4110938.51 1292.9810974.42 1293.36
10989.05 1293.7211017.31  1293.811050.34 1294.1611107.98  1294.211135.27 1294.37
 11160.1 1294.0711248.44  1293.811275.04 1293.9611314.65 1294.7111340.48  1294.8
11345.46 1294.5611413.21  1294.5   11447 1294.7511476.07 1294.2511499.87 1294.87
11540.28 1294.85 11627.9    129511680.45 1294.7511724.22 1295.1111772.94 1295.04
11815.45 1295.2311852.94  1294.811880.39 1295.1211903.62 1295.0211973.31 1293.97
12041.77 1293.9212088.13  1294.612090.19 1294.2912119.52 1294.6212147.76 1294.34
12185.46 1294.1912223.78  1294.312270.24 1294.0512373.64 1294.2712409.48 1294.41
12454.94 1294.76

Manning's n Values          num=        3
     Sta   n Val      Sta   n Val      Sta   n Val
    9322      .05 9591.03    .03510317.81     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9591.0310317.81              320  331.09     315             .1       .3
Blocked Obstructions      num=        3
   Sta L   Sta R    Elev   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 9555.74 9557.61    1292 9556.98 9556.98    1292 9558.51 9579.79 1292.01

CROSS SECTION           RIVER: RIVER-1
REACH: Reach-1             RS: 13.619

INPUT
Description:



Station Elevation Data     num=       96
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
    9562    1292  9629.3 1292.36 9639.88 1294.25 9661.38 1292.78 9674.83 1292.79
 9693.47  1295.2 9739.41 1294.77 9788.42 1285.43 9799.13 1283.79 9865.32 1284.12
 9935.28  1283.5 9954.22 1284.45 9967.18 1284.14 9976.42 1283.47 9995.82 1283.51
10006.46  1285.3 10048.7 1285.13 10076.7 1284.7210134.23 1284.4310190.74 1285.02
10219.99  1285.210294.96  1284.810312.09 1291.19 10317.4 1290.2510324.25 1291.11
 10336.1  1289.710361.89 1289.46   10391 1293.8810437.69 1294.3810478.35  1294.7
 10487.8  1298.410495.02  1301.810511.79 1294.4910532.76  1302.4 10551.6 1303.98
 10578.7    130510600.79 1298.2710623.06 1299.3310639.96 1293.6810652.46 1293.71
10655.91  1295.210672.33 1296.0210682.32 1297.6110687.16 1296.6310693.85 1293.79
10719.15  1293.710730.61 1300.0210738.98 1295.9410747.76 1299.93 10755.1 1296.25
10762.57  1299.710768.85 1295.9710777.37 1298.8710783.38 1296.1910790.11 1298.73
10798.42  1294.510859.97 1295.3710889.08 1294.7810942.12 1293.5811003.19 1293.07
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11057.05  1292.311123.97  1293.2 11169.9 1293.0411234.76  1293.111240.22 1292.94
11273.64  1292.911336.71 1293.5311354.86 1293.8411403.54 1293.6411443.98 1292.96
11504.21  1294.111528.18 1293.5811539.04  1290.611544.35 1289.6511565.78 1290.52
11594.34  1290.211621.42 1293.62 11641.4 1293.5111665.37 1293.9111687.55 1293.05
11730.32    129311738.32 1292.8611807.73 1294.2211833.85 1293.4311878.84 1293.33
11929.21  1293.312009.04 1293.6512045.43 1293.4812123.83 1292.8112135.85 1292.94
12212.03  1292.512253.55 1293.2612338.41 1293.0212364.23 1293.0512394.05  1292.3
 12413.2  1292.7

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9562     .05 9739.41    .03510312.09     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9739.4110312.09              565  505.64     495             .1       .3

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 13.524

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
             cross- section that does not receive subject flow.



Station Elevation Data    num=      94
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9448  1291.3 9454.37 1290.03 9508.29 1289.55 9523.62 1291.53 9555.54 1290.64
 9575.63    1292 9598.72 1291.36 9609.69 1291.56 9650.51 1291.28 9693.45 1291.26
 9734.83  1292.1 9791.94  1291.9    9825  1291.2 9851.09 1291.61 9858.03 1292.81
 9877.26  1283.4 9891.18  1282.6 9957.87  1282.6  9972.6 1283.2110018.98 1283.77
10028.68  1282.610047.89 1282.6710059.95  1283.810081.31 1283.8210117.75 1281.99
10137.15  1281.910162.05 1286.9710165.76 1288.1510221.34 1291.7110236.72 1288.53
10264.54  1288.810273.99 1290.6710287.01 1290.6610291.26 1291.1610351.78 1290.25
10376.49  1291.610419.81 1290.4510446.96 1291.7210472.14 1296.5610478.74 1290.83
10494.98  1289.710514.86 1289.9510526.43 1290.9410557.78 1290.8210573.55 1290.31
10581.04  1289.610634.38 1290.8110651.91 1301.1310662.52 1300.6110667.92 1298.34
10675.41  1296.210685.96 1290.8710716.77 1290.5910758.66 1290.4110840.28 1290.76
10886.63  1290.410904.99 1290.8610921.81 1291.6310957.21 1291.3211016.88 1290.01
11102.37  1289.711116.92 1289.8411216.95 1290.1711261.54 1290.4911316.98  1290.4
 11325.2  1290.111408.44 1290.07 11445.3 1289.4611517.06 1290.7311566.71 1291.42
11600.63  1286.911620.62 1286.1211642.39 1292.7211652.84 1291.3411697.54    1290
11737.67  1290.5   11759 1290.1311827.51  1290.311892.97 1290.0411918.09 1289.02
11977.44    129012013.71 1289.6412086.33 1289.8112106.77 1289.5612129.98 1289.95
12144.25  1290.412182.87 1290.2612243.57 1290.1312264.75 1290.2212285.59 1289.07
12301.57  1289.612317.61 1289.5112380.13 1289.9812409.58 1290.02

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9448     .06 9858.03    .03510221.34     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9858.0310221.34              605  522.56     500             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 11588.112409.58 1288.97

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 13.42

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
             cross- section that does not receive subject flow.



Station Elevation Data    num=      99
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9395    1288 9423.96 1288.07 9477.21 1287.97  9513.9 1287.26 9532.21 1286.57
 9556.16  1286.6 9582.05 1286.46 9613.21 1287.25 9631.08 1287.96  9655.5 1287.45
 9699.72  1288.3 9722.92 1288.27  9791.3 1288.92 9813.82 1288.27 9827.24 1290.55
 9840.39  1288.5 9845.86 1288.33 9862.12 1283.51 9880.73 1282.43 9894.26 1281.07
  9906.8  1280.6 9959.33 1280.99  9983.5 1278.0310001.06 1277.4310024.47  1277.8
10036.23  1280.310063.88 1281.5710081.84 1289.9810089.78  1286.410113.31 1288.73
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10121.36  1287.310128.19 1287.7110141.72 1289.3310168.52 1293.3910186.33 1288.58
10237.05  1288.410252.26 1289.2310276.97 1288.3210308.19 1287.0510345.14 1287.28
10388.39  1287.3 10429.9 1286.94   10457 1286.9310480.94 1286.6410512.07 1285.68
 10543.2  1286.110563.93 1285.7910631.63 1285.7510651.86 1286.5310673.18 1285.91
10715.52  1284.510726.52 1285.1110745.47 1286.7410797.71 1287.0110827.96 1286.96
10843.39  1287.810915.91 1288.1110945.44 1286.2710983.68 1286.3810995.12 1285.95
11031.99  1286.211056.81 1286.0611096.76 1286.7111131.85 1287.3411193.12 1287.33
11212.33  1287.811276.48 1286.8511336.18 1286.9211397.94 1285.8311420.53 1286.33
11476.18  1284.411503.97 1284.0611554.68 1284.1811563.74 1283.6511582.11 1281.69
11594.34  1282.411609.37 1284.6611631.71 1286.9711647.43 1287.1211676.33 1286.55
11684.88  1285.911698.97 1286.4311770.93 1286.4411801.36 1284.9111846.69 1283.03
11928.45  1287.111948.35 1287.1812019.57 1287.7812043.31 1287.6812067.16 1286.82
12087.53  1287.212136.62    128712201.47 1287.5512271.53  1287.612295.07 1287.99
12353.62  1285.512397.71 1284.3212461.22 1284.07 12488.9    1286

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9395      .06 9845.86    .03510081.84     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.    Expan.
      9845.8610081.84               515  514.13     495             .1        .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 10512.8 12488.9 1285.97

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1           RS: 13.325

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
             cross- section that does not receive subject flow.



Station Elevation Data    num=      57
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9272    1286  9320.3 1285.55 9372.63 1285.13 9408.38 1285.11 9416.58 1285.22
 9457.31  1284.2 9486.84 1283.81  9527.3 1283.97 9544.73 1283.64 9560.67 1282.07
 9579.99  1284.2  9600.9 1284.54 9618.16 1292.51 9633.92 1301.03 9655.29 1301.23
 9722.72  1302.5 9757.72 1302.27 9807.64 1301.33 9838.03 1300.59 9853.17 1299.87
 9867.77    1291 9882.41  1282.2 9896.14 1280.59 9926.63 1277.86  9955.5  1280.4
 9977.65  1277.410016.57  1277.410045.01 1278.2110064.07  1276.710082.82 1277.98
10111.69  1278.310134.99  1288.110142.65    128710150.48 1289.3310164.78 1289.91
10170.47  1290.110183.27  1287.210195.74 1287.1210219.94 1286.2410474.24 1285.67
10562.34  1285.710736.53    128610829.36 1286.0810942.15  1285.711229.36 1285.63
11329.35  1285.411424.41  1285.311473.91 1285.8811492.57 1278.0211506.86 1277.89
11520.53  1283.811525.37  1286.411541.38  1285.111629.34 1285.3211739.52 1285.44
11826.82  1285.511912.41    1286

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9272      .06 9867.77    .03510134.99     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.    Expan.
      9867.7710134.99               555  571.01     545             .1        .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
    9272 9867.77    129111426.2111912.41 1285.23

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1           RS: 13.227

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
             cross-section that does not receive subject flow.

Station Elevation Data    num=      55
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9299    1284 9303.82 1283.71 9325.43    1284 9360.31 1283.88 9393.86 1283.54
 9408.68  1282.9 9430.29 1283.57 9451.58 1282.78  9494.7 1282.97 9670.83 1282.15
 9692.69  1283.3 9751.23 1283.56 9777.54 1283.85 9884.39 1282.76 9936.51 1281.61
 9945.65  1282.5 9957.55 1277.72 9961.08  1275.8 9985.19 1274.8910022.24 1274.89
10047.48  1275.610060.47 1276.31   10111 1275.8410135.64 1275.4310150.07  1275.4
10208.83  1278.710223.75    128310244.21  1288.9 10260.7 1284.6110273.12 1284.39
 10382.1  1283.310418.01  1283.310577.44 1283.1610651.09 1283.2710746.83 1283.16
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10891.21  1283.411019.74  1283.3 11184.8 1283.1711250.25 1282.9911388.15 1282.92
11487.05  1282.911521.31  1283.411544.11 1283.9211566.13 1274.8211576.35 1274.89
11597.94    128311611.67  1282.711668.93 1282.5311688.14 1282.3511759.44 1282.39
11873.09  1282.411895.89  1282.612032.49 1283.4112237.81 1283.8512299.29 1284.03

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9299     .06 9945.65    .03510223.75     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9945.6510223.75              335  315.32     350             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 10223.712299.29    1283

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 13.185

INPUT
Description:



Station Elevation Data    num=      22
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9531    1282 9580.66 1281.61 9631.21 1281.67 9661.38 1281.38  9719.6 1281.83
  9742.2  1281.8  9773.4 1281.08 9812.09 1279.67 9817.12  1279.3 9857.31 1277.52
 9890.49  1276.2 9931.33 1275.33 9959.09 1274.8910034.43 1274.8910078.37 1274.98
10124.98  1275.610167.33 1277.2710192.55  1278.310227.07 1281.2810245.97 1281.93
10259.87  1282.310293.43    1282

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9531     .06 9812.09    .03510227.07     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9812.0910227.07              35   33.56      32             .1       .3

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 13.161

INPUT
Description:



Station Elevation Data    num=      50
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    8898  1284.7 8969.41 1284.22 9114.29 1283.76 9144.54 1283.93 9161.51 1283.52
 9249.24  1283.3 9290.04 1283.19 9327.39 1283.17 9373.82 1282.51 9393.66 1283.04
 9413.16  1283.1  9573.2 1281.11 9644.14 1280.87 9737.87 1280.81 9782.29  1279.9
 9873.96  1276.4 9907.29 1275.44 9933.89  1275.2 9965.75 1274.65 10043.5 1274.78
10080.57  1275.210124.23 1276.0810151.97 1277.0310209.33 1280.2510244.12 1281.51
10266.74  1281.710323.36  1281.610368.03 1281.38   10475 1281.3810532.18 1281.46
10620.05  1281.410703.46 1281.4510751.25 1281.5310780.07 1281.3110829.33 1281.27
10885.47  1281.410918.04 1281.4710988.58 1281.1911093.76 1280.9711246.85 1281.01
11387.32  1281.811437.47 1281.6511505.24 1280.5111555.61    128011596.67 1280.49
11663.43  1280.311722.35 1280.3111839.85 1280.6411930.31 1280.9612128.02 1281.38

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    8898     .06 9782.29    .03510209.33     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9782.2910209.33              55   51.06      70             .1       .3

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 13.151

INPUT
Description:
```

Station Elevation Data num= 92

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9058	1283.4	9159.76	1283.94	9240.17	1283.98	9289.92	1283.04	9302.23	1282.2
9337.98	1282.7	9380.65	1282.65	9394.79	1282.96	9403.86	1284.5	9412.45	1285.29
9421.65	1282.2	9458.29	1281.96	9499.64	1282.57	9569.32	1282	9594.33	1281.32
9619.08	1280.4	9652.65	1279.96	9676.17	1279.66	9696.02	1280	9723.06	1278.5
9740.99	1278.6	9746	1279.07	9760.92	1273.37	9773.47	1270.15	9799.83	1267.9
9808.73	1265.9	9829.94	1264.66	9848.13	1263.33	9857.53	1262.93	9866.92	1263.88
9882.66	1262.2	9958.44	1262.2	9979.64	1264.32	9988.47	1262.710021.52		1263.34
10032.89	1265.210069.78		1266.810083.97		1267.6210111.44		1267.9610148.84		1270.32
10175.73	1272.810187.38		1277.2110192.79		1280.9710199.57		1278.92 10224.7		1279.64
10305.26	1280.310361.06		1280.2910366.73		1283.5110374.07		1280.5810391.58		1280.72
10396.83	1282.910403.87		1280.4810487.48		1280.910531.61		1280.7710625.65		1280.33
10692.47	1280.710717.98		1281.4410752.22		1280.34 10801.2		1279.9 10871.6		1279.73
10895.53	1279.910996.09		1280.611071.71		1279.6611075.74		1279.7311128.71		1279.05
11136.57	1279.1 11232.6		1278.8911257.18		1278.9211285.51		1278.8711300.32		1280.74
11316.52	1280.511324.52		1279.21 11354.5		1279.7411383.93		1279.7211416.27		1279.94
11490.94	1279.711530.92		1279.69 11539.5		1277.47 11550.9		1273.6111574.03		1279.32
11587.7	1279.811609.34		1279.9711638.72		1279.3111664.46		1279.7711685.96		1281.3
11720.15	128111762.38		1280.8311826.04		1281.0811880.75		1280.91 11960.2		1281.17
12105.17	1281.212158.86		1281.07						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9058	.06	9746	.03510187.38		.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
974610187.38		520 393.13	370	.1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 13.076

INPUT
Description: Blocked Obstruction used to block flow from that portion of the cross-section that does not receive subject flow.

Station Elevation Data num= 94

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9262	1280	9284.29	1279.43	9305.95	1279.76	9353.03	1279.75	9383.3	1280.46
9395.75	1278	9421.73	1279.96	9461.38	1280.29	9493.93	1280.27	9557.24	1280.58
9607.76	1280.4	9671.6	1279.35	9691.22	1271.27	9704.51	1265.52	9732.62	1263.66
9760.43	1264.6	9804.98	1264.26	9828.51	1262.51	9834.95	1262.56	9853.67	1264.46
9869.4	1264.3	9887.26	1264.56	9907.57	1263.8	9922.62	1263.96	9937.25	1262.75
9949.84	1263.1	9971.55	1264.01	9983.97	1263.42	9999.25	1262.3710016.02		1262.37
10030.84	1264.110041.79		1266.1510062.05		1263.2310073.48		1263.9110088.42		1269.18
10097.3	1271.810130.78		1272.7810153.97		1278.5310196.43		1278.6510263.57		1279.48
10302.23	1279.9 10351.2		1289.0310357.34		1289.6610363.55		1288.7710418.15		1279.06
10482.31	1278.810511.62		1278.810548.87		1280.01 10574.5		1279.08 10655.7		1279.17
10727.03	1278.1 10780.1		1277.9210801.44		1279.0210890.52		1278.3110978.72		1277.98
10989.61	1277.811090.55		1278.8311192.51		1279.0911294.05		1278.1211330.55		1277.4
11338.3	1279.211343.15		1278.8611348.03		1277.5111368.97		1278.111452.28		1277.89
11521.72	127711595.07		1277.3911610.08		1277.5711623.16		1277.7911643.76		1269.5
11651.89	1270.111676.25		1277.7711699.15		1277.4511721.59		1278.6811735.23		1279.13
11741.88	1278.611808.21		1278.5111914.17		1278.6612002.75		1278.6912076.22		1279.72
12103.32	1279.912165.57		1280.0312257.85		1279.9212276.59		1279.8212332.23		1279.98
12353.9	1279.612381.78		1280.1212391.07		1279.1712469.46		1280.1412473.91		1280.09
12489.28	1277.912517.38		1278.7512536.39		1278.4312543.98		1280		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9262	.06	9671.6	.03510153.97		.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9671.610153.97		520 454.21	455	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
11632.5312543.98		1276.77

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 12.991

INPUT
Description: Blocked Obstruction used to block flow from that portion of the cross-section that does not receive subject flow.

Station Elevation Data num= 91

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9109	1277.8	9125.68	1277.4	9230.38	1277.29	9285.05	1276.96	9292.43	1276.25
9314.01	1277.2	9346.4	1277.48	9363.64	1277.27	9433.7	1277.06	9508.5	1277.21
9532.83	1277.5	9600.49	1277.61	9620.61	1278.19	9631.17	1278	9650.22	1273.76
9675.18	1277.6	9718.08	1277.73	9734.08	1277.59	9760.85	1264.19	9804.76	1263.68
9866.56	1265.1	9922.72	1265.75	9928.62	1266.02	9943.89	1265.67	9957.87	1262.37
10166.57	1262.4	10192.9	1263.32	10211.52	1266.33	10235.94	1270.75	10250.37	1264.83
10257.02	1268.61	10268.84	1274.41	10314.62	1274.73	10322.13	1275.21	10372.12	1274.65
10423.27	1275	10458.4	1275.86	10469.64	1277.34	10475.62	1277.67	10485.97	1276.26
10528.43	1276	10590.9	1275.91	10622.82	1276.32	10665.92	1275.94	10739.76	1276.29
10783.7	1276.51	10803.83	1275.81	10858.51	1276.91	11022.81	1277.5	11081	1278.19
11118.65	1276.71	11166.51	1276.53	11173.79	1277.52	11179.58	1275.99	11199.94	1276.13
11227.08	1276.11	11303.67	1276.53	11322.82	1276.49	11369.44	1276.73	11404.86	1276.22
11424.6	1276.21	11439.49	1276.51	11515.64	1276.39	11527.22	1276.13	11559.36	1275.37
11593.09	1266.91	11597.27	1266.93	11620.09	1277.03	11633.86	1277.23	11683.68	1276.91
11749.85	1277.51	11771.21	1277.49	11892.81	1278.41	11915.63	1279.26	11995.72	1279.24
12027.37	1279.31	12063.73	1279.29	12145.14	1278.94	12161.49	1279.01	12214.68	1278.69
12228.89	1278.41	12239.87	1278.67	12251.44	1277.41	12282.64	1277.94	12331.27	1277.94
12348.4	1276	12375.66	1276.49	12416.43	1276.37	12478.51	1276.45	12569.18	1277.15
12640.45	1278								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9109	.06	9734.08	.035	10235.94	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9734.08	10235.94	595	527.02	535	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
9109	9734.08	1277.59	11566.26	12640.45	1274.46

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 12.896

INPUT
Description:

Station Elevation Data num= 87

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8717	1274	8749.83	1274.49	8793.27	1273.96	8802.24	1275.3	8836.46	1275.29
8904.06	1275	8974.91	1274.68	9098.69	1275.01	9207.26	1275.18	9315.82	1274.81
9424.38	1275.1	9576.84	1274.72	9659.07	1274.89	9701.03	1274.71	9716.95	1274.17
9743.96	1276.1	9773.87	1276.58	9803.97	1276.83	9814.81	1277.11	9833.84	1278.41
9849.4	1272.98	9869.72	1269.6	9888.88	1269.25	9898.12	1267.44	9911.88	1263.73
9944.67	1262.67	10044.9	1262.51	10086.23	1269.15	10098.15	1264.41	10157.92	1265.88
10183.04	1265.26	10194.89	1266.51	10222.69	1265.26	10272.81	1264.82	10303.8	1269.56
10320.61	1273.04	10382.3	1273.51	10468.09	1272.85	10496.52	1270.91	10518.49	1270.12
10536.31	1273.41	10549.69	1275.21	10608.72	1274.93	10654.62	1274.92	10686.1	1274.88
10715.69	1273.87	10765.77	1274	10787.05	1275.22	10834.25	1274.33	10840.95	1276.17
10845.95	1274.01	10865.73	1274.81	10878.01	1274.53	10925.58	1274.37	10942.62	1274.44
10963.76	1273.61	10991.33	1274	11093.87	1274.13	11154.56	1274.27	11205.78	1274.62
11225.48	1269.64	11254.61	1271.81	11276.61	1268.42	11290.98	1270.68	11313.73	1264.52
11321.39	1264.42	11341.82	1269.21	11369.54	1275.31	11385.26	1275.01	11406.58	1276.4
11420.81	1273.09	11491.04	1274.81	11509.31	1276.82	11523.8	1276.75	11596.48	1275.39
11719.14	1275.47	11796.68	1275.71	11870.25	1276.41	11884.03	1274.78	11963.7	1274.97
11983.85	1273.32	11998.17	1272.91	12017.52	1273.17	12029.09	1272.97	12075.31	1273.47
12209.08	1273.64	12274.4	1274						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8717	.06	9849.4	.035	10320.61	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9849.41	10320.61	540	508.24	495	.1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 12.801

INPUT
Description: Blocked Obstruction used to block flow from that portion of the cross-section that does not receive subject flow.

Station Elevation Data num= 80

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8567	1270.9	8583.83	1272.13	8614.59	1272.02	8749.74	1272.02	8884.25	1272.26
8942.46	1272.3	9094.94	1272.53	9196.57	1272.62	9284.07	1272.47	9430.16	1272.72
9499.01	1272.6	9573.63	1272.24	9591.81	1269.64	9618.77	1271.67	9670.91	1269.88
9706.7	1269	9758.35	1269.1	9795.76	1269.69	9814.71	1274.94	9884.48	1275.01
9902.5	1266	9934.52	1265.26	9956.1	1261.0910017.58		1260.2310059.56		1268.4
10104.27	1267.110131.07		1268.17	10174.1	1265.3910193.94		1265.9210248.52		1267.75
10317.64	1268.5	10351.8	1268.1210405.16		1265.51	10445.3	1268.4610453.44		1268.72
10495.79	1268.310544.02		1266.81	10571	1272.0710602.96		1272.5710647.74		1272.6
10710.39	127210766.01		1271.810784.75		1271.5710820.84		1272.1410864.11		1272.59
10928.04	1272.410937.12		1272.4110952.31		1275.5810963.24		1270.9410977.39		1268.3
11019.29	1269.211032.48		1272.23	11073.1	1272.3711094.16		1272.7811110.08		1271.18
11125.36	126811140.13		1263.7211151.97		1263.0911177.43		1263.0511202.48		1272.74
11254.68	1273.111286.14		1273.0711298.47		1272.8311315.03		1271.5511373.02		1271.34
11424.11	1271.411461.44		1271.1711487.97		1271.37	11544.6	1271.4111573.06		1271.05
11628.44	1271.511637.25		1273.3211679.97		1273.12	11762.7	1273.2211887.91		1271.94
11975.26	1271.912022.13		1273.2112094.51		1273.9112123.08		1272.312156.91		1272.78

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8567	.06	9884.48	.03510602.96		.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9884.4810602.96		565 524.61	535	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
8567	9884.48	1275.01	10602.912156.91		1272.57

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 12.701

INPUT
Description: Additional point added in cross section for left overbank.

Blocked Obstruction used to block flow
from that portion of the cross-section that does not receive
subject flow.

Station Elevation Data num= 82

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8680	1270.6	8721.65	1270.78	8761.54	1270.39	8834.19	1269.91	8937.79	1270.27
9012.95	1270.4	9085.93	1270.3	9213.32	1270.35	9339.72	1269.98	9353.89	1268.84
9385.93	1268.8	9401.33	1270.11	9469.8	1269.69	9567	1268.52	9597.47	1268.6
9611.88	1270.6	9662.32	1271.47	9720.7	1271.92	9748.51	1271.92	9752	1270
9764.27	1266.7	9795.73	1265.6	9811.75	1265.27	9881.58	1264.93	9898.15	1266.19
9928.36	1266.6	9962.31	1260.110022.85		1260.610057.09		1262.0910088.04		1267.52
10120.25	1267.610154.93		1268.110320.98		1269.7910401.53		1269.4910441.01		1270.4
10464.67	1268.110495.45		126810531.98		1268.7410587.16		1269.910635.89		1270.31
10648.51	1269.710668.19		127010704.23		1270.5910760.22		1270.3810796.48		1269.97
10831.26	1268.910837.21		1268.6	10865.6	1268.9910900.67		1269.7510939.27		1268.83
10954.64	1270.210961.95		1270.110970.14		1268.2611007.32		1261.3711042.66		1270.15
11062.8	1269.711118.03		1269.611156.57		1269.6211186.33		1269.8511211.37		1268.13
11240.08	1268.411255.17		1269	11353.4	1268.3611380.25		1268.3511465.73		1268.12
11520.29	1268.2	11611.9	1267.411616.72		1267.1111655.52		1267.0611695.16		1267.77
11751.92	1268.211802.89		126811831.52		1268.311854.32		1267.6611863.24		1268.28
11949.36	126712049.56		126712081.11		1267.0812149.73		1267.4712210.25		1267.44
12247.63	1267.6	12274.4	1268						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8680	.06	9752	.03510088.04		.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
975210088.04		495 505.6	525	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
8680	9752	127010457.83		12274.4	1270

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 12.606

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
cross-section that does not receive subject flow.

Station Elevation Data num= 83

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8672	1271.3	8718.88	1271.16	8847.88	1271.27	8952.99	1270.93	8973.43	1271.04
8993.98	1273.2	9003.15	1271.05	9028.62	1269.6	9035.21	1270.71	9039.08	1269.48
9102.66	1269.7	9154.4	1269.56	9201.43	1269.28	9275.63	1267.51	9296.46	1266.42
9340.88	1267.2	9427.5	1266.98	9462.39	1268.01	9495.37	1267.42	9517.89	1267.18
9533.36	1267.3	9543.58	1271.37	9556.36	1266.42	9620.55	1266.78	9680.55	1266.81
9725.43	1267.2	9830.21	1267.14	9892.62	1266.35	9947.62	1264.34	9982.32	1258.9
10018.64	1258.9	10049.91	1261.67	10071.58	1262.01	10087.37	1262.71	10107.56	1261.82
10129.45	1261.71	10144.64	1261.98	10168.55	1262.96	10184.12	1264.03	10204.94	1264.48
10279.52	1264	10302.48	1263.65	10329.34	1265.82	10354.5	1265.93	10391.91	1266.91
10408.71	1266	10425.58	1265.81	10454.31	1267.91	10481.93	1267.76	10546.29	1267.09
10585.93	1266	10606.5	1265.28	10660.51	1265.49	10676.56	1265.57	10695.53	1264.85
10715.39	1263.5	10728.8	1260.43	10748.11	1260.18	10764.66	1262.91	10771.78	1264.74
10790.79	1265.1	10824.07	1266.85	10845.22	1266.76	10861.31	1265.75	10881.6	1265.36
10886.82	1267.9	10951.49	1268.17	11032.15	1267.86	11194.39	1267.51	11343.08	1267.38
11434.76	1267.3	11497.82	1267.43	11600.22	1266.03	11624.87	1268.03	11703.86	1267.32
11721.38	1264.7	11755.43	1264	11870.61	1263.78	12034.7	1266.81	12173.4	1268.16
12249.99	1268.3	12351.98	1268.18	12359.19	1267.86				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8672	.06	9892.62	.035	10204.94	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9892.62	10204.94	555	582.3	545	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
8672	9722.89	1267.19	10493.98	12359.19	1267.85

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 12.511

INPUT
Description: CODED OUT LOW AREA BETWEEN STA'S 9170 TO 9196

Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8690	1265.3	8722.98	1265.72	8800.78	1265.05	8877.93	1266.47	8890.38	1266.49
8981.86	1266	9039.65	1265.46	9069.52	1265.57	9085.08	1266.11	9115.14	1268.85
9130.07	1264.3	9156.7	1266.04	9213.05	1265.36	9233.07	1265.1	9269.19	1265
9306.39	1265.1	9384.01	1264.21	9435.15	1264.06	9495.38	1263.6	9500.47	1263.4
9523.53	1265.1	9531.83	1264	9577.67	1263.64	9644.25	1263.7	9672.29	1263.4
9730.13	1262.5	9797.63	1263.21	9871.16	1262.26	9883.9	1261	9894.61	1259.3
9930.98	1258.8	9939.14	1257.37	9949.45	1257.32	10006.29	1256.11	10014.97	1258.7
10030.43	1258.4	10040.23	1258.05	10046.6	1255.26	10065.4	1254.81	10081.47	1259.6
10098.86	1262.2	10111.39	1265.39	10128.79	1262.95	10163.12	1262.41	10179.88	1268.3
10197.8	1258.7	10223.09	1258.52	10235.25	1261.2	10263.05	1264.31	10285.63	1264.1
10296.97	1264.6	10330.85	1264.03	10343.82	1263.48	10356.41	1260.2	10377.48	1262.9
10380.84	1262	10389.62	1259.42	10422.92	1258.91	10445.29	1263.9	10496.8	1264
10540.37	1263.8	10566.77	1264.32	10579.76	1263.61	10630.51	1262.91	10681.68	1263
10712.46	1262.8	10743.72	1261.79	10774.49	1261.65	10794.84	1263.11	10853.81	1262.9
10983.83	1262.7	11088.3	1262.98	11205.62	1262.95	11282.68	1263.41	1394.61	1263
11437.19	1263.6	11454.35	1262.94	11473.97	1263.19	11515.22	1263.8	11550.92	1263.2
11567.64	1262.6	11601.02	1263.13	11632.58	1262.22	11658.99	1262.6	11682.22	1261.9
11690.38	1261.3	11719.06	1261.87	11747.07	1261.66	11777.83	1262	11801.49	1263
11979.14	1263.4	12063.88	1263.75	12080.25	1263.46	12124.63	1263.9	12138.43	1264.9
12163.3	1263.9	12308.79	1264.1						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8690	.06	9871.16	.035	10111.39	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9871.16	10111.39	455	467.59	435	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
8690	9871.16	1262.26	10111.39	12308.79	1265.39

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
8690	9871.16	1262.26	9508.49	9516.01	1264.54

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 12.42

INPUT
Description: Blocked Obstruction used to block flow from that portion of the cross-section that does not receive subject flow.

Station Elevation Data num= 85

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8970	1262.8	8995.74	1262.84	9031.93	1263.05	9063.82	1262.68	9138.82	1262.62
9186.8	1262.3	9249.06	1261.52	9327.82	1262.21	9372.12	1262.01	9408.46	1261.12
9418.1	1259.2	9432.27	1261.28	9461.13	1261.31	9471.85	1259.29	9503.62	1261.27
9537.4	1260.7	9588.38	1261.31	9629.55	1261.24	9686.71	1260.94	9726.66	1261.82
9768.6	1262.3	9787.66	1260.52	9809.52	1259.54	9833.82	1259.44	9864.46	1259.91
9879.23	1259.6	9892.06	1256.26	9936.5	1255.77	9965.68	1255.38	9986.22	1254.66
10057.78	1254.5	10079.26	1263.54	10090.34	1258.79	10116.23	1258.25	10131.13	1263.92
10148.99	1255.8	10176.35	1256.04	10195.53	1256.15	10247.56	1255.3	10261.05	1258.02
10270	1258.8	10294.39	1264.04	10315.54	1262.28	10330.07	1261.76	10388.05	1261.42
10468.87	1261.4	10507.52	1259.96	10560.42	1260.05	10630.82	1260.39	10752.6	1260.37
10875.12	1260.5	10965.9	1260.76	11105.43	1260.75	11179.53	1261.21	11240.84	1261.65
11255.41	1261.7	11276.88	1262.72	11329.43	1262.73	11367.68	1262.53	11396.98	1260.97
11429.38		12611	1459.64	1262.37	11532.97	1262.73	11582.61	1262.55	11603	1262.33
11613.43	1259.9	11633.66	1259.11	11682.8	1259.14	11714.44	1260.06	11750.89	1261.73
11804.41	1261.9	11853.81	1262.36	11888.68	1262.12	11910.74	1262.79	11996.14	1262.2
12195.66	1262.3	12281.63	1262.44	12335.41	1262.43	12388.49	1262.58	12455.76	1262.57
12481.27	1262.6	12489.77	1263.49	12519.87	1263.01	12542.11	1258.21	12555.45	1258.05

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8970	.06	9879.23	.035	10079.26	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9879.23	10079.26	600	578.07	665	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
10079.07	12555.45	1263.48

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
8970	9780.87	1262.31	10300	12555.45	1263.54

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 12.313

INPUT
Description: Blocked Obstruction used to block flow from that portion of the cross-section that does not receive subject flow.

Station Elevation Data num= 79

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8911	1262.2	8923.98	1262.73	9012.36	1261.52	9114.22	1261.02	9215.07	1260.76
9317.71	1260.1	9418.58	1259.46	9521.44	1258.59	9656.01	1258.43	9698.04	1258.52
9773.36	1258.2	9818.33	1258.6	9843.21	1262.47	9863.96	1262.03	9877.14	1260.51
9914.61	1257.6	9926.12	1256.72	9959.4	1255.59	9979.52	1250.88	10015.02	1250.47
10027.71	1252.7	10085.83	1253.88	10136.24	1254.58	10145.32	1254.35	10172.03	1250.91
10209.29	1250.7	10237.98	1258.61	10260.61	1259.84	10325.64	1259.46	10358.25	1259.12
10383.8	1258.4	10407.94	1258.24	10424.35	1259.28	10555.79	1258.95	10695.97	1258.64
10714.29	1258.7	10732.29	1257.33	10762.67	1257.23	10789.42	1259.27	10866.17	1259.09
10886.46	1259.2	10920.68	1253.03	10949.1	1255.9	10979.09	1256.41	11040.79	1256.15
11045.95	1256.3	11097.1	1256.49	11164.64	1258.17	11221	1258.23	11277.52	1258.5
11305.7	1258.6	11348.84	1259.41	11422.49	1259.13	11500.27	1259.99	11510.39	1257.87

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11529.67  1257.311550.15  1257.311582.66  1257.311627.75 1257.7611639.64 1258.09
11753.95  1258.311771.62  1259.511786.29 1258.4911816.42 1258.4111918.18 1259.06
11973.14  1259.312019.77 1259.3212086.75 1259.5812121.34 1259.6412222.93 1259.52
12313.37    126012346.84 1259.6912353.96  1259.5 12361.9 1260.79 12380.3 1260.49
12392.93  1261.312403.57 1261.0312426.17  1255.712455.15 1255.55

Manning's n Values        num=       3
     Sta   n Val      Sta   n Val     Sta   n Val
    8911     .06 9877.14    .03510260.61     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9877.1410260.61              750  685.08     585             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
    8911 9877.14 1260.51 10260.612455.15 1259.84

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 12.194

INPUT
Description: CROSS SECTION ADJUSTED PER FLETCHER HEIGTHS GRADING PLAN


            Blocked Obstruction used to block flow from that
            portion of the cross-section that does not receive subject flow.


Station Elevation Data    num=      72
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    8672  1259.5 8712.33 1259.01 8737.02 1258.82 8837.03 1258.43 8898.06 1258.37
 8937.03  1258.1    9037 1258.12 9137.01 1257.93 9273.14 1257.33 9374.95 1257.03
 9433.06  1256.6 9462.14 1256.69 9471.89 1257.87 9522.08 1257.34 9564.57 1257.53
 9579.29  1258.5 9627.53 1258.45 9755.43 1259.53 9831.37 1259.62 9850.32 1253.17
 9877.34  1252.2 9889.54 1249.04 9930.45 1250.11 9934.41 1250.58 9961.21 1250.13
 9968.74    124810040.44 1248.3910059.15 1249.9210108.03 1249.6510126.99 1248.45
   10230  1249.8   10260    125610282.89  1257.610357.49    1258   10377  1257.9
 10468.2  1256.410548.46  1256.410625.97 1256.6610706.62  1256.310779.02  1256.3
10950.21  1255.910957.31    125610996.42 1256.02 11051.1  1255.911135.52  1256.3
11207.14  1256.511266.14  1256.411320.63 1256.6911348.71  1256.611367.39  1257.3
11383.45  1256.111435.96  1256.311493.32 1257.2811521.15  1257.211557.11  1256.7
11620.37  1257.3 11654.5  1258.311691.53 1257.9911705.13  1257.711780.58  1257.9
11867.52  1258.412078.16  1259.112191.99  1259.612211.69  1258.9   12219  1260.7
12238.25  1260.112248.25  1260.812259.89 1261.0112283.23  1255.512320.96    1255
 12350.3  1261.412385.23  1259.9

Manning's n Values        num=       3
     Sta   n Val      Sta   n Val     Sta   n Val
    8672     .06 9831.37    .03510282.89     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9831.3710282.89              370  337.73     330             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
    8672 9831.37 1259.62 10282.812385.23  1257.6

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 12.125

INPUT
Description: CROSS SECTION ADJUSTED PER FLETCHER HEIGTHS GRADING PLAN
             Blocked
             Obstruction used to block flow from that portion of the
             cross-section that does not receive subject flow.


Station Elevation Data    num=      81
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9049    1252 9068.23    1255 9096.82 1254.82 9127.01  1245.2 9143.84 1245.27
 9178.29    1255 9201.81 1255.39 9247.47 1255.24    9370 1255.67 9401.46 1256.01
 9511.87    1256 9575.08 1256.65 9587.02 1258.35 9608.23 1256.14 9625.14 1255.76
 9653.92  1255.5 9685.34 1255.96 9743.99 1254.31  9748.1 1253.38 9767.48 1250.29
 9807.09  1249.9  9822.2 1249.75 9862.49 1247.19    9874 1246.14 9893.23 1245.84
    9905  1245.2 9963.33 1244.9610011.22 1245.0510087.24 1244.6510126.05 1245.48
10188.42  1245.610217.08 1245.07   10300  1246.610337.64  1254.410437.79  1256.2
10453.41  1255.710497.61  1255.310528.77  1255.310540.16  1257.210657.73  1256.9
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10731.98  1256.810829.79 1257.1110913.73  1256.9 10983.6    125711046.81    1257
11134.07  1256.711191.23  1256.511236.54  1256.611305.08  1255.811320.86  1255.9
11377.53  1255.211405.52  1254.111455.47    1254 11505.7  1254.611586.69  1253.7
11602.34  1253.411623.01    125711651.29  1257.9 11676.1  1258.311687.04    1255
11701.25  1253.611718.54  1253.111732.36  1260.611739.55  1261.511763.57  1257.3
11774.93  1258.411788.09  1262.911812.51  1259.811828.47  1253.911884.73  1254.5
11923.03  1255.911970.87  1256.312015.67  1256.7 12040.3  1257.312071.27  1252.8
12117.23    125312147.77  1257.512178.36  1256.912188.58    125912252.96  1258.7
 12350.2    1259

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9049     .06  9748.1    .03510337.64     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        9748.110337.64               535  461.89     365            .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
    9049 9701.05  1255.910449.55 12350.2 1256.22

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 12.034

INPUT
Description: CODED OUT TRENCH ADJACENT TO FLETCHER HEIGHTS


             Blocked Obstruction used to block flow from that
             portion of the cross-section that does not receive subject flow.


Station Elevation Data    num=      72
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9213    1254    9220 1253.38 9235.21 1254.54 9286.76 1253.68 9376.99  1252.8
 9501.88  1252.4 9557.44 1253.86 9568.41 1253.64 9608.98 1253.36 9631.85 1252.99
 9683.23  1251.9 9719.47 1250.55  9732.1 1248.73 9744.74 1247.48 9778.46 1246.55
    9814  1245.1  9844.5 1242.62 9952.09 1241.73 9997.91 1241.4710060.49 1242.27
10072.37  1242.610086.14 1246.28 10172.6  1244.510186.14  1250.910210.39 1250.96
10222.61  1252.210240.53 1252.6610269.53 1255.5210297.52  1255.710345.02 1255.55
10414.46  1255.7 10507.8 1256.4110543.63 1254.8110625.84  1255.110669.22 1255.07
10717.05  1255.410828.77 1254.9910929.62 1254.6910939.84  1253.810970.08 1253.38
10999.45  1255.111091.42 1255.1811104.05 1254.6911111.71  1253.311126.93 1252.52
11153.59  1252.311222.48 1253.5211237.43 1249.4311285.65    125011292.32 1250.29
11359.58  1250.411396.92 1250.6111497.53 1250.6111531.69    125111572.18 1256.33
11589.75    125411658.39 1254.3411710.68 1254.31 11761.3  1254.811791.91 1254.29
11802.96  1256.711878.86 1256.4211919.14 1256.4711970.78  1256.812042.08 1256.74
12129.06  1256.912181.35 1256.7912296.42 1257.2812330.15  1257.2 12357.2 1256.99
12385.72  1257.912389.41 1257.82

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9213     .06 9719.47    .03510186.14     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9719.4710186.14               485  539.66     615            .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
10217.6212389.41 1250.89

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 11.949

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
             cross-section that does not receive subject flow.


Station Elevation Data    num=      79
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9320    1252 9340.38 1252.72 9354.07 1252.27 9379.51 1251.06 9388.34 1251.34
 9426.34    1250 9443.29  1249.5  9458.1 1244.15 9542.24 1243.17  9563.9 1243.06
 9584.85  1244.3 9650.51 1247.72 9673.75  1248.7 9705.69 1247.84 9738.43 1247.26
 9753.82  1245.3 9765.51 1246.42 9772.96 1245.82 9787.33 1241.28 9805.15 1242.45
 9836.25    1242 9878.93 1244.24 9893.21 1245.13 9915.65 1239.71 9974.92    1239
10050.62  1239.110079.84 1239.1710105.39  1238.910120.23 1241.7710136.92 1241.04
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10188.32  1239.510231.21 1242.6510256.85  1243.210323.37 1244.39 10325.2 1244.81
10341.45  1244.710362.64    124210383.08 1241.8110403.18 1247.1610412.63 1248.88
   10428  1248.810442.64 1247.9410479.36 1247.9310497.97 1248.7510553.94 1248.81
10629.27  1247.910677.54 1249.1410711.85 1250.2310759.77 1249.7810859.51 1249.64
10896.76  1249.510958.52 1249.6511017.72 1249.5911090.31 1249.8611248.77 1249.84
11341.52    125011373.85 1249.9111462.35 1250.1711480.12 1250.1611487.38 1249.37
 11500.6  1252.311507.16 1252.5511515.49 1251.7111611.62 1251.9111753.21 1251.73
11833.41    125211947.81 1252.1211997.03 1252.1312004.41 1252.9112006.99 1251.76
12010.55  1253.412024.24 1252.4112041.68 1252.8712070.93 1253.1112110.93 1252.12
12115.68  1252.112129.85 1254.2312148.74 1251.7812170.55 1251.95

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9320     .06 9893.21    .03510231.21     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9893.2110231.21              565  452.25     380             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
    9320 9679.97 1248.7110428.4612170.55  1248.8

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 11.864

INPUT
Description:



Station Elevation Data    num=      69
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9457    1242 9513.08 1241.63 9602.35 1241.74 9617.01 1239.18  9623.3 1239.11
 9660.06  1239.7 9692.74 1241.11 9749.87 1241.15 9791.41 1241.34 9832.97 1241.22
  9856.6  1240.6 9887.29 1240.43 9896.12 1235.84 9921.44 1235.57 9925.06 1236.26
 9951.56    1237 9960.02 1236.6510035.33 1237.05 10064.5 1236.9710092.91 1236.26
 10106.9    124010118.56 1240.4510130.48 1237.5110155.03 1248.0910162.06 1250.39
10181.61  1250.8 10186.5 1250.6310208.62 1251.79 10218.7  1253.310241.04 1242.98
10267.88  1247.110306.91 1246.3710315.52 1246.9110361.53  1246.210381.98 1246.18
10411.28  1246.910492.53 1247.5310507.94 1247.4510526.95  1247.410540.69 1248.25
10646.53    124810746.82 1248.1410807.84 1247.8710845.75  1247.810951.51 1248.09
10972.51  1248.211053.19 1248.3811108.97 1248.1711132.09 1248.2611266.94 1248.27
11275.43  1247.811292.83 1251.01 11308.4  1250.311399.39 1250.1711448.86 1250.22
11553.79  1250.611642.08 1250.3511679.66 1250.3611783.75 1250.7611791.44  1250.9
11795.97  1251.5 11809.3 1249.7911825.54 1251.1911859.76  1251.711891.49 1250.97
 11905.1  1249.911917.77 1250.6511923.48 1247.5411941.26 1247.15

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9457     .085 9887.29    .03510118.56     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9887.2910118.56              605  615.28     665             .1       .3

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 11.759

INPUT
Description:



Station Elevation Data    num=      65
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9380    1246 9411.85 1247.47 9448.72 1237.12 9505.51 1235.12 9552.05 1234.93
  9596.1    1235 9635.78 1234.63 9656.13 1234.75 9677.71  1235.2 9698.81 1244.58
 9710.55  1242.9 9727.37 1242.88 9748.99 1236.32 9771.52 1244.09 9791.44 1244.46
 9807.81  1244.4 9819.26 1240.79 9823.36 1242.57 9829.85 1239.21 9839.37 1242.12
 9849.88  1238.8 9858.37 1241.08 9869.84 1234.17 9928.41 1234.21 9943.92 1234.19
 9960.27  1234.7 9990.31 1235.17 9997.43 1232.0210042.04 1232.2510059.13 1234.27
10095.05  1234.210100.53 1233.9710130.39 1246.55 10142.3 1246.8510225.77 1247.06
10304.48  1246.310383.19 1245.6610475.98 1245.66 10562.8 1245.3910575.61 1245.41
10625.75  1244.810657.35 1243.5710662.34 1243.5510768.32  1243.910868.46 1244.38
10915.38  1244.610938.13  1247.811050.27 1248.0211085.38 1248.1411275.36 1248.07
 11369.5    1248 11404.6 1248.4511412.55 1249.2111417.07 1249.5211430.62 1247.86
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11447.94  1248.611479.92 1248.7411515.93 1247.9411526.98 1247.1211541.06 1247.48
11546.12    1245 11556.7 1244.5611576.66 1244.7811597.61 1244.5411620.05 1246.56

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9380    .085 9858.37    .03510130.39     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9858.3710130.39              485  501.24     470             .1       .3

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1           RS: 11.664

INPUT
Description:




Station Elevation Data    num=      49
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9320  1242.1 9340.74 1243.88 9371.82 1245.57 9388.89 1242.97 9409.19 1239.19
  9488.2  1236.8 9510.42  1243.4 9516.13 1241.47 9531.47 1237.15 9573.54 1235.87
 9662.56  1236.2 9717.06 1232.61 9730.43  1232.3 9787.16 1231.61 9815.35 1231.67
 9824.67    1232 9884.86  1230.4 9920.74 1230.85 9952.14 1231.01 9964.99 1228.99
   10014  1228.810052.37 1244.8610098.66 1245.5210205.55 1245.3810278.51 1244.63
10364.72  1244.710404.73    124510464.97 1243.9810536.07 1244.3610559.65 1244.47
10585.61  1245.810594.36 1245.2610650.67 1245.2310723.36 1246.12 10751.6 1246.24
10826.22  1246.110911.07 1246.8110942.04 1246.8511022.64 1246.27 11133.1  1246.4
11161.18  1246.611173.53 1246.9911183.38 1245.0811206.23 1246.2711270.25 1246.02
11284.98  1244.611298.78 1246.4411315.55 1246.5611344.37 1246.01

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9320     .06 9824.67    .03510052.37     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9824.6710052.37              535  513.83     515             .1       .3

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1           RS: 11.566

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
             cross-section that does not receive subject flow.

Station Elevation Data    num=      64
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9217    1240 9243.61 1241.94 9263.08 1243.12 9307.74 1235.34 9328.39 1235.06
 9341.54  1235.4 9355.88 1233.44 9368.38 1240.89 9379.99 1241.33 9408.25 1233.84
 9428.19  1233.6 9441.21    1236 9455.53 1235.92 9467.11 1235.04 9495.42 1234.83
 9509.06  1234.3 9523.18 1234.96 9543.01 1234.44 9556.13 1232.21 9565.05 1231.97
 9590.35  1229.3 9612.35 1229.37 9673.74 1228.55 9727.08 1229.76 9769.86 1228.48
 9787.53  1228.6 9842.83 1229.71 9858.42 1229.49 9883.62    1230    9913 1229.58
 9932.09    1229 9962.18 1229.69 9987.62 1228.5910023.35 1228.3210037.42 1234.13
10058.35  1243.310068.09 1243.5610096.08 1243.5710156.89 1243.7510195.96 1243.26
10215.88  1242.710254.08 1242.0410265.37 1243.2910281.07 1242.9810286.74 1242.85
10380.23  1242.9 10480.6 1243.8510567.95 1244.3810701.36 1244.2510785.01 1244.43
10879.83  1244.510910.88 1244.4110926.94  1245.210935.49 1243.1410944.13 1243.04
10964.63  1243.911006.16 1243.4511021.48 1243.4511034.46 1242.4311055.81 1244.55
11100.69  1244.111144.02 1243.8111171.29 1241.9511174.93 1241.91

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9217     .06 9543.01    .03510058.35     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9543.0110058.35              565  468.92     545             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev
    9217 9542.17 1234.46
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 9299.24 9360.24    1236
```

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 11.481

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
cross-section that does not receive subject flow.

Station Elevation Data num= 49

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9213	1240	9259.07	1231.3	9289.22	1230.96	9294.24	1230.07	9312.12	1228.64
9351.41	1228.4	9380.55	1229.22	9396.73	1234.43	9405.88	1229.72	9441.1	1230.75
9450.35	1233.7	9459.92	1229.09	9484.46	1229.38	9512.58	1228.69	9527.94	1232.91
9533.33	1233.9	9537.96	1233.72	9551.67	1228.96	9565.36	1229.99	9626.91	1230.13
9699.79	1231.1	9769.56	1231.84	9826.52	1232.16	9842.07	1236.77	9849.46	1234.57
9874.37	1225.7	9910.11	1224.81	9942.3	1227.89	9982.82	1226.04	10006.7	1225.45
10013.65	1226.5	10060.55	1227.8	110103.46	1228.6	610123.39	1234.1	10146.77	1233.97
10175.5	1234	10194.78	1237.2	310210.27	1240.1	910240.77	1240.7	810257.84	1240.7
10321.22	1241.5	10371.31	1242	10427.88	1242.0	410499.82	1242.1	110600.96	1242.36
10713.02	1241.8	10765.73	1241.98	10778.9	1241.2	810811.84	1241.64		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9213	.06	9842.07	.035	10123.39	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9842.07	10123.39	510	523.22	555	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
9213	9842.07	1236.77	10199.21	10811.84	1234.4

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 11.386

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
cross-section that does not receive subject flow.

Station Elevation Data num= 43

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9104	1238	9123.73	1238	9191.6	1226.67	9220.12	1225.61	9256.82	1225.95
9280.43	1231	9287.19	1228.94	9308.14	1229.46	9394.57	1229.76	9401.11	1229.82
9481.84	1228.9	9515.86	1229.01	9536.77	1230.04	9593.6	1230.05	9609.85	1229.96
9689.93	1230.2	9711.91	1230.22	9789.39	1230.37	9849.51	1229.5	9863.67	1233.46
9882.21	1226.3	9891.31	1223.19	9931.36	1226.78	9967.31	1223.57	9973.51	1223.55
10044.54	1223.1	10065.65	1229.38	10089.95	1228.89	10109.7	1230.94	10133.31	1238.4
10237.54	1238.1	10272.91	1238.23	10303.28	1242.54	10313.95	1241.68	10332.85	1238.11
10363.13	1238	10432.47	1239.24	10467.83	1239.15	10532.44	1239.39	10609.1	1239.58
10629.07	1234.8	10669.31	1238.14	10700.17	1238.2				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9104	.06	9863.67	.035	10133.31	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9863.67	10133.31	445	436.6	415	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
9104	9863.67	1233.46	10133.31	10700.17	1238.4

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 11.301

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
cross-section that does not receive subject flow.

Station Elevation Data num= 45

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9052	1234	9070.93	1235.11	9091.44	1234.97	9137.56	1233.7	9187.01	1232.26
9300.96	1231.8	9306.67	1231.82	9320.68	1233.33	9329.32	1231.94	9347.02	1232.14

```
 9379.69  1232.2 9454.18 1231.22 9483.89 1230.68 9510.19 1223.69  9828.8 1223.69
 9857.44    1231 9872.47 1231.34 9883.56 1232.87 9921.65 1221.78 9928.94 1222.87
  9951.1  1221.9 9961.37 1222.0510013.49 1221.2710037.02 1223.8310064.26 1223.68
10099.96  1232.510107.77 1234.82 10200.7 1235.3310255.01 1235.47   10334  1235.9
10389.16  1236.410402.35 1236.2710462.61 1236.7210521.61 1237.0910537.78 1233.53
10566.27    123610579.08 1236.3310611.66 1236.5110643.13 1236.1710658.31 1235.99
10672.93    123810709.94 1237.7210812.37  1238.310841.78  1238.310853.55 1238.02

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9052     .06 9883.56    .03510107.77     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9883.5610107.77              300   289.9     275             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
    9052 9883.56 1232.8710107.4610853.55 1234.82

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 11.243

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
             cross-section that does not receive subject flow.



Station Elevation Data    num=      46
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9045  1231.8 9054.46 1233.38 9149.54 1231.28 9247.85 1231.14 9286.87 1231.21
  9356.7  1231.1 9443.04 1231.67 9460.96 1231.72 9487.11 1231.08 9529.07 1218.35
 9677.97  1218.4 9816.78 1218.42 9861.96 1231.14 9873.99 1231.21  9882.8 1232.84
 9887.62  1233.7 9917.39 1224.76 9925.15 1222.23 9966.73  1221.1 9985.42 1219.13
10011.89  1219.210043.76 1223.2310075.46 1222.8610109.22  1234.310121.84 1233.46
10165.28  1233.110276.72 1233.5110371.05 1234.4810492.94 1235.8710502.21  1234.1
10509.53  1232.610539.77 1234.9910547.78 1234.8310581.98 1235.5610612.73 1234.98
10625.25  1233.910643.35 1236.74 10667.7 1236.4610713.47 1236.2910734.03 1236.03
10744.01  1235.5 10761.9 1233.9110780.34 1234.3110822.13 1235.0210909.68 1234.82
10940.42  1234.6

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9045     .06 9887.62    .03510109.22     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9887.6210109.22              295  314.34     335             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
    9045 9887.62  1233.7 10109.210940.42  1234.3

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 11.188

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
             cross-section that does not receive subject flow.



Station Elevation Data    num=      55
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9041    1232 9115.33 1231.15 9134.84 1231.27 9320.71 1231.29 9420.86 1231.02
 9479.22  1231.5 9498.73 1232.21 9504.38 1233.89 9517.47 1235.75 9529.42 1235.25
 9541.87  1233.1 9560.31 1235.22 9577.03 1235.15 9590.29 1232.45 9626.37 1231.59
 9648.41  1224.9 9667.19 1218.92 9727.11 1218.53 9750.16 1218.51 9800.35 1218.78
 9838.94  1231.4 9859.24 1231.31 9865.77 1232.77 9904.11 1221.37 9925.94 1221.68
 9953.13  1221.6 9973.81 1219.1410020.06 1219.2410046.79 1221.0410061.75 1221.96
10083.91  1221.710118.07 1230.7510124.74 1232.9310137.65 1231.8410222.24 1231.65
10287.91  1231.910322.53  1232.210381.16 1233.0810422.81 1233.4710444.15  1233.8
10457.76  1230.810494.01 1233.5110530.59 1233.8810560.22    123310572.71 1231.82
10588.37  1234.910672.97 1233.3510681.83 1234.2110688.27 1232.8510698.88 1232.72
10716.12  1232.110726.76 1232.4510748.02  1231.710770.25 1233.4610813.49    1234

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
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    9041      .06 9865.77     .03510124.74      .06

Bank Sta: Left   Right    Lengths: Left Channel   Right      Coeff Contr.    Expan.
       9865.7710124.74                305  309.44     300              .1       .3
Blocked Obstructions      num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
    9041 9865.77 1232.77 10124.710813.49 1232.93

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 11.129

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
             cross-section that does not receive subject flow.

Station Elevation Data    num=      48
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9004    1230 9022.25 1231.31 9041.69 1230.94 9093.69 1230.21 9205.62 1230.27
 9282.22  1229.9 9387.83 1229.84 9469.37 1230.22 9551.22 1230.51 9578.78 1230.74
 9596.83  1231.1 9621.45 1226.87 9636.84 1226.11 9641.03 1225.42 9695.55 1225.18
 9740.49  1224.4 9765.65  1225.4 9782.42 1228.16 9796.24 1231.57 9826.13 1231.15
 9828.29  1231.3  9861.4 1220.98  9891.1 1220.68 9928.19 1221.52 9946.92 1219.44
 10018.8  1219.410039.39 1219.3910068.63 1221.5210094.84 1221.6910120.15 1231.76
10152.71  1230.710185.08 1230.0310286.28 1230.4610345.31 1231.2210387.47 1231.87
10408.12  1232.310421.68 1229.7810458.63 1232.1810491.38 1232.6710524.76 1231.71
10538.53  1230.910554.59 1233.9410584.41 1233.3410642.87 1233.4810670.33 1230.38
10695.41  1230.810713.99 1230.2810737.37    1232

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9004     .06 9828.29    .03510120.15     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right      Coeff Contr.    Expan.
       9828.2910120.15                565  516.79     495              .1       .3
Blocked Obstructions      num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
    9004 9828.29  1231.310120.3610737.37 1231.75

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 11.03

INPUT
Description:


Station Elevation Data    num=      38
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    8960    1234 8980.68 1233.58 9011.25 1230.12 9085.72 1228.86 9109.21 1228.64
 9184.36  1228.7 9234.32 1228.44 9309.21  1227.9 9393.14 1228.17 9417.45 1229.16
 9441.08  1228.3 9478.71 1229.45 9491.57 1227.99 9680.85 1227.25 9708.72 1227.22
 9781.31  1226.7 9809.22 1226.64 9838.37 1226.85 9885.45 1228.08 9909.05 1229.05
 9929.79  1223.5 9943.87 1219.3710037.48  1219.410088.04 1220.02 10134.6 1227.65
10139.94  1228.910166.44 1229.1310249.08 1229.8410323.92 1229.9510333.76  1230.2
10347.89  1227.810375.57 1229.1510449.73 1229.0810479.19 1229.9410547.18  1230.2
10575.45  1230.310628.86 1230.8910644.42    1230

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    8960     .06 9909.05    .03510139.94     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right      Coeff Contr.    Expan.
       9909.0510139.94                200  167.81     140              .1       .3

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 10.996

INPUT
Description:


Station Elevation Data    num=      38
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    8929  1236.2 8960.26  1235.8 8986.64  1234.2 9020.24 1232.98 9058.54 1231.82
 9146.85  1230.2 9203.88 1229.61 9235.52 1229.12 9311.85 1228.93 9380.46 1228.65
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 9409.74  1227.8 9556.72 1227.61  9592.3 1227.24 9662.76 1227.13 9786.01  1227.6
 9831.36  1227.8 9850.57 1228.24 9873.61 1228.19 9901.51 1222.31 9916.21  1219.4
10057.67  1218.810088.04 1218.61 10105.1 1222.44 10127.6 1228.5510176.84 1229.36
10254.12    122910258.07 1227.9410272.53 1226.5610293.62 1228.8410310.22 1228.56
10392.84    122810435.68 1229.0710471.63 1228.8610501.42 1228.1710521.96 1228.41
10532.52  1229.810548.27 1229.4110566.57 1229.35

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    8929     .06 9873.61    .035 10127.6     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9873.61 10127.6              128  129.13     127             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
    8929 9873.61 1228.47 10127.610566.57 1229.05

BRIDGE                  RIVER: RIVER-1
REACH: Reach-1             RS: 10.988

INPUT
Description: Bridge #3




Distance from Upstream XS =       29
Deck/Roadway Width        =       89
Weir Coefficient          =      2.8
Bridge Deck/Roadway Skew  =
Upstream  Deck/Roadway Coordinates
    num=      33
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
    8929  1236.2       0    9090  1235.1       0    9209  1232.3       0
 9227.18  1232.1       0 9284.39  1231.3       0 9363.47 1230.13       0
 9391.57 1229.66       0 9491.57 1228.59       0 9591.57 1228.47       0
 9691.57 1230.33       0 9800.44 1230.73       0 9820.12 1233.04       0
 9839.42 1233.24       0 9855.82 1233.39       0    9872 1233.52 1227.82
 9880.42 1233.59 1227.88 9905.02 1233.75    1228 9937.82  1233.9 1228.19
 9970.62 1233.99 1228.2810003.43    1234  1228.210036.23 1233.94 1228.23
10069.03 1233.82 1228.1110101.83 1233.63  1227.910115.13 1233.53 1227.82
10126.65 1233.44  1227.810134.65 1233.37       010142.29  1233.3       0
10167.44 1233.03       010200.24 1232.64       010233.05 1232.24       0
10263.48 1231.84       0 10263.5 1229.76       010429.91 1229.05       0

Upstream Bridge Cross Section Data
Station Elevation Data    num=      38
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    8929  1236.2 8960.26  1235.8 8986.64  1234.2 9020.24 1232.98 9058.54 1231.82
 9146.85  1230.2 9203.88 1229.61 9235.52 1229.12 9311.85 1228.93 9380.46 1228.65
 9409.74  1227.8 9556.72 1227.61  9592.3 1227.24 9662.76 1227.13 9786.01  1227.6
 9831.36  1227.8 9850.57 1228.24 9873.61 1228.19 9901.51 1222.31 9916.21  1219.4
10057.67  1218.810088.04 1218.61 10105.1 1222.44 10127.6 1228.5510176.84 1229.36
10254.12    122910258.07 1227.9410272.53 1226.5610293.62 1228.8410310.22 1228.56
10392.84    122810435.68 1229.0710471.63 1228.8610501.42 1228.1710521.96 1228.41
10532.52  1229.810548.27 1229.4110566.57 1229.35

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    8929     .06 9873.61    .035 10127.6     .06

Bank Sta: Left   Right    Coeff Contr.   Expan.
       9873.61 10127.6             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
    8929 9873.61 1228.47 10127.610566.57 1229.05

Downstream  Deck/Roadway Coordinates
    num=      33
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
    8929  1236.2       0    9090  1235.1       0    9209  1232.3       0
 9227.18  1232.1       0 9284.39  1231.3       0 9363.47 1230.13       0
 9391.57 1229.66       0 9491.57 1228.59       0 9591.57 1228.47       0
 9691.57 1230.33       0 9800.44 1230.73       0 9820.12 1233.04       0
 9839.42 1233.24       0 9855.82 1233.39       0    9872 1233.52 1227.82
```

```
 9880.42 1233.59 1227.88 9905.02 1233.75    1228 9937.82  1233.9 1228.19
 9970.62 1233.99 1228.2810003.43    1234  1228.210036.23 1233.94 1228.23
10069.03 1233.82 1228.1110101.83 1233.63  1227.910115.13 1233.53 1227.82
10126.65 1233.44  1227.810134.65 1233.37       010142.29  1233.3       0
10167.44 1233.03       010200.24 1232.64       010233.05 1232.24       0
10263.48 1231.84       0 10263.5 1229.76       010429.91 1229.05       0

Downstream Bridge Cross Section Data
Station Elevation Data    num=      37
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    8902  1236.2 9009.48 1235.03 9081.57 1233.52 9197.15 1230.68 9238.17 1230.24
 9329.77  1228.2 9376.07  1228.2 9408.17 1228.17 9436.53 1227.95 9492.53  1228.3
 9514.74  1228.3 9576.16 1227.77 9654.38 1227.28 9703.17 1227.65 9725.18 1227.39
 9735.57  1227.5 9780.11 1227.16 9835.41 1227.79 9869.32 1227.57 9897.23 1219.27
 9920.15  1219.5 9980.77 1219.0810028.89  1218.610081.72 1218.62 10098.8  1223.7
10114.18  1227.910118.92 1228.67 10154.4 1229.2810188.69 1229.31 10211.1 1228.99
10266.51  1228.110365.25 1227.8110374.35 1228.1710413.39 1228.1110441.35 1228.32
 10502.2  1228.610524.42 1228.33

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    8902     .06 9869.32    .03510118.92     .06

Bank Sta: Left   Right    Coeff Contr.   Expan.
       9869.3210118.92            .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
    8902 9865.36  1227.510120.1810524.42 1228.59
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 10118.910524.42 1228.38

Upstream Embankment side slope              =       2 horiz. to 1.0 vertical
Downstream Embankment side slope            =       2 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins         = 1228.47
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=    9918    Downstream=    9918
Upstream     num=       2
    Width   Elev    Width   Elev
       3    1217       3  1228.5
Downstream     num=       2
    Width   Elev    Width   Elev
       3    1217       3  1228.5

Pier Data
Pier Station     Upstream=  9966.5    Downstream=  9966.5
Upstream     num=       2
    Width   Elev    Width   Elev
       3    1217       3  1228.5
Downstream     num=       2
    Width   Elev    Width   Elev
       3    1217       3  1228.5

Pier Data
Pier Station     Upstream=   10015    Downstream=   10015
Upstream     num=       2
    Width   Elev    Width   Elev
       3    1217       3  1228.5
Downstream     num=       2
    Width   Elev    Width   Elev
       3    1217       3  1228.5

Pier Data
Pier Station     Upstream= 10063.5    Downstream= 10063.5
Upstream     num=       2
    Width   Elev    Width   Elev
       3    1217       3  1228.5
Downstream     num=       2
    Width   Elev    Width   Elev
```

```
       3    1217       3  1228.5

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 =.7905694
           Max Low Cord                = 1228.28

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

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 10.98

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
             cross-section that does not receive subject flow.


Station Elevation Data    num=      37
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    8902  1236.2 9009.48 1235.03 9081.57 1233.52 9197.15 1230.68 9238.17 1230.24
 9329.77  1228.2 9376.07  1228.2 9408.17 1228.17 9436.53 1227.95 9492.53  1228.3
 9514.74  1228.3 9576.16 1227.77 9654.38 1227.28 9703.17 1227.65 9725.18 1227.39
 9735.57  1227.5 9780.11 1227.16 9835.41 1227.79 9869.32 1227.57 9897.23 1219.27
 9920.15  1219.5 9980.77 1219.0810028.89  1218.610081.72 1218.62 10098.8  1223.7
10114.18  1227.910118.92 1228.67 10154.4 1229.2810188.69 1229.31 10211.1 1228.99
10266.51  1228.110365.25 1227.8110374.35 1228.1710413.39 1228.1110441.35 1228.32
 10502.2  1228.610524.42 1228.33

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    8902      .06 9869.32    .03510118.92      .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9869.3210118.92              445  357.93     300             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
    8902 9865.36  1227.510120.1810524.42 1228.59
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 10118.910524.42 1228.38

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 10.917

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
             cross-section that does not receive subject flow.




Station Elevation Data    num=      31
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    8805  1225.9 8972.29 1225.85 9066.58 1226.22 9263.12 1226.57 9375.59 1226.02
 9461.75  1225.4 9571.45 1224.76 9661.22  1224.2  9750.8 1223.54 9767.16 1223.78
 9781.35  1226.6  9800.8 1225.99 9808.72 1223.78 9818.09 1221.71 9847.62 1220.39
  9875.5    1219  9910.7  1218.1  9945.8 1216.74 10009.7 1216.7310046.04 1216.95
10099.87  1217.710106.64 1217.9510122.36 1222.78 10144.6 1222.5310164.12 1223.11
10200.72  1224.510214.25 1224.1910216.87  1224.410299.07 1224.6310368.52 1222.75
 10384.1    1223
```

```
Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    8805     .06 9808.72    .03510200.72     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9808.7210200.72              265  292.21     300             .1       .3
Blocked Obstructions      num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
    8805 9779.27    1225   10200 10384.1 1224.49

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 10.862

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
             cross-section that does not receive subject flow.



Station Elevation Data    num=      41
     Sta    Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
    8693    1224  8699.3 1225.12 8711.18 1224.75 8812.47 1224.71 8877.06 1224.61
 8973.17  1225.1 9052.06 1225.28 9109.55 1225.46 9197.22 1225.36 9272.18 1225.52
 9337.49  1225.6 9371.66 1225.46 9479.31 1224.37 9565.38 1224.09  9621.6 1223.33
 9635.85  1226.3 9685.37 1224.89 9696.76 1225.68 9713.74 1224.75 9738.95 1224.05
 9781.15  1222.7 9823.51 1222.82 9836.85 1222.96 9840.35 1224.34 9850.56 1228.35
 9875.49  1216.6 9892.85 1216.54  9912.5 1217.66 9934.73 1215.89  9968.6 1215.97
 9999.37  1215.610003.08 1215.43   10020 1216.4910082.87 1215.6610097.01 1220.97
10118.76  1223.210157.02 1223.2610185.23 1223.3710237.67 1221.2110253.88 1221.66
10268.53    1221

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    8693     .06 9850.56    .03510118.76     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9850.5610118.76              265  313.15     360             .1       .3
Blocked Obstructions      num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
    8693  9850.5 1228.34 10118.710268.53  1223.2

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 10.803

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
             cross-section that does not receive subject flow.



Station Elevation Data    num=      36
     Sta    Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
    8729  1224.1 8733.57    1225  8741.5 1223.73 8812.35 1223.93 8890.69 1224.06
 8989.13  1224.4 9095.68 1224.56 9205.03 1224.47 9295.79 1224.54 9386.74 1224.34
 9510.25  1223.6 9607.53 1222.79 9621.28  1227.1 9658.11 1227.58 9670.69 1228.24
  9701.4  1228.5 9748.86 1219.93 9772.23 1218.42 9795.08  1220.9 9824.49 1220.69
 9852.63  1219.8 9871.17 1220.07  9913.5 1217.91 9925.08 1217.36 9938.72 1214.56
 9987.09  1214.7 9997.56  1214.110008.12 1216.0510049.49 1217.0510074.31  1215.5
10126.54    121510179.25 1215.7610190.94 1219.9910215.45 1220.3410290.82 1220.21
 10364.4    1220

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    8729     .06 9871.17    .03510215.45     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9871.1710215.45              555   567.3     555             .1       .3
Blocked Obstructions      num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
    8729 9794.85 1220.8910217.03 10364.4 1220.33

CROSS SECTION          RIVER: RIVER-1
```

REACH: Reach-1 RS: 10.699

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
cross-section that does not receive subject flow.

Station Elevation Data num= 35

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8912	1218	8926.34	1220.57	8934.06	1221.5	8945.19	1220.97	9012.4	1220.81
9058.23	1220.6	9149.1	1220.4	9281.44	1220.12	9395.19	1220.09	9494.65	1219.95
9554.71	1220	9617.05	1219.97	9667.31	1219.52	9713.93	1219.26	9781.25	1219.49
9790.75	1220.1	9831.4	1220.67	9856.59	1221.76	9874.77	1219.62	9908.51	1223.65
9924.34	1223.8	9940.54	1223.54	9958.52	1222.81	9985.14	1209.46	10026.34	1209.49
10059.24	1211.3	10102.3	1212.67	10147.7	1214.69	10179.34	1213.51	10238.84	1213.36
10251.21	1218.2	10283.08	1218.83	10358.76	1218.31	10386.54	1216.71	10402.2	1216.85

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8912	.06	9958.52	.035	10251.21	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9958.52	10251.21	460	462.24	460	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
10366.14	10402.2	1218.33

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 10.612

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
cross-section that does not receive subject flow.

Station Elevation Data num= 29

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9048	1219.9	9056.24	1218.43	9108.47	1218.8	9207.24	1218.55	9317.08	1218.42
9406.44	1218.2	9494.41	1218.32	9630.26	1217.53	9709.1	1218.12	9798.17	1217.22
9829.94	1216.4	9836.78	1216.39	9860.25	1221.5	9900.45	1221.45	9908.43	1220.88
9924.93	1214.6	9941.99	1208.81	9995.58	1208.77	10031.37	1209.65	10094.63	1210.88
10117.43	1210.3	10138.78	1210.09	10181.06	1210.14	10192.84	1210	10234.38	1209.98
10249.66	1215.6	10352.46	1215.84	10384.84	1213.68	10400.09	1213.84		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9048	.06	9908.43	.035	10249.66	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9908.43	10249.66	490	504.93	435	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
9048	9908.43	1220.88	10249.6	10400.09	1215.6

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 10.517

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
cross-section that does not receive subject flow.

Station Elevation Data num= 27

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9005	1216.7	9170.01	1216.66	9274.41	1216.37	9375.16	1215.89	9464.87	1215.95
9519.11	1216.1	9534.66	1213.87	9572.86	1212.93	9615.29	1219.44	9648.11	1220.64
9669.21	1218.3	9688.22	1211.5	9749.23	1209.61	9771.2	1218.09	9801.49	1208.22
9818.46	1209.6	9871.9	1210.44	9927.54	1209.63	9969.81	1208.21	10018.11	1207.43
10036.17	1208.6	10046.63	1208.26	10095.36	1207.56	10108.57	1212.41	10133.19	1211.06
10236.89	1211.8	10315.07	1212						

```
Manning's n Values          num=        3
     Sta   n Val      Sta   n Val      Sta   n Val
    9005      .06  9771.2     .03510108.57      .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9771.210108.57               425   519.3     480             .1       .3
Blocked Obstructions      num=        2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
    9005  9771.2 1218.0910108.6410315.07 1212.41

CROSS SECTION           RIVER: RIVER-1
REACH: Reach-1             RS: 10.443

INPUT
Description:



Station Elevation Data     num=       38
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
    9284    1214 9288.09  1213.4 9310.91 1213.28 9389.51 1212.49 9395.02  1213.1
 9414.45    1212 9500.08 1211.73    9525  1211.5 9547.59 1210.71 9563.81 1210.43
 9612.23  1224.2  9628.1 1227.16 9661.63  1228.5 9689.34 1229.34 9709.16 1227.87
 9720.12  1224.9 9745.53 1219.55 9757.93 1216.73 9767.19 1217.48 9795.24 1217.98
 9838.58  1210.5 9875.81 1210.53 9893.41  1207.9 9896.92 1207.09 9954.48 1206.62
 9976.71  1204.610020.13 1205.8110104.56 1206.3510145.97 1206.2910203.45 1205.28
10264.41  1205.310282.67 1211.6710314.96 1213.6510410.42 1212.8310418.45 1212.69
10484.54  1212.4 10513.7 1211.09 10541.4 1211.26

Manning's n Values          num=        3
     Sta   n Val      Sta   n Val      Sta   n Val
    9284      .06 9875.81     .03510314.96      .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9875.8110314.96               475  494.83     420             .1       .3

CROSS SECTION           RIVER: RIVER-1
REACH: Reach-1             RS: 10.348

INPUT
Description:



Station Elevation Data     num=       38
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
    9565    1226 9618.55 1212.07 9631.61 1211.15 9706.38 1210.07 9729.72 1209.95
 9835.72  1209.8 9854.32 1209.73 9874.56 1215.57 9912.21 1213.46 9923.35 1212.49
 9957.23  1212.7 9976.86  1202.310001.99 1202.1510047.79 1205.1110062.98 1204.47
10081.57  1205.210097.56 1204.4810129.49 1202.4110146.71 1202.9710176.03 1201.21
10193.48  1201.410208.49 1204.2910232.55 1202.4510249.81 1202.5410351.23 1202.58
10361.56  1202.710382.66  1208.910417.97 1208.4810467.24 1208.0510511.03 1208.18
10517.01  1207.710530.55 1208.1110547.77  1207.8 10660.3 1208.43 10793.2  1208.7
10844.58  1209.610878.78 1207.9610904.64 1208.32

Manning's n Values          num=        3
     Sta   n Val      Sta   n Val      Sta   n Val
    9565      .06 9957.23     .03510382.66      .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9957.2310382.66               510     523     385             .1       .3
Blocked Obstructions      num=        1
   Sta L   Sta R    Elev
   10510   10581    1208

CROSS SECTION           RIVER: RIVER-1
REACH: Reach-1             RS: 10.271

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
             cross-section that does not receive subject flow.

Station Elevation Data     num=       37
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
    9491  1216.1 9536.53 1205.79 9586.12 1205.96 9692.04 1205.36 9782.47 1205.92
 9804.37  1210.9 9818.13  1211.6  9836.6 1212.14 9854.54 1211.43 9880.46 1202.76
```

```
  9920.7    1202 9933.62 1202.76 9949.76 1201.68 9971.38 1198.2610022.21  1198.4
10032.36  1199.610053.82 1200.8210079.66 1201.2510127.98 1201.4510141.27 1201.33
10153.03  1202.110182.74 1202.0910200.52 1200.3610215.05  1199.9 10259.7 1199.52
10280.99  1206.610310.32 1206.0610388.32 1206.0310406.86 1205.8310415.69 1205.11
10468.77  1205.710517.17  1205.910670.08 1207.1510750.84  1207.510782.79 1207.62
 10818.5  1206.6 10843.7 1207.07

Manning's n Values         num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
    9491     .06 9854.54    .03510280.99     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9854.5410280.99              460  491.26     455             .1       .3
Blocked Obstructions      num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 9513.81 9823.81 1211.75   10305   10583    1206

CROSS SECTION           RIVER: RIVER-1
REACH: Reach-1             RS: 10.176

INPUT
Description:



Station Elevation Data     num=      37
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9320    1218 9342.15 1215.79 9367.97 1209.77 9382.78 1205.27 9445.62 1204.52
 9501.34  1204.1 9521.03 1207.57 9540.11 1208.61 9564.44 1209.57 9587.25  1207.2
  9634.9    1205 9667.17  1203.4 9706.95 1202.83 9713.81 1200.98 9720.47 1203.68
 9737.82  1200.4 9765.52 1200.25 9779.43 1199.95 9872.33  1198.7 9955.39 1198.38
  9960.2  1198.5 9979.28 1195.8710010.54 1195.5710027.61 1198.8810058.83 1199.59
10063.89  1199.710070.72 1198.7910118.38 1200.2210129.28 1205.5710153.39 1204.93
10165.28  1205.310227.18 1206.12 10301.4 1206.8610426.08 1207.1810440.36 1207.13
10508.37  1207.510569.25 1206.97

Manning's n Values         num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
    9320     .06 9720.47    .03510129.28     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9720.4710129.28              510  553.29     550             .1       .3
Ineffective Flow      num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
    9320 9720.47 1203.6810129.2810569.25 1205.57

CROSS SECTION           RIVER: RIVER-1
REACH: Reach-1             RS: 10.096

INPUT
Description:



Station Elevation Data     num=      38
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9294  1217.8 9335.91 1210.57 9371.68 1208.38 9398.45 1205.88 9406.41 1205.34
 9459.94    1205 9538.72 1205.07 9563.14 1204.73  9615.7 1202.94 9648.79 1202.75
 9677.65  1199.1 9704.94 1198.08 9718.95 1202.39  9764.7 1194.25 9773.46 1194.44
 9808.57  1195.9 9819.17 1195.57 9827.41 1194.76 9850.49 1196.68 9882.89 1196.23
 9962.59  1196.1 9980.59 1193.96   10013 1193.8410023.31 1195.1710061.23 1195.35
10078.07  1196.610109.46 1197.65 10121.7 1203.5310149.13 1204.4110194.54 1204.68
10267.79    120610281.64 1206.0910387.24 1205.16   10451 1204.9510501.24 1205.11
10517.76    120510526.38 1204.5110541.18 1204.65

Manning's n Values         num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
    9294     .06 9718.95    .035 10121.7     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9718.95 10121.7              535  543.99     555             .1       .3
```

```
Ineffective Flow      num=        2
   Sta L    Sta R     Elev    Sta L    Sta R     Elev
    9294 9718.95 1202.3910121.3910541.18 1203.46
Blocked Obstructions      num=        1
   Sta L    Sta R     Elev
 9718.95 9648.79 1202.75

CROSS SECTION           RIVER: RIVER-1
REACH: Reach-1             RS: 9.997

INPUT
Description:



Station Elevation Data     num=       35
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
    9340  1214.2 9352.35     1207 9371.82 1204.45 9407.13 1204.48 9446.64 1205.45
 9482.27  1204.8 9519.13 1204.52 9525.68  1204.1 9576.77 1203.58  9668.5 1203.88
 9684.88  1203.9 9714.68 1205.05 9777.46 1203.31 9815.94  1201.1  9834.4 1199.69
 9851.88  1200.6 9879.59 1200.73 9888.55 1197.27 9904.24 1191.7110023.36 1192.29
10055.84 1192.110096.68 1192.3910102.64 1192.6110130.11 1192.7310144.96 1198.06
10154.62  1198.4 10166.1 1200.72 10192.7     1201 10346.9 1201.6510426.32 1201.81
10522.07 1202.310547.88 1202.2510577.25 1203.2510592.47 1202.8210614.94  1203.2

Manning's n Values         num=        3
     Sta    n Val      Sta    n Val      Sta    n Val
    9340      .06 9879.59     .035 10166.1      .06

Bank Sta: Left    Right     Lengths: Left Channel    Right      Coeff Contr.    Expan.
       9879.59 10166.1                 51   74.24     104              .3        .5

CROSS SECTION           RIVER: RIVER-1
REACH: Reach-1             RS: 9.984

INPUT
Description:



Station Elevation Data     num=       26
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
    9334  1204.9 9419.99 1204.82 9434.19 1205.11 9579.64 1204.38 9673.54 1204.19
 9723.58  1204.3 9755.46 1203.67    9826 1203.59 9864.55 1203.16 9878.79  1199.3
  9896.5  1191.3 9960.11 1191.26 9998.46 1191.1510081.52 1191.2810115.82 1191.33
10128.83    119110139.49 1194.1410147.33 1194.0710151.89 1195.5710172.35     1204
10199.25 1204.310218.46 1203.8610258.03 1204.21 10309.8 1204.4410359.68 1204.15
10409.02     1204

Manning's n Values         num=        3
     Sta    n Val      Sta    n Val      Sta    n Val
    9334      .06 9864.55     .03510172.35      .06

Bank Sta: Left    Right     Lengths: Left Channel    Right      Coeff Contr.    Expan.
       9864.5510172.35                 130  133.96     129              .3        .5
Ineffective Flow      num=        2
   Sta L    Sta R     Elev    Sta L    Sta R     Elev
    9334 9864.55  1204.910172.3510409.02 1204.01
Blocked Obstructions      num=        2
   Sta L    Sta R     Elev    Sta L    Sta R     Elev
    9334 9864.55 1203.16 10172.310409.02     1204

BRIDGE                  RIVER: RIVER-1
REACH: Reach-1             RS: 9.971001

INPUT
Description: Bridge #2



Distance from Upstream XS =        7
Deck/Roadway Width        =      115
Weir Coefficient          =     2.68
Bridge Deck/Roadway Skew  =
```

```
Upstream  Deck/Roadway Coordinates
    num=        9
     Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord
    9334  1204.9        0     9589  1206.8        0     9600 1206.75        0
 9738.64  1206.5        0     9864 1206.67 1206.67 9864.01 1206.67 1200.24
10177.99 1206.67 1200.24    10178 1206.67 1206.6710409.02 1204.01        0

Upstream Bridge Cross Section Data
Station Elevation Data     num=       26
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
    9334  1204.9 9419.99 1204.82 9434.19 1205.11 9579.64 1204.38 9673.54 1204.19
 9723.58  1204.3 9755.46 1203.67    9826 1203.59 9864.55 1203.16 9878.79  1199.3
  9896.5  1191.3 9960.11 1191.26 9998.46 1191.1510081.52 1191.2810115.82 1191.33
10128.83    119110139.49 1194.1410147.33 1194.0710151.89 1195.5710172.35    1204
10199.25  1204.310218.46 1203.8610258.03 1204.21 10309.8 1204.4410359.68 1204.15
10409.02    1204

Manning's n Values         num=        3
     Sta   n Val      Sta   n Val      Sta   n Val
    9334     .06 9864.55    .03510172.35     .06

Bank Sta: Left   Right    Coeff Contr.   Expan.
       9864.5510172.35              .3       .5
Ineffective Flow      num=         2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
    9334 9864.55  1204.910172.3510409.02 1204.01
Blocked Obstructions      num=        2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
    9334 9864.55 1203.16 10172.310409.02    1204

Downstream  Deck/Roadway Coordinates
    num=        9
     Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord
    9334  1204.9        0     9589  1206.8        0     9600 1206.75        0
 9738.64  1206.5        0     9864 1206.67 1206.67 9864.01 1206.67 1200.24
10177.99 1206.67 1200.24    10178 1206.67 1206.6710409.02 1204.01        0

Downstream Bridge Cross Section Data
Station Elevation Data     num=       24
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
    9380  1205.9 9385.73 1205.03 9416.73 1205.06 9444.33 1204.76 9494.19  1204.4
 9505.79  1204.6 9595.82 1204.02  9663.5 1203.88 9691.98 1204.37 9803.99 1204.43
 9841.32  1204.2 9865.41 1203.19 9895.12 1191.1810063.77  1190.710088.68 1190.47
10125.43  1190.510135.81 1194.07 10143.3 1194.05 10168.4 1203.0310186.27 1204.13
10197.69  1204.210206.53 1203.7510221.59  1203.610267.47 1204.01

Manning's n Values         num=        3
     Sta   n Val      Sta   n Val      Sta   n Val
    9380     .06 9865.41    .035 10168.4     .06

Bank Sta: Left   Right    Coeff Contr.   Expan.
       9865.41 10168.4              .3       .5
Ineffective Flow      num=         2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
    9380 9865.41 1202.12 10168.410267.47 1202.12
Blocked Obstructions      num=        2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
    9380 9865.41 1202.12 10168.410267.47 1202.12

Upstream Embankment side slope                =       2 horiz. to 1.0 vertical
Downstream Embankment side slope              =       2 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins           = 1204.01
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=    9911    Downstream=    9911
Upstream     num=        2
    Width    Elev    Width    Elev
    1.17     1190    1.17     1202
Downstream     num=        2
    Width    Elev    Width    Elev
```

```
    1.17    1190    1.17    1202

Pier Data
Pier Station     Upstream=    9971    Downstream=    9971
Upstream     num=        2
    Width   Elev    Width   Elev
    1.17    1190    1.17    1202
Downstream     num=        2
    Width   Elev    Width   Elev
    1.17    1190    1.17    1202

Pier Data
Pier Station     Upstream=   10031    Downstream=   10031
Upstream     num=        2
    Width   Elev    Width   Elev
    1.17    1190    1.17    1202
Downstream     num=        2
    Width   Elev    Width   Elev
    1.17    1190    1.17    1202

Pier Data
Pier Station     Upstream=   10091    Downstream=   10091
Upstream     num=        2
    Width   Elev    Width   Elev
    1.17    1190    1.17    1202
Downstream     num=        2
    Width   Elev    Width   Elev
    1.17    1190    1.17    1202

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
       Momentum                Cd   =    1.33
       Yarnell                 KVal =     .95
Selected Low Flow Methods = Highest Energy Answer

High Flow Method
       Pressure and Weir flow
           Submerged Inlet Cd          =
           Submerged Inlet + Outlet Cd =.7905694
           Max Low Cord                = 1200.24

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

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 9.958

INPUT
Description:



Station Elevation Data    num=      24
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
    9380  1205.9 9385.73 1205.03 9416.73 1205.06 9444.33 1204.76 9494.19  1204.4
 9505.79  1204.6 9595.82 1204.02  9663.5 1203.88 9691.98 1204.37 9803.99 1204.43
 9841.32  1204.2 9865.41 1203.19 9895.12 1191.1810063.77  1190.710088.68 1190.47
10125.43  1190.510135.81 1194.07 10143.3 1194.05 10168.4 1203.0310186.27 1204.13
10197.69  1204.210206.53 1203.7510221.59  1203.610267.47 1204.01

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9380     .06 9865.41    .035 10168.4     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9865.41 10168.4                 22   27.43      28             .3       .5
Ineffective Flow     num=        2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
    9380 9865.41 1202.12 10168.410267.47 1202.12
Blocked Obstructions     num=       2
```

```
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
    9380 9865.41 1202.12 10168.410267.47 1202.12

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 9.953

INPUT
Description:



Station Elevation Data    num=      37
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9382  1215.3 9397.65 1207.02 9412.27 1204.35 9447.84 1204.42 9479.05 1204.18
 9526.25  1203.5 9571.23 1203.71 9593.86 1203.13 9654.23 1202.72 9661.22 1201.61
 9674.85  1201.2 9695.83 1201.17 9724.31 1200.73 9747.69  1199.8 9760.52 1199.65
 9812.79  1200.4 9835.22    1201 9870.35 1202.16 9895.64 1191.0410003.13 1190.66
10023.61 1190.810078.92 1190.5410093.86 1189.6810116.85 1189.3810130.16 1194.58
10140.25   119510156.58  1201.110174.21 1202.7710185.91 1203.1410197.07 1202.69
10221.77    1203 10285.8 1202.9110375.06 1202.5310418.14 1202.91 10456.1 1202.96
10525.75 1202.410591.74 1202.85

Manning's n Values        num=      3
     Sta   n Val     Sta   n Val     Sta   n Val
    9382     .06 9870.35    .03510185.91     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9870.3510185.91              175  189.16     215             .3      .5

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 9.908

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
             cross-section that does not receive subject flow.



Station Elevation Data    num=      43
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9419    1214 9458.13 1204.81 9469.16  1202.8 9509.07 1202.99 9533.71 1202.36
 9535.44  1202.3 9613.28 1202.95 9638.57 1198.85 9645.54 1198.71 9693.66  1199.7
 9699.65  1199.4 9717.94 1199.36 9721.18 1198.77 9737.04 1198.72 9749.36 1199.79
 9789.16  1198.3 9824.32 1196.85 9831.87 1196.22 9839.16 1194.27 9850.44 1194.07
 9869.71  1196.3  9882.4 1196.38  9900.2 1193.67 9907.13 1194.67 9915.24 1193.34
 9927.43    1190 9932.44 1189.8210003.11 1189.1310079.45 1189.47 10121.4 1189.05
10138.47 1198.810162.78 1199.9410172.91 1200.0110215.44 1200.3810241.56  1200.7
10299.09 1201.110327.48    120110402.04 1201.1310422.35 1201.3510506.02 1201.06
10527.75 1201.610553.27 1200.8910573.77  1201.4

Manning's n Values        num=      3
     Sta   n Val     Sta   n Val     Sta   n Val
    9419     .06  9882.4    .03510138.47     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9882.410138.47              120  103.32      65             .3      .5
Blocked Obstructions     num=      1
   Sta L   Sta R    Elev
    9419 9868.07 1196.31

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 9.889

INPUT
Description:
```

Station Elevation Data num= 35

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9460	1228	9468.24	1226.05	9553.91	1200.17	9589.84	1199.68	9605.6	1198.55
9651.04	1197.9	9732.86	1197.75	9751.05	1197.6	9819.32	1198.03	9850.18	1196.72
9864.97	1201.4	9886.03	1197.96	9901.7	1196.38	9917.39	1195.14	9939.41	1186.28
9959.08	1188.6	9975.57	1187.11	9997.59	1185.42	10008.22	1186.09	10086.77	1186.45
10108.71	1186.11	10114.59	1189.86	10129.9	1198	10140.46	1198.51	10166.27	1197.67
10184.67	1198.11	10210.58	1198.41	10270.57	1199.51	10309.73	1200.09	10399.57	1199.79
10438.49	1199.31	10496.31	1198.66	10529.6	1200.17	10543.25	1199.82	10566.39	1200.45

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9460	.06	9886.03	.035	10129.9	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9886.03	10129.9	485	501.31	495	.3	.5

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 9.794

INPUT
Description:

Station Elevation Data num= 31

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9672	1218	9695.42	1211.53	9722.62	1203.4	9736.39	1204	9758.28	1203.81
9764.97	1202.9	9802.49	1198.69	9810.78	1198.51	9889.42	1197.77	9922.42	1196.86
9941.48	1194	9974.59	1180.98	9988.74	1180.4	9995.18	1181.05	10015.96	1180.23
10035.05	1181.21	10105.79	1184.45	10149.12	1184.21	10184.62	1184.75	10191.73	1184.03
10213.3	1183.61	10232.02	1192.72	10247.71	1192.96	10262.3	1195.79	10267.56	1195.24
10290.99	1194.81	10382.07	1194.89	10488.22	1195.23	10588.25	1195.11	10642.77	1193.64
10676.74	1194.2								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9672	.06	9922.42	.035	10262.3	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9922.42	10262.3	550	557.04	555	.1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 9.692

INPUT
Description:

Station Elevation Data num= 19

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9862	1204	9875.53	1201.34	9916.36	1193.92	9921.93	1191.19	9948.66	1178.95
9982.36	1179.4	10000.4	1177.74	10017.83	1178.51	10044.65	1179.35	10062.48	1178.07
10119.06	1177.21	10143.65	1177.91	10162.39	1177.64	10170.53	1178.01	10175.96	1177.61
10224.11	1181.6	10273.1	1181.61	10296.81	1180.55	10315.6	1190.03		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9862	.06	9916.36	.035	10315.6	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9916.36	10315.6	525	565.23	520	.1	.3

CROSS SECTION RIVER: RIVER-1

REACH: Reach-1 RS: 9.592

INPUT
Description:

Station Elevation Data num= 30

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9895	1196.3	9930.13	1191.42	9949.3	1190.23	9980.97	1176.49	9984.1	1175.72
10014.25	1175.71	10022.18	1177.78	10048.25	1177.71	10070.28	1178.01	10099.28	1178.06
10155.62	1178.51	10199.49	1179.17	10304.78	1179.47	10311.21	1179.78	10341.98	1189.15
10408.29	1189.61	10425.13	1190.76	10465.51	1189.38	10489.8	1184.41	10561.95	1184.06
10588.75	1187.31	10656.59	1187.71	10662.08	1187.92	10704.93	1188.33	11002.34	1189.04
11102.56	1189.41	11233.47	1189.48	11325.77	1189.82	11465.83	1190.26	11563	1190.32

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9895	.06	9949.3	.035	10341.98	.06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9949.3 10341.98 535 606.9 580 .1 .3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 9.492

INPUT
Description:

Station Elevation Data num= 27

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9766	1192	9789.59	1189.11	9804.96	1188.11	9834.73	1174.71	9878.82	1175.05
9951.83	1174.6	9961.82	1174.64	10004.75	1173.94	10057.09	1174.33	10090.43	1174.65
10147.37	1174.91	10171.02	1176.03	10246.12	1176.23	10294.29	1178.38	10312.71	1184.43
10340.8	1187.61	10373.45	1184.53	10451.75	1185.06	10497.41	1185.08	10520.61	1184.96
10572.4	1185.21	10700.14	1185.39	10920.51	1185.96	11149.45	1186.65	11245.21	1186.79
11474.04	1187.91	11492.54	1187.88						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9766	.06	9804.96	.035	10312.71	.06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9804.96 10312.71 430 463.47 425 .1 .3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 9.367

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
cross-section that does not receive subject flow.

Station Elevation Data num= 46

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9612	1190	9641.28	1190.86	9665.48	1191.27	9703.09	1186.83	9718.3	1186.28
9751.14	1172.3	9793.9	1172.29	9851.94	1171.72	9901.31	1172.2	9950.67	1173.01
9967.49	1171.91	10004.69	1171.33	10070.88	1173.18	10145.08	1174.08	10199.32	1177.93
10212.32	1183.41	10241.56	1184.23	10251.13	1182.71	10269.29	1181.83	10280.07	1180.4
10291.49	1180.31	10301.94	1182.17	10314.1	1182.21	10321.59	1181.53	10339.56	1181.98
10351.69	1181.71	10370.27	1184.85	10391.68	11851	0429.12	1184.72	10516.63	1184.37
10709.59	1184.71	10857.67	1184.68	10991.59	1185.26	11007.8	1186.18	11015.7	1184.24
11041.56	1184.31	11056.78	11841	1087.36	1185.43	11150.97	1185.67	11192.9	1185.8
11200.6	1185.51	11211.42	1184.22	11244.19	1184.64	11276.25	1184.35	11293.46	1187.02
11362.92	1187.3								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9612	.06	9718.3	.035	10241.56	.06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9718.310241.56 540 489.74 465 .1 .3
Blocked Obstructions num= 1
Sta L Sta R Elev
10250 10360 1183

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 9.318

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
cross-section that does not receive subject flow.
Station Elevation Data num= 49

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9562	1188	9590.68	1184.89	9596.5	1184.94	9689.19	1184.35	9746.34	1183.97
9773.17	1185.1	9783.01	1180.91	9803.1	1173.59	9842.04	1173.15	9874.03	1172.96
9924.8	1170.6	9946.02	1170.96	9964.81	1170.29	9998	1168.3510007.24		1168.6
10021.97	117010065.22		1170.4510090.47		1170.87	10117.6	1172.4410137.29		1173.8
10149.89	1180.610171.54		1181.8710193.98		1181.03	10218.1	1176.4910226.54		1176.55
10249.06	1179.9	10260.6	1179.4810291.96		1179.9810308.64		1181.9710341.42		1181.74
10442.77	1181.910552.04		1182.410599.04		1182.8210670.86		1182.910679.86		1182.79
10723.08	1183.210735.63		1187.2410763.87		1186.2110774.62		1182.9710806.59		1181.84
10837.58	1182.310864.09		1181.9210882.89		1184.1410957.44		1184.36	11015.6	1184.38
11068.72	118311128.61		1182.5611166.27		1183.59	11248.1	1183.96		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9562	.06	9773.17	.03510171.54		.06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9773.1710171.54 185 155.57 155 .3 .5
Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
9562	9772.67	1185.0810172.86		11248.1	1181.83

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 9.289

INPUT
Description:

Station Elevation Data num= 48

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9545	1188	9571.72	1184.99	9601.48	1184.89	9634.6	1184.51	9668.37	1183.91
9696.69	1183.9	9750.8	1183.42	9780.74	1183.7	9806.45	1183.51	9822.78	1183.7
9848.61	1183.1	9871.29	1180.25	9882.7	1177.85	9902.64	1175.25	9921.4	1172.8
9951.27	1170	9980.74	1168.92	9998.22	1167.910012.66		1168.810021.42		1170.18
10119.4	1172.410136.14		1172.5710152.77		1179.1810183.39		1182.83	10205.1	1185
10256.9	1179.110266.01		1178.7910277.66		1179.59	10298.3	1179.7710307.28		1181
10352.43	1180.7	10427.4	1181	10497	1181.1110601.19		1181.4710641.11		1181.87
10675.62	1182.410715.74		1182.710734.04		1181.4410770.02		1181.7210791.79		1181.51
10811.81	1183.1	10838.8	1183.0410897.24		1183.4410928.92		1183.4111036.72		1184.11
11060.22	1184.211126.69		1184.1511157.27		1184.22				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9545	.06	9848.61	.035	10205.1	.06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9848.61 10205.1 470 506.29 455 .3 .5

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 9.193

INPUT
Description:

```
Station Elevation Data    num=      35
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
    9718  1185.9 9748.25 1182.17 9780.36 1181.04 9804.33 1182.05 9877.67 1164.92
 9930.03  1165.9 9969.01 1165.85 9989.97 1164.5410026.06 1166.1210045.86 1166.12
10080.36  1165.910132.33 1165.9110255.75 1168.2210313.83 1168.2310329.05 1176.06
10362.99  1178.910405.01  1183.2 10453.1 1177.2910455.89 1177.0610473.29 1177.78
10485.97  1177.310498.31 1179.4610545.04 1179.6710593.55 1180.1310612.05 1180.53
10658.42    118110737.84 1181.3910846.55 1181.8710858.48  1179.510889.38 1179.84
10930.81  1181.510972.81 1181.6311052.85 1181.5911088.51 1181.2411199.38 1181.77

Manning's n Values        num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
    9718      .06 9804.33    .03510405.01      .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9804.3310405.01              400  391.34     390             .3       .5

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 9.129

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
             cross-section that does not receive subject flow.
Station Elevation Data    num=      37
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
    9720     1184 9749.29 1179.46 9775.36 1178.16 9816.28 1179.45 9830.86 1180.07
 9905.36     1164 9923.52 1163.6710002.15 1163.1610050.49  1163.910151.43 1164.66
10174.82  1164.610251.77 1167.2810299.53 1167.4710315.64  1175.410344.71 1177.56
 10351.1  1176.910365.01 1176.39 10383.1 1172.2710428.34 1172.0110445.95 1174.85
10453.31  1176.510463.41 1175.8110480.45 1176.1410493.92 1175.8510506.97 1178.61
10519.63  1177.910568.67 1177.8210638.34 1178.1210659.28 1178.0610731.58 1178.68
 10749.8  1178.910825.29 1179.5610845.14 1180.3710861.55 1177.2110889.54 1178.18
 10914.6  1177.810918.36 1178.08

Manning's n Values        num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
    9720      .06 9830.86    .03510344.71      .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9830.8610344.71              370   394.4     430             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
   10346   10448    1176

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 9.047

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
             cross-section that does not receive subject flow.
Station Elevation Data    num=      45
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
    9721     1182 9750.27 1177.81 9764.81 1177.31 9808.93 1177.64 9859.63 1177.83
 9869.58  1177.7 9940.46 1162.68 9951.34 1162.95 9973.51 1162.7810004.34 1161.64
10023.06  1163.610049.01 1163.96 10079.2 1162.3610105.32 1162.1910135.97 1163.12
10143.76  1163.610214.97 1165.7610265.63 1166.42 10280.5 1173.6210339.39 1180.42
10377.03  1175.810388.87 1172.9910455.66 1173.0610516.59 1172.7110523.55  1173.8
10550.09  1178.910587.62  1179.110662.01  1179.310694.15 1177.5910712.99 1178.05
10741.37  1177.810771.31 1179.1310856.69  1179.210864.44 1179.2710881.41 1175.63
10895.82  1175.610900.87 1176.05 11034.5 1176.1111099.88 1176.3111109.01 1175.31
11119.53  1176.711190.99 1176.2211245.59 1176.1911340.23 1176.3111368.29 1176.07

Manning's n Values        num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
    9721      .06 9869.58    .03510339.39      .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9869.5810339.39              355  330.86     270             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
10345.4210547.42 1180.21

CROSS SECTION          RIVER: RIVER-1
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REACH: Reach-1 RS: 8.994

INPUT
Description:

Station Elevation Data num= 50

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9562	1182	9589.37	1177.14	9619.14	1176.06	9696.02	1175.8	9761.44	1176.77
9772.73	1176.4	9819.77	1176.11	9881.52	1175.52	9890.28	1175.69	9930.75	1164.93
9975.49	1162.210000.06		1161.6510036.81		1162.2410081.18		1162.5710111.15		1162.48
10121.44	1162.610132.61		1173.1210167.33		1173.8310200.81		1178.7310247.03		1178.77
10279.21	1179.110322.84		1179.4110357.58		1179.1210382.84		1178.7110414.68		1178.78
10444.28	117910472.76		1178.8910526.98		1178.2810597.94		1178.3810618.06		1178.16
10690.64	1178.310747.87		1178.0110782.45		1177.6410812.52		1177.7810815.38		1177.48
10847.36	1177.710906.26		1177.3910930.91		1177.5910985.95		1177.2511025.58		1177.14
11080.59	1177.311123.17		1177.6511175.96		1177.4311204.18		1176.9411224.37		1174.97
11254.77	1174.711275.48		1176.1411277.96		1176.5711321.66		1176.0611343.06		1176

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9562	.06	9890.28	.03510200.81		.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9890.2	810200.81	90	91.57 85	.1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 8.977

INPUT
Description:

Station Elevation Data num= 44

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9532	1182	9557.81	1177.22	9581.17	1178.28	9600.54	1175.6	9650.37	1175.58
9680.22	1175.1	9702.75	1175.44	9780	1175.95	9839.92	1175.8	9866.17	1175.88
9886.92	1164.3	9913.86	1163.7	9954.13	1162.66	9969.9	1162.59	9978.91	1161.61
10001.25	1161.310055.85		1162.2610089.06		1162.3810096.25		1168.22	10112.2	1167.63
10119.24	1172.610143.82		1173.5710181.52		1177.9710228.23		1178.2610266.31		1178.85
10308.85	1177.310359.51		1177.2610415.34		1177.0110486.99		1176.8410594.64		1176.11
10696.98	1175.810795.43		1175.3310893.98		1174.7410927.22		1174.8610986.43		1175.44
11069.72	1175.511095.45		1175.7711175.75		1175.611208.07		1174.5911232.44		1174.34
11261.82	1176.511300.09		1176.22	11343	1176.3311386.37		1175.94		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9532	.06	9866.17	.03510181.52		.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9866.1	710181.52	220	211.76 215	.1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 8.936

INPUT
Description:

Station Elevation Data num= 52

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9511	1182	9530.47	1178.24	9547.23	1175.36	9570.55	1174.35	9605.1	1174.29
9621.93	1174.6	9671.66	1174.92	9710.26	1174.94	9812.1	1174.56	9827.82	1174.58
9853.92	1165.3	9940.49	1163.65	9978.94	1162.78	9986.26	1159.9910010.76		1159.94
10032.37	1161.310080.82		1161.8110107.84		1162.2110127.03		1170.8610157.51		1172.1
10181.89	1177.210216.63		1177.6310231.99		1177.6310271.58		1177.9810300.91		1176.66
10315.19	1176.9	10330.2	1176.41	10343.1	1178.1210380.73		1177.9310398.49		1178
10500.52	1177.410589.84		1177.1910635.09		1176.9210680.16		1176.8610686.65		1176.56
10709.66	1176.910769.13		1176.7610783.65		1175.3710817.77		1175.1610855.97		1175.07
10874.42	1174.610898.18		1172.8810958.71		1172.7710976.21		1172.4611002.97		1175.26

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11063.39  1175.511113.29 1174.6311185.43 1174.8111210.28 1173.3411232.69 1173.39
 11239.9  1173.111266.18 1174.39

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9511     .06 9827.82    .03510181.89     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9827.8210181.89               285  289.58     290             .1       .3

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 8.883

INPUT
Description:



Station Elevation Data    num=      58
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9481    1180 9514.66 1174.18 9540.03 1174.02  9561.4 1175.03 9582.16 1176.73
 9631.25  1176.8 9666.16 1176.58 9708.77 1175.86 9800.01 1176.62 9816.25 1176.56
 9858.42  1176.8 9862.65 1174.81 9891.37 1163.02 9916.17 1161.63 9958.77 1161.27
 9977.64    1162 9985.89 1159.4410006.43 1159.7210020.66 1160.4210082.09 1160.96
10096.55  1161.210109.58  1166.610117.93 1170.4610159.12  1171.410177.57  1175.8
10208.49  1176.110260.47 1175.8810288.75 1174.8310304.81 1175.0310318.05 1174.81
10340.17  1176.710355.85 1176.7810400.38 1176.4710425.11 1176.72   10506  1175.7
 10550.7    117510617.09 1174.2210683.59 1173.9210732.97 1173.3110786.03 1173.14
10818.11  1172.410836.81 1172.2610880.96 1170.3510901.07 1170.82 10936.8 1170.15
 10959.7  1170.410999.43 1170.0711031.75 1170.7211048.37 1170.5311069.52 1169.57
11089.04    1170 11104.2 1169.3611122.29 1171.8311172.68 1171.7411243.31 1172.03
11270.51  1172.411294.15 1172.3311317.02 1171.24

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9481     .06 9858.42    .03510177.57     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9858.4210177.57               410   401.1     400             .1       .3

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 8.807

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
             cross-section that does not receive subject flow.
Station Elevation Data    num=      61
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9422    1178 9452.87 1172.82 9484.81 1172.51 9505.05 1175.79  9527.2 1175.95
 9545.44  1175.8 9565.41 1173.82 9572.28 1173.11 9612.21 1172.76 9639.55 1173.19
 9682.19    1173 9720.48 1171.58 9733.78 1172.76    9793  1173.1  9811.8 1166.57
  9831.6  1158.5 9853.68 1158.04 9890.96 1158.32 9931.82 1159.43 9958.05 1158.96
 9967.94  1158.510004.04 1158.1110063.94 1159.0910094.33 1159.3810113.46 1169.68
10141.81    1170 10151.5 1170.3610160.88 1172.7510182.52 1172.9610200.99 1173.57
10214.56  1173.610222.29 1172.7510250.46 1173.1310299.98 1172.7510353.42 1172.34
10384.63  1171.810434.39 1171.9910501.15 1169.9310511.28 1169.4110544.56 1169.01
10564.32  1169.410583.58 1168.9910611.19 1169.8810664.99 1170.2510705.82 1170.62
 10714.5  1170.610733.13  1168.510775.91 1167.55 10819.7 1166.9910835.44 1169.32
10941.38  1169.210976.18 1168.2910997.22 1168.6311020.47 1167.8311044.88 1168.45
11062.57  1167.811135.17 1168.53 11155.8 1167.3111186.21 1166.8811206.55 1167.96
 11275.5    1168

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9422     .06    9793    .03510160.88     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         979310160.88               425  404.72     395             .1       .3
Blocked Obstructions      num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
    9422 9790.83 1173.0910216.11 11275.5 1172.95

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 8.731
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```
INPUT
Description: Blocked Obstruction used to block flow from that portion of the
             cross-section that does not receive subject flow.
Station Elevation Data    num=      52
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9258    1184 9272.84 1183.82 9280.87 1182.05 9318.95 1175.72 9353.98 1157.57
 9362.39  1157.2 9368.39 1154.97 9380.05 1155.24 9421.09 1154.77 9447.34 1154.03
 9489.72  1153.6 9509.75 1154.23 9595.22 1155.22 9629.27 1155.58 9663.09 1156.95
 9706.29  1155.6 9734.27 1155.51  9787.7 1154.92 9815.78 1154.63 9900.67 1155.91
 9994.17  1155.510071.25 1155.8810104.43 1156.2210126.93 1169.5510150.62 1170.06
10163.08  1169.910175.87 1171.7410205.91 1171.3610263.45 1170.9510327.81 1169.81
10373.84  1169.210406.75 1169.0510441.92 1169.0610449.19 1168.4910479.66 1168.37
10491.05  1168.810507.51 1169.8410531.04 1169.3510587.59 1169.1210590.13 1169.35
10606.64  1167.610631.25 1166.9710673.26 1166.2410686.54 1168.2910767.61  1167.9
10792.48  1167.1 10800.7 1167.9410817.41 1167.1310833.84 1168.0710853.03 1168.07
10912.88  1167.310950.96 1165.88

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9258     .06 9318.95    .03510175.87     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9318.9510175.87                500  401.71     395             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
    9258 9315.76 1175.7210177.9510950.96 1172.11

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 8.655

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
             cross-section that does not receive subject flow.
Station Elevation Data    num=      41
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9156    1178 9193.02 1171.38 9274.12 1170.55 9411.41 1169.63 9515.14 1169.87
 9541.69  1162.4 9563.58 1155.64 9622.61 1154.34 9653.38 1154.18 9699.82 1153.29
  9730.6  1152.5 9750.39  1153.4 9773.35 1153.56  9846.2 1154.59 9893.51 1154.35
 9920.14  1153.8  9928.3 1154.54 9961.67 1154.49 9985.13 1154.22 10014.9 1154.56
10063.21  1154.710088.67 1168.7910110.86 1169.89 10129.2 1169.6410138.14  1171.1
10180.45  1171.410207.95 1171.1910298.21 1169.31 10317.5 1169.3110334.85 1168.75
10399.74  1167.710417.47 1167.2410452.79 1168.4310540.39 1168.3610569.97 1166.14
10589.76  1166.210623.68 1165.6210637.85 1166.9410646.38 1167.0210717.01 1166.55
10727.13  1166.2

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9156     .06 9515.14    .03510088.67     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9515.1410088.67                675  461.08     340             .2       .4
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
    9156 9513.53 1169.86 10088.610727.13 1168.79

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 8.548

INPUT
Description:



Station Elevation Data    num=      18
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9702    1168  9729.4 1168.14 9753.58 1167.88  9843.2 1167.19 9858.92  1152.6
 9870.39  1152.2 9988.56  1152.610000.91 1149.77 10006.5 1152.7410046.28 1152.86
10123.07  1152.510136.24  1152.210155.64 1166.8510213.59 1168.6310238.52 1169.11
10256.77  1169.110274.28  1168.310349.53  1168.3

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9702     .06  9843.2    .03510155.64     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9843.210155.64                 48      48      48             .1       .3
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CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 8.538

INPUT
Description: 9687.9
Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9687.9	1168.1	9769.68	1168.82	9844.6	1167.86	9873.03	1142.33	10000.15	1142.24
10123.29	1142.51	10150.55	1167.09	10178.52	1168.15	10236.13	1169.21	10254.9	1168.37
10288.71	1167.91	10335.75	1168.32	10377.85	1166.83	10405.15	1167.27	10425.22	1166.84
10449.83	1168.01								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9687.9	.06	9844.6	.035	10150.55	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9844.61	10150.55	110	110	105	.1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 8.516

INPUT
Description:

Station Elevation Data num= 21

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9756	1168	9821.59	1168.52	9847.43	1168.6	9856.48	1159.08	9867.16	1149.31
9873.77	1144	9877.4	1141.97	9926.46	1141.87	9990.48	1141.93	10000.75	1141.55
10005.5	1142	10108.38	1141.81	10123.56	1141.71	10134.03	1148.62	10146.98	1160.73
10155.21	1167.51	10179.14	1168	10219.02	1169.03	10232.17	1168.75	10280.12	1167.28
10287.22	1167.2								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9756	.06	9847.43	.035	10155.21	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9847.43	10155.21	280	287.9	305	.1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 8.457

INPUT
Description:

Station Elevation Data num= 38

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9671	1167.7	9683.56	1168.03	9692.73	1168.79	9781.82	1168.66	9788.33	1168.74
9805.47	1164.9	9818.92	1164.2	9863.11	1155.76	9935.63	1141.79	9966.53	1141.57
9997.45	1141.11	10030.06	1141.49	10060.82	1142.73	10091.35	1147.58	10193.92	1168.4
10250.52	1166.31	10262.83	1165.62	10335.04	1164.4	10341.2	1163.84	10367.82	1166.1
10371.1	1166.51	10407.65	1161.57	10475.04	1161.57	10493.68	1164.61	10503.74	1164.74
10527.6	1166.21	10556.27	1166.42	10564.7	1166.15	10598.14	1166.17	10619.41	1166.08
10699.88	1164.81	10770.72	1165.03	10863.67	1164.81	10911.53	1165.26	10978.23	1164.44
11020.28	1164.81	11034.69	1165.31	11083.15	1164.5				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9671	.06	9818.92	.035	10193.92	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9818.92	10193.92	365	361.88	355	.1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 8.39

INPUT
Description:

Station Elevation Data num= 30

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9792	1168	9802.8	1165.6	9814.94	1165.05	9828.78	1161.22	9850.73	1156.7
9900.76	1147.2	9926.76	1142.1	9950.4	1142.01	9968.87	1141.32	9998.25	1140.92
10028.95	1141.61	10035.16	1141.41	10058.42	1142.45	10114.24	1152.07	10190.49	1167.41
10211.61	1166.61	10240.54	1166.65	10279.51	1166.45	10290.31	1166.87	10298.53	1165.32
10401.7	1163.61	10431.35	1163.46	10515.87	1164.03	10577.34	1164.61	10632.74	1164.51
10712.67	1164.51	10774.86	1164.41	10829.78	1164.41	10932.22	1164.6	10946.6	1164

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9792	.06	9814.94	.035	10190.49	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9814.94	10190.49	310	308.23	305	.1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 8.33

INPUT
Description:

Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9780	1166.4	9787.92	1164.42	9800.42	1164	9829.07	1156.43	9874.97	1147.97
9898.66	1144.1	9954.3	1142.94	10025.59	1140.59	10060.91	1142.53	10088.64	1148.05
10176.69	1166.41	10193.23	1165.88	10260.92	1165.42	10341.08	1165.43	10388.98	1164.73
10416.78	1164.6								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9780	.06	9800.42	.035	10176.69	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9800.42	10176.69	555	565.26	545	.1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 8.22

INPUT
Description:

Station Elevation Data num= 25

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9844	1163.2	9853.02	1161.4	9863.78	1160.58	9903.79	1152.1	9912.99	1150.3
9942.26	1145.8	9957.57	1144.16	9978.73	1140.67	9982.77	1138.78	9997.52	1138.87
10022.85	1140.41	10030.36	1140.41	10059.2	1141.62	10073.77	1140.73	10098.68	1141.12
10111.36	1142.61	10121.98	1142.7	10195.8	1154.46	10241.56	1164.55	10257.47	1164.03
10293.89	1164.31	10325.89	1164.02	10356.69	1165.33	10382.29	1165.41	10492.32	1164.23

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9844	.06	9863.78	.035	10241.56	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9863.78	10241.56	485	512.82	565	.1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 8.12

INPUT
Description:

Station Elevation Data num= 24

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9841	1162.2	9858.45	1162.6	9870.72	1159.87	9882.49	1159.32	9893.84	1157.08
9934.41	1149.6	9990.41	1140.42	9998.97	113	810012.37	1138.25	10036.29	1137.97
10050.72	114	110069.18	1139.87	10081.41	1141.37	10100.66	1141.36	10109.14	1138.47
10131.16	1138.91	10138.76	1141.91	10172.82	1146.68	10195.97	1150.55	10260.19	1163.5
10278.49	1162.91	10317.31	1162.95	10354.77	1162.26	10372.33	1162.02		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9841	.06	9882.49	.035	10260.19	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9882.49	10260.19	365	370.41	370	.1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 8.052

INPUT
Description:

Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9812	1158.5	9848.5	1160.52	9858.22	1158.04	9871.97	1157.59	9879.48	1156.11
9941.09	1145.9	9975.4	1140.15	9990.32	1136.42	10013.47	1137.44	10041.37	1139.2
10061.51	1138.3	10069.5	1140.17	10082.68	1139.86	10092.14	1137.02	10113.77	1138.06
10148.19	1143.31	10177.35	1148.16	10230.27	1157.36	10251.73	1161.72	10264.08	1161.26
10301.26	1162.31	10320.82	1161.4						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9812	.06	9871.97	.035	10251.73	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9871.97	10251.73	225	236.58	255	.1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 8.006

INPUT
Description:

Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9813	1158	9822.82	1158.06	9836.05	1159.57	9848.52	1159.66	9864.41	1157
9872.33	1156.8	9899.09	1151.07	9978.9	1140.44	9995.88	1136.11	10014.86	1136.65
10043.49	1138.11	10056.74	1137.68	10072.31	1139.34	10086.47	1139.08	10091.99	1137.1
10110.36	1137.8	10145	1142.23	10236.11	1158.45	10252.11	1161.51	10268.56	1160.37
10301.55	1161.31	10324.12	1160.84						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9813	.06	9872.33	.035	10252.11	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9872.33	10252.11	445	463.28	505	.1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 7.92

INPUT
Description:

Station Elevation Data num= 23

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9836	1160.4	9855.37	1160.45	9868.9	1156.67	9880.63	1155.58	9919.94	1148.19
9962.13	1141.6	9980.61	1139.05	9991.3	1135.74	10011.4	1136.14	10036.41	1137.04
10060.91	1136.71	10072.06	1139.35	10080.58	1138.66	10088.54	1136.53	10104.58	1136.63
10137.77	1140.41	0148.13	1141.41	0206.92	1150.48	10253.04	1158.75	10258.56	1160.29
10273.87	1159.61	0308.49	1160.43	10319.77	1160.02				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9836	.06	9880.63	.035	10258.56	.06

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

Left	Right	Left	Channel	Right	Coeff Contr.	Expan.
9880.63	10258.56	615	631.37	655	.1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 7.8

INPUT
Description:

Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9736	1153.5	9764.38	1153.41	9780.03	1157.33	9795.93	1156.96	9805.92	1155.45
9832.22	1158.1	9857.12	1158.52	9893.02	1150.65	9908.87	1147.75	9931.81	1142.94
9943.11	1142.1	9965.96	1138.01	9974.38	1135.77	9977.75	1135.65	10030.71	1136.12
10090.5	1136.91	0128.41	1137.57	10160.65	1142.89	10243.64	1157.07	10269.64	1156.78
10311.28	1157.21	0330.96	1157.09						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9736	.06	9857.12	.035	10243.64	.06

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

Left	Right	Left	Channel	Right	Coeff Contr.	Expan.
9857.12	10243.64	230	259.16	355	.3	.5

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 7.751

INPUT
Description:

Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9892.86	1161.1	9895	1160	9915.55	1159.53	9919.35	1157.94	9944.75	1155.49
9965.55	1140.7	9978.33	1135.31	0034.63	1135.81	0077.55	1136.03	10176.7	1136.99
10220.4	1151.4	10225	1154.98	10239.55	1158.91	0278.43	1159.51	0320.22	1160
10372.86	1159.2								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9892.86	.06	9919.35	.035	10239.55	.06

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

Left	Right	Left	Channel	Right	Coeff Contr.	Expan.
9919.35	10239.55	115	121.7	110	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
9892.86	9919.35	1161.15	10239.55	10372.86	1159.26

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
9892.86	9919.35	1157.94	10239.5	10372.86	1158.9

BRIDGE RIVER: RIVER-1
REACH: Reach-1 RS: 7.7395

INPUT
Description: Bridge #1

```
Distance from Upstream XS =      10
Deck/Roadway Width        =      89
Weir Coefficient          =    2.68
Bridge Deck/Roadway Skew  =
Upstream  Deck/Roadway Coordinates
    num=      15
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
 9892.86 1161.15       0 9912.86 1163.35       0    9925 1163.421155.391
 9944.75 1163.52 1155.49 9981.55 1163.65 1155.6210021.55 1163.73  1155.7
10061.55 1163.74 1155.7110101.55 1163.67 1155.6410141.55 1163.53  1155.5
10181.55 1163.32 1155.2910221.551163.041 1155.01   10225 1163.01 1154.98
10241.55 1162.87       010242.86 1162.86       010372.86  1159.2       0

Upstream Bridge Cross Section Data
Station Elevation Data    num=      16
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
 9892.86  1161.1    9895    1160 9915.55 1159.53 9919.35 1157.94 9944.75 1155.49
 9965.55  1140.7 9978.33  1135.310034.63  1135.810077.55 1136.03 10176.7 1136.99
 10220.4  1151.4   10225 1154.9810239.55  1158.910278.43  1159.510320.22    1160
10372.86  1159.2

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 9892.86     .06 9919.35    .03510239.55     .06

Bank Sta: Left   Right    Coeff Contr.   Expan.
       9919.3510239.55             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 9892.86 9919.35 1161.1510239.5510372.86 1159.26
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 9892.86 9919.35 1157.94 10239.510372.86  1158.9

Downstream  Deck/Roadway Coordinates
    num=      15
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
 9892.86 1161.15  1155.4 9912.86 1163.35  1155.4    9925 1163.421155.391
 9944.75 1163.52 1155.49 9981.55 1163.65 1155.6210021.55 1163.73  1155.7
10061.55 1163.74 1155.7110101.55 1163.67 1155.6410141.55 1163.53  1155.5
10181.55 1163.32 1155.2910221.551163.041 1155.01   10225 1163.01 1154.98
10241.55 1162.87       010242.86 1162.86       010372.86  1159.2       0

Downstream Bridge Cross Section Data
Station Elevation Data    num=      20
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9887    1160 9895.29 1159.68 9899.88 1157.98    9900    1154 9931.12    1146
 9958.45  1136.5 9962.95  1135.410073.21 1135.9110130.56 1136.4910159.07  1136.5
10176.73  1140.510189.17  1144.2   10222    115410228.35 1158.1410276.12 1159.02
10320.83  1158.310337.19  1157.510406.88  1155.910412.97 1156.6310448.47 1155.99

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9887     .06    9900    .035   10222     .06

Bank Sta: Left   Right    Coeff Contr.   Expan.
         9900   10222             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
    9887    9900  1157.510219.5810448.47 1157.76
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
    9887    9900  1157.5

Upstream Embankment side slope             =       2 horiz. to 1.0 vertical
Downstream Embankment side slope           =       2 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins        = 1159.26
Energy head used in spillway design        =
Spillway height used in design             =
Weir crest shape                           = Broad Crested

Number of Piers =  3
```

```
Pier Data
Pier Station      Upstream=   10000    Downstream=    9980
Upstream      num=        2
    Width    Elev     Width    Elev
       3     1130         3     1156
Downstream    num=        2
    Width    Elev     Width    Elev
       3     1130         3     1156

Pier Data
Pier Station      Upstream=   10075    Downstream=   10055
Upstream      num=        2
    Width    Elev     Width    Elev
       3     1130         3     1156
Downstream    num=        2
    Width    Elev     Width    Elev
       3     1130         3     1156

Pier Data
Pier Station      Upstream=   10150    Downstream=   10130
Upstream      num=        2
    Width    Elev     Width    Elev
       3     1130         3     1156
Downstream    num=        2
    Width    Elev     Width    Elev
       3     1130         3     1156

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
       Momentum                Cd   =    1.33
       Yarnell                 KVal =     .95
Selected Low Flow Methods = Highest Energy Answer

High Flow Method
       Pressure and Weir flow
           Submerged Inlet Cd          =
           Submerged Inlet + Outlet Cd =.7905694
           Max Low Cord                =  1155.7

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

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 7.728

INPUT
Description:




Station Elevation Data    num=      20
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
    9887     1160 9895.29 1159.68 9899.88 1157.98    9900     1154 9931.12     1146
 9958.45   1136.5 9962.95 1135.410073.21 1135.9110130.56 1136.4910159.07   1136.5
10176.73   1140.510189.17  1144.2   10222    115410228.35 1158.1410276.12 1159.02
10320.83   1158.310337.19 1157.510406.88 1155.910412.97 1156.6310448.47 1155.99

Manning's n Values        num=       3
     Sta    n Val      Sta    n Val      Sta    n Val
    9887      .06     9900     .035    10222      .06

Bank Sta: Left   Right    Lengths: Left Channel   Right      Coeff Contr.    Expan.
          9900   10222                   0       0        0              .3       .5
```

```
Ineffective Flow      num=        2
   Sta L    Sta R     Elev    Sta L    Sta R     Elev
    9887     9900  1157.510219.5810448.47 1157.76
Blocked Obstructions      num=        1
   Sta L    Sta R     Elev
    9887     9900  1157.5
```

SUMMARY OF MANNING'S N VALUES

River:RIVER-1

Reach	River Sta:	n1	n2	n3	n4	n5	n6	n7	n8	n9	n10	n11	n12	n13
Reach-1	16.829	.058	.038	.038	.058									
Reach-1	16.732	.058	.038	.058										
Reach-1	16.637	.058	.038	.038	.058									
Reach-1	16.608	.058	.038	.058										
Reach-1	16.504	.058	.038	.038	.058									
Reach-1	16.411	.058	.038	.058										
Reach-1	16.348	.058	.038	.038	.058	.038	.058							
Reach-1	16.248	.058	.038	.038	.058	.038	.058	.038	.058					
Reach-1	16.167	.058	.038	.058	.038	.06								
Reach-1	16.066	.058	.038	.058	.038	.058	.038	.038	.058	.035				
Reach-1	15.966	.058	.038	.058	.058	.058	.035							
Reach-1	15.885	.058	.038	.058	.038	.058	.035							
Reach-1	15.792	.058	.038	.058	.038	.0528	.035							
Reach-1	15.699	.058	.056	.058	.038	.058								
Reach-1	15.623	.058	.056	.058	.038	.058								
Reach-1	15.596	.058	.056	.056	.056	.058	.056	.053						
Reach-1	15.475	.038	.038	.035										
Reach-1	15.416	.058	.038	.035										
Reach-1	15.333	.058	.038	.038	.035									
Reach-1	15.248	.058	.038	.058										
Reach-1	15.144	.058	.038	.038	.058	.035								
Reach-1	15.049	.058	.056	.056	.058	.035	.06							
Reach-1	14.983	.058	.038	.058	.035									
Reach-1	14.945	.058	.038	.043	.035	.053								
Reach-1	14.85	.058	.038	.038	.035	.053								
Reach-1	14.752	.58	.038	.058	.035	.053								
Reach-1	14.653	.058	.038	.038	.058	.035	.053							
Reach-1	14.599	.058	.038	.058	.038	.058	.038	.058	.035					
Reach-1	14.495	.058	.038	.058	.038	.038	.058	.038	.058	.053				
Reach-1	14.379	.058	.038	.058	.038	.058	.038	.058	.038	.058	.053			
Reach-1	14.284	.058	.038	.058	.038	.058	.038	.058	.038	.058	.038	.058	.053	
Reach-1	14.197	.058	.038	.058	.038	.058	.038	.058						
Reach-1	14.103	.058	.038	.058	.038	.058	.053							
Reach-1	14.013	.058	.038	.058	.038	.058	.053							
Reach-1	13.918	.058	.038	.058	.058	.038	.058							
Reach-1	13.818	.05	.035	.05										
Reach-1	13.742	.05	.035	.05										
Reach-1	13.68	.05	.035	.05										
Reach-1	13.619	.05	.035	.05										
Reach-1	13.524	.06	.035	.06										
Reach-1	13.42	.06	.035	.06										
Reach-1	13.325	.06	.035	.06										
Reach-1	13.227	.06	.035	.06										

Reach-1	13.185	.06	.035	.06
Reach-1	13.161	.06	.035	.06
Reach-1	13.151	.06	.035	.06
Reach-1	13.076	.06	.035	.06
Reach-1	12.991	.06	.035	.06
Reach-1	12.896	.06	.035	.06
Reach-1	12.801	.06	.035	.06
Reach-1	12.701	.06	.035	.06
Reach-1	12.606	.06	.035	.06
Reach-1	12.511	.06	.035	.06
Reach-1	12.42	.06	.035	.06
Reach-1	12.313	.06	.035	.06
Reach-1	12.194	.06	.035	.06
Reach-1	12.125	.06	.035	.06
Reach-1	12.034	.06	.035	.06
Reach-1	11.949	.06	.035	.06
Reach-1	11.864	.085	.035	.06
Reach-1	11.759	.085	.035	.06
Reach-1	11.664	.06	.035	.06
Reach-1	11.566	.06	.035	.06
Reach-1	11.481	.06	.035	.06
Reach-1	11.386	.06	.035	.06
Reach-1	11.301	.06	.035	.06
Reach-1	11.243	.06	.035	.06
Reach-1	11.188	.06	.035	.06
Reach-1	11.129	.06	.035	.06
Reach-1	11.03	.06	.035	.06
Reach-1	10.996	.06	.035	.06
Reach-1	10.988	Bridge		
Reach-1	10.98	.06	.035	.06
Reach-1	10.917	.06	.035	.06
Reach-1	10.862	.06	.035	.06
Reach-1	10.803	.06	.035	.06
Reach-1	10.699	.06	.035	.06
Reach-1	10.612	.06	.035	.06
Reach-1	10.517	.06	.035	.06
Reach-1	10.443	.06	.035	.06
Reach-1	10.348	.06	.035	.06
Reach-1	10.271	.06	.035	.06
Reach-1	10.176	.06	.035	.06
Reach-1	10.096	.06	.035	.06
Reach-1	9.997	.06	.035	.06
Reach-1	9.984	.06	.035	.06
Reach-1	9.971001	Bridge		
Reach-1	9.958	.06	.035	.06
Reach-1	9.953	.06	.035	.06
Reach-1	9.908	.06	.035	.06
Reach-1	9.889	.06	.035	.06
Reach-1	9.794	.06	.035	.06
Reach-1	9.692	.06	.035	.06
Reach-1	9.592	.06	.035	.06
Reach-1	9.492	.06	.035	.06
Reach-1	9.367	.06	.035	.06
Reach-1	9.318	.06	.035	.06
Reach-1	9.289	.06	.035	.06
Reach-1	9.193	.06	.035	.06
Reach-1	9.129	.06	.035	.06
Reach-1	9.047	.06	.035	.06
Reach-1	8.994	.06	.035	.06
Reach-1	8.977	.06	.035	.06
Reach-1	8.936	.06	.035	.06
Reach-1	8.883	.06	.035	.06
Reach-1	8.807	.06	.035	.06
Reach-1	8.731	.06	.035	.06
Reach-1	8.655	.06	.035	.06
Reach-1	8.548	.06	.035	.06
Reach-1	8.538	.06	.035	.06
Reach-1	8.516	.06	.035	.06
Reach-1	8.457	.06	.035	.06
Reach-1	8.39	.06	.035	.06
Reach-1	8.33	.06	.035	.06
Reach-1	8.22	.06	.035	.06
Reach-1	8.12	.06	.035	.06
Reach-1	8.052	.06	.035	.06
Reach-1	8.006	.06	.035	.06
Reach-1	7.92	.06	.035	.06

Reach-1	7.8	.06	.035	.06
Reach-1	7.751	.06	.035	.06
Reach-1	7.7395	Bridge		
Reach-1	7.728	.06	.035	.06

SUMMARY OF REACH LENGTHS

River: RIVER-1

Reach	River Sta.	Left	Channel	Right
Reach-1	16.829	430	525.69	550
Reach-1	16.732	535	475.63	460
Reach-1	16.637	240	231.78	235
Reach-1	16.608	385	500.72	555
Reach-1	16.504	500	481.43	475
Reach-1	16.411	395	481.78	535
Reach-1	16.348	595	497.94	310
Reach-1	16.248	435	436.54	495
Reach-1	16.167	540	590.83	535
Reach-1	16.066	610	584.23	505
Reach-1	15.966	515	429.98	415
Reach-1	15.885	525	509.42	475
Reach-1	15.792	430	472.66	560
Reach-1	15.699	485	413.6	240
Reach-1	15.623	475	505.65	205
Reach-1	15.596	460	677.66	775
Reach-1	15.475	510	319.63	260
Reach-1	15.416	310	448.62	465
Reach-1	15.333	375	453.4	480
Reach-1	15.248	405	496.77	530
Reach-1	15.144	485	493.15	505
Reach-1	15.049	585	499.69	355
Reach-1	14.983	190	216.48	220
Reach-1	14.945	585	529.39	535
Reach-1	14.85	545	536.65	515
Reach-1	14.752	530	547.53	565
Reach-1	14.653	465	536.63	525
Reach-1	14.599	400	542.23	585
Reach-1	14.495	605	561.68	455
Reach-1	14.379	515	505.75	490
Reach-1	14.284	495	498.98	485
Reach-1	14.197	465	479.63	470
Reach-1	14.103	540	520.68	515
Reach-1	14.013	620	514.07	485
Reach-1	13.918	595	656.3	955
Reach-1	13.818	395	406.3	435
Reach-1	13.742	430	353.72	400
Reach-1	13.68	320	331.09	315
Reach-1	13.619	565	505.64	495
Reach-1	13.524	605	522.56	500
Reach-1	13.42	515	514.13	495
Reach-1	13.325	555	571.01	545
Reach-1	13.227	335	315.32	350
Reach-1	13.185	35	33.56	32
Reach-1	13.161	55	51.06	70
Reach-1	13.151	520	393.13	370
Reach-1	13.076	520	454.21	455
Reach-1	12.991	595	527.02	535
Reach-1	12.896	540	508.24	495
Reach-1	12.801	565	524.61	535
Reach-1	12.701	495	505.6	525
Reach-1	12.606	555	582.3	545
Reach-1	12.511	455	467.59	435
Reach-1	12.42	600	578.07	665
Reach-1	12.313	750	685.08	585
Reach-1	12.194	370	337.73	330
Reach-1	12.125	535	461.89	365
Reach-1	12.034	485	539.66	615
Reach-1	11.949	565	452.25	380
Reach-1	11.864	605	615.28	665
Reach-1	11.759	485	501.24	470
Reach-1	11.664	535	513.83	515

Reach-1	11.566	565	468.92	545
Reach-1	11.481	510	523.22	555
Reach-1	11.386	445	436.6	415
Reach-1	11.301	300	289.9	275
Reach-1	11.243	295	314.34	335
Reach-1	11.188	305	309.44	300
Reach-1	11.129	565	516.79	495
Reach-1	11.03	200	167.81	140
Reach-1	10.996	128	129.13	127
Reach-1	10.988	Bridge		
Reach-1	10.98	445	357.93	300
Reach-1	10.917	265	292.21	300
Reach-1	10.862	265	313.15	360
Reach-1	10.803	555	567.3	555
Reach-1	10.699	460	462.24	460
Reach-1	10.612	490	504.93	435
Reach-1	10.517	425	519.3	480
Reach-1	10.443	475	494.83	420
Reach-1	10.348	510	523	385
Reach-1	10.271	460	491.26	455
Reach-1	10.176	510	553.29	550
Reach-1	10.096	535	543.99	555
Reach-1	9.997	51	74.24	104
Reach-1	9.984	130	133.96	129
Reach-1	9.971001	Bridge		
Reach-1	9.958	22	27.43	28
Reach-1	9.953	175	189.16	215
Reach-1	9.908	120	103.32	65
Reach-1	9.889	485	501.31	495
Reach-1	9.794	550	557.04	555
Reach-1	9.692	525	565.23	520
Reach-1	9.592	535	606.9	580
Reach-1	9.492	430	463.47	425
Reach-1	9.367	540	489.74	465
Reach-1	9.318	185	155.57	155
Reach-1	9.289	470	506.29	455
Reach-1	9.193	400	391.34	390
Reach-1	9.129	370	394.4	430
Reach-1	9.047	355	330.86	270
Reach-1	8.994	90	91.57	85
Reach-1	8.977	220	211.76	215
Reach-1	8.936	285	289.58	290
Reach-1	8.883	410	401.1	400
Reach-1	8.807	425	404.72	395
Reach-1	8.731	500	401.71	395
Reach-1	8.655	675	461.08	340
Reach-1	8.548	48	48	48
Reach-1	8.538	110	110	105
Reach-1	8.516	280	287.9	305
Reach-1	8.457	365	361.88	355
Reach-1	8.39	310	308.23	305
Reach-1	8.33	555	565.26	545
Reach-1	8.22	485	512.82	565
Reach-1	8.12	365	370.41	370
Reach-1	8.052	225	236.58	255
Reach-1	8.006	445	463.28	505
Reach-1	7.92	615	631.37	655
Reach-1	7.8	230	259.16	355
Reach-1	7.751	115	121.7	110
Reach-1	7.7395	Bridge		
Reach-1	7.728	0	0	0

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: RIVER-1

Reach	River Sta.	Contr.	Expan.
Reach-1	16.829	.1	.3
Reach-1	16.732	.1	.3
Reach-1	16.637	.1	.3
Reach-1	16.608	.1	.3
Reach-1	16.504	.1	.3

Reach-1	16.411		.1	.3
Reach-1	16.348		.1	.3
Reach-1	16.248		.1	.3
Reach-1	16.167		.1	.3
Reach-1	16.066		.1	.3
Reach-1	15.966		.1	.3
Reach-1	15.885		.1	.3
Reach-1	15.792		.1	.3
Reach-1	15.699		.1	.3
Reach-1	15.623		.1	.3
Reach-1	15.596		.1	.3
Reach-1	15.475		.1	.3
Reach-1	15.416		.1	.3
Reach-1	15.333		.1	.3
Reach-1	15.248		.1	.3
Reach-1	15.144		.1	.3
Reach-1	15.049		.1	.3
Reach-1	14.983		.1	.3
Reach-1	14.945		.1	.3
Reach-1	14.85		.1	.3
Reach-1	14.752		.1	.3
Reach-1	14.653		.1	.3
Reach-1	14.599		.1	.3
Reach-1	14.495		.1	.3
Reach-1	14.379		.1	.3
Reach-1	14.284		.1	.3
Reach-1	14.197		.1	.3
Reach-1	14.103		.1	.3
Reach-1	14.013		.1	.3
Reach-1	13.918		.1	.3
Reach-1	13.818		.1	.3
Reach-1	13.742		.1	.3
Reach-1	13.68		.1	.3
Reach-1	13.619		.1	.3
Reach-1	13.524		.1	.3
Reach-1	13.42		.1	.3
Reach-1	13.325		.1	.3
Reach-1	13.227		.1	.3
Reach-1	13.185		.1	.3
Reach-1	13.161		.1	.3
Reach-1	13.151		.1	.3
Reach-1	13.076		.1	.3
Reach-1	12.991		.1	.3
Reach-1	12.896		.1	.3
Reach-1	12.801		.1	.3
Reach-1	12.701		.1	.3
Reach-1	12.606		.1	.3
Reach-1	12.511		.1	.3
Reach-1	12.42		.1	.3
Reach-1	12.313		.1	.3
Reach-1	12.194		.1	.3
Reach-1	12.125		.1	.3
Reach-1	12.034		.1	.3
Reach-1	11.949		.1	.3
Reach-1	11.864		.1	.3
Reach-1	11.759		.1	.3
Reach-1	11.664		.1	.3
Reach-1	11.566		.1	.3
Reach-1	11.481		.1	.3
Reach-1	11.386		.1	.3
Reach-1	11.301		.1	.3
Reach-1	11.243		.1	.3
Reach-1	11.188		.1	.3
Reach-1	11.129		.1	.3
Reach-1	11.03		.1	.3
Reach-1	10.996		.1	.3
Reach-1	10.988	Bridge		
Reach-1	10.98		.1	.3
Reach-1	10.917		.1	.3
Reach-1	10.862		.1	.3
Reach-1	10.803		.1	.3
Reach-1	10.699		.1	.3
Reach-1	10.612		.1	.3
Reach-1	10.517		.1	.3
Reach-1	10.443		.1	.3
Reach-1	10.348		.1	.3

Reach-1	10.271	.1	.3
Reach-1	10.176	.1	.3
Reach-1	10.096	.1	.3
Reach-1	9.997	.3	.5
Reach-1	9.984	.3	.5
Reach-1	9.971001 Bridge		
Reach-1	9.958	.3	.5
Reach-1	9.953	.3	.5
Reach-1	9.908	.3	.5
Reach-1	9.889	.3	.5
Reach-1	9.794	.1	.3
Reach-1	9.692	.1	.3
Reach-1	9.592	.1	.3
Reach-1	9.492	.1	.3
Reach-1	9.367	.1	.3
Reach-1	9.318	.3	.5
Reach-1	9.289	.3	.5
Reach-1	9.193	.3	.5
Reach-1	9.129	.1	.3
Reach-1	9.047	.1	.3
Reach-1	8.994	.1	.3
Reach-1	8.977	.1	.3
Reach-1	8.936	.1	.3
Reach-1	8.883	.1	.3
Reach-1	8.807	.1	.3
Reach-1	8.731	.1	.3
Reach-1	8.655	.2	.4
Reach-1	8.548	.1	.3
Reach-1	8.538	.1	.3
Reach-1	8.516	.1	.3
Reach-1	8.457	.1	.3
Reach-1	8.39	.1	.3
Reach-1	8.33	.1	.3
Reach-1	8.22	.1	.3
Reach-1	8.12	.1	.3
Reach-1	8.052	.1	.3
Reach-1	8.006	.1	.3
Reach-1	7.92	.1	.3
Reach-1	7.8	.3	.5
Reach-1	7.751	.3	.5
Reach-1	7.7395 Bridge		
Reach-1	7.728	.3	.5

Profile Output Table - Standard Table 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)					
Reach-1	16.829	2350.00	1374.90	1379.46	1377.97	1379.81	0.002958	4.77	507.92	187.88	0.46				
Reach-1	16.829	2350.00	1374.90	1379.46	1377.97	1379.81	0.002958	4.77	507.92	187.88	0.46				
Reach-1	16.829	1700.00	1374.90	1378.87	1377.50	1379.15	0.002914	4.22	405.03	158.37	0.44				
Reach-1	16.732	2350.00	1372.93	1377.80		1378.15	0.003412	4.71	498.45	166.57	0.48				
Reach-1	16.732	2350.00	1372.93	1377.80		1378.15	0.003412	4.71	498.45	166.57	0.48				
Reach-1	16.732	1700.00	1372.93	1377.32		1377.57	0.003082	4.06	418.31	161.92	0.45				
Reach-1	16.637	2350.00	1370.17	1374.65		1375.27	0.013165	6.34	370.44	218.57	0.86				
Reach-1	16.637	2350.00	1370.17	1374.65		1375.27	0.013165	6.34	370.44	218.57	0.86				
Reach-1	16.637	1700.00	1370.17	1374.29		1374.81	0.014304	5.82	292.34	209.24	0.87				
Reach-1	16.608	2350.00	1368.69	1373.08		1373.44	0.004887	4.86	483.26	201.73	0.55				
Reach-1	16.608	2350.00	1368.69	1373.08		1373.44	0.004887	4.86	483.26	201.73	0.55				

Reach-1	16.608		1700.00	1368.69	1372.63		1372.92
0.004953	4.32	393.78	198.61	0.54			
Reach-1	16.504		2350.00	1366.82	1371.22		1371.51
0.003058	4.34	557.52	235.33	0.47			
Reach-1	16.504		2350.00	1366.82	1371.22		1371.51
0.003058	4.34	557.52	235.33	0.47			
Reach-1	16.504		1700.00	1366.82	1370.64		1370.88
0.003380	4.01	429.91	207.73	0.48			
Reach-1	16.411		2350.00	1364.41	1368.80		1369.38
0.006643	6.17	405.16	179.22	0.66			
Reach-1	16.411		2350.00	1364.41	1368.80		1369.38
0.006643	6.17	405.16	179.22	0.66			
Reach-1	16.411		1700.00	1364.41	1368.37		1368.81
0.005630	5.34	332.44	160.84	0.60			
Reach-1	16.348		2350.00	1362.60	1366.70		1366.92
0.003569	4.33	642.47	382.85	0.48			
Reach-1	16.348		2350.00	1362.60	1366.70		1366.92
0.003569	4.33	642.47	382.85	0.48			
Reach-1	16.348		1700.00	1362.60	1366.27		1366.47
0.003837	4.07	487.58	334.03	0.49			
Reach-1	16.248		2350.00	1360.22	1364.29		1364.77
0.007648	6.21	447.97	294.17	0.70			
Reach-1	16.248		2350.00	1360.22	1364.29		1364.77
0.007648	6.21	447.97	294.17	0.70			
Reach-1	16.248		1700.00	1360.22	1364.00		1364.37
0.006534	5.32	369.89	247.86	0.63			
Reach-1	16.167		2350.00	1358.98	1361.47		1361.77
0.005275	3.36	551.38	341.11	0.52			
Reach-1	16.167		2350.00	1358.98	1361.47		1361.77
0.005275	3.36	551.38	341.11	0.52			
Reach-1	16.167		1700.00	1358.98	1360.99		1361.30
0.006424	2.84	398.95	298.57	0.54			
Reach-1	16.066		2350.00	1354.42	1358.60		1358.83
0.005387	4.11	605.21	438.00	0.55			
Reach-1	16.066		2350.00	1354.42	1358.60		1358.83
0.005387	4.11	605.21	438.00	0.55			
Reach-1	16.066		1700.00	1354.42	1358.43		1358.59
0.003844	3.35	535.19	409.48	0.46			
Reach-1	15.966		2350.00	1351.84	1356.95		1357.10
0.001966	3.43	921.23	562.01	0.36			
Reach-1	15.966		2350.00	1351.84	1356.95		1357.10
0.001967	3.43	921.16	562.00	0.36			
Reach-1	15.966		1700.00	1351.84	1356.06		1356.28
0.004421	4.00	506.36	353.62	0.51			
Reach-1	15.885		4200.00	1348.40	1354.74		1355.37
0.006608	6.74	685.03	276.88	0.67			
Reach-1	15.885		4200.00	1348.40	1354.75		1355.37
0.006608	6.74	685.06	276.90	0.67			
Reach-1	15.885		1874.00	1348.40	1353.29		1353.72
0.008011	5.41	357.66	195.25	0.69			
Reach-1	15.792		4200.00	1345.20	1351.76	1350.93	1352.37
0.005386	6.73	732.31	295.30	0.62			
Reach-1	15.792		4200.00	1345.20	1351.76	1350.93	1352.37
0.005388	6.73	732.17	295.27	0.62			
Reach-1	15.792		1874.00	1345.20	1350.53	1349.30	1350.87
0.004148	4.83	423.90	211.04	0.52			
Reach-1	15.699		4200.00	1344.71	1349.40		1349.64
0.005118	4.49	1097.57	642.48	0.41			
Reach-1	15.699		4200.00	1344.71	1349.40		1349.64
0.005109	4.49	1098.36	642.71	0.41			
Reach-1	15.699		1874.00	1344.71	1348.04		1348.27
0.006929	4.11	499.57	306.80	0.45			
Reach-1	15.623		4200.00	1340.00	1347.81		1348.08
0.003720	4.40	1169.47	579.01	0.36			
Reach-1	15.623		4200.00	1340.00	1347.80		1348.06

0.003778	4.42	1160.53	574.42	0.37			
Reach-1	15.623		1874.00	1340.00	1345.91		1346.13
0.004431	3.79	494.62	166.45	0.37			
Reach-1	15.596		4200.00	1338.38	1343.76		1344.67
0.017129	7.68	546.66	164.81	0.74			
Reach-1	15.596		4200.00	1338.38	1343.83		1344.71
0.015999	7.52	558.59	165.24	0.72			
Reach-1	15.596		1874.00	1338.38	1343.10		1343.38
0.006837	4.27	439.16	160.83	0.46			
Reach-1	15.475		4200.00	1335.06	1340.23		1340.51
0.002928	4.29	978.43	337.67	0.44			
Reach-1	15.475		6600.00	1335.06	1341.40		1341.76
0.002390	4.77	1384.87	373.25	0.42			
Reach-1	15.475		1874.00	1335.06	1338.68		1338.93
0.006317	4.00	468.70	320.59	0.58			
Reach-1	15.416		4200.00	1333.40	1339.85		1340.00
0.000899	3.10	1355.50	314.01	0.26			
Reach-1	15.416		6600.00	1333.40	1341.01		1341.24
0.001035	3.82	1727.75	324.63	0.29			
Reach-1	15.416		1874.00	1333.40	1338.29		1338.36
0.000713	2.13	878.48	299.51	0.22			
Reach-1	15.333		4200.00	1333.64	1338.93	1337.69	1339.27
0.003400	4.68	897.88	326.98	0.48			
Reach-1	15.333		6600.00	1333.64	1340.04	1338.40	1340.48
0.003001	5.32	1241.37	359.77	0.47			
Reach-1	15.333		1874.00	1333.64	1337.40	1336.55	1337.67
0.005049	4.11	455.76	252.16	0.54			
Reach-1	15.248		4200.00	1331.18	1337.05		1337.61
0.003891	6.08	740.95	263.92	0.54			
Reach-1	15.248		6600.00	1331.18	1337.94		1338.78
0.004632	7.53	1005.68	319.31	0.61			
Reach-1	15.248		1874.00	1331.18	1335.78		1336.04
0.002677	4.04	468.02	183.51	0.42			
Reach-1	15.144		4200.00	1329.20	1335.27		1335.62
0.003976	5.01	938.79	401.92	0.52			
Reach-1	15.144		6600.00	1329.20	1336.08		1336.56
0.004053	5.89	1285.16	468.22	0.54			
Reach-1	15.144		1874.00	1329.20	1334.10		1334.33
0.004706	4.01	508.36	332.38	0.52			
Reach-1	15.049		4200.00	1327.09	1333.63		1333.84
0.003166	3.92	1302.85	622.97	0.33			
Reach-1	15.049		6600.00	1327.09	1334.83		1335.01
0.002235	3.85	2226.72	816.49	0.29			
Reach-1	15.049		1874.00	1327.09	1331.81		1331.99
0.004666	3.46	567.74	261.27	0.37			
Reach-1	14.983		4200.00	1323.95	1330.96		1331.79
0.005448	7.29	585.00	160.36	0.64			
Reach-1	14.983		6600.00	1323.95	1331.83	1330.99	1333.14
0.007178	9.28	767.76	303.18	0.75			
Reach-1	14.983		1874.00	1323.95	1329.61		1329.97
0.003537	4.81	389.95	130.30	0.49			
Reach-1	14.945		4200.00	1323.89	1330.09	1329.31	1330.65
0.004401	6.56	817.20	696.80	0.57			
Reach-1	14.945		6600.00	1323.89	1330.55	1330.13	1331.51
0.006973	8.80	1031.43	822.22	0.73			
Reach-1	14.945		1874.00	1323.89	1328.84	1327.51	1329.18
0.003672	4.84	428.25	512.73	0.50			
Reach-1	14.85		6100.00	1323.06	1327.36		1327.77
0.005876	5.56	1205.83	557.23	0.62			
Reach-1	14.85		6600.00	1323.06	1327.49		1327.91
0.005711	5.63	1278.87	560.09	0.61			
Reach-1	14.85		2052.00	1323.06	1326.05		1326.31
0.007860	4.51	519.19	468.78	0.65			
Reach-1	14.752		6100.00	1319.77	1325.48	1324.08	1325.74
0.002508	4.14	1614.13	758.52	0.42			

Reach-1	14.752		6600.00	1319.77	1325.61	1324.19	1325.89
0.002563	4.29	1711.41	794.81	0.42			
Reach-1	14.752		2052.00	1319.77	1323.92	1322.43	1324.04
0.002549	2.80	732.05	432.45	0.38			
Reach-1	14.653		6100.00	1317.90	1322.78		1323.40
0.008710	6.94	1101.89	739.27	0.75			
Reach-1	14.653		6600.00	1317.90	1322.88		1323.51
0.008648	7.08	1176.49	757.19	0.76			
Reach-1	14.653		2052.00	1317.90	1321.44		1321.81
0.007436	5.07	440.76	326.81	0.66			
Reach-1	14.599		6100.00	1315.07	1319.80		1320.16
0.004609	4.76	1272.33	550.33	0.54			
Reach-1	14.599		6600.00	1315.07	1319.93		1320.31
0.004568	4.89	1344.58	570.61	0.54			
Reach-1	14.599		2052.00	1315.07	1318.42		1318.61
0.005102	3.36	597.77	436.77	0.51			
Reach-1	14.495		6100.00	1312.16	1317.51		1317.88
0.004556	6.11	1517.88	1019.38	0.57			
Reach-1	14.495		6600.00	1312.16	1317.58		1317.97
0.004795	6.34	1591.91	1041.67	0.59			
Reach-1	14.495		2052.00	1312.16	1316.14		1316.38
0.003931	4.41	584.46	405.23	0.50			
Reach-1	14.379		6100.00	1309.18	1313.89		1314.35
0.010040	6.02	1162.07	838.19	0.77			
Reach-1	14.379		6600.00	1309.18	1314.02		1314.47
0.009180	6.02	1277.23	874.61	0.74			
Reach-1	14.379		2052.00	1309.18	1312.18		1312.84
0.011333	5.44	335.85	216.47	0.78			
Reach-1	14.284		6100.00	1305.40	1311.66		1311.90
0.002740	5.07	1830.41	1075.98	0.45			
Reach-1	14.284		6600.00	1305.40	1311.71		1311.97
0.002999	5.34	1883.26	1090.23	0.47			
Reach-1	14.284		2052.00	1305.40	1310.26		1310.42
0.002373	3.88	732.76	523.85	0.40			
Reach-1	14.197		6100.00	1301.90	1308.52	1308.47	1309.27
0.013748	7.37	903.71	551.08	0.91			
Reach-1	14.197		6600.00	1301.90	1308.80		1309.44
0.010262	6.87	1060.97	650.23	0.80			
Reach-1	14.197		2052.00	1301.90	1307.26	1307.26	1307.87
0.017263	6.48	341.33	297.88	0.96			
Reach-1	14.103		6100.00	1299.72	1305.08		1305.59
0.004764	5.94	1095.04	409.04	0.58			
Reach-1	14.103		8800.00	1299.72	1305.91		1306.52
0.004408	6.54	1474.53	512.43	0.58			
Reach-1	14.103		2052.00	1299.72	1303.60	1302.36	1303.83
0.004097	3.86	549.45	343.30	0.49			
Reach-1	14.013		6100.00	1295.75	1302.87		1303.39
0.003794	6.02	1183.01	511.02	0.53			
Reach-1	14.013		8800.00	1295.75	1303.49		1304.21
0.004460	7.19	1550.23	698.80	0.59			
Reach-1	14.013		2052.00	1295.75	1300.26		1300.75
0.009116	5.58	367.49	199.80	0.73			
Reach-1	13.918		9800.00	1289.83	1297.57	1297.57	1299.33
0.014764	11.57	928.71	267.81	1.03			
Reach-1	13.918		12000.00	1289.83	1298.18	1298.18	1300.06
0.014263	12.22	1103.63	303.94	1.03			
Reach-1	13.918		2221.00	1289.83	1294.67	1294.67	1295.59
0.011027	8.86	320.17	164.13	0.86			
Reach-1	13.818		9800.00	1288.00	1292.08	1289.95	1292.29
0.001204	3.71	2658.75	2278.40	0.33			
Reach-1	13.818		12000.00	1288.00	1292.28	1290.24	1292.57
0.001535	4.33	2795.42	2286.86	0.37			
Reach-1	13.818		2221.00	1288.00	1290.00	1288.73	1290.05
0.000676	1.74	1277.87	1867.48	0.22			
Reach-1	13.742		9800.00	1287.86	1291.18	1290.04	1291.53

0.003101	4.79	2045.73	1401.72	0.50			
Reach-1	13.742		12000.00	1287.86	1291.63	1290.32	1292.03
0.002909	5.07	2365.62	1425.36	0.49			
Reach-1	13.742		2221.00	1287.86	1289.48	1288.78	1289.58
0.002399	2.52	881.26	1103.02	0.38			
Reach-1	13.68		9800.00	1285.50	1289.87		1290.32
0.003803	5.33	1837.73	632.00	0.55			
Reach-1	13.68		12000.00	1285.50	1290.56		1290.99
0.002914	5.26	2281.21	655.81	0.50			
Reach-1	13.68		2221.00	1285.50	1287.23	1287.23	1287.72
0.018614	5.59	397.14	418.59	1.01			
Reach-1	13.619		9800.00	1283.47	1289.45		1289.68
0.000988	3.79	2588.77	540.12	0.30			
Reach-1	13.619		12000.00	1283.47	1290.18		1290.43
0.000932	4.01	3008.67	596.72	0.30			
Reach-1	13.619		2221.00	1283.47	1286.29	1285.31	1286.38
0.001494	2.41	920.16	515.05	0.32			
Reach-1	13.524		9800.00	1281.90	1288.12		1288.82
0.003015	6.70	1462.40	298.06	0.53			
Reach-1	13.524		12000.00	1281.90	1288.79		1289.59
0.003093	7.21	1667.36	338.62	0.55			
Reach-1	13.524		2221.00	1281.90	1284.74		1285.06
0.005369	4.54	489.16	276.60	0.60			
Reach-1	13.42		9800.00	1277.43	1285.73		1286.87
0.004519	8.57	1144.03	220.38	0.66			
Reach-1	13.42		12000.00	1277.43	1286.41	1284.98	1287.64
0.004373	9.04	1652.59	1183.14	0.66			
Reach-1	13.42		2221.00	1277.43	1282.52	1281.50	1282.85
0.003412	4.64	479.13	186.69	0.51			
Reach-1	13.325		9800.00	1276.70	1283.32		1284.42
0.004969	8.44	1160.91	243.06	0.68			
Reach-1	13.325		12000.00	1276.70	1283.96		1285.24
0.004967	9.11	1317.21	245.65	0.69			
Reach-1	13.325		2221.00	1276.70	1280.14		1280.56
0.006001	5.24	423.86	209.88	0.65			
Reach-1	13.227		9800.00	1274.89	1280.97		1281.86
0.003885	7.56	1297.09	267.25	0.60			
Reach-1	13.227		12000.00	1274.89	1281.46		1282.56
0.004290	8.40	1428.23	270.16	0.64			
Reach-1	13.227		2221.00	1274.89	1278.28		1278.49
0.002299	3.69	601.28	245.25	0.42			
Reach-1	13.185		9800.00	1274.89	1279.63		1280.41
0.005262	7.09	1381.92	395.27	0.67			
Reach-1	13.185		12000.00	1274.89	1280.10		1281.01
0.005265	7.64	1572.08	413.06	0.68			
Reach-1	13.185		2221.00	1274.89	1277.21		1277.48
0.004672	4.22	526.72	300.62	0.56			
Reach-1	13.161		9800.00	1274.65	1278.68	1278.68	1280.09
0.012678	9.51	1030.58	367.18	1.00			
Reach-1	13.161		12000.00	1274.65	1279.13	1279.13	1280.68
0.012290	10.00	1199.49	386.89	1.00			
Reach-1	13.161		2221.00	1274.65	1276.52	1276.52	1277.18
0.016778	6.49	341.98	266.42	1.01			
Reach-1	13.151		9800.00	1262.20	1271.39	1267.12	1271.65
0.000835	4.09	2394.94	391.74	0.29			
Reach-1	13.151		12000.00	1262.20	1272.04	1267.69	1272.35
0.000919	4.52	2652.99	401.33	0.31			
Reach-1	13.151		2221.00	1262.20	1267.76	1264.46	1267.82
0.000379	2.00	1111.73	294.86	0.18			
Reach-1	13.076		9800.00	1262.37	1271.18		1271.37
0.000512	3.49	2811.57	403.78	0.23			
Reach-1	13.076		12000.00	1262.37	1271.81		1272.05
0.000584	3.91	3065.36	407.64	0.25			
Reach-1	13.076		2221.00	1262.37	1267.66		1267.70
0.000237	1.56	1424.69	384.55	0.14			

Reach-1	12.991		9800.00	1262.37	1271.05		1271.17
0.000314	2.78	3578.88	514.86	0.18			
Reach-1	12.991		12000.00	1262.37	1271.66		1271.81
0.000358	3.13	3895.02	517.33	0.20			
Reach-1	12.991		2400.00	1262.37	1267.59		1267.61
0.000150	1.30	1858.65	475.97	0.11			
Reach-1	12.896		9800.00	1262.50	1270.68		1270.91
0.000842	3.84	2717.38	569.80	0.29			
Reach-1	12.896		12000.00	1262.50	1271.25		1271.52
0.000917	4.24	3050.17	606.27	0.30			
Reach-1	12.896		2400.00	1262.50	1267.40		1267.47
0.000587	2.11	1168.96	407.17	0.22			
Reach-1	12.801		9800.00	1260.23	1270.06		1270.32
0.001645	4.05	2417.25	666.34	0.38			
Reach-1	12.801		12000.00	1260.23	1270.64		1270.92
0.001521	4.28	2802.11	670.44	0.37			
Reach-1	12.801		2400.00	1260.23	1266.75		1266.95
0.002003	3.58	670.86	258.34	0.39			
Reach-1	12.701		9800.00	1260.10	1268.43		1269.10
0.003244	6.57	1538.34	429.90	0.55			
Reach-1	12.701		12000.00	1260.10	1268.94		1269.73
0.003386	7.18	1768.95	483.26	0.57			
Reach-1	12.701		2400.00	1260.10	1265.53		1265.78
0.002509	3.99	601.29	232.98	0.44			
Reach-1	12.606		9800.00	1258.90	1266.05		1266.96
0.005598	7.84	1410.76	479.62	0.70			
Reach-1	12.606		12000.00	1258.90	1266.60		1267.59
0.005335	8.23	1691.73	546.61	0.70			
Reach-1	12.606		2400.00	1258.90	1263.00		1263.57
0.008937	6.06	396.12	213.06	0.78			
Reach-1	12.511		9800.00	1254.80	1263.62	1261.85	1264.48
0.003313	7.54	1434.78	2131.52	0.57			
Reach-1	12.511		12000.00	1254.80	1264.38	1262.47	1265.27
0.003033	7.80	1913.69	2852.16	0.55			
Reach-1	12.511		2400.00	1254.80	1260.13	1259.03	1260.46
0.003398	4.68	513.12	271.95	0.51			
Reach-1	12.42		9800.00	1254.50	1260.15	1259.95	1262.01
0.008768	10.97	928.37	446.23	0.90			
Reach-1	12.42		12000.00	1254.50	1260.65	1260.65	1262.85
0.009227	12.00	1068.80	462.95	0.94			
Reach-1	12.42		2400.00	1254.50	1257.34	1257.03	1258.00
0.008924	6.52	367.92	288.73	0.80			
Reach-1	12.313		9800.00	1250.47	1257.56	1256.17	1258.35
0.004086	7.15	1371.47	319.04	0.61			
Reach-1	12.313		12000.00	1250.47	1258.20	1256.69	1259.10
0.003991	7.59	1580.29	329.67	0.61			
Reach-1	12.313		2400.00	1250.47	1254.90	1253.60	1255.14
0.002927	3.98	602.35	262.15	0.46			
Reach-1	12.194		10350.00	1248.00	1252.22	1252.22	1253.68
0.012534	9.70	1067.07	364.94	1.00			
Reach-1	12.194		13400.00	1248.00	1252.81	1252.81	1254.49
0.011984	10.39	1289.23	384.33	1.00			
Reach-1	12.194		2529.00	1248.00	1250.34	1250.34	1250.96
0.017361	6.32	399.87	331.95	1.02			
Reach-1	12.125		10350.00	1244.65	1249.29	1247.95	1249.82
0.003332	5.83	1775.53	483.51	0.54			
Reach-1	12.125		13400.00	1244.65	1249.99	1248.44	1250.61
0.003389	6.32	2120.28	518.02	0.55			
Reach-1	12.125		2529.00	1244.65	1246.75	1246.32	1247.02
0.005881	4.11	615.17	433.46	0.61			
Reach-1	12.034		10350.00	1241.47	1246.62		1247.59
0.007215	7.91	1307.69	401.05	0.77			
Reach-1	12.034		13400.00	1241.47	1247.31		1248.41
0.006816	8.41	1593.53	427.53	0.77			
Reach-1	12.034		2529.00	1241.47	1244.23		1244.58
0.004701	4.76	531.28	253.75	0.58			

Reach-1	11.949		10350.00	1238.90	1244.36		1244.98
0.003231	6.52	1828.84	576.95	0.54			
Reach-1	11.949		13900.00	1238.90	1245.23		1245.95
0.003037	7.08	2356.21	621.12	0.54			
Reach-1	11.949		2529.00	1238.90	1241.38		1241.74
0.005942	4.81	525.61	295.98	0.63			
Reach-1	11.864		10350.00	1235.57	1241.44		1242.82
0.007055	9.62	1289.93	535.51	0.80			
Reach-1	11.864		13900.00	1235.57	1242.18		1243.83
0.007084	10.68	1754.71	684.32	0.83			
Reach-1	11.864		2529.00	1235.57	1239.12		1239.49
0.004212	4.91	520.59	225.24	0.56			
Reach-1	11.759		10350.00	1232.02	1238.43		1239.19
0.004549	7.67	1866.72	502.37	0.64			
Reach-1	11.759		13900.00	1232.02	1239.26		1240.18
0.004509	8.48	2290.25	519.15	0.66			
Reach-1	11.759		2529.00	1232.02	1235.68		1236.11
0.007433	5.45	570.54	426.52	0.71			
Reach-1	11.664		10350.00	1228.80	1234.86		1236.23
0.007763	9.98	1248.78	345.58	0.84			
Reach-1	11.664		13900.00	1228.80	1235.83		1237.37
0.006921	10.68	1591.59	362.59	0.82			
Reach-1	11.664		2529.00	1228.80	1232.71	1232.12	1233.11
0.004952	5.22	545.14	307.74	0.60			
Reach-1	11.566		10350.00	1228.32	1234.25	1231.73	1234.55
0.001311	4.37	2370.21	518.63	0.35			
Reach-1	11.566		13900.00	1228.32	1235.55	1232.29	1235.87
0.001062	4.58	3126.56	617.16	0.33			
Reach-1	11.566		2529.00	1228.32	1230.86	1230.16	1231.03
0.003180	3.35	753.95	453.92	0.46			
Reach-1	11.481		10350.00	1224.81	1233.00		1233.70
0.002405	6.70	1544.95	265.48	0.49			
Reach-1	11.481		13900.00	1224.81	1234.27		1235.11
0.002309	7.36	1902.13	326.82	0.49			
Reach-1	11.481		2529.00	1224.81	1229.11		1229.43
0.003626	4.50	562.61	240.34	0.52			
Reach-1	11.386		10350.00	1223.10	1231.43		1232.28
0.002981	7.40	1398.71	242.34	0.54			
Reach-1	11.386		13900.00	1223.10	1232.77		1233.77
0.002780	8.05	1727.08	250.02	0.54			
Reach-1	11.386		2529.00	1223.10	1227.15		1227.54
0.003584	5.04	501.79	178.14	0.53			
Reach-1	11.301		10350.00	1221.27	1229.87		1230.92
0.003180	8.22	1258.36	195.44	0.57			
Reach-1	11.301		13900.00	1221.27	1231.05		1232.39
0.003433	9.30	1494.56	204.28	0.61			
Reach-1	11.301		2529.00	1221.27	1225.53		1225.96
0.003639	5.25	481.59	163.01	0.54			
Reach-1	11.243		10350.00	1219.13	1229.08		1230.05
0.002683	7.89	1312.41	190.83	0.53			
Reach-1	11.243		13900.00	1219.13	1230.12		1231.43
0.003149	9.18	1514.01	197.35	0.58			
Reach-1	11.243		2529.00	1219.13	1224.74		1225.08
0.002451	4.66	543.06	163.57	0.45			
Reach-1	11.188		10350.00	1219.14	1228.65		1229.29
0.001698	6.38	1621.68	230.55	0.42			
Reach-1	11.188		13900.00	1219.14	1229.63		1230.51
0.002053	7.51	1851.24	237.55	0.47			
Reach-1	11.188		2529.00	1219.14	1224.21		1224.43
0.001601	3.79	666.65	198.79	0.37			
Reach-1	11.129		10900.00	1219.39	1228.35		1228.81
0.001144	5.40	2017.70	273.85	0.35			
Reach-1	11.129		13900.00	1219.39	1229.36		1229.93
0.001244	6.05	2296.63	279.62	0.37			
Reach-1	11.129		2586.00	1219.39	1223.87		1224.02

0.001008	3.05	848.02	248.21	0.29			
Reach-1	11.03		10900.00	1219.37	1226.45		1227.70
0.004299	8.97	1215.03	208.51	0.65			
Reach-1	11.03		13900.00	1219.37	1226.78		1228.60
0.005943	10.83	1288.19	269.02	0.77			
Reach-1	11.03		2586.00	1219.37	1222.68		1223.10
0.003610	5.18	499.07	171.70	0.54			
Reach-1	10.996		10900.00	1218.61	1226.14	1223.79	1227.01
0.002765	7.49	1455.83	235.41	0.53			
Reach-1	10.996		13900.00	1218.61	1226.26	1224.59	1227.62
0.004255	9.38	1482.52	236.37	0.66			
Reach-1	10.996		2586.00	1218.61	1222.31	1220.90	1222.58
0.002242	4.20	615.55	203.02	0.43			
Reach-1	10.988		Bridge				
Reach-1	10.98		10900.00	1218.60	1224.38	1223.61	1225.92
0.006603	9.96	1093.85	221.23	0.79			
Reach-1	10.98		13900.00	1218.60	1223.71	1224.38	1227.05
0.016808	14.67	947.83	216.55	1.24			
Reach-1	10.98		2586.00	1218.60	1221.29	1220.78	1221.82
0.006607	5.84	442.63	200.24	0.69			
Reach-1	10.917		10900.00	1216.73	1223.51		1224.14
0.002915	6.40	1704.18	364.60	0.52			
Reach-1	10.917		13900.00	1216.73	1224.52	1222.03	1225.21
0.002646	6.65	2095.22	536.07	0.51			
Reach-1	10.917		2586.00	1216.73	1219.84		1220.13
0.003269	4.30	600.93	254.25	0.49			
Reach-1	10.862		10900.00	1215.43	1221.84		1223.02
0.004744	8.71	1251.44	241.11	0.67			
Reach-1	10.862		13900.00	1215.43	1222.76		1224.13
0.004692	9.40	1479.24	252.08	0.68			
Reach-1	10.862		2586.00	1215.43	1218.84		1219.17
0.003310	4.56	566.63	220.62	0.50			
Reach-1	10.803		10900.00	1214.10	1220.48		1221.40
0.005087	7.72	1447.16	533.21	0.67			
Reach-1	10.803		15500.00	1214.10	1221.55		1222.61
0.004433	8.42	2082.98	624.51	0.65			
Reach-1	10.803		2586.00	1214.10	1217.64		1217.97
0.004421	4.63	558.80	265.32	0.56			
Reach-1	10.699		10900.00	1209.46	1216.64		1217.99
0.007056	9.29	1172.98	276.42	0.79			
Reach-1	10.699		15500.00	1209.46	1217.68		1219.43
0.007038	10.61	1460.67	281.12	0.82			
Reach-1	10.699		2586.00	1209.46	1213.70		1214.34
0.009901	6.41	403.15	214.29	0.82			
Reach-1	10.612		10900.00	1208.77	1215.38		1216.00
0.002406	6.30	1729.10	326.17	0.48			
Reach-1	10.612		15500.00	1208.77	1216.39		1217.25
0.002703	7.46	2169.17	479.88	0.53			
Reach-1	10.612		2586.00	1208.77	1212.38		1212.55
0.001813	3.33	776.49	309.44	0.37			
Reach-1	10.517		10900.00	1207.43	1212.95		1214.06
0.006597	8.54	1370.25	528.08	0.76			
Reach-1	10.517		15500.00	1207.43	1213.78		1215.17
0.006624	9.68	1811.66	530.64	0.79			
Reach-1	10.517		2586.00	1207.43	1210.73		1211.06
0.005459	4.63	558.42	310.21	0.61			
Reach-1	10.443		10900.00	1204.60	1209.48		1210.50
0.007007	8.07	1350.60	393.60	0.77			
Reach-1	10.443		15500.00	1204.60	1210.34		1211.65
0.006881	9.16	1691.59	401.79	0.79			
Reach-1	10.443		2586.00	1204.60	1207.38		1207.73
0.007639	4.75	544.04	374.73	0.70			
Reach-1	10.348		10900.00	1201.21	1206.99		1207.72
0.004336	6.88	1584.60	408.15	0.62			

Reach-1	10.348		15500.00	1201.21	1207.96		1208.91
0.004239	7.82	1981.16	413.26	0.63			
Reach-1	10.348		2586.00	1201.21	1204.50		1204.78
0.004718	4.28	603.63	337.63	0.56			
Reach-1	10.271		10900.00	1198.26	1205.08		1205.71
0.003332	6.39	1705.17	402.88	0.55			
Reach-1	10.271		15500.00	1198.26	1205.92		1206.81
0.003736	7.58	2045.78	407.92	0.60			
Reach-1	10.271		2586.00	1198.26	1202.53		1202.74
0.003219	3.69	701.01	368.87	0.47			
Reach-1	10.176		11450.00	1195.57	1202.55	1201.78	1203.51
0.006045	7.85	1459.08	406.39	0.72			
Reach-1	10.176		15500.00	1195.57	1203.40	1202.49	1204.55
0.005647	8.62	1797.48	455.33	0.72			
Reach-1	10.176		2643.00	1195.57	1200.29	1199.76	1200.61
0.006094	4.55	580.27	359.55	0.63			
Reach-1	10.096		11450.00	1193.84	1200.31	1198.79	1201.00
0.003335	6.65	1722.69	428.47	0.55			
Reach-1	10.096		15500.00	1193.84	1201.50	1199.49	1202.28
0.002857	7.09	2185.27	450.90	0.53			
Reach-1	10.096		2643.00	1193.84	1197.36	1196.76	1197.64
0.004734	4.25	621.71	353.41	0.56			
Reach-1	9.997		11450.00	1191.71	1197.97		1199.00
0.003892	8.15	1404.29	257.97	0.62			
Reach-1	9.997		15500.00	1191.71	1199.22		1200.45
0.003813	8.91	1739.28	275.15	0.62			
Reach-1	9.997		2643.00	1191.71	1194.30		1194.74
0.006014	5.35	493.82	237.53	0.65			
Reach-1	9.984		11450.00	1191.00	1197.92	1195.37	1198.62
0.002216	6.70	1708.79	275.76	0.47			
Reach-1	9.984		15500.00	1191.00	1199.18	1196.26	1200.06
0.002249	7.53	2058.60	281.59	0.49			
Reach-1	9.984		2643.00	1191.00	1194.17	1192.81	1194.39
0.002032	3.74	706.61	257.48	0.40			
Reach-1	9.971001		Bridge				
Reach-1	9.958		11450.00	1190.47	1196.89	1195.01	1197.78
0.003203	7.55	1516.94	270.25	0.56			
Reach-1	9.958		15500.00	1190.47	1198.12	1195.89	1199.20
0.003122	8.37	1851.81	276.70	0.57			
Reach-1	9.958		2643.00	1190.47	1193.20	1192.41	1193.54
0.004064	4.71	560.75	243.14	0.55			
Reach-1	9.953		11450.00	1189.38	1196.75		1197.67
0.003327	7.72	1482.81	262.27	0.57			
Reach-1	9.953		15500.00	1189.38	1197.95		1199.10
0.003295	8.61	1800.60	268.20	0.59			
Reach-1	9.953		2643.00	1189.38	1193.10	1192.21	1193.43
0.003610	4.61	573.92	235.41	0.52			
Reach-1	9.908		11450.00	1189.05	1194.10	1194.10	1196.25
0.011103	11.78	971.71	225.39	1.00			
Reach-1	9.908		15500.00	1189.05	1195.14	1195.14	1197.66
0.010561	12.74	1216.75	241.51	1.00			
Reach-1	9.908		2643.00	1189.05	1191.15	1191.15	1192.03
0.015109	7.53	351.04	201.83	1.01			
Reach-1	9.889		11450.00	1185.42	1190.74	1191.61	1194.31
0.020363	15.17	754.63	187.92	1.33			
Reach-1	9.889		15500.00	1185.42	1191.85	1192.72	1195.85
0.017039	16.06	965.30	192.75	1.26			
Reach-1	9.889		2643.00	1185.42	1189.10	1188.44	1189.63
0.005685	5.85	451.63	180.98	0.65			
Reach-1	9.794		11450.00	1180.23	1186.96	1186.96	1188.93
0.011529	11.24	1018.44	260.83	1.00			
Reach-1	9.794		19000.00	1180.23	1188.56	1188.56	1191.26
0.010414	13.19	1439.97	268.15	1.00			
Reach-1	9.794		2643.00	1180.23	1184.13	1184.13	1185.18
0.014352	8.21	321.82	155.97	1.01			

Reach-1	9.692		11450.00	1177.20	1184.85	1182.30	1185.33
0.001739	5.55	2064.24	369.57	0.41			
Reach-1	9.692		19000.00	1177.20	1186.70	1183.58	1187.44
0.001884	6.89	2755.75	377.28	0.45			
Reach-1	9.692		2643.00	1177.20	1181.63	1179.76	1181.77
0.001418	2.95	895.97	356.15	0.33			
Reach-1	9.592		11450.00	1175.70	1181.78		1183.24
0.010430	9.72	1177.73	348.98	0.93			
Reach-1	9.592		19000.00	1175.70	1182.93	1182.93	1185.16
0.010955	11.99	1584.84	355.44	1.00			
Reach-1	9.592		2643.00	1175.70	1180.18	1179.54	1180.46
0.004326	4.20	629.39	340.08	0.54			
Reach-1	9.492		11450.00	1173.94	1179.30		1179.85
0.003048	5.96	1921.07	472.55	0.52			
Reach-1	9.492		19000.00	1173.94	1181.35	1178.92	1182.01
0.002197	6.55	2899.78	483.34	0.47			
Reach-1	9.492		2643.00	1173.94	1176.13		1176.56
0.010650	5.29	499.41	375.84	0.81			
Reach-1	9.367		12000.00	1171.33	1178.66		1178.98
0.001130	4.54	2644.37	464.86	0.34			
Reach-1	9.367		19000.00	1171.33	1180.88		1181.29
0.000967	5.15	3686.02	475.33	0.33			
Reach-1	9.367		2700.00	1171.33	1174.68		1174.82
0.001783	3.02	893.77	408.02	0.36			
Reach-1	9.318		12000.00	1168.35	1177.93		1178.37
0.001333	5.31	2258.51	353.76	0.37			
Reach-1	9.318		19000.00	1168.35	1180.12		1180.73
0.001285	6.24	3045.04	363.83	0.38			
Reach-1	9.318		2700.00	1168.35	1173.82		1173.98
0.001657	3.20	844.10	334.87	0.36			
Reach-1	9.289		12000.00	1167.90	1175.23	1175.23	1177.39
0.011308	11.79	1017.66	240.08	1.01			
Reach-1	9.289		19000.00	1167.90	1176.84	1176.84	1179.63
0.010293	13.41	1416.75	256.45	1.01			
Reach-1	9.289		2700.00	1167.90	1172.21	1172.21	1173.17
0.014697	7.83	344.93	183.59	1.01			
Reach-1	9.193		12000.00	1164.54	1171.78	1169.21	1172.15
0.001484	4.89	2452.83	472.44	0.38			
Reach-1	9.193		19000.00	1164.54	1174.10	1170.23	1174.54
0.001114	5.33	3567.27	486.90	0.35			
Reach-1	9.193		2700.00	1164.54	1167.77	1167.14	1168.05
0.004722	4.23	638.97	366.14	0.56			
Reach-1	9.129		12000.00	1163.16	1171.38		1171.67
0.000893	4.34	2767.76	436.31	0.30			
Reach-1	9.129		19000.00	1163.16	1173.77		1174.15
0.000797	4.96	3829.64	452.24	0.30			
Reach-1	9.129		2700.00	1163.16	1166.98		1167.11
0.001262	2.89	934.11	351.66	0.31			
Reach-1	9.047		12000.00	1161.64	1170.94		1171.29
0.000985	4.75	2527.12	373.51	0.32			
Reach-1	9.047		19000.00	1161.64	1173.32		1173.80
0.000941	5.53	3435.67	389.66	0.33			
Reach-1	9.047		2700.00	1161.64	1166.48		1166.61
0.001246	2.91	928.90	343.25	0.31			
Reach-1	8.994		12000.00	1161.65	1169.49		1170.65
0.003528	8.65	1387.92	215.17	0.60			
Reach-1	8.994		19000.00	1161.65	1171.40		1173.11
0.003907	10.52	1806.01	224.35	0.65			
Reach-1	8.994		2700.00	1161.65	1165.75		1166.05
0.002357	4.38	615.92	197.11	0.44			
Reach-1	8.977		12000.00	1161.30	1169.22		1170.31
0.003602	8.38	1432.41	236.34	0.60			
Reach-1	8.977		19000.00	1161.30	1171.16		1172.72
0.003676	10.01	1898.56	242.58	0.63			
Reach-1	8.977		2700.00	1161.30	1165.53		1165.83

0.002437	4.33	623.26	208.23	0.44			
Reach-1	8.936		12000.00	1159.94	1168.66		1169.54
0.003065	7.50	1598.98	277.70	0.55			
Reach-1	8.936		19000.00	1159.94	1170.75		1171.92
0.002844	8.68	2188.88	288.19	0.56			
Reach-1	8.936		2700.00	1159.94	1164.88		1165.21
0.003517	4.59	588.17	237.77	0.51			
Reach-1	8.883		12000.00	1159.44	1167.19		1168.45
0.004361	9.00	1334.07	229.66	0.66			
Reach-1	8.883		19000.00	1159.44	1167.36	1167.36	1170.34
0.010011	13.85	1371.78	230.42	1.00			
Reach-1	8.883		2700.00	1159.44	1163.12	1162.73	1163.71
0.007950	6.16	438.13	210.06	0.75			
Reach-1	8.807		12000.00	1158.04	1167.10		1167.50
0.000917	5.07	2366.20	298.41	0.32			
Reach-1	8.807		19000.00	1158.04	1166.67	1164.02	1167.79
0.002745	8.49	2236.97	296.35	0.54			
Reach-1	8.807		2700.00	1158.04	1160.72		1161.09
0.005224	4.91	549.74	270.65	0.61			
Reach-1	8.731		41000.00	1153.60	1166.94		1167.26
0.000466	4.60	8913.22	786.61	0.24			
Reach-1	8.731		41000.00	1153.60	1166.94		1167.26
0.000466	4.60	8913.13	786.61	0.24			
Reach-1	8.731		13500.00	1153.60	1160.46		1160.65
0.000759	3.46	3898.46	763.20	0.27			
Reach-1	8.655		41000.00	1152.50	1166.34		1166.98
0.000891	6.42	6390.95	556.57	0.33			
Reach-1	8.655		41000.00	1152.50	1166.34		1166.98
0.000891	6.42	6390.89	556.57	0.33			
Reach-1	8.655		13500.00	1152.50	1159.93		1160.26
0.001188	4.61	2931.48	522.97	0.34			
Reach-1	8.548		41000.00	1149.77	1161.11	1161.11	1165.31
0.009147	16.45	2492.60	298.29	1.00			
Reach-1	8.548		41000.00	1149.77	1161.11	1161.11	1165.31
0.009146	16.45	2492.67	298.30	1.00			
Reach-1	8.548		13500.00	1149.77	1156.62	1156.62	1158.66
0.011411	11.49	1175.36	287.50	1.00			
Reach-1	8.538		41000.00	1142.24	1161.28	1151.61	1162.27
0.000823	7.98	5139.18	292.19	0.34			
Reach-1	8.538		41000.00	1142.24	1161.28	1151.61	1162.27
0.000823	7.98	5139.18	292.19	0.34			
Reach-1	8.538		13500.00	1142.24	1154.17	1146.77	1154.47
0.000429	4.33	3117.86	276.38	0.23			
Reach-1	8.516		41000.00	1141.55	1161.23		1162.17
0.000767	7.80	5253.54	293.15	0.32			
Reach-1	8.516		41000.00	1141.55	1161.23		1162.17
0.000767	7.80	5253.54	293.15	0.32			
Reach-1	8.516		13500.00	1141.55	1154.14		1154.41
0.000384	4.18	3229.96	278.06	0.22			
Reach-1	8.457		41000.00	1141.10	1160.19		1161.78
0.001891	10.10	4058.52	313.60	0.49			
Reach-1	8.457		41000.00	1141.10	1160.19		1161.78
0.001891	10.10	4058.52	313.60	0.49			
Reach-1	8.457		13500.00	1141.10	1153.64		1154.21
0.001111	6.08	2220.01	247.04	0.36			
Reach-1	8.39		41000.00	1140.92	1159.34		1161.04
0.002118	10.47	3916.04	312.48	0.52			
Reach-1	8.39		41000.00	1140.92	1159.34		1161.04
0.002118	10.47	3916.04	312.48	0.52			
Reach-1	8.39		13500.00	1140.92	1153.20		1153.79
0.001195	6.18	2184.12	250.67	0.37			
Reach-1	8.33		41000.00	1140.59	1158.66		1160.38
0.002214	10.53	3895.18	318.88	0.53			
Reach-1	8.33		41000.00	1140.59	1158.66		1160.38
0.002214	10.53	3895.18	318.88	0.53			

Reach-1	8.33		13500.00	1140.59	1152.82		1153.41
0.001257	6.16	2191.97	262.90	0.38			
Reach-1	8.22		41000.00	1138.78	1157.49		1159.12
0.002130	10.25	4001.07	331.19	0.52			
Reach-1	8.22		41000.00	1138.78	1157.49		1159.12
0.002130	10.25	4001.07	331.19	0.52			
Reach-1	8.22		13500.00	1138.78	1152.26		1152.75
0.001009	5.63	2398.34	278.91	0.34			
Reach-1	8.12		41000.00	1137.97	1156.27		1157.98
0.002283	10.51	3899.49	326.07	0.54			
Reach-1	8.12		41000.00	1137.97	1156.27		1157.98
0.002283	10.51	3899.49	326.07	0.54			
Reach-1	8.12		13500.00	1137.97	1151.83		1152.26
0.000826	5.28	2555.02	280.00	0.31			
Reach-1	8.052		41000.00	1136.42	1155.55		1157.14
0.002078	10.09	4061.71	337.05	0.51			
Reach-1	8.052		41000.00	1136.42	1155.55		1157.14
0.002078	10.09	4061.71	337.05	0.51			
Reach-1	8.052		13500.00	1136.42	1151.62		1151.98
0.000618	4.77	2827.53	290.71	0.27			
Reach-1	8.006		41000.00	1136.11	1155.03		1156.64
0.002133	10.19	4024.48	336.26	0.52			
Reach-1	8.006		41000.00	1136.11	1155.03		1156.64
0.002133	10.19	4024.48	336.26	0.52			
Reach-1	8.006		13500.00	1136.11	1151.49		1151.83
0.000591	4.65	2900.39	299.91	0.26			
Reach-1	7.92		41000.00	1135.74	1154.00		1155.63
0.002196	10.26	3995.78	337.50	0.53			
Reach-1	7.92		41000.00	1135.74	1154.00		1155.63
0.002196	10.26	3995.78	337.50	0.53			
Reach-1	7.92		13500.00	1135.74	1151.28		1151.57
0.000481	4.33	3117.60	307.85	0.24			
Reach-1	7.8		41000.00	1135.65	1152.43		1154.18
0.002384	10.60	3868.03	331.63	0.55			
Reach-1	7.8		41000.00	1135.65	1152.43		1154.18
0.002384	10.60	3868.03	331.63	0.55			
Reach-1	7.8		13500.00	1135.65	1151.05		1151.29
0.000368	3.95	3418.10	317.18	0.21			
Reach-1	7.751		41000.00	1135.30	1151.52	1146.57	1153.50
0.002285	11.28	3633.67	270.23	0.54			
Reach-1	7.751		41000.00	1135.30	1151.52	1146.57	1153.50
0.002285	11.28	3633.67	270.23	0.54			
Reach-1	7.751		13500.00	1135.30	1150.97	1141.22	1151.20
0.000282	3.87	3483.95	267.98	0.19			
Reach-1	7.7395		Bridge				
Reach-1	7.728		41000.00	1135.40	1150.50	1146.26	1152.52
0.002645	11.41	3593.64	296.66	0.58			
Reach-1	7.728		41000.00	1135.40	1150.50	1146.26	1152.52
0.002645	11.41	3593.64	296.66	0.58			
Reach-1	7.728		13500.00	1135.40	1150.50	1141.03	1150.72
0.000287	3.76	3593.64	296.66	0.19			

ERRORS WARNINGS AND NOTES
Errors Warnings and Notes for Plan : PLAN1

River: RIVER-1 Reach: Reach-1 RS: 16.829 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: RIVER-1 Reach: Reach-1 RS: 16.829 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: RIVER-1 Reach: Reach-1 RS: 16.829 Profile: PF 3

Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 16.732 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.
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 16.732 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.
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 16.732 Profile: PF 3
Warning:The conveyance ratio (upstream 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.
River: RIVER-1 Reach: Reach-1 RS: 16.637 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.
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 16.637 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.
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 16.637 Profile: PF 3
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.
River: RIVER-1 Reach: Reach-1 RS: 16.608 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: RIVER-1 Reach: Reach-1 RS: 16.608 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: RIVER-1 Reach: Reach-1 RS: 16.608 Profile: PF 3
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 16.504 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.
River: RIVER-1 Reach: Reach-1 RS: 16.504 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.
River: RIVER-1 Reach: Reach-1 RS: 16.504 Profile: PF 3
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: RIVER-1 Reach: Reach-1 RS: 16.411 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: RIVER-1 Reach: Reach-1 RS: 16.411 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.
River: RIVER-1 Reach: Reach-1 RS: 16.411 Profile: PF 3
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: RIVER-1 Reach: Reach-1 RS: 16.348 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.
River: RIVER-1 Reach: Reach-1 RS: 16.348 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.
River: RIVER-1 Reach: Reach-1 RS: 16.348 Profile: PF 3
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: RIVER-1 Reach: Reach-1 RS: 16.248 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: RIVER-1 Reach: Reach-1 RS: 16.248 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.
River: RIVER-1 Reach: Reach-1 RS: 16.248 Profile: PF 3
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: RIVER-1 Reach: Reach-1 RS: 16.167 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: RIVER-1 Reach: Reach-1 RS: 16.167 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.
River: RIVER-1 Reach: Reach-1 RS: 16.167 Profile: PF 3
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: RIVER-1 Reach: Reach-1 RS: 16.066 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.
River: RIVER-1 Reach: Reach-1 RS: 16.066 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.
River: RIVER-1 Reach: Reach-1 RS: 16.066 Profile: PF 3
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: RIVER-1 Reach: Reach-1 RS: 15.966 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: RIVER-1 Reach: Reach-1 RS: 15.966 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.
River: RIVER-1 Reach: Reach-1 RS: 15.966 Profile: PF 3
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: RIVER-1 Reach: Reach-1 RS: 15.885 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: RIVER-1 Reach: Reach-1 RS: 15.885 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.
River: RIVER-1 Reach: Reach-1 RS: 15.885 Profile: PF 3
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: RIVER-1 Reach: Reach-1 RS: 15.792 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: RIVER-1 Reach: Reach-1 RS: 15.792 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.
River: RIVER-1 Reach: Reach-1 RS: 15.792 Profile: PF 3
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: RIVER-1 Reach: Reach-1 RS: 15.699 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: RIVER-1 Reach: Reach-1 RS: 15.699 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.
River: RIVER-1 Reach: Reach-1 RS: 15.699 Profile: PF 3
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: RIVER-1 Reach: Reach-1 RS: 15.623 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.
River: RIVER-1 Reach: Reach-1 RS: 15.623 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.
River: RIVER-1 Reach: Reach-1 RS: 15.623 Profile: PF 3
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: RIVER-1 Reach: Reach-1 RS: 15.596 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.
River: RIVER-1 Reach: Reach-1 RS: 15.596 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.
River: RIVER-1 Reach: Reach-1 RS: 15.596 Profile: PF 3
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 15.475 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.
River: RIVER-1 Reach: Reach-1 RS: 15.475 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.
River: RIVER-1 Reach: Reach-1 RS: 15.475 Profile: PF 3
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: RIVER-1 Reach: Reach-1 RS: 15.416 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.
River: RIVER-1 Reach: Reach-1 RS: 15.416 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.
River: RIVER-1 Reach: Reach-1 RS: 15.416 Profile: PF 3
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: RIVER-1 Reach: Reach-1 RS: 15.333 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: RIVER-1 Reach: Reach-1 RS: 15.333 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.
River: RIVER-1 Reach: Reach-1 RS: 15.333 Profile: PF 3
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: RIVER-1 Reach: Reach-1 RS: 15.248 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: RIVER-1 Reach: Reach-1 RS: 15.248 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.
River: RIVER-1 Reach: Reach-1 RS: 15.248 Profile: PF 3
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: RIVER-1 Reach: Reach-1 RS: 15.144 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: RIVER-1 Reach: Reach-1 RS: 15.144 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.
River: RIVER-1 Reach: Reach-1 RS: 15.144 Profile: PF 3
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: RIVER-1 Reach: Reach-1 RS: 15.049 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.
River: RIVER-1 Reach: Reach-1 RS: 15.049 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.
River: RIVER-1 Reach: Reach-1 RS: 15.049 Profile: PF 3
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: RIVER-1 Reach: Reach-1 RS: 14.983 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: RIVER-1 Reach: Reach-1 RS: 14.983 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.
River: RIVER-1 Reach: Reach-1 RS: 14.945 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: RIVER-1 Reach: Reach-1 RS: 14.945 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: RIVER-1 Reach: Reach-1 RS: 14.945 Profile: PF 3
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: RIVER-1 Reach: Reach-1 RS: 14.85 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.
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 14.85 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.
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 14.85 Profile: PF 3
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.
River: RIVER-1 Reach: Reach-1 RS: 14.752 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.
River: RIVER-1 Reach: Reach-1 RS: 14.752 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.
River: RIVER-1 Reach: Reach-1 RS: 14.752 Profile: PF 3
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.
River: RIVER-1 Reach: Reach-1 RS: 14.653 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: RIVER-1 Reach: Reach-1 RS: 14.653 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.
River: RIVER-1 Reach: Reach-1 RS: 14.653 Profile: PF 3
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: RIVER-1 Reach: Reach-1 RS: 14.599 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: RIVER-1 Reach: Reach-1 RS: 14.599 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.
River: RIVER-1 Reach: Reach-1 RS: 14.599 Profile: PF 3
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: RIVER-1 Reach: Reach-1 RS: 14.495 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.
River: RIVER-1 Reach: Reach-1 RS: 14.495 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.
River: RIVER-1 Reach: Reach-1 RS: 14.495 Profile: PF 3
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.
River: RIVER-1 Reach: Reach-1 RS: 14.379 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.
River: RIVER-1 Reach: Reach-1 RS: 14.379 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.
River: RIVER-1 Reach: Reach-1 RS: 14.379 Profile: PF 3
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.
River: RIVER-1 Reach: Reach-1 RS: 14.284 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.
River: RIVER-1 Reach: Reach-1 RS: 14.284 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.
River: RIVER-1 Reach: Reach-1 RS: 14.284 Profile: PF 3
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.
River: RIVER-1 Reach: Reach-1 RS: 14.197 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.
River: RIVER-1 Reach: Reach-1 RS: 14.197 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.
River: RIVER-1 Reach: Reach-1 RS: 14.197 Profile: PF 3
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 conveyance ratio (upstream 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.
River: RIVER-1 Reach: Reach-1 RS: 14.103 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: RIVER-1 Reach: Reach-1 RS: 14.103 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.
River: RIVER-1 Reach: Reach-1 RS: 14.103 Profile: PF 3
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.
River: RIVER-1 Reach: Reach-1 RS: 14.013 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.
River: RIVER-1 Reach: Reach-1 RS: 14.013 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: RIVER-1 Reach: Reach-1 RS: 14.013 Profile: PF 3
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 13.918 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.
River: RIVER-1 Reach: Reach-1 RS: 13.918 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.
River: RIVER-1 Reach: Reach-1 RS: 13.918 Profile: PF 3
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.
River: RIVER-1 Reach: Reach-1 RS: 13.818 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.
River: RIVER-1 Reach: Reach-1 RS: 13.818 Profile: PF#2
Warning:The energy equation could not be balanced within the specified number of iterations. The program selected the water
surface that had the least amount of error between computed and assumed values.
Warning:Divided flow computed for this cross-section.
Warning:The parabolic search method failed to converge on critical depth. The program will try the cross section
slice/secant method to find critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: RIVER-1 Reach: Reach-1 RS: 13.818 Profile: PF 3
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.
River: RIVER-1 Reach: Reach-1 RS: 13.742 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: RIVER-1 Reach: Reach-1 RS: 13.742 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.
River: RIVER-1 Reach: Reach-1 RS: 13.742 Profile: PF 3
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.
River: RIVER-1 Reach: Reach-1 RS: 13.68 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.
River: RIVER-1 Reach: Reach-1 RS: 13.68 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.
River: RIVER-1 Reach: Reach-1 RS: 13.68 Profile: PF 3
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 conveyance ratio (upstream 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.
River: RIVER-1 Reach: Reach-1 RS: 13.619 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.
River: RIVER-1 Reach: Reach-1 RS: 13.619 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.
River: RIVER-1 Reach: Reach-1 RS: 13.619 Profile: PF 3
Warning:The conveyance ratio (upstream 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.
River: RIVER-1 Reach: Reach-1 RS: 13.524 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: RIVER-1 Reach: Reach-1 RS: 13.524 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.
River: RIVER-1 Reach: Reach-1 RS: 13.524 Profile: PF 3
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 13.42 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: RIVER-1 Reach: Reach-1 RS: 13.42 Profile: PF#2
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.
River: RIVER-1 Reach: Reach-1 RS: 13.42 Profile: PF 3
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 13.325 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: RIVER-1 Reach: Reach-1 RS: 13.325 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: RIVER-1 Reach: Reach-1 RS: 13.325 Profile: PF 3
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.
River: RIVER-1 Reach: Reach-1 RS: 13.227 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: RIVER-1 Reach: Reach-1 RS: 13.227 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: RIVER-1 Reach: Reach-1 RS: 13.227 Profile: PF 3
Warning:The conveyance ratio (upstream 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.
River: RIVER-1 Reach: Reach-1 RS: 13.185 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.
River: RIVER-1 Reach: Reach-1 RS: 13.185 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.
River: RIVER-1 Reach: Reach-1 RS: 13.185 Profile: PF 3
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: RIVER-1 Reach: Reach-1 RS: 13.161 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.
River: RIVER-1 Reach: Reach-1 RS: 13.161 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.
River: RIVER-1 Reach: Reach-1 RS: 13.161 Profile: PF 3
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.
River: RIVER-1 Reach: Reach-1 RS: 12.991 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.
River: RIVER-1 Reach: Reach-1 RS: 12.991 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.
River: RIVER-1 Reach: Reach-1 RS: 12.991 Profile: PF 3
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.
River: RIVER-1 Reach: Reach-1 RS: 12.896 Profile: PF#1
Warning:Divided flow computed for this cross-section.
River: RIVER-1 Reach: Reach-1 RS: 12.896 Profile: PF#2
Warning:Divided flow computed for this cross-section.
River: RIVER-1 Reach: Reach-1 RS: 12.896 Profile: PF 3
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.
River: RIVER-1 Reach: Reach-1 RS: 12.801 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.
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 12.801 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.
River: RIVER-1 Reach: Reach-1 RS: 12.801 Profile: PF 3
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: RIVER-1 Reach: Reach-1 RS: 12.701 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: RIVER-1 Reach: Reach-1 RS: 12.701 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.
River: RIVER-1 Reach: Reach-1 RS: 12.701 Profile: PF 3
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.
River: RIVER-1 Reach: Reach-1 RS: 12.606 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: RIVER-1 Reach: Reach-1 RS: 12.606 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.
River: RIVER-1 Reach: Reach-1 RS: 12.606 Profile: PF 3
Warning:The conveyance ratio (upstream 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.
River: RIVER-1 Reach: Reach-1 RS: 12.511 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.
Warning:The parabolic search method failed to converge on critical depth. The program will try the cross section
slice/secant method to find critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: RIVER-1 Reach: Reach-1 RS: 12.511 Profile: PF#2
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.
Warning:The parabolic search method failed to converge on critical depth. The program will try the cross section
slice/secant method to find critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was
used.
River: RIVER-1 Reach: Reach-1 RS: 12.511 Profile: PF 3
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.
River: RIVER-1 Reach: Reach-1 RS: 12.42 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.
Warning:The conveyance ratio (upstream 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.
River: RIVER-1 Reach: Reach-1 RS: 12.42 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.
River: RIVER-1 Reach: Reach-1 RS: 12.42 Profile: PF 3
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.
River: RIVER-1 Reach: Reach-1 RS: 12.313 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.
River: RIVER-1 Reach: Reach-1 RS: 12.313 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.
River: RIVER-1 Reach: Reach-1 RS: 12.313 Profile: PF 3
Warning:The conveyance ratio (upstream 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.
River: RIVER-1 Reach: Reach-1 RS: 12.194 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.
River: RIVER-1 Reach: Reach-1 RS: 12.194 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.
River: RIVER-1 Reach: Reach-1 RS: 12.194 Profile: PF 3
Warning:The energy equation could not be balanced within the specified number of iterations. The program selected the water
surface that had the least amount of error between computed and assumed values.
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.
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.
River: RIVER-1 Reach: Reach-1 RS: 12.125 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.
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 12.125 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.
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 12.125 Profile: PF 3
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 12.034 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.
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 12.034 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.
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 12.034 Profile: PF 3
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 11.949 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.
River: RIVER-1 Reach: Reach-1 RS: 11.949 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.
River: RIVER-1 Reach: Reach-1 RS: 11.949 Profile: PF 3
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: RIVER-1 Reach: Reach-1 RS: 11.864 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.
River: RIVER-1 Reach: Reach-1 RS: 11.864 Profile: PF#2
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.
River: RIVER-1 Reach: Reach-1 RS: 11.864 Profile: PF 3
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: RIVER-1 Reach: Reach-1 RS: 11.759 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.
River: RIVER-1 Reach: Reach-1 RS: 11.759 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: RIVER-1 Reach: Reach-1 RS: 11.759 Profile: PF 3
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: RIVER-1 Reach: Reach-1 RS: 11.664 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.
River: RIVER-1 Reach: Reach-1 RS: 11.664 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.
River: RIVER-1 Reach: Reach-1 RS: 11.664 Profile: PF 3
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 11.566 Profile: PF#1
Warning:Divided flow computed for this cross-section.
River: RIVER-1 Reach: Reach-1 RS: 11.566 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.
River: RIVER-1 Reach: Reach-1 RS: 11.566 Profile: PF 3
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 11.481 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: RIVER-1 Reach: Reach-1 RS: 11.481 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: RIVER-1 Reach: Reach-1 RS: 11.481 Profile: PF 3
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 11.386 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: RIVER-1 Reach: Reach-1 RS: 11.386 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: RIVER-1 Reach: Reach-1 RS: 11.386 Profile: PF 3
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 11.129 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.
River: RIVER-1 Reach: Reach-1 RS: 11.129 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.
River: RIVER-1 Reach: Reach-1 RS: 11.129 Profile: PF 3
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: RIVER-1 Reach: Reach-1 RS: 11.03 Profile: PF#2
Warning:Divided flow computed for this cross-section.
River: RIVER-1 Reach: Reach-1 RS: 10.988 Profile: PF#2
Note: The momentum method has computed a class B profile.
River: RIVER-1 Reach: Reach-1 RS: 10.98 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.
River: RIVER-1 Reach: Reach-1 RS: 10.98 Profile: PF 3
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 10.917 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.
River: RIVER-1 Reach: Reach-1 RS: 10.917 Profile: PF#2

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: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: RIVER-1 Reach: Reach-1 RS: 10.862 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: RIVER-1 Reach: Reach-1 RS: 10.862 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: RIVER-1 Reach: Reach-1 RS: 10.862 Profile: PF 3
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 10.803 Profile: PF#1
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.
River: RIVER-1 Reach: Reach-1 RS: 10.803 Profile: PF#2
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.
River: RIVER-1 Reach: Reach-1 RS: 10.803 Profile: PF 3
Warning:The conveyance ratio (upstream 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.
River: RIVER-1 Reach: Reach-1 RS: 10.699 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.
River: RIVER-1 Reach: Reach-1 RS: 10.699 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.
River: RIVER-1 Reach: Reach-1 RS: 10.699 Profile: PF 3
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.
River: RIVER-1 Reach: Reach-1 RS: 10.612 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.
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 10.612 Profile: PF#2
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.
River: RIVER-1 Reach: Reach-1 RS: 10.612 Profile: PF 3
Warning:The conveyance ratio (upstream 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.
River: RIVER-1 Reach: Reach-1 RS: 10.517 Profile: PF#1
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.
River: RIVER-1 Reach: Reach-1 RS: 10.517 Profile: PF#2
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.
River: RIVER-1 Reach: Reach-1 RS: 10.517 Profile: PF 3
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 10.443 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: RIVER-1 Reach: Reach-1 RS: 10.443 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: RIVER-1 Reach: Reach-1 RS: 10.443 Profile: PF 3
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 10.348 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: RIVER-1 Reach: Reach-1 RS: 10.348 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: RIVER-1 Reach: Reach-1 RS: 10.348 Profile: PF 3
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: RIVER-1 Reach: Reach-1 RS: 10.271 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: RIVER-1 Reach: Reach-1 RS: 10.271 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: RIVER-1 Reach: Reach-1 RS: 10.271 Profile: PF 3
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: RIVER-1 Reach: Reach-1 RS: 10.176 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: RIVER-1 Reach: Reach-1 RS: 10.176 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.
River: RIVER-1 Reach: Reach-1 RS: 10.176 Profile: PF 3
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 10.096 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: RIVER-1 Reach: Reach-1 RS: 10.096 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.
River: RIVER-1 Reach: Reach-1 RS: 10.096 Profile: PF 3
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 9.997 Profile: PF 3
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: RIVER-1 Reach: Reach-1 RS: 9.953 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.
River: RIVER-1 Reach: Reach-1 RS: 9.953 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.
River: RIVER-1 Reach: Reach-1 RS: 9.953 Profile: PF 3
Warning:The 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.
River: RIVER-1 Reach: Reach-1 RS: 9.908 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 energy loss was 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.
River: RIVER-1 Reach: Reach-1 RS: 9.908 Profile: PF#2
Warning:The energy equation could not be balanced within the specified number of iterations. The program selected the water
surface that had the least amount of error between computed and assumed values.
Warning:The energy loss was 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.
River: RIVER-1 Reach: Reach-1 RS: 9.908 Profile: PF 3
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 conveyance ratio (upstream 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.
River: RIVER-1 Reach: Reach-1 RS: 9.889 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.
River: RIVER-1 Reach: Reach-1 RS: 9.889 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.
River: RIVER-1 Reach: Reach-1 RS: 9.889 Profile: PF 3
Warning:The 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: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: RIVER-1 Reach: Reach-1 RS: 9.794 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.
River: RIVER-1 Reach: Reach-1 RS: 9.794 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.
River: RIVER-1 Reach: Reach-1 RS: 9.794 Profile: PF 3
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.
River: RIVER-1 Reach: Reach-1 RS: 9.692 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: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: RIVER-1 Reach: Reach-1 RS: 9.692 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: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: RIVER-1 Reach: Reach-1 RS: 9.692 Profile: PF 3
Warning:The conveyance ratio (upstream 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: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: RIVER-1 Reach: Reach-1 RS: 9.592 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.
River: RIVER-1 Reach: Reach-1 RS: 9.592 Profile: PF#2
Warning:The energy equation could not be balanced within the specified number of iterations. The program selected the water
surface that had the least amount of error between computed and assumed values.
Warning:The 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.
River: RIVER-1 Reach: Reach-1 RS: 9.592 Profile: PF 3
Warning:The conveyance ratio (upstream 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.
River: RIVER-1 Reach: Reach-1 RS: 9.492 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.
River: RIVER-1 Reach: Reach-1 RS: 9.492 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: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: RIVER-1 Reach: Reach-1 RS: 9.492 Profile: PF 3
Warning:The conveyance ratio (upstream 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.
River: RIVER-1 Reach: Reach-1 RS: 9.318 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.
River: RIVER-1 Reach: Reach-1 RS: 9.318 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.
River: RIVER-1 Reach: Reach-1 RS: 9.318 Profile: PF 3
Warning:The 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.
River: RIVER-1 Reach: Reach-1 RS: 9.289 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.
River: RIVER-1 Reach: Reach-1 RS: 9.289 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.
River: RIVER-1 Reach: Reach-1 RS: 9.289 Profile: PF 3
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.
River: RIVER-1 Reach: Reach-1 RS: 9.193 Profile: PF 3
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: RIVER-1 Reach: Reach-1 RS: 9.047 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.
River: RIVER-1 Reach: Reach-1 RS: 9.047 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.
River: RIVER-1 Reach: Reach-1 RS: 8.936 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: RIVER-1 Reach: Reach-1 RS: 8.936 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.
River: RIVER-1 Reach: Reach-1 RS: 8.936 Profile: PF 3
Warning:The conveyance ratio (upstream 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.
River: RIVER-1 Reach: Reach-1 RS: 8.883 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.
River: RIVER-1 Reach: Reach-1 RS: 8.883 Profile: PF#2
Warning:The energy equation could not be balanced within the specified number of iterations. The program selected the water
surface that had the least amount of error between computed and assumed values.
Warning:The 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.
River: RIVER-1 Reach: Reach-1 RS: 8.883 Profile: PF 3
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 8.807 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.
River: RIVER-1 Reach: Reach-1 RS: 8.807 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: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: RIVER-1 Reach: Reach-1 RS: 8.807 Profile: PF 3
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: RIVER-1 Reach: Reach-1 RS: 8.655 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.
River: RIVER-1 Reach: Reach-1 RS: 8.655 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.
River: RIVER-1 Reach: Reach-1 RS: 8.655 Profile: PF 3
Warning:The 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.
River: RIVER-1 Reach: Reach-1 RS: 8.548 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.
River: RIVER-1 Reach: Reach-1 RS: 8.548 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.
River: RIVER-1 Reach: Reach-1 RS: 8.548 Profile: PF 3
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.
River: RIVER-1 Reach: Reach-1 RS: 8.538 Profile: PF#1
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: RIVER-1 Reach: Reach-1 RS: 8.538 Profile: PF#2
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: RIVER-1 Reach: Reach-1 RS: 8.538 Profile: PF 3
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: RIVER-1 Reach: Reach-1 RS: 8.516 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.
River: RIVER-1 Reach: Reach-1 RS: 8.516 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.
River: RIVER-1 Reach: Reach-1 RS: 8.516 Profile: PF 3
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: RIVER-1 Reach: Reach-1 RS: 8.33 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: RIVER-1 Reach: Reach-1 RS: 8.33 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: RIVER-1 Reach: Reach-1 RS: 8.22 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: RIVER-1 Reach: Reach-1 RS: 8.22 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: RIVER-1 Reach: Reach-1 RS: 8.006 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: RIVER-1 Reach: Reach-1 RS: 8.006 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: RIVER-1 Reach: Reach-1 RS: 7.92 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: RIVER-1 Reach: Reach-1 RS: 7.92 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.

HEC-RAS File Proposed Condition

HEC-RAS September 1998 Version 2.2
U.S. Army Corp of Engineers
Hydrologic Engineering Center
609 Second Street, Suite D
Davis, California 95616-4687
(916) 756-1104

```
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: Middle New River Proposed Cond.
Project File : Pfinal.prj
Run Date and Time: 3/2/00 10:53:30 AM

Project in English units

Project Description:
PROPOSED CONDITION MODEL,
PROPOSED CONDITION MODEL, MODELS MASTER PLAN
ELEMENTS,

Profile 1 = FEMA Q100, Profile 2 = COE 221 Future Q100, Profile 3
= Q10.

Revised Dec 1999 to reflect location change in the conflunce with
Rock Springs Creek.
Expansion and contraction cofficients at Union Hills
Bridge set at 0.1 an 0.3 -(Bridge does not constrict flow).

PRELIMINARY
MODEL (JUNE 1999),

FEMA AND CORP'S 221 100-Q MODEL,

PROFILE 1 = FEMA
Q's(Q100); PROFILE 2 = CORP'S 221 Q's(FUTURE Q100); PROFILE 3 = INTERPOLATED
FEMA Q10.

MANNING VALUES FOR CHANNEL ARE BASED ON A MOVEABLE BED.

PLAN DATA

Plan Title: Plan 01
Plan File : p:\28900058\HEC-RAS\RAS2000\Pfinal.p01

Geometry Title: Proposed Condition
Geometry File : p:\28900058\HEC-RAS\RAS2000\Pfinal.g04

Flow Title : FEMA & COE 100-YEAR Qs
Flow File : p:\28900058\HEC-RAS\RAS2000\Pfinal.f02

Plan Description:
This Plan models proposed Mater Plan Improvements. See Middle New River Master
Plan Report and TDN for details.

Plan Summary Information:
Number of: Cross Sections = 130 Mulitple Openings = 0
Culverts = 0 Inline Weirs = 0

Bridges = 3

Computational Information
Water surface calculation tolerance = 0.01
Critical depth calculaton tolerance = 0.01
Maximum number of interations = 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: Mixed Flow

FLOW DATA

Flow Title: FEMA & COE 100-YEAR Qs
Flow File : p:\28900058\HEC-RAS\RAS2000\Pfinal.f02

Flow Data (cfs)

River	Reach	RS	PF#1	PF#2	PF 3
RIVER-1	Reach-1	16.829	2350	2350	1700
RIVER-1	Reach-1	15.885	4200	4200	1874
RIVER-1	Reach-1	15.475	4200	6600	1874
RIVER-1	Reach-1	14.85	6100	6600	2052
RIVER-1	Reach-1	14.103	6100	8800	2052
RIVER-1	Reach-1	13.918	9800	12000	2221
RIVER-1	Reach-1	13.151	9800	12000	2221
RIVER-1	Reach-1	12.991	9800	12000	2400
RIVER-1	Reach-1	12.194	10350	13400	2529
RIVER-1	Reach-1	11.949	10350	13900	2529
RIVER-1	Reach-1	11.129	10900	13900	2586
RIVER-1	Reach-1	10.803	10900	15500	2586
RIVER-1	Reach-1	10.176	11450	15500	2643
RIVER-1	Reach-1	9.794	11450	19000	2643
RIVER-1	Reach-1	9.367	12000	19000	2700
RIVER-1	Reach-1	8.731	41000	41000	13500

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
RIVER-1	Reach-1	PF#1	Critical	Known WS = 1150.5

GEOMETRY DATA

Geometry Title: Proposed Condition
Geometry File : p:\28900058\HEC-RAS\RAS2000\Pfinal.g04

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 16.829

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
cross- section that does not receive subject flow.

Station Elevation Data num= 47

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9597	1384	9624.11	1383.63	9671.43	1383.38	9793.51	1382.26	9808.18	1382.01
9839.28	1382	9857.43	1381.32	9878.2	1380.14	9897.06	1379.44	9940.12	1378.5
9950.38	1377.9	9966.48	1376.18	9983.91	1375.32	10035.56	1375.61	10040.25	1375.52
10062.8	1374.91	10093.75	1381.48	10124.12	1380.76	10158.92	1381.24	10173.6	1379.86
10224.8	1379	10238.09	1379.52	10256.3	1380.57	10320.59	1381.03	10343.63	1380.86
10360.06	1378.31	10380.09	1377.11	10400.25	1378.19	10438.67	1378.62	10454.22	1377.65
10488.15	1376.31	10503.43	1380.62	10535.22	1380.37	10565.72	1380.44	10579.72	1378.63
10603.94	1378.51	10625.18	1379.06	10639.95	1381.25	10707.04	1381.77	10733.8	1381.21
10747.09	1380.71	10779.71	1380.11	10826.95	1381.59	10847.56	1381.63	10858.61	1378.47
10875.4	1381.4	10885.6	1381.95						

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
9597	.058	9839.28	.038	9940.12	.03	10093.75	.058

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9940.12 10093.75 430 525.69 550 .1 .3
Blocked Obstructions num= 1

Sta L	Sta R	Elev
10093.7	10885.6	1381.48

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 16.732

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
cross- section that does not receive subject flow.

Station Elevation Data num= 50

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9126	1387.1	9196.46	1385.91	9325.73	1384.39	9357.75	1384.23	9366.79	1382.66
9376.02	1384.3	9423.31	1383.83	9488.5	1382.9	9620.1	1381.83	9707.59	1380.94
9784.24	1380.4	9814.78	1380.1	9872.89	1380.07	9879.46	1379.83	9883.93	1378.19
9904.86	1373.1	9928.66	1373.81	9978.64	1376.38	10001.36	1372.93	10020.11	1375.42
10031.44	1374	10053.85	1378.13	10093.37	1379.11	10123.79	1378.28	10143.34	1377.31
10169.44	1378.41	10194.24	1379.04	10228.96	1379.27	10243.81	1379.18	10258.86	1376.65
10312.27	1377.21	10316.43	1377.17	10380.28	1375.87	10401.27	1375.63	10413.5	1379.13
10454.52	1378.81	10472.41	1378.26	10507.22	1378.98	10521.9	1377.05	10539.82	1378.03
10558.41	1377.61	10568.68	1375.08	10589.51	1374.73	10611.09	1379.34	10635.5	1378.7
10716.95	1379.41	10801.92	1378.64	10820.44	1376.71	10844.3	1376.69	10863.91	1379.75

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9126	.058	9883.93	.038	10053.85	.058

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9883.93 10053.85 535 475.63 460 .1 .3
Blocked Obstructions num= 1

Sta L	Sta R	Elev
10091.11	10863.91	1379.11

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 16.637

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
cross- section that does not receive subject flow.

Station Elevation Data num= 38

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9215	1380	9287.91	1380.08	9456.47	1378.64	9539.78	1378.02	9650.7	1377.61
9755.49	1377.5	9796.37	1377.95	9800.03	1375.23	9803.59	1372.29	9822.14	1374.36
9845.09	1374.1	9868.07	1373.64	9891.63	1371.87	9902.54	1371.96	9912.51	1373.76
9933.34	1373.8	9962.46	1372.61	9997.45	1370.17	10020.98	1374.99	10075.83	1376.21
10091.69	1376.91	10192.99	1375.18	10207.79	1377.23	10244.3	1376.28	10259.44	1376.42
10266.52	1375.31	10298.74	1374.98	10307.01	1373.56	10319.69	1375.69	10340.77	1376.55
10352.47	1377	10383.15	1374.28	10400.42	1373.37	10409.17	1372.15	10430.44	1372.52
10440.96	1377	10453.89	1377.15	10480.52	1377.76				

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
9215	.058	9796.37	.038	10020.98	.038	10091.69	.058

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9796.37	10020.98	240	231.78	235	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
10091.61	10480.52	1376.9

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 16.608

INPUT
Description: Blocked Obstruction used to block flow from that portion of the cross- section that does not receive subject flow.

Station Elevation Data num= 32

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9007	1380	9048.38	1379.51	9104.16	1379.03	9199.8	1378.52	9275.58	1378.06
9323.12	1378	9542.06	1376.4	9660.33	1376.43	9760.99	1376.65	9833.01	1376.69
9854.88	1376.9	9860.37	1375.11	9874.28	1369.14	9901.31	1371.43	9913.86	1368.87
9943.45	1371	9967.37	1371.58	9995.55	1368.69	10018.19	1371.97	10032.53	1371.98
10054.12	1370.51	10066.45	1372.97	10075.05	1375.37	10099.35	1375.02	10112.94	1374.62
10130.85	1373.11	10142.98	1374.54	10150.42	1374.25	10181.47	1370.41	10194.23	1372.61
10239.89	1373.3	10262.6	1375.29						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9007	.058	9854.88	.038	10075.05	.058

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9854.88	10075.05	385	500.72	555	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
10075	10262.6	1375.37

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 16.504

INPUT
Description:

Station Elevation Data num= 30

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8925	1377.9	9025.45	1376.71	9108.49	1375.98	9222.68	1375.17	9288.95	1375.15
9331.82	1375	9394.72	1374.45	9464.83	1374.09	9565.32	1374.4	9582.92	1374.29
9656.27	1374.8	9665.5	1374.97	9679.46	1369.67	9691.84	1370.53	9713.71	1373.39
9731.63	1372	9749.68	1372.92	9808.13	1373.02	9811.68	1373.13	9833.45	1370.78
9860.8	1371.8	9873.94	1369.98	9895.68	1369.77	9972.28	1368.09	10021.02	1366.82
10053.11	1367.81	10070.55	1373.91	10097.93	1373.16	10112.12	1374.45	10124.71	1374.29

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
8925	.058	9860.8	.038	9895.68	.038	10070.55	.058

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9860.81	10070.55	500	481.43	475	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
8925	9811.68	1373.13	10070.55	10124.71	1373.91

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 16.411

INPUT
Description: Blocked Obstruction used to block flow from that portion of the cross- section that does not receive subject flow.

Station Elevation Data num= 28

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8995	1375.9	9120.2	1375.05	9159.97	1374.58	9270.57	1373.44	9345.53	1372.46
9370.95	1371.9	9417.94	1371.12	9460.54	1370.98	9512.4	1371.07	9560.04	1371.41
9640.55	1371.7	9686.22	1372.29	9702.9	1368.45	9721.58	1367.29	9758.22	1369.72
9775.4	1369.9	9894.49	1369.5	9956.88	1366.28	9987.15	1365.08	10035.01	1364.41
10049.69	1371.3	10130.7	1370.95	10196.76	1370.52	10215.73	1367.04	10234	1369.85
10249.38	1369.51	10309.65	1370.19	10371.55	1370.22				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8995	.058	9894.49	.038	10049.69	.058

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9894.49	10049.69	395	481.78	535	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
8995	9686.22	1372.29	10049.61	10371.55	1371.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 16.348

INPUT
Description:

Station Elevation Data num= 37

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9141	1374	9232.51	1372.84	9453.27	1371.7	9551.83	1370.65	9579.59	1370.89
9643.66	1370.5	9658.59	1370.54	9669.77	1368	9678.81	1368.25	9684.21	1366.77
9700.54	1366.7	9728.13	1368.28	9798	1368.33	9841.03	1368.31	9911.88	1366.74
9924.93	1366.9	9944.09	1364.63	9956.73	1365.07	9965.77	1363.99	9990.28	1363.1
9996.65	1362.6	10031.1	1364.9	10113.2	1365.56	10144.93	1367.73	10175.58	1367.08
10214.84	1366.11	10241.49	1367.01	10260.35	1365.56	10273.85	1366.06	10289.61	1365.81
10355.8	1363	10392.74	1367.88	10445.21	1367.17	10458.55	1366.84	10515.81	1367.55
10622.19	1368.51	10660.66	1368.85						

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
9141	.058	9924.93	.038	10031.1	.038	10144.93	.058	10289.61	.038
10392.74	.058								

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9924.93	10031.1	595	497.94	310	.1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 16.248

INPUT
Description:

Station Elevation Data num= 43

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9465	1370	9474.66	1369.86	9535.36	1369.57	9559.46	1369.31	9626.12	1367.71
9666.85	1367.9	9683.27	1365.93	9697.73	1368.11	9734.77	1367.95	9743.57	1366.5
9760.62	1367.4	9874.83	1366.79	9943.37	1366.86	9953.78	1361.19	9988.35	1360.22
10031.27	1363.11	10054.21	1364.02	10067.38	1364.29	10160.36	1365.4	10189	1363.52
10225.06	1365.11	10249.87	1365.31	10270.28	1361.33	10292.69	1363.88	10311.21	1362.69
10325.37	1365.81	10359.41	1365.68	10402.36	1364.42	10423.55	1365.61	10442.35	1364.34
10462.82	1363.7	10472.3	1365.11	10480.52	1365.33	10490.42	1364.11	10501.75	1365.53

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10541.04  1364.810579.72 1365.2510601.19 1363.2610621.04 1362.5410634.85 1361.49
10660.98  1367.510737.15 1366.9910801.23 1367.36

Manning's n Values        num=       8
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
    9465    .058 9943.37    .03810054.21    .03810160.36    .05810249.87    .038
10325.37    .05810579.72    .03810660.98    .058

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9943.3710054.21               435  436.54     495             .1       .3

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 16.167

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
             cross- section that does not receive subject flow.



Station Elevation Data    num=      42
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9428    1368 9629.69 1366.39 9715.53 1366.07 9792.86 1365.21 9856.46 1365.02
 9897.21  1364.3 9915.84 1360.34 9955.56 1359.96 9980.69 1360.7210002.86 1358.98
10030.58  1363.510074.98 1362.3510104.37 1361.9110122.99 1361.08 10144.9  1363.4
 10174.6  1363.4 10191.1  1363.810199.04  1362.810225.53  1363.110252.32 1363.06
10275.89  1362.510342.34 1361.2910382.68 1360.3710402.57 1359.6410428.98 1360.99
10453.37  1358.510472.28 1358.8110512.09 1358.3210540.84 1358.2210561.93 1363.69
10608.91    136410625.17 1362.6610651.98 1362.3710674.62 1363.9710721.87 1363.14
10741.72  1362.610754.11 1361.3110771.51 1366.2810793.58 1366.4310805.79 1366.16
10813.45  1366.610899.23 1366.57

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
    9428    .058 9897.21    .03810030.58    .05810428.98    .03810561.93      .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9897.2110030.58               540  590.83     535             .1       .3
Blocked Obstructions     num=       3
   Sta L   Sta R    Elev   Sta L   Sta R    Elev   Sta L   Sta R    Elev
10739.8210756.84 1362.6210756.7510757.81 1362.6210757.8110758.51 1362.62

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 16.066

INPUT
Description:



Station Elevation Data    num=      53
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9330    1364 9395.88  1363.3 9412.63 1361.39 9425.48 1363.18 9457.05  1363.5
 9518.54  1363.1  9539.8 1362.18 9577.02 1361.42 9592.47 1358.27 9598.29 1359.33
  9607.2  1359.3 9627.82 1358.86 9642.76 1358.05 9658.05 1360.07 9672.67 1361.08
 9680.42  1361.1 9703.18 1359.84 9729.76 1360.88 9739.23 1360.66 9753.63 1356.71
 9777.73  1355.9 9784.76 1356.38 9826.64 1358.19 9844.48 1359.68 9900.29  1357.9
  9908.2  1358.9 9920.79  1357.8 9933.97 1358.94  9976.2 1359.73 9993.66 1354.42
10011.06  1357.2   10026 1357.2210051.57  1359.310067.61 1359.7410107.14 1359.54
10150.01  1360.110169.03 1360.91 10197.5 1359.5810211.89 1358.49 10226.7 1357.75
10257.82  1357.610282.25 1354.63 10358.8  1358.510424.28 1356.4510448.99 1360.48
 10472.8  1361.310514.13 1361.8910523.21 1362.27 10569.3 1362.7310652.65  1363.6
10685.24  1363.810771.86 1363.9210883.43 1364.08

Manning's n Values        num=       9
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
    9330    .058 9739.23    .038 9844.48    .058  9976.2    .03810051.57    .058
10257.82    .038 10358.8    .03810448.99    .058 10569.3    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        9976.210051.57               610  584.23     505             .1       .3

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 15.966
```

INPUT
Description:

Station Elevation Data num= 48

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8884	1363.9	8899.06	1363.62	8931.55	1363.4	8982.64	1363.36	9078.4	1363.04
9108.81	1362.6	9167.73	1362.11	9213.77	1361.39	9318.74	1360.33	9396.68	1360.44
9476.26	1359.5	9601.17	1358.94	9616.36	1358.93	9619.86	1357.42	9625.72	1358.95
9663.48	1358.6	9699.11	1359.1	9716.17	1353.46	9732.42	1358.9	9751.3	1358.21
9769.62	1355.4	9801.73	1355.12	9810.49	1355.85	9834.25	1356.22	9864.01	1353.69
9935.39	1355.6	9950.33	135	410001.29	1351.84	10023.45	1356.1	10078.54	1356.7
10103.98	1355.7	10120.58	1356.62	10155.14	1356.72	10168.96	1357.74	10180.45	1357.77
10277.33	135	610283.48	1354.72	10318.28	1354.06	10333.71	1357.75	10371.08	1354.4
10391.06	1360.1	10401.94	1360.53	10555.41	1360.89	10627.42	1360.95	10709.6	1361.13
10788.34	1361.5	10863.73	1361.28	10882.38	1361.15				

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
8884	.058	9834.25	.038	10023.45	.058	10277.33	.058	10333.71	.058
10401.94	.035								

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9834.25	10023.45	515	429.98	415	.1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 15.885

INPUT
Description:

Station Elevation Data num= 39

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9393	1360	9456.26	1359.75	9533.52	1358.69	9586.21	1358.51	9653.18	1358.05
9670.8	1356.2	9688.72	1357.52	9742.6	1357.26	9773.97	1356.87	9780.43	1357
9787.42	1355.3	9797.88	1357.29	9841.9	1356.29	9875.75	1355.99	9960.59	1356.36
9993.59	1348.4	10022.82	1350.35	10043.13	1352.32	10080.48	1352.79	10097.44	1351.11
10123.51	1354.8	10141.21	1353.52	10153.32	1355.11	10233.75	1354.89	10292.58	1354.82
10351.99	1354.8	10383.48	1354.34	10395.76	1351.55	10435	1351.35	10456.42	1356.03
10467.88	1355.7	10493.2	1357.24	10526.9	1357.95	10531.97	1358.08	10630.47	1358.33
10707.49	1358.2	10760.99	1357.89	10924.53	1358.46	10992.75	1358.43		

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
9393	.058	9960.59	.038	10123.51	.058	10351.99	.038	10456.42	.058
10526.9	.035								

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9960.59	10123.51	525	509.42	475	.1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 15.792

INPUT
Description: Blocked Obstruction used to block flow from that portion of the cross- section that does not receive subject flow.

Station Elevation Data num= 70

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9168	1357.9	9203.65	1357.39	9214.01	1357	9268.42	1357.11	9312.99	1356.51
9337.76	1356	9368.6	1356.21	9387.84	1355.53	9405.54	1355.56	9447.91	1354.36
9469.29	1351.5	9480.6	1354.1	9495.88	1355.02	9508.29	1356.34	9530.07	1355.96
9566.08	1353.8	9620.5	1350.44	9634.25	1352.07	9648.55	1352.32	9683.78	1352.19
9725.88	1352.3	9791.07	1352.05	9825.91	1352.29	9850.91	1353.17	9860.93	1351.96
9868	1352.8	9899.9	1353.08	9922.85	1353.5	9939.06	1347.81	9946.04	1347.87

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10002.05  1345.210034.91 1350.33 10060.2 1350.2210073.97 1352.1110127.71 1352.69
10160.12  1352.810176.02 1349.4610190.22 1349.9210202.57 1353.0410242.67  1350.8
10254.44    135010267.14 1352.5110283.39 1352.8410292.86 1352.4210303.63 1349.55
10316.45    135110323.35 1352.5710385.32 1352.3510417.82 1352.0910421.64    1352
10435.06  1349.110452.82 1348.3410470.05 1351.7810523.42  1352.410539.06 1351.25
10553.37  1353.910569.57 1353.6510593.97  1353.810609.33 1352.0910630.81 1354.72
10662.46  1354.7 10669.8 1354.1710683.15 1354.99 10751.7 1355.8110811.74 1355.24
10822.54  1355.310868.95 1356.9810903.34 1357.9710952.93 1357.3511008.26 1357.44

Manning's n Values        num=       6
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
    9168    .058 9922.85    .03810073.97    .05810417.82    .03810470.05    .0528
10630.81    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      9922.8510073.97              430  472.66     560             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 9448.33 9474.92 1353.12  9594.1  9635.9 1352.08

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1           RS: 15.699

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
             cross- section that does not receive subject flow.



Station Elevation Data    num=      63
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
    9256  1358.1 9266.09 1357.15 9282.59 1358.11 9326.59 1356.26 9335.31 1356.49
 9340.59  1356.1  9350.9 1357.54 9406.43 1357.07 9463.66 1356.61 9563.65 1355.47
 9671.99  1355.3 9710.26 1354.18  9735.1 1354.38  9757.7 1353.56 9770.34 1351.26
 9788.07  1345.7 9797.17 1350.56 9804.33  1347.5  9816.6 1348.52 9831.05 1347.89
 9855.63    1349 9874.71 1349.99 9903.39 1349.08 9921.35 1345.89 9982.14 1344.71
10027.02  1345.4 10044.1 1349.7610069.22 1348.5510099.66 1350.4210129.06 1350.44
10139.36  1352.510149.46 1353.4310156.88  1351.410172.37 1348.9110204.12 1350.71
10210.28  1350.510264.93  1351.110281.24  1348.710309.55 1349.0110319.29 1349.07
10345.58  1350.510422.21 1349.4410491.03  1347.710505.89 1348.8810544.84    1349
10566.95  1350.210578.72 1347.0710599.47  1346.510621.48 1348.8410656.83 1349.24
10679.76  1348.810706.38  1348.410721.41 1347.8710813.35 1346.2510832.99 1346.25
 10850.8  1351.710858.87  1351.710884.29 1352.89 10911.3 1352.9610981.91 1353.59
11012.23  1353.711112.68  1354.411130.18 1354.31

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
    9256    .058 9903.39    .056 10044.1    .05810679.76    .038 10850.8    .058

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
      9903.39 10044.1              485   413.6     240             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
    9256 9874.71 1349.99

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1           RS: 15.623

INPUT
Description:



Station Elevation Data    num=      79
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
    9318  1356.6 9323.95 1356.12 9331.78 1352.99 9386.87 1351.18 9398.18 1352.92
 9440.31  1352.4 9494.82 1352.07  9498.5 1351.33 9508.04  1352.1  9517.3 1349.97
 9525.37  1352.6 9554.41 1352.97  9642.5    1353 9690.19 1352.56 9801.75  1352.1
 9824.47  1353.1 9877.27 1352.59 9930.01 1351.94 9949.16 1351.97 9961.51 1342.06
 9962.84    1340  9982.3 1341.1310011.88 1341.1110043.47 1343.1210049.19 1343.83
10086.79  1344.110097.68 1345.1210103.38 1344.5410115.75 1346.8610125.97 1346.92
10136.16  1348.710154.16 1345.7310166.78  1346.810199.38 1347.8310212.27 1347.44
10247.85    134710269.85 1345.8410283.93  1349.110296.67 1349.6810313.36 1348.99
10315.84  1349.410345.62 1348.8210363.48 1347.7410414.67 1348.5510427.12 1347.29
10447.66  1348.910497.95    134910545.69 1349.0810560.13 1346.23 10582.8 1345.78
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10599.59  1347.910633.17 1346.9710675.59 1346.8610704.51 1348.1710725.87 1347.87
10741.04  1346.210788.78 1348.78 10818.1 1348.9110850.88 1351.0510868.19 1349.23
10905.65  1350.410942.53 1350.6810961.91 1349.7310980.87 1349.2811005.87 1350.19
11023.38  1348.511039.77 1346.3311058.38    134611085.01 1346.4811095.88 1348.63
11102.88  1351.711115.35 1350.9411119.44 1351.9311131.49 1351.76 11166.7 1352.38
 11227.4  1353.311251.11 1353.4311320.83 1352.84 11337.2 1352.87

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
    9318    .058 9949.16    .05610136.16    .05811023.38    .03811102.88    .058

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9949.1610136.16               475  505.65     205             .1       .3

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 15.596

INPUT
Description:



Station Elevation Data    num=      58
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9227  1352.1 9286.29 1351.49 9339.59  1351.4 9362.26  1349.9 9391.52 1349.19
 9411.74  1348.9  9424.7 1349.54 9446.73 1349.34 9470.51 1349.35    9479 1345.94
 9489.28  1349.2  9518.4 1348.08 9525.76 1345.62  9542.4 1348.75  9566.9    1348
 9622.54  1347.4 9642.37 1347.44 9657.79 1348.25 9689.11 1348.35 9713.32 1348.27
 9734.14    1348 9776.97 1348.44 9796.93 1348.24 9840.22  1348.2 9867.96 1347.97
 9893.94  1348.4 9926.47 1348.64 9936.59 1346.05 9951.29 1344.28 9958.57 1340.53
 9974.55    1340 9990.68 1338.3810040.87 1340.4610070.78 1341.3710085.86 1341.48
10104.64  1340.710125.69 1345.8610136.01 1345.1110161.47  1344.110178.16  1344.9
10193.67  1345.610212.94 1347.78 10274.8 1348.7710331.79 1348.7110354.38 1346.71
10371.49  1346.610470.92 1346.5510570.91  1347.110670.92 1347.4810770.92 1348.14
10789.91  1347.810872.72 1348.1710895.37 1346.1710931.84 1345.6210953.24 1352.28
 11027.5  1351.711072.65 1351.6111170.94 1351.79

Manning's n Values        num=       7
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
    9227    .058 9926.47    .056 9951.29    .05610125.69    .056 10274.8    .058
10872.72    .05610953.24    .053

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9951.2910125.69               460  677.66     775             .1       .3

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 15.475

INPUT
Description:



Station Elevation Data    num=      55
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9157    1350 9198.07 1349.44 9209.08 1350.54 9229.38 1350.67 9245.82 1347.08
  9250.9  1347.3 9259.75 1349.17 9275.83 1350.84 9307.72 1350.14  9314.5 1350.43
 9332.25  1349.5 9341.89  1349.4 9365.79 1349.84 9370.52 1349.61 9401.44 1349.38
 9416.67  1349.7 9455.68 1348.86 9477.73 1348.12 9503.99 1347.86 9540.74 1346.09
 9560.29  1347.7 9582.52 1347.34 9599.39 1347.12 9610.67 1342.21 9626.58 1341.34
  9664.1  1341.6 9705.46 1341.32 9716.87 1338.84 9728.62 1336.67 9752.31 1337.25
 9781.12  1337.3 9847.02 1338.08 9959.73 1337.44 9973.89 1335.0610020.83 1335.92
10056.25  1341.510097.34 1342.2110121.69  1343.310151.77 1344.3610180.94 1344.03
10260.23    134410313.56 1345.2410413.86 1346.5110460.22 1346.6810506.32 1346.71
10560.22  1346.510660.22 1347.1210714.74 1346.9210760.25 1346.5510815.03 1346.87
10860.23  1346.710915.32 1346.0410960.23 1346.0411098.29 1346.4411134.47 1347.09

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9157    .038 9705.46    .03810056.25    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9705.4610056.25               510  319.63     260             .1       .3

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 15.416
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INPUT
Description: Blocked Obstruction used to block flow from that portion of the
cross- section that does not receive subject flow.

Station Elevation Data num= 76

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8600	1351.7	8606.92	1353.4	8629.86	1353.28	8655.62	1351.99	8679.28	1353.36
8751.29	1351.4	8818.8	1349.02	8835.78	1348.74	8846.08	1350.1	8857.51	1350.25
8879.06	1350	8896.09	1351.09	8928.81	1351.35	9027.64	1350.19	9066.08	1348.75
9089.49	1344	9103.24	1348.43	9127.16	1347.66	9181.88	1346.79	9189.25	1348.77
9226.47	1348.9	9327.63	1348.46	9355.75	1347.77	9373.75	1347.11	9384.85	1346.26
9406.25	1344.1	9431.16	1345.24	9465.1	1345.29	9477.56	1343.65	9491.16	1345.15
9526.61	1345.9	9534.41	1346.26	9549.88	1339.33	9567.47	1340.33	9616.78	1340.5
9638.26	1340.5	9722.76	1341.47	9764.78	1341.67	9780.18	1342.02	9799.96	1335.54
9848.86	1335.2	9868.55	1335.69	9883.4	1334.99	9893.42	1336.2	9902.66	1335.57
9917.75	1336.9	9948.99	1337.55	9974.13	1333.4	10046.8	1334.28	10060.45	1334.28
10092.66	1338.5	10115.94	1342.34	10120.14	1342.49	10172.8	1343.63	10220.26	1343.81
10285.88	1344.5	10338.16	1345.33	10443.18	1345.24	10481.74	1344.77	10494.13	1344.21
10532.96	1345.5	10573.06	1346.44	10606.55	1351.58	10641.82	1345.86	10691.57	1345.91
10715.69	1344.9	10742.49	1344.88	10785.92	1344.58	10827.51	1344.66	10885.92	1344.52
10982.89	1344.7	11014.79	1345.25	11051.36	1346.24	11089.03	1344.97	11113.45	1344.99
11222.68	1345.7								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8600	.058	9780.18	.038	10115.94	.035

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9780.18	10115.94	310	448.62	465	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
8600	9780.18	1342.02	10115.91	1222.68	1342.34

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 15.333

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
cross- section that does not receive subject flow.

Station Elevation Data num= 64

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8454	1351.6	8515.5	1350.25	8530.32	1348.97	8547.94	1349.76	8559.95	1346.41
8580.72	1350.3	8589.49	1350.33	8638.21	1350.12	8746.44	1348.61	8770.68	1348.31
8791.07	1348.3	8837.5	1348.63	8856.9	1347.57	8866.24	1347.83	8878.41	1347.01
8888.66	1344.5	8896.88	1343.91	8902.6	1342.6	8919.48	1347.93	8936.63	1347.44
8994.21	1346.1	9002.35	1347.89	9018.44	1348.26	9045.47	1347.91	9057.22	1347.68
9063.83	1346.8	9112.87	1346.5	9177.48	1346.54	9246.76	1346.08	9253.32	1346.13
9324.47	1345.5	9426.02	1344.19	9460.99	1343.85	9531.13	1343.67	9556.59	1343.48
9604.15	1344.3	9621.03	1339.61	9646.9	1337.97	9665.2	1340.24	9724.67	1340.08
9750.08	1337	9775.56	1338.11	9791.07	1336.76	9847.07	1335.73	9896.96	1337.68
9939.15	1335.1	9989.51	1333.64	10026.6	1333.69	10046.52	1342.68	10227.71	1343.15
10341.69	1342.7	10417.14	1342.95	10466.38	1342.77	10541.37	1342.25	10616.62	1342.14
10666.92	1342.2	10751.49	1342.49	10816.38	1343.26	10833.2	1343.27	10915.84	1342.36
10967.77	1342.5	11041.71	1342.86	11068.03	1342.79	11143.55	1343.16		

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
8454	.058	9604.15	.038	9724.67	.038	10046.52	.035

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9724.67	10046.52	375	453.4	480	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
8454	9724.67	1340.08

Blocked Obstructions num= 1

Sta L	Sta R	Elev
10046.51	1143.55	1342.68

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 15.248

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
cross- section that does not receive subject flow.

Station Elevation Data num= 72

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8173	1352	8194.83	1351.64	8282.31	1351.07	8348.78	1349.21	8402.52	1350.34
8459.13	1350	8494.82	1349.33	8537.9	1349.45	8595.79	1348.68	8664.69	1348.23
8712.02	1347.7	8804.27	1346.3	8830.71	1345.29	8852.24	1346	8907.46	1346.2
8929.51	1342.2	8959.3	1344.3	8971.35	1348.35	8980.41	1348.2	8993.79	1346.81
9004.85	1344.8	9046	1343.49	9057.93	1345.25	9068.29	1343.11	9080.26	1345.81
9188.09	1342.6	9214.55	1339.79	9222.57	1342.28	9230.28	1339.76	9260.33	1338.9
9312.29	1338.1	9340.46	1337.83	9416.02	1337.53	9519.2	1337.52	9561.12	1340.23
9570.3	1340.1	9661.91	1339.52	9671.05	1336.86	9707.33	1337.14	9727.74	1338.63
9757.56	1338.5	9796.97	1338.15	9883.09	1335.33	9899.49	1336.49	9929.77	1331.18
9953.39	1332.3	10001.52	1333.39	10028.97	1333.23	10059.37	1332.65	10074.95	1339.32
10100.82	1339.5	10146.88	1340.12	10170.67	1340.38	10187.23	1340.55	10212.73	1340.04
10280.35	1340.2	10296.89	1340.54	10361.08	1339.92	10419.48	1340.08	10461.22	1340.56
10496.69	1339.9	10543.39	1340.07	10639.79	1339.8	10717.31	1339.45	10839.78	1339.54
10917.31	1339.9	10939.78	1339.85	11017.31	1339.35	11117.31	1339.59	11139.79	1339.5
11217.31	1339.5	11317.31	1339.65						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8173	.058	9899.49	.038	10074.95	.058

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9899.49	10074.95	405	496.77	530	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
9228.72	9547.87	1339.87	10074.91	11317.31	1339.32

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 15.144

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
cross- section that does not receive subject flow.

Station Elevation Data num= 86

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8669	1346	8700.55	1345.82	8758.97	1344.21	8778.66	1344.95	8842.85	1344.82
8943.02	1344.3	9044.97	1343.62	9089.3	1342.54	9103.3	1343.17	9249.02	1342.21
9299.28	1341.7	9320.5	1339.33	9335.15	1344.36	9351.51	1339.65	9367.32	1338.62
9381.11	1340.8	9390.14	1338.67	9394.39	1336.83	9437.13	1336.48	9454.45	1336.17
9461.12	1333.4	9468.22	1334.8	9486.07	1335.38	9489.48	1333.17	9494.37	1333.59
9504.48	1335.9	9582.28	1336.42	9595.46	1335.77	9615.39	1336.84	9644.55	1336.34
9658.8	1335.8	9683.54	1337.14	9718.58	1337.99	9730.83	1337.15	9744	1338.07
9749.22	1338	9764.51	1337.91	9794.51	1330.84	9802.8	1333.44	9834.97	1333.39
9852.59	1333.6	9866.24	1331.11	9901.03	1333.02	9947.25	1334.05	9991.45	1331.77
10003.49	1329.2	10015.25	1329.51	10024.63	1331.43	10054.33	1331.56	10090.64	1335.83
10121.97	1336.2	10196.15	1334.49	10227.56	1333.79	10233.76	1333.82	10243.14	1331.89
10244.49	1331.7	10277.7	1343.91	10300.05	1337.31	10310.29	1337.01	10368.35	1336.76
10399.7	1343.9	10421.86	1337.74	10433.54	1334.83	10437.08	1335.18	10453.46	1334.83
10474.77	1341.9	10504.05	1345.17	10522.22	1346.11	10527.95	1345.53	10541.11	1346.69
10560.9	1346.8	10580.58	1346.15	10595.6	1346.23	10615.2	1337.08	10645.53	1337.27
10695.46	1336.3	10717.04	1336.36	10772.56	1336.87	10847.76	1336.65	10896.68	1336.65
10972.55	1336.5	11050.48	1336.13	11192.71	1336.07	11372.55	1337	11488.74	1337.02
11572.61	1337.1								

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
8669	.058	9744	.038	9852.59	.038	10090.64	.058	10277.7	.035

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9852.59	10090.64	485	493.15	505	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
8669	9744	1338.07	10277.71	11572.61	1343.91

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 15.049

INPUT
Description: Blocked Obstruction used to block flow from that portion of the cross- section that does not receive subject flow.

Station Elevation Data num= 92

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9010	1344	9132.52	1343.1	9150.32	1342.89	9235.01	1342.26	9263.26	1342.09
9276.33	1341.7	9297.33	1342.04	9316.67	1341.09	9323	1340.53	9335.59	1341.12
9379.14	1340.9	9420.45	1340.17	9443.17	1339.97	9522.36	1340.48	9543.89	1339.34
9558.92	1341	9589.13	1340.52	9626.5	1340.41	9682.39	1339.69	9700.13	1339.16
9716.87	1337.46	9732.06	1342.2	9755.78	1339.03	9796.81	1338.67	9826.61	1338.63
9830.19	1338.9	9850.15	1338.55	9869.32	1337.55	9875.91	1335.21	9895.24	1327.47
9911.59	1328	9925.44	1329.43	9937.88	1327.09	9958.15	1328.791	10005.27	1329.26
10038.85	1329.41	10088.54	1332.31	10099.72	1332.53	10145.22	1332.63	10186.65	1332.82
10215.33	1330.11	10241.83	1332.16	10262.77	1332.23	10304.2	1333.77	10323.99	1333.59
10364.11	1334.21	10448.21	1333.94	10469.63	1330.69	10487.95	1333.75	10521.85	1333.75
10550.22	1333.41	10604.38	1333.49	10658.78	1333.31	10681.71	1330.92	10701.99	1337.74
10723.9	1334.91	10745.24	1326.08	10755.5	1331.81	10761.42	1335.75	10784.67	1333.63
10792.91	1334	10824.4	1323.89	10830.89	1321.64	10860.78	1321.29	10887.11	1322.78
10910.02	1325.31	10952.56	1342.82	10963	1346.57	10968.38	1342.21	10970.74	1342.28
10981.93	1340.51	10996.42	1335.61	10999.16	1335.89	11028.51	1335.9	11040	1335.33
11064.53	1335.31	11160.25	1335.43	11260.25	1335.35	11327.08	1335.15	11360.25	1335.19
11427.85	1335.11	11460.26	1334.87	11560.27	1335.09	11660.27	1335.09	11730.16	1335.6
11760.27	1335.91	11830.93	1336.07	11860.28	1335.99	11931.69	1336	11975.93	1335.69
11991.39	1336.11	12046.44	1336.21						

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
9010	.058	9850.15	.056	9875.91	.056	10088.54	.058	10550.22	.035
10701.99	.06								

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9875.91	10088.54	585	499.69	355	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
9010	9850.15	1338.55	10701.91	12046.44	1337.74

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 14.983

INPUT
Description: Blocked Obstruction used to block flow from that portion of the cross- section that does not receive subject flow.

Station Elevation Data num= 84

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8829	1340	8854.47	1339.24	8859.96	1339.39	8954.29	1339.65	9043.54	1338.27
9084.55	1337.8	9143.5	1338.44	9239.51	1338.02	9250.65	1337.61	9345.62	1337.05
9397.76	1336.7	9459.83	1336.41	9497.14	1334.87	9539.05	1335.08	9551.64	1334.72
9559.67	1334	9591.62	1335	9605.07	1334.29	9616.15	1335.7	9623.27	1335.3
9628.41	1334.2	9646.97	1334.84	9687.43	1334.52	9700.13	1332.95	9713.64	1336.86
9729.52	1333.2	9747.65	1334.23	9776.61	1334.98	9785.74	1334.75	9815.49	1333.92
9841.54	1329.8	9866.89	1332.42	9877.4	1332.45	9881.68	1332.72	9898.08	1329.37
9932.25	1327.9	9984.77	1324.49	10007.1	1323.95	10033.76	1331.45	10082.56	1331.51
10100.7	1331.21	10107.14	1331.47	10146.6	1332.01	10167.15	1331.64	10228.43	1332.5
10247.99	1332.71	10307.49	1333.04	10317.83	1333.21	10336.03	1331.61	10419.06	1332.5
10464.72	1332.31	10483.97	1330.91	10528.59	1332.82	10555.31	1333.43	10565.71	1334.31
10599.17	1334.61	10620.37	1335.05	10637.95	1334.61	10670.4	1332.17	10696.73	1330.41
10698.59	1330.51	10731.07	1328.51	10743.84	1330.51	10749.02	1330.76	10783.37	1335.91
10810.36	1338.11	10840.75	1339.26	10859.67	1342.69	10883.26	1333.88	10945.64	1333.48
11047.28	1333.4	11211.6	1333.26	11247.28	1333.13	11282.59	1333.23	11412.64	1333.05
11447.28	1332.91	11581.07	1333.31	11647.28	1333.64	11747.28	1333.61	11847.29	1333.77
11879.54	1334	11964.25	1334.03	11984.46	1333.39	12004.45	1332.81		

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Manning's n Values         num=        4
     Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val
    8829     .058 9881.68     .03810033.76     .05810464.72     .035

Bank Sta: Left   Right    Lengths: Left Channel   Right      Coeff Contr.   Expan.
       9881.6810033.76               190  216.48     220              .1       .3
Blocked Obstructions      num=        2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
    8829 9785.74 1334.7510319.2812004.45 1333.01

CROSS SECTION           RIVER: RIVER-1
REACH: Reach-1             RS: 14.945

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
             cross- section that does not receive subject flow.
Station Elevation Data     num=       92
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
    8607     1340 8642.82  1339.4 8695.66 1339.09 8726.69 1338.66 8779.56 1339.15
 8834.35   1338.8 8981.64 1337.63 9008.04 1337.31 9095.79 1336.56  9133.8 1336.46
 9209.74   1335.9 9279.25 1335.56 9312.58 1335.58 9366.01 1335.04 9409.76 1334.93
 9471.19   1334.1 9505.43 1333.93 9587.29 1333.98 9623.18 1333.31 9651.65 1332.42
 9673.72   1331.5 9725.79 1332.08 9794.09 1330.74 9807.98 1330.21 9883.08 1328.77
 9903.94   1328.4 9918.25 1328.64 9946.82 1325.51 9956.81 1325.0710007.99 1323.89
10031.74   1330.4 10043.5 1334.24 10065.7 1333.9110072.41 1334.6610084.07    1331
10096.09   1331.110164.76 1330.3410202.65 1330.2310231.37 1329.5310249.16  1328.7
 10281.6   1330.410315.96  1330.110347.38 1328.7710381.91 1327.0710429.75 1329.42
10445.67   1332.110483.63 1331.2110485.67 1330.7310520.01  1319.810531.51 1318.11
10544.52   1318.310581.44  1315.810660.99 1315.2910686.69 1315.5210706.93 1316.24
10724.84   1315.910741.81 1317.9710760.61 1323.7310765.41 1324.3710783.42 1330.05
10800.57   1334.610818.56 1332.0110831.83 1328.1810841.34 1331.8110917.03 1332.55
10925.17   1332.810970.34 1332.36 11046.6 1331.3811130.22 1331.1811203.18  1330.9
11325.77   1330.811331.87  1331.411345.81 1331.6111386.71 1331.33 11426.5 1331.39
11486.72   1331.211527.35 1331.2511586.72 1331.6511616.72  1331.911691.66 1331.85
11722.72   1331.511768.91 1331.89 11828.9 1332.4711872.66 1332.6411939.95 1331.78
11985.06   1331.812007.44 1331.9212043.63 1331.1312057.89 1329.4512097.42 1329.87
12143.43    133012216.02 1330.64

Manning's n Values         num=        5
     Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val
    8607     .058 9903.94     .038 10043.5     .04310381.91     .03512143.43     .053

Bank Sta: Left   Right    Lengths: Left Channel   Right      Coeff Contr.   Expan.
       9903.94 10043.5               585  529.39     535              .1       .3
Ineffective Flow      num=        1
   Sta L   Sta R    Elev
10457.8312216.02  1332.5
Blocked Obstructions      num=        2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
    8607 9587.29 1333.9810819.1312216.02  1332.1

CROSS SECTION           RIVER: RIVER-1
REACH: Reach-1             RS: 14.85

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
             cross- section that does not receive subject flow.

Station Elevation Data     num=       85
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
    8512     1334 8594.73 1333.16  8672.1 1332.86 8722.52 1332.88 8793.44 1332.41
 8832.84   1331.9 8893.33  1330.9 8906.63 1329.77 8923.67 1331.44 8948.28 1331.58
 9006.96   1331.5 9103.41 1330.83 9112.55 1330.87 9225.91 1330.06 9266.94 1329.76
 9316.16   1330.1 9401.46 1329.39 9464.08 1329.02 9529.33 1329.49 9568.17 1329.29
 9589.89   1328.1 9606.71 1325.44 9618.71  1327.3 9630.19 1325.58 9637.53 1325.67
 9686.98   1325.3 9731.72 1326.62  9755.2 1325.75 9799.87 1324.33 9829.96    1326
 9872.76   1325.4 9897.23 1322.51 9902.26  1323.7 9912.64 1324.81 9930.02 1325.52
10004.15   1323.410021.33 1324.1610040.27 1323.0610053.96 1325.5910077.19    1324
10093.99   1325.5 10135.5 1326.3110165.55 1328.24 10218.9 1328.6710237.08  1326.5
 10259.9   1328.910279.26 1329.27 10285.6 1330.5710295.94 1332.8510302.83 1331.43
 10350.9   1330.310547.89 1328.2710553.67 1328.4510620.16  1328.810623.03  1328.7
10643.24   1333.4 10656.8 1335.6910669.54 1332.0910678.61 1330.1810721.07 1329.94
10761.65   1330.610848.52 1329.8610948.54 1329.6311048.53 1329.5311244.87 1329.03
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11348.49    132911450.18 1328.6711554.65 1329.2711582.61 1329.4411621.12 1331.05
11634.13  1330.911650.12 1330.0111680.47 1327.7511761.48 1327.0211777.81 1326.95
 11815.3  1328.611825.88 1328.7711832.09 1327.87 11852.9 1327.56 11890.7 1327.63
11965.62  1327.412042.47 1328.7612071.33 1329.04 12144.2 1328.9412166.34 1329.12

Manning's n Values         num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
    8512    .058 9568.17    .038 9930.02    .03810165.55    .03511650.12    .053

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9930.0210165.55               545  536.65     515             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
    8512 9568.17 1329.29 10218.912166.34 1328.67

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1           RS: 14.752

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
             cross- section that does not receive subject flow.



Station Elevation Data    num=      64
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
    8593    1330 8629.02 1329.42 8725.36 1329.26 8852.44 1328.52 8885.67  1328.2
 8952.52  1327.8 9083.06 1326.77 9186.25 1325.92 9216.66 1326.66 9255.08 1326.35
 9273.58  1325.3 9278.76 1324.03 9287.25 1325.52 9304.16 1325.56 9352.83 1325.14
 9459.42  1324.7 9511.18 1325.66 9552.93 1326.04 9634.07 1325.69 9638.42 1324.65
 9649.11  1320.3  9701.1  1320.5 9734.32 1323.31 9767.06 1323.71 9825.51 1323.58
 9878.81  1324.1 9905.85 1323.18 9916.44 1321.52 9937.72 1320.26 9949.57  1320.3
 9973.25  1321.6 9999.77 1319.7710013.34 1323.4410056.24 1321.6910086.46 1322.94
10106.03  1325.210111.72  1324.810128.53 1323.8610136.65  1325.110182.64 1324.43
10198.87  1327.410246.24 1327.6910302.94 1327.1310374.41 1326.9810513.13 1325.98
10602.93  1326.610702.93 1326.3710770.52 1326.1510869.57 1326.1510968.62 1325.59
11102.86    132511138.88  1324.911202.96 1324.9811239.92 1324.9311302.93 1324.63
11351.07  1324.711393.28 1325.61   11445 1325.1511502.98  1324.311562.84 1324.82
11661.89  1325.211757.54 1325.5611819.84 1325.8711851.27 1327.98

Manning's n Values         num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
    8593    .058 9634.07    .03810106.03    .05810374.41    .03511562.84    .053

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9634.0710106.03               530  547.53     565             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev
10106.0311851.27  1325.2
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
   1080011851.27    1326

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1           RS: 14.653

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
             cross- section that does not receive subject flow.



Station Elevation Data    num=      71
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
    8405    1328 8484.47 1327.43 8555.82 1327.06 8562.57 1325.66 8569.74  1326.9
 8635.91  1326.6 8689.15 1326.31 8708.73    1326 8748.88 1325.85 8767.27 1325.52
 8797.99  1325.4 8836.84 1325.05 8955.25 1324.44 8996.03 1324.39 9088.14 1323.68
 9112.97  1323.5 9196.03 1324.47 9264.89 1324.04 9284.94 1320.22 9306.41 1321.97
 9352.02  1322.2 9396.53 1322.62 9411.27 1322.42 9439.14 1322.53 9463.09 1322.34
 9474.71  1322.5 9514.93 1323.44 9561.79 1323.28 9612.22 1322.57  9621.4 1319.41
 9629.48  1320.5 9681.44 1320.83 9700.04 1321.85  9730.5 1321.39 9761.33 1321.45
 9807.22  1322.7 9818.79 1322.71 9838.39 1322.76 9897.91 1320.42 9953.86 1319.16
10001.73  1317.910030.22 1320.5410059.01 1319.2210070.65 1321.7710091.47 1322.81
   10138  1323.910148.59 1324.0310177.83 1321.5310208.13 1324.0210236.25  1323.6
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10305.81  1323.710416.54 1322.93 10439.3 1323.3910536.59 1323.17 10652.5 1323.45
10719.38  1323.210805.83 1323.1310902.38 1323.03 10919.5 1321.9511001.15 1321.23
11083.34  1321.511113.08 1322.9811124.74 1322.8511205.84 1322.8611256.36 1322.24
11305.83  1321.711405.82 1321.9611456.38 1322.4111555.29 1322.9611611.12 1323.38
11641.85  1323.5

Manning's n Values        num=       6
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
    8405    .058 9612.22    .038 9838.39    .03810091.47    .058 10439.3    .035
11124.74    .053

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9838.3910091.47              465  536.63     525             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
    8405 9196.03 1324.47 10208.111641.85 1324.02

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 14.599

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
             cross- section that does not receive subject flow.



Station Elevation Data    num=      84
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    8240  1326.1 8266.56 1325.44 8305.08 1325.44 8336.99 1324.61 8357.98 1325.16
 8399.45  1324.9 8443.76 1324.19 8456.01 1324.22 8467.96 1323.43 8480.18 1324.12
 8512.75  1323.9 8615.79 1322.95  8668.5 1322.75 8696.94 1321.96 8710.55 1321.86
 8752.41  1321.1 8820.39 1320.54 8846.94 1320.27 8876.58 1321.13 8910.12 1320.74
 8947.48  1320.5 8962.12  1319.4 8985.25 1320.73 9001.45 1320.45 9012.69 1319.36
 9024.39  1320.7  9068.4  1320.6 9164.35 1321.02 9200.52 1321.63 9210.66  1316.4
 9227.66  1316.6 9232.47 1316.92 9266.38  1316.4 9316.21  1319.4 9366.86 1320.19
 9399.92    1320 9415.95 1316.66 9427.99 1316.68 9465.49 1317.23  9496.1 1316.68
 9518.58  1318.8 9523.59 1319.68 9598.97 1320.64 9669.05 1321.19 9734.52 1320.92
 9766.83  1316.1 9782.48 1319.35 9865.92  1316.6 9887.73 1317.83 9914.67 1317.89
 9964.94    1317 9975.51  1317.1 9982.84 1315.4510016.21 1315.0710023.39 1320.94
10037.57  1320.610045.79 1319.0310061.46 1319.7110083.56 1320.6910113.37 1320.59
10140.65  1320.310164.24    132110175.79 1320.7710189.07 1319.57 10201.9 1320.83
10244.93  1320.310259.14 1321.0210368.39  1320.610474.16 1320.1310573.87 1319.95
10672.23  1319.510767.81 1320.2810837.93 1320.4510885.93 1318.88 10947.7  1318.8
10969.92  1318.610982.97 1319.0611078.55 1319.0411168.42 1319.2111257.15 1319.86
 11287.9  1320.711355.83 1320.4511402.99  1320.911440.44 1321.73

Manning's n Values        num=       8
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
    8240    .058 9200.52    .038 9316.21    .058 9399.92    .038 9523.59    .058
 9734.52    .03810023.39    .05810573.87    .035

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9734.5210023.39              400  542.23     585             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
    8240 9200.52 1321.63 10023.311440.44 1320.94

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 14.495

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
             cross- section that does not receive subject flow.



Station Elevation Data    num=      74
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    8746  1322.1 8814.24 1321.22 8914.44 1320.81 9014.65 1320.56 9122.94 1319.83
  9226.2    1319 9262.39 1319.46 9271.03 1315.24 9287.09 1317.51 9295.53 1314.75
 9328.02  1313.9  9371.5 1315.46 9402.37 1317.44  9476.4 1316.78 9507.27 1317.94
 9554.76    1318 9581.47 1317.02 9595.83 1317.85 9658.33 1317.85 9668.11 1316.62
 9678.15  1317.7 9686.69 1316.24  9703.2 1317.89 9750.29 1318.48 9812.03 1317.61
 9837.15  1319.5 9848.98  1318.9 9876.26 1317.61 9931.87 1317.58 9950.73 1312.16
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 9997.38  1313.6 10023.7  1313.210074.78 1316.6810099.45 1316.6710112.66 1316.28
10145.77  1315.910170.62 1314.8110196.86 1316.8910222.87 1317.7110268.69 1317.39
10339.16  1316.710380.09 1316.1610407.71 1317.1110434.51 1316.7510455.08 1315.88
10463.36  1314.610482.94 1317.2110531.26 1317.1910550.55 1317.3710568.94 1315.96
10593.29  1316.710605.75  1313.210627.44 1317.1510658.39 1315.4210670.52  1314.5
10686.02  1315.410694.44 1315.3710703.41  1317.710868.79 1316.6210966.28 1316.91
11032.99  1315.711067.02 1316.5411121.45 1317.3711140.74 1317.6211148.87 1316.49
 11234.7  1316.111255.52 1315.8111278.54 1316.2211409.22 1316.6511478.48 1316.53
11488.62  1316.711529.01 1318.3811550.53 1318.1611568.78 1318.45

Manning's n Values        num=       9
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
    8746    .058 9287.09    .038 9402.37    .058 9931.87    .03810074.78    .038
10222.87    .05810627.44    .03810703.41    .05811140.74    .053

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9931.8710074.78              605  561.68     455             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
   1070011568.78  1317.7

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 14.379

INPUT
Description:



Station Elevation Data    num=      70
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    8862  1317.9 8877.86 1317.02 8889.61 1318.32 8913.38 1318.08 8962.56 1318.04
 9056.52  1317.6 9062.14 1316.78 9072.18 1317.66  9107.4 1317.45 9155.18 1317.54
 9245.43  1317.3 9284.44 1316.99 9407.47 1316.46 9507.48 1316.35 9565.28  1316.5
 9578.59  1311.7 9595.64 1312.54 9614.48 1313.79  9669.2 1313.33 9682.72 1310.93
 9690.38  1308.7 9710.37 1307.97  9718.8 1313.21 9729.29 1316.83 9807.52 1316.29
 9842.38  1316.2 9907.34 1316.27 9970.44 1316.58 9985.59 1309.1810107.59 1312.77
 10175.5  1313.310202.48 1313.2810214.19 1313.7810242.77 1313.6110266.63    1313
10293.86    131410321.28 1314.4910375.86 1313.3410404.88 1312.3810442.62 1312.27
10496.85    131510508.25 1315.2410567.01 1315.6910605.13  1316.110616.59 1313.89
10642.59    131510658.44 1313.6410708.14 1313.74 10748.7 1314.3310788.08 1312.72
10820.11  1312.110840.28 1312.7210853.23 1314.9710890.66  1313.210918.74 1312.46
10930.89  1310.910963.11 1310.6610981.31 1315.1311004.24 1315.0511010.56 1314.82
11107.74  1314.211226.69 1313.9511307.79 1313.9911385.61 1314.1311407.83 1314.43
11426.71  1315.211483.58 1315.8511495.37 1314.6111501.57  1314.411525.15 1315.43

Manning's n Values        num=      10
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
    8862    .058 9565.28    .038  9718.8    .058 9970.44    .03810214.19    .058
10321.28    .03810567.01    .05810853.23    .03810981.31    .05811407.83    .053

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9970.4410214.19              515  505.75     490             .1       .3

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 14.284

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
             cross- section that does not receive subject flow.



Station Elevation Data    num=      77
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    8572    1316 8690.39 1314.69 8702.61 1313.76 8714.39 1314.96 8737.63 1314.56
 8836.33  1313.7 8924.48 1313.52 8931.58 1312.85 8940.77 1313.46 9036.33  1313.1
 9152.12  1312.9  9236.2 1312.76  9312.2 1312.63 9324.11 1312.12 9343.29 1312.72
 9450.45  1312.7 9546.21  1312.3 9556.68 1312.37 9580.41 1312.53 9608.38 1308.45
 9637.64  1307.5 9659.03 1308.89 9677.62  1309.2 9689.94  1307.9 9703.98  1309.5
 9714.36  1310.8  9786.7 1311.87 9832.37 1312.13 9847.97 1309.36 9877.34 1308.37
 9907.28  1306.6 9923.81 1312.79 9945.19 1312.97 9960.84 1312.92 9975.83  1308.6
10005.31    130710016.02 1305.7910030.96  1305.410046.66 1309.9610052.65  1311.3
10078.67  1311.310106.77 1311.3710125.87 1310.98 10168.7 1308.9910190.02 1309.04
10230.88  1311.510246.59 1310.7710272.31 1310.88 10303.3  1312.910352.16 1313.07
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10375.49  1311.910390.23 1310.9210412.97 1310.5310422.51 1311.0810472.27 1309.94
10480.46  1309.5 10502.3 1309.6910526.77 1312.5810626.65 1311.1310681.51 1311.07
10742.33    130910764.17 1309.1310784.83 1311.81 10802.1 1311.6910827.12 1310.94
10882.64    131010916.41 1310.3510925.93 1309.2110941.61  1308.8 10957.6 1312.59
11052.02  1312.3 11066.3 1311.9211073.88 1310.2411087.96 1311.6511094.07 1311.38
11163.22  1311.911215.66 1312.62

Manning's n Values         num=      13
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
    8572    .058 9580.41    .038 9703.98    .058 9832.37    .038 9907.28    .058
 9960.84    .03810052.65    .05810352.16    .03810526.77    .05810681.51    .038
 10802.1    .038 10957.6    .058 11066.3    .053

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9960.8410052.65              495  498.98     485             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
   1105011215.66  1311.9

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 14.197

INPUT
Description:



Station Elevation Data    num=      66
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    8909  1313.6 8915.32 1314.34 9038.55 1313.27 9122.52 1312.59  9147.1 1312.09
 9151.88  1312.6 9246.33 1311.98 9345.34 1311.85 9445.16 1311.29 9543.27 1311.53
 9638.59  1311.2 9745.61 1311.04 9791.44 1311.25 9807.34  1303.3 9820.01  1303.3
 9844.53  1303.3 9877.37  1303.3 9884.83  1303.3 9924.15  1303.3 9935.15  1303.3
 9987.34  1303.3 9992.56 1305.91 10041.7 1306.2410147.14 1307.5710192.02 1307.88
10233.34  1306.710242.45  1306.610264.33  1310.810340.43 1310.5410441.83 1310.58
10477.47  1311.310490.71 1307.3510524.03 1307.9510553.36 1306.7910570.57 1310.79
10638.66  1310.410700.76    131110711.62 1307.7110731.07 1309.4110748.02 1308.86
10769.66  1308.710825.53 1308.7910834.98 1309.0410852.16 1307.8510866.22 1308.97
10880.46  1308.210886.69 1308.3710901.93 1306.2810942.54  1306.710958.63 1307.57
10972.37  1306.510984.49 1306.2810999.92 1310.3311011.88 1308.9711032.16 1310.26
11044.97  1310.411056.74 1309.9711070.34 1307.3811084.16 1310.8211146.24 1310.54
11243.47  1309.311283.64 1309.5611294.27 1308.6311331.37 1309.91 11363.1 1310.51
11444.99  1310.9

Manning's n Values         num=       7
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
    8909    .058 9807.34    .03810264.33    .05810477.47    .03810570.57    .058
10866.22    .03810999.92    .058

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9791.4410264.33              465  479.63     470             .1       .3

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 14.166

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
             cross- section that does not receive subject flow.
Station Elevation Data    num=     241
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9700 1310.82    9702 1310.81    9704  1310.8    9706 1310.79    9708 1310.78
    9710 1310.77    9712 1310.76    9714 1310.76    9716 1310.75    9718 1310.74
    9720 1310.73    9722 1310.72    9724 1310.71    9726  1310.7    9728  1310.7
    9730 1310.69    9732 1310.68    9734 1310.67    9736 1310.66    9738 1310.65
    9740 1310.64    9742 1310.64    9744 1310.63    9746 1310.62    9748 1310.61
    9750  1310.6    9752 1310.59    9754 1310.58    9756 1310.57    9758 1310.55
    9760 1310.53    9762 1310.52    9764  1310.5    9766 1310.48    9768 1310.46
    9770 1310.45    9772 1310.43    9774 1310.41    9776 1310.39    9778 1310.37
    9780 1310.36    9782 1310.31    9784 1310.25    9786  1310.2    9788 1310.15
    9790  1310.1    9792 1310.05    9794 1309.99    9796 1309.94    9798 1309.89
    9800 1309.84    9802 1309.79    9804 1309.73    9806 1309.68    9808 1309.63
    9810 1309.58    9812 1309.53    9814 1309.48    9816 1309.42    9818 1309.38
    9820 1309.37    9822 1309.35    9824 1309.34    9826 1309.33    9828 1309.32
    9830  1309.3    9832 1309.29    9834 1309.28    9836 1309.27    9838 1309.25
    9840 1309.24    9842 1309.23    9844 1309.22    9846 1309.22    9848 1309.23
    9850 1309.24    9852 1309.25    9854 1309.26    9856 1309.36    9858 1309.46
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9860	1309.55	9862	1309.65	9864	1309.63	9866	1309.58	9868	1309.52
9870	1309.47	9872	1309.41	9874	1309.36	9876	1309.3	9878	1309.24
9880	1309.23	9882	1309.48	9884	1309.48	9886	1309.48	9888	1309.48
9890	1309.48	9892	1309.48	9894	1309.48	9896	1309.47	9898	1308.47
9900	1307.47	9902	1306.47	9904	1305.47	9906	1304.47	9908	1303.47
9910	1302.54	9912	1302.53	9924	1302.53	9926	1302.52	9936	1302.52
9938	1302.51	9948	1302.51	9950	1302.5	9960	1302.5	9962	1302.49
9974	1302.49	9976	1302.48	9986	1302.48	9988	1302.47	9998	1302.47
10000	1302.46	10010	1302.46	10012	1302.45	10024	1302.45	10026	1302.44
10036	1302.44	10038	1302.43	10048	1302.43	10050	1302.42	10060	1302.42
10062	1302.41	10072	1302.41	10074	1302.4	10086	1302.4	10088	1302.39
10090	1302.39	10092	1303.32	10094	1304.32	10096	1305.32	10098	1306.32
10100	1307.32	10102	1308.32	10104	1309.31	10106	1309.31	10108	1309.31
10110	1309.31	10112	1309.31	10114	1309.31	10116	1309.31	10118	1309.31
10120	1309.05	10122	1308.55	10124	1308.05	10126	1307.56	10128	1307.06
10130	1306.56	10132	1306.06	10134	1305.56	10136	1305.06	10138	1304.56
10140	1304.06	10142	1303.56	10144	1303.54	10146	1303.65	10148	1303.77
10150	1303.88	10152	1304.01	10154	1304.19	10156	1304.38	10158	1304.57
10160	1304.77	10162	1304.97	10164	1305.16	10166	1305.35	10168	1305.53
10170	1305.72	10172	1305.91	10174	1306.1	10176	1306.29	10178	1306.52
10180	1306.74	10182	1306.96	10184	1307.19	10186	1307.3	10188	1307.3
10190	1307.29	10192	1307.29	10194	1307.28	10196	1307.28	10198	1307.27
10200	1307.26	10202	1307.26	10204	1307.25	10206	1307.25	10208	1307.24
10210	1307.24	10212	1307.24	10214	1307.26	10216	1307.29	10218	1308.3
10220	1309.54	10222	1310.08	10224	1310.07	10226	1310.07	10228	1310.07
10230	1310.07	10232	1310.07	10234	1310.07	10236	1310.07	10238	1310.07
10240	1310.07	10242	1310.07	10244	1310.07	10246	1310.07	10248	1310.07
10250	1310.07	10252	1310.07	10254	1310.07	10256	1310.07	10258	1310.08
10260	1310.08	10262	1310.08	10264	1310.09	10266	1310.09	10268	1310.1
10270	1310.11	10272	1310.11	10274	1310.12	10276	1310.13	10278	1310.13
10280	1310.13	10282	1310.12	10284	1310.12	10286	1310.11	10288	1310.11
10290	1310.11	10292	1310.11	10294	1310.11	10296	1310.11	10298	1310.11
10300	1310.11								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.05	9896	.035	10104	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9896	10104	20	20	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
10110	10300	1307

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 14.162

INPUT
Description: Blocked Obstruction used to block flow from that portion of the cross- section that does not receive subject flow.
Station Elevation Data num= 241

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1310.82	9702	1310.81	9704	1310.8	9706	1310.79	9708	1310.78
9710	1310.77	9712	1310.76	9714	1310.76	9716	1310.75	9718	1310.74
9720	1310.73	9722	1310.72	9724	1310.71	9726	1310.7	9728	1310.7
9730	1310.69	9732	1310.68	9734	1310.67	9736	1310.66	9738	1310.65
9740	1310.64	9742	1310.64	9744	1310.63	9746	1310.62	9748	1310.61
9750	1310.6	9752	1310.59	9754	1310.58	9756	1310.57	9758	1310.55
9760	1310.53	9762	1310.52	9764	1310.5	9766	1310.48	9768	1310.46
9770	1310.45	9772	1310.43	9774	1310.41	9776	1310.39	9778	1310.37
9780	1310.36	9782	1310.31	9784	1310.25	9786	1310.2	9788	1310.15
9790	1310.1	9792	1310.05	9794	1309.99	9796	1309.94	9798	1309.89
9800	1309.84	9802	1309.79	9804	1309.73	9806	1309.68	9808	1309.63
9810	1309.58	9812	1309.53	9814	1309.48	9816	1309.42	9818	1309.38
9820	1309.37	9822	1309.35	9824	1309.34	9826	1309.33	9828	1309.32
9830	1309.3	9832	1309.29	9834	1309.28	9836	1309.27	9838	1309.25
9840	1309.24	9842	1309.23	9844	1309.22	9846	1309.22	9848	1309.23
9850	1309.24	9852	1309.25	9854	1309.26	9856	1309.36	9858	1309.46
9860	1309.55	9862	1309.65	9864	1309.63	9866	1309.58	9868	1309.52
9870	1309.47	9872	1309.41	9874	1309.36	9876	1309.3	9878	1309.24
9880	1309.23	9882	1309.48	9884	1309.48	9886	1309.48	9888	1309.48
9890	1309.48	9892	1309.48	9894	1309.48	9896	1309.47	9898	1308.47
9900	1307.47	9902	1306.47	9904	1305.47	9906	1304.47	9908	1303.47
9910	1302.47	9912	1302.46	9924	1302.46	9926	1302.45	9936	1302.45
9938	1302.44	9948	1302.44	9950	1302.43	9960	1302.43	9962	1302.42
9974	1302.42	9976	1302.41	9986	1302.41	9988	1302.4	9998	1302.4

10000	1302.39	10010	1302.39	10012	1302.38	10024	1302.38	10026	1302.37
10036	1302.37	10038	1302.36	10048	1302.36	10050	1302.35	10060	1302.35
10062	1302.34	10072	1302.34	10074	1302.33	10086	1302.33	10088	1302.32
10090	1302.32	10092	1303.32	10094	1304.32	10096	1305.32	10098	1306.32
10100	1307.32	10102	1308.32	10104	1309.31	10106	1309.31	10108	1309.31
10110	1309.31	10112	1309.31	10114	1309.31	10116	1309.31	10118	1309.31
10120	1309.05	10122	1308.55	10124	1308.05	10126	1307.56	10128	1307.06
10130	1306.56	10132	1306.06	10134	1305.56	10136	1305.06	10138	1304.56
10140	1304.06	10142	1303.56	10144	1303.54	10146	1303.65	10148	1303.77
10150	1303.88	10152	1304.01	10154	1304.19	10156	1304.38	10158	1304.57
10160	1304.77	10162	1304.97	10164	1305.16	10166	1305.35	10168	1305.53
10170	1305.72	10172	1305.91	10174	1306.1	10176	1306.29	10178	1306.52
10180	1306.74	10182	1306.96	10184	1307.19	10186	1307.3	10188	1307.3
10190	1307.29	10192	1307.29	10194	1307.28	10196	1307.28	10198	1307.27
10200	1307.26	10202	1307.26	10204	1307.25	10206	1307.25	10208	1307.24
10210	1307.24	10212	1307.24	10214	1307.26	10216	1307.29	10218	1308.3
10220	1309.54	10222	1310.08	10224	1310.07	10226	1310.07	10228	1310.07
10230	1310.07	10232	1310.07	10234	1310.07	10236	1310.07	10238	1310.07
10240	1310.07	10242	1310.07	10244	1310.07	10246	1310.07	10248	1310.07
10250	1310.07	10252	1310.07	10254	1310.07	10256	1310.07	10258	1310.08
10260	1310.08	10262	1310.08	10264	1310.09	10266	1310.09	10268	1310.1
10270	1310.11	10272	1310.11	10274	1310.12	10276	1310.13	10278	1310.13
10280	1310.13	10282	1310.12	10284	1310.12	10286	1310.11	10288	1310.11
10290	1310.11	10292	1310.11	10294	1310.11	10296	1310.11	10298	1310.11
10300	1310.11								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.05	9896	.035	10104	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9896	10104	18	18	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
10110	10300	1308

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 14.159

INPUT
Description:
Station Elevation Data num= 212

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1310.14	9702	1310.14	9704	1310.14	9706	1310.14	9708	1310.14
9710	1310.14	9712	1310.14	9714	1310.14	9716	1310.15	9718	1310.15
9720	1310.16	9722	1310.15	9724	1310.15	9726	1310.14	9728	1310.13
9730	1310.12	9732	1310.12	9734	1310.12	9736	1310.11	9738	1310.11
9740	1310.11	9742	1310.11	9744	1310.11	9746	1310.11	9748	1310.11
9750	1310.11	9752	1310.11	9754	1310.11	9756	1310.11	9758	1310.11
9760	1310.11	9762	1310.11	9764	1310.11	9766	1310.11	9768	1310.11
9770	1310.11	9772	1310.11	9774	1310.11	9776	1310.11	9778	1310.11
9780	1310.12	9782	1310.12	9784	1310.13	9786	1309.32	9788	1308.04
9790	1307.23	9792	1307.24	9794	1307.24	9796	1307.25	9798	1307.26
9800	1307.26	9802	1307.27	9804	1307.28	9806	1307.29	9808	1307.3
9810	1307.31	9812	1307.32	9814	1307.33	9816	1307.34	9818	1307.35
9820	1307.27	9822	1307.07	9824	1306.87	9826	1306.68	9828	1306.48
9830	1306.29	9832	1306.09	9834	1305.91	9836	1305.73	9838	1305.55
9840	1305.36	9842	1305.18	9844	1305	9846	1304.82	9848	1304.64
9850	1304.46	9852	1304.27	9854	1304.09	9856	1303.92	9858	1303.8
9860	1303.68	9862	1303.57	9864	1303.45	9866	1303.34	9868	1303.23
9870	1303.12	9872	1303	9874	1302.88	9876	1302.76	9878	1302.64
9880	1302.25	9882	1302	9884	1302	9886	1302	9888	1302
9890	1302	9892	1302	9894	1302	9896	1302	9898	1301
9900	1300	9902	1299	9904	1298	9906	1297	9908	1296
9910	1295	10090	1295	10092	1296	10094	1297	10096	1298
10098	1299	10100	1300	10102	1301	10104	1302	10106	1302
10108	1302	10110	1302	10112	1302	10114	1302	10116	1302
10118	1302	10120	1302.33	10122	1302.99	10124	1303.65	10126	1304.3
10128	1304.96	10130	1305.62	10132	1306.28	10134	1306.94	10136	1307.53
10138	1308.03	10140	1308.53	10142	1309.03	10144	1309.53	10146	1309.49
10148	1309.39	10150	1309.36	10152	1309.35	10154	1309.34	10156	1309.34
10158	1309.33	10160	1309.32	10162	1309.31	10164	1309.3	10166	1309.29
10168	1309.29	10170	1309.28	10172	1309.28	10174	1309.29	10176	1309.31
10178	1309.32	10180	1309.33	10182	1309.34	10184	1309.36	10186	1309.37
10188	1309.38	10190	1309.4	10192	1309.45	10194	1309.5	10196	1309.55
10198	1309.61	10200	1309.66	10202	1309.71	10204	1309.76	10206	1309.81

10208	1309.87	10210	1309.92	10212	1309.97	10214	1310.02	10216	1310.07
10218	1310.11	10220	1310.13	10222	1310.15	10224	1310.16	10226	1310.18
10228	1310.2	10230	1310.22	10232	1310.24	10234	1310.25	10236	1310.27
10238	1310.29	10240	1310.31	10242	1310.32	10244	1310.34	10246	1310.36
10248	1310.38	10250	1310.4	10252	1310.41	10254	1310.43	10256	1310.45
10258	1310.47	10260	1310.48	10262	1310.5	10264	1310.52	10266	1310.52
10268	1310.53	10270	1310.54	10272	1310.55	10274	1310.56	10276	1310.57
10278	1310.58	10280	1310.58	10282	1310.59	10284	1310.6	10286	1310.61
10288	1310.62	10290	1310.63	10292	1310.64	10294	1310.64	10296	1310.65
10298	1310.66	10300	1310.67						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.05	9820	.035	10144	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9820	10144	50	50	.1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 14.150

INPUT
Description:
Station Elevation Data num= 212

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1310.14	9702	1310.14	9704	1310.14	9706	1310.14	9708	1310.14
9710	1310.14	9712	1310.14	9714	1310.14	9716	1310.15	9718	1310.15
9720	1310.16	9722	1310.15	9724	1310.15	9726	1310.14	9728	1310.13
9730	1310.12	9732	1310.12	9734	1310.12	9736	1310.11	9738	1310.11
9740	1310.11	9742	1310.11	9744	1310.11	9746	1310.11	9748	1310.11
9750	1310.11	9752	1310.11	9754	1310.11	9756	1310.11	9758	1310.11
9760	1310.11	9762	1310.11	9764	1310.11	9766	1310.11	9768	1310.11
9770	1310.11	9772	1310.11	9774	1310.11	9776	1310.11	9778	1310.11
9780	1310.12	9782	1310.12	9784	1310.13	9786	1309.32	9788	1308.04
9790	1307.23	9792	1307.24	9794	1307.24	9796	1307.25	9798	1307.26
9800	1307.26	9802	1307.27	9804	1307.28	9806	1307.29	9808	1307.3
9810	1307.31	9812	1307.32	9814	1307.33	9816	1307.34	9818	1307.35
9820	1307.27	9822	1307.07	9824	1306.87	9826	1306.68	9828	1306.48
9830	1306.29	9832	1306.09	9834	1305.91	9836	1305.73	9838	1305.55
9840	1305.36	9842	1305.18	9844	1305	9846	1304.82	9848	1304.64
9850	1304.46	9852	1304.27	9854	1304.09	9856	1303.92	9858	1303.8
9860	1303.68	9862	1303.57	9864	1303.45	9866	1303.34	9868	1303.23
9870	1303.12	9872	1303	9874	1302.88	9876	1302.76	9878	1302.64
9880	1302.25	9882	1302	9884	1302	9886	1302	9888	1302
9890	1302	9892	1302	9894	1302	9896	1302	9898	1301
9900	1300	9902	1299	9904	1298	9906	1297	9908	1296
9910	1294.78	10090	1294.78	10092	1296	10094	1297	10096	1298
10098	1299	10100	1300	10102	1301	10104	1302	10106	1302
10108	1302	10110	1302	10112	1302	10114	1302	10116	1302
10118	1302	10120	1302.33	10122	1302.99	10124	1303.65	10126	1304.3
10128	1304.96	10130	1305.62	10132	1306.28	10134	1306.94	10136	1307.53
10138	1308.03	10140	1308.53	10142	1309.03	10144	1309.53	10146	1309.49
10148	1309.39	10150	1309.36	10152	1309.35	10154	1309.34	10156	1309.34
10158	1309.33	10160	1309.32	10162	1309.31	10164	1309.3	10166	1309.29
10168	1309.29	10170	1309.28	10172	1309.28	10174	1309.29	10176	1309.31
10178	1309.32	10180	1309.33	10182	1309.34	10184	1309.36	10186	1309.37
10188	1309.38	10190	1309.4	10192	1309.45	10194	1309.5	10196	1309.55
10198	1309.61	10200	1309.66	10202	1309.71	10204	1309.76	10206	1309.81
10208	1309.87	10210	1309.92	10212	1309.97	10214	1310.02	10216	1310.07
10218	1310.11	10220	1310.13	10222	1310.15	10224	1310.16	10226	1310.18
10228	1310.2	10230	1310.22	10232	1310.24	10234	1310.25	10236	1310.27
10238	1310.29	10240	1310.31	10242	1310.32	10244	1310.34	10246	1310.36
10248	1310.38	10250	1310.4	10252	1310.41	10254	1310.43	10256	1310.45
10258	1310.47	10260	1310.48	10262	1310.5	10264	1310.52	10266	1310.52
10268	1310.53	10270	1310.54	10272	1310.55	10274	1310.56	10276	1310.57
10278	1310.58	10280	1310.58	10282	1310.59	10284	1310.6	10286	1310.61
10288	1310.62	10290	1310.63	10292	1310.64	10294	1310.64	10296	1310.65
10298	1310.66	10300	1310.67						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.05	9820	.035	10144	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9820	10144	244.65	244.65	.1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 14.103

INPUT
Description:

Station Elevation Data num= 212

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1309.06	9702	1309.06	9704	1309.07	9706	1309.07	9708	1309.08
9710	1309.13	9712	1309.2	9714	1309.27	9716	1309.34	9718	1309.41
9720	1309.48	9722	1309.52	9724	1309.52	9726	1309.52	9728	1309.51
9730	1309.51	9732	1309.51	9734	1309.5	9736	1309.5	9738	1309.5
9740	1309.49	9742	1309.49	9744	1309.49	9746	1309.48	9748	1309.48
9750	1309.48	9752	1309.47	9754	1309.48	9756	1309.47	9758	1309.38
9760	1309.29	9762	1309.22	9764	1309.1	9766	1308.61	9768	1307.81
9770	1307.02	9772	1306.86	9774	1306.84	9776	1306.81	9778	1306.78
9780	1306.76	9782	1306.73	9784	1306.71	9786	1306.68	9788	1306.6
9790	1306.22	9792	1305.84	9794	1305.45	9796	1305.07	9798	1304.69
9800	1304.32	9802	1303.94	9804	1303.56	9806	1303.18	9808	1302.9
9810	1302.9	9812	1302.89	9814	1302.89	9816	1302.88	9818	1302.88
9820	1302.87	9822	1302.89	9824	1302.91	9826	1302.92	9828	1302.94
9830	1302.96	9832	1302.97	9834	1302.99	9836	1303.01	9838	1303.02
9840	1303.04	9842	1303.06	9844	1303.07	9846	1303.09	9848	1303.11
9850	1303.12	9852	1303.14	9854	1303.16	9856	1303.17	9858	1303.19
9860	1303.2	9862	1303.22	9864	1303.24	9866	1303.25	9868	1303.27
9870	1303.29	9872	1303.02	9874	1302.52	9876	1302.02	9878	1301.52
9880	1301.02	9882	1300.77	9884	1300.77	9886	1300.77	9888	1300.77
9890	1300.77	9892	1300.77	9894	1300.77	9896	1300.77	9898	1299.77
9900	1298.77	9902	1297.77	9904	1296.77	9906	1295.77	9908	1294.77
9910	1293.77	10090	1293.77	10092	1294.77	10094	1295.77	10096	1296.77
10098	1297.77	10100	1298.77	10102	1299.77	10104	1300.77	10106	1300.77
10108	1300.77	10110	1300.77	10112	1300.77	10114	1300.77	10116	1300.77
10118	1300.77	10120	1301.02	10122	1301.52	10124	1302.02	10126	1302.52
10128	1303.02	10130	1303.52	10132	1304.02	10134	1304.52	10136	1305.02
10138	1305.52	10140	1306.02	10142	1306.52	10144	1307.02	10146	1307.52
10148	1308.02	10150	1307.94	10152	1307.97	10154	1308.02	10156	1308.07
10158	1308.13	10160	1308.16	10162	1308.17	10164	1308.18	10166	1308.18
10168	1308.16	10170	1308.14	10172	1308.13	10174	1308.12	10176	1308.12
10178	1308.13	10180	1308.16	10182	1308.18	10184	1308.19	10186	1308.2
10188	1308.21	10190	1308.22	10192	1308.23	10194	1308.24	10196	1308.26
10198	1308.27	10200	1308.28	10202	1308.29	10204	1308.3	10206	1308.31
10208	1308.32	10210	1308.33	10212	1308.32	10214	1308.32	10216	1308.31
10218	1308.3	10220	1308.29	10222	1308.29	10224	1308.28	10226	1308.27
10228	1308.26	10230	1308.26	10232	1308.25	10234	1308.24	10236	1308.23
10238	1308.23	10240	1308.22	10242	1308.21	10244	1308.2	10246	1308.2
10248	1308.19	10250	1308.18	10252	1308.18	10254	1308.17	10256	1308.16
10258	1308.15	10260	1308.15	10262	1308.14	10264	1308.13	10266	1308.12
10268	1308.12	10270	1308.11	10272	1308.11	10274	1308.1	10276	1308.1
10278	1308.1	10280	1308.1	10282	1308.1	10284	1308.1	10286	1308.1
10288	1308.09	10290	1308.09	10292	1308.09	10294	1308.09	10296	1308.08
10298	1308.08	10300	1307.99						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.05	9866	.035	10148	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9866	10148	519.51	519.51 519.51	.1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 14.013

INPUT
Description:

Station Elevation Data num= 215

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

9700	1306.51	9702	1306.49	9704	1306.48	9706	1306.47	9708	1306.46
9710	1306.45	9712	1306.44	9714	1306.43	9716	1306.42	9718	1306.41
9720	1306.4	9722	1306.38	9724	1306.37	9726	1306.36	9728	1306.35
9730	1306.33	9732	1306.32	9734	1306.3	9736	1306.29	9738	1306.27
9740	1306.26	9742	1306.25	9744	1306.23	9746	1306.22	9748	1306.2
9750	1306.19	9752	1306.17	9754	1306.16	9756	1306.14	9758	1306.13
9760	1306.12	9762	1306.11	9764	1306.1	9766	1306.1	9768	1306.09
9770	1306.09	9772	1306.09	9774	1306.09	9776	1306.09	9778	1306.08
9780	1306.06	9782	1306.04	9784	1306.01	9786	1305.99	9788	1305.96
9790	1305.94	9792	1305.92	9794	1305.9	9796	1305.88	9798	1305.86
9800	1305.84	9802	1305.82	9804	1305.8	9806	1305.78	9808	1305.77
9810	1305.75	9812	1305.73	9814	1305.7	9816	1305.68	9818	1305.66
9820	1304.36	9822	1302.8	9824	1302.8	9826	1302.79	9828	1302.78
9830	1302.78	9832	1302.77	9834	1302.76	9836	1302.76	9838	1302.75
9840	1302.75	9842	1302.54	9844	1302.33	9846	1302.11	9848	1301.89
9850	1301.68	9852	1301.46	9854	1301.24	9856	1301.03	9858	1300.81
9860	1300.59	9862	1300.38	9864	1300.16	9866	1300.11	9868	1300.08
9870	1300.05	9872	1300.02	9874	1300	9876	1299.81	9878	1299.31
9880	1298.81	9882	1298.56	9884	1298.56	9886	1298.56	9888	1298.56
9890	1298.56	9892	1298.56	9894	1298.56	9896	1298.56	9898	1297.56
9900	1296.56	9902	1295.56	9904	1294.56	9906	1293.56	9908	1292.56
9910	1291.61	9998	1291.61	10000	1291.61	10002	1291.61	10090	1291.61
10092	1292.66	10094	1293.66	10096	1294.66	10098	1295.66	10100	1296.66
10102	1297.66	10104	1298.66	10106	1298.67	10108	1298.67	10110	1298.67
10112	1298.67	10114	1298.67	10116	1298.67	10118	1298.67	10120	1298.91
10122	1299.41	10124	1299.91	10126	1300.41	10128	1300.91	10130	1301.41
10132	1301.91	10134	1302.41	10136	1302.91	10138	1303.41	10140	1303.91
10142	1304.41	10144	1304.81	10146	1304.91	10148	1304.84	10150	1304.73
10152	1304.78	10154	1304.62	10156	1304.5	10158	1304.45	10160	1304.35
10162	1304.25	10164	1304.14	10166	1304.04	10168	1303.95	10170	1303.87
10172	1303.76	10174	1303.64	10176	1303.55	10178	1303.47	10180	1303.39
10182	1303.32	10184	1303.24	10186	1303.21	10188	1303.11	10190	1303.01
10192	1302.9	10194	1302.8	10196	1302.69	10198	1302.57	10200	1302.47
10202	1302.49	10204	1302.51	10206	1302.53	10208	1302.61	10210	1302.69
10212	1302.76	10214	1302.82	10216	1302.89	10218	1302.97	10220	1303.06
10222	1303.16	10224	1303.26	10226	1303.37	10228	1303.48	10230	1303.58
10232	1303.69	10234	1303.8	10236	1303.91	10238	1303.97	10240	1303.97
10242	1303.97	10244	1303.97	10246	1303.97	10248	1303.99	10250	1303.99
10252	1304	10254	1304	10256	1304.01	10258	1304.01	10260	1304.01
10262	1304.02	10264	1304.02	10266	1304.03	10268	1304.04	10270	1304.04
10272	1304.05	10274	1304.06	10276	1304.08	10278	1304.11	10280	1304.15
10282	1304.19	10284	1304.23	10286	1304.26	10288	1304.28	10290	1304.31
10292	1304.34	10294	1304.36	10296	1304.36	10298	1304.37	10300	1304.39

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.05	9826	.035	10148	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9826	10148	489.09	489.09	.1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 13.918

INPUT
Description:

Station Elevation Data num= 214

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1301.24	9702	1301.23	9704	1301.22	9706	1301.21	9708	1301.2
9710	1301.19	9712	1301.22	9714	1301.21	9716	1301.2	9718	1301.19
9720	1301.18	9722	1301.17	9724	1301.15	9726	1301.14	9728	1301.13
9730	1301.12	9732	1301.13	9734	1301.2	9736	1301.28	9738	1301.36
9740	1301.44	9742	1301.52	9744	1301.59	9746	1301.67	9748	1301.69
9750	1301.69	9752	1301.68	9754	1301.68	9756	1301.68	9758	1301.68
9760	1301.67	9762	1301.67	9764	1301.67	9766	1301.66	9768	1301.66
9770	1301.66	9772	1301.65	9774	1301.65	9776	1301.65	9778	1301.65
9780	1301.64	9782	1301.64	9784	1301.64	9786	1301.63	9788	1301.63
9790	1301.63	9792	1301.62	9794	1301.62	9796	1301.62	9798	1301.62
9800	1301.61	9802	1301.61	9804	1301.61	9806	1301.6	9808	1301.6
9810	1301.6	9812	1301.6	9814	1301.59	9816	1301.59	9818	1301.59
9820	1301.58	9822	1301.58	9824	1301.58	9826	1301.57	9828	1301.57
9830	1301.57	9832	1301.57	9834	1301.56	9836	1301.56	9838	1301.57
9840	1301.57	9842	1301.58	9844	1301.56	9846	1301.52	9848	1301.49

9850	1301.42	9852	1301.43	9854	1301.43	9856	1301.43	9858	1301.44
9860	1301.43	9862	1301.24	9864	1300.74	9866	1300.24	9868	1299.74
9870	1299.24	9872	1298.74	9874	1298.24	9876	1297.74	9878	1297.24
9880	1296.74	9882	1296.48	9884	1296.48	9886	1296.48	9888	1296.48
9890	1296.48	9892	1296.48	9894	1296.48	9896	1296.48	9898	1295.5
9900	1294.5	9902	1293.5	9904	1292.5	9906	1291.5	9908	1290.5
9910	1289.67	10000	1289.67	10002	1289.67	10090	1289.67	10092	1290.83
10094	1291.83	10096	1292.83	10098	1293.83	10100	1294.83	10102	1295.83
10104	1296.83	10106	1296.86	10108	1296.86	10110	1296.86	10112	1296.86
10114	1296.86	10116	1296.86	10118	1296.86	10120	1297.09	10122	1297.59
10124	1298.09	10126	1298.59	10128	1299.09	10130	1299.59	10132	1300.09
10134	1300.1	10136	1299.99	10138	1299.88	10140	1299.79	10142	1299.74
10144	1299.85	10146	1299.97	10148	1300.08	10150	1300.15	10152	1300.24
10154	1300.36	10156	1300.48	10158	1300.6	10160	1300.72	10162	1300.83
10164	1300.94	10166	1301.05	10168	1301.17	10170	1301.32	10172	1301.48
10174	1301.63	10176	1301.78	10178	1301.93	10180	1302.03	10182	1302.13
10184	1302.17	10186	1302.1	10188	1302.04	10190	1301.95	10192	1301.87
10194	1301.8	10196	1301.74	10198	1301.67	10200	1301.58	10202	1301.49
10204	1301.39	10206	1301.3	10208	1301.22	10210	1301.23	10212	1301.24
10214	1301.24	10216	1301.25	10218	1301.26	10220	1301.31	10222	1301.35
10224	1301.4	10226	1301.45	10228	1301.5	10230	1301.54	10232	1301.59
10234	1301.64	10236	1301.69	10238	1301.73	10240	1301.78	10242	1301.83
10244	1301.88	10246	1301.92	10248	1301.97	10250	1302.02	10252	1302.07
10254	1302.11	10256	1302.16	10258	1302.21	10260	1302.25	10262	1302.3
10264	1302.35	10266	1302.4	10268	1302.44	10270	1302.49	10272	1302.54
10274	1302.59	10276	1302.63	10278	1302.68	10280	1302.73	10282	1302.78
10284	1302.82	10286	1302.84	10288	1302.86	10290	1302.87	10292	1302.88
10294	1302.84	10296	1302.82	10298	1302.79	10300	1302.77		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.05	9856	.035	10134	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9856	10134	595.17	595.17	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
9700	9828.74	1294

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 13.818

INPUT
Description: Blocked Obstruction used to block flow from that portion of the cross- section that does not receive subject flow.

Station Elevation Data num= 142

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1295.97	9702	1295.95	9704	1295.93	9706	1295.91	9708	1295.89
9710	1295.87	9712	1295.85	9714	1295.82	9716	1295.78	9718	1295.75
9720	1295.71	9722	1295.68	9724	1295.65	9726	1295.62	9728	1295.5
9730	1295.35	9732	1295.16	9734	1295.03	9736	1294.93	9738	1294.85
9740	1294.74	9742	1294.88	9744	1295.02	9746	1295.17	9748	1295.31
9750	1295.4	9752	1295.41	9754	1295.42	9756	1295.43	9758	1295.44
9760	1295.46	9762	1295.48	9764	1295.46	9766	1295.37	9768	1295.29
9770	1295.35	9772	1295.42	9774	1295.5	9776	1295.57	9778	1295.65
9780	1295.73	9782	1295.8	9784	1295.88	9786	1295.93	9788	1295.96
9790	1295.92	9792	1295.84	9794	1295.76	9796	1295.68	9798	1295.6
9800	1295.52	9802	1295.44	9804	1295.36	9806	1295.28	9808	1295.2
9810	1295.12	9812	1295.04	9814	1294.96	9816	1294.88	9818	1294.95
9820	1295.03	9822	1295.1	9824	1295.17	9826	1295.21	9828	1295.25
9830	1295.28	9832	1295.32	9834	1295.35	9836	1295.39	9838	1295.42
9840	1295.46	9842	1295.5	9844	1295.53	9846	1295.57	9848	1295.6
9850	1295.64	9852	1295.67	9854	1295.9	9856	1296.14	9858	1296.4
9860	1296.71	9862	1297.02	9864	1297.33	9866	1297.63	9868	1297.05
9870	1296.39	9872	1295.72	9874	1295.06	9876	1294.44	9878	1293.82
9880	1294.03	9882	1294.28	9884	1294.28	9886	1294.28	9888	1294.28
9890	1294.28	9892	1294.28	9894	1294.28	9896	1294.28	9898	1293.3
9900	1292.3	9902	1291.3	9904	1290.3	9906	1289.3	9908	1288.3
9910	1287.37	9998	1287.37	10000	1287.37	10090	1287.37	10092	1288.45
10094	1289.45	10096	1290.45	10098	1291.45	10100	1292.45	10102	1293.45
10104	1294.45	10106	1294.46	10108	1294.46	10110	1294.46	10112	1294.46
10114	1294.46	10116	1294.46	10118	1294.46	10120	1294.22	10122	1293.72
10124	1293.22	10126	1292.72	10128	1292.22	10130	1291.72	10132	1291.22
10134	1290.72	10136	1290.22	10138	1289.72	10140	1289.22	10142	1288.72
10144	1288.22	10146	1287.72	10148	1287.22	10150	1286.72	10152	1286.42
10154	1286.42	10300	1286.42						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.05	9896	.035	10108	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9896	10108	383.05	383.05 383.05	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
9700	9890	1294.31	10111.02	10300	1294.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 13.742

INPUT
Description: Blocked Obstruction used to block flow from that portion of the cross- section that does not receive subject flow.

Station Elevation Data num= 214

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1288.75	9702	1288.72	9704	1288.69	9706	1288.66	9708	1288.64
9710	1288.61	9712	1288.58	9714	1288.55	9716	1288.52	9718	1288.52
9720	1288.54	9722	1288.56	9724	1288.58	9726	1288.6	9728	1288.63
9730	1288.65	9732	1288.67	9734	1288.69	9736	1288.68	9738	1288.67
9740	1288.66	9742	1288.65	9744	1288.63	9746	1288.62	9748	1288.61
9750	1288.49	9752	1288.33	9754	1288.18	9756	1288.03	9758	1287.89
9760	1287.76	9762	1287.62	9764	1287.48	9766	1287.35	9768	1287.26
9770	1287.17	9772	1287.08	9774	1286.99	9776	1286.9	9778	1286.82
9780	1286.75	9782	1286.67	9784	1286.6	9786	1286.53	9788	1286.46
9790	1286.42	9792	1286.42	9794	1286.42	9796	1286.42	9798	1286.42
9800	1286.42	9802	1286.42	9804	1286.42	9806	1286.42	9808	1286.42
9810	1286.42	9812	1286.42	9814	1286.42	9816	1286.42	9818	1286.42
9820	1286.42	9822	1286.42	9824	1286.42	9826	1286.42	9828	1286.42
9830	1286.42	9832	1286.42	9834	1286.42	9836	1286.42	9838	1286.42
9840	1286.42	9842	1286.42	9844	1286.42	9846	1286.42	9848	1286.42
9850	1286.42	9852	1286.42	9854	1286.42	9856	1286.47	9858	1286.97
9860	1287.47	9862	1287.97	9864	1288.47	9866	1288.97	9868	1289.47
9870	1289.97	9872	1290.47	9874	1290.97	9876	1291.47	9878	1291.97
9880	1292.47	9882	1292.72	9884	1292.72	9886	1292.72	9888	1292.72
9890	1292.72	9892	1292.72	9894	1292.72	9896	1292.72	9898	1291.74
9900	1290.74	9902	1289.74	9904	1288.74	9906	1287.74	9908	1286.74
9910	1285.81	9998	1285.81	10000	1285.81	10090	1285.81	10092	1286.89
10094	1287.89	10096	1288.89	10098	1289.89	10100	1290.89	10102	1291.89
10104	1292.89	10106	1292.9	10108	1292.9	10110	1292.9	10112	1292.9
10114	1292.9	10116	1292.9	10118	1292.9	10120	1292.66	10122	1292.16
10124	1291.66	10126	1291.16	10128	1290.66	10130	1290.16	10132	1289.66
10134	1289.16	10136	1288.66	10138	1288.16	10140	1287.66	10142	1287.16
10144	1286.66	10146	1286.42	10148	1286.42	10150	1286.42	10152	1286.42
10154	1286.42	10156	1286.42	10158	1286.42	10160	1286.42	10162	1286.42
10164	1286.42	10166	1286.42	10168	1286.42	10170	1286.42	10172	1286.42
10174	1286.42	10176	1286.42	10178	1286.42	10180	1286.42	10182	1286.42
10184	1286.42	10186	1286.42	10188	1286.42	10190	1286.42	10192	1286.42
10194	1286.42	10196	1286.42	10198	1286.42	10200	1286.42	10202	1286.42
10204	1286.42	10206	1286.42	10208	1286.42	10210	1286.42	10212	1286.42
10214	1286.42	10216	1286.42	10218	1286.42	10220	1286.42	10222	1286.42
10224	1286.42	10226	1286.42	10228	1286.42	10230	1286.42	10232	1286.42
10234	1286.42	10236	1286.42	10238	1286.42	10240	1286.42	10242	1286.42
10244	1286.42	10246	1286.42	10248	1286.42	10250	1286.42	10252	1286.42
10254	1286.42	10256	1286.42	10258	1286.42	10260	1286.42	10262	1286.42
10264	1286.42	10266	1286.42	10268	1286.42	10270	1286.42	10272	1286.42
10274	1286.42	10276	1286.42	10278	1286.42	10280	1286.42	10282	1286.42
10284	1286.42	10286	1286.42	10288	1286.42	10290	1286.42	10292	1286.42
10294	1286.42	10296	1286.42	10298	1286.42	10300	1286.42		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.05	9896	.035	10104	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9896	10104	361.37	361.37 361.37	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
9700	9884.25	1292.79	10120.47	10300	1292.92

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 13.68

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
cross- section that does not receive subject flow.

Station Elevation Data num= 213

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1290.6	9702	1290.6	9704	1290.6	9706	1290.61	9708	1290.61
9710	1290.61	9712	1290.61	9714	1290.61	9716	1290.61	9718	1290.58
9720	1290.43	9722	1290.38	9724	1290.21	9726	1289.73	9728	1289.74
9730	1289.82	9732	1289.9	9734	1289.88	9736	1289.81	9738	1289.73
9740	1289.65	9742	1289.57	9744	1289.49	9746	1289.4	9748	1289.41
9750	1289.42	9752	1289.31	9754	1289.34	9756	1289.44	9758	1289.81
9760	1290.09	9762	1290.23	9764	1290.29	9766	1290.42	9768	1290.6
9770	1290.79	9772	1290.9	9774	1290.98	9776	1290.99	9778	1290.93
9780	1290.87	9782	1290.84	9784	1290.82	9786	1290.81	9788	1290.82
9790	1290.91	9792	1290.88	9794	1290.77	9796	1290.67	9798	1290.58
9800	1290.65	9802	1290.72	9804	1290.77	9806	1290.82	9808	1290.87
9810	1290.75	9812	1290.74	9814	1290.76	9816	1290.76	9818	1290.76
9820	1290.76	9822	1290.82	9824	1290.89	9826	1290.98	9828	1291.04
9830	1291.08	9832	1291.11	9834	1291.15	9836	1291.18	9838	1291.03
9840	1290.89	9842	1290.92	9844	1290.94	9846	1290.97	9848	1291.03
9850	1291.11	9852	1291.19	9854	1291.28	9856	1291.25	9858	1291.09
9860	1290.97	9862	1290.86	9864	1290.72	9866	1290.51	9868	1290.41
9870	1290.31	9872	1290.22	9874	1290.09	9876	1290	9878	1290.5
9880	1291	9882	1291.25	9884	1291.25	9886	1291.25	9888	1291.25
9890	1291.25	9892	1291.25	9894	1291.25	9896	1291.25	9898	1290.26
9900	1289.26	9902	1288.26	9904	1287.26	9906	1286.26	9908	1285.26
9910	1284.34	10000	1284.34	10090	1284.34	10092	1285.42	10094	1286.42
10096	1287.42	10098	1288.42	10100	1289.42	10102	1290.42	10104	1291.42
10106	1291.43	10108	1291.43	10110	1291.43	10112	1291.43	10114	1291.43
10116	1291.43	10118	1291.43	10120	1291.19	10122	1290.69	10124	1290.19
10126	1289.69	10128	1289.19	10130	1288.69	10132	1288.19	10134	1287.69
10136	1287.19	10138	1286.69	10140	1286.34	10142	1286.51	10144	1286.54
10146	1286.57	10148	1286.54	10150	1286.52	10152	1286.5	10154	1286.53
10156	1286.62	10158	1286.65	10160	1286.68	10162	1286.72	10164	1286.75
10166	1286.82	10168	1286.89	10170	1286.97	10172	1287.17	10174	1287.36
10176	1287.55	10178	1287.74	10180	1287.96	10182	1288.21	10184	1288.47
10186	1288.75	10188	1289.03	10190	1289.26	10192	1289.48	10194	1289.7
10196	1289.98	10198	1290.13	10200	1290.15	10202	1290.18	10204	1290.21
10206	1290.52	10208	1290.72	10210	1290.91	10212	1291.1	10214	1291.3
10216	1291.49	10218	1291.79	10220	1292.1	10222	1292.25	10224	1292.45
10226	1292.65	10228	1292.68	10230	1292.67	10232	1292.79	10234	1292.92
10236	1293.05	10238	1293.18	10240	1293.28	10242	1293.34	10244	1293.26
10246	1293.04	10248	1292.82	10250	1292.68	10252	1292.82	10254	1292.77
10256	1292.72	10258	1292.65	10260	1292.56	10262	1292.76	10264	1293.02
10266	1293.21	10268	1293.4	10270	1293.59	10272	1293.78	10274	1293.96
10276	1294.1	10278	1294.21	10280	1294.31	10282	1294.42	10284	1294.44
10286	1294.24	10288	1294.05	10290	1293.86	10292	1293.67	10294	1293.48
10296	1293.65	10298	1293.56	10300	1293.47				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.05	9896	.035	10104	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9896	10104	323.84	323.84	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
9700	9882	1291.5	10104	10300	1291.5

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 13.619

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
cross- section that does not receive subject flow.

Station Elevation Data num= 215

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1286.65	9702	1286.25	9704	1285.84	9706	1285.44	9708	1285.03
9710	1284.63	9712	1284.22	9714	1284.21	9716	1284.21	9718	1284.22
9720	1284.22	9722	1284.23	9724	1284.23	9726	1284.23	9728	1284.24
9730	1284.24	9732	1284.23	9734	1284.21	9736	1284.19	9738	1284.17
9740	1284.15	9742	1284.13	9744	1284.11	9746	1284.09	9748	1284.07

9750	1284.05	9752	1284.03	9754	1284.01	9756	1283.99	9758	1283.97
9760	1283.95	9762	1283.93	9764	1283.9	9766	1283.88	9768	1283.86
9770	1283.84	9772	1283.82	9774	1283.8	9776	1283.78	9778	1283.76
9780	1283.74	9782	1283.72	9784	1283.7	9786	1283.68	9788	1283.66
9790	1283.64	9792	1283.62	9794	1283.6	9796	1283.58	9798	1283.56
9800	1283.54	9802	1283.52	9804	1283.51	9806	1283.49	9808	1283.48
9810	1283.47	9812	1283.46	9814	1283.44	9816	1283.42	9818	1283.46
9820	1283.54	9822	1283.61	9824	1283.68	9826	1283.76	9828	1283.83
9830	1283.9	9832	1283.98	9834	1284.09	9836	1284.2	9838	1284.29
9840	1284.34	9842	1284.35	9844	1284.35	9846	1284.36	9848	1284.36
9850	1284.17	9852	1283.83	9854	1283.71	9856	1283.68	9858	1284.18
9860	1284.68	9862	1285.18	9864	1285.68	9866	1286.18	9868	1286.68
9870	1287.18	9872	1287.68	9874	1288.18	9876	1288.68	9878	1289.18
9880	1289.68	9882	1289.93	9884	1289.93	9886	1289.93	9888	1289.93
9890	1289.93	9892	1289.93	9894	1289.93	9896	1289.93	9898	1288.94
9900	1287.94	9902	1286.94	9904	1285.94	9906	1284.94	9908	1283.94
9910	1283.02	9998	1283.02	10000	1283.02	10002	1283.02	10090	1283.02
10092	1284.1	10094	1285.1	10096	1286.1	10098	1287.1	10100	1288.1
10102	1289.1	10104	1290.1	10106	1290.11	10108	1290.11	10110	1290.11
10112	1290.11	10114	1290.11	10116	1290.11	10118	1290.11	10120	1289.87
10122	1289.37	10124	1288.87	10126	1288.37	10128	1287.87	10130	1287.37
10132	1286.87	10134	1286.37	10136	1285.87	10138	1285.37	10140	1285.12
10142	1285.1	10144	1285.09	10146	1285.08	10148	1285.08	10150	1285.07
10152	1285.06	10154	1285.05	10156	1285.04	10158	1285.03	10160	1285.02
10162	1285.01	10164	1285	10166	1284.99	10168	1284.98	10170	1284.97
10172	1284.96	10174	1284.95	10176	1284.94	10178	1284.93	10180	1284.92
10182	1284.91	10184	1284.9	10186	1284.89	10188	1284.88	10190	1285
10192	1286.02	10194	1287.05	10196	1288.08	10198	1289.1	10200	1290.13
10202	1291.15	10204	1292.18	10206	1293.21	10208	1294.23	10210	1294.59
10212	1294.59	10214	1294.58	10216	1294.83	10218	1294.75	10220	1294.2
10222	1293.65	10224	1292.95	10226	1292.24	10228	1291.52	10230	1290.81
10232	1290.09	10234	1289.86	10236	1289.89	10238	1289.92	10240	1289.96
10242	1289.99	10244	1290.02	10246	1290.05	10248	1290.09	10250	1290.12
10252	1290.15	10254	1290.18	10256	1290.22	10258	1290.25	10260	1290.29
10262	1290.36	10264	1290.9	10266	1291.44	10268	1291.98	10270	1292.52
10272	1293.06	10274	1293.6	10276	1293.95	10278	1294.18	10280	1294.18
10282	1294.28	10284	1294.34	10286	1294.35	10288	1294.31	10290	1294.14
10292	1293.97	10294	1293.81	10296	1293.74	10298	1293.79	10300	1293.83

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.05	9896	.035	10104	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9896	10104	500.33	500.33	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
9700	9880.56	1289.97	10119.44	10300	1290.12

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 13.524

INPUT
Description: Blocked Obstruction used to block flow from that portion of the cross- section that does not receive subject flow.

Station Elevation Data num= 218

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1291.71	9702	1291.66	9704	1291.61	9706	1291.56	9708	1291.51
9710	1291.46	9712	1291.41	9714	1291.36	9716	1291.3	9718	1291.25
9720	1291.2	9722	1291.15	9724	1291.1	9726	1291.05	9728	1291
9730	1290.95	9732	1290.9	9734	1290.85	9736	1290.79	9738	1290.74
9740	1290.69	9742	1290.64	9744	1290.59	9746	1290.54	9748	1290.49
9750	1290.44	9752	1290.39	9754	1290.52	9756	1290.72	9758	1290.92
9760	1291.2	9762	1290.77	9764	1289.86	9766	1288.94	9768	1288.03
9770	1287.11	9772	1286.2	9774	1285.29	9776	1284.37	9778	1283.46
9780	1283.06	9782	1283.01	9784	1282.96	9786	1282.9	9788	1282.85
9790	1282.8	9792	1282.74	9794	1282.69	9796	1282.63	9798	1282.6
9800	1282.6	9802	1282.6	9804	1282.6	9806	1282.6	9808	1282.6
9810	1282.6	9812	1282.6	9814	1282.6	9816	1282.6	9818	1282.6
9820	1282.6	9822	1282.6	9824	1282.6	9826	1282.6	9828	1282.6
9830	1282.6	9832	1282.6	9834	1282.6	9836	1282.6	9838	1282.6
9840	1282.6	9842	1282.6	9844	1282.6	9846	1282.6	9848	1282.6
9850	1282.6	9852	1282.6	9854	1282.6	9856	1282.6	9858	1282.6
9860	1282.65	9862	1283.15	9864	1283.65	9866	1284.15	9868	1284.65
9870	1285.15	9872	1285.65	9874	1286.15	9876	1286.65	9878	1287.15
9880	1287.65	9882	1287.91	9884	1287.91	9886	1287.91	9888	1287.91

9890	1287.91	9892	1287.91	9894	1287.91	9896	1287.91	9898	1286.92
9900	1285.92	9902	1284.92	9904	1283.92	9906	1282.92	9908	1281.92
9910	1280.98	9998	1280.98	10000	1280.98	10002	1280.98	10004	1280.98
10006	1280.98	10008	1280.98	10090	1280.98	10092	1282.04	10094	1283.04
10096	1284.04	10098	1285.04	10100	1286.04	10102	1287.04	10104	1288.04
10106	1288.05	10108	1288.05	10110	1288.05	10112	1288.05	10114	1288.05
10116	1288.05	10118	1288.05	10120	1288.29	10122	1288.79	10124	1289.29
10126	1289.79	10128	1290.29	10130	1290.79	10132	1291.14	10134	1291.27
10136	1291.33	10138	1291.38	10140	1291.43	10142	1291.48	10144	1291.53
10146	1291.57	10148	1291.09	10150	1290.33	10152	1289.56	10154	1288.8
10156	1287.97	10158	1287.11	10160	1286.25	10162	1285.87	10164	1285.65
10166	1285.43	10168	1285.21	10170	1285.11	10172	1285.03	10174	1284.93
10176	1284.83	10178	1284.83	10180	1284.85	10182	1285.08	10184	1285.74
10186	1286.41	10188	1287.08	10190	1287.75	10192	1288.47	10194	1289.36
10196	1290.17	10198	1290.36	10200	1290.41	10202	1290.46	10204	1290.54
10206	1290.62	10208	1290.7	10210	1290.78	10212	1290.86	10214	1290.95
10216	1291.03	10218	1291.11	10220	1291.2	10222	1291.25	10224	1291.13
10226	1291	10228	1290.88	10230	1290.76	10232	1290.64	10234	1290.52
10236	1290.4	10238	1290.34	10240	1290.38	10242	1290.42	10244	1290.46
10246	1290.54	10248	1290.62	10250	1290.66	10252	1290.68	10254	1290.76
10256	1290.83	10258	1290.91	10260	1290.99	10262	1291.07	10264	1291.15
10266	1291.23	10268	1291.27	10270	1291.29	10272	1291.3	10274	1291.31
10276	1291.33	10278	1291.34	10280	1291.35	10282	1291.37	10284	1291.38
10286	1291.38	10288	1291.39	10290	1291.4	10292	1291.41	10294	1291.41
10296	1291.42	10298	1291.43	10300	1291.44				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9896	.035	10104	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9896	10104	499.65	499.65 499.65	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
9700	9880.56	1287.91	10155.27	10300	1288.08

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 13.42

INPUT
Description: Blocked Obstruction used to block flow from that portion of the cross- section that does not receive subject flow.

Station Elevation Data num= 212

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1288.59	9702	1288.62	9704	1288.65	9706	1288.68	9708	1288.71
9710	1288.74	9712	1288.76	9714	1288.79	9716	1288.82	9718	1288.85
9720	1288.88	9722	1288.91	9724	1288.94	9726	1288.98	9728	1289.02
9730	1289.06	9732	1289.1	9734	1289.14	9736	1289.18	9738	1289.22
9740	1289.26	9742	1289.29	9744	1289.33	9746	1289.37	9748	1289.41
9750	1289.44	9752	1289.46	9754	1289.48	9756	1289.5	9758	1289.53
9760	1289.53	9762	1289.46	9764	1289.39	9766	1289.33	9768	1289.26
9770	1289.19	9772	1289.1	9774	1289.02	9776	1288.94	9778	1288.87
9780	1288.8	9782	1288.72	9784	1288.62	9786	1288.52	9788	1288.42
9790	1288.32	9792	1288.22	9794	1288.14	9796	1288.05	9798	1287.97
9800	1287.92	9802	1287.86	9804	1287.77	9806	1287.68	9808	1287.58
9810	1287.49	9812	1287.39	9814	1287.3	9816	1287.2	9818	1287.11
9820	1287.17	9822	1287.43	9824	1287.76	9826	1288.08	9828	1288.38
9830	1288.83	9832	1289.31	9834	1289.79	9836	1290.28	9838	1290.76
9840	1290.57	9842	1289.99	9844	1289.4	9846	1288.82	9848	1288.24
9850	1287.65	9852	1286.95	9854	1286.12	9856	1285.35	9858	1284.61
9860	1283.86	9862	1283.12	9864	1282.37	9866	1282.13	9868	1282.63
9870	1283.13	9872	1283.63	9874	1284.13	9876	1284.63	9878	1285.13
9880	1285.63	9882	1285.88	9884	1285.88	9886	1285.88	9888	1285.88
9890	1285.88	9892	1285.88	9894	1285.88	9896	1285.88	9898	1284.89
9900	1283.89	9902	1282.89	9904	1281.89	9906	1280.89	9908	1279.89
9910	1278.89	10090	1278.89	10092	1279.94	10094	1280.94	10096	1281.94
10098	1282.94	10100	1283.94	10102	1284.94	10104	1285.94	10106	1285.94
10108	1285.94	10110	1285.94	10112	1285.94	10114	1285.94	10116	1285.94
10118	1285.94	10120	1286.19	10122	1286.69	10124	1287.19	10126	1287.69
10128	1288.19	10130	1288.69	10132	1289.19	10134	1288.87	10136	1288.55
10138	1288.56	10140	1288.57	10142	1288.58	10144	1288.59	10146	1288.6
10148	1288.61	10150	1288.62	10152	1288.63	10154	1288.64	10156	1288.65
10158	1288.65	10160	1288.66	10162	1288.66	10164	1288.64	10166	1288.63
10168	1288.62	10170	1288.61	10172	1288.6	10174	1288.58	10176	1288.57
10178	1288.56	10180	1288.54	10182	1288.51	10184	1288.48	10186	1288.46
10188	1288.43	10190	1288.55	10192	1288.67	10194	1288.79	10196	1288.9

10198	1289.02	10200	1289.14	10202	1289.26	10204	1289.38	10206	1289.26
10208	1289.13	10210	1289.01	10212	1288.9	10214	1288.78	10216	1288.67
10218	1288.55	10220	1288.44	10222	1288.32	10224	1288.26	10226	1288.22
10228	1288.17	10230	1288.14	10232	1288.11	10234	1287.98	10236	1287.83
10238	1287.68	10240	1287.53	10242	1287.48	10244	1287.44	10246	1287.4
10248	1287.35	10250	1287.31	10252	1287.26	10254	1287.22	10256	1287.18
10258	1287.13	10260	1287.09	10262	1287.05	10264	1287	10266	1287.01
10268	1287.02	10270	1287.03	10272	1287.05	10274	1287.05	10276	1287.05
10278	1287.05	10280	1287.05	10282	1287.06	10284	1287.06	10286	1287.06
10288	1287.06	10290	1287.07	10292	1287.07	10294	1287.07	10296	1287.07
10298	1287.07	10300	1287.08						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9896	.035	10104	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9896	10104	506.43	506.43	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
9700	9881.26	1285.93

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 13.325

INPUT
Description: Blocked Obstruction used to block flow from that portion of the cross- section that does not receive subject flow.

Station Elevation Data num= 212

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1301.55	9702	1301.6	9704	1301.64	9706	1301.68	9708	1301.72
9710	1301.76	9712	1301.79	9714	1301.83	9716	1301.87	9718	1301.9
9720	1301.94	9722	1301.98	9724	1302.01	9726	1302.05	9728	1302.09
9730	1302.12	9732	1302.16	9734	1302.2	9736	1302.24	9738	1302.27
9740	1302.31	9742	1302.35	9744	1302.38	9746	1302.42	9748	1302.46
9750	1302.49	9752	1302.53	9754	1302.57	9756	1302.6	9758	1302.64
9760	1302.64	9762	1302.63	9764	1302.62	9766	1302.61	9768	1302.6
9770	1302.58	9772	1302.57	9774	1302.56	9776	1302.55	9778	1302.54
9780	1302.53	9782	1302.52	9784	1302.5	9786	1302.49	9788	1302.48
9790	1302.47	9792	1302.46	9794	1302.45	9796	1302.44	9798	1302.42
9800	1302.41	9802	1302.4	9804	1302.39	9806	1302.38	9808	1302.05
9810	1301.55	9812	1301.05	9814	1300.55	9816	1300.05	9818	1299.55
9820	1299.05	9822	1298.55	9824	1298.05	9826	1297.55	9828	1297.05
9830	1296.55	9832	1296.05	9834	1295.55	9836	1295.05	9838	1294.55
9840	1294.05	9842	1293.55	9844	1293.05	9846	1292.55	9848	1292.05
9850	1291.55	9852	1291.05	9854	1290.55	9856	1290.05	9858	1289.55
9860	1289.05	9862	1288.55	9864	1288.05	9866	1287.55	9868	1287.05
9870	1286.55	9872	1286.05	9874	1285.55	9876	1285.05	9878	1284.55
9880	1284.05	9882	1283.8	9884	1283.8	9886	1283.8	9888	1283.8
9890	1283.8	9892	1283.8	9894	1283.8	9896	1283.8	9898	1282.8
9900	1281.8	9902	1280.8	9904	1279.8	9906	1278.8	9908	1277.8
9910	1276.8	10090	1276.8	10092	1277.8	10094	1278.8	10096	1279.8
10098	1280.8	10100	1281.8	10102	1282.8	10104	1283.8	10106	1283.8
10108	1283.8	10110	1283.8	10112	1283.8	10114	1283.8	10116	1283.8
10118	1283.8	10120	1283.55	10122	1283.05	10124	1282.55	10126	1282.05
10128	1281.55	10130	1281.05	10132	1280.55	10134	1280.05	10136	1279.55
10138	1279.05	10140	1278.55	10142	1278.05	10144	1277.55	10146	1277.67
10148	1277.67	10150	1277.8	10152	1278.13	10154	1278.94	10156	1279.75
10158	1280.57	10160	1281.38	10162	1282.19	10164	1283.01	10166	1283.82
10168	1284.63	10170	1285.44	10172	1286.26	10174	1287.07	10176	1287.88
10178	1288.35	10180	1288.53	10182	1288.72	10184	1288.91	10186	1289.1
10188	1289.28	10190	1289.47	10192	1289.58	10194	1289.74	10196	1289.89
10198	1290	10200	1289.66	10202	1289.28	10204	1288.94	10206	1288.61
10208	1288.27	10210	1287.93	10212	1287.59	10214	1287.33	10216	1287.28
10218	1287.22	10220	1287.17	10222	1287.11	10224	1287.06	10226	1287
10228	1286.92	10230	1286.84	10232	1286.76	10234	1286.68	10236	1286.59
10238	1286.51	10240	1286.43	10242	1286.35	10244	1286.27	10246	1286.19
10248	1286.1	10250	1286.02	10252	1285.95	10254	1285.95	10256	1285.94
10258	1285.94	10260	1285.93	10262	1285.93	10264	1285.92	10266	1285.92
10268	1285.91	10270	1285.91	10272	1285.91	10274	1285.9	10276	1285.9
10278	1285.89	10280	1285.89	10282	1285.88	10284	1285.88	10286	1285.88
10288	1285.87	10290	1285.87	10292	1285.86	10294	1285.86	10296	1285.85

10298 1285.85 10300 1285.85

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9896	.035	10104	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9896	10104	532.87	532.87	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
10118.74	10300	1283.84

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 13.227

INPUT
Description: Blocked Obstruction used to block flow from that portion of the cross- section that does not receive subject flow.

Station Elevation Data num= 212

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1288.5	9702	1289.72	9704	1290.94	9706	1292.16	9708	1293.38
9710	1294.6	9712	1295.81	9714	1296.9	9716	1297.72	9718	1298.35
9720	1298.78	9722	1299.4	9724	1298.69	9726	1296.45	9728	1294.24
9730	1292.43	9732	1290.63	9734	1289.23	9736	1289.04	9738	1288.86
9740	1288.55	9742	1288.26	9744	1288.15	9746	1288.04	9748	1287.92
9750	1287.81	9752	1287.61	9754	1287.2	9756	1286.78	9758	1286.37
9760	1285.95	9762	1285.53	9764	1285.21	9766	1285.18	9768	1285.15
9770	1285.12	9772	1285.03	9774	1284.96	9776	1284.89	9778	1284.82
9780	1284.75	9782	1284.68	9784	1284.61	9786	1284.54	9788	1284.5
9790	1284.49	9792	1284.48	9794	1284.47	9796	1284.45	9798	1284.44
9800	1284.43	9802	1284.41	9804	1284.4	9806	1284.39	9808	1284.37
9810	1284.36	9812	1284.35	9814	1284.34	9816	1284.32	9818	1284.31
9820	1284.3	9822	1284.28	9824	1284.27	9826	1284.26	9828	1284.23
9830	1284.2	9832	1284.17	9834	1284.14	9836	1284.12	9838	1284.09
9840	1284.07	9842	1284.06	9844	1284.05	9846	1284.04	9848	1284.04
9850	1284.03	9852	1284.02	9854	1284	9856	1283.98	9858	1283.96
9860	1283.94	9862	1283.92	9864	1283.9	9866	1283.88	9868	1283.86
9870	1283.84	9872	1283.8	9874	1283.33	9876	1282.83	9878	1282.33
9880	1281.83	9882	1281.58	9884	1281.58	9886	1281.58	9888	1281.58
9890	1281.58	9892	1281.58	9894	1281.58	9896	1281.58	9898	1280.58
9900	1279.58	9902	1278.58	9904	1277.58	9906	1276.58	9908	1275.58
9910	1274.58	10090	1274.58	10092	1275.58	10094	1276.58	10096	1277.58
10098	1278.58	10100	1279.58	10102	1280.58	10104	1281.58	10106	1281.58
10108	1281.58	10110	1281.58	10112	1281.58	10114	1281.58	10116	1281.58
10118	1281.58	10120	1281.33	10122	1280.83	10124	1280.33	10126	1279.83
10128	1279.33	10130	1278.83	10132	1278.33	10134	1277.83	10136	1277.33
10138	1276.83	10140	1276.73	10142	1276.85	10144	1276.97	10146	1277.09
10148	1277.21	10150	1277.32	10152	1277.44	10154	1277.56	10156	1277.68
10158	1277.8	10160	1277.91	10162	1278.03	10164	1278.15	10166	1278.27
10168	1278.39	10170	1278.51	10172	1278.63	10174	1278.75	10176	1278.87
10178	1279.23	10180	1279.78	10182	1280.32	10184	1280.86	10186	1281.4
10188	1281.94	10190	1282.48	10192	1283.02	10194	1283.56	10196	1284.11
10198	1284.65	10200	1285.19	10202	1285.73	10204	1286.27	10206	1286.81
10208	1287.35	10210	1287.88	10212	1288.34	10214	1287.89	10216	1287.45
10218	1287.02	10220	1286.58	10222	1286.14	10224	1285.71	10226	1285.27
10228	1284.84	10230	1284.41	10232	1284.39	10234	1284.38	10236	1284.37
10238	1284.35	10240	1284.31	10242	1284.28	10244	1284.25	10246	1284.23
10248	1284.21	10250	1284.19	10252	1284.17	10254	1284.15	10256	1284.13
10258	1284.11	10260	1284.09	10262	1284.07	10264	1284.05	10266	1284.03
10268	1284.01	10270	1283.99	10272	1283.97	10274	1283.95	10276	1283.93
10278	1283.91	10280	1283.89	10282	1283.87	10284	1283.85	10286	1283.83
10288	1283.81	10290	1283.79	10292	1283.77	10294	1283.75	10296	1283.72
10298	1283.7	10300	1283.68						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9898	.035	10106	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9898	10106	240.04	240.04	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
9700	9883.26	1281.68	10119.44	10300	1281.68

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 13.183

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
cross- section that does not receive subject flow.
Station Elevation Data num= 206

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1281.86	9702	1281.86	9704	1281.85	9706	1281.84	9708	1281.82
9710	1281.8	9712	1281.78	9714	1281.76	9716	1281.73	9718	1281.71
9720	1281.69	9722	1281.67	9724	1281.65	9726	1281.63	9728	1281.61
9730	1281.59	9732	1281.57	9734	1281.55	9736	1281.53	9738	1281.5
9740	1281.48	9742	1281.46	9744	1281.43	9746	1281.41	9748	1281.38
9750	1281.36	9752	1281.33	9754	1281.31	9756	1281.29	9758	1281.26
9760	1281.24	9762	1281.21	9764	1281.19	9766	1281.17	9768	1281.14
9770	1281.12	9772	1281.09	9774	1281.07	9776	1281.05	9778	1281
9780	1280.97	9782	1280.96	9784	1280.94	9786	1280.91	9788	1280.88
9790	1280.84	9792	1280.81	9794	1280.78	9796	1280.76	9798	1280.73
9800	1280.71	9802	1280.68	9804	1280.63	9806	1280.58	9808	1280.53
9810	1280.48	9812	1280.45	9814	1280.29	9816	1280.14	9818	1280.05
9820	1279.95	9822	1280.14	9824	1280.93	9826	1281.2	9828	1281.34
9830	1281.49	9832	1281.79	9834	1282.04	9836	1282.15	9838	1282.25
9840	1282.36	9842	1282.46	9844	1282.57	9846	1282.62	9848	1282.37
9850	1282.06	9852	1281.75	9854	1281.44	9856	1281.18	9858	1280.97
9860	1280.75	9862	1280.27	9864	1279.85	9866	1279.57	9868	1279.19
9870	1278.79	9872	1278.12	9874	1278.63	9876	1279.13	9878	1279.63
9880	1280.13	9882	1280.42	9884	1280.42	9886	1280.42	9888	1280.41
9890	1280.41	9896	1280.41	9898	1279.5	9900	1278.5	9902	1277.5
9904	1276.5	9906	1275.5	9908	1274.5	9910	1273.58	10090	1273.58
10092	1274.5	10094	1275.5	10096	1276.5	10098	1277.5	10100	1278.5
10102	1279.5	10104	1280.41	10110	1280.41	10112	1280.42	10118	1280.42
10120	1280.12	10122	1279.56	10124	1278.96	10126	1278.36	10128	1277.76
10130	1277.18	10132	1277.6	10134	1278.02	10136	1278.44	10138	1278.86
10140	1279.19	10142	1279.34	10144	1279.49	10146	1279.64	10148	1279.79
10150	1279.94	10152	1280.09	10154	1280.24	10156	1280.39	10158	1280.54
10160	1280.84	10162	1281.23	10164	1281.55	10166	1281.71	10168	1281.86
10170	1282.01	10172	1282.16	10174	1282.31	10176	1282.46	10178	1282.61
10180	1282.76	10182	1282.98	10184	1283.05	10186	1283.1	10188	1283.17
10190	1283.25	10192	1283.32	10194	1283.4	10196	1283.47	10198	1283.35
10200	1283.22	10202	1283.09	10204	1282.97	10206	1283.08	10208	1283.56
10210	1284.1	10212	1284.73	10214	1285.44	10216	1286.15	10218	1286.87
10220	1286.88	10222	1286.4	10224	1285.93	10226	1285.45	10228	1284.96
10230	1284.47	10232	1283.98	10234	1283.5	10236	1283.01	10238	1282.85
10240	1282.84	10242	1282.8	10244	1282.79	10246	1282.79	10248	1282.8
10250	1282.8	10252	1282.74	10254	1282.64	10256	1282.53	10258	1282.43
10260	1282.33	10262	1282.23	10264	1282.14	10266	1282.08	10268	1282.01
10270	1281.94	10272	1281.94	10274	1281.94	10276	1281.93	10278	1281.93
10280	1281.92	10282	1281.92	10284	1281.91	10286	1281.9	10288	1281.9
10290	1281.89	10292	1281.88	10294	1281.87	10296	1281.86	10298	1281.86
10300	1281.85								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9896	.035	10104	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9896	10104	20	20	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
9700	9890	1280	10110	10300	1280

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 13.179

INPUT
Description: Blocked Obstruction used to block flow from that portion of the
cross- section that does not receive subject flow.
Station Elevation Data num= 206

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1281.86	9702	1281.86	9704	1281.85	9706	1281.84	9708	1281.82
9710	1281.8	9712	1281.78	9714	1281.76	9716	1281.73	9718	1281.71
9720	1281.69	9722	1281.67	9724	1281.65	9726	1281.63	9728	1281.61
9730	1281.59	9732	1281.57	9734	1281.55	9736	1281.53	9738	1281.5
9740	1281.48	9742	1281.46	9744	1281.43	9746	1281.41	9748	1281.38
9750	1281.36	9752	1281.33	9754	1281.31	9756	1281.29	9758	1281.26
9760	1281.24	9762	1281.21	9764	1281.19	9766	1281.17	9768	1281.14
9770	1281.12	9772	1281.09	9774	1281.07	9776	1281.05	9778	1281
9780	1280.97	9782	1280.96	9784	1280.94	9786	1280.91	9788	1280.88

9790	1280.84	9792	1280.81	9794	1280.78	9796	1280.76	9798	1280.73
9800	1280.71	9802	1280.68	9804	1280.63	9806	1280.58	9808	1280.53
9810	1280.48	9812	1280.45	9814	1280.29	9816	1280.14	9818	1280.05
9820	1279.95	9822	1280.14	9824	1280.93	9826	1281.2	9828	1281.34
9830	1281.49	9832	1281.79	9834	1282.04	9836	1282.15	9838	1282.25
9840	1282.36	9842	1282.46	9844	1282.57	9846	1282.62	9848	1282.37
9850	1282.06	9852	1281.75	9854	1281.44	9856	1281.18	9858	1280.97
9860	1280.75	9862	1280.27	9864	1279.85	9866	1279.57	9868	1279.19
9870	1278.79	9872	1278.12	9874	1278.63	9876	1279.13	9878	1279.63
9880	1280.13	9882	1280.42	9884	1280.42	9886	1280.42	9888	1280.41
9890	1280.41	9896	1280.41	9898	1279.5	9900	1278.5	9902	1277.5
9904	1276.5	9906	1275.5	9908	1274.5	9910	1273.5	10090	1273.5
10092	1274.5	10094	1275.5	10096	1276.5	10098	1277.5	10100	1278.5
10102	1279.5	10104	1280.41	10110	1280.41	10112	1280.42	10118	1280.42
10120	1280.12	10122	1279.56	10124	1278.96	10126	1278.36	10128	1277.76
10130	1277.18	10132	1277.6	10134	1278.02	10136	1278.44	10138	1278.86
10140	1279.19	10142	1279.34	10144	1279.49	10146	1279.64	10148	1279.79
10150	1279.94	10152	1280.09	10154	1280.24	10156	1280.39	10158	1280.54
10160	1280.84	10162	1281.23	10164	1281.55	10166	1281.71	10168	1281.86
10170	1282.01	10172	1282.16	10174	1282.31	10176	1282.46	10178	1282.61
10180	1282.76	10182	1282.98	10184	1283.05	10186	1283.1	10188	1283.17
10190	1283.25	10192	1283.32	10194	1283.4	10196	1283.47	10198	1283.35
10200	1283.22	10202	1283.09	10204	1282.97	10206	1283.08	10208	1283.56
10210	1284.1	10212	1284.73	10214	1285.44	10216	1286.15	10218	1286.87
10220	1286.88	10222	1286.4	10224	1285.93	10226	1285.45	10228	1284.96
10230	1284.47	10232	1283.98	10234	1283.5	10236	1283.01	10238	1282.85
10240	1282.84	10242	1282.8	10244	1282.79	10246	1282.79	10248	1282.8
10250	1282.8	10252	1282.74	10254	1282.64	10256	1282.53	10258	1282.43
10260	1282.33	10262	1282.23	10264	1282.14	10266	1282.08	10268	1282.01
10270	1281.94	10272	1281.94	10274	1281.94	10276	1281.93	10278	1281.93
10280	1281.92	10282	1281.92	10284	1281.91	10286	1281.9	10288	1281.9
10290	1281.89	10292	1281.88	10294	1281.87	10296	1281.86	10298	1281.86
10300	1281.85								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9896	.035	10104	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9896	10104	20.07	20.07	20.07	.1 .3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
9700	9886.18	1280.46	10115.92	10300	1280.49

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 13.175

INPUT
Description:
Station Elevation Data num= 301

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1279.32	9702	1279.3	9704	1279.29	9706	1279.27	9708	1279.25
9710	1279.23	9712	1279.21	9714	1279.2	9716	1279.18	9718	1279.16
9720	1279.16	9722	1279.16	9724	1279.16	9726	1279.16	9728	1279.15
9730	1279.15	9732	1279.15	9734	1279.15	9736	1279.15	9738	1279.15
9740	1279.14	9742	1279.14	9744	1279.14	9746	1279.11	9748	1279.01
9750	1278.91	9752	1278.81	9754	1278.71	9756	1278.62	9758	1278.6
9760	1278.58	9762	1278.56	9764	1278.53	9766	1278.51	9768	1278.49
9770	1278.47	9772	1278.44	9774	1278.42	9776	1278.4	9778	1278.38
9780	1278.36	9782	1278.33	9784	1278.31	9786	1278.29	9788	1278.27
9790	1278.25	9792	1278.22	9794	1278.2	9796	1278.18	9798	1278.12
9800	1278.05	9802	1277.97	9804	1277.89	9806	1277.81	9808	1277.73
9810	1277.65	9812	1277.57	9814	1276.78	9816	1276.58	9818	1276.46
9820	1276.35	9822	1276.23	9824	1276.18	9826	1276.19	9828	1276.21
9830	1276.23	9832	1276.25	9834	1276.27	9836	1276.29	9838	1276.31
9840	1276.33	9842	1276.35	9844	1276.37	9846	1276.39	9848	1276.41
9850	1276.43	9852	1276.45	9854	1276.44	9856	1276.3	9858	1276.17
9860	1276.04	9862	1275.9	9864	1275.77	9866	1275.77	9868	1275.8
9870	1275.84	9872	1275.5	9874	1275	9876	1275	9878	1275
9880	1275	9882	1275	9884	1275	9886	1275	9888	1275
9890	1275.03	9892	1274.4	9894	1273.4	9896	1272.4	9898	1271.4
9900	1270.4	9902	1269.4	9904	1268.4	9906	1267.4	9908	1266.06
9910	1264.5	9912	1264.5	9914	1264.5	9916	1264.5	9918	1264.5
9920	1264.5	9922	1264.5	9924	1264.5	9926	1264.5	9928	1264.5
9930	1264.5	9932	1264.5	9934	1264.5	9936	1264.5	9938	1264.5
9940	1264.5	9942	1264.5	9944	1264.5	9946	1264.5	9948	1264.5

9950	1264.5	9952	1264.5	9954	1264.5	9956	1264.5	9958	1264.5
9960	1264.5	9962	1264.5	9964	1264.5	9966	1264.5	9968	1264.5
9970	1264.5	9972	1264.5	9974	1264.5	9976	1264.5	9978	1264.5
9980	1264.5	9982	1264.5	9984	1264.5	9986	1264.5	9988	1264.5
9990	1264.5	9992	1264.5	9994	1264.5	9996	1264.5	9998	1264.5
10000	1264.5	10002	1264.5	10004	1264.51	10006	1264.51	10008	1264.51
10010	1264.51	10012	1264.52	10014	1264.52	10016	1264.52	10018	1264.52
10020	1264.52	10022	1264.53	10024	1264.53	10026	1264.53	10028	1264.53
10030	1264.54	10032	1264.54	10034	1264.54	10036	1264.54	10038	1264.55
10040	1264.55	10042	1264.55	10044	1264.55	10046	1264.55	10048	1264.56
10050	1264.56	10052	1264.56	10054	1264.56	10056	1264.57	10058	1264.57
10060	1264.57	10062	1264.57	10064	1264.57	10066	1264.58	10068	1264.58
10070	1264.58	10072	1264.58	10074	1264.59	10076	1264.59	10078	1264.59
10080	1264.59	10082	1264.6	10084	1264.6	10086	1264.6	10088	1264.6
10090	1264.6	10092	1265.59	10094	1266.6	10096	1267.6	10098	1268.63
10100	1269.66	10102	1270.69	10104	1271.72	10106	1272.75	10108	1273.78
10110	1274.81	10112	1275	10114	1275	10116	1275	10118	1275
10120	1275	10122	1275	10124	1275	10126	1275	10128	1275.51
10130	1276.01	10132	1276.51	10134	1277	10136	1277.5	10138	1278
10140	1278.23	10142	1278.45	10144	1278.59	10146	1278.73	10148	1278.87
10150	1279.01	10152	1279.15	10154	1279.31	10156	1279.47	10158	1279.62
10160	1279.78	10162	1279.94	10164	1280.09	10166	1280.25	10168	1280.41
10170	1280.56	10172	1280.72	10174	1280.88	10176	1281.03	10178	1281.15
10180	1281.26	10182	1281.37	10184	1281.48	10186	1281.65	10188	1281.83
10190	1282.01	10192	1282.16	10194	1282.3	10196	1282.44	10198	1282.58
10200	1282.68	10202	1282.78	10204	1282.88	10206	1282.97	10208	1283.07
10210	1283.17	10212	1283.26	10214	1283.36	10216	1283.25	10218	1283.6
10220	1283.53	10222	1282.87	10224	1282.59	10226	1282.62	10228	1282.66
10230	1282.7	10232	1282.74	10234	1282.78	10236	1282.82	10238	1282.84
10240	1282.82	10242	1282.79	10244	1282.76	10246	1282.74	10248	1282.71
10250	1282.68	10252	1282.62	10254	1282.52	10256	1282.43	10258	1282.33
10260	1282.24	10262	1282.14	10264	1282.05	10266	1281.95	10268	1281.82
10270	1281.8	10272	1281.81	10274	1281.81	10276	1281.81	10278	1281.81
10280	1281.81	10282	1281.81	10284	1281.81	10286	1281.81	10288	1281.81
10290	1281.81	10292	1281.81	10294	1281.81	10296	1281.82	10298	1281.82
10300	1281.82								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9890	.035	10110	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9890	10110	50	50	.1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 13.166

INPUT
Description:
Station Elevation Data num= 213

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1280.85	9702	1280.85	9704	1280.85	9706	1280.85	9708	1280.84
9710	1280.84	9712	1280.84	9714	1280.84	9716	1280.84	9718	1280.83
9720	1280.83	9722	1280.83	9724	1280.83	9726	1280.83	9728	1280.79
9730	1280.75	9732	1280.71	9734	1280.67	9736	1280.63	9738	1280.59
9740	1280.55	9742	1280.51	9744	1280.46	9746	1280.42	9748	1280.38
9750	1280.34	9752	1280.3	9754	1280.26	9756	1280.22	9758	1280.18
9760	1280.14	9762	1280.1	9764	1280.06	9766	1280.02	9768	1279.98
9770	1279.93	9772	1279.88	9774	1279.81	9776	1279.73	9778	1279.66
9780	1279.58	9782	1279.5	9784	1279.43	9786	1279.35	9788	1279.27
9790	1279.2	9792	1279.12	9794	1279.05	9796	1278.97	9798	1278.89
9800	1278.82	9802	1278.74	9804	1278.67	9806	1278.59	9808	1278.51
9810	1278.44	9812	1278.36	9814	1278.29	9816	1278.21	9818	1278.13
9820	1278.06	9822	1277.98	9824	1277.91	9826	1277.83	9828	1277.76
9830	1277.68	9832	1277.6	9834	1277.53	9836	1277.45	9838	1277.38
9840	1277.3	9842	1277.23	9844	1277.15	9846	1277.08	9848	1277
9850	1276.93	9852	1276.85	9854	1276.77	9856	1276.7	9858	1276.62
9860	1276.55	9862	1276.48	9864	1276.41	9866	1276.35	9868	1276.29
9870	1275.89	9872	1275.39	9874	1275	9876	1275	9878	1275
9880	1275	9882	1275	9884	1275	9886	1275	9888	1275
9890	1274.28	9892	1273.28	9894	1272.28	9896	1271.28	9898	1270.28
9900	1269.28	9902	1268.28	9904	1267.28	9906	1266.28	9908	1265.28
9910	1264.36	9912	1264.36	10090	1264.36	10092	1265.28	10094	1266.28
10096	1267.28	10098	1268.28	10100	1269.28	10102	1270.28	10104	1271.28
10106	1272.28	10108	1273.28	10110	1274.28	10112	1275	10114	1275
10116	1275	10118	1275	10120	1275	10122	1275	10124	1275

10126	1275	10128	1275.39	10130	1275.89	10132	1276.39	10134	1276.79
10136	1276.85	10138	1276.92	10140	1276.99	10142	1277.08	10144	1277.2
10146	1277.32	10148	1277.44	10150	1277.55	10152	1277.67	10154	1277.79
10156	1277.91	10158	1278.02	10160	1278.14	10162	1278.26	10164	1278.37
10166	1278.47	10168	1278.58	10170	1278.68	10172	1278.79	10174	1278.9
10176	1279.01	10178	1279.12	10180	1279.23	10182	1279.34	10184	1279.45
10186	1279.56	10188	1279.67	10190	1279.78	10192	1279.89	10194	1280
10196	1280.11	10198	1280.23	10200	1280.32	10202	1280.41	10204	1280.5
10206	1280.59	10208	1280.68	10210	1280.76	10212	1280.82	10214	1280.88
10216	1280.94	10218	1281	10220	1281.06	10222	1281.12	10224	1281.18
10226	1281.24	10228	1281.31	10230	1281.38	10232	1281.46	10234	1281.52
10236	1281.54	10238	1281.56	10240	1281.58	10242	1281.59	10244	1281.61
10246	1281.63	10248	1281.65	10250	1281.67	10252	1281.68	10254	1281.69
10256	1281.7	10258	1281.7	10260	1281.7	10262	1281.7	10264	1281.7
10266	1281.7	10268	1281.7	10270	1281.7	10272	1281.7	10274	1281.7
10276	1281.7	10278	1281.7	10280	1281.7	10282	1281.69	10284	1281.69
10286	1281.69	10288	1281.69	10290	1281.69	10292	1281.68	10294	1281.67
10296	1281.67	10298	1281.66	10300	1281.65				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9888	.035	10112	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9888	10112	26.37	26.37	.1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 13.161

INPUT
Description:

Station Elevation Data num= 301

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1280.85	9702	1280.85	9704	1280.85	9706	1280.85	9708	1280.84
9710	1280.84	9712	1280.84	9714	1280.84	9716	1280.84	9718	1280.83
9720	1280.83	9722	1280.83	9724	1280.83	9726	1280.83	9728	1280.79
9730	1280.75	9732	1280.71	9734	1280.67	9736	1280.63	9738	1280.59
9740	1280.55	9742	1280.51	9744	1280.46	9746	1280.42	9748	1280.38
9750	1280.34	9752	1280.3	9754	1280.26	9756	1280.22	9758	1280.18
9760	1280.14	9762	1280.1	9764	1280.06	9766	1280.02	9768	1279.98
9770	1279.93	9772	1279.88	9774	1279.81	9776	1279.73	9778	1279.66
9780	1279.58	9782	1279.5	9784	1279.43	9786	1279.35	9788	1279.27
9790	1279.2	9792	1279.12	9794	1279.05	9796	1278.97	9798	1278.89
9800	1278.82	9802	1278.74	9804	1278.67	9806	1278.59	9808	1278.51
9810	1278.44	9812	1278.36	9814	1278.29	9816	1278.21	9818	1278.13
9820	1278.06	9822	1277.98	9824	1277.91	9826	1277.83	9828	1277.76
9830	1277.68	9832	1277.6	9834	1277.53	9836	1277.45	9838	1277.38
9840	1277.3	9842	1277.23	9844	1277.15	9846	1277.08	9848	1277
9850	1276.93	9852	1276.85	9854	1276.77	9856	1276.7	9858	1276.62
9860	1276.55	9862	1276.48	9864	1276.41	9866	1276.35	9868	1276.29
9870	1275.89	9872	1275.39	9874	1275	9876	1275	9878	1275
9880	1275	9882	1275	9884	1275	9886	1275	9888	1275
9890	1274.28	9892	1273.28	9894	1272.28	9896	1271.28	9898	1270.28
9900	1269.28	9902	1268.28	9904	1267.28	9906	1266.28	9908	1265.28
9910	1264.28	9912	1264.28	9914	1264.28	9916	1264.28	9918	1264.28
9920	1264.28	9922	1264.28	9924	1264.28	9926	1264.28	9928	1264.28
9930	1264.28	9932	1264.28	9934	1264.28	9936	1264.28	9938	1264.28
9940	1264.28	9942	1264.28	9944	1264.28	9946	1264.28	9948	1264.28
9950	1264.28	9952	1264.28	9954	1264.28	9956	1264.28	9958	1264.28
9960	1264.28	9962	1264.28	9964	1264.28	9966	1264.28	9968	1264.28
9970	1264.28	9972	1264.28	9974	1264.28	9976	1264.28	9978	1264.28
9980	1264.28	9982	1264.28	9984	1264.28	9986	1264.28	9988	1264.28
9990	1264.28	9992	1264.28	9994	1264.28	9996	1264.28	9998	1264.28
10000	1264.28	10002	1264.28	10004	1264.28	10006	1264.28	10008	1264.28
10010	1264.28	10012	1264.28	10014	1264.28	10016	1264.28	10018	1264.28
10020	1264.28	10022	1264.28	10024	1264.28	10026	1264.28	10028	1264.28
10030	1264.28	10032	1264.28	10034	1264.28	10036	1264.28	10038	1264.28
10040	1264.28	10042	1264.28	10044	1264.28	10046	1264.28	10048	1264.28
10050	1264.28	10052	1264.28	10054	1264.28	10056	1264.28	10058	1264.28
10060	1264.28	10062	1264.28	10064	1264.28	10066	1264.28	10068	1264.28
10070	1264.28	10072	1264.28	10074	1264.28	10076	1264.28	10078	1264.28
10080	1264.28	10082	1264.28	10084	1264.28	10086	1264.28	10088	1264.28
10090	1264.28	10092	1265.28	10094	1266.28	10096	1267.28	10098	1268.28

10100	1269.28	10102	1270.28	10104	1271.28	10106	1272.28	10108	1273.28
10110	1274.28	10112	1275	10114	1275	10116	1275	10118	1275
10120	1275	10122	1275	10124	1275	10126	1275	10128	1275.39
10130	1275.89	10132	1276.39	10134	1276.79	10136	1276.85	10138	1276.92
10140	1276.99	10142	1277.08	10144	1277.2	10146	1277.32	10148	1277.44
10150	1277.55	10152	1277.67	10154	1277.79	10156	1277.91	10158	1278.02
10160	1278.14	10162	1278.26	10164	1278.37	10166	1278.47	10168	1278.58
10170	1278.68	10172	1278.79	10174	1278.9	10176	1279.01	10178	1279.12
10180	1279.23	10182	1279.34	10184	1279.45	10186	1279.56	10188	1279.67
10190	1279.78	10192	1279.89	10194	1280	10196	1280.11	10198	1280.23
10200	1280.32	10202	1280.41	10204	1280.5	10206	1280.59	10208	1280.68
10210	1280.76	10212	1280.82	10214	1280.88	10216	1280.94	10218	1281
10220	1281.06	10222	1281.12	10224	1281.18	10226	1281.24	10228	1281.31
10230	1281.38	10232	1281.46	10234	1281.52	10236	1281.54	10238	1281.56
10240	1281.58	10242	1281.59	10244	1281.61	10246	1281.63	10248	1281.65
10250	1281.67	10252	1281.68	10254	1281.69	10256	1281.7	10258	1281.7
10260	1281.7	10262	1281.7	10264	1281.7	10266	1281.7	10268	1281.7
10270	1281.7	10272	1281.7	10274	1281.7	10276	1281.7	10278	1281.7
10280	1281.7	10282	1281.69	10284	1281.69	10286	1281.69	10288	1281.69
10290	1281.69	10292	1281.68	10294	1281.67	10296	1281.67	10298	1281.66
10300	1281.65								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9888	.035	10112	.06

Bank Sta: Left	Right	Lengths: Left Channel		Right	Coeff Contr.	Expan.
9888	10112	50.56	50.56	50.56	.1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 13.151

INPUT
Description: Blocked Obstruction used to block flow from that portion of the cross- section that does not receive subject flow.

Station Elevation Data num= 301

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1278.76	9702	1278.64	9704	1278.59	9706	1278.54	9708	1278.5
9710	1278.46	9712	1278.41	9714	1278.37	9716	1278.32	9718	1278.34
9720	1278.39	9722	1278.57	9724	1278.77	9726	1278.97	9728	1278.54
9730	1277.84	9732	1277.13	9734	1276.42	9736	1275.7	9738	1274.96
9740	1274.25	9742	1273.33	9744	1272.58	9746	1272.03	9748	1271.48
9750	1270.92	9752	1270.37	9754	1269.96	9756	1269.82	9758	1269.66
9760	1269.45	9762	1269.25	9764	1269.04	9766	1268.83	9768	1268.63
9770	1268.43	9772	1268.38	9774	1268.27	9776	1268.09	9778	1267.9
9780	1267.71	9782	1267.43	9784	1267.05	9786	1266.67	9788	1266.21
9790	1265.88	9792	1265.79	9794	1265.7	9796	1265.6	9798	1265.51
9800	1265.4	9802	1265.21	9804	1265.09	9806	1264.97	9808	1264.83
9810	1264.7	9812	1264.52	9814	1264.31	9816	1264.1	9818	1263.86
9820	1263.62	9822	1263.5	9824	1263.42	9826	1263.35	9828	1263.68
9830	1264.18	9832	1264.68	9834	1265.18	9836	1265.68	9838	1266.18
9840	1266.68	9842	1267.18	9844	1267.68	9846	1268.18	9848	1268.68
9850	1269.18	9852	1269.68	9854	1270.18	9856	1270.68	9858	1271.18
9860	1271.68	9862	1272.18	9864	1272.68	9866	1273.18	9868	1273.68
9870	1274.18	9872	1274.68	9874	1275	9876	1275	9878	1275
9880	1275	9882	1275	9884	1275	9886	1275	9888	1275
9890	1274.14	9892	1273.14	9894	1272.14	9896	1271.14	9898	1270.14
9900	1269.14	9902	1268.14	9904	1267.14	9906	1266.14	9908	1265.14
9910	1264.14	9912	1264.14	9914	1264.14	9916	1264.14	9918	1264.14
9920	1264.14	9922	1264.14	9924	1264.14	9926	1264.14	9928	1264.14
9930	1264.14	9932	1264.14	9934	1264.14	9936	1264.14	9938	1264.14
9940	1264.14	9942	1264.14	9944	1264.14	9946	1264.14	9948	1264.14
9950	1264.14	9952	1264.14	9954	1264.14	9956	1264.14	9958	1264.14
9960	1264.14	9962	1264.14	9964	1264.14	9966	1264.14	9968	1264.14
9970	1264.14	9972	1264.14	9974	1264.14	9976	1264.14	9978	1264.14
9980	1264.14	9982	1264.14	9984	1264.14	9986	1264.14	9988	1264.14
9990	1264.14	9992	1264.14	9994	1264.14	9996	1264.14	9998	1264.14
10000	1264.14	10002	1264.14	10004	1264.14	10006	1264.14	10008	1264.14
10010	1264.13	10012	1264.13	10014	1264.13	10016	1264.13	10018	1264.13
10020	1264.13	10022	1264.13	10024	1264.13	10026	1264.13	10028	1264.13
10030	1264.13	10032	1264.13	10034	1264.13	10036	1264.13	10038	1264.13
10040	1264.13	10042	1264.13	10044	1264.13	10046	1264.13	10048	1264.13

10050	1264.13	10052	1264.13	10054	1264.13	10056	1264.13	10058	1264.13
10060	1264.13	10062	1264.13	10064	1264.13	10066	1264.13	10068	1264.13
10070	1264.13	10072	1264.13	10074	1264.13	10076	1264.13	10078	1264.13
10080	1264.13	10082	1264.13	10084	1264.13	10086	1264.13	10088	1264.13
10090	1264.13	10092	1265.13	10094	1266.13	10096	1267.13	10098	1268.13
10100	1269.13	10102	1270.13	10104	1271.13	10106	1272.13	10108	1273.13
10110	1274.13	10112	1275	10114	1275	10116	1275	10118	1275
10120	1275	10122	1275	10124	1275	10126	1275	10128	1274.68
10130	1274.18	10132	1273.68	10134	1273.18	10136	1272.68	10138	1272.18
10140	1271.68	10142	1271.65	10144	1271.83	10146	1271.98	10148	1272.13
10150	1272.28	10152	1272.43	10154	1272.58	10156	1272.81	10158	1273.13
10160	1273.99	10162	1274.84	10164	1275.69	10166	1276.53	10168	1277.34
10170	1278.5	10172	1279.95	10174	1280.94	10176	1280.32	10178	1279.7
10180	1279.07	10182	1278.95	10184	1279	10186	1279.05	10188	1279.15
10190	1279.22	10192	1279.3	10194	1279.32	10196	1279.35	10198	1279.43
10200	1279.51	10202	1279.57	10204	1279.61	10206	1279.65	10208	1279.68
10210	1279.7	10212	1279.72	10214	1279.74	10216	1279.77	10218	1279.79
10220	1279.81	10222	1279.83	10224	1279.86	10226	1279.88	10228	1279.9
10230	1279.92	10232	1279.95	10234	1279.97	10236	1279.99	10238	1280.01
10240	1280.04	10242	1280.07	10244	1280.1	10246	1280.11	10248	1280.13
10250	1280.14	10252	1280.15	10254	1280.17	10256	1280.18	10258	1280.18
10260	1280.18	10262	1280.18	10264	1280.18	10266	1280.18	10268	1280.2
10270	1280.23	10272	1280.26	10274	1280.29	10276	1280.29	10278	1280.29
10280	1280.29	10282	1280.29	10284	1280.28	10286	1280.28	10288	1280.28
10290	1280.28	10292	1280.28	10294	1280.28	10296	1280.27	10298	1280.27
10300	1280.27								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9888	.035	10112	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9888	10112	385.89	385.89	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
9700	9873.54	1274.96	10123.65	10300	1274.91

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 13.076

INPUT
Description: Blocked Obstruction used to block flow from that portion of the cross- section that does not receive subject flow.
Station Elevation Data num= 301

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1265.49	9702	1265.42	9704	1265.35	9706	1265.28	9708	1265.2
9710	1265.14	9712	1265.08	9714	1265.03	9716	1264.97	9718	1264.91
9720	1264.86	9722	1264.8	9724	1264.74	9726	1264.69	9728	1264.64
9730	1264.61	9732	1264.59	9734	1264.59	9736	1264.59	9738	1264.6
9740	1264.59	9742	1264.58	9744	1264.57	9746	1264.57	9748	1264.56
9750	1264.56	9752	1264.56	9754	1264.55	9756	1264.55	9758	1264.52
9760	1264.46	9762	1264.43	9764	1264.39	9766	1264.35	9768	1264.31
9770	1264.28	9772	1264.2	9774	1264.11	9776	1264.03	9778	1263.94
9780	1263.86	9782	1263.76	9784	1263.84	9786	1263.93	9788	1263.94
9790	1263.86	9792	1263.74	9794	1263.69	9796	1263.66	9798	1263.63
9800	1263.59	9802	1263.52	9804	1263.45	9806	1263.38	9808	1263.32
9810	1263.29	9812	1263.27	9814	1263.24	9816	1263.21	9818	1263.17
9820	1263.2	9822	1263.23	9824	1263.3	9826	1263.68	9828	1264.18
9830	1264.68	9832	1265.18	9834	1265.68	9836	1266.18	9838	1266.68
9840	1267.18	9842	1267.68	9844	1268.18	9846	1268.68	9848	1269.18
9850	1269.68	9852	1270.18	9854	1270.68	9856	1271.18	9858	1271.68
9860	1272.18	9862	1272.68	9864	1273.18	9866	1273.68	9868	1274.18
9870	1274.68	9872	1275	9874	1275	9876	1275	9878	1275
9880	1275	9882	1275	9884	1275	9886	1275	9888	1274.14
9890	1273.14	9892	1272.14	9894	1271.14	9896	1270.14	9898	1269.14
9900	1268.14	9902	1267.14	9904	1266.14	9906	1265.14	9908	1264.14
9910	1263.14	9912	1263.14	9914	1263.14	9916	1263.14	9918	1263.14
9920	1263.14	9922	1263.14	9924	1263.14	9926	1263.14	9928	1263.14
9930	1263.14	9932	1263.14	9934	1263.14	9936	1263.15	9938	1263.15
9940	1263.15	9942	1263.15	9944	1263.15	9946	1263.15	9948	1263.15
9950	1263.15	9952	1263.15	9954	1263.15	9956	1263.15	9958	1263.15
9960	1263.15	9962	1263.15	9964	1263.15	9966	1263.15	9968	1263.16
9970	1263.16	9972	1263.16	9974	1263.16	9976	1263.16	9978	1263.16
9980	1263.16	9982	1263.16	9984	1263.16	9986	1263.16	9988	1263.16
9990	1263.16	9992	1263.16	9994	1263.16	9996	1263.16	9998	1263.16
10000	1263.16	10002	1263.17	10004	1263.17	10006	1263.17	10008	1263.17

10010	1263.17	10012	1263.17	10014	1263.17	10016	1263.17	10018	1263.17
10020	1263.17	10022	1263.17	10024	1263.17	10026	1263.17	10028	1263.17
10030	1263.17	10032	1263.17	10034	1263.18	10036	1263.18	10038	1263.18
10040	1263.18	10042	1263.18	10044	1263.18	10046	1263.18	10048	1263.18
10050	1263.18	10052	1263.18	10054	1263.18	10056	1263.18	10058	1263.18
10060	1263.18	10062	1263.18	10064	1263.18	10066	1263.18	10068	1263.19
10070	1263.19	10072	1263.19	10074	1263.19	10076	1263.19	10078	1263.19
10080	1263.19	10082	1263.19	10084	1263.19	10086	1263.19	10088	1263.19
10090	1263.19	10092	1264.19	10094	1265.19	10096	1266.19	10098	1267.19
10100	1268.19	10102	1269.19	10104	1270.19	10106	1271.19	10108	1272.19
10110	1273.19	10112	1274.19	10114	1275	10116	1275	10118	1275
10120	1275	10122	1275	10124	1275	10126	1275	10128	1275
10130	1275.35	10132	1275.85	10134	1276.35	10136	1276.85	10138	1277.35
10140	1277.85	10142	1278.24	10144	1278.22	10146	1278.19	10148	1278.17
10150	1278.14	10152	1278.08	10154	1277.97	10156	1277.87	10158	1277.84
10160	1277.89	10162	1277.97	10164	1278.05	10166	1278.1	10168	1278.13
10170	1278.16	10172	1278.19	10174	1278.22	10176	1278.25	10178	1278.28
10180	1278.31	10182	1278.33	10184	1278.36	10186	1278.39	10188	1278.42
10190	1278.45	10192	1278.48	10194	1278.51	10196	1278.54	10198	1278.56
10200	1278.59	10202	1278.62	10204	1278.65	10206	1278.68	10208	1278.71
10210	1278.74	10212	1278.76	10214	1278.79	10216	1278.82	10218	1278.85
10220	1278.88	10222	1278.91	10224	1278.94	10226	1278.97	10228	1278.99
10230	1279.02	10232	1279.05	10234	1279.08	10236	1279.1	10238	1279.13
10240	1279.14	10242	1279.15	10244	1279.16	10246	1279.17	10248	1279.18
10250	1279.19	10252	1279.2	10254	1279.21	10256	1279.22	10258	1279.22
10260	1279.23	10262	1279.24	10264	1279.24	10266	1279.25	10268	1279.26
10270	1279.26	10272	1279.27	10274	1279.51	10276	1279.75	10278	1279.99
10280	1280.23	10282	1280.47	10284	1280.7	10286	1280.94	10288	1281.18
10290	1281.42	10292	1281.66	10294	1281.9	10296	1282.14	10298	1282.37
10300	1282.61								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9886	.035	10114	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9886	10114	450.81	450.81	450.81	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
9700	9880	1272

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 12.991

INPUT
Description: Blocked Obstruction used to block flow from that portion of the cross- section that does not receive subject flow.

Station Elevation Data num= 301

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1276.92	9702	1276.93	9704	1276.94	9706	1276.99	9708	1277
9710	1277.02	9712	1277.04	9714	1277.06	9716	1277.08	9718	1277.1
9720	1277.12	9722	1277.14	9724	1277.16	9726	1277.19	9728	1277.21
9730	1277.23	9732	1277.26	9734	1277.28	9736	1277.31	9738	1277.33
9740	1277.36	9742	1277.34	9744	1276.51	9746	1275.51	9748	1274.51
9750	1273.51	9752	1272.5	9754	1271.5	9756	1270.59	9758	1269.68
9760	1268.77	9762	1267.85	9764	1266.94	9766	1266.03	9768	1265.11
9770	1264.45	9772	1264.43	9774	1264.41	9776	1264.39	9778	1264.37
9780	1264.35	9782	1264.33	9784	1264.31	9786	1264.29	9788	1264.27
9790	1264.25	9792	1264.23	9794	1264.21	9796	1264.19	9798	1264.18
9800	1264.16	9802	1264.14	9804	1264.12	9806	1264.1	9808	1264.08
9810	1264.06	9812	1264.04	9814	1264.02	9816	1264	9818	1263.98
9820	1263.96	9822	1263.94	9824	1263.92	9826	1263.9	9828	1263.88
9830	1264.31	9832	1264.81	9834	1265.31	9836	1265.81	9838	1266.31
9840	1266.81	9842	1267.31	9844	1267.81	9846	1268.31	9848	1268.81
9850	1269.31	9852	1269.81	9854	1270.31	9856	1270.81	9858	1271.31
9860	1271.81	9862	1272.31	9864	1272.81	9866	1273.31	9868	1273.81
9870	1274.31	9872	1274.37	9874	1274.37	9876	1274.37	9878	1274.37
9880	1274.37	9882	1274.37	9884	1274.37	9886	1273.98	9888	1272.98
9890	1271.98	9892	1270.98	9894	1269.98	9896	1268.98	9898	1267.98
9900	1266.98	9902	1265.98	9904	1264.98	9906	1263.98	9908	1262.98
9910	1261.98	9912	1261.99	9914	1261.99	9916	1261.99	9918	1261.99
9920	1262	9922	1262	9924	1262	9926	1262.01	9928	1262.01
9930	1262.01	9932	1262.01	9934	1262.02	9936	1262.02	9938	1262.02
9940	1262.02	9942	1262.03	9944	1262.03	9946	1262.03	9948	1262.04
9950	1262.04	9952	1262.04	9954	1262.04	9956	1262.05	9958	1262.05
9960	1262.05	9962	1262.05	9964	1262.06	9966	1262.06	9968	1262.06

9970	1262.07	9972	1262.07	9974	1262.07	9976	1262.07	9978	1262.08
9980	1262.08	9982	1262.08	9984	1262.08	9986	1262.09	9988	1262.09
9990	1262.09	9992	1262.1	9994	1262.1	9996	1262.1	9998	1262.1
10000	1262.11	10002	1262.11	10004	1262.11	10006	1262.11	10008	1262.12
10010	1262.12	10012	1262.12	10014	1262.13	10016	1262.13	10018	1262.13
10020	1262.13	10022	1262.14	10024	1262.14	10026	1262.14	10028	1262.14
10030	1262.15	10032	1262.15	10034	1262.15	10036	1262.16	10038	1262.16
10040	1262.16	10042	1262.16	10044	1262.17	10046	1262.17	10048	1262.17
10050	1262.17	10052	1262.18	10054	1262.18	10056	1262.18	10058	1262.19
10060	1262.19	10062	1262.19	10064	1262.19	10066	1262.2	10068	1262.2
10070	1262.2	10072	1262.2	10074	1262.21	10076	1262.21	10078	1262.21
10080	1262.22	10082	1262.22	10084	1262.22	10086	1262.22	10088	1262.23
10090	1262.23	10092	1263.23	10094	1264.23	10096	1265.23	10098	1266.23
10100	1267.23	10102	1268.23	10104	1269.23	10106	1270.23	10108	1271.23
10110	1272.23	10112	1273.23	10114	1274.23	10116	1274.49	10118	1274.49
10120	1274.49	10122	1274.49	10124	1274.49	10126	1274.49	10128	1274.49
10130	1274.37	10132	1273.87	10134	1273.37	10136	1272.87	10138	1272.37
10140	1271.87	10142	1271.37	10144	1270.87	10146	1270.37	10148	1269.87
10150	1269.37	10152	1268.87	10154	1268.37	10156	1267.87	10158	1267.37
10160	1266.87	10162	1266.37	10164	1265.87	10166	1265.37	10168	1264.87
10170	1264.37	10172	1263.87	10174	1263.37	10176	1262.87	10178	1262.37
10180	1262.37	10182	1262.37	10184	1262.37	10186	1262.37	10188	1262.37
10190	1262.37	10192	1262.37	10194	1262.37	10196	1262.37	10198	1262.37
10200	1262.37	10202	1262.37	10204	1262.39	10206	1262.53	10208	1262.68
10210	1262.83	10212	1262.98	10214	1263.12	10216	1263.25	10218	1263.39
10220	1263.47	10222	1263.83	10224	1264.21	10226	1264.58	10228	1264.98
10230	1265.38	10232	1265.79	10234	1266.19	10236	1266.59	10238	1266.99
10240	1267.39	10242	1267.8	10244	1268.2	10246	1268.6	10248	1269
10250	1269.4	10252	1269.81	10254	1270.21	10256	1270.61	10258	1270.05
10260	1269.32	10262	1268.58	10264	1267.85	10266	1267.09	10268	1266.25
10270	1265.41	10272	1266.46	10274	1267.51	10276	1268.51	10278	1269.51
10280	1270.5	10282	1271.5	10284	1272.5	10286	1273.12	10288	1273.17
10290	1273.22	10292	1273.27	10294	1273.32	10296	1273.37	10298	1273.41
10300	1273.46								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9884	.035	10114	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9884	10114	550.48	550.48	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
9700	9879.53	127110120.47		10300	1271

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 12.896

INPUT
Description: Blocked Obstruction used to block flow from that portion of the cross- section that does not receive subject flow.

Station Elevation Data num= 301

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1275.09	9702	1275.19	9704	1275.28	9706	1275.37	9708	1275.47
9710	1275.56	9712	1275.66	9714	1275.75	9716	1275.85	9718	1275.94
9720	1276.03	9722	1276.13	9724	1276.22	9726	1276.32	9728	1276.41
9730	1276.5	9732	1276.6	9734	1276.7	9736	1276.8	9738	1276.85
9740	1276.85	9742	1276.85	9744	1276.85	9746	1276.85	9748	1276.84
9750	1276.84	9752	1276.84	9754	1276.84	9756	1276.84	9758	1276.83
9760	1276.83	9762	1276.83	9764	1276.83	9766	1276.83	9768	1276.83
9770	1276.82	9772	1276.82	9774	1276.82	9776	1276.82	9778	1276.82
9780	1276.82	9782	1276.81	9784	1276.81	9786	1276.81	9788	1276.82
9790	1276.84	9792	1276.87	9794	1276.9	9796	1276.93	9798	1276.96
9800	1276.99	9802	1277.03	9804	1277.12	9806	1277.24	9808	1277.37
9810	1277.5	9812	1277.62	9814	1277.75	9816	1277.89	9818	1278.02
9820	1278.17	9822	1278.3	9824	1278.4	9826	1278.48	9828	1278.56
9830	1278.65	9832	1278.73	9834	1278.81	9836	1278.89	9838	1278.98
9840	1279.06	9842	1279.14	9844	1279.25	9846	1279	9848	1278.5
9850	1278	9852	1277.5	9854	1277	9856	1276.5	9858	1276
9860	1275.5	9862	1275	9864	1274.5	9866	1274	9868	1273.5
9870	1273	9872	1272.55	9874	1272.55	9876	1272.55	9878	1272.55
9880	1272.55	9882	1272.55	9884	1272.55	9886	1272.55	9888	1271.95
9890	1270.95	9892	1269.95	9894	1268.95	9896	1267.95	9898	1266.95
9900	1265.95	9902	1264.95	9904	1263.95	9906	1262.95	9908	1261.95
9910	1260.95	9912	1260.96	9914	1260.96	9916	1260.96	9918	1260.97
9920	1260.97	9922	1260.97	9924	1260.97	9926	1260.98	9928	1260.98

9930	1260.98	9932	1260.99	9934	1260.99	9936	1260.99	9938	1261
9940	1261	9942	1261	9944	1261	9946	1261.01	9948	1261.01
9950	1261.01	9952	1261.02	9954	1261.02	9956	1261.02	9958	1261.03
9960	1261.03	9962	1261.03	9964	1261.04	9966	1261.04	9968	1261.04
9970	1261.04	9972	1261.05	9974	1261.05	9976	1261.05	9978	1261.06
9980	1261.06	9982	1261.06	9984	1261.07	9986	1261.07	9988	1261.07
9990	1261.07	9992	1261.08	9994	1261.08	9996	1261.08	9998	1261.09
10000	1261.09	10002	1261.09	10004	1261.1	10006	1261.1	10008	1261.1
10010	1261.1	10012	1261.11	10014	1261.11	10016	1261.11	10018	1261.12
10020	1261.12	10022	1261.12	10024	1261.13	10026	1261.13	10028	1261.13
10030	1261.13	10032	1261.14	10034	1261.14	10036	1261.14	10038	1261.15
10040	1261.15	10042	1261.15	10044	1261.16	10046	1261.16	10048	1261.16
10050	1261.16	10052	1261.17	10054	1261.17	10056	1261.17	10058	1261.18
10060	1261.18	10062	1261.18	10064	1261.19	10066	1261.19	10068	1261.19
10070	1261.19	10072	1261.2	10074	1261.2	10076	1261.2	10078	1261.21
10080	1261.21	10082	1261.21	10084	1261.22	10086	1261.22	10088	1261.22
10090	1261.23	10092	1262.23	10094	1263.23	10096	1264.23	10098	1265.23
10100	1266.23	10102	1267.23	10104	1268.23	10106	1269.23	10108	1270.23
10110	1271.23	10112	1272.23	10114	1272.74	10116	1272.74	10118	1272.74
10120	1272.74	10122	1272.74	10124	1272.74	10126	1272.74	10128	1272.74
10130	1272.25	10132	1271.75	10134	1271.25	10136	1270.75	10138	1270.25
10140	1269.75	10142	1269.25	10144	1268.75	10146	1268.25	10148	1267.75
10150	1267.25	10152	1266.75	10154	1266.25	10156	1265.75	10158	1265.25
10160	1264.75	10162	1264.54	10164	1264.43	10166	1264.32	10168	1264.21
10170	1264.11	10172	1264	10174	1263.9	10176	1263.87	10178	1264.11
10180	1264.11	10182	1264.26	10184	1264.43	10186	1264.6	10188	1264.77
10190	1264.94	10192	1265.1	10194	1265.26	10196	1265.42	10198	1265.59
10200	1265.77	10202	1265.95	10204	1266.12	10206	1266.3	10208	1266.48
10210	1266.66	10212	1266.84	10214	1267.03	10216	1267.21	10218	1267.36
10220	1267.51	10222	1267.74	10224	1268.15	10226	1268.57	10228	1268.99
10230	1269.4	10232	1269.82	10234	1270.23	10236	1270.65	10238	1271.07
10240	1271.57	10242	1271.86	10244	1271.84	10246	1271.82	10248	1271.79
10250	1271.77	10252	1271.75	10254	1271.73	10256	1271.7	10258	1271.68
10260	1271.66	10262	1271.64	10264	1271.64	10266	1271.76	10268	1271.89
10270	1272.01	10272	1272.13	10274	1272.25	10276	1272.38	10278	1272.5
10280	1272.62	10282	1272.74	10284	1272.87	10286	1273	10288	1273.05
10290	1273.05	10292	1273.05	10294	1273.04	10296	1273.04	10298	1273.04
10300	1273.04								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9886	.035	10112	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9886	10112	500.68	500.68	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
10120	10300	1270

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 12.801

INPUT
Description: Blocked Obstruction used to block flow from that portion of the cross- section that does not receive subject flow.

Station Elevation Data num= 301

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1269.03	9702	1269.03	9704	1269.03	9706	1269.03	9708	1269.04
9710	1269.04	9712	1269.05	9714	1269.05	9716	1269.06	9718	1269.06
9720	1269.07	9722	1269.07	9724	1269.08	9726	1269.08	9728	1269.09
9730	1269.09	9732	1269.11	9734	1269.14	9736	1269.17	9738	1269.2
9740	1269.23	9742	1269.26	9744	1269.3	9746	1269.33	9748	1269.36
9750	1269.39	9752	1269.42	9754	1269.46	9756	1269.49	9758	1269.52
9760	1269.55	9762	1269.58	9764	1269.62	9766	1269.65	9768	1269.68
9770	1270.09	9772	1270.61	9774	1271.13	9776	1271.65	9778	1272.2
9780	1272.77	9782	1273.34	9784	1273.92	9786	1274.49	9788	1274.87
9790	1274.87	9792	1274.88	9794	1274.88	9796	1274.88	9798	1274.88
9800	1274.88	9802	1274.89	9804	1274.89	9806	1274.89	9808	1274.89
9810	1274.89	9812	1274.9	9814	1274.9	9816	1274.9	9818	1274.9
9820	1274.9	9822	1274.9	9824	1274.9	9826	1274.9	9828	1274.9
9830	1274.91	9832	1274.91	9834	1274.91	9836	1274.9	9838	1274.9
9840	1274.91	9842	1274.91	9844	1274.92	9846	1274.93	9848	1274.94
9850	1274.96	9852	1274.97	9854	1274.99	9856	1275	9858	1274.54
9860	1273.55	9862	1272.55	9864	1271.56	9866	1270.57	9868	1269.74
9870	1270.24	9872	1270.74	9874	1270.95	9876	1270.95	9878	1270.95
9880	1270.95	9882	1270.95	9884	1270.95	9886	1270.95	9888	1270.88

9890	1269.88	9892	1268.88	9894	1267.88	9896	1266.88	9898	1265.88
9900	1264.88	9902	1263.88	9904	1262.88	9906	1261.88	9908	1260.88
9910	1259.88	9912	1259.88	9914	1259.88	9916	1259.88	9918	1259.88
9920	1259.89	9922	1259.89	9924	1259.89	9926	1259.89	9928	1259.89
9930	1259.9	9932	1259.9	9934	1259.9	9936	1259.9	9938	1259.9
9940	1259.91	9942	1259.91	9944	1259.91	9946	1259.91	9948	1259.91
9950	1259.92	9952	1259.92	9954	1259.92	9956	1259.92	9958	1259.92
9960	1259.93	9962	1259.93	9964	1259.93	9966	1259.93	9968	1259.93
9970	1259.94	9972	1259.94	9974	1259.94	9976	1259.94	9978	1259.94
9980	1259.95	9982	1259.95	9984	1259.95	9986	1259.95	9988	1259.95
9990	1259.96	9992	1259.96	9994	1259.96	9996	1259.96	9998	1259.96
10000	1259.97	10002	1259.97	10004	1259.97	10006	1259.97	10008	1259.97
10010	1259.98	10012	1259.98	10014	1259.98	10016	1259.98	10018	1259.98
10020	1259.99	10022	1259.99	10024	1259.99	10026	1259.99	10028	1259.99
10030	1260	10032	1260	10034	1260	10036	1260	10038	1260
10040	1260.01	10042	1260.01	10044	1260.01	10046	1260.01	10048	1260.01
10050	1260.02	10052	1260.02	10054	1260.02	10056	1260.02	10058	1260.02
10060	1260.03	10062	1260.03	10064	1260.03	10066	1260.03	10068	1260.03
10070	1260.04	10072	1260.04	10074	1260.04	10076	1260.04	10078	1260.04
10080	1260.05	10082	1260.05	10084	1260.05	10086	1260.05	10088	1260.05
10090	1260.06	10092	1261.06	10094	1262.06	10096	1263.06	10098	1264.06
10100	1265.06	10102	1266.06	10104	1267.06	10106	1268.06	10108	1269.06
10110	1270.06	10112	1270.97	10114	1270.97	10116	1270.97	10118	1270.97
10120	1270.97	10122	1270.97	10124	1270.97	10126	1270.97	10128	1270.68
10130	1270.18	10132	1269.68	10134	1269.18	10136	1268.68	10138	1268.18
10140	1267.68	10142	1267.18	10144	1266.68	10146	1266.18	10148	1265.68
10150	1265.56	10152	1265.6	10154	1265.65	10156	1265.69	10158	1265.73
10160	1265.78	10162	1265.82	10164	1265.87	10166	1265.93	10168	1265.99
10170	1266.05	10172	1266.11	10174	1266.17	10176	1266.23	10178	1266.29
10180	1266.36	10182	1266.43	10184	1266.5	10186	1266.56	10188	1266.63
10190	1266.7	10192	1266.76	10194	1266.83	10196	1266.9	10198	1266.96
10200	1267.03	10202	1267.1	10204	1267.16	10206	1267.23	10208	1267.3
10210	1267.36	10212	1267.43	10214	1267.5	10216	1267.56	10218	1267.63
10220	1267.7	10222	1267.76	10224	1267.82	10226	1267.84	10228	1267.87
10230	1267.89	10232	1267.91	10234	1267.94	10236	1267.96	10238	1267.98
10240	1268.01	10242	1268.03	10244	1268.05	10246	1268.08	10248	1268.1
10250	1268.12	10252	1268.15	10254	1268.17	10256	1268.19	10258	1268.21
10260	1268.24	10262	1268.26	10264	1268.28	10266	1268.31	10268	1268.33
10270	1268.35	10272	1268.38	10274	1268.4	10276	1268.43	10278	1268.45
10280	1268.47	10282	1268.44	10284	1268.41	10286	1268.39	10288	1268.36
10290	1268.33	10292	1268.3	10294	1268.28	10296	1268.25	10298	1268.22
10300	1268.19								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9888	.035	10112	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9888	10112	522.71	522.71	522.71	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
10120.14	10300	1268.5

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 12.701

INPUT
Description: Blocked Obstruction used to block flow from that portion of the cross- section that does not receive subject flow.

Station Elevation Data num= 301

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1271.95	9702	1271.95	9704	1271.95	9706	1271.94	9708	1271.95
9710	1271.96	9712	1271.98	9714	1271.99	9716	1272	9718	1272.01
9720	1272.03	9722	1272.04	9724	1272.05	9726	1272.06	9728	1272.08
9730	1272.09	9732	1272.1	9734	1272.12	9736	1272.13	9738	1272.14
9740	1271.74	9742	1271.12	9744	1270.49	9746	1269.87	9748	1269.24
9750	1268.59	9752	1267.93	9754	1267.27	9756	1266.62	9758	1266.56
9760	1266.49	9762	1266.43	9764	1266.37	9766	1266.31	9768	1266.24
9770	1266.18	9772	1266.12	9774	1266.05	9776	1265.99	9778	1265.93
9780	1265.86	9782	1265.81	9784	1265.75	9786	1265.7	9788	1265.65
9790	1265.6	9792	1265.54	9794	1265.49	9796	1265.44	9798	1265.39
9800	1265.36	9802	1265.35	9804	1265.35	9806	1265.34	9808	1265.34
9810	1265.33	9812	1265.31	9814	1265.29	9816	1265.27	9818	1265.25
9820	1265.24	9822	1265.22	9824	1265.2	9826	1265.18	9828	1265.16
9830	1265.15	9832	1265.13	9834	1265.11	9836	1265.09	9838	1265.07
9840	1265.06	9842	1265.04	9844	1265.02	9846	1265	9848	1264.98

9850	1264.97	9852	1264.95	9854	1264.93	9856	1264.91	9858	1265.39
9860	1265.89	9862	1266.39	9864	1266.89	9866	1267.39	9868	1267.89
9870	1268.39	9872	1268.89	9874	1269.31	9876	1269.31	9878	1269.31
9880	1269.31	9882	1269.31	9884	1269.31	9886	1269.31	9888	1269.31
9890	1268.67	9892	1267.67	9894	1266.67	9896	1265.67	9898	1264.67
9900	1263.67	9902	1262.67	9904	1261.67	9906	1260.67	9908	1259.67
9910	1258.67	9912	1258.67	9914	1258.67	9916	1258.68	9918	1258.68
9920	1258.68	9922	1258.68	9924	1258.68	9926	1258.69	9928	1258.69
9930	1258.69	9932	1258.69	9934	1258.69	9936	1258.7	9938	1258.7
9940	1258.7	9942	1258.7	9944	1258.7	9946	1258.71	9948	1258.71
9950	1258.71	9952	1258.71	9954	1258.71	9956	1258.72	9958	1258.72
9960	1258.72	9962	1258.72	9964	1258.72	9966	1258.73	9968	1258.73
9970	1258.73	9972	1258.73	9974	1258.73	9976	1258.73	9978	1258.74
9980	1258.74	9982	1258.74	9984	1258.74	9986	1258.74	9988	1258.75
9990	1258.75	9992	1258.75	9994	1258.75	9996	1258.75	9998	1258.76
10000	1258.76	10002	1258.76	10004	1258.76	10006	1258.76	10008	1258.77
10010	1258.77	10012	1258.77	10014	1258.77	10016	1258.77	10018	1258.78
10020	1258.78	10022	1258.78	10024	1258.78	10026	1258.78	10028	1258.79
10030	1258.79	10032	1258.79	10034	1258.79	10036	1258.79	10038	1258.8
10040	1258.8	10042	1258.8	10044	1258.8	10046	1258.8	10048	1258.81
10050	1258.81	10052	1258.81	10054	1258.81	10056	1258.81	10058	1258.82
10060	1258.82	10062	1258.82	10064	1258.82	10066	1258.82	10068	1258.83
10070	1258.83	10072	1258.83	10074	1258.83	10076	1258.83	10078	1258.84
10080	1258.84	10082	1258.84	10084	1258.84	10086	1258.84	10088	1258.85
10090	1258.85	10092	1259.85	10094	1260.85	10096	1261.85	10098	1262.85
10100	1263.85	10102	1264.85	10104	1265.85	10106	1266.85	10108	1267.85
10110	1268.85	10112	1269.33	10114	1269.33	10116	1269.33	10118	1269.33
10120	1269.33	10122	1269.33	10124	1269.33	10126	1269.33	10128	1268.83
10130	1268.33	10132	1267.83	10134	1267.82	10136	1267.85	10138	1267.87
10140	1267.9	10142	1267.93	10144	1267.95	10146	1267.98	10148	1268
10150	1268.03	10152	1268.06	10154	1268.08	10156	1268.11	10158	1268.13
10160	1268.16	10162	1268.18	10164	1268.21	10166	1268.24	10168	1268.26
10170	1268.29	10172	1268.31	10174	1268.34	10176	1268.37	10178	1268.39
10180	1268.41	10182	1268.43	10184	1268.45	10186	1268.47	10188	1268.49
10190	1268.51	10192	1268.53	10194	1268.55	10196	1268.57	10198	1268.59
10200	1268.61	10202	1268.63	10204	1268.65	10206	1268.67	10208	1268.69
10210	1268.71	10212	1268.73	10214	1268.75	10216	1268.77	10218	1268.79
10220	1268.81	10222	1268.83	10224	1268.86	10226	1268.88	10228	1268.9
10230	1268.92	10232	1268.94	10234	1268.96	10236	1268.98	10238	1269
10240	1269.02	10242	1269.04	10244	1269.06	10246	1269.08	10248	1269.11
10250	1269.13	10252	1269.15	10254	1269.17	10256	1269.19	10258	1269.21
10260	1269.23	10262	1269.25	10264	1269.27	10266	1269.29	10268	1269.31
10270	1269.32	10272	1269.34	10274	1269.36	10276	1269.38	10278	1269.4
10280	1269.42	10282	1269.44	10284	1269.46	10286	1269.48	10288	1269.5
10290	1269.52	10292	1269.54	10294	1269.55	10296	1269.57	10298	1269.59
10300	1269.61								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9888	.035	10112	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9888	10112	499.01 499.01	499.01	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
9700	9880	1267

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 12.606

INPUT
Description: Blocked Obstruction used to block flow from that portion of the cross- section that does not receive subject flow.

Station Elevation Data num= 301

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1267.51	9702	1267.51	9704	1267.51	9706	1267.5	9708	1267.5
9710	1267.5	9712	1267.49	9714	1267.49	9716	1267.49	9718	1267.48
9720	1267.48	9722	1267.48	9724	1267.47	9726	1267.47	9728	1267.47
9730	1267.46	9732	1267.46	9734	1267.46	9736	1267.45	9738	1267.45
9740	1267.45	9742	1267.44	9744	1267.44	9746	1267.44	9748	1267.43
9750	1267.43	9752	1267.43	9754	1267.42	9756	1267.42	9758	1267.42
9760	1267.41	9762	1267.41	9764	1267.41	9766	1267.4	9768	1267.4
9770	1267.4	9772	1267.39	9774	1267.39	9776	1267.39	9778	1267.39
9780	1267.38	9782	1267.39	9784	1267.4	9786	1267.41	9788	1267.42
9790	1267.42	9792	1267.43	9794	1267.44	9796	1267.45	9798	1267.46
9800	1267.47	9802	1267.48	9804	1267.5	9806	1267.52	9808	1267.54

9810	1267.57	9812	1267.59	9814	1267.61	9816	1267.63	9818	1267.65
9820	1267.67	9822	1267.69	9824	1267.7	9826	1267.72	9828	1267.74
9830	1267.75	9832	1267.77	9834	1267.79	9836	1267.8	9838	1267.82
9840	1267.84	9842	1267.85	9844	1267.87	9846	1267.89	9848	1267.9
9850	1267.92	9852	1267.94	9854	1267.96	9856	1267.97	9858	1268
9860	1268.18	9862	1268.32	9864	1268.46	9866	1268.6	9868	1268.75
9870	1268.81	9872	1268.46	9874	1267.96	9876	1267.89	9878	1267.89
9880	1267.89	9882	1267.89	9884	1267.89	9886	1267.89	9888	1267.89
9890	1267.52	9892	1266.52	9894	1265.52	9896	1264.52	9898	1263.52
9900	1262.52	9902	1261.52	9904	1260.52	9906	1259.52	9908	1258.52
9910	1257.52	9912	1257.52	9914	1257.52	9916	1257.52	9918	1257.53
9920	1257.53	9922	1257.53	9924	1257.53	9926	1257.53	9928	1257.54
9930	1257.54	9932	1257.54	9934	1257.54	9936	1257.54	9938	1257.55
9940	1257.55	9942	1257.55	9944	1257.55	9946	1257.55	9948	1257.56
9950	1257.56	9952	1257.56	9954	1257.56	9956	1257.56	9958	1257.57
9960	1257.57	9962	1257.57	9964	1257.57	9966	1257.57	9968	1257.58
9970	1257.58	9972	1257.58	9974	1257.58	9976	1257.58	9978	1257.59
9980	1257.59	9982	1257.59	9984	1257.59	9986	1257.59	9988	1257.6
9990	1257.6	9992	1257.6	9994	1257.6	9996	1257.6	9998	1257.61
10000	1257.61	10002	1257.61	10004	1257.61	10006	1257.61	10008	1257.62
10010	1257.62	10012	1257.62	10014	1257.62	10016	1257.62	10018	1257.63
10020	1257.63	10022	1257.63	10024	1257.63	10026	1257.63	10028	1257.64
10030	1257.64	10032	1257.64	10034	1257.64	10036	1257.64	10038	1257.64
10040	1257.65	10042	1257.65	10044	1257.65	10046	1257.65	10048	1257.65
10050	1257.66	10052	1257.66	10054	1257.66	10056	1257.66	10058	1257.66
10060	1257.67	10062	1257.67	10064	1257.67	10066	1257.67	10068	1257.67
10070	1257.68	10072	1257.68	10074	1257.68	10076	1257.68	10078	1257.68
10080	1257.69	10082	1257.69	10084	1257.69	10086	1257.69	10088	1257.69
10090	1257.7	10092	1258.7	10094	1259.7	10096	1260.7	10098	1261.7
10100	1262.7	10102	1263.7	10104	1264.7	10106	1265.7	10108	1266.7
10110	1267.7	10112	1267.91	10114	1267.91	10116	1267.91	10118	1267.91
10120	1267.91	10122	1267.91	10124	1267.91	10126	1267.77	10128	1267.27
10130	1266.77	10132	1266.27	10134	1265.77	10136	1265.27	10138	1264.77
10140	1264.27	10142	1263.77	10144	1263.61	10146	1263.76	10148	1263.91
10150	1264.06	10152	1264.22	10154	1264.4	10156	1264.58	10158	1264.75
10160	1264.93	10162	1264.94	10164	1264.95	10166	1264.96	10168	1264.96
10170	1264.97	10172	1264.98	10174	1264.99	10176	1264.99	10178	1264.99
10180	1264.99	10182	1264.99	10184	1264.99	10186	1264.99	10188	1264.99
10190	1264.98	10192	1264.99	10194	1265.01	10196	1265.01	10198	1265.03
10200	1265.05	10202	1265.07	10204	1265.09	10206	1265.1	10208	1265.09
10210	1265.08	10212	1265.08	10214	1265.07	10216	1265.07	10218	1265.07
10220	1265.07	10222	1265.06	10224	1265.06	10226	1265.06	10228	1265.06
10230	1265.05	10232	1265.05	10234	1265.05	10236	1265.05	10238	1265.04
10240	1265.04	10242	1265.04	10244	1265.03	10246	1265.03	10248	1265.03
10250	1265.03	10252	1265.02	10254	1265.02	10256	1265.02	10258	1265.02
10260	1265.01	10262	1265.04	10264	1265.11	10266	1265.19	10268	1265.28
10270	1265.37	10272	1265.46	10274	1265.55	10276	1265.64	10278	1265.73
10280	1265.82	10282	1265.91	10284	1266	10286	1266.09	10288	1266.18
10290	1266.27	10292	1266.36	10294	1266.45	10296	1266.54	10298	1266.63
10300	1266.71								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9890	.035	10110	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9890	10110	529.88	529.88	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
10120	10300	1266

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 12.511

INPUT
Description: Blocked Obstruction used to block flow from that portion of the cross- section that does not receive subject flow.

Station Elevation Data num= 196

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1262.88	9702	1262.92	9704	1262.97	9706	1263.01	9708	1263.06
9710	1263.1	9712	1263.13	9714	1263.1	9716	1263.08	9718	1263.05
9720	1263.02	9722	1263	9724	1262.97	9726	1262.95	9728	1262.93
9730	1262.9	9732	1262.88	9734	1262.85	9736	1262.83	9738	1262.81
9740	1262.79	9742	1262.79	9744	1262.78	9746	1262.78	9748	1262.79
9750	1262.81	9752	1262.82	9754	1262.84	9756	1262.86	9758	1262.87
9760	1262.89	9762	1262.9	9764	1262.92	9766	1262.94	9768	1262.95

9770	1262.97	9772	1262.98	9774	1263	9776	1263.01	9778	1263.03
9780	1263.05	9782	1263.06	9784	1263.08	9786	1263.09	9788	1263.11
9790	1263.12	9792	1263.14	9794	1263.16	9796	1263.17	9798	1263.19
9800	1263.2	9802	1263.22	9804	1263.24	9806	1263.25	9808	1263.27
9810	1263.28	9812	1263.3	9814	1263.31	9816	1263.33	9818	1263.35
9820	1263.36	9822	1263.37	9824	1263.38	9826	1263.39	9828	1263.41
9830	1263.4	9832	1263.38	9834	1263.35	9836	1263.31	9838	1263.28
9840	1263.25	9842	1263.22	9844	1263.19	9846	1263.16	9848	1263.12
9850	1263.09	9852	1263.06	9854	1263.03	9856	1263	9858	1262.96
9860	1262.93	9862	1262.9	9864	1262.87	9866	1262.84	9868	1262.81
9870	1262.77	9872	1262.9	9874	1263.4	9876	1263.9	9878	1264.4
9880	1264.46	9882	1264.46	9884	1264.46	9886	1264.46	9888	1264.46
9890	1264.46	9892	1264.46	9894	1264.08	9896	1263.08	9898	1262.08
9900	1261.08	9902	1260.08	9904	1259.08	9906	1258.08	9908	1257.08
9910	1256.28	10000	1256.28	10090	1256.28	10092	1257.48	10094	1258.48
10096	1259.48	10098	1260.48	10100	1261.48	10102	1262.48	10104	1263.48
10106	1264.47	10120	1264.47	10122	1264.22	10124	1263.72	10126	1263.22
10128	1262.72	10130	1262.23	10132	1261.79	10134	1263.36	10136	1263.91
10138	1264.46	10140	1265.04	10142	1265.61	10144	1265.51	10146	1265.3
10148	1265.09	10150	1264.87	10152	1264.65	10154	1264.42	10156	1264.19
10158	1263.97	10160	1263.74	10162	1263.51	10164	1263.42	10166	1263.33
10168	1263.25	10170	1263.16	10172	1263.07	10174	1262.98	10176	1262.89
10178	1262.83	10180	1262.77	10182	1262.71	10184	1262.65	10186	1262.59
10188	1262.53	10190	1262.47	10192	1262.41	10194	1262.9	10196	1263.57
10198	1264.24	10200	1264.91	10202	1265.58	10204	1266.21	10206	1266.83
10208	1267.45	10210	1267.66	10212	1266.47	10214	1265.31	10216	1264.16
10218	1263.01	10220	1261.85	10222	1260.7	10224	1259.55	10226	1259.23
10250	1259.23	10252	1259.22	10254	1259.22	10256	1259.22	10258	1259.22
10260	1259.21	10262	1259.21	10264	1259.21	10266	1259.21	10268	1259.2
10270	1259.2	10272	1259.17	10274	1259.13	10276	1259.27	10278	1259.49
10280	1259.72	10282	1259.94	10284	1260.2	10286	1260.59	10288	1260.99
10290	1261.39	10292	1261.76	10294	1262.12	10296	1262.55	10298	1262.99
10300	1263.42								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9890	.035	10106	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9890	10106	445.76	445.76	445.76	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
9700	9880	1264.5	10116	10300	1264.5

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 12.42

INPUT
Description: Blocked Obstruction used to block flow from that portion of the cross- section that does not receive subject flow.

Station Elevation Data num= 211

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1261.22	9702	1261.21	9704	1261.2	9706	1261.2	9708	1261.19
9710	1261.18	9712	1261.17	9714	1261.16	9716	1261.15	9718	1261.15
9720	1261.14	9722	1261.13	9724	1261.12	9726	1261.11	9728	1261.1
9730	1261.09	9732	1261.09	9734	1261.08	9736	1261.07	9738	1261.06
9740	1261.05	9742	1261.04	9744	1261.03	9746	1261.03	9748	1261.02
9750	1261.01	9752	1261	9754	1260.99	9756	1260.98	9758	1260.97
9760	1260.97	9762	1260.96	9764	1260.95	9766	1260.94	9768	1260.91
9770	1260.89	9772	1260.87	9774	1260.86	9776	1260.87	9778	1260.89
9780	1260.91	9782	1260.94	9784	1260.96	9786	1260.98	9788	1261
9790	1261.03	9792	1261.05	9794	1261.07	9796	1261.1	9798	1261.12
9800	1261.14	9802	1261.17	9804	1261.2	9806	1261.25	9808	1261.29
9810	1261.34	9812	1261.37	9814	1261.4	9816	1261.42	9818	1261.45
9820	1261.49	9822	1261.53	9824	1261.57	9826	1261.62	9828	1261.66
9830	1261.7	9832	1261.74	9834	1261.79	9836	1261.83	9838	1261.87
9840	1261.9	9842	1261.93	9844	1261.96	9846	1261.99	9848	1262.03
9850	1262.06	9852	1262.1	9854	1262.13	9856	1262.16	9858	1262.2
9860	1262.04	9862	1261.86	9864	1261.67	9866	1261.3	9868	1261.8
9870	1262.3	9872	1262.8	9874	1263.3	9876	1263.57	9878	1263.57
9880	1263.57	9882	1263.57	9884	1263.57	9886	1263.57	9888	1263.57
9890	1263.57	9892	1262.61	9894	1261.61	9896	1260.61	9898	1259.61

9900	1258.61	9902	1257.61	9904	1256.61	9906	1255.61	9908	1254.61
9910	1253.85	9998	1253.85	10000	1253.85	10096	1253.85	10098	1255.25
10100	1256.25	10102	1257.25	10104	1258.25	10106	1259.25	10108	1260.24
10110	1261.24	10112	1262.24	10114	1263.24	10116	1263.59	10118	1263.59
10120	1263.59	10122	1263.59	10124	1263.59	10126	1263.59	10128	1263.59
10130	1263.52	10132	1263.02	10134	1262.52	10136	1262.02	10138	1261.52
10140	1261.02	10142	1260.52	10144	1260.02	10146	1259.52	10148	1259.02
10150	1258.52	10152	1258.02	10154	1257.52	10156	1257.81	10158	1258.7
10160	1259.58	10162	1260.38	10164	1261.12	10166	1262	10168	1262.81
10170	1263.21	10172	1262.37	10174	1261.54	10176	1260.7	10178	1259.86
10180	1259.09	10182	1258.76	10184	1258.73	10186	1258.69	10188	1258.66
10190	1258.63	10192	1258.6	10194	1258.56	10196	1258.52	10198	1258.49
10200	1258.45	10202	1258.41	10204	1258.38	10206	1258.34	10208	1258.37
10210	1259.12	10212	1259.87	10214	1260.63	10216	1261.38	10218	1262.13
10220	1262.84	10222	1263.42	10224	1262.49	10226	1261.45	10228	1260.41
10230	1259.47	10232	1258.69	10234	1257.91	10236	1257.12	10238	1256.34
10240	1255.9	10242	1255.84	10244	1255.79	10246	1255.77	10248	1255.75
10250	1255.75	10252	1255.75	10254	1255.76	10256	1255.76	10258	1255.73
10260	1255.71	10262	1255.69	10264	1255.68	10266	1255.66	10268	1255.64
10270	1255.67	10272	1255.69	10274	1255.71	10276	1255.74	10278	1255.75
10280	1255.81	10282	1255.88	10284	1255.97	10286	1256.05	10288	1256.01
10290	1255.99	10292	1255.98	10294	1255.96	10296	1255.94	10298	1255.91
10300	1255.89								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9890	.035	10116	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9890	10116	580.01	580.01	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
9700	9872.13	1262.03	10120	10300	1262

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 12.313

INPUT
Description: Blocked Obstruction used to block flow from that portion of the cross- section that does not receive subject flow.

Station Elevation Data num= 204

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1258.52	9702	1258.52	9704	1258.53	9706	1258.54	9708	1258.54
9710	1258.55	9712	1258.56	9714	1258.56	9716	1258.57	9718	1258.58
9720	1258.58	9722	1258.76	9724	1259.02	9726	1259.28	9728	1259.54
9730	1259.8	9732	1260.08	9734	1260.36	9736	1260.65	9738	1260.93
9740	1261.21	9742	1261.47	9744	1261.11	9746	1260.75	9748	1260.39
9750	1260.03	9752	1259.68	9754	1259.36	9756	1259.04	9758	1258.72
9760	1258.4	9762	1258.25	9764	1258.23	9766	1258.22	9768	1258.18
9770	1258.14	9772	1258.09	9774	1258.04	9776	1258.01	9778	1257.97
9780	1257.93	9782	1257.9	9784	1257.89	9786	1257.87	9788	1257.78
9790	1257.68	9792	1257.61	9794	1257.67	9796	1257.72	9798	1257.77
9800	1257.8	9802	1257.83	9804	1257.87	9806	1257.9	9808	1257.94
9810	1257.95	9812	1257.91	9814	1257.87	9816	1257.84	9818	1257.8
9820	1257.76	9822	1257.72	9824	1257.68	9826	1257.64	9828	1257.6
9830	1257.55	9832	1257.51	9834	1257.47	9836	1257.43	9838	1257.39
9840	1257.35	9842	1257.31	9844	1257.26	9846	1257.22	9848	1257.18
9850	1257.17	9852	1257.67	9854	1258.17	9856	1258.67	9858	1259.17
9860	1259.67	9862	1260.17	9864	1260.67	9866	1261.17	9868	1261.67
9870	1262.17	9872	1262.42	9874	1262.42	9876	1262.42	9878	1262.42
9880	1262.42	9882	1262.42	9884	1262.42	9886	1262.42	9888	1261.42
9890	1260.42	9892	1259.42	9894	1258.42	9896	1257.42	9898	1256.42
9900	1255.42	9902	1254.42	9904	1253.42	9906	1252.42	9908	1251.42
9910	1250.65	9996	1250.65	9998	1250.65	10000	1250.65	10104	1250.65
10106	1251.48	10108	1252.48	10110	1253.48	10112	1254.48	10114	1255.48
10116	1256.48	10118	1257.48	10120	1258.48	10122	1259.48	10124	1260.48
10126	1261.48	10128	1262.44	10138	1262.44	10140	1262.43	10142	1262.43
10144	1262.16	10146	1261.66	10148	1261.16	10150	1260.66	10152	1260.16
10154	1259.66	10156	1259.16	10158	1258.66	10160	1258.16	10162	1257.66
10164	1257.16	10166	1256.66	10168	1256.16	10170	1255.66	10172	1255.66
10174	1256.14	10176	1256.62	10178	1257.11	10180	1257.63	10182	1258.02
10184	1258.11	10186	1258.19	10188	1258.28	10190	1258.38	10192	1258.52
10194	1258.68	10196	1258.85	10198	1259.02	10200	1259.18	10202	1259.35
10204	1259.52	10206	1259.68	10208	1259.84	10210	1259.87	10212	1259.86
10214	1259.84	10216	1259.83	10218	1259.81	10220	1259.8	10222	1259.78
10224	1259.77	10226	1259.75	10228	1259.73	10230	1259.73	10232	1259.74

10234	1259.75	10236	1259.76	10238	1259.77	10240	1259.78	10242	1259.79
10244	1259.8	10246	1259.81	10248	1259.82	10250	1259.83	10252	1259.83
10254	1259.84	10256	1259.85	10258	1259.86	10260	1259.87	10262	1259.88
10264	1259.89	10266	1259.9	10268	1259.9	10270	1259.9	10272	1259.9
10274	1259.9	10276	1259.92	10278	1259.94	10280	1259.96	10282	1259.98
10284	1260	10286	1260.01	10288	1260.03	10290	1260.04	10292	1260.04
10294	1260.05	10296	1260.05	10298	1260.05	10300	1260.05		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9886	.035	10128	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9886	10128	647.71	647.71	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
9700	9870	1259.84	10122.86	10300	1260.51

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 12.194

INPUT
Description: Blocked Obstruction used to block flow from that portion of the cross- section that does not receive subject flow.

Station Elevation Data num= 200

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1259.5	9702	1259.5	9704	1259.51	9706	1259.51	9708	1259.51
9710	1259.16	9712	1258.36	9714	1257.56	9716	1256.77	9718	1255.97
9720	1255.18	9722	1254.38	9724	1253.59	9726	1252.79	9728	1252.55
9730	1252.51	9732	1252.46	9734	1252.42	9736	1252.38	9738	1252.34
9740	1252.31	9742	1252.28	9744	1252.25	9746	1252.22	9748	1252.18
9750	1252.15	9752	1252.12	9754	1251.87	9756	1251.4	9758	1250.93
9760	1250.46	9762	1250	9764	1249.53	9766	1249.02	9768	1249.07
9770	1249.13	9772	1249.18	9774	1249.24	9776	1249.29	9778	1249.35
9780	1249.4	9782	1249.46	9784	1249.51	9786	1249.57	9788	1249.62
9790	1249.68	9792	1249.73	9794	1249.79	9796	1249.84	9798	1249.9
9800	1249.95	9802	1250	9804	1250.06	9806	1250.11	9808	1250.17
9810	1250.22	9812	1250.28	9814	1250.34	9816	1250.4	9818	1250.43
9820	1250.4	9822	1250.37	9824	1250.51	9826	1251.01	9828	1251.51
9830	1252.01	9832	1252.51	9834	1253.01	9836	1253.51	9838	1254.01
9840	1254.51	9842	1255.01	9844	1255.51	9846	1256.01	9848	1256.51
9850	1257.01	9852	1257.51	9854	1258.01	9856	1258.51	9858	1259.01
9860	1259.51	9862	1260.01	9864	1260.51	9866	1261.01	9868	1261.12
9880	1261.12	9882	1260.85	9884	1259.85	9886	1258.85	9888	1257.85
9890	1256.85	9892	1255.85	9894	1254.85	9896	1253.85	9898	1252.85
9900	1251.85	9902	1250.85	9904	1249.85	9906	1248.85	9908	1247.85
9910	1247.1	10000	1247.1	10002	1247.1	10108	1247.1	10110	1247.58
10112	1248.25	10114	1248.92	10116	1249.68	10118	1250.52	10120	1251.35
10122	1252.19	10124	1252.99	10126	1253.79	10128	1254.59	10130	1255.41
10132	1256.06	10134	1256.15	10136	1256.24	10138	1256.33	10140	1256.42
10142	1256.51	10144	1256.6	10146	1256.69	10148	1256.77	10150	1256.86
10152	1256.94	10154	1257.01	10156	1257.09	10158	1257.16	10160	1257.24
10162	1257.31	10164	1257.39	10166	1257.46	10168	1257.54	10170	1257.63
10172	1257.66	10174	1257.67	10176	1257.69	10178	1257.7	10180	1257.71
10182	1257.72	10184	1257.73	10186	1257.74	10188	1257.75	10190	1257.76
10192	1257.78	10194	1257.79	10196	1257.8	10198	1257.81	10200	1257.82
10202	1257.83	10204	1257.84	10206	1257.85	10208	1257.87	10210	1257.88
10212	1257.89	10214	1257.9	10216	1257.91	10218	1257.92	10220	1257.93
10222	1257.94	10224	1257.95	10226	1257.96	10228	1257.94	10230	1257.93
10232	1257.91	10234	1257.9	10236	1257.88	10238	1257.86	10240	1257.85
10242	1257.83	10244	1257.82	10246	1257.77	10248	1257.72	10250	1257.68
10252	1257.66	10254	1257.63	10256	1257.6	10258	1257.58	10260	1257.55
10262	1257.53	10264	1257.5	10266	1257.49	10268	1257.48	10270	1257.47
10272	1257.45	10274	1257.42	10276	1257.4	10278	1257.38	10280	1257.36
10282	1257.34	10284	1257.33	10286	1257.34	10288	1257.34	10290	1257.34
10292	1257.35	10294	1257.35	10296	1257.35	10298	1257.36	10300	1257.36

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9890	.035	10132	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9890	10132	330.02	330.02	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
9700	9853.16	1257.26

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 12.125

INPUT
Description: Blocked Obstruction used to block flow from that portion of the cross- section that does not receive subject flow.
Station Elevation Data num= 215

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1245.33	9702	1245.31	9704	1245.28	9706	1245.26	9708	1245.24
9710	1245.22	9712	1245.2	9714	1245.18	9716	1245.17	9718	1245.16
9720	1245.15	9722	1245.14	9724	1245.14	9726	1245.13	9728	1245.12
9730	1245.11	9732	1245.11	9734	1245.1	9736	1245.09	9738	1245.08
9740	1245.08	9742	1245.07	9744	1245.06	9746	1245.06	9748	1245.05
9750	1245.04	9752	1245.03	9754	1245.03	9756	1245.02	9758	1245.01
9760	1245	9762	1245	9764	1244.99	9766	1244.98	9768	1244.98
9770	1244.97	9772	1244.96	9774	1244.95	9776	1244.95	9778	1244.94
9780	1244.93	9782	1244.93	9784	1244.92	9786	1244.91	9788	1244.9
9790	1244.9	9792	1244.89	9794	1244.88	9796	1244.87	9798	1244.87
9800	1244.86	9802	1244.9	9804	1245.4	9806	1245.9	9808	1246.4
9810	1246.9	9812	1247.4	9814	1247.9	9816	1248.4	9818	1248.9
9820	1249.4	9822	1249.9	9824	1250.4	9826	1250.9	9828	1251.4
9830	1251.9	9832	1252.4	9834	1252.9	9836	1253.4	9838	1253.9
9840	1254.4	9842	1254.9	9844	1255.4	9846	1255.9	9848	1256.4
9850	1256.9	9852	1257.4	9854	1257.9	9856	1258.4	9858	1258.9
9860	1259.4	9862	1259.9	9864	1260.4	9866	1260.45	9868	1260.45
9870	1260.45	9872	1260.45	9874	1260.45	9876	1260.45	9878	1260.45
9880	1260.06	9882	1259.06	9884	1258.06	9886	1257.06	9888	1256.06
9890	1255.06	9892	1254.06	9894	1253.06	9896	1252.06	9898	1251.06
9900	1250.06	9902	1249.06	9904	1248.06	9906	1247.06	9908	1246.06
9910	1245.31	9998	1245.31	10000	1245.31	10088	1245.31	10090	1245.54
10092	1246.27	10094	1247	10096	1247.72	10098	1248.45	10100	1249.2
10102	1249.96	10104	1250.72	10106	1251.47	10108	1252.23	10110	1252.99
10112	1253.74	10114	1254.43	10116	1254.46	10118	1254.49	10120	1254.53
10122	1254.56	10124	1254.59	10126	1254.63	10128	1254.66	10130	1254.69
10132	1254.73	10134	1254.76	10136	1254.79	10138	1254.83	10140	1254.86
10142	1254.89	10144	1254.93	10146	1254.96	10148	1255	10150	1255.03
10152	1255.07	10154	1255.1	10156	1255.14	10158	1255.17	10160	1255.21
10162	1255.25	10164	1255.28	10166	1255.32	10168	1255.35	10170	1255.39
10172	1255.42	10174	1255.46	10176	1255.49	10178	1255.53	10180	1255.56
10182	1255.6	10184	1255.63	10186	1255.67	10188	1255.7	10190	1255.74
10192	1255.78	10194	1255.81	10196	1255.85	10198	1255.88	10200	1255.92
10202	1255.95	10204	1255.99	10206	1256.02	10208	1256.06	10210	1256.09
10212	1256.13	10214	1256.16	10216	1256.2	10218	1256.23	10220	1256.27
10222	1256.31	10224	1256.34	10226	1256.38	10228	1256.38	10230	1256.33
10232	1256.28	10234	1256.22	10236	1256.17	10238	1256.12	10240	1256.07
10242	1256.02	10244	1255.97	10246	1255.92	10248	1255.87	10250	1255.82
10252	1255.77	10254	1255.72	10256	1255.67	10258	1255.62	10260	1255.56
10262	1255.51	10264	1255.49	10266	1255.47	10268	1255.45	10270	1255.43
10272	1255.41	10274	1255.39	10276	1255.39	10278	1255.39	10280	1255.39
10282	1255.4	10284	1255.42	10286	1255.43	10288	1255.43	10290	1255.45
10292	1255.46	10294	1255.47	10296	1255.48	10298	1255.49	10300	1255.5

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9880	.035	10116	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9880	10116	391.67	391.67	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
9700	9862.29	1259.91

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 12.034

INPUT
Description: Blocked Obstruction used to block flow from that portion of the cross- section that does not receive subject flow.
Station Elevation Data num= 197

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1246.38	9702	1246.32	9704	1246.25	9706	1246.18	9708	1246.11
9710	1246.04	9712	1245.97	9714	1245.9	9716	1245.83	9718	1245.78
9720	1245.72	9722	1245.67	9724	1245.63	9726	1245.58	9728	1245.54

9730	1245.5	9732	1245.45	9734	1245.38	9736	1245.3	9738	1245.22
9740	1245.15	9742	1245.08	9744	1245.02	9746	1244.96	9748	1244.89
9750	1244.83	9752	1244.77	9754	1244.69	9756	1244.58	9758	1244.5
9760	1244.43	9762	1244.34	9764	1244.24	9766	1244.14	9768	1244.09
9770	1244.03	9772	1243.97	9774	1243.85	9776	1243.68	9778	1243.52
9780	1243.35	9782	1243.18	9784	1243.08	9786	1243.06	9788	1243.03
9790	1243	9792	1242.96	9794	1242.93	9796	1242.81	9798	1242.61
9800	1243.11	9802	1243.61	9804	1244.11	9806	1244.61	9808	1245.11
9810	1245.61	9812	1246.11	9814	1246.61	9816	1247.11	9818	1247.61
9820	1248.11	9822	1248.61	9824	1249.11	9826	1249.61	9828	1250.11
9830	1250.61	9832	1251.11	9834	1251.61	9836	1252.11	9838	1252.61
9840	1253.11	9842	1253.61	9844	1254.11	9846	1254.61	9848	1255.11
9850	1255.61	9852	1256.11	9854	1256.61	9856	1257.11	9858	1257.61
9860	1258.11	9862	1258.61	9864	1258.89	9866	1258.89	9868	1258.89
9870	1258.89	9872	1258.89	9874	1258.89	9876	1258.89	9878	1258.89
9880	1257.94	9882	1256.94	9884	1255.94	9886	1254.94	9888	1253.94
9890	1252.94	9892	1251.94	9894	1250.94	9896	1249.94	9898	1248.94
9900	1247.94	9902	1246.94	9904	1245.94	9906	1244.94	9908	1243.94
9910	1243.2	10000	1243.2	10122	1243.2	10124	1243.8	10126	1244.56
10128	1245.32	10130	1246.08	10132	1246.84	10134	1247.6	10136	1248.36
10138	1249.12	10140	1249.88	10142	1250.5	10144	1250.5	10146	1250.5
10148	1250.5	10150	1250.5	10152	1250.5	10154	1250.5	10156	1250.51
10158	1250.52	10160	1250.53	10162	1250.54	10164	1250.55	10166	1250.56
10168	1250.71	10170	1250.91	10172	1251.03	10174	1251.06	10176	1251.09
10178	1251.12	10180	1251.15	10182	1251.19	10184	1251.22	10186	1251.25
10188	1251.28	10190	1251.31	10192	1251.34	10194	1251.37	10196	1251.41
10198	1251.54	10200	1251.73	10202	1251.91	10204	1252.09	10206	1252.28
10208	1252.46	10210	1252.64	10212	1252.83	10214	1253.01	10216	1253.19
10218	1253.38	10220	1253.56	10222	1253.72	10224	1253.87	10226	1254.02
10228	1254.18	10230	1254.36	10232	1254.56	10234	1254.77	10236	1254.98
10238	1255.19	10240	1255.4	10242	1255.61	10244	1255.7	10246	1255.72
10248	1255.73	10250	1255.75	10252	1255.76	10254	1255.78	10256	1255.8
10258	1255.81	10260	1255.83	10262	1255.82	10264	1255.81	10266	1255.79
10268	1255.78	10270	1255.76	10272	1255.75	10274	1255.73	10276	1255.72
10278	1255.7	10280	1255.69	10282	1255.67	10284	1255.66	10286	1255.64
10288	1255.63	10290	1255.61	10292	1255.6	10294	1255.58	10296	1255.57
10298	1255.55	10300	1255.55						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9880	.035	10142	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9880	10142	542.9	542.9	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
9700	9860.63	1258.11

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 11.949

INPUT
Description: Blocked Obstruction used to block flow from that portion of the cross- section that does not receive subject flow.

Station Elevation Data num= 179

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1243.37	9702	1243.28	9704	1243.32	9706	1243.29	9708	1243.25
9710	1243.58	9712	1244.1	9714	1244.61	9716	1245.13	9718	1245.67
9720	1246.39	9722	1245.87	9724	1245.34	9726	1244.81	9728	1244.07
9730	1243.22	9732	1242.38	9734	1241.53	9736	1240.69	9738	1240.69
9740	1240.85	9742	1241.01	9744	1241.18	9746	1241.34	9748	1241.5
9750	1241.66	9752	1241.82	9754	1241.98	9756	1242.11	9758	1242.15
9760	1242.19	9762	1242.2	9764	1242.17	9766	1242.13	9768	1242.1
9770	1242.07	9772	1242.04	9774	1242	9776	1241.97	9778	1242.03
9780	1242.11	9782	1242.2	9784	1242.29	9786	1242.38	9788	1242.47
9790	1242.56	9792	1242.65	9794	1242.73	9796	1242.82	9798	1242.91
9800	1243	9802	1243.09	9804	1243.18	9806	1243.27	9808	1243.36
9810	1243.44	9812	1243.53	9814	1243.62	9816	1243.71	9818	1243.8
9820	1244.16	9822	1244.66	9824	1245.16	9826	1245.66	9828	1246.16
9830	1246.66	9832	1247.16	9834	1247.66	9836	1248.16	9838	1248.66
9840	1249.16	9842	1249.66	9844	1250.16	9846	1250.66	9848	1251.16
9850	1251.66	9852	1252.16	9854	1252.66	9856	1253.16	9858	1253.66
9860	1254.16	9862	1254.66	9864	1255.16	9866	1255.28	9868	1255.28
9870	1255.28	9872	1255.28	9874	1255.28	9876	1255.28	9878	1255.28
9880	1255.01	9882	1254.01	9884	1253.01	9886	1252.01	9888	1251.01
9890	1250.01	9892	1249.01	9894	1248.01	9896	1247.01	9898	1246.01

9900	1245.01	9902	1244.01	9904	1243.01	9906	1242.01	9908	1241.01
9910	1240.27	10000	1240.27	10002	1240.27	10160	1240.27	10162	1240.99
10164	1241.99	10166	1242.99	10168	1243.99	10170	1244.99	10172	1245.99
10174	1246.99	10176	1247.99	10178	1248.99	10180	1249.99	10182	1250.99
10184	1251.99	10186	1252.99	10188	1253.99	10190	1254.99	10192	1255.31
10194	1255.31	10196	1255.31	10198	1255.31	10200	1255.31	10202	1255.31
10204	1255.31	10206	1255.23	10208	1254.73	10210	1254.23	10212	1253.73
10214	1253.23	10216	1252.73	10218	1252.23	10220	1251.73	10222	1251.23
10224	1250.73	10226	1250.23	10228	1249.73	10230	1249.23	10232	1248.73
10234	1248.23	10236	1247.73	10238	1247.23	10240	1246.73	10242	1246.23
10244	1245.73	10246	1245.24	10248	1245.28	10250	1245.33	10252	1245.38
10254	1245.42	10256	1245.47	10258	1245.51	10260	1245.56	10262	1245.61
10264	1245.65	10266	1245.7	10268	1246.07	10270	1246.54	10272	1246.82
10274	1246.83	10276	1246.76	10278	1246.7	10280	1246.64	10282	1246.58
10284	1246.54	10286	1246.52	10288	1246.53	10290	1246.4	10292	1246.26
10294	1246.13	10296	1245.99	10298	1245.86	10300	1246.02		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9882	.035	10188	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9882	10188	426.33	426.33	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
9700	9860.89	1254.17	10210.24	10300	1254.16

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 11.864

INPUT
Description: Blocked Obstruction used to block flow from that portion of the cross- section that does not receive subject flow.

Station Elevation Data num= 179

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1249.93	9702	1249.44	9704	1248.88	9706	1248.71	9708	1248.71
9710	1248.7	9712	1248.7	9714	1248.71	9716	1248.72	9718	1248.73
9720	1248.74	9722	1248.74	9724	1248.75	9726	1248.75	9728	1248.76
9730	1248.77	9732	1248.78	9734	1248.8	9736	1248.81	9738	1248.83
9740	1248.85	9742	1248.85	9744	1248.85	9746	1248.85	9748	1248.84
9750	1248.84	9752	1248.83	9754	1248.81	9756	1248.8	9758	1248.8
9760	1248.8	9762	1248.8	9764	1248.79	9766	1248.79	9768	1248.79
9770	1248.79	9772	1248.79	9774	1248.79	9776	1248.79	9778	1248.78
9780	1248.75	9782	1248.71	9784	1248.68	9786	1248.64	9788	1248.61
9790	1248.46	9792	1248.32	9794	1248.17	9796	1248.02	9798	1247.93
9800	1247.83	9802	1247.73	9804	1247.63	9806	1247.54	9808	1247.44
9810	1247.29	9812	1247.14	9814	1246.97	9816	1246.8	9818	1246.63
9820	1246.46	9822	1246.29	9824	1246.05	9826	1245.7	9828	1245.34
9830	1244.99	9832	1244.67	9834	1244.57	9836	1245.07	9838	1245.57
9840	1246.07	9842	1246.57	9844	1247.07	9846	1247.57	9848	1248.07
9850	1248.57	9852	1249.07	9854	1249.57	9856	1250.07	9858	1250.57
9860	1251.07	9862	1251.57	9864	1252.07	9866	1252.45	9868	1252.45
9870	1252.45	9872	1252.45	9874	1252.45	9876	1252.45	9878	1252.45
9880	1252.45	9882	1251.71	9884	1250.71	9886	1249.71	9888	1248.71
9890	1247.71	9892	1246.71	9894	1245.71	9896	1244.71	9898	1243.71
9900	1242.71	9902	1241.71	9904	1240.71	9906	1239.71	9908	1238.71
9910	1237.96	10000	1237.96	10158	1237.96	10160	1238.81	10162	1239.81
10164	1240.81	10166	1241.81	10168	1242.81	10170	1243.81	10172	1244.81
10174	1245.81	10176	1246.81	10178	1247.81	10180	1248.81	10182	1249.81
10184	1250.81	10186	1251.81	10188	1252.47	10190	1252.47	10192	1252.47
10194	1252.47	10196	1252.47	10198	1252.47	10200	1252.47	10202	1252.47
10204	1252.27	10206	1252.38	10208	1252.49	10210	1252.61	10212	1252.72
10214	1252.83	10216	1252	10218	1251.17	10220	1250.34	10222	1249.68
10224	1249.09	10226	1248.51	10228	1247.92	10230	1247.34	10232	1246.75
10234	1246.17	10236	1245.52	10238	1244.81	10240	1244.11	10242	1243.4
10244	1243.19	10246	1243.18	10248	1243.17	10250	1243.16	10252	1243.16
10254	1243.15	10256	1243.14	10258	1243.13	10260	1243.12	10262	1243.23
10264	1243.38	10266	1243.53	10268	1243.68	10270	1243.83	10272	1243.98
10274	1244.15	10276	1244.32	10278	1244.48	10280	1244.68	10282	1244.94
10284	1245.21	10286	1245.47	10288	1245.74	10290	1246	10292	1246.27
10294	1246.37	10296	1246.36	10298	1246.36	10300	1246.32		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9882	.035	10186	.085

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9882 10186 596.49 596.49 596.49 .1 .3
Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
9700	9865.11	1252.26	10210.24	10300	1252.36

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 11.759

INPUT
Description: Blocked Obstruction used to block flow from that portion of the cross- section that does not receive subject flow.
Station Elevation Data num= 181

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1237.07	9702	1237.09	9704	1237.1	9706	1237.12	9708	1237.14
9710	1237.15	9712	1237.17	9714	1237.18	9716	1237.2	9718	1237.21
9720	1237.23	9722	1237.24	9724	1237.26	9726	1237.27	9728	1237.26
9730	1237.26	9732	1237.78	9734	1238.59	9736	1239.4	9738	1240.21
9740	1241.02	9742	1241.46	9744	1241.8	9746	1242.14	9748	1242.49
9750	1242.67	9752	1242.84	9754	1242.96	9756	1243.04	9758	1242.96
9760	1242.82	9762	1242.65	9764	1242.41	9766	1242.16	9768	1241.85
9770	1241.42	9772	1240.94	9774	1240.46	9776	1239.98	9778	1239.5
9780	1239.02	9782	1238.54	9784	1238.06	9786	1237.58	9788	1237.1
9790	1236.67	9792	1236.63	9794	1236.58	9796	1236.53	9798	1236.49
9800	1236.44	9802	1236.39	9804	1236.34	9806	1236.3	9808	1236.25
9810	1236.2	9812	1236.06	9814	1235.9	9816	1235.79	9818	1236.2
9820	1236.7	9822	1237.2	9824	1237.7	9826	1238.2	9828	1238.7
9830	1239.2	9832	1239.7	9834	1240.2	9836	1240.7	9838	1241.2
9840	1241.7	9842	1242.2	9844	1242.7	9846	1243.2	9848	1243.7
9850	1244.2	9852	1244.7	9854	1245.2	9856	1245.7	9858	1246.2
9860	1246.7	9862	1247.2	9864	1247.7	9866	1248.2	9868	1248.46
9870	1248.46	9872	1248.46	9874	1248.46	9876	1248.46	9878	1248.46
9880	1248.46	9882	1248.46	9884	1247.48	9886	1246.48	9888	1245.48
9890	1244.48	9892	1243.48	9894	1242.48	9896	1241.48	9898	1240.48
9900	1239.48	9902	1238.48	9904	1237.48	9906	1236.48	9908	1235.48
9910	1234.74	10000	1234.74	10154	1234.74	10156	1235.19	10158	1236.16
10160	1237.16	10162	1238.16	10164	1239.16	10166	1240.16	10168	1241.16
10170	1242.16	10172	1243.16	10174	1244.16	10176	1245.16	10178	1246.16
10180	1247.16	10182	1248.16	10184	1248.49	10186	1248.49	10188	1248.49
10190	1248.49	10192	1248.49	10194	1248.49	10196	1248.49	10198	1248.4
10200	1247.9	10202	1247.4	10204	1246.9	10206	1246.4	10208	1246.88
10210	1246.91	10212	1246.91	10214	1246.92	10216	1246.92	10218	1246.93
10220	1246.93	10222	1246.94	10224	1246.94	10226	1246.95	10228	1246.95
10230	1246.96	10232	1246.96	10234	1246.97	10236	1246.97	10238	1246.97
10240	1246.98	10242	1246.98	10244	1246.99	10246	1246.99	10248	1247
10250	1247	10252	1247.01	10254	1247.01	10256	1247.02	10258	1247.02
10260	1247.02	10262	1247.03	10264	1247.03	10266	1247.02	10268	1247
10270	1246.99	10272	1246.97	10274	1246.96	10276	1246.94	10278	1246.92
10280	1246.91	10282	1246.89	10284	1246.88	10286	1246.86	10288	1246.84
10290	1246.83	10292	1246.81	10294	1246.8	10296	1246.78	10298	1246.76
10300	1246.75								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9882	.035	10184	.085

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9882 10184 475.92 475.92 475.92 .1 .3
Blocked Obstructions num= 1

Sta L	Sta R	Elev
9700	9871.43	1248.46

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 11.664

INPUT
Description: Blocked Obstruction used to block flow from that portion of the cross- section that does not receive subject flow.
Station Elevation Data num= 191

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1236.23	9702	1236.24	9704	1236.24	9706	1236.25	9708	1236.25
9710	1236.26	9712	1236.26	9714	1236.26	9716	1236.24	9718	1236.21
9720	1236.19	9722	1236.16	9724	1236.14	9726	1236.11	9728	1236.09
9730	1236.06	9732	1236.04	9734	1236.02	9736	1235.99	9738	1235.97
9740	1235.94	9742	1235.92	9744	1235.89	9746	1235.88	9748	1235.91
9750	1235.98	9752	1236.03	9754	1236.09	9756	1236.03	9758	1235.98

9760	1235.92	9762	1235.86	9764	1235.79	9766	1235.72	9768	1235.64
9770	1235.56	9772	1235.49	9774	1235.38	9776	1235.25	9778	1235.11
9780	1234.98	9782	1234.84	9784	1234.71	9786	1234.57	9788	1234.44
9790	1234.27	9792	1234.03	9794	1233.52	9796	1233.34	9798	1233.14
9800	1232.95	9802	1232.79	9804	1232.68	9806	1232.53	9808	1232.36
9810	1232.22	9812	1232.13	9814	1232.04	9816	1232.16	9818	1232.65
9820	1233.15	9822	1233.65	9824	1234.15	9826	1234.65	9828	1235.15
9830	1235.65	9832	1236.15	9834	1236.65	9836	1237.15	9838	1237.65
9840	1238.15	9842	1238.65	9844	1239.15	9846	1239.65	9848	1240.15
9850	1240.65	9852	1241.15	9854	1241.65	9856	1242.15	9858	1242.65
9860	1243.15	9862	1243.65	9864	1244.15	9866	1244.65	9868	1245.15
9870	1245.24	9872	1245.24	9874	1245.24	9876	1245.24	9878	1245.24
9880	1245.24	9882	1245.24	9884	1244.91	9886	1243.91	9888	1242.91
9890	1241.91	9892	1240.91	9894	1239.91	9896	1238.91	9898	1237.91
9900	1236.91	9902	1235.91	9904	1234.91	9906	1233.91	9908	1232.91
9910	1232.17	10000	1232.17	10118	1232.17	10120	1232.79	10122	1233.79
10124	1234.78	10126	1235.78	10128	1236.77	10130	1237.76	10132	1238.76
10134	1239.75	10136	1240.75	10138	1241.74	10140	1242.74	10142	1243.73
10144	1244.72	10146	1245.3	10148	1245.31	10150	1245.31	10152	1245.31
10154	1245.31	10156	1245.31	10158	1245.31	10160	1245.32	10162	1245.4
10164	1245.43	10166	1245.46	10168	1245.5	10170	1245.53	10172	1245.57
10174	1245.6	10176	1245.63	10178	1245.66	10180	1245.68	10182	1245.71
10184	1245.72	10202	1245.72	10204	1245.71	10206	1245.71	10208	1245.7
10210	1245.7	10212	1245.7	10214	1245.69	10216	1245.69	10218	1245.69
10220	1245.68	10222	1245.68	10224	1245.68	10226	1245.67	10228	1245.67
10230	1245.67	10232	1245.66	10234	1245.66	10236	1245.66	10238	1245.65
10240	1245.65	10242	1245.65	10244	1245.64	10246	1245.64	10248	1245.64
10250	1245.63	10252	1245.63	10254	1245.63	10256	1245.62	10258	1245.62
10260	1245.62	10262	1245.61	10264	1245.61	10266	1245.61	10268	1245.6
10270	1245.6	10272	1245.6	10274	1245.59	10276	1245.59	10278	1245.59
10280	1245.58	10282	1245.58	10284	1245.58	10286	1245.57	10288	1245.57
10290	1245.57	10292	1245.56	10294	1245.56	10296	1245.56	10298	1245.54
10300	1245.52								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9884	.035	10146	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9884	10146	512.96	512.96	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
9700	9867.72	1245.31

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 11.566

INPUT
Description: Blocked Obstruction used to block flow from that portion of the cross- section that does not receive subject flow.

Station Elevation Data num= 212

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1229.11	9702	1229.08	9704	1229.05	9706	1229.02	9708	1228.99
9710	1228.96	9712	1228.93	9714	1228.9	9716	1228.87	9718	1228.84
9720	1228.81	9722	1228.79	9724	1228.76	9726	1228.73	9728	1228.7
9730	1228.67	9732	1228.64	9734	1228.62	9736	1228.59	9738	1228.56
9740	1228.53	9742	1228.5	9744	1228.48	9746	1228.45	9748	1228.42
9750	1228.42	9752	1228.47	9754	1228.52	9756	1228.57	9758	1228.62
9760	1228.67	9762	1228.72	9764	1228.77	9766	1228.82	9768	1228.88
9770	1228.93	9772	1228.98	9774	1229.04	9776	1229.1	9778	1229.15
9780	1229.21	9782	1229.25	9784	1229.29	9786	1229.34	9788	1229.38
9790	1229.43	9792	1229.47	9794	1229.51	9796	1229.56	9798	1229.6
9800	1229.65	9802	1229.68	9804	1229.62	9806	1229.56	9808	1229.5
9810	1229.45	9812	1229.39	9814	1229.33	9816	1229.27	9818	1229.21
9820	1229.36	9822	1229.86	9824	1230.36	9826	1230.86	9828	1231.36
9830	1231.86	9832	1232.36	9834	1232.86	9836	1233.36	9838	1233.86
9840	1234.36	9842	1234.86	9844	1235.36	9846	1235.86	9848	1236.36
9850	1236.86	9852	1237.36	9854	1237.86	9856	1238.36	9858	1238.86
9860	1239.36	9862	1239.86	9864	1240.36	9866	1240.86	9868	1241.36
9870	1241.79	9872	1241.79	9874	1241.79	9876	1241.79	9878	1241.79
9880	1241.79	9882	1241.79	9884	1241.79	9886	1241.14	9888	1240.14
9890	1239.14	9892	1238.14	9894	1237.14	9896	1236.14	9898	1235.14
9900	1234.14	9902	1233.14	9904	1232.14	9906	1231.14	9908	1230.14
9910	1229.4	10000	1229.4	10002	1229.4	10094	1229.4	10096	1230.22
10098	1231.22	10100	1232.22	10102	1233.22	10104	1234.22	10106	1235.22
10108	1236.22	10110	1237.22	10112	1238.22	10114	1239.22	10116	1240.22

10118	1241.22	10120	1241.93	10122	1241.93	10124	1241.93	10126	1241.93
10128	1241.93	10130	1241.93	10132	1241.93	10134	1241.93	10136	1242.32
10138	1242.82	10140	1243.32	10142	1243.58	10144	1243.58	10146	1243.59
10148	1243.6	10150	1243.61	10152	1243.62	10154	1243.63	10156	1243.64
10158	1243.65	10160	1243.66	10162	1243.67	10164	1243.68	10166	1243.69
10168	1243.7	10170	1243.71	10172	1243.72	10174	1243.73	10176	1243.74
10178	1243.75	10180	1243.76	10182	1243.77	10184	1243.78	10186	1243.79
10188	1243.8	10190	1243.81	10192	1243.82	10194	1243.83	10196	1243.84
10198	1243.85	10200	1243.86	10202	1243.87	10204	1243.88	10206	1243.89
10208	1243.9	10210	1243.91	10212	1243.92	10214	1243.93	10216	1243.94
10218	1243.94	10220	1243.92	10222	1243.9	10224	1243.88	10226	1243.86
10228	1243.84	10230	1243.81	10232	1243.79	10234	1243.77	10236	1243.74
10238	1243.72	10240	1243.7	10242	1243.68	10244	1243.65	10246	1243.63
10248	1243.61	10250	1243.58	10252	1243.56	10254	1243.54	10256	1243.52
10258	1243.49	10260	1243.47	10262	1243.46	10264	1243.45	10266	1243.42
10268	1243.38	10270	1243.33	10272	1243.29	10274	1243.26	10276	1243.23
10278	1243.21	10280	1243.23	10282	1243.26	10284	1243.28	10286	1243.3
10288	1243.31	10290	1243.28	10292	1243.25	10294	1243.23	10296	1243.2
10298	1243.18	10300	1243.16						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9884	.035	10120	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9884	10120	454.44	454.44	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
9700	9870.02	1241.77

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 11.481

INPUT
Description: Blocked Obstruction used to block flow from that portion of the cross- section that does not receive subject flow.
Station Elevation Data num= 195

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1231.87	9702	1231.89	9704	1231.91	9706	1231.93	9708	1231.94
9710	1231.96	9712	1231.96	9714	1231.97	9716	1231.98	9718	1231.99
9720	1232	9722	1232	9724	1232.01	9726	1232.02	9728	1232.03
9730	1232.04	9732	1232.04	9734	1232.05	9736	1232.06	9738	1232.07
9740	1232.08	9742	1232.08	9744	1232.09	9746	1232.1	9748	1232.11
9750	1232.12	9752	1232.13	9754	1232.13	9756	1232.14	9758	1232.15
9760	1232.16	9762	1232.17	9764	1232.17	9766	1232.18	9768	1232.19
9770	1232.2	9772	1232.21	9774	1232.21	9776	1232.22	9778	1232.23
9780	1232.24	9782	1232.25	9798	1232.25	9800	1232.24	9816	1232.24
9818	1232.23	9820	1232.23	9822	1232.23	9824	1232.22	9826	1232.22
9828	1232.22	9830	1232.21	9832	1232.21	9834	1232.21	9836	1232.2
9838	1232.2	9840	1232.2	9842	1232.6	9844	1233.1	9846	1233.6
9848	1234.1	9850	1234.6	9852	1235.1	9854	1235.6	9856	1236.1
9858	1236.6	9860	1237.1	9862	1237.6	9864	1238.1	9866	1238.6
9868	1239.1	9870	1239.47	9884	1239.47	9886	1238.7	9888	1237.7
9890	1236.7	9892	1235.7	9894	1234.71	9896	1233.71	9898	1232.71
9900	1231.71	9902	1230.71	9904	1229.71	9906	1228.71	9908	1227.71
9910	1226.9	10000	1226.89	10002	1226.9	10004	1226.9	10090	1226.9
10092	1228.08	10094	1229.08	10096	1230.08	10098	1231.08	10100	1232.08
10102	1233.08	10104	1234.08	10106	1235.08	10108	1236.08	10110	1237.08
10112	1238.08	10114	1239.08	10116	1239.43	10118	1239.43	10120	1239.43
10122	1239.43	10124	1239.43	10126	1239.43	10128	1239.43	10130	1239.35
10132	1238.85	10134	1238.35	10136	1237.85	10138	1237.35	10140	1236.85
10142	1236.35	10144	1235.85	10146	1235.35	10148	1234.85	10150	1234.35
10152	1233.85	10154	1233.35	10156	1233.64	10158	1233.93	10160	1234.22
10162	1234.53	10164	1234.88	10166	1234.84	10168	1234.81	10170	1234.78
10172	1234.75	10174	1234.79	10176	1234.85	10178	1234.91	10180	1234.97
10182	1235.03	10184	1235.08	10186	1235.76	10188	1236.44	10190	1237.12
10192	1237.8	10194	1238.48	10196	1239.13	10198	1239.76	10200	1239.68
10202	1239.26	10204	1238.83	10206	1238.41	10208	1238.42	10210	1238.6
10212	1238.78	10214	1238.96	10216	1239.09	10218	1239.43	10220	1239.78
10222	1240.02	10224	1240.14	10226	1240.16	10228	1240.19	10230	1240.21
10232	1240.24	10234	1240.26	10236	1240.29	10238	1240.32	10240	1240.35
10242	1240.39	10244	1240.42	10246	1240.45	10248	1240.48	10250	1240.5
10252	1240.52	10254	1240.54	10256	1240.55	10258	1240.57	10260	1240.59
10262	1240.61	10264	1240.62	10266	1240.82	10268	1241.08	10270	1241.33
10272	1241.14	10274	1240.91	10276	1240.68	10278	1240.47	10280	1240.45
10282	1240.43	10284	1240.44	10286	1240.45	10288	1240.46	10290	1240.47

10292	1240.48	10294	1240.49	10296	1240.49	10298	1240.5	10300	1240.51

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9886	.035	10114	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9886	10114	520.47	520.47	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
9700	9870.08	1239.47	10118.11	10300	1239.4

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 11.386

INPUT
Description: Blocked Obstruction used to block flow from that portion of the cross- section that does not receive subject flow.

Station Elevation Data num= 266

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1229.9	9702	1229.91	9704	1229.92	9706	1229.94	9708	1229.96
9710	1229.98	9712	1230	9714	1230.01	9716	1230.02	9718	1230.02
9720	1230.03	9722	1230.03	9724	1230.04	9726	1230.04	9728	1230.05
9730	1230.05	9732	1230.06	9734	1230.06	9736	1230.07	9738	1230.07
9740	1230.08	9742	1230.08	9744	1230.09	9746	1230.09	9748	1230.1
9750	1230.1	9752	1230.11	9754	1230.11	9756	1230.12	9758	1230.12
9760	1230.13	9762	1230.13	9764	1230.14	9766	1230.14	9768	1230.15
9770	1230.15	9772	1230.16	9774	1230.16	9776	1230.17	9778	1230.17
9780	1230.18	9782	1230.18	9784	1230.19	9786	1230.19	9788	1230.2
9790	1230.2	9792	1230.21	9794	1230.21	9796	1230.22	9798	1230.22
9800	1230.23	9802	1230.23	9804	1230.24	9806	1230.22	9808	1230.2
9810	1230.17	9812	1230.15	9814	1230.1	9816	1230.07	9818	1230.05
9820	1230.02	9822	1229.99	9824	1229.95	9826	1229.91	9828	1229.88
9830	1229.84	9832	1229.8	9834	1229.76	9836	1230.12	9838	1230.62
9840	1231.12	9842	1231.62	9844	1232.12	9846	1232.62	9848	1233.12
9850	1233.62	9852	1234.12	9854	1234.62	9856	1235.12	9858	1235.62
9860	1236.12	9862	1236.62	9864	1237.12	9866	1237.62	9868	1237.82
9870	1237.82	9872	1237.82	9874	1237.82	9876	1237.82	9878	1237.82
9880	1237.82	9882	1237.71	9884	1236.71	9886	1235.71	9888	1234.71
9890	1233.71	9892	1232.71	9894	1231.71	9896	1230.71	9898	1229.71
9900	1228.71	9902	1227.71	9904	1226.71	9906	1225.71	9908	1224.71
9910	1223.71	9912	1223.71	9914	1223.71	9916	1223.71	9918	1223.71
9920	1223.72	9926	1223.72	9928	1223.73	9936	1223.73	9938	1223.74
9946	1223.74	9948	1223.75	9956	1223.75	9958	1223.76	9966	1223.76
9968	1223.77	9970	1223.77	9972	1223.77	9974	1223.77	9976	1223.78
9984	1223.78	9986	1223.79	9988	1223.79	9990	1223.79	9992	1223.79
9994	1223.79	9996	1223.8	10004	1223.8	10006	1223.81	10008	1223.81
10010	1223.81	10012	1223.81	10014	1223.81	10016	1223.82	10018	1223.82
10020	1223.82	10022	1223.82	10024	1223.83	10026	1223.83	10028	1223.83
10030	1223.83	10032	1223.83	10034	1223.84	10036	1223.84	10038	1223.84
10040	1223.84	10042	1223.84	10044	1223.85	10046	1223.85	10048	1223.85
10050	1223.85	10052	1223.85	10054	1223.86	10056	1223.86	10058	1223.86
10060	1223.86	10062	1223.87	10064	1223.87	10066	1223.87	10068	1223.87
10070	1223.87	10072	1223.88	10074	1223.88	10076	1223.88	10078	1223.88
10080	1223.88	10082	1223.89	10084	1223.89	10086	1223.89	10088	1223.89
10090	1223.89	10092	1224.89	10094	1225.89	10096	1226.89	10098	1227.89
10100	1228.89	10102	1229.89	10104	1230.89	10106	1231.89	10108	1232.89
10110	1233.89	10112	1234.89	10114	1235.89	10116	1236.89	10118	1237.72
10132	1237.72	10134	1237.38	10136	1236.88	10138	1236.38	10140	1235.88
10142	1236.02	10144	1236.65	10146	1237.28	10148	1237.91	10150	1238.55
10152	1238.63	10154	1238.63	10156	1238.63	10158	1238.63	10160	1238.63
10162	1238.62	10164	1238.62	10166	1238.62	10168	1238.62	10170	1238.61
10172	1238.61	10174	1238.61	10176	1238.61	10178	1238.6	10180	1238.6
10182	1238.6	10184	1238.6	10186	1238.59	10188	1238.59	10190	1238.59
10192	1238.59	10194	1238.59	10196	1238.58	10198	1238.58	10200	1238.58
10202	1238.58	10204	1238.57	10206	1238.57	10208	1238.57	10210	1238.56
10212	1238.56	10214	1238.56	10216	1238.55	10226	1238.55	10228	1238.54
10240	1238.54	10242	1238.53	10244	1238.51	10246	1238.5	10248	1238.49
10250	1238.48	10252	1238.48	10254	1238.47	10256	1238.46	10258	1238.45
10260	1238.45	10262	1238.44	10264	1238.43	10266	1238.42	10268	1238.41
10270	1238.4	10272	1238.39	10274	1238.38	10276	1238.37	10278	1238.36
10280	1238.36	10282	1238.35	10284	1238.34	10286	1238.33	10288	1238.44
10290	1238.6	10292	1238.77	10294	1238.94	10296	1239.11	10298	1239.29
10300	1239.48								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9882	.035	10118	.06

Bank Sta: Left 9882 Right 10118 Lengths: Left Channel 434.5 Right 434.5 Coeff Contr. .1 Expan. .3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
9700	9881.26	1237.72

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 11.301

INPUT
Description: Blocked Obstruction used to block flow from that portion of the cross- section that does not receive subject flow.

Station Elevation Data num= 156

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1223.69	9862	1223.69	9864	1223.87	9866	1224.38	9868	1224.89
9870	1225.4	9872	1225.91	9874	1226.41	9876	1226.92	9878	1227.43
9880	1227.94	9882	1228.45	9884	1228.96	9886	1229.46	9888	1229.98
9890	1230.52	9892	1231.03	9894	1231.01	9896	1231.04	9898	1231.06
9900	1231.08	9902	1231.1	9904	1231.12	9906	1231.25	9908	1231.47
9910	1231.74	9912	1232.01	9914	1232.29	9916	1232.57	9918	1232.8
9920	1232.23	9922	1231.66	9924	1231.09	9926	1230.52	9928	1229.95
9930	1229.38	9932	1228.82	9934	1228.25	9936	1227.68	9938	1227.11
9940	1226.54	9942	1225.97	9944	1225.4	9946	1224.81	9948	1224.21
9950	1223.61	9952	1223	9954	1222.33	9956	1221.66	9958	1221.27
10000	1221.27	10002	1221.28	10044	1221.28	10046	1221.29	10088	1221.29
10090	1221.3	10092	1222.29	10094	1223.29	10096	1224.29	10098	1225.29
10100	1226.29	10102	1227.29	10104	1228.29	10106	1229.29	10108	1230.29
10110	1231.29	10112	1232.29	10114	1233.29	10116	1234.29	10118	1235.29
10120	1236.29	10122	1236.31	10134	1236.31	10136	1236.07	10138	1235.57
10140	1235.07	10142	1234.56	10144	1234.91	10146	1234.92	10148	1234.94
10150	1234.95	10152	1234.96	10154	1234.97	10156	1234.98	10158	1234.99
10160	1235	10162	1235.02	10164	1235.03	10166	1235.04	10168	1235.05
10170	1235.06	10172	1235.07	10174	1235.08	10176	1235.1	10178	1235.11
10180	1235.12	10182	1235.13	10184	1235.14	10186	1235.15	10188	1235.16
10190	1235.17	10192	1235.19	10194	1235.2	10196	1235.21	10198	1235.22
10200	1235.23	10202	1235.24	10204	1235.25	10206	1235.27	10208	1235.28
10210	1235.29	10212	1235.3	10214	1235.31	10216	1235.32	10218	1235.33
10220	1235.34	10222	1235.36	10224	1235.37	10226	1235.38	10228	1235.39
10230	1235.4	10232	1235.41	10234	1235.42	10236	1235.43	10238	1235.44
10240	1235.45	10242	1235.45	10244	1235.46	10246	1235.47	10248	1235.47
10250	1235.48	10252	1235.48	10254	1235.49	10256	1235.5	10258	1235.5
10260	1235.51	10262	1235.51	10264	1235.52	10266	1235.52	10268	1235.53
10270	1235.54	10272	1235.54	10274	1235.55	10276	1235.55	10278	1235.56
10280	1235.57	10282	1235.58	10284	1235.59	10286	1235.6	10288	1235.61
10290	1235.62	10292	1235.63	10294	1235.64	10296	1235.66	10298	1235.67
10300	1235.68								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9918	.035	10114	.06

Bank Sta: Left 9918 Right 10114 Lengths: Left Channel 293.21 Right 293.21 Coeff Contr. .1 Expan. .3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
9700	9917.8	1232.79

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 11.243

INPUT
Description: Blocked Obstruction used to block flow from that portion of the cross- section that does not receive subject flow.

Station Elevation Data num= 301

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1218.44	9702	1218.44	9704	1218.44	9706	1218.44	9708	1218.44
9710	1218.44	9712	1218.44	9714	1218.44	9716	1218.44	9718	1218.44
9720	1218.44	9722	1218.44	9724	1218.44	9726	1218.43	9728	1218.43
9730	1218.43	9732	1218.43	9734	1218.43	9736	1218.43	9738	1218.43
9740	1218.43	9742	1218.43	9744	1218.43	9746	1218.43	9748	1218.43
9750	1218.43	9752	1218.43	9754	1218.42	9756	1218.42	9758	1218.42
9760	1218.42	9762	1218.42	9764	1218.42	9766	1218.42	9768	1218.42
9770	1218.42	9772	1218.42	9774	1218.42	9776	1218.42	9778	1218.42

9780	1218.42	9782	1218.42	9784	1218.42	9786	1218.42	9788	1218.42
9790	1218.41	9792	1218.41	9794	1218.41	9796	1218.41	9798	1218.41
9800	1218.41	9802	1218.41	9804	1218.41	9806	1218.41	9808	1218.41
9810	1218.41	9812	1218.41	9814	1218.41	9816	1218.41	9818	1218.41
9820	1218.41	9822	1218.41	9824	1218.4	9826	1218.4	9828	1218.4
9830	1218.4	9832	1218.4	9834	1218.4	9836	1218.4	9838	1218.4
9840	1218.41	9842	1218.77	9844	1219.33	9846	1219.89	9848	1220.45
9850	1221.01	9852	1221.58	9854	1222.14	9856	1222.7	9858	1223.26
9860	1223.82	9862	1224.38	9864	1224.94	9866	1225.51	9868	1226.07
9870	1226.64	9872	1227.21	9874	1227.78	9876	1228.35	9878	1228.92
9880	1229.49	9882	1230.06	9884	1230.63	9886	1231.13	9888	1231.12
9890	1231.13	9892	1231.15	9894	1231.18	9896	1231.2	9898	1231.24
9900	1231.61	9902	1231.98	9904	1232.35	9906	1232.72	9908	1233.08
9910	1233.45	9912	1233.55	9914	1232.94	9916	1232.34	9918	1231.73
9920	1231.13	9922	1230.52	9924	1229.92	9926	1229.31	9928	1228.71
9930	1228.1	9932	1227.5	9934	1226.9	9936	1226.29	9938	1225.69
9940	1225.06	9942	1224.4	9944	1223.75	9946	1223.09	9948	1222.44
9950	1222.21	9952	1221.66	9954	1220.99	9956	1220.89	9958	1220.89
9960	1220.89	9962	1220.89	9964	1220.89	9966	1220.89	9968	1220.89
9970	1220.89	9972	1220.89	9974	1220.89	9976	1220.89	9978	1220.89
9980	1220.89	9982	1220.89	9984	1220.89	9986	1220.89	9988	1220.89
9990	1220.89	9992	1220.89	9994	1220.9	9996	1220.9	9998	1220.9
10000	1220.9	10002	1220.9	10004	1220.9	10006	1220.9	10008	1220.9
10010	1220.9	10012	1220.9	10014	1220.9	10016	1220.9	10018	1220.9
10020	1220.9	10022	1220.9	10024	1220.9	10026	1220.9	10028	1220.9
10030	1220.9	10032	1220.9	10034	1220.9	10036	1220.9	10038	1220.9
10040	1220.91	10042	1220.91	10044	1220.91	10046	1220.91	10048	1220.91
10050	1220.91	10052	1220.91	10054	1220.91	10056	1220.91	10058	1220.91
10060	1220.91	10062	1220.91	10064	1220.91	10066	1220.91	10068	1220.91
10070	1220.91	10072	1220.91	10074	1220.91	10076	1220.91	10078	1220.91
10080	1220.91	10082	1220.91	10084	1220.91	10086	1220.92	10088	1220.92
10090	1220.92	10092	1221.92	10094	1222.92	10096	1223.92	10098	1224.92
10100	1225.92	10102	1226.92	10104	1227.92	10106	1228.92	10108	1229.92
10110	1230.92	10112	1231.92	10114	1232.92	10116	1233.92	10118	1234.92
10120	1235.29	10122	1235.29	10124	1235.29	10126	1235.29	10128	1235.29
10130	1235.29	10132	1235.29	10134	1235.22	10136	1234.72	10138	1234.22
10140	1233.72	10142	1233.6	10144	1233.46	10146	1233.4	10148	1233.36
10150	1233.32	10152	1233.3	10154	1233.29	10156	1233.27	10158	1233.25
10160	1233.24	10162	1233.22	10164	1233.21	10166	1233.19	10168	1233.17
10170	1233.16	10172	1233.14	10174	1233.12	10176	1233.11	10178	1233.09
10180	1233.07	10182	1233.06	10184	1233.04	10186	1233.02	10188	1233.03
10190	1233.03	10192	1233.04	10194	1233.04	10196	1233.05	10198	1233.05
10200	1233.05	10202	1233.06	10204	1233.06	10206	1233.07	10208	1233.07
10210	1233.08	10212	1233.08	10214	1233.09	10216	1233.09	10218	1233.1
10220	1233.1	10222	1233.11	10224	1233.11	10226	1233.11	10228	1233.12
10230	1233.12	10232	1233.13	10234	1233.13	10236	1233.14	10238	1233.14
10240	1233.15	10242	1233.15	10244	1233.16	10246	1233.16	10248	1233.16
10250	1233.17	10252	1233.18	10254	1233.19	10256	1233.2	10258	1233.21
10260	1233.22	10262	1233.23	10264	1233.24	10266	1233.25	10268	1233.26
10270	1233.27	10272	1233.28	10274	1233.29	10276	1233.3	10278	1233.31
10280	1233.33	10282	1233.34	10284	1233.35	10286	1233.36	10288	1233.37
10290	1233.38	10292	1233.39	10294	1233.41	10296	1233.42	10298	1233.43
10300	1233.45								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9912	.035	10118	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9912	10118	312.23	312.23	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
9700	9911.48	1233.53

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 11.188

INPUT
Description: Blocked Obstruction used to block flow from that portion of the cross- section that does not receive subject flow.

Station Elevation Data num= 186

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1218.88	9702	1218.86	9704	1218.85	9706	1218.84	9708	1218.82
9710	1218.81	9712	1218.79	9714	1218.78	9716	1218.79	9718	1218.79
9720	1218.8	9722	1218.8	9724	1218.81	9726	1218.81	9728	1218.82
9730	1218.82	9732	1218.83	9734	1218.83	9736	1218.84	9738	1218.84

9740	1218.85	9742	1218.85	9744	1218.86	9746	1218.87
9748	1218.87	9750	1218.86	9752	1218.85	9754	1218.84
9756	1218.83	9758	1218.82	9760	1218.81	9762	1218.8
9764	1218.79	9766	1218.78	9768	1218.77	9770	1218.76
9772	1218.75	9774	1218.74	9776	1218.73	9778	1218.72
9780	1218.71	9782	1218.7	9784	1218.69	9786	1218.68
9788	1218.68	9790	1218.69	9792	1218.7	9794	1218.71
9796	1218.72	9798	1218.73	9800	1218.74	9802	1218.75
9804	1218.76	9806	1219.06	9808	1219.71	9810	1220.36
9812	1221	9814	1221.65	9816	1222.3	9818	1222.94
9820	1223.57	9822	1224.19	9824	1224.82	9826	1225.45
9828	1226.07	9830	1226.7	9832	1227.32	9834	1227.95
9836	1228.58	9838	1229.2	9840	1229.83	9842	1230.45
9844	1231.08	9846	1231.4	9848	1231.38	9850	1231.37
9852	1231.35	9854	1231.33	9856	1231.31	9858	1231.3
9860	1231.27	9862	1231.24	9864	1231.21	9866	1231.37
9868	1231.84	9870	1232.28	9872	1232.73	9874	1232.23
9876	1231.66	9878	1231.08	9880	1230.5	9882	1229.93
9884	1229.35	9886	1228.78	9888	1228.2	9890	1227.62
9892	1227.05	9894	1226.46	9896	1225.87	9898	1225.28
9900	1224.68	9902	1224.09	9904	1223.5	9906	1222.91
9908	1222.32	9910	1221.7	9912	1221.05	9914	1220.47
9916	1220.47	9918	1220.48	9962	1220.48	9964	1220.49
10006	1220.49	10008	1220.5	10052	1220.5	10054	1220.51
10090	1220.51	10092	1221.51	10094	1222.51	10096	1223.51
10098	1224.51	10100	1225.51	10102	1226.51	10104	1227.51
10106	1228.51	10108	1229.51	10110	1230.51	10112	1231.51
10114	1232.51	10116	1233.51	10118	1234.22	10132	1234.22
10134	1233.82	10136	1233.32	10138	1232.82	10140	1232.26
10142	1232.22	10144	1232.02	10146	1231.88	10148	1231.87
10150	1231.86	10152	1231.86	10154	1231.85	10156	1231.84
10158	1231.84	10160	1231.83	10176	1231.83	10178	1231.82
10200	1231.82	10202	1231.81	10222	1231.81	10224	1231.8
10234	1231.8	10236	1231.81	10238	1231.82	10240	1231.83
10242	1231.84	10244	1231.85	10246	1231.86	10248	1231.87
10250	1231.89	10252	1231.9	10254	1231.91	10256	1231.92
10258	1231.93	10260	1231.94	10262	1231.95	10264	1231.96
10266	1231.97	10268	1231.98	10270	1231.99	10272	1232
10274	1232.01	10276	1232.02	10278	1232.04	10280	1232.06
10282	1232.07	10284	1232.09	10286	1232.1	10288	1232.12
10290	1232.13	10292	1232.15	10294	1232.17	10296	1232.18
10298	1232.2	10300	1232.21				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9874	.035	10118	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9874	10118	310.3 310.3	310.3	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
9700	9869.32	1232.27

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 11.129 -

INPUT
Description:

Station Elevation Data num= 187

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1231.26	9702	1231.27	9704	1231.27	9706	1231.28	9708	1231.28
9710	1231.28	9712	1231.29	9714	1231.29	9716	1231.3	9718	1231.3
9720	1231.3	9722	1231.31	9724	1231.31	9726	1231.31	9728	1231.32
9730	1231.32	9732	1231.33	9734	1231.33	9736	1231.34	9738	1231.35
9740	1231.36	9742	1231.38	9744	1231.39	9746	1231.4	9748	1231.41
9766	1231.41	9768	1231.4	9776	1231.4	9778	1231.39	9780	1231.39
9782	1231.39	9784	1231.38	9786	1231.37	9788	1231.35	9790	1231.34
9792	1231.32	9794	1231.31	9796	1231.29	9798	1231.27	9800	1231.25
9802	1231.23	9804	1231.21	9806	1231.19	9808	1231.17	9810	1231.15
9812	1231.13	9814	1231.1	9816	1231.07	9818	1231.04	9820	1231.02
9822	1230.7	9824	1230.09	9826	1229.47	9828	1228.86	9830	1228.25
9832	1227.63	9834	1227.01	9836	1226.4	9838	1225.78	9840	1225.16
9842	1224.55	9844	1223.93	9846	1223.31	9848	1222.7	9850	1222.08
9852	1221.45	9854	1220.79	9856	1220.13	9858	1220.06	9874	1220.06
9876	1220.07	9920	1220.07	9922	1220.08	9966	1220.09	10010	1220.09
10012	1220.1	10054	1220.1	10056	1220.11	10084	1220.11	10086	1220.2

10088	1221.2	10090	1222.2	10092	1223.2	10094	1224.2	10096	1225.2
10098	1226.2	10100	1227.2	10102	1228.2	10104	1229.2	10106	1230.2
10108	1231.2	10110	1232.2	10112	1233.16	10114	1233.16	10116	1233.16
10118	1233.16	10120	1233.16	10122	1233.16	10124	1233.16	10126	1233.16
10128	1232.9	10130	1232.4	10132	1231.9	10134	1231.4	10136	1230.9
10138	1231.02	10140	1230.96	10142	1230.9	10144	1230.84	10146	1230.8
10148	1230.75	10150	1230.71	10152	1230.66	10154	1230.62	10156	1230.57
10158	1230.53	10160	1230.49	10162	1230.44	10164	1230.4	10166	1230.35
10168	1230.31	10170	1230.27	10172	1230.22	10174	1230.18	10176	1230.13
10178	1230.09	10180	1230.04	10182	1230.05	10184	1230.06	10186	1230.07
10188	1230.08	10190	1230.08	10192	1230.09	10194	1230.1	10196	1230.11
10198	1230.11	10200	1230.12	10202	1230.13	10204	1230.14	10206	1230.14
10208	1230.15	10210	1230.16	10212	1230.17	10214	1230.17	10216	1230.18
10218	1230.19	10220	1230.2	10222	1230.2	10224	1230.21	10226	1230.22
10228	1230.23	10230	1230.24	10232	1230.25	10234	1230.26	10236	1230.27
10238	1230.28	10240	1230.28	10242	1230.29	10244	1230.3	10246	1230.31
10248	1230.32	10250	1230.33	10252	1230.34	10254	1230.35	10256	1230.36
10258	1230.37	10260	1230.38	10262	1230.39	10264	1230.4	10266	1230.41
10268	1230.42	10270	1230.43	10272	1230.44	10274	1230.45	10276	1230.46
10278	1230.47	10280	1230.48	10282	1230.49	10284	1230.52	10286	1230.54
10288	1230.57	10290	1230.59	10292	1230.62	10294	1230.64	10296	1230.67
10298	1230.69	10300	1230.72						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9822	.035	10112	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9822	10112	513.57	513.57	513.57	.1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 11.03

INPUT
Description: Blocked Obstruction used to block flow from that portion of the cross- section that does not receive subject flow.

Station Elevation Data num= 243

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1227.2	9702	1227.19	9704	1227.19	9706	1227.18	9708	1227.17
9710	1227.17	9712	1227.16	9714	1227.15	9716	1227.15	9718	1227.14
9720	1227.13	9722	1227.13	9724	1227.12	9726	1227.11	9728	1227.11
9730	1227.1	9732	1227.09	9734	1227.09	9736	1227.08	9738	1227.07
9740	1227.07	9742	1227.06	9744	1227.06	9746	1227.05	9748	1227.04
9750	1227.04	9752	1227.03	9754	1227.02	9756	1227.02	9758	1227.01
9760	1227	9762	1227	9764	1226.99	9766	1226.98	9768	1226.98
9770	1226.97	9772	1226.96	9774	1226.96	9776	1226.95	9778	1226.94
9780	1226.94	9782	1226.94	9784	1226.94	9786	1226.95	9788	1226.96
9790	1226.97	9792	1226.98	9794	1226.99	9796	1226.99	9798	1227
9800	1227.01	9802	1227.02	9804	1227.03	9806	1227.04	9808	1227.05
9810	1227.05	9812	1227.06	9814	1227.07	9816	1227.08	9818	1227.09
9820	1227.1	9822	1227.11	9824	1227.11	9826	1227.12	9828	1227.13
9830	1227.14	9832	1227.19	9834	1227.24	9836	1227.3	9838	1227.35
9840	1227.41	9842	1227.46	9844	1227.52	9846	1227.57	9848	1227.63
9850	1227.68	9852	1227.74	9854	1227.79	9856	1227.84	9858	1227.9
9860	1227.97	9862	1228.06	9864	1228.15	9866	1228.24	9868	1228.32
9870	1228.41	9872	1228.49	9874	1228.57	9876	1228.65	9878	1228.74
9880	1228.82	9882	1228.9	9884	1228.98	9886	1228.95	9888	1228.42
9890	1227.89	9892	1227.36	9894	1226.83	9896	1226.29	9898	1225.76
9900	1225.23	9902	1224.7	9904	1224.17	9906	1223.64	9908	1223.1
9910	1222.57	9912	1222.04	9914	1221.45	9916	1220.86	9918	1220.2
9920	1219.53	9922	1219.39	9924	1219.39	9926	1219.39	9928	1219.39
9930	1219.4	9944	1219.4	9946	1219.41	9962	1219.41	9964	1219.42
9986	1219.42	9988	1219.43	10014	1219.43	10016	1219.44	10042	1219.44
10044	1219.45	10068	1219.45	10070	1219.46	10072	1219.46	10074	1219.46
10076	1219.46	10078	1219.46	10080	1219.77	10082	1220.76	10084	1221.75
10086	1222.75	10088	1223.74	10090	1224.73	10092	1225.73	10094	1226.72
10096	1227.71	10098	1228.7	10100	1229.7	10102	1230.69	10104	1231.44
10106	1231.44	10108	1231.44	10110	1231.45	10112	1231.45	10114	1231.45
10116	1231.45	10118	1231.45	10120	1231.11	10122	1230.62	10124	1230.12
10126	1229.63	10128	1229.13	10130	1229	10132	1229.02	10134	1229.04
10136	1229.06	10138	1229.08	10140	1229.1	10142	1229.12	10144	1229.14
10146	1229.16	10148	1229.18	10150	1229.2	10152	1229.22	10154	1229.24
10156	1229.26	10158	1229.28	10160	1229.3	10162	1229.32	10164	1229.34
10166	1229.35	10168	1229.37	10170	1229.39	10172	1229.41	10174	1229.43
10176	1229.45	10178	1229.47	10180	1229.49	10182	1229.51	10184	1229.53
10186	1229.55	10188	1229.57	10190	1229.59	10192	1229.61	10194	1229.63

10196	1229.65	10198	1229.67	10200	1229.68	10202	1229.7	10204	1229.72
10206	1229.73	10208	1229.75	10210	1229.77	10212	1229.78	10214	1229.8
10216	1229.82	10218	1229.83	10220	1229.85	10222	1229.87	10224	1229.88
10226	1229.9	10228	1229.92	10230	1229.93	10232	1229.95	10234	1229.97
10236	1229.98	10238	1230	10240	1230.02	10242	1230.03	10244	1230.05
10246	1230.07	10248	1230.08	10250	1230.1	10252	1230.12	10254	1230.13
10256	1230.15	10258	1230.17	10260	1230.18	10262	1230.2	10264	1230.22
10266	1230.23	10268	1230.25	10270	1230.27	10272	1230.28	10274	1230.3
10276	1230.32	10278	1230.33	10280	1230.35	10282	1230.36	10284	1230.37
10286	1230.37	10288	1230.38	10290	1230.39	10292	1230.4	10294	1230.4
10296	1230.41	10298	1230.42	10300	1230.43				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9884	.035	10104	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9884	10104	171.06	171.06	171.06	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
9700	9854.57	1227.88

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 10.996

INPUT
Description:

Station Elevation Data num= 220

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1229.37	9702	1229.4	9704	1229.43	9706	1229.46	9708	1229.49
9710	1229.52	9712	1229.55	9714	1229.57	9716	1229.6	9718	1229.62
9720	1229.64	9722	1229.67	9724	1229.7	9726	1229.74	9728	1229.78
9730	1229.83	9732	1229.87	9734	1229.91	9736	1229.96	9738	1230
9740	1230.04	9742	1230.09	9744	1230.13	9746	1230.17	9748	1230.21
9750	1230.24	9752	1230.26	9754	1230.29	9756	1230.31	9758	1230.33
9760	1230.36	9762	1230.38	9764	1230.41	9766	1230.43	9768	1230.46
9770	1230.48	9772	1230.51	9774	1230.53	9776	1230.55	9778	1230.55
9780	1230.55	9782	1230.56	9784	1230.56	9786	1230.56	9788	1230.57
9790	1230.57	9792	1230.57	9794	1230.58	9796	1230.58	9798	1230.58
9800	1230.59	9802	1230.59	9804	1230.59	9806	1230.6	9808	1230.6
9810	1230.6	9812	1230.61	9814	1230.61	9816	1230.61	9818	1230.61
9820	1230.62	9822	1230.62	9824	1230.62	9826	1230.61	9828	1230.61
9830	1230.61	9832	1230.6	9834	1230.6	9836	1230.6	9838	1230.59
9840	1230.59	9842	1230.42	9844	1230.02	9846	1229.65	9848	1229.29
9850	1228.93	9852	1228.57	9854	1228.21	9856	1227.84	9858	1227.48
9860	1227.12	9862	1226.63	9864	1226.11	9866	1225.59	9868	1225.07
9870	1224.55	9872	1224.03	9874	1223.51	9876	1222.99	9878	1222.48
9880	1221.96	9882	1221.44	9884	1220.9	9886	1220.35	9888	1219.79
9890	1219.43	9892	1218.77	9894	1218.5	9998	1218.5	10000	1218.5
10002	1218.5	10064	1218.5	10066	1218.62	10068	1218.78	10070	1219.45
10072	1220.11	10074	1220.66	10076	1221.14	10078	1221.63	10080	1222.11
10082	1222.6	10084	1223.08	10086	1223.57	10088	1224.05	10090	1224.54
10092	1225.04	10094	1225.53	10096	1226.02	10098	1226.51	10100	1227
10102	1227.5	10104	1227.99	10106	1228.28	10108	1228.29	10110	1228.3
10112	1228.3	10114	1228.31	10116	1228.32	10118	1228.33	10120	1228.34
10122	1228.35	10124	1228.38	10126	1228.41	10128	1228.44	10130	1228.47
10132	1228.5	10134	1228.52	10136	1228.55	10138	1228.58	10140	1228.61
10142	1228.64	10144	1228.67	10146	1228.7	10148	1228.73	10150	1228.76
10152	1228.79	10154	1228.8	10156	1228.78	10158	1228.77	10160	1228.76
10162	1228.74	10164	1228.73	10166	1228.72	10168	1228.7	10170	1228.69
10172	1228.67	10174	1228.66	10176	1228.67	10178	1228.69	10180	1228.72
10182	1228.74	10184	1228.76	10186	1228.78	10188	1228.81	10190	1228.83
10192	1228.85	10194	1228.87	10196	1228.89	10198	1228.92	10200	1228.94
10202	1228.96	10204	1228.98	10206	1229.01	10208	1229.03	10210	1229.05
10212	1229.07	10214	1229.1	10216	1229.12	10218	1229.14	10220	1229.16
10222	1229.19	10224	1229.21	10226	1229.23	10228	1229.25	10230	1229.27
10232	1229.29	10234	1229.31	10236	1229.32	10238	1229.34	10240	1229.36
10242	1229.38	10244	1229.4	10246	1229.42	10248	1229.43	10250	1229.45
10252	1229.44	10254	1229.41	10256	1229.39	10258	1229.36	10260	1229.33
10262	1229.3	10264	1229.27	10266	1229.17	10268	1228.94	10270	1228.71
10272	1228.48	10274	1228.24	10276	1227.99	10278	1227.74	10280	1227.49
10282	1227.41	10284	1227.53	10286	1227.66	10288	1227.79	10290	1227.91
10292	1228.04	10294	1228.14	10296	1228.22	10298	1228.29	10300	1228.36

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9856	.035	10104	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9856	10104	127.78	127.78	.1	.3

BRIDGE RIVER: RIVER-1
REACH: Reach-1 RS: 10.988

INPUT
Description: Bridge #3

Distance from Upstream XS = 29
Deck/Roadway Width = 89
Weir Coefficient = 2.8
Bridge Deck/Roadway Skew =
Upstream Deck/Roadway Coordinates
num= 33

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
9570.09	1229.05	0	9736.5	1229.76	0	9736.52	1231.84	0
9766.95	1232.24	0	9799.76	1232.64	0	9832.56	1233.03	0
9857.71	1233.3	0	9865.35	1233.37	0	9873.35	1233.44	1227.8
9884.87	1233.53	1227.82	9898.17	1233.63	1227.9	9930.97	1233.82	1228.11
9963.77	1233.94	1228.23	9996.57	1234	1228.2	10029.38	1233.99	1228.28
10062.18	1233.9	1228.19	10094.98	1233.75	1228	10119.58	1233.59	1227.88
10128	1233.52	1227.82	10144.18	1233.39	0	10160.58	1233.24	0
10179.88	1233.04	0	10199.56	1230.73	0	10308.43	1230.33	0
10408.43	1228.47	0	10508.43	1228.59	0	10608.43	1229.66	0
10636.53	1230.13	0	10715.61	1231.3	0	10772.82	1232.1	0
10791	1232.3	0	10910	1235.1	0	11071	1236.2	0

Upstream Bridge Cross Section Data
Station Elevation Data num= 220

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1229.37	9702	1229.4	9704	1229.43	9706	1229.46	9708	1229.49
9710	1229.52	9712	1229.55	9714	1229.57	9716	1229.6	9718	1229.62
9720	1229.64	9722	1229.67	9724	1229.7	9726	1229.74	9728	1229.78
9730	1229.83	9732	1229.87	9734	1229.91	9736	1229.96	9738	1230
9740	1230.04	9742	1230.09	9744	1230.13	9746	1230.17	9748	1230.21
9750	1230.24	9752	1230.26	9754	1230.29	9756	1230.31	9758	1230.33
9760	1230.36	9762	1230.38	9764	1230.41	9766	1230.43	9768	1230.46
9770	1230.48	9772	1230.51	9774	1230.53	9776	1230.55	9778	1230.55
9780	1230.55	9782	1230.56	9784	1230.56	9786	1230.56	9788	1230.57
9790	1230.57	9792	1230.57	9794	1230.58	9796	1230.58	9798	1230.58
9800	1230.59	9802	1230.59	9804	1230.59	9806	1230.6	9808	1230.6
9810	1230.6	9812	1230.61	9814	1230.61	9816	1230.61	9818	1230.61
9820	1230.62	9822	1230.62	9824	1230.62	9826	1230.61	9828	1230.61
9830	1230.61	9832	1230.6	9834	1230.6	9836	1230.6	9838	1230.59
9840	1230.59	9842	1230.42	9844	1230.02	9846	1229.65	9848	1229.29
9850	1228.93	9852	1228.57	9854	1228.21	9856	1227.84	9858	1227.48
9860	1227.12	9862	1226.63	9864	1226.11	9866	1225.59	9868	1225.07
9870	1224.55	9872	1224.03	9874	1223.51	9876	1222.99	9878	1222.48
9880	1221.96	9882	1221.44	9884	1220.9	9886	1220.35	9888	1219.79
9890	1219.43	9892	1218.77	9894	1218.5	9998	1218.5	10000	1218.5
10002	1218.5	10064	1218.5	10066	1218.62	10068	1218.78	10070	1219.45
10072	1220.11	10074	1220.66	10076	1221.14	10078	1221.63	10080	1222.11
10082	1222.6	10084	1223.08	10086	1223.57	10088	1224.05	10090	1224.54
10092	1225.04	10094	1225.53	10096	1226.02	10098	1226.51	10100	1227
10102	1227.5	10104	1227.99	10106	1228.28	10108	1228.29	10110	1228.3
10112	1228.3	10114	1228.31	10116	1228.32	10118	1228.33	10120	1228.34
10122	1228.35	10124	1228.38	10126	1228.41	10128	1228.44	10130	1228.47
10132	1228.5	10134	1228.52	10136	1228.55	10138	1228.58	10140	1228.61
10142	1228.64	10144	1228.67	10146	1228.7	10148	1228.73	10150	1228.76
10152	1228.79	10154	1228.8	10156	1228.78	10158	1228.77	10160	1228.76
10162	1228.74	10164	1228.73	10166	1228.72	10168	1228.7	10170	1228.69
10172	1228.67	10174	1228.66	10176	1228.67	10178	1228.69	10180	1228.72
10182	1228.74	10184	1228.76	10186	1228.78	10188	1228.81	10190	1228.83
10192	1228.85	10194	1228.87	10196	1228.89	10198	1228.92	10200	1228.94
10202	1228.96	10204	1228.98	10206	1229.01	10208	1229.03	10210	1229.05
10212	1229.07	10214	1229.1	10216	1229.12	10218	1229.14	10220	1229.16

10222	1229.19	10224	1229.21	10226	1229.23	10228	1229.25	10230	1229.27
10232	1229.29	10234	1229.31	10236	1229.32	10238	1229.34	10240	1229.36
10242	1229.38	10244	1229.4	10246	1229.42	10248	1229.43	10250	1229.45
10252	1229.44	10254	1229.41	10256	1229.39	10258	1229.36	10260	1229.33
10262	1229.3	10264	1229.27	10266	1229.17	10268	1228.94	10270	1228.71
10272	1228.48	10274	1228.24	10276	1227.99	10278	1227.74	10280	1227.49
10282	1227.41	10284	1227.53	10286	1227.66	10288	1227.79	10290	1227.91
10292	1228.04	10294	1228.14	10296	1228.22	10298	1228.29	10300	1228.36

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9856	.035	10104	.06

Bank Sta: Left	Right	Coeff Contr.	Expan.
9856	10104	.1	.3

Downstream Deck/Roadway Coordinates

num= 33

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
9570.09	1229.05	0	9736.5	1229.76	0	9736.52	1231.84	0
9766.95	1232.24	0	9799.76	1232.64	0	9832.56	1233.03	0
9857.71	1233.3	0	9865.35	1233.37	0	9873.35	1233.44	1227.8
9884.87	1233.53	1227.82	9898.17	1233.63	1227.9	9930.97	1233.82	1228.11
9963.77	1233.94	1228.23	9996.57	1234	1228.21	10029.38	1233.99	1228.28
10062.18	1233.9	1228.19	10094.98	1233.75	1228	10119.58	1233.59	1227.88
10128	1233.52	1227.82	10144.18	1233.39	0	10160.58	1233.24	0
10179.88	1233.04	0	10199.56	1230.73	0	10308.43	1230.33	0
10408.43	1228.47	0	10508.43	1228.59	0	10608.43	1229.66	0
10636.53	1230.13	0	10715.61	1231.3	0	10772.82	1232.1	0
10791	1232.3	0	10910	1235.1	0	11071	1236.2	0

Downstream Bridge Cross Section Data

Station Elevation Data num= 221

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1226.01	9702	1226	9704	1225.99	9706	1225.98	9708	1225.97
9710	1225.96	9712	1225.95	9714	1225.94	9716	1225.93	9718	1225.92
9720	1225.91	9722	1225.91	9724	1225.9	9726	1225.89	9728	1225.88
9730	1225.88	9732	1225.87	9734	1225.86	9736	1225.85	9738	1225.85
9740	1225.84	9742	1225.83	9744	1225.82	9746	1225.82	9748	1225.81
9750	1225.8	9752	1225.79	9754	1225.79	9756	1225.78	9758	1225.77
9760	1225.76	9762	1225.76	9764	1225.75	9766	1225.74	9768	1225.73
9770	1225.73	9772	1225.72	9774	1225.71	9776	1225.7	9778	1225.7
9780	1225.69	9782	1225.68	9784	1225.67	9786	1225.67	9788	1225.66
9790	1225.65	9792	1225.64	9794	1225.63	9796	1225.62	9798	1225.62
9800	1225.61	9802	1225.6	9804	1225.59	9806	1225.58	9808	1225.57
9810	1225.57	9812	1225.56	9814	1225.55	9816	1225.54	9818	1225.53
9820	1225.52	9822	1225.53	9824	1225.53	9826	1225.54	9828	1225.54
9830	1225.55	9832	1225.56	9834	1225.63	9836	1225.8	9838	1225.97
9840	1226.13	9842	1226.3	9844	1226.46	9846	1226.6	9848	1226.74
9850	1226.88	9852	1227.03	9854	1227.17	9856	1227.31	9858	1227.45
9860	1227.59	9862	1227.52	9864	1226.95	9866	1226.38	9868	1225.81
9870	1225.24	9872	1224.68	9874	1224.11	9876	1223.54	9878	1222.97
9880	1222.4	9882	1221.83	9884	1221.26	9886	1220.7	9888	1220.15
9890	1219.56	9892	1218.9	9894	1218.23	9896	1217.72	9998	1217.72
10000	1217.72	10002	1217.72	10064	1217.72	10066	1217.98	10068	1218.65
10070	1219.32	10072	1219.98	10074	1220.61	10076	1221.23	10078	1221.84
10080	1222.45	10082	1223.06	10084	1223.68	10086	1224.29	10088	1224.9
10090	1225.51	10092	1226.13	10094	1226.74	10096	1227.35	10098	1227.97
10100	1228.58	10102	1229.19	10104	1229.48	10106	1229.78	10108	1230.06
10110	1230.32	10112	1230.57	10114	1230.6	10116	1230.59	10118	1230.57
10120	1230.55	10122	1230.54	10124	1230.52	10126	1230.5	10128	1230.48
10130	1230.47	10132	1230.45	10134	1230.43	10136	1230.42	10138	1230.4
10140	1230.38	10142	1230.37	10144	1230.35	10146	1230.33	10148	1230.32
10150	1230.3	10152	1230.28	10154	1230.26	10156	1230.25	10158	1230.23
10160	1230.21	10162	1230.2	10164	1230.18	10166	1230.16	10168	1230.15
10170	1230.13	10172	1230.11	10174	1230.1	10176	1230.08	10178	1230.06
10180	1230.05	10182	1230.03	10184	1230.01	10186	1229.99	10188	1229.97
10190	1229.93	10192	1229.89	10194	1229.85	10196	1229.81	10198	1229.78
10200	1229.75	10202	1229.73	10204	1229.7	10206	1229.68	10208	1229.65
10210	1229.62	10212	1229.59	10214	1229.55	10216	1229.52	10218	1229.49
10220	1229.46	10222	1229.43	10224	1229.4	10226	1229.37	10228	1229.34
10230	1229.31	10232	1229.27	10234	1229.24	10236	1229.21	10238	1229.18
10240	1229.14	10242	1229.11	10244	1229.08	10246	1229.06	10248	1229.03
10250	1229.01	10252	1228.99	10254	1228.97	10256	1228.95	10258	1228.93
10260	1228.9	10262	1228.88	10264	1228.87	10266	1228.85	10268	1228.84
10270	1228.83	10272	1228.81	10274	1228.79	10276	1228.77	10278	1228.76

```
  10280 1228.75   10282 1228.75   10284 1228.74   10286 1228.72   10288  1228.7
  10290 1228.68   10292 1228.67   10294 1228.65   10296 1228.63   10298 1228.61
  10300  1228.6

Manning's n Values          num=        3
     Sta   n Val      Sta   n Val      Sta   n Val
    9700     .06     9864    .035    10098     .06

Bank Sta: Left   Right    Coeff Contr.   Expan.
          9864   10098             .1       .3

Upstream Embankment side slope                =       2 horiz. to 1.0 vertical
Downstream Embankment side slope              =       2 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =      .95
Elevation at which weir flow begins           = 1228.47
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=  9936.5    Downstream=  9936.5
Upstream      num=        2
    Width    Elev     Width    Elev
       3     1217         3  1228.5
Downstream      num=       2
    Width    Elev     Width    Elev
       3     1217         3  1228.5

Pier Data
Pier Station     Upstream=    9985    Downstream=    9985
Upstream      num=        2
    Width    Elev     Width    Elev
       3     1217         3  1228.5
Downstream      num=       2
    Width    Elev     Width    Elev
       3     1217         3  1228.5

Pier Data
Pier Station     Upstream= 10033.5    Downstream= 10033.5
Upstream      num=        2
    Width    Elev     Width    Elev
       3     1217         3  1228.5
Downstream      num=       2
    Width    Elev     Width    Elev
       3     1217         3  1228.5

Pier Data
Pier Station     Upstream=   10082    Downstream=   10082
Upstream      num=        2
    Width    Elev     Width    Elev
       3     1217         3  1228.5
Downstream      num=       2
    Width    Elev     Width    Elev
       3     1217         3  1228.5

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 =.7905694
           Max Low Cord                = 1228.28

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

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 10.98

INPUT
Description:

Station Elevation Data num= 221

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1226.01	9702	1226	9704	1225.99	9706	1225.98	9708	1225.97
9710	1225.96	9712	1225.95	9714	1225.94	9716	1225.93	9718	1225.92
9720	1225.91	9722	1225.91	9724	1225.9	9726	1225.89	9728	1225.88
9730	1225.88	9732	1225.87	9734	1225.86	9736	1225.85	9738	1225.85
9740	1225.84	9742	1225.83	9744	1225.82	9746	1225.82	9748	1225.81
9750	1225.8	9752	1225.79	9754	1225.79	9756	1225.78	9758	1225.77
9760	1225.76	9762	1225.76	9764	1225.75	9766	1225.74	9768	1225.73
9770	1225.73	9772	1225.72	9774	1225.71	9776	1225.7	9778	1225.7
9780	1225.69	9782	1225.68	9784	1225.67	9786	1225.67	9788	1225.66
9790	1225.65	9792	1225.64	9794	1225.63	9796	1225.62	9798	1225.62
9800	1225.61	9802	1225.6	9804	1225.59	9806	1225.58	9808	1225.57
9810	1225.57	9812	1225.56	9814	1225.55	9816	1225.54	9818	1225.53
9820	1225.52	9822	1225.53	9824	1225.53	9826	1225.54	9828	1225.54
9830	1225.55	9832	1225.56	9834	1225.63	9836	1225.8	9838	1225.97
9840	1226.13	9842	1226.3	9844	1226.46	9846	1226.6	9848	1226.74
9850	1226.88	9852	1227.03	9854	1227.17	9856	1227.31	9858	1227.45
9860	1227.59	9862	1227.52	9864	1226.95	9866	1226.38	9868	1225.81
9870	1225.24	9872	1224.68	9874	1224.11	9876	1223.54	9878	1222.97
9880	1222.4	9882	1221.83	9884	1221.26	9886	1220.7	9888	1220.15
9890	1219.56	9892	1218.9	9894	1218.23	9896	1217.72	9998	1217.72
10000	1217.72	10002	1217.72	10064	1217.72	10066	1217.98	10068	1218.65
10070	1219.32	10072	1219.98	10074	1220.61	10076	1221.23	10078	1221.84
10080	1222.45	10082	1223.06	10084	1223.68	10086	1224.29	10088	1224.9
10090	1225.51	10092	1226.13	10094	1226.74	10096	1227.35	10098	1227.97
10100	1228.58	10102	1229.19	10104	1229.48	10106	1229.78	10108	1230.06
10110	1230.32	10112	1230.57	10114	1230.6	10116	1230.59	10118	1230.57
10120	1230.55	10122	1230.54	10124	1230.52	10126	1230.5	10128	1230.48
10130	1230.47	10132	1230.45	10134	1230.43	10136	1230.42	10138	1230.4
10140	1230.38	10142	1230.37	10144	1230.35	10146	1230.33	10148	1230.32
10150	1230.3	10152	1230.28	10154	1230.26	10156	1230.25	10158	1230.23
10160	1230.21	10162	1230.2	10164	1230.18	10166	1230.16	10168	1230.15
10170	1230.13	10172	1230.11	10174	1230.1	10176	1230.08	10178	1230.06
10180	1230.05	10182	1230.03	10184	1230.01	10186	1229.99	10188	1229.97
10190	1229.93	10192	1229.89	10194	1229.85	10196	1229.81	10198	1229.78
10200	1229.75	10202	1229.73	10204	1229.7	10206	1229.68	10208	1229.65
10210	1229.62	10212	1229.59	10214	1229.55	10216	1229.52	10218	1229.49
10220	1229.46	10222	1229.43	10224	1229.4	10226	1229.37	10228	1229.34
10230	1229.31	10232	1229.27	10234	1229.24	10236	1229.21	10238	1229.18
10240	1229.14	10242	1229.11	10244	1229.08	10246	1229.06	10248	1229.03
10250	1229.01	10252	1228.99	10254	1228.97	10256	1228.95	10258	1228.93
10260	1228.9	10262	1228.88	10264	1228.87	10266	1228.85	10268	1228.84
10270	1228.83	10272	1228.81	10274	1228.79	10276	1228.77	10278	1228.76
10280	1228.75	10282	1228.75	10284	1228.74	10286	1228.72	10288	1228.7
10290	1228.68	10292	1228.67	10294	1228.65	10296	1228.63	10298	1228.61
10300	1228.6								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9864	.035	10098	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9864	10098	355.16	355.16	355.16	.1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 10.917

INPUT
Description: Blocked Obstruction used to block flow from that portion of the cross- section that does not receive subject flow.

Station Elevation Data num= 195

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1224.12	9702	1224.1	9704	1224.09	9706	1224.07	9708	1224.05
9710	1224.03	9712	1224.02	9714	1224	9716	1223.98	9718	1223.96
9720	1223.95	9722	1223.93	9724	1223.91	9726	1223.9	9728	1223.88
9730	1223.86	9732	1223.85	9734	1223.83	9736	1223.82	9738	1223.8
9740	1223.79	9742	1223.77	9744	1223.76	9746	1223.74	9748	1223.73
9750	1223.71	9752	1223.7	9754	1223.68	9756	1223.67	9758	1223.66
9760	1223.64	9762	1223.63	9764	1223.61	9766	1223.6	9768	1223.58
9770	1223.59	9772	1223.6	9774	1223.61	9776	1223.62	9778	1223.63
9780	1223.64	9782	1223.65	9784	1223.66	9786	1223.7	9788	1223.74
9790	1223.78	9792	1223.82	9794	1223.86	9796	1223.9	9798	1223.98
9800	1224.32	9802	1224.58	9804	1224.85	9806	1225.12	9808	1225.39
9810	1225.66	9812	1225.93	9814	1226.2	9816	1226.47	9818	1226.48
9820	1226.42	9822	1226.37	9824	1226.31	9826	1226.25	9828	1226.18
9830	1226.06	9832	1225.93	9834	1225.81	9836	1225.68	9838	1225.56
9840	1225.44	9842	1225.31	9844	1225.19	9846	1225.06	9848	1224.86
9850	1224.18	9852	1224.68	9854	1225.18	9856	1225.68	9858	1226.18
9860	1226.68	9862	1227.18	9864	1227.68	9866	1228.18	9868	1228.68
9870	1229.13	9884	1229.13	9886	1228.53	9888	1227.53	9890	1226.53
9892	1225.53	9894	1224.53	9896	1223.53	9898	1222.53	9900	1221.53
9902	1220.53	9904	1219.53	9906	1218.53	9908	1217.53	9910	1216.53
9912	1216.3	10000	1216.3	10116	1216.3	10118	1216.45	10120	1217.12
10122	1217.78	10124	1218.44	10126	1219.1	10128	1219.77	10130	1220.33
10132	1220.69	10134	1221.05	10136	1221.41	10138	1221.74	10140	1221.72
10142	1221.69	10144	1221.66	10146	1221.63	10148	1221.64	10150	1221.68
10152	1221.73	10154	1221.78	10156	1221.83	10158	1221.88	10160	1221.96
10162	1222.04	10164	1222.13	10166	1222.21	10168	1222.29	10170	1222.38
10172	1222.46	10174	1222.55	10176	1222.63	10178	1222.71	10180	1222.8
10182	1222.88	10184	1222.97	10186	1223.05	10188	1223.13	10190	1223.22
10192	1223.3	10194	1223.39	10196	1223.47	10198	1223.55	10200	1223.64
10202	1223.72	10204	1223.81	10206	1223.89	10208	1223.96	10210	1223.98
10212	1224	10214	1224.02	10216	1224.03	10218	1224.01	10220	1223.98
10222	1223.96	10224	1224.04	10226	1224.12	10228	1224.21	10230	1224.29
10232	1224.34	10234	1224.35	10236	1224.36	10238	1224.37	10240	1224.38
10242	1224.39	10244	1224.39	10246	1224.4	10248	1224.41	10250	1224.42
10252	1224.43	10254	1224.44	10256	1224.45	10258	1224.46	10260	1224.47
10262	1224.48	10264	1224.49	10266	1224.5	10268	1224.51	10270	1224.52
10272	1224.53	10274	1224.54	10276	1224.56	10278	1224.57	10280	1224.58
10282	1224.59	10284	1224.61	10286	1224.62	10288	1224.63	10290	1224.64
10292	1224.65	10294	1224.67	10296	1224.68	10298	1224.69	10300	1224.7

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9892	.035	10138	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9892	10138	276.24	276.24	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
9700	9874	1225

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 10.862

INPUT
Description: Blocked Obstruction used to block flow from that portion of the cross- section that does not receive subject flow.

Station Elevation Data num= 41

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8693.001	12218	707.651	1221.66	8723.861	1221.21	8776.301	1223.37	8804.512	1223.26
8842.771	1223.2	8864.521	1220.97	8878.661	1215.66	8941.531	1216.49	8958.451	1215.43
8962.161	1215.6	8992.932	1215.97	9026.801	1215.89	9049.031	1217.66	9068.682	1216.54
9086.041	1216.6	9110.972	1228.35	9121.182	1224.34	9124.682	1222.96	9138.021	1222.82
9180.381	1222.7	9222.581	1224.05	9247.791	1224.75	9264.771	1225.68	9276.161	1224.89
9325.682	1226.3	9339.932	1223.33	9396.151	1224.09	9482.222	1224.37	9589.871	1225.46
9624.041	1225.6	9689.352	1225.52	9764.312	1225.36	9851.981	1225.46	9909.472	1225.28
9988.361	1225.1	10084.47	1224.61	10149.06	1224.71	10250.35	1224.75	10262.23	1225.12

10268.53 1224

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8693.001	.06	8842.771	.035	9110.972	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
8842.77	9110.972	286.29	286.29	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
8693.001	8842.831	1223.29	9111.031	10268.53	1228.34

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 10.810

INPUT
Description: Blocked Obstruction used to block flow from that portion of the cross- section that does not receive subject flow.

Station Elevation Data num= 134

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1221.05	9702	1220.78	9704	1220.5	9706	1220.22	9708	1219.94
9710	1219.66	9712	1219.38	9714	1219.1	9716	1218.82	9718	1218.55
9720	1218.43	9722	1218.33	9724	1218.24	9726	1218.15	9728	1218.05
9730	1217.96	9732	1217.87	9734	1217.77	9736	1217.68	9738	1217.59
9740	1217.49	9742	1217.4	9744	1217.32	9746	1217.58	9748	1217.85
9750	1218.12	9752	1218.38	9754	1218.65	9756	1218.91	9758	1219.18
9760	1219.44	9762	1219.71	9764	1219.98	9766	1220.24	9768	1220.51
9770	1220.77	9772	1221.02	9774	1221.14	9776	1221.15	9778	1221.15
9780	1221.15	9782	1221.16	9784	1221.16	9786	1221.15	9788	1221.09
9790	1221.03	9792	1220.97	9794	1220.91	9796	1220.85	9798	1220.8
9800	1220.75	9802	1220.69	9804	1220.64	9806	1220.58	9808	1220.5
9810	1220.39	9812	1220.29	9814	1220.19	9816	1220.1	9818	1220.16
9820	1220.22	9822	1220.28	9824	1220.34	9826	1220.39	9828	1220.45
9830	1220.51	9832	1220.57	9834	1220.63	9836	1220.69	9838	1220.71
9840	1220.72	9842	1220.61	9844	1220.5	9846	1220.4	9848	1220.29
9850	1220.18	9852	1220.07	9854	1219.97	9856	1219.86	9858	1219.75
9860	1219.82	9862	1220	9874	1220	9876	1219.85	9878	1218.85
9880	1217.85	9882	1216.85	9884	1215.85	9886	1215.03	10150	1215.03
10152	1215.67	10154	1216.34	10156	1217.04	10158	1217.89	10160	1218.74
10162	1219.59	10164	1220.24	10166	1220.23	10168	1220.23	10170	1220.23
10172	1220.22	10174	1220.22	10176	1220.21	10178	1220.29	10180	1220.43
10182	1220.54	10184	1220.44	10186	1220.35	10188	1220.42	10190	1220.49
10192	1220.56	10202	1220.56	10204	1220.55	10260	1220.55	10262	1220.54
10264	1220.54	10266	1220.54	10268	1220.53	10270	1220.53	10272	1220.53
10274	1220.52	10276	1220.52	10278	1220.52	10280	1220.51	10282	1220.51
10284	1220.51	10286	1220.5	10288	1220.5	10290	1220.48	10292	1220.47
10294	1220.46	10296	1220.44	10298	1220.43	10300	1220.41		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9876	.035	10164	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9876	10164	20	20	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
9700	9785	1220.5

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 10.806

INPUT
Description: Blocked Obstruction used to block flow from that portion of the cross- section that does not receive subject flow.

Station Elevation Data num= 134

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1221.05	9702	1220.78	9704	1220.5	9706	1220.22	9708	1219.94
9710	1219.66	9712	1219.38	9714	1219.1	9716	1218.82	9718	1218.55
9720	1218.43	9722	1218.33	9724	1218.24	9726	1218.15	9728	1218.05
9730	1217.96	9732	1217.87	9734	1217.77	9736	1217.68	9738	1217.59
9740	1217.49	9742	1217.4	9744	1217.32	9746	1217.58	9748	1217.85
9750	1218.12	9752	1218.38	9754	1218.65	9756	1218.91	9758	1219.18
9760	1219.44	9762	1219.71	9764	1219.98	9766	1220.24	9768	1220.51
9770	1220.77	9772	1221.02	9774	1221.14	9776	1221.15	9778	1221.15
9780	1221.15	9782	1221.16	9784	1221.16	9786	1221.15	9788	1221.09
9790	1221.03	9792	1220.97	9794	1220.91	9796	1220.85	9798	1220.8

9800	1220.75	9802	1220.69	9804	1220.64	9806	1220.58	9808	1220.5
9810	1220.39	9812	1220.29	9814	1220.19	9816	1220.1	9818	1220.16
9820	1220.22	9822	1220.28	9824	1220.34	9826	1220.39	9828	1220.45
9830	1220.51	9832	1220.57	9834	1220.63	9836	1220.69	9838	1220.71
9840	1220.72	9842	1220.61	9844	1220.5	9846	1220.4	9848	1220.29
9850	1220.18	9852	1220.07	9854	1219.97	9856	1219.86	9858	1219.75
9860	1219.82	9862	1220	9874	1220	9876	1219.85	9878	1218.85
9880	1217.85	9882	1216.85	9884	1215.85	9886	1215	10150	1215
10152	1215.67	10154	1216.34	10156	1217.04	10158	1217.89	10160	1218.74
10162	1219.59	10164	1220.24	10166	1220.23	10168	1220.23	10170	1220.23
10172	1220.22	10174	1220.22	10176	1220.21	10178	1220.29	10180	1220.43
10182	1220.54	10184	1220.44	10186	1220.35	10188	1220.42	10190	1220.49
10192	1220.56	10202	1220.56	10204	1220.55	10260	1220.55	10262	1220.54
10264	1220.54	10266	1220.54	10268	1220.53	10270	1220.53	10272	1220.53
10274	1220.52	10276	1220.52	10278	1220.52	10280	1220.51	10282	1220.51
10284	1220.51	10286	1220.5	10288	1220.5	10290	1220.48	10292	1220.47
10294	1220.46	10296	1220.44	10298	1220.43	10300	1220.41		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9880	.035	10156	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9880	10156	11	11	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
9700	9800	1220

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 10.803

INPUT
Description:

Station Elevation Data num= 157

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1221.05	9702	1220.78	9704	1220.5	9706	1220.22	9708	1219.94
9710	1219.66	9712	1219.38	9714	1219.1	9716	1218.82	9718	1218.55
9720	1218.43	9722	1218.33	9724	1218.24	9726	1218.15	9728	1218.05
9730	1217.96	9732	1217.87	9734	1217.77	9736	1217.68	9738	1217.59
9740	1217.49	9742	1217.4	9744	1217.32	9746	1217.58	9748	1217.85
9750	1218.12	9752	1218.38	9754	1218.65	9756	1218.91	9758	1219.18
9760	1219.44	9762	1219.71	9764	1219.98	9766	1220.24	9768	1220.51
9770	1220.77	9772	1221.02	9774	1221.14	9776	1221.15	9778	1221.15
9780	1221.15	9782	1221.16	9784	1221.16	9786	1221.15	9788	1221.09
9790	1221.03	9792	1220.97	9794	1220.91	9796	1220.85	9798	1220.8
9800	1220.75	9802	1220.69	9804	1220.64	9806	1220.58	9808	1220.5
9810	1220.39	9812	1220.29	9814	1220.19	9816	1220.1	9818	1220.16
9820	1220.22	9822	1220.28	9824	1220.34	9826	1220.39	9828	1220.45
9830	1220.51	9832	1220.57	9834	1220.63	9836	1220.69	9838	1220.71
9840	1220.72	9842	1220.61	9844	1220.5	9846	1220.4	9848	1220.29
9850	1220.18	9852	1220.07	9854	1219.97	9856	1219.86	9858	1219.75
9860	1219.82	9862	1220	9874	1220	9876	1219.85	9878	1218.85
9880	1217.85	9882	1216.85	9884	1215.85	9886	1214.85	9888	1213.85
9890	1212.85	9892	1211.85	9894	1210.85	9896	1209.85	9898	1208.85
9900	1207.85	9902	1207.84	9976	1207.84	9978	1207.83	10106	1207.83
10108	1207.82	10128	1207.82	10130	1208.33	10132	1209	10134	1209.66
10136	1210.33	10138	1211	10140	1211.66	10142	1212.33	10144	1213
10146	1213.66	10148	1214.33	10150	1215	10152	1215.67	10154	1216.34
10156	1217.04	10158	1217.89	10160	1218.74	10162	1219.59	10164	1220.24
10166	1220.23	10168	1220.23	10170	1220.23	10172	1220.22	10174	1220.22
10176	1220.21	10178	1220.29	10180	1220.43	10182	1220.54	10184	1220.44
10186	1220.35	10188	1220.42	10190	1220.49	10192	1220.56	10202	1220.56
10204	1220.55	10260	1220.55	10262	1220.54	10264	1220.54	10266	1220.54
10268	1220.53	10270	1220.53	10272	1220.53	10274	1220.52	10276	1220.52
10278	1220.52	10280	1220.51	10282	1220.51	10284	1220.51	10286	1220.5
10288	1220.5	10290	1220.48	10292	1220.47	10294	1220.46	10296	1220.44
10298	1220.43	10300	1220.41						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9874	.035	10164	.06

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

9874	10164	50	50	50	.1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 10.794

INPUT
Description:
Station Elevation Data num= 157

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1221.05	9702	1220.78	9704	1220.5	9706	1220.22	9708	1219.94
9710	1219.66	9712	1219.38	9714	1219.1	9716	1218.82	9718	1218.55
9720	1218.43	9722	1218.33	9724	1218.24	9726	1218.15	9728	1218.05
9730	1217.96	9732	1217.87	9734	1217.77	9736	1217.68	9738	1217.59
9740	1217.49	9742	1217.4	9744	1217.32	9746	1217.58	9748	1217.85
9750	1218.12	9752	1218.38	9754	1218.65	9756	1218.91	9758	1219.18
9760	1219.44	9762	1219.71	9764	1219.98	9766	1220.24	9768	1220.51
9770	1220.77	9772	1221.02	9774	1221.14	9776	1221.15	9778	1221.15
9780	1221.15	9782	1221.16	9784	1221.16	9786	1221.15	9788	1221.09
9790	1221.03	9792	1220.97	9794	1220.91	9796	1220.85	9798	1220.8
9800	1220.75	9802	1220.69	9804	1220.64	9806	1220.58	9808	1220.5
9810	1220.39	9812	1220.29	9814	1220.19	9816	1220.1	9818	1220.16
9820	1220.22	9822	1220.28	9824	1220.34	9826	1220.39	9828	1220.45
9830	1220.51	9832	1220.57	9834	1220.63	9836	1220.69	9838	1220.71
9840	1220.72	9842	1220.61	9844	1220.5	9846	1220.4	9848	1220.29
9850	1220.18	9852	1220.07	9854	1219.97	9856	1219.86	9858	1219.75
9860	1219.82	9862	1220	9874	1220	9876	1219.85	9878	1218.85
9880	1217.85	9882	1216.85	9884	1215.85	9886	1214.85	9888	1213.85
9890	1212.85	9892	1211.85	9894	1210.85	9896	1209.85	9898	1208.85
9900	1207.75	9902	1207.74	9976	1207.74	9978	1207.73	10106	1207.73
10108	1207.72	10128	1207.72	10130	1208.33	10132	1209	10134	1209.66
10136	1210.33	10138	1211	10140	1211.66	10142	1212.33	10144	1213
10146	1213.66	10148	1214.33	10150	1215	10152	1215.67	10154	1216.34
10156	1217.04	10158	1217.89	10160	1218.74	10162	1219.59	10164	1220.24
10166	1220.23	10168	1220.23	10170	1220.23	10172	1220.22	10174	1220.22
10176	1220.21	10178	1220.29	10180	1220.43	10182	1220.54	10184	1220.44
10186	1220.35	10188	1220.42	10190	1220.49	10192	1220.56	10202	1220.56
10204	1220.55	10260	1220.55	10262	1220.54	10264	1220.54	10266	1220.54
10268	1220.53	10270	1220.53	10272	1220.53	10274	1220.52	10276	1220.52
10278	1220.52	10280	1220.51	10282	1220.51	10284	1220.51	10286	1220.5
10288	1220.5	10290	1220.48	10292	1220.47	10294	1220.46	10296	1220.44
10298	1220.43	10300	1220.41						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9874	.035	10164	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9874	10164	506.22	506.22	.1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 10.699

INPUT
Description:

Station Elevation Data num= 204

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1220.42	9702	1220.47	9704	1220.51	9706	1220.56	9708	1220.61
9710	1220.67	9712	1220.73	9714	1220.81	9716	1220.89	9718	1220.98
9720	1221.07	9722	1221.16	9724	1221.25	9726	1221.34	9728	1221.43
9730	1221.52	9732	1221.61	9734	1221.7	9736	1221.62	9738	1221.38
9740	1221.03	9742	1220.72	9744	1220.52	9746	1220.33	9748	1220.13
9750	1219.94	9752	1219.74	9754	1219.79	9756	1219.99	9758	1220.22
9760	1220.46	9762	1220.7	9764	1220.94	9766	1221.18	9768	1221.42
9770	1221.67	9772	1221.91	9774	1222.15	9776	1222.39	9778	1222.63
9780	1222.87	9782	1223.12	9784	1223.36	9786	1223.6	9788	1223.62
9790	1223.63	9792	1223.65	9794	1223.67	9796	1223.68	9798	1223.7
9800	1223.71	9802	1223.73	9804	1223.7	9806	1223.67	9808	1223.64
9810	1223.62	9812	1223.59	9814	1223.56	9816	1223.54	9818	1223.51
9820	1223.42	9822	1223.32	9824	1223.23	9826	1223.14	9828	1223.04
9830	1222.95	9832	1222.85	9834	1222.8	9836	1222.8	9838	1221.79
9840	1220.79	9842	1219.78	9844	1218.77	9846	1217.77	9848	1216.76
9850	1216.4	9852	1216.9	9854	1217	9866	1217	9868	1216.71
9870	1215.72	9872	1214.72	9874	1213.72	9876	1212.72	9878	1211.72

9880	1210.72	9882	1209.72	9884	1208.72	9886	1207.72	9888	1206.76
9924	1206.76	9926	1206.75	9964	1206.75	9966	1206.74	10006	1206.74
10008	1206.73	10048	1206.73	10050	1206.72	10090	1206.72	10092	1206.71
10094	1206.71	10096	1206.74	10098	1207.41	10100	1208.08	10102	1208.74
10104	1209.41	10106	1210.08	10108	1210.74	10110	1211.41	10112	1212.07
10114	1212.74	10116	1213.37	10118	1214.03	10120	1214.82	10122	1215.6
10124	1216.39	10126	1217.17	10128	1217.94	10130	1218.21	10132	1218.26
10134	1218.3	10136	1218.34	10138	1218.39	10140	1218.43	10142	1218.48
10144	1218.52	10146	1218.57	10148	1218.61	10150	1218.65	10152	1218.7
10154	1218.74	10156	1218.79	10158	1218.83	10160	1218.86	10162	1218.85
10164	1218.84	10166	1218.83	10168	1218.81	10170	1218.8	10172	1218.79
10174	1218.78	10176	1218.77	10178	1218.76	10180	1218.75	10182	1218.74
10184	1218.72	10186	1218.71	10188	1218.7	10190	1218.69	10192	1218.68
10194	1218.67	10196	1218.66	10198	1218.65	10200	1218.64	10202	1218.62
10204	1218.61	10206	1218.6	10208	1218.59	10210	1218.58	10212	1218.57
10214	1218.56	10216	1218.55	10218	1218.53	10220	1218.52	10222	1218.5
10224	1218.49	10226	1218.47	10228	1218.45	10230	1218.43	10232	1218.41
10234	1218.39	10236	1218.37	10238	1218.25	10240	1218.12	10242	1218
10244	1217.87	10246	1217.75	10248	1217.62	10250	1217.5	10252	1217.37
10254	1217.26	10256	1217.15	10258	1217.05	10260	1216.95	10262	1216.85
10264	1216.77	10266	1216.78	10268	1216.8	10270	1216.81	10272	1216.83
10274	1216.85	10276	1216.88	10278	1216.91	10280	1216.9	10282	1216.86
10284	1216.82	10286	1216.77	10288	1216.73	10290	1216.69	10292	1216.66
10294	1216.66	10296	1216.71	10298	1216.75	10300	1216.79		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9868	.035	10128	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9868	10128	459.22	459.22	459.22	.1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 10.612

INPUT
Description:

Station Elevation Data num= 180

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1217	9702	1216.98	9704	1216.96	9706	1216.95	9708	1216.85
9710	1216.77	9712	1216.69	9714	1216.61	9716	1216.54	9718	1216.46
9720	1216.38	9722	1216.32	9724	1216.31	9726	1216.3	9728	1216.29
9730	1216.3	9732	1216.31	9734	1216.32	9736	1216.32	9738	1216.33
9740	1216.42	9742	1216.86	9744	1217.3	9746	1217.74	9748	1218.18
9750	1218.62	9752	1219.06	9754	1219.5	9756	1219.94	9758	1220.38
9760	1220.82	9762	1221.25	9764	1221.45	9766	1221.48	9768	1221.5
9770	1221.53	9772	1221.55	9774	1221.57	9776	1221.6	9778	1221.62
9780	1221.62	9782	1221.61	9784	1221.6	9786	1221.58	9788	1221.55
9790	1221.52	9792	1221.5	9794	1221.47	9796	1221.46	9798	1221.45
9800	1221.44	9802	1221.42	9804	1221.34	9806	1221.17	9808	1221.07
9810	1220.92	9812	1220.78	9814	1220.05	9816	1219.47	9818	1218.78
9820	1218.09	9822	1217.4	9824	1216.71	9826	1216.02	9828	1215.33
9830	1214.64	9832	1214.27	9834	1214.77	9836	1215	9848	1215
9850	1214.97	9852	1213.97	9854	1212.97	9856	1211.97	9858	1210.97
9860	1209.97	9862	1208.97	9864	1207.98	9866	1206.98	9868	1205.98
9870	1205.83	9872	1205.83	9874	1205.83	9876	1205.83	9878	1205.83
9880	1205.82	9982	1205.82	9984	1205.81	10092	1205.81	10094	1205.8
10122	1205.8	10124	1205.8	10126	1206.31	10128	1206.97	10130	1207.64
10132	1208.3	10134	1208.97	10136	1209.63	10138	1210.35	10140	1211.13
10142	1211.87	10144	1212.6	10146	1213.33	10148	1214.06	10150	1214.79
10152	1215.52	10154	1215.63	10156	1215.63	10158	1215.64	10160	1215.64
10162	1215.65	10164	1215.65	10166	1215.66	10168	1215.67	10170	1215.67
10172	1215.68	10174	1215.68	10176	1215.69	10178	1215.69	10180	1215.7
10182	1215.7	10184	1215.71	10186	1215.71	10188	1215.72	10190	1215.73
10192	1215.73	10194	1215.74	10196	1215.74	10198	1215.75	10200	1215.75
10202	1215.76	10204	1215.76	10206	1215.77	10208	1215.78	10210	1215.78
10212	1215.79	10214	1215.79	10216	1215.8	10218	1215.8	10220	1215.81
10222	1215.81	10224	1215.82	10226	1215.82	10228	1215.83	10230	1215.83
10232	1215.84	10234	1215.84	10236	1215.84	10238	1215.85	10240	1215.85
10242	1215.86	10244	1215.86	10246	1215.86	10248	1215.87	10250	1215.87
10252	1215.88	10254	1215.88	10256	1215.79	10258	1215.65	10260	1215.5
10262	1215.36	10264	1215.21	10266	1215.06	10268	1214.92	10270	1214.77
10272	1214.62	10274	1214.48	10276	1214.38	10278	1214.27	10280	1214.16

10282	1214.05	10284	1213.94	10286	1213.83	10288	1213.78	10290	1213.79
10292	1213.8	10294	1213.8	10296	1213.81	10298	1213.83	10300	1213.87

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9850	.035	10152	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9850	10152	456.66	456.66	.1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 10.517

INPUT
Description:

Station Elevation Data num= 116

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1214.78	9702	1215.08	9704	1215.39	9706	1215.69	9708	1216
9710	1216.3	9712	1216.61	9714	1216.91	9716	1217.22	9718	1217.52
9720	1217.83	9722	1218.14	9724	1218.44	9726	1218.75	9728	1219.05
9730	1219.36	9732	1219.46	9734	1219.51	9736	1219.56	9738	1219.62
9740	1219.67	9742	1219.72	9744	1219.78	9746	1219.83	9748	1219.91
9750	1220	9752	1220.09	9754	1220.18	9756	1220.27	9758	1220.37
9760	1220.46	9762	1220.55	9764	1220.49	9766	1220.24	9768	1219.99
9770	1219.74	9772	1219.49	9774	1219.24	9776	1219	9778	1218.75
9780	1218.5	9782	1218.1	9784	1217.45	9786	1216.79	9788	1216.11
9790	1215.43	9792	1214.76	9794	1214.08	9796	1213.4	9798	1213.89
9800	1214.39	9802	1214.89	9804	1215	9816	1215	9818	1214.73
9820	1213.73	9822	1212.73	9824	1211.73	9826	1210.73	9828	1209.73
9830	1208.74	9832	1207.74	9834	1206.74	9836	1205.74	9838	1204.89
10110	1204.89	10112	1204.88	10204	1204.88	10206	1205.38	10208	1206.02
10210	1206.65	10212	1207.29	10214	1207.92	10216	1208.53	10218	1209.14
10220	1209.75	10222	1210.38	10224	1211.31	10226	1211.48	10228	1211.61
10230	1211.74	10232	1211.88	10234	1212.01	10236	1212.04	10238	1212.04
10240	1212.05	10242	1212.06	10244	1212.07	10246	1212.34	10248	1212.75
10250	1213.14	10252	1213.53	10254	1213.7	10256	1213.69	10258	1213.69
10260	1213.68	10262	1213.68	10264	1213.67	10266	1213.67	10268	1213.66
10270	1213.65	10272	1213.65	10274	1213.64	10276	1213.64	10278	1213.63
10280	1213.62	10282	1213.62	10284	1213.61	10286	1213.61	10288	1213.6
10290	1213.59	10292	1213.59	10294	1213.58	10296	1213.58	10298	1213.57
10300	1213.57								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9816	.035	10254	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9816	10254	438.21	438.21	.1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 10.443

INPUT
Description:

Station Elevation Data num= 92

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1217.51	9702	1217.16	9704	1216.81	9706	1216.46	9708	1216.22
9710	1216.4	9712	1216.61	9714	1216.8	9716	1217.01	9718	1217.16
9720	1217.16	9722	1217.16	9724	1217.17	9726	1211.15	9728	1211.65
9730	1212	9744	1212	9746	1211.2	9748	1210.2	9750	1209.21
9752	1208.21	9754	1207.21	9756	1206.21	9758	1205.21	9760	1204.21
9762	1204	9780	1204	9782	1203.99	9812	1203.99	9814	1203.98
9844	1203.98	9846	1203.97	9878	1203.97	9880	1203.96	9910	1203.96
9912	1203.95	9988	1203.95	9990	1203.96	10040	1203.96	10042	1203.97
10070	1203.97	10072	1203.98	10098	1203.98	10100	1203.99	10128	1203.99
10130	1204	10152	1204	10154	1204.46	10156	1205.13	10158	1205.45
10160	1205.44	10162	1205.43	10164	1205.43	10166	1205.42	10168	1205.41
10170	1205.4	10172	1205.4	10174	1205.39	10176	1205.38	10178	1205.37
10180	1205.36	10182	1205.36	10184	1205.35	10186	1205.34	10188	1205.33
10190	1205.33	10192	1205.32	10194	1205.31	10196	1205.3	10198	1205.3

10200	1205.29	10202	1205.3	10204	1205.31	10206	1205.33	10208	1205.34
10210	1205.35	10212	1205.37	10214	1205.38	10216	1205.39	10218	1205.44
10220	1206.15	10222	1206.87	10224	1207.59	10226	1208.32	10228	1209.04
10230	1209.76	10232	1210.49	10234	1211.21	10236	1211.77	10238	1211.89
10240	1212.02	10240	1212.14						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9746	.035	10234	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9746	10234	462.08	462.08 462.08	.1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 10.348

INPUT
Description:

Station Elevation Data num= 221

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1215.27	9702	1215.13	9704	1214.98	9706	1214.84	9708	1214.7
9710	1214.56	9712	1214.43	9714	1214.29	9716	1214.16	9718	1214.04
9720	1213.91	9722	1213.79	9724	1213.66	9726	1213.47	9728	1213.27
9730	1213.07	9732	1212.87	9734	1212.69	9736	1212.51	9738	1212.34
9740	1212.22	9742	1212.17	9744	1212.15	9746	1212.17	9748	1212.19
9750	1212.22	9752	1212.24	9754	1212.26	9756	1212.28	9758	1212
9772	1212	9774	1211.25	9776	1210.25	9778	1209.26	9780	1208.27
9782	1207.28	9784	1206.29	9786	1205.29	9788	1204.3	9790	1203.31
9792	1202.32	9794	1201.56	9816	1201.56	9818	1201.55	9830	1201.55
9832	1201.54	9834	1201.53	9836	1201.51	9838	1201.5	9840	1201.49
9842	1201.48	9844	1201.46	9846	1201.45	9848	1201.44	9850	1201.43
9852	1201.41	9854	1201.4	9856	1201.39	9858	1201.38	9860	1201.36
9862	1201.35	9864	1201.34	9866	1201.33	9868	1201.31	9870	1201.3
9872	1201.29	9874	1201.28	9876	1201.26	9878	1201.25	9880	1201.24
9882	1201.23	9884	1201.21	9886	1201.2	9888	1201.19	9890	1201.18
9892	1201.16	9894	1201.15	9896	1201.14	9898	1201.13	9900	1201.11
9902	1201.1	9904	1201.09	9906	1201.08	9908	1201.06	9910	1201.05
9912	1201.04	9914	1201.02	9916	1201.01	9918	1201	10018	1201
10020	1201.01	10022	1201.01	10024	1201.02	10026	1201.03	10028	1201.04
10030	1201.04	10032	1201.05	10034	1201.06	10036	1201.07	10038	1201.08
10040	1201.08	10042	1201.09	10044	1201.1	10046	1201.11	10048	1201.12
10050	1201.12	10052	1201.13	10054	1201.14	10056	1201.15	10058	1201.16
10060	1201.16	10062	1201.17	10064	1201.18	10066	1201.19	10068	1201.19
10070	1201.2	10072	1201.21	10074	1201.22	10076	1201.23	10078	1201.23
10080	1201.24	10082	1201.25	10084	1201.26	10086	1201.27	10088	1201.27
10090	1201.28	10092	1201.29	10094	1201.3	10096	1201.3	10098	1201.31
10100	1201.32	10102	1201.33	10104	1201.34	10106	1201.34	10108	1201.35
10110	1201.36	10112	1201.37	10114	1201.38	10116	1201.38	10118	1201.38
10120	1201.38	10122	1201.42	10124	1201.43	10126	1201.43	10128	1201.44
10130	1201.47	10132	1201.47	10134	1201.47	10136	1201.5	10138	1201.54
10140	1201.57	10142	1201.59	10144	1201.59	10146	1201.59	10148	1201.58
10160	1201.58	10162	1201.57	10174	1201.57	10176	1202.23	10178	1202.85
10180	1203.44	10182	1204.02	10184	1204.62	10186	1205.22	10188	1205.81
10190	1206.41	10192	1207.01	10194	1207.57	10196	1208.16	10198	1208.76
10200	1208.95	10202	1208.91	10204	1208.88	10206	1208.84	10208	1208.81
10210	1208.79	10212	1208.76	10214	1208.74	10216	1208.71	10218	1208.69
10220	1208.67	10222	1208.65	10224	1208.62	10226	1208.6	10228	1208.58
10230	1208.56	10232	1208.54	10234	1208.51	10236	1208.5	10238	1208.48
10240	1208.46	10242	1208.45	10244	1208.43	10246	1208.41	10248	1208.39
10250	1208.38	10252	1208.36	10254	1208.34	10256	1208.33	10258	1208.31
10260	1208.29	10262	1208.27	10264	1208.26	10266	1208.24	10268	1208.22
10270	1208.21	10272	1208.21	10274	1208.22	10276	1208.23	10278	1208.24
10280	1208.24	10282	1208.25	10284	1208.26	10286	1208.27	10288	1208.27
10290	1208.28	10292	1208.29	10294	1208.3	10296	1208.3	10298	1208.31
10300	1208.32								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9772	.035	10200	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9772	10200	438.16	438.16 438.16	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
9419	9490	1208

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 10.271

INPUT
Description:

Station Elevation Data num= 219

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1205.85	9702	1205.86	9704	1205.89	9706	1205.93	9708	1206.4
9710	1206.92	9712	1207.43	9714	1207.94	9716	1208.46	9718	1208.98
9720	1209.5	9722	1210.03	9724	1210.55	9726	1211.03	9728	1210.93
9730	1211.02	9732	1211.12	9734	1211.22	9736	1211.32	9738	1211.42
9740	1211.52	9742	1211.6	9744	1211.62	9746	1211.64	9748	1211.66
9750	1211.68	9752	1211.7	9754	1211.72	9756	1211.75	9758	1211.8
9760	1211.89	9762	1211.39	9764	1210.89	9766	1210.39	9768	1210
9770	1210	9772	1210	9774	1210	9776	1210	9778	1210
9780	1210	9782	1210	9784	1209.28	9786	1208.28	9788	1207.28
9790	1206.28	9792	1205.28	9794	1204.28	9796	1203.28	9798	1202.28
9800	1201.28	9802	1200.28	9804	1199.28	9806	1199	9890	1199
9892	1198.74	9894	1198.42	9896	1198.26	9898	1198.24	9900	1198.26
9902	1198.28	9904	1198.3	9906	1198.3	9908	1198.3	9910	1198.32
9912	1198.33	9914	1198.33	9916	1198.33	9918	1198.34	9920	1198.34
9922	1198.35	9924	1198.35	9926	1198.36	9928	1198.36	9930	1198.36
9932	1198.37	9934	1198.35	9936	1198.33	9938	1198.33	9940	1198.36
9942	1198.38	9944	1198.39	9946	1198.42	9948	1198.66	9950	1198.89
9952	1199.12	9954	1199.35	9956	1199.58	9958	1199.68	9960	1199.79
9962	1199.9	9964	1200.01	9966	1200.11	9968	1200.24	9970	1200.36
9972	1200.48	9974	1200.6	9976	1200.72	9978	1200.82	9980	1200.85
9982	1200.88	9984	1200.91	9986	1200.94	9988	1200.96	9990	1200.99
9992	1201	10020	1201	10022	1201.38	10024	1201.39	10026	1201.41
10028	1201.42	10030	1201.44	10032	1201.45	10034	1201.47	10036	1201.48
10038	1201.49	10040	1201.5	10042	1201.47	10044	1201.46	10046	1201.47
10048	1201.46	10050	1201.46	10052	1201.44	10054	1201.43	10056	1201.41
10058	1201.39	10060	1201.37	10062	1201.36	10064	1201.34	10066	1201.4
10068	1201.55	10070	1201.7	10072	1201.83	10074	1201.95	10076	1202.07
10078	1202.12	10080	1202.11	10082	1202.1	10084	1202.09	10086	1202.08
10088	1202.07	10098	1202.07	10100	1202.06	10102	1202.06	10104	1202.06
10106	1202.06	10108	1201.87	10110	1201.67	10112	1201.49	10114	1201.31
10116	1201.13	10118	1200.95	10120	1200.77	10122	1200.59	10124	1200.41
10126	1200.3	10128	1200.24	10130	1200.18	10132	1200.12	10134	1200.05
10136	1199.99	10138	1199.92	10140	1199.89	10142	1199.88	10144	1199.86
10146	1199.84	10148	1199.83	10150	1199.81	10152	1199.79	10154	1199.78
10156	1199.76	10158	1199.74	10160	1199.72	10162	1199.71	10164	1199.69
10166	1199.67	10168	1199.65	10170	1199.64	10172	1199.62	10174	1199.6
10176	1199.58	10178	1199.57	10180	1199.55	10182	1199.53	10184	1199.67
10186	1200.28	10188	1200.88	10190	1201.55	10192	1202.24	10194	1202.93
10196	1203.61	10198	1204.3	10200	1204.99	10202	1205.67	10204	1206.36
10206	1206.6	10208	1206.56	10210	1206.52	10212	1206.49	10214	1206.45
10216	1206.41	10218	1206.37	10220	1206.33	10222	1206.29	10224	1206.25
10226	1206.21	10228	1206.17	10230	1206.13	10232	1206.09	10234	1206.06
10236	1206.06	10238	1206.06	10240	1206.05	10258	1206.05	10260	1206.04
10280	1206.04	10282	1206.03	10284	1206.03	10300	1206.03		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9784	.035	10204	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9784	10204	452.09	452.09	452.09	.1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 10.176

INPUT
Description:

Station Elevation Data num= 301

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1205.05	9702	1204.99	9704	1204.92	9706	1204.85	9708	1204.78
9710	1204.71	9712	1204.65	9714	1204.58	9716	1204.51	9718	1204.44
9720	1204.37	9722	1204.3	9724	1204.24	9726	1204.17	9728	1204.1
9730	1204.03	9732	1203.97	9734	1203.91	9736	1203.99	9738	1204.49
9740	1204.99	9742	1205.49	9744	1205.99	9746	1206.49	9748	1206.99
9750	1207.49	9752	1207.99	9754	1208.49	9756	1208.99	9758	1209.49
9760	1209.99	9762	1210	9764	1210	9766	1210	9768	1210
9770	1210	9772	1210	9774	1210	9776	1209.52	9778	1208.52
9780	1207.52	9782	1206.52	9784	1205.52	9786	1204.52	9788	1203.52
9790	1202.52	9792	1201.52	9794	1200.52	9796	1199.52	9798	1198.52
9800	1197.52	9802	1197	9804	1197	9806	1197	9808	1197
9810	1197	9812	1197	9814	1197	9816	1197	9818	1197
9820	1197	9822	1197	9824	1197	9826	1197	9828	1197
9830	1197	9832	1197	9834	1197	9836	1197	9838	1197
9840	1197	9842	1197	9844	1197	9846	1197	9848	1197
9850	1197	9852	1197	9854	1197	9856	1197	9858	1197
9860	1197	9862	1197	9864	1197	9866	1197	9868	1197
9870	1197	9872	1197	9874	1197	9876	1197	9878	1197
9880	1197	9882	1197	9884	1197	9886	1197	9888	1197
9890	1197	9892	1197	9894	1197	9896	1197	9898	1197
9900	1197	9902	1197	9904	1197	9906	1197	9908	1197
9910	1197	9912	1197	9914	1197	9916	1197	9918	1197
9920	1197	9922	1197	9924	1197	9926	1197	9928	1197
9930	1197	9932	1197	9934	1197	9936	1197	9938	1197
9940	1197	9942	1197	9944	1197	9946	1197	9948	1197
9950	1197	9952	1197	9954	1197	9956	1197	9958	1197
9960	1197	9962	1197	9964	1197	9966	1197	9968	1197
9970	1197	9972	1197	9974	1197	9976	1197	9978	1197
9980	1197	9982	1197	9984	1197	9986	1197	9988	1197
9990	1197	9992	1197	9994	1197	9996	1197	9998	1197
10000	1197	10002	1197	10004	1197	10006	1197	10008	1197
10010	1197	10012	1197	10014	1197	10016	1197	10018	1197
10020	1197	10022	1197	10024	1197	10026	1197	10028	1197
10030	1197	10032	1197	10034	1197	10036	1197	10038	1197
10040	1197	10042	1197	10044	1197	10046	1197	10048	1197
10050	1197	10052	1196.95	10054	1196.67	10056	1196.4	10058	1196.11
10060	1195.94	10062	1195.83	10064	1195.8	10066	1195.79	10068	1195.75
10070	1195.72	10072	1195.69	10074	1195.65	10076	1195.64	10078	1195.64
10080	1195.64	10082	1195.63	10084	1195.63	10086	1195.6	10088	1195.57
10090	1195.55	10092	1195.82	10094	1196.19	10096	1196.56	10098	1196.96
10100	1197.36	10102	1197.76	10104	1198.16	10106	1198.55	10108	1198.86
10110	1198.93	10112	1198.99	10114	1199.06	10116	1199.13	10118	1199.19
10120	1199.26	10122	1199.32	10124	1199.39	10126	1199.46	10128	1199.52
10130	1199.59	10132	1199.65	10134	1199.72	10136	1199.78	10138	1199.84
10140	1199.91	10142	1199.74	10144	1199.54	10146	1199.28	10148	1199.01
10150	1198.81	10152	1198.85	10154	1198.89	10156	1198.93	10158	1198.98
10160	1199.04	10162	1199.1	10164	1199.16	10166	1199.23	10168	1199.29
10170	1199.35	10172	1199.41	10174	1199.47	10176	1199.53	10178	1199.59
10180	1199.65	10182	1199.71	10184	1199.77	10186	1199.83	10188	1199.89
10190	1199.95	10192	1200.03	10194	1200.11	10196	1200.2	10198	1200.29
10200	1200.94	10202	1201.99	10204	1203.04	10206	1204.08	10208	1205.13
10210	1205.62	10212	1205.46	10214	1205.3	10216	1205.14	10218	1205.19
10220	1205.23	10222	1205.27	10224	1205.32	10226	1205.27	10228	1205.19
10230	1205.11	10232	1205.02	10234	1204.93	10236	1204.95	10238	1205.01
10240	1205.07	10242	1205.14	10244	1205.2	10246	1205.26	10248	1205.33
10250	1205.39	10252	1205.45	10254	1205.51	10256	1205.53	10258	1205.55
10260	1205.57	10262	1205.6	10264	1205.62	10266	1205.64	10268	1205.67
10270	1205.7	10272	1205.74	10274	1205.77	10276	1205.8	10278	1205.83
10280	1205.87	10282	1205.9	10284	1205.93	10286	1205.96	10288	1206
10290	1206.03	10292	1206.06	10294	1206.09	10296	1206.13	10298	1206.16
10300	1206.19								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9774	.035	10210	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9774	10210	531.98	531.98	.1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 10.096

INPUT

Description: Blocked Obstruction used to block flow from that portion of the cross- section that does not receive subject flow.

Station Elevation Data num= 301

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1199.02	9702	1199.05	9704	1199.08	9706	1199.1	9708	1199.1
9710	1199.06	9712	1199.56	9714	1200.06	9716	1200.56	9718	1201.06
9720	1201.56	9722	1202.06	9724	1202.56	9726	1203.06	9728	1203.56
9730	1204.06	9732	1204.56	9734	1205.06	9736	1205.56	9738	1206.06
9740	1206.56	9742	1207.06	9744	1207.56	9746	1208.06	9748	1208.56
9750	1209.06	9752	1209.56	9754	1210	9756	1210	9758	1210
9760	1210	9762	1210	9764	1210	9766	1210	9768	1210
9770	1209.38	9772	1208.38	9774	1207.38	9776	1206.38	9778	1205.38
9780	1204.38	9782	1203.38	9784	1202.38	9786	1201.38	9788	1200.38
9790	1199.38	9792	1198.38	9794	1197.38	9796	1196.38	9798	1195.38
9800	1195	9802	1195	9804	1195	9806	1195	9808	1195
9810	1195	9812	1195	9814	1195	9816	1195	9818	1194.94
9820	1194.6	9822	1194.27	9824	1193.93	9826	1193.98	9828	1194.07
9830	1194.15	9832	1194.24	9834	1194.33	9836	1194.41	9838	1194.5
9840	1194.57	9842	1194.61	9844	1194.65	9846	1194.69	9848	1194.73
9850	1194.77	9852	1194.81	9854	1194.85	9856	1194.9	9858	1194.94
9860	1194.98	9862	1195.02	9864	1195.06	9866	1195.1	9868	1195.14
9870	1195.18	9872	1195.23	9874	1195.16	9876	1195.08	9878	1194.99
9880	1194.88	9882	1194.78	9884	1194.9	9886	1195.03	9888	1195.16
9890	1195.3	9892	1195.43	9894	1195.56	9896	1195.7	9898	1195.83
9900	1195.98	9902	1196.13	9904	1196.28	9906	1196.43	9908	1196.58
9910	1196.6	9912	1196.57	9914	1196.54	9916	1196.52	9918	1196.49
9920	1196.46	9922	1196.43	9924	1196.4	9926	1196.37	9928	1196.35
9930	1196.32	9932	1196.29	9934	1196.26	9936	1196.24	9938	1196.21
9940	1196.2	9942	1196.2	9944	1196.19	9946	1196.19	9948	1196.18
9950	1196.18	9952	1196.17	9954	1196.17	9956	1196.17	9958	1196.16
9960	1196.16	9962	1196.16	9964	1196.15	9966	1196.15	9968	1196.15
9970	1196.14	9972	1196.14	9974	1196.14	9976	1196.14	9978	1196.13
9980	1196.13	9982	1196.13	9984	1196.12	9986	1196.12	9988	1196.12
9990	1196.11	9992	1196.11	9994	1196.11	9996	1196.1	9998	1196.1
10000	1196.1	10002	1196.09	10004	1196.09	10006	1196.09	10008	1196.09
10010	1196.08	10012	1196.08	10014	1196.08	10016	1196.07	10018	1196.07
10020	1196.07	10022	1195.96	10024	1195.73	10026	1195.51	10028	1195.28
10030	1195.06	10032	1194.83	10034	1194.63	10036	1194.43	10038	1194.23
10040	1194.03	10042	1193.96	10044	1193.96	10046	1193.94	10048	1193.92
10050	1193.9	10052	1193.88	10054	1193.86	10056	1193.84	10058	1193.83
10060	1193.84	10062	1193.84	10064	1193.85	10066	1193.85	10068	1193.85
10070	1193.85	10072	1193.85	10074	1193.91	10076	1194.15	10078	1194.41
10080	1194.69	10082	1194.96	10084	1195.23	10086	1195.3	10088	1195.31
10090	1195.31	10092	1195.32	10094	1195.33	10096	1195.34	10098	1195.34
10100	1195.35	10102	1195.36	10104	1195.37	10106	1195.37	10108	1195.38
10110	1195.39	10112	1195.4	10114	1195.4	10116	1195.41	10118	1195.42
10120	1195.43	10122	1195.6	10124	1195.79	10126	1196	10128	1196.21
10130	1196.42	10132	1196.63	10134	1196.84	10136	1196.9	10138	1196.94
10140	1196.98	10142	1197.02	10144	1197.06	10146	1197.09	10148	1197.13
10150	1197.17	10152	1197.21	10154	1197.25	10156	1197.29	10158	1197.33
10160	1197.35	10162	1197.37	10164	1197.39	10166	1197.41	10168	1197.47
10170	1198.15	10172	1199.12	10174	1200.07	10176	1201.02	10178	1201.97
10180	1202.92	10182	1203.54	10184	1203.64	10186	1203.76	10188	1203.84
10190	1203.83	10192	1203.83	10194	1203.81	10196	1203.81	10198	1203.91
10200	1204.03	10202	1204.1	10204	1204.16	10206	1204.23	10208	1204.3
10210	1204.37	10212	1204.43	10214	1204.5	10216	1204.56	10218	1204.58
10220	1204.59	10222	1204.61	10224	1204.63	10226	1204.64	10228	1204.66
10230	1204.68	10232	1204.69	10234	1204.71	10236	1204.72	10238	1204.74
10240	1204.76	10242	1204.77	10244	1204.79	10246	1204.8	10248	1204.82
10250	1204.84	10252	1204.85	10254	1204.87	10256	1204.88	10258	1204.9
10260	1204.92	10262	1204.93	10264	1204.97	10266	1205.01	10268	1205.04
10270	1205.08	10272	1205.12	10274	1205.16	10276	1205.2	10278	1205.23
10280	1205.27	10282	1205.3	10284	1205.34	10286	1205.37	10288	1205.41
10290	1205.44	10292	1205.48	10294	1205.51	10296	1205.54	10298	1205.58
10300	1205.61								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9768	.035	10184	.06

Bank Sta: Left 9768 Right 10184

Lengths: Left Channel Right
540.94 540.94 540.94

Blocked Obstructions num= 1

Sta L	Sta R	Elev	Coeff Contr.	Expan.
9700	9750	1202	.1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 9.997

INPUT
Description: Blocked Obstruction used to block flow from that portion of the cross- section that does not receive subject flow.

Station Elevation Data num= 301

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1204.34	9702	1204.47	9704	1204.5	9706	1204.55	9708	1204.64
9710	1204.72	9712	1204.8	9714	1204.73	9716	1204.64	9718	1204.67
9720	1204.7	9722	1204.74	9724	1204.77	9726	1204.81	9728	1204.81
9730	1204.78	9732	1204.73	9734	1204.67	9736	1204.62	9738	1204.56
9740	1204.48	9742	1204.41	9744	1204.34	9746	1204.28	9748	1204.21
9750	1204.1	9752	1204	9754	1203.94	9756	1203.88	9758	1203.83
9760	1203.77	9762	1203.69	9764	1203.62	9766	1203.55	9768	1203.52
9770	1203.47	9772	1203.43	9774	1203.39	9776	1203.34	9778	1203.31
9780	1203.22	9782	1203.12	9784	1203.01	9786	1202.9	9788	1202.8
9790	1202.64	9792	1202.49	9794	1202.28	9796	1201.88	9798	1201.5
9800	1201.11	9802	1200.72	9804	1200.39	9806	1200.14	9808	1199.88
9810	1199.61	9812	1199.35	9814	1199.18	9816	1199.02	9818	1198.86
9820	1198.71	9822	1198.56	9824	1199	9826	1199.48	9828	1199.96
9830	1200.43	9832	1200.91	9834	1201.39	9836	1201.87	9838	1202.35
9840	1202.83	9842	1203.3	9844	1203.78	9846	1204.26	9848	1204.74
9850	1205	9852	1205	9854	1205	9856	1205	9858	1205
9860	1205	9862	1205	9864	1205	9866	1204.41	9868	1203.45
9870	1202.49	9872	1201.54	9874	1200.58	9876	1199.62	9878	1198.67
9880	1197.71	9882	1196.75	9884	1195.8	9886	1194.84	9888	1193.88
9890	1192.93	9892	1192.5	9894	1192.5	9896	1192.5	9898	1192.5
9900	1192.5	9902	1192.5	9904	1192.15	9906	1191.76	9908	1191.77
9910	1191.78	9912	1191.78	9914	1191.79	9916	1191.79	9918	1191.8
9920	1191.8	9922	1191.81	9924	1191.82	9926	1191.82	9928	1191.83
9930	1191.84	9932	1191.85	9934	1191.87	9936	1191.88	9938	1191.89
9940	1191.9	9942	1191.91	9944	1191.92	9946	1191.93	9948	1191.94
9950	1191.95	9952	1191.96	9954	1191.97	9956	1191.98	9958	1191.99
9960	1192	9962	1192.01	9964	1192.02	9966	1192.03	9968	1192.04
9970	1192.05	9972	1192.06	9974	1192.07	9976	1192.08	9978	1192.09
9980	1192.1	9982	1192.11	9984	1192.12	9986	1192.13	9988	1192.14
9990	1192.14	9992	1192.14	9994	1192.14	9996	1192.14	9998	1192.14
10000	1192.15	10002	1192.15	10004	1192.16	10006	1192.17	10008	1192.19
10010	1192.2	10012	1192.21	10014	1192.22	10016	1192.23	10018	1192.25
10020	1192.26	10022	1192.27	10024	1192.28	10026	1192.27	10028	1192.26
10030	1192.24	10032	1192.22	10034	1192.22	10036	1192.21	10038	1192.2
10040	1192.19	10042	1192.19	10044	1192.18	10046	1192.17	10048	1192.16
10050	1192.16	10052	1192.15	10054	1192.14	10056	1192.13	10058	1192.13
10060	1192.12	10062	1192.11	10064	1192.12	10066	1192.13	10068	1192.14
10070	1192.15	10072	1192.16	10074	1192.17	10076	1192.18	10078	1192.19
10080	1192.2	10082	1192.21	10084	1192.22	10086	1192.23	10088	1192.24
10090	1192.25	10092	1192.26	10094	1192.27	10096	1192.28	10098	1192.32
10100	1192.42	10102	1192.5	10104	1192.5	10106	1192.49	10108	1192.49
10110	1192.49	10112	1192.49	10114	1192.5	10116	1192.51	10118	1192.51
10120	1192.52	10122	1192.53	10124	1192.53	10126	1192.54	10128	1192.54
10130	1192.58	10132	1193.27	10134	1193.97	10136	1194.7	10138	1195.46
10140	1196.22	10142	1196.98	10144	1197.74	10146	1197.91	10148	1197.97
10150	1198.02	10152	1198.08	10154	1198.19	10156	1198.83	10158	1199.42
10160	1199.79	10162	1200.16	10164	1200.53	10166	1200.9	10168	1200.92
10170	1200.92	10172	1200.92	10174	1200.92	10176	1200.97	10178	1200.9
10180	1200.92	10182	1200.95	10184	1200.98	10186	1201.01	10188	1201.03
10190	1201.05	10192	1201.07	10194	1201.06	10196	1201	10198	1200.94
10200	1200.93	10202	1200.95	10204	1200.97	10206	1201	10208	1201.02
10210	1201.04	10212	1201.05	10214	1201.06	10216	1201.06	10218	1201.06
10220	1201.07	10222	1201.07	10224	1201.08	10226	1201.08	10228	1201.08
10230	1201.09	10232	1201.09	10234	1201.09	10236	1201.1	10238	1201.1
10240	1201.1	10242	1201.11	10244	1201.11	10246	1201.11	10248	1201.11
10250	1201.11	10252	1201.11	10254	1201.11	10256	1201.11	10258	1201.11
10260	1201.11	10262	1201.11	10264	1201.11	10266	1201.11	10268	1201.11
10270	1201.11	10272	1201.11	10274	1201.11	10276	1201.11	10278	1201.11
10280	1201.11	10282	1201.11	10284	1201.11	10286	1201.11	10288	1201.11
10290	1201.11	10292	1201.11	10294	1201.11	10296	1201.11	10298	1201.11
10300	1201.11								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9864	.035	10164	.06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9864 10164 74.19 74.19 74.19 .3 .5

Blocked Obstructions num= 1

Sta L	Sta R	Elev
9700	9860	1200

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 9.984

INPUT
Description:

Station Elevation Data num= 26

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9334	1204.9	9419.99	1204.82	9434.19	1205.11	9579.64	1204.38	9673.54	1204.19
9723.58	1204.3	9755.46	1203.67	9826	1203.59	9864.55	1203.16	9878.79	1199.3
9896.5	1191.3	9960.11	1191.26	9998.46	1191.15	10081.52	1191.28	10115.82	1191.33
10128.83	1191	10139.49	1194.14	10147.33	1194.07	10151.89	1195.57	10172.35	1204
10199.25	1204.3	10218.46	1203.86	10258.03	1204.21	10309.8	1204.44	10359.68	1204.15
10409.02	1204								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9334	.06	9864.55	.035	10172.35	.06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9864.55 10172.35 130 133.96 129 .3 .5

BRIDGE RIVER: RIVER-1
REACH: Reach-1 RS: 9.971001

INPUT
Description: Bridge #2

Distance from Upstream XS = 7
Deck/Roadway Width = 115
Weir Coefficient = 2.68
Bridge Deck/Roadway Skew =
Upstream Deck/Roadway Coordinates
num= 9

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
9590.98	1204.01	0	9822	1206.67	1206.67	9822.01	1206.67	1200.24
10167.99	1206.67	1200.24	10168	1206.67	1206.67	10261.36	1206.5	0
10400	1206.75	0	10411	1206.8	0	10666	1204.9	0

Upstream Bridge Cross Section Data
Station Elevation Data num= 26

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9334	1204.9	9419.99	1204.82	9434.19	1205.11	9579.64	1204.38	9673.54	1204.19
9723.58	1204.3	9755.46	1203.67	9826	1203.59	9864.55	1203.16	9878.79	1199.3
9896.5	1191.3	9960.11	1191.26	9998.46	1191.15	10081.52	1191.28	10115.82	1191.33
10128.83	1191	10139.49	1194.14	10147.33	1194.07	10151.89	1195.57	10172.35	1204
10199.25	1204.3	10218.46	1203.86	10258.03	1204.21	10309.8	1204.44	10359.68	1204.15
10409.02	1204								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9334	.06	9864.55	.035	10172.35	.06

Bank Sta: Left Right Coeff Contr. Expan.
9864.55 10172.35 .3 .5

Downstream Deck/Roadway Coordinates
num= 9

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
9590.98	1204.01	0	9822	1206.67	1206.67	9822.01	1206.67	1200.24
10167.99	1206.67	1200.24	10168	1206.67	1206.67	10261.36	1206.5	0

```
   10400 1206.75       0   10411  1206.8       0   10666  1204.9       0

 Downstream Bridge Cross Section Data
 Station Elevation Data    num=      24
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     9380  1205.9 9385.73 1205.03 9416.73 1205.06 9444.33 1204.76 9494.19  1204.4
  9505.79  1204.6 9595.82 1204.02  9663.5 1203.88 9691.98 1204.37 9803.99 1204.43
  9841.32  1204.2 9865.41 1203.19 9895.12 1191.1810063.77  1190.710088.68 1190.47
 10125.43  1190.510135.81 1194.07 10143.3 1194.05 10168.4 1203.0310186.27 1204.13
 10197.69  1204.210206.53 1203.7510221.59  1203.610267.47 1204.01

 Manning's n Values        num=       3
      Sta   n Val      Sta   n Val      Sta   n Val
     9380     .06 9865.41    .035 10168.4     .06

 Bank Sta: Left   Right    Coeff Contr.   Expan.
       9865.41 10168.4             .3       .5

 Upstream Embankment side slope                =       2 horiz. to 1.0 vertical
 Downstream Embankment side slope              =       2 horiz. to 1.0 vertical
 Maximum allowable submergence for weir flow =     .95
 Elevation at which weir flow begins           = 1204.01
 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=    9909    Downstream=    9909
 Upstream     num=       2
     Width   Elev    Width   Elev
     1.17    1190    1.17    1202
 Downstream     num=       2
     Width   Elev    Width   Elev
     1.17    1190    1.17    1202

 Pier Data
 Pier Station     Upstream=    9969    Downstream=    9969
 Upstream     num=       2
     Width   Elev    Width   Elev
     1.17    1190    1.17    1202
 Downstream     num=       2
     Width   Elev    Width   Elev
     1.17    1190    1.17    1202

 Pier Data
 Pier Station     Upstream=   10029    Downstream=   10029
 Upstream     num=       2
     Width   Elev    Width   Elev
     1.17    1190    1.17    1202
 Downstream     num=       2
     Width   Elev    Width   Elev
     1.17    1190    1.17    1202

 Pier Data
 Pier Station     Upstream=   10089    Downstream=   10089
 Upstream     num=       2
     Width   Elev    Width   Elev
     1.17    1190    1.17    1202
 Downstream     num=       2
     Width   Elev    Width   Elev
     1.17    1190    1.17    1202

 Number of Bridge Coefficient Sets =  1

 Low Flow Methods and Data
        Momentum                Cd   =    1.33
        Yarnell                 KVal =      .9
 Selected Low Flow Methods = Highest Energy Answer

 High Flow Method
        Pressure and Weir flow
            Submerged Inlet Cd          =
            Submerged Inlet + Outlet Cd =.7905694
            Max Low Cord                = 1200.24
```

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

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 9.958

INPUT
Description:

Station Elevation Data num= 24

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9380	1205.9	9385.73	1205.03	9416.73	1205.06	9444.33	1204.76	9494.19	1204.4
9505.79	1204.6	9595.82	1204.02	9663.5	1203.88	9691.98	1204.37	9803.99	1204.43
9841.32	1204.2	9865.41	1203.19	9895.12	1191.1810063.77		1190.710088.68		1190.47
10125.43	1190.510135.81		1194.07	10143.3	1194.05	10168.4	1203.0310186.27		1204.13
10197.69	1204.210206.53		1203.7510221.59		1203.610267.47		1204.01		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9380	.06	9865.41	.035	10168.4	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9865.41	10168.4	22	27.43	28	.3	.5

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 9.953

INPUT
Description:

Station Elevation Data num= 301

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1198.04	9702	1197.99	9704	1197.93	9706	1197.88	9708	1197.83
9710	1197.77	9712	1198.02	9714	1198.3	9716	1198.58	9718	1198.75
9720	1198.9	9722	1199.05	9724	1199.2	9726	1199.36	9728	1199.51
9730	1199.45	9732	1199.36	9734	1199.35	9736	1199.33	9738	1199.31
9740	1199.29	9742	1199.26	9744	1199.24	9746	1199.22	9748	1199.2
9750	1199.18	9752	1199.16	9754	1199.14	9756	1199.12	9758	1199.1
9760	1199.08	9762	1199.06	9764	1199.05	9766	1199.06	9768	1199.07
9770	1199.07	9772	1199.08	9774	1199.09	9776	1199.13	9778	1199.17
9780	1199.21	9782	1199.25	9784	1199.29	9786	1199.33	9788	1199.37
9790	1199.41	9792	1199.46	9794	1199.5	9796	1199.54	9798	1199.58
9800	1199.62	9802	1199.66	9804	1199.7	9806	1199.74	9808	1199.78
9810	1199.83	9812	1199.96	9814	1200.09	9816	1200.21	9818	1200.34
9820	1200.47	9822	1200.59	9824	1200.72	9826	1200.83	9828	1200.91
9830	1200.99	9832	1201.06	9834	1201.14	9836	1201.22	9838	1201.3
9840	1201.37	9842	1201.45	9844	1201.52	9846	1201.59	9848	1201.63
9850	1201.65	9852	1201.42	9854	1200.93	9856	1200.43	9858	1199.93
9860	1199.44	9862	1198.94	9864	1199.45	9866	1200.02	9868	1200.61
9870	1201.19	9872	1201.5	9874	1200.51	9876	1199.51	9878	1198.52
9880	1197.53	9882	1196.53	9884	1195.54	9886	1194.54	9888	1193.55
9890	1192.56	9892	1191.56	9894	1190.9	9896	1190.9	9898	1190.9
9900	1190.9	9902	1190.9	9904	1190.91	9906	1190.91	9908	1190.91
9910	1190.91	9912	1190.91	9914	1190.9	9916	1190.9	9918	1190.89
9920	1190.88	9922	1190.88	9924	1190.87	9926	1190.87	9928	1190.86
9930	1190.86	9932	1190.85	9934	1190.85	9936	1190.84	9938	1190.84
9940	1190.83	9942	1190.83	9944	1190.82	9946	1190.82	9948	1190.81
9950	1190.81	9952	1190.8	9954	1190.8	9956	1190.79	9958	1190.79
9960	1190.79	9962	1190.78	9964	1190.78	9966	1190.77	9968	1190.77
9970	1190.76	9972	1190.76	9974	1190.75	9976	1190.75	9978	1190.74
9980	1190.72	9982	1190.71	9984	1190.7	9986	1190.69	9988	1190.67
9990	1190.66	9992	1190.66	9994	1190.66	9996	1190.66	9998	1190.66

10000	1190.66	10002	1190.66	10004	1190.7	10006	1190.77	10008	1190.8
10010	1190.8	10012	1190.81	10014	1190.81	10016	1190.81	10018	1190.82
10020	1190.82	10022	1190.82	10024	1190.81	10026	1190.8	10028	1190.79
10030	1190.78	10032	1190.77	10034	1190.76	10036	1190.75	10038	1190.74
10040	1190.73	10042	1190.72	10044	1190.72	10046	1190.71	10048	1190.7
10050	1190.69	10052	1190.68	10054	1190.67	10056	1190.66	10058	1190.65
10060	1190.64	10062	1190.63	10064	1190.62	10066	1190.61	10068	1190.6
10070	1190.59	10072	1190.58	10074	1190.57	10076	1190.57	10078	1190.56
10080	1190.48	10082	1190.37	10084	1190.26	10086	1190.14	10088	1190.03
10090	1189.92	10092	1189.89	10094	1189.86	10096	1189.84	10098	1189.81
10100	1189.78	10102	1189.76	10104	1189.74	10106	1189.75	10108	1189.76
10110	1189.76	10112	1189.77	10114	1189.77	10116	1189.78	10118	1189.89
10120	1190.63	10122	1191.37	10124	1192.12	10126	1192.86	10128	1193.61
10130	1194.09	10132	1194.2	10134	1194.31	10136	1194.42	10138	1194.52
10140	1195.01	10142	1195.72	10144	1196.43	10146	1197.14	10148	1197.86
10150	1198.6	10152	1199.34	10154	1200.08	10156	1200.83	10158	1201.57
10160	1202.09	10162	1202.25	10164	1202.41	10166	1202.57	10168	1202.73
10170	1202.88	10172	1203.04	10174	1203.2	10176	1203.36	10178	1203.5
10180	1203.56	10182	1203.61	10184	1203.66	10186	1203.71	10188	1203.76
10190	1203.68	10192	1203.59	10194	1203.5	10196	1203.41	10198	1203.34
10200	1203.26	10202	1203.23	10204	1203.26	10206	1203.29	10208	1203.32
10210	1203.32	10212	1203.32	10214	1203.32	10216	1203.32	10218	1203.32
10220	1203.32	10222	1203.32	10224	1203.32	10226	1203.32	10228	1203.32
10230	1203.32	10232	1203.32	10234	1203.32	10236	1203.32	10238	1203.31
10240	1203.31	10242	1203.31	10244	1203.31	10246	1203.31	10248	1203.31
10250	1203.31	10252	1203.31	10254	1203.31	10256	1203.31	10258	1203.31
10260	1203.31	10262	1203.31	10264	1203.31	10266	1203.31	10268	1203.31
10270	1203.31	10272	1203.31	10274	1203.31	10276	1203.31	10278	1203.31
10280	1203.31	10282	1203.31	10284	1203.31	10286	1203.31	10288	1203.31
10290	1203.31	10292	1203.32	10294	1203.32	10296	1203.33	10298	1203.33
10300	1203.34								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9872	.035	10162	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9872	10162	183.24	183.24	183.24	.3	.5

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 9.908

INPUT
Description:

Station Elevation Data num= 301

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1202.6	9702	1202.62	9704	1202.64	9706	1202.65	9708	1202.67
9710	1202.69	9712	1202.71	9714	1202.72	9716	1202.74	9718	1202.76
9720	1202.78	9722	1202.79	9724	1202.81	9726	1202.83	9728	1202.84
9730	1202.85	9732	1202.87	9734	1202.88	9736	1202.89	9738	1202.91
9740	1202.94	9742	1202.7	9744	1202.37	9746	1202.05	9748	1201.72
9750	1201.39	9752	1201.06	9754	1200.74	9756	1200.41	9758	1200.09
9760	1199.76	9762	1199.44	9764	1199.12	9766	1198.84	9768	1198.78
9770	1198.74	9772	1198.71	9774	1198.73	9776	1198.77	9778	1198.82
9780	1198.86	9782	1198.9	9784	1198.94	9786	1198.98	9788	1199.02
9790	1199.06	9792	1199.11	9794	1199.15	9796	1199.19	9798	1199.23
9800	1199.27	9802	1199.31	9804	1199.35	9806	1199.4	9808	1199.44
9810	1199.48	9812	1199.52	9814	1199.56	9816	1199.6	9818	1199.64
9820	1199.69	9822	1199.64	9824	1199.53	9826	1199.43	9828	1199.38
9830	1199.38	9832	1199.38	9834	1199.38	9836	1199.37	9838	1199.37
9840	1199.37	9842	1199.37	9844	1199.36	9846	1199.19	9848	1198.82
9850	1198.77	9852	1198.76	9854	1198.75	9856	1198.75	9858	1198.74
9860	1198.74	9862	1198.73	9864	1198.72	9866	1198.88	9868	1199.06
9870	1199.23	9872	1199.4	9874	1199.57	9876	1199.75	9878	1199.72
9880	1199.62	9882	1199.53	9884	1199.44	9886	1199.35	9888	1199.26
9890	1199.17	9892	1199.13	9894	1199.09	9896	1199.03	9898	1198.96
9900	1198.89	9902	1198.82	9904	1198.75	9906	1198.68	9908	1198.61
9910	1198.54	9912	1198.47	9914	1198.4	9916	1198.33	9918	1198.32
9920	1198.33	9922	1198.27	9924	1198.19	9926	1198.11	9928	1198.03
9930	1197.95	9932	1197.87	9934	1197.79	9936	1197.71	9938	1197.64
9940	1197.56	9942	1197.48	9944	1197.4	9946	1197.29	9948	1197.15
9950	1196.99	9952	1196.8	9954	1196.94	9956	1197.43	9958	1197.92
9960	1198.22	9962	1198.22	9964	1198.21	9966	1198.21	9968	1198.21

9970	1198.21	9972	1198.2	9974	1198.2	9976	1197.48	9978	1196.5
9980	1195.51	9982	1194.53	9984	1193.55	9986	1192.56	9988	1191.58
9990	1190.59	9992	1189.61	9994	1189.52	9996	1189.5	9998	1189.48
10000	1189.46	10002	1189.44	10004	1189.42	10006	1189.4	10008	1189.37
10010	1189.35	10012	1189.33	10014	1189.31	10016	1189.29	10018	1189.27
10020	1189.25	10022	1189.22	10024	1189.2	10026	1189.18	10028	1189.16
10030	1189.14	10032	1189.12	10034	1189.09	10036	1189.07	10038	1189.05
10040	1189.03	10042	1189	10044	1188.98	10046	1188.96	10048	1188.94
10050	1188.91	10052	1188.89	10054	1188.87	10056	1189.12	10058	1189.85
10060	1189.82	10062	1189.79	10064	1189.77	10066	1189.75	10068	1189.73
10070	1189.71	10072	1189.69	10074	1189.67	10076	1189.65	10078	1189.62
10080	1189.6	10082	1189.58	10084	1189.56	10086	1189.54	10088	1189.52
10090	1189.5	10092	1189.48	10094	1189.45	10096	1189.43	10098	1189.41
10100	1189.39	10102	1189.37	10104	1189.35	10106	1189.33	10108	1189.3
10110	1189.28	10112	1189.26	10114	1189.24	10116	1189.22	10118	1189.2
10120	1189.18	10122	1189.16	10124	1189.13	10126	1189.11	10128	1189.1
10130	1189.12	10132	1189.14	10134	1189.15	10136	1189.16	10138	1189.17
10140	1189.18	10142	1189.19	10144	1189.2	10146	1189.21	10148	1189.22
10150	1189.23	10152	1189.24	10154	1189.25	10156	1189.26	10158	1189.27
10160	1189.28	10162	1189.29	10164	1189.3	10166	1189.31	10168	1189.32
10170	1189.33	10172	1189.34	10174	1189.35	10176	1189.36	10178	1189.37
10180	1189.38	10182	1189.39	10184	1189.4	10186	1189.41	10188	1189.42
10190	1189.43	10192	1189.44	10194	1189.45	10196	1189.46	10198	1189.47
10200	1189.48	10202	1189.49	10204	1189.5	10206	1189.47	10208	1189.45
10210	1189.43	10212	1189.41	10214	1189.39	10216	1189.37	10218	1189.35
10220	1189.33	10222	1189.31	10224	1189.3	10226	1189.28	10228	1189.26
10230	1189.24	10232	1189.22	10234	1189.2	10236	1189.18	10238	1189.16
10240	1189.14	10242	1189.12	10244	1189.1	10246	1189.08	10248	1189.06
10250	1189.87	10252	1191.02	10254	1192.17	10256	1193.31	10258	1194.46
10260	1195.61	10262	1196.76	10264	1197.9	10266	1198.82	10268	1198.91
10270	1199	10272	1199.08	10274	1199.16	10276	1199.25	10278	1199.42
10280	1199.59	10282	1199.75	10284	1199.8	10286	1199.91	10288	1199.92
10290	1199.94	10292	1199.96	10294	1199.97	10296	1199.98	10298	1200
10300	1200.01								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9972	.035	10266	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9972	10266	104.44	104.44	104.44	.3	.5

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 9.889

INPUT
Description:

Station Elevation Data num= 301

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1197.81	9702	1197.8	9704	1197.8	9706	1197.8	9708	1197.79
9710	1197.79	9712	1197.79	9714	1197.77	9716	1197.76	9718	1197.74
9720	1197.73	9722	1197.71	9724	1197.7	9726	1197.68	9728	1197.66
9730	1197.65	9732	1197.63	9734	1197.62	9736	1197.6	9738	1197.59
9740	1197.57	9742	1197.56	9744	1197.54	9746	1197.53	9748	1197.51
9750	1197.5	9752	1197.48	9754	1197.48	9756	1197.5	9758	1197.52
9760	1197.54	9762	1197.56	9764	1197.58	9766	1197.59	9768	1197.61
9770	1197.63	9772	1197.65	9774	1197.67	9776	1197.69	9778	1197.71
9780	1197.72	9782	1197.74	9784	1197.76	9786	1197.78	9788	1197.8
9790	1197.82	9792	1197.83	9794	1197.84	9796	1197.85	9798	1197.86
9800	1197.87	9802	1197.88	9804	1197.89	9806	1197.9	9808	1197.92
9810	1197.93	9812	1197.94	9814	1197.95	9816	1197.91	9818	1197.83
9820	1197.74	9822	1197.65	9824	1197.56	9826	1197.48	9828	1197.39
9830	1197.3	9832	1197.21	9834	1197.12	9836	1197.04	9838	1196.96
9840	1196.9	9842	1196.83	9844	1196.77	9846	1196.71	9848	1196.65
9850	1196.59	9852	1196.66	9854	1197.16	9856	1197.63	9858	1198.07
9860	1198.53	9862	1198.98	9864	1199.43	9866	1199.55	9868	1198.56
9870	1197.57	9872	1196.58	9874	1195.59	9876	1194.59	9878	1193.6
9880	1192.61	9882	1191.62	9884	1190.63	9886	1189.64	9888	1188.65

9890	1187.66	9892	1187	9894	1187.01	9896	1187.01	9898	1187.01
9900	1187.01	9902	1187.01	9904	1187.02	9906	1187.02	9908	1187.02
9910	1187.02	9912	1187.02	9914	1187.03	9916	1187.03	9918	1187.03
9920	1187.03	9922	1187.03	9924	1187.04	9926	1187.04	9928	1187.04
9930	1187.04	9932	1187.05	9934	1187.05	9936	1187.05	9938	1187.05
9940	1187.05	9942	1186.51	9944	1186.44	9946	1186.7	9948	1186.96
9950	1187.22	9952	1187.47	9954	1187.67	9956	1187.85	9958	1188.06
9960	1188.3	9962	1188.55	9964	1188.38	9966	1188.2	9968	1188.02
9970	1187.85	9972	1187.67	9974	1187.5	9976	1187.32	9978	1187.15
9980	1187.24	9982	1186.83	9984	1186.63	9986	1186.48	9988	1186.34
9990	1186.19	9992	1186.04	9994	1185.9	9996	1185.75	9998	1185.6
10000	1185.46	10002	1185.52	10004	1185.65	10006	1185.77	10008	1185.9
10010	1186.03	10012	1186.11	10014	1186.12	10016	1186.13	10018	1186.14
10020	1186.15	10022	1186.16	10024	1186.16	10026	1186.17	10028	1186.18
10030	1186.19	10032	1186.2	10034	1186.21	10036	1186.22	10038	1186.23
10040	1186.24	10042	1186.25	10044	1186.26	10046	1186.27	10048	1186.28
10050	1186.29	10052	1186.3	10054	1186.31	10056	1186.33	10058	1186.34
10060	1186.35	10062	1186.36	10064	1186.38	10066	1186.39	10068	1186.41
10070	1186.42	10072	1186.44	10074	1186.46	10076	1186.47	10078	1186.49
10080	1186.5	10082	1186.52	10084	1186.53	10086	1186.55	10088	1186.56
10090	1186.57	10092	1186.55	10094	1186.53	10096	1186.51	10098	1186.5
10100	1186.48	10102	1186.46	10104	1186.44	10106	1186.42	10108	1186.4
10110	1186.35	10112	1186.35	10114	1187.62	10116	1188.83	10118	1189.89
10120	1190.95	10122	1192	10124	1193.06	10126	1194.12	10128	1195.18
10130	1196.24	10132	1197.3	10134	1198.14	10136	1198.24	10138	1198.33
10140	1198.43	10142	1198.52	10144	1198.63	10146	1198.58	10148	1198.52
10150	1198.46	10152	1198.39	10154	1198.33	10156	1198.27	10158	1198.19
10160	1197.81	10162	1197.56	10164	1197.38	10166	1197.2	10168	1197.02
10170	1197.02	10172	1197.1	10174	1197.17	10176	1197.35	10178	1197.53
10180	1197.72	10182	1197.9	10184	1198.06	10186	1198.22	10188	1198.26
10190	1198.29	10192	1198.31	10194	1198.33	10196	1198.36	10198	1198.38
10200	1198.4	10202	1198.43	10204	1198.45	10206	1198.47	10208	1198.5
10210	1198.52	10212	1198.54	10214	1198.57	10216	1198.59	10218	1198.61
10220	1198.64	10222	1198.66	10224	1198.68	10226	1198.7	10228	1198.73
10230	1198.75	10232	1198.77	10234	1198.8	10236	1198.82	10238	1198.84
10240	1198.87	10242	1198.89	10244	1198.91	10246	1198.92	10248	1198.93
10250	1198.93	10252	1198.94	10254	1198.94	10256	1198.95	10258	1198.95
10260	1198.96	10262	1198.96	10264	1198.97	10266	1198.97	10268	1198.98
10270	1198.98	10272	1198.99	10274	1199	10276	1199.01	10278	1199.02
10280	1199.03	10282	1199.04	10284	1199.06	10286	1199.07	10288	1199.08
10290	1199.09	10292	1199.1	10294	1199.12	10296	1199.13	10298	1199.14
10300	1199.15								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9866	.035	10134	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9866	10134	489.29	489.29	489.29	.3	.5

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 9.794

INPUT
Description:

Station Elevation Data num= 301

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1203.73	9702	1203.75	9704	1203.77	9706	1203.8	9708	1203.82
9710	1203.84	9712	1203.87	9714	1203.85	9716	1203.79	9718	1203.74
9720	1203.68	9722	1203.63	9724	1203.57	9726	1203.52	9728	1203.46
9730	1203.41	9732	1203.36	9734	1203.32	9736	1203.27	9738	1203.26
9740	1203.33	9742	1203.41	9744	1203.48	9746	1203.56	9748	1203.63
9750	1203.67	9752	1203.71	9754	1203.75	9756	1203.78	9758	1203.82
9760	1203.86	9762	1203.67	9764	1203.3	9766	1202.92	9768	1202.55
9770	1202.17	9772	1201.79	9774	1201.41	9776	1201.04	9778	1200.66
9780	1200.28	9782	1199.9	9784	1199.52	9786	1199.15	9788	1198.77
9790	1198.39	9792	1198.01	9794	1197.64	9796	1197.26	9798	1196.88
9800	1196.5	9802	1196.13	9804	1195.75	9806	1195.37	9808	1194.99
9810	1194.62	9812	1194.24	9814	1193.86	9816	1192.89	9818	1191.9
9820	1190.9	9822	1189.91	9824	1188.92	9826	1187.93	9828	1186.94
9830	1185.97	9832	1185.05	9834	1184.13	9836	1183.21	9838	1182.29
9840	1181.37	9842	1180.46	9844	1179.54	9846	1178.87	9848	1178.89
9850	1178.91	9852	1178.93	9854	1178.96	9856	1178.98	9858	1179

9860	1179.02	9862	1179.04	9864	1179.07	9866	1179.09	9868	1179.11
9870	1179.1	9872	1179.08	9874	1179.06	9876	1179.04	9878	1178.95
9880	1178.61	9882	1178.27	9884	1177.94	9886	1177.6	9888	1177.26
9890	1176.99	9892	1177.11	9894	1177.23	9896	1177.36	9898	1177.48
9900	1177.61	9902	1177.74	9904	1177.87	9906	1177.99	9908	1178.12
9910	1178.25	9912	1178.38	9914	1178.51	9916	1178.63	9918	1178.76
9920	1178.81	9922	1178.83	9924	1178.84	9926	1178.84	9928	1178.84
9930	1178.86	9932	1178.89	9934	1179	9936	1179.11	9938	1179.22
9940	1179.21	9942	1179.06	9944	1178.92	9946	1178.77	9948	1178.62
9950	1178.47	9952	1178.33	9954	1178.18	9956	1178.03	9958	1177.98
9960	1177.95	9962	1177.91	9964	1177.88	9966	1177.85	9968	1177.83
9970	1177.8	9972	1177.77	9974	1177.74	9976	1177.71	9978	1177.68
9980	1177.64	9982	1177.61	9984	1177.59	9986	1177.57	9988	1177.54
9990	1177.53	9992	1177.51	9994	1177.48	9996	1177.43	9998	1177.4
10000	1177.38	10002	1177.35	10004	1177.32	10006	1177.31	10008	1177.29
10010	1177.28	10012	1177.26	10014	1177.24	10016	1177.24	10018	1177.28
10020	1177.32	10022	1177.36	10024	1177.4	10026	1177.44	10028	1177.47
10030	1177.51	10032	1177.54	10034	1177.62	10036	1177.72	10038	1177.81
10040	1177.84	10042	1177.79	10044	1177.75	10046	1177.7	10048	1177.71
10050	1177.72	10052	1177.7	10054	1177.69	10056	1177.78	10058	1177.87
10060	1177.97	10062	1178.07	10064	1178.16	10066	1178.02	10068	1177.87
10070	1177.72	10072	1177.74	10074	1177.89	10076	1178.05	10078	1178.2
10080	1178.36	10082	1178.51	10084	1178.67	10086	1178.82	10088	1178.97
10090	1179.13	10092	1179.29	10094	1179.46	10096	1179.63	10098	1179.81
10100	1179.98	10102	1180.15	10104	1180.32	10106	1180.5	10108	1180.67
10110	1180.84	10112	1181.01	10114	1181.18	10116	1181.36	10118	1181.53
10120	1181.57	10122	1181.57	10124	1181.57	10126	1181.57	10128	1181.58
10130	1181.59	10132	1181.59	10134	1181.6	10136	1181.61	10138	1181.62
10140	1181.63	10142	1181.63	10144	1181.64	10146	1181.65	10148	1181.66
10150	1181.66	10152	1181.67	10154	1181.68	10156	1181.68	10158	1181.68
10160	1181.68	10162	1181.68	10164	1181.68	10166	1181.69	10168	1181.63
10170	1181.53	10172	1181.43	10174	1181.33	10176	1181.23	10178	1181.13
10180	1181.02	10182	1180.92	10184	1180.82	10186	1180.75	10188	1180.68
10190	1180.69	10192	1181.75	10194	1182.82	10196	1183.82	10198	1184.82
10200	1185.82	10202	1186.82	10204	1187.82	10206	1188.82	10208	1189.82
10210	1190.11	10212	1190.16	10214	1190.24	10216	1190.33	10218	1190.42
10220	1190.62	10222	1190.79	10224	1191.01	10226	1191.61	10228	1192.21
10230	1192.81	10232	1193.41	10234	1194.01	10236	1194.62	10238	1194.37
10240	1193.79	10242	1193.83	10244	1193.87	10246	1193.91	10248	1193.95
10250	1193.98	10252	1194.02	10254	1194.06	10256	1194.1	10258	1194.14
10260	1194.18	10262	1194.21	10264	1194.25	10266	1194.34	10268	1194.39
10270	1194.38	10272	1194.37	10274	1194.36	10276	1194.36	10278	1194.35
10280	1194.35	10282	1194.34	10284	1194.34	10286	1194.33	10288	1194.33
10290	1194.32	10292	1194.32	10294	1194.31	10296	1194.31	10298	1194.3
10300	1194.3								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9814	.035	10210	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9814	10210	554	554	.1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 9.692

INPUT
Description:

Station Elevation Data num= 301

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1203.73	9702	1203.75	9704	1203.77	9706	1203.8	9708	1203.82
9710	1203.84	9712	1203.87	9714	1203.85	9716	1203.79	9718	1203.74
9720	1203.68	9722	1203.63	9724	1203.57	9726	1203.52	9728	1203.46
9730	1203.41	9732	1203.36	9734	1203.32	9736	1203.27	9738	1203.26
9740	1203.33	9742	1203.41	9744	1203.48	9746	1203.56	9748	1203.63
9750	1203.67	9752	1203.71	9754	1203.75	9756	1203.78	9758	1203.82
9760	1203.86	9762	1203.67	9764	1203.3	9766	1202.92	9768	1202.55
9770	1202.17	9772	1201.79	9774	1201.41	9776	1201.04	9778	1200.66

9780	1200.28	9782	1199.9	9784	1199.52	9786	1199.15	9788	1198.77
9790	1198.39	9792	1198.01	9794	1197.64	9796	1197.26	9798	1196.88
9800	1196.5	9802	1196.13	9804	1195.75	9806	1195.37	9808	1194.99
9810	1194.62	9812	1194.24	9814	1193.86	9816	1192.89	9818	1191.9
9820	1190.9	9822	1189.91	9824	1188.92	9826	1187.93	9828	1186.94
9830	1185.97	9832	1185.05	9834	1184.13	9836	1183.21	9838	1182.29
9840	1181.37	9842	1180.46	9844	1179.54	9846	1178.87	9848	1178.89
9850	1178.91	9852	1178.93	9854	1178.96	9856	1178.98	9858	1179
9860	1179.02	9862	1179.04	9864	1179.07	9866	1179.09	9868	1179.11
9870	1179.1	9872	1179.08	9874	1179.06	9876	1179.04	9878	1178.95
9880	1178.61	9882	1178.27	9884	1177.94	9886	1177.6	9888	1177.26
9890	1176.99	9892	1177.11	9894	1177.23	9896	1177.36	9898	1177.48
9900	1177.61	9902	1177.74	9904	1177.87	9906	1177.99	9908	1178.12
9910	1178.25	9912	1178.38	9914	1178.51	9916	1178.63	9918	1178.76
9920	1178.81	9922	1178.83	9924	1178.84	9926	1178.84	9928	1178.84
9930	1178.86	9932	1178.89	9934	1179	9936	1179.11	9938	1179.22
9940	1179.21	9942	1179.06	9944	1178.92	9946	1178.77	9948	1178.62
9950	1178.47	9952	1178.33	9954	1178.18	9956	1178.03	9958	1177.98
9960	1177.95	9962	1177.91	9964	1177.88	9966	1177.85	9968	1177.83
9970	1177.8	9972	1177.77	9974	1177.74	9976	1177.71	9978	1177.68
9980	1177.64	9982	1177.61	9984	1177.59	9986	1177.57	9988	1177.54
9990	1177.53	9992	1177.51	9994	1177.48	9996	1177.43	9998	1177.4
10000	1177.38	10002	1177.35	10004	1177.32	10006	1177.31	10008	1177.29
10010	1177.28	10012	1177.26	10014	1177.24	10016	1177.24	10018	1177.28
10020	1177.32	10022	1177.36	10024	1177.4	10026	1177.44	10028	1177.47
10030	1177.51	10032	1177.54	10034	1177.62	10036	1177.72	10038	1177.81
10040	1177.84	10042	1177.79	10044	1177.75	10046	1177.7	10048	1177.71
10050	1177.72	10052	1177.7	10054	1177.69	10056	1177.78	10058	1177.87
10060	1177.97	10062	1178.07	10064	1178.16	10066	1178.02	10068	1177.87
10070	1177.72	10072	1177.74	10074	1177.89	10076	1178.05	10078	1178.2
10080	1178.36	10082	1178.51	10084	1178.67	10086	1178.82	10088	1178.97
10090	1179.13	10092	1179.29	10094	1179.46	10096	1179.63	10098	1179.81
10100	1179.98	10102	1180.15	10104	1180.32	10106	1180.5	10108	1180.67
10110	1180.84	10112	1181.01	10114	1181.18	10116	1181.36	10118	1181.53
10120	1181.57	10122	1181.57	10124	1181.57	10126	1181.57	10128	1181.58
10130	1181.59	10132	1181.59	10134	1181.6	10136	1181.61	10138	1181.62
10140	1181.63	10142	1181.63	10144	1181.64	10146	1181.65	10148	1181.66
10150	1181.66	10152	1181.67	10154	1181.68	10156	1181.68	10158	1181.68
10160	1181.68	10162	1181.68	10164	1181.68	10166	1181.69	10168	1181.63
10170	1181.53	10172	1181.43	10174	1181.33	10176	1181.23	10178	1181.13
10180	1181.02	10182	1180.92	10184	1180.82	10186	1180.75	10188	1180.68
10190	1180.69	10192	1181.75	10194	1182.82	10196	1183.82	10198	1184.82
10200	1185.82	10202	1186.82	10204	1187.82	10206	1188.82	10208	1189.82
10210	1190.11	10212	1190.16	10214	1190.24	10216	1190.33	10218	1190.42
10220	1190.62	10222	1190.79	10224	1191.01	10226	1191.61	10228	1192.21
10230	1192.81	10232	1193.41	10234	1194.01	10236	1194.62	10238	1194.37
10240	1193.79	10242	1193.83	10244	1193.87	10246	1193.91	10248	1193.95
10250	1193.98	10252	1194.02	10254	1194.06	10256	1194.1	10258	1194.14
10260	1194.18	10262	1194.21	10264	1194.25	10266	1194.34	10268	1194.39
10270	1194.38	10272	1194.37	10274	1194.36	10276	1194.36	10278	1194.35
10280	1194.35	10282	1194.34	10284	1194.34	10286	1194.33	10288	1194.33
10290	1194.32	10292	1194.32	10294	1194.31	10296	1194.31	10298	1194.3
10300	1194.3								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9820	.035	10208	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9820	10208	526.34	526.34	526.34	.1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 9.592

INPUT
Description:

Station Elevation Data num= 301

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1195.1	9702	1195.14	9704	1195.19	9706	1195.23	9708	1195.28
9710	1195.32	9712	1195.36	9714	1195.4	9716	1195.43	9718	1195.45
9720	1195.47	9722	1195.49	9724	1195.51	9726	1195.52	9728	1195.54
9730	1195.56	9732	1195.58	9734	1195.6	9736	1195.61	9738	1195.63
9740	1195.65	9742	1195.67	9744	1195.68	9746	1195.7	9748	1195.72

9750	1195.74	9752	1195.75	9754	1195.54	9756	1195.29	9758	1195.04
9760	1194.79	9762	1194.54	9764	1194.29	9766	1194.04	9768	1193.79
9770	1193.54	9772	1193.29	9774	1193.04	9776	1192.79	9778	1192.53
9780	1192.27	9782	1192.01	9784	1191.74	9786	1191.48	9788	1191.21
9790	1191.08	9792	1190.95	9794	1190.82	9796	1190.7	9798	1190.57
9800	1190.44	9802	1190.32	9804	1190.19	9806	1190.06	9808	1189.29
9810	1188.45	9812	1187.6	9814	1186.75	9816	1185.9	9818	1185.05
9820	1184.21	9822	1183.36	9824	1182.52	9826	1181.67	9828	1180.82
9830	1179.98	9832	1179.13	9834	1178.29	9836	1177.44	9838	1176.68
9840	1176.03	9842	1175.85	9844	1175.81	9846	1175.8	9848	1175.79
9850	1175.77	9852	1175.74	9854	1175.72	9856	1175.7	9858	1175.71
9860	1175.73	9862	1175.74	9864	1175.76	9866	1175.77	9868	1175.79
9870	1175.76	9872	1175.71	9874	1175.9	9876	1176.29	9878	1176.69
9880	1177.08	9882	1177.38	9884	1177.39	9886	1177.4	9888	1177.41
9890	1177.42	9892	1177.44	9894	1177.45	9896	1177.46	9898	1177.47
9900	1177.49	9902	1177.5	9904	1177.53	9906	1177.56	9908	1177.59
9910	1177.63	9912	1177.66	9914	1177.69	9916	1177.72	9918	1177.75
9920	1177.78	9922	1177.81	9924	1177.85	9926	1177.88	9928	1177.91
9930	1177.94	9932	1177.97	9934	1178	9936	1178.03	9938	1178.07
9940	1178.1	9942	1178.11	9944	1178.11	9946	1178.1	9948	1178.1
9950	1178.11	9952	1178.12	9954	1178.12	9956	1178.13	9958	1178.14
9960	1178.15	9962	1178.16	9964	1178.17	9966	1178.19	9968	1178.2
9970	1178.21	9972	1178.22	9974	1178.23	9976	1178.25	9978	1178.26
9980	1178.27	9982	1178.28	9984	1178.29	9986	1178.31	9988	1178.32
9990	1178.33	9992	1178.34	9994	1178.35	9996	1178.37	9998	1178.38
10000	1178.39	10002	1178.4	10004	1178.41	10006	1178.42	10008	1178.43
10010	1178.45	10012	1178.48	10014	1178.51	10016	1178.54	10018	1178.57
10020	1178.6	10022	1178.63	10024	1178.66	10026	1178.69	10028	1178.72
10030	1178.75	10032	1178.78	10034	1178.81	10036	1178.85	10038	1178.89
10040	1178.92	10042	1178.96	10044	1179	10046	1179.04	10048	1179.08
10050	1179.12	10052	1179.15	10054	1179.19	10056	1179.23	10058	1179.27
10060	1179.29	10062	1179.31	10064	1179.32	10066	1179.34	10068	1179.35
10070	1179.37	10072	1179.38	10074	1179.4	10076	1179.41	10078	1179.43
10080	1179.44	10082	1179.45	10084	1179.47	10086	1179.48	10088	1179.5
10090	1179.51	10092	1179.53	10094	1179.54	10096	1179.56	10098	1179.57
10100	1179.59	10102	1179.6	10104	1179.62	10106	1179.63	10108	1179.65
10110	1179.66	10112	1179.67	10114	1179.68	10116	1179.69	10118	1179.7
10120	1179.71	10122	1179.72	10124	1179.72	10126	1179.73	10128	1179.74
10130	1179.75	10132	1179.76	10134	1179.76	10136	1179.77	10138	1179.78
10140	1179.79	10142	1179.8	10144	1179.8	10146	1179.81	10148	1179.82
10150	1179.83	10152	1179.84	10154	1179.84	10156	1179.85	10158	1179.85
10160	1179.83	10162	1180.02	10164	1180.02	10166	1180.02	10168	1180.02
10170	1180.02	10172	1180.02	10174	1180.02	10176	1180.03	10178	1180.03
10180	1180.03	10182	1180.03	10184	1180.03	10186	1180.03	10188	1180.17
10190	1181.16	10192	1182.16	10194	1183.16	10196	1184.15	10198	1185.15
10200	1186.15	10202	1187.14	10204	1188.14	10206	1189.14	10208	1189.79
10210	1189.8	10212	1189.82	10214	1189.83	10216	1189.84	10218	1189.85
10220	1189.87	10222	1189.88	10224	1189.89	10226	1189.91	10228	1189.92
10230	1189.93	10232	1189.94	10234	1189.96	10236	1189.97	10238	1189.98
10240	1189.99	10242	1190	10244	1190.01	10246	1190.02	10248	1190.03
10250	1190.04	10252	1190.06	10254	1190.07	10256	1190.08	10258	1190.09
10260	1190.1	10262	1190.11	10264	1190.12	10266	1190.13	10268	1190.21
10270	1190.35	10272	1190.48	10274	1190.61	10276	1190.74	10278	1190.86
10280	1190.99	10282	1191.12	10284	1191.24	10286	1191.37	10288	1191.5
10290	1191.42	10292	1191.26	10294	1191.1	10296	1190.93	10298	1190.77
10300	1190.61								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9806	.035	10208	.06

Bank Sta: Left	Right	Lengths: Left Channel		Right	Coeff Contr.	Expan.
9806	10208	557.6	557.6	557.6	.1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 9.492

INPUT
Description:

Station Elevation Data num= 301

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1190.44	9702	1190.23	9704	1190.02	9706	1189.78	9708	1189.52
9710	1189.26	9712	1189	9714	1188.83	9716	1188.69	9718	1188.55
9720	1188.41	9722	1188.27	9724	1188.13	9726	1187.99	9728	1187.85
9730	1187.29	9732	1186.35	9734	1185.4	9736	1184.45	9738	1183.5
9740	1182.57	9742	1181.64	9744	1180.71	9746	1179.78	9748	1178.86
9750	1177.93	9752	1177	9754	1176.07	9756	1175.14	9758	1174.36
9760	1174.42	9762	1174.48	9764	1174.54	9766	1174.59	9768	1174.65
9770	1174.71	9772	1174.77	9774	1174.83	9776	1174.89	9778	1174.95
9780	1175.01	9782	1175.05	9784	1175.1	9786	1175.15	9788	1175.2
9790	1175.25	9792	1175.29	9794	1175.23	9796	1175.2	9798	1175.17
9800	1175.15	9802	1175.16	9804	1175.14	9806	1175.12	9808	1175.1
9810	1175.08	9812	1175.06	9814	1175.05	9816	1175.03	9818	1175.01
9820	1175	9822	1174.98	9824	1174.96	9826	1174.95	9828	1174.93
9830	1174.91	9832	1174.9	9834	1174.88	9836	1174.87	9838	1174.85
9840	1174.84	9842	1174.82	9844	1174.8	9846	1174.79	9848	1174.77
9850	1174.76	9852	1174.74	9854	1174.73	9856	1174.71	9858	1174.7
9860	1174.69	9862	1174.68	9864	1174.66	9866	1174.65	9868	1174.64
9870	1174.62	9872	1174.61	9874	1174.6	9876	1174.58	9878	1174.57
9880	1174.56	9882	1174.55	9884	1174.54	9886	1174.53	9888	1174.54
9890	1174.55	9892	1174.56	9894	1174.52	9896	1174.48	9898	1174.43
9900	1174.39	9902	1174.34	9904	1174.3	9906	1174.26	9908	1174.22
9910	1174.2	9912	1174.18	9914	1174.15	9916	1174.14	9918	1174.12
9920	1174.11	9922	1174.09	9924	1174.06	9926	1174.02	9928	1173.97
9930	1173.92	9932	1173.87	9934	1173.82	9936	1173.77	9938	1173.79
9940	1173.81	9942	1173.83	9944	1173.86	9946	1173.88	9948	1173.9
9950	1173.92	9952	1173.95	9954	1173.97	9956	1173.99	9958	1174.02
9960	1174.04	9962	1174.06	9964	1174.08	9966	1174.11	9968	1174.13
9970	1174.15	9972	1174.17	9974	1174.2	9976	1174.22	9978	1174.25
9980	1174.28	9982	1174.32	9984	1174.36	9986	1174.39	9988	1174.43
9990	1174.47	9992	1174.51	9994	1174.55	9996	1174.58	9998	1174.59
10000	1174.61	10002	1174.62	10004	1174.63	10006	1174.64	10008	1174.66
10010	1174.67	10012	1174.69	10014	1174.71	10016	1174.73	10018	1174.75
10020	1174.77	10022	1174.79	10024	1174.81	10026	1174.83	10028	1174.85
10030	1174.87	10032	1174.88	10034	1174.9	10036	1174.92	10038	1174.94
10040	1174.96	10042	1174.97	10044	1174.99	10046	1175.01	10048	1175.03
10050	1175.05	10052	1175.06	10054	1175.08	10056	1175.1	10058	1175.12
10060	1175.14	10062	1175.15	10064	1175.17	10066	1175.19	10068	1175.21
10070	1175.26	10072	1175.34	10074	1175.37	10076	1175.38	10078	1175.4
10080	1175.41	10082	1175.44	10084	1175.47	10086	1175.5	10088	1175.52
10090	1175.55	10092	1175.58	10094	1175.62	10096	1175.65	10098	1175.67
10100	1175.7	10102	1175.71	10104	1175.71	10106	1175.71	10108	1175.71
10110	1175.71	10112	1175.71	10114	1175.71	10116	1175.72	10118	1175.72
10120	1175.72	10122	1175.72	10124	1175.72	10126	1175.72	10128	1175.72
10130	1175.73	10132	1175.73	10134	1175.73	10136	1175.73	10138	1175.73
10140	1175.73	10142	1175.73	10144	1175.73	10146	1175.73	10148	1175.74
10150	1175.74	10152	1175.75	10154	1175.75	10156	1175.74	10158	1175.74
10160	1175.74	10162	1175.74	10164	1175.73	10166	1175.72	10168	1175.72
10170	1175.72	10172	1175.73	10174	1175.74	10176	1175.75	10178	1175.75
10180	1175.76	10182	1175.77	10184	1175.77	10186	1175.78	10188	1175.79
10190	1175.8	10192	1175.8	10194	1175.81	10196	1175.82	10198	1175.83
10200	1175.83	10202	1175.84	10204	1175.85	10206	1175.86	10208	1175.86
10210	1175.87	10212	1175.88	10214	1175.89	10216	1175.89	10218	1175.9
10220	1175.91	10222	1175.92	10224	1176.08	10226	1177.08	10228	1178.07
10230	1179.07	10232	1180.06	10234	1181.06	10236	1182.06	10238	1183.05
10240	1184.05	10242	1185.04	10244	1185.88	10246	1186.09	10248	1186.3
10250	1186.51	10252	1186.72	10254	1186.93	10256	1187.15	10258	1187.36
10260	1187.57	10262	1187.79	10264	1188	10266	1188.21	10268	1188.43
10270	1188.54	10272	1188.57	10274	1188.6	10276	1188.64	10278	1188.62
10280	1188.45	10282	1188.28	10284	1188.1	10286	1187.93	10288	1187.76
10290	1187.61	10292	1187.46	10294	1187.31	10296	1187.16	10298	1187.01
10300	1186.86								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9728	.035	10244	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9728	10244	433.72	433.72	.1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 9.367

INPUT

Description:

Station Elevation Data num= 301

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1186.71	9702	1186.62	9704	1186.52	9706	1186.43	9708	1186.33
9710	1186.24	9712	1186.14	9714	1185.39	9716	1184.54	9718	1183.69
9720	1182.84	9722	1181.99	9724	1181.14	9726	1180.28	9728	1179.43
9730	1178.58	9732	1177.73	9734	1176.88	9736	1176.02	9738	1175.17
9740	1174.32	9742	1173.47	9744	1172.62	9746	1172.15	9748	1172.16
9750	1172.16	9752	1172.16	9754	1172.16	9756	1172.16	9758	1172.17
9760	1172.17	9762	1172.17	9764	1172.17	9766	1172.18	9768	1172.18
9770	1172.18	9772	1172.18	9774	1172.18	9776	1172.19	9778	1172.19
9780	1172.19	9782	1172.19	9784	1172.2	9786	1172.2	9788	1172.2
9790	1172.2	9792	1172.2	9794	1172.2	9796	1172.18	9798	1172.16
9800	1172.14	9802	1172.12	9804	1172.1	9806	1172.08	9808	1172.06
9810	1172.04	9812	1172.02	9814	1172	9816	1171.98	9818	1171.96
9820	1171.94	9822	1171.92	9824	1171.9	9826	1171.88	9828	1171.86
9830	1171.84	9832	1171.82	9834	1171.81	9836	1171.79	9838	1171.77
9840	1171.75	9842	1171.74	9844	1171.75	9846	1171.77	9848	1171.78
9850	1171.79	9852	1171.8	9854	1171.81	9856	1171.82	9858	1171.83
9860	1171.84	9862	1171.85	9864	1171.87	9866	1171.88	9868	1171.89
9870	1171.9	9872	1171.91	9874	1171.92	9876	1171.95	9878	1171.98
9880	1172.01	9882	1172.04	9884	1172.07	9886	1172.1	9888	1172.13
9890	1172.16	9892	1172.19	9894	1172.22	9896	1172.25	9898	1172.29
9900	1172.32	9902	1172.35	9904	1172.38	9906	1172.41	9908	1172.45
9910	1172.49	9912	1172.53	9914	1172.57	9916	1172.61	9918	1172.65
9920	1172.69	9922	1172.72	9924	1172.76	9926	1172.8	9928	1172.83
9930	1172.86	9932	1172.89	9934	1172.92	9936	1172.96	9938	1172.99
9940	1173.02	9942	1173.04	9944	1172.92	9946	1172.8	9948	1172.68
9950	1172.56	9952	1172.44	9954	1172.32	9956	1172.17	9958	1172.03
9960	1171.88	9962	1171.84	9964	1171.82	9966	1171.79	9968	1171.76
9970	1171.74	9972	1171.71	9974	1171.68	9976	1171.66	9978	1171.63
9980	1171.6	9982	1171.57	9984	1171.54	9986	1171.51	9988	1171.48
9990	1171.45	9992	1171.41	9994	1171.38	9996	1171.35	9998	1171.33
10000	1171.36	10002	1171.39	10004	1171.44	10006	1171.5	10008	1171.57
10010	1171.63	10012	1171.69	10014	1171.75	10016	1171.81	10018	1171.87
10020	1171.93	10022	1171.99	10024	1172.06	10026	1172.12	10028	1172.18
10030	1172.24	10032	1172.3	10034	1172.36	10036	1172.42	10038	1172.48
10040	1172.54	10042	1172.6	10044	1172.66	10046	1172.72	10048	1172.78
10050	1172.84	10052	1172.9	10054	1172.96	10056	1173.02	10058	1173.08
10060	1173.12	10062	1173.15	10064	1173.17	10066	1173.2	10068	1173.23
10070	1173.25	10072	1173.28	10074	1173.31	10076	1173.33	10078	1173.36
10080	1173.38	10082	1173.4	10084	1173.43	10086	1173.45	10088	1173.48
10090	1173.5	10092	1173.52	10094	1173.55	10096	1173.57	10098	1173.6
10100	1173.62	10102	1173.64	10104	1173.67	10106	1173.69	10108	1173.72
10110	1173.74	10112	1173.76	10114	1173.79	10116	1173.81	10118	1173.84
10120	1173.86	10122	1173.88	10124	1173.91	10126	1173.93	10128	1173.96
10130	1173.98	10132	1174	10134	1174.03	10136	1174.07	10138	1174.16
10140	1174.31	10142	1174.46	10144	1174.61	10146	1174.76	10148	1174.91
10150	1175.06	10152	1175.18	10154	1175.29	10156	1175.41	10158	1175.52
10160	1175.64	10162	1175.75	10164	1175.89	10166	1176.04	10168	1176.19
10170	1176.34	10172	1176.49	10174	1176.64	10176	1176.79	10178	1176.94
10180	1177.09	10182	1177.24	10184	1177.39	10186	1177.54	10188	1177.69
10190	1177.84	10192	1178.11	10194	1178.96	10196	1179.81	10198	1180.66
10200	1181.5	10202	1182.25	10204	1182.99	10206	1183.44	10208	1183.5
10210	1183.55	10212	1183.61	10214	1183.68	10216	1183.74	10218	1183.81
10220	1183.87	10222	1183.93	10224	1184	10226	1184.06	10228	1184.13
10230	1184.19	10232	1184.26	10234	1184.34	10236	1184.42	10238	1184.51
10240	1184.59	10242	1184.65	10244	1184.36	10246	1184.07	10248	1183.82
10250	1183.73	10252	1183.63	10254	1183.54	10256	1183.44	10258	1183.35
10260	1183.25	10262	1183.16	10264	1183.05	10266	1182.98	10268	1182.92
10270	1182.87	10272	1182.81	10274	1182.76	10276	1182.76	10278	1182.83
10280	1182.74	10282	1182.65	10284	1182.56	10286	1182.54	10288	1182.61
10290	1182.62	10292	1182.52	10294	1182.36	10296	1182.18	10298	1182.19
10300	1182.2								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9712	.035	10206	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9712	10206	459.27	459.27	.1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 9.318

INPUT
Description:

Station Elevation Data num= 301

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1185.92	9702	1185.71	9704	1185.49	9706	1185.28	9708	1185.07
9710	1184.95	9712	1184.96	9714	1184.71	9716	1184.22	9718	1183.72
9720	1183.22	9722	1182.73	9724	1182.23	9726	1181.73	9728	1181.23
9730	1180.74	9732	1180.24	9734	1179.74	9736	1179.24	9738	1179.06
9740	1179.06	9742	1179.05	9744	1179.05	9746	1179.05	9748	1179.05
9750	1179.05	9752	1178.98	9754	1177.99	9756	1177	9758	1176
9760	1175.01	9762	1174.01	9764	1173.02	9766	1172.03	9768	1171.03
9770	1170.62	9772	1170.62	9774	1170.62	9776	1170.61	9778	1170.61
9780	1170.61	9782	1170.61	9784	1170.61	9786	1170.61	9788	1170.61
9790	1170.6	9792	1170.6	9794	1170.6	9796	1170.6	9798	1170.6
9800	1170.6	9802	1170.59	9804	1170.59	9806	1170.59	9808	1170.59
9810	1170.59	9812	1170.59	9814	1170.59	9816	1170.58	9818	1170.58
9820	1170.58	9822	1170.58	9824	1170.58	9826	1170.58	9828	1170.58
9830	1170.57	9832	1170.57	9834	1170.57	9836	1170.57	9838	1170.57
9840	1170.57	9842	1170.56	9844	1170.56	9846	1170.56	9848	1170.56
9850	1170.56	9852	1170.56	9854	1170.56	9856	1170.55	9858	1170.55
9860	1170.55	9862	1170.55	9864	1170.55	9866	1170.55	9868	1170.54
9870	1170.54	9872	1170.54	9874	1170.54	9876	1170.54	9878	1170.54
9880	1170.54	9882	1170.53	9884	1170.53	9886	1170.53	9888	1170.53
9890	1170.53	9892	1170.53	9894	1170.53	9896	1170.52	9898	1170.52
9900	1170.52	9902	1170.52	9904	1170.52	9906	1170.52	9908	1170.51
9910	1170.51	9912	1170.51	9914	1170.51	9916	1170.51	9918	1170.51
9920	1170.51	9922	1170.5	9924	1170.5	9926	1170.5	9928	1170.5
9930	1170.5	9932	1170.5	9934	1170.49	9936	1170.49	9938	1170.49
9940	1170.49	9942	1170.49	9944	1170.49	9946	1170.49	9948	1170.48
9950	1170.48	9952	1170.48	9954	1170.48	9956	1170.48	9958	1170.48
9960	1170.48	9962	1170.47	9964	1170.47	9966	1170.47	9968	1170.47
9970	1170.47	9972	1170.47	9974	1170.46	9976	1170.46	9978	1170.46
9980	1170.46	9982	1170.46	9984	1170.46	9986	1170.46	9988	1170.45
9990	1170.45	9992	1170.45	9994	1170.45	9996	1170.45	9998	1170.45
10000	1170.44	10002	1170.44	10004	1170.44	10006	1170.44	10008	1170.44
10010	1170.44	10012	1170.44	10014	1170.43	10016	1170.43	10018	1170.43
10020	1170.43	10022	1170.43	10024	1170.43	10026	1170.43	10028	1170.42
10030	1170.42	10032	1170.42	10034	1170.42	10036	1170.42	10038	1170.42
10040	1170.41	10042	1170.41	10044	1170.41	10046	1170.41	10048	1170.41
10050	1170.41	10052	1170.41	10054	1170.4	10056	1170.4	10058	1170.4
10060	1170.4	10062	1170.4	10064	1170.4	10066	1170.39	10068	1170.39
10070	1170.39	10072	1170.39	10074	1170.39	10076	1170.39	10078	1170.39
10080	1170.38	10082	1170.37	10084	1170.25	10086	1170.13	10088	1170.02
10090	1169.9	10092	1169.78	10094	1169.66	10096	1169.54	10098	1169.42
10100	1169.3	10102	1169.19	10104	1169.07	10106	1168.95	10108	1168.83
10110	1168.73	10112	1168.63	10114	1168.52	10116	1168.41	10118	1168.43
10120	1168.47	10122	1168.51	10124	1168.56	10126	1168.63	10128	1168.86
10130	1169.09	10132	1169.32	10134	1169.56	10136	1169.8	10138	1169.96
10140	1169.98	10142	1170	10144	1170.02	10146	1170.04	10148	1170.06
10150	1170.08	10152	1170.09	10154	1170.11	10156	1170.13	10158	1170.15
10160	1170.17	10162	1170.19	10164	1170.2	10166	1170.22	10168	1170.24
10170	1170.28	10172	1170.31	10174	1170.35	10176	1170.38	10178	1170.42
10180	1170.45	10182	1170.49	10184	1170.52	10186	1170.56	10188	1170.59
10190	1170.63	10192	1170.66	10194	1170.7	10196	1170.73	10198	1170.77
10200	1170.8	10202	1170.83	10204	1170.87	10206	1170.9	10208	1170.94
10210	1170.97	10212	1171.01	10214	1171.11	10216	1171.2	10218	1171.3
10220	1171.39	10222	1171.49	10224	1171.58	10226	1171.7	10228	1171.85
10230	1172.01	10232	1172.16	10234	1172.31	10236	1172.46	10238	1172.61
10240	1172.76	10242	1172.92	10244	1173.06	10246	1173.2	10248	1173.34
10250	1173.48	10252	1173.61	10254	1173.75	10256	1174.51	10258	1175.6
10260	1176.69	10262	1177.78	10264	1178.87	10266	1179.94	10268	1180.7

10270	1180.81	10272	1180.92	10274	1181.03	10276	1181.15	10278	1181.3
10280	1181.46	10282	1181.61	10284	1181.76	10286	1181.92	10288	1182.07
10290	1181.98	10292	1181.8	10294	1181.61	10296	1181.48	10298	1181.43
10300	1181.39								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9752	.035	10270	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9752	10270	154.63	154.63	.1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 9.289

INPUT
Description:

Station Elevation Data num= 301

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1185.22	9702	1185.02	9704	1184.99	9706	1184.96	9708	1184.93
9710	1184.9	9712	1184.87	9714	1184.86	9716	1184.86	9718	1184.85
9720	1184.85	9722	1184.71	9724	1184.21	9726	1183.71	9728	1183.21
9730	1182.71	9732	1182.21	9734	1181.71	9736	1181.21	9738	1180.71
9740	1180.21	9742	1179.71	9744	1179.21	9746	1178.71	9748	1178.42
9750	1178.42	9752	1178.42	9754	1178.42	9756	1178.42	9758	1178.42
9760	1178.42	9762	1178.42	9764	1177.5	9766	1176.5	9768	1175.5
9770	1174.5	9772	1173.5	9774	1172.5	9776	1171.5	9778	1170.5
9780	1169.68	9782	1169.68	9784	1169.68	9786	1169.68	9788	1169.68
9790	1169.67	9792	1169.67	9794	1169.67	9796	1169.67	9798	1169.67
9800	1169.67	9802	1169.67	9804	1169.67	9806	1169.67	9808	1169.67
9810	1169.67	9812	1169.67	9814	1169.67	9816	1169.67	9818	1169.67
9820	1169.67	9822	1169.67	9824	1169.67	9826	1169.67	9828	1169.67
9830	1169.67	9832	1169.67	9834	1169.67	9836	1169.67	9838	1169.67
9840	1169.67	9842	1169.67	9844	1169.67	9846	1169.67	9848	1169.67
9850	1169.67	9852	1169.67	9854	1169.67	9856	1169.67	9858	1169.67
9860	1169.67	9862	1169.67	9864	1169.67	9866	1169.67	9868	1169.67
9870	1169.67	9872	1169.67	9874	1169.67	9876	1169.67	9878	1169.67
9880	1169.67	9882	1169.67	9884	1169.67	9886	1169.67	9888	1169.67
9890	1169.67	9892	1169.67	9894	1169.67	9896	1169.67	9898	1169.67
9900	1169.67	9902	1169.67	9904	1169.67	9906	1169.67	9908	1169.67
9910	1169.67	9912	1169.67	9914	1169.67	9916	1169.67	9918	1169.67
9920	1169.67	9922	1169.67	9924	1169.67	9926	1169.67	9928	1169.67
9930	1169.67	9932	1169.67	9934	1169.67	9936	1169.67	9938	1169.67
9940	1169.67	9942	1169.67	9944	1169.67	9946	1169.67	9948	1169.67
9950	1169.67	9952	1169.67	9954	1169.67	9956	1169.67	9958	1169.67
9960	1169.67	9962	1169.67	9964	1169.67	9966	1169.67	9968	1169.67
9970	1169.67	9972	1169.67	9974	1169.66	9976	1169.66	9978	1169.66
9980	1169.66	9982	1169.66	9984	1169.66	9986	1169.66	9988	1169.66
9990	1169.66	9992	1169.66	9994	1169.66	9996	1169.66	9998	1169.66
10000	1169.66	10002	1169.66	10004	1169.66	10006	1169.66	10008	1169.66
10010	1169.66	10012	1169.66	10014	1169.66	10016	1169.66	10018	1169.66
10020	1169.66	10022	1169.66	10024	1169.66	10026	1169.66	10028	1169.66
10030	1169.66	10032	1169.66	10034	1169.66	10036	1169.66	10038	1169.66
10040	1169.66	10042	1169.66	10044	1169.66	10046	1169.66	10048	1169.66
10050	1169.66	10052	1169.66	10054	1169.66	10056	1169.66	10058	1169.66
10060	1169.66	10062	1169.66	10064	1169.66	10066	1169.66	10068	1169.66
10070	1169.66	10072	1169.66	10074	1169.66	10076	1169.66	10078	1169.66
10080	1169.66	10082	1169.66	10084	1169.66	10086	1169.66	10088	1169.66
10090	1169.66	10092	1169.66	10094	1169.66	10096	1169.63	10098	1169.56
10100	1169.49	10102	1169.41	10104	1169.34	10106	1169.27	10108	1169.2
10110	1169.02	10112	1168.84	10114	1168.66	10116	1168.54	10118	1168.44
10120	1168.34	10122	1168.23	10124	1168.13	10126	1168.03	10128	1167.93
10130	1168.01	10132	1168.17	10134	1168.3	10136	1168.39	10138	1168.47
10140	1168.56	10142	1168.67	10144	1168.86	10146	1169.11	10148	1169.37
10150	1169.65	10152	1169.94	10154	1170.07	10156	1170.18	10158	1170.29
10160	1170.33	10162	1170.36	10164	1170.39	10166	1170.42	10168	1170.45
10170	1170.48	10172	1170.52	10174	1170.57	10176	1170.62	10178	1170.67
10180	1170.72	10182	1170.77	10184	1170.82	10186	1170.87	10188	1170.92
10190	1170.97	10192	1171.02	10194	1171.07	10196	1171.12	10198	1171.17
10200	1171.22	10202	1171.27	10204	1171.32	10206	1171.37	10208	1171.41
10210	1171.46	10212	1171.5	10214	1171.54	10216	1171.59	10218	1171.63
10220	1171.67	10222	1171.72	10224	1171.76	10226	1171.81	10228	1171.85
10230	1171.89	10232	1171.94	10234	1171.98	10236	1172.02	10238	1172.07

10240	1172.11	10242	1172.15	10244	1172.2	10246	1172.24	10248	1172.29
10250	1172.33	10252	1172.37	10254	1172.42	10256	1172.46	10258	1172.5
10260	1172.52	10262	1172.54	10264	1172.57	10266	1172.59	10268	1173.37
10270	1174.21	10272	1175.05	10274	1175.9	10276	1176.8	10278	1177.7
10280	1178.6	10282	1179.19	10284	1179.41	10286	1179.68	10288	1180.06
10290	1180.43	10292	1180.81	10294	1181.11	10296	1181.32	10298	1181.52
10300	1181.73								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9760	.035	10282	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9760	10282	457.57	457.57 457.57	.1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 9.193

INPUT
Description:

Station Elevation Data num= 301

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1181.96	9702	1181.89	9704	1181.82	9706	1181.75	9708	1181.69
9710	1181.62	9712	1181.55	9714	1181.48	9716	1181.41	9718	1181.34
9720	1181.28	9722	1181.21	9724	1181.14	9726	1181.07	9728	1181
9730	1180.93	9732	1180.93	9734	1180.54	9736	1180.04	9738	1179.54
9740	1179.04	9742	1178.54	9744	1178.04	9746	1177.54	9748	1177.04
9750	1176.55	9752	1176.55	9754	1176.55	9756	1176.55	9758	1176.55
9760	1176.55	9762	1176.55	9764	1176.55	9766	1176.04	9768	1175.04
9770	1174.04	9772	1173.04	9774	1172.04	9776	1171.04	9778	1170.04
9780	1169.04	9782	1168.04	9784	1167.04	9786	1166.62	9788	1166.62
9790	1166.62	9792	1166.62	9794	1166.62	9796	1166.62	9798	1166.62
9800	1166.62	9802	1166.62	9804	1166.62	9806	1166.62	9808	1166.62
9810	1166.62	9812	1166.62	9814	1166.62	9816	1166.62	9818	1166.62
9820	1166.62	9822	1166.62	9824	1166.08	9826	1165.62	9828	1165.16
9830	1164.99	9832	1165.03	9834	1165.07	9836	1165.11	9838	1165.15
9840	1165.19	9842	1165.23	9844	1165.27	9846	1165.31	9848	1165.35
9850	1165.39	9852	1165.43	9854	1165.47	9856	1165.51	9858	1165.55
9860	1165.6	9862	1165.65	9864	1165.7	9866	1165.75	9868	1165.79
9870	1165.81	9872	1165.81	9874	1165.82	9876	1165.82	9878	1165.83
9880	1165.84	9882	1165.84	9884	1165.84	9886	1165.85	9888	1165.85
9890	1165.86	9892	1165.86	9894	1165.87	9896	1165.87	9898	1165.88
9900	1165.88	9902	1165.88	9904	1165.89	9906	1165.89	9908	1165.9
9910	1165.9	9912	1165.9	9914	1165.89	9916	1165.88	9918	1165.87
9920	1165.85	9922	1165.71	9924	1165.57	9926	1165.42	9928	1165.28
9930	1165.14	9932	1165	9934	1164.86	9936	1164.72	9938	1164.58
9940	1164.47	9942	1164.61	9944	1164.75	9946	1164.89	9948	1165.03
9950	1165.16	9952	1165.23	9954	1165.3	9956	1165.38	9958	1165.45
9960	1165.52	9962	1165.59	9964	1165.66	9966	1165.73	9968	1165.81
9970	1165.88	9972	1165.96	9974	1166.03	9976	1166.09	9978	1166.11
9980	1166.13	9982	1166.15	9984	1166.17	9986	1166.17	9988	1166.16
9990	1166.15	9992	1166.15	9994	1166.14	9996	1166.13	9998	1166.12
10000	1166.1	10002	1166.09	10004	1166.08	10006	1166.06	10008	1166.05
10010	1166.03	10012	1166.02	10014	1166	10016	1165.99	10018	1165.98
10020	1165.96	10022	1165.95	10024	1165.93	10026	1165.92	10028	1165.9
10030	1165.89	10032	1165.88	10034	1165.88	10036	1165.88	10038	1165.88
10040	1165.88	10042	1165.88	10044	1165.89	10046	1165.89	10048	1165.89
10050	1165.89	10052	1165.89	10054	1165.89	10056	1165.89	10058	1165.9
10060	1165.9	10062	1165.9	10064	1165.9	10066	1165.9	10068	1165.9
10070	1165.9	10072	1165.91	10074	1165.91	10076	1165.91	10078	1165.91
10080	1165.91	10082	1165.93	10084	1165.96	10086	1165.99	10088	1166.02
10090	1166.06	10092	1166.1	10094	1166.14	10096	1166.17	10098	1166.21
10100	1166.25	10102	1166.28	10104	1166.32	10106	1166.36	10108	1166.39
10110	1166.43	10112	1166.47	10114	1166.5	10116	1166.54	10118	1166.58
10120	1166.62	10122	1166.65	10124	1166.69	10126	1166.73	10128	1166.76
10130	1166.8	10132	1166.84	10134	1166.87	10136	1166.91	10138	1166.95
10140	1166.98	10142	1167.02	10144	1167.06	10146	1167.1	10148	1167.13
10150	1167.17	10152	1167.21	10154	1167.24	10156	1167.28	10158	1167.32

10160	1167.35	10162	1167.39	10164	1167.43	10166	1167.46	10168	1167.5
10170	1167.54	10172	1167.58	10174	1167.61	10176	1167.65	10178	1167.69
10180	1167.73	10182	1167.76	10184	1167.8	10186	1167.84	10188	1167.88
10190	1167.91	10192	1167.95	10194	1167.99	10196	1168.03	10198	1168.06
10200	1168.1	10202	1168.14	10204	1168.18	10206	1168.21	10208	1168.25
10210	1168.29	10212	1168.29	10214	1168.29	10216	1168.29	10218	1168.29
10220	1168.29	10222	1168.29	10224	1168.29	10226	1168.29	10228	1168.29
10230	1168.29	10232	1168.29	10234	1168.29	10236	1168.29	10238	1168.29
10240	1168.29	10242	1168.29	10244	1168.29	10246	1168.29	10248	1168.29
10250	1168.29	10252	1168.29	10254	1168.29	10256	1168.29	10258	1168.29
10260	1168.29	10262	1168.29	10264	1168.29	10266	1168.5	10268	1169.53
10270	1170.56	10272	1171.59	10274	1172.62	10276	1173.64	10278	1174.64
10280	1175.64	10282	1176.19	10284	1176.35	10286	1176.51	10288	1176.66
10290	1176.82	10292	1176.98	10294	1177.13	10296	1177.32	10298	1177.52
10300	1177.73								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9764	.035	10282	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9764	10282	391.34 391.34	391.34	.1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 9.129

INPUT
Description:

Station Elevation Data num= 301

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1178.16	9702	1178.12	9704	1178.18	9706	1178.25	9708	1178.31
9710	1178.37	9712	1178.44	9714	1178.5	9716	1178.57	9718	1178.63
9720	1178.7	9722	1178.76	9724	1178.82	9726	1178.89	9728	1178.95
9730	1179.02	9732	1179.08	9734	1179.14	9736	1179.2	9738	1178.76
9740	1178.26	9742	1177.76	9744	1177.26	9746	1176.76	9748	1176.26
9750	1175.76	9752	1175.26	9754	1174.95	9756	1174.95	9758	1174.95
9760	1174.95	9762	1174.95	9764	1174.95	9766	1174.95	9768	1174.95
9770	1174.06	9772	1173.06	9774	1172.06	9776	1171.06	9778	1170.06
9780	1169.06	9782	1168.06	9784	1167.06	9786	1166.06	9788	1165.06
9790	1164.72	9792	1164.72	9794	1164.72	9796	1164.72	9798	1164.72
9800	1164.72	9802	1164.72	9804	1164.72	9806	1164.72	9808	1164.72
9810	1164.72	9812	1164.72	9814	1164.72	9816	1164.72	9818	1164.72
9820	1164.72	9822	1164.72	9824	1164.72	9826	1164.72	9828	1164.72
9830	1164.51	9832	1164.08	9834	1163.94	9836	1163.9	9838	1163.85
9840	1163.8	9842	1163.75	9844	1163.7	9846	1163.68	9848	1163.67
9850	1163.65	9852	1163.64	9854	1163.63	9856	1163.61	9858	1163.6
9860	1163.59	9862	1163.58	9864	1163.56	9866	1163.55	9868	1163.54
9870	1163.53	9872	1163.51	9874	1163.5	9876	1163.49	9878	1163.48
9880	1163.46	9882	1163.45	9884	1163.44	9886	1163.42	9888	1163.41
9890	1163.4	9892	1163.39	9894	1163.37	9896	1163.36	9898	1163.35
9900	1163.34	9902	1163.32	9904	1163.31	9906	1163.3	9908	1163.29
9910	1163.27	9912	1163.26	9914	1163.25	9916	1163.23	9918	1163.22
9920	1163.21	9922	1163.2	9924	1163.18	9926	1163.17	9928	1163.16
9930	1163.17	9932	1163.2	9934	1163.23	9936	1163.26	9938	1163.29
9940	1163.32	9942	1163.35	9944	1163.39	9946	1163.42	9948	1163.45
9950	1163.48	9952	1163.51	9954	1163.54	9956	1163.57	9958	1163.6
9960	1163.63	9962	1163.67	9964	1163.7	9966	1163.73	9968	1163.76
9970	1163.79	9972	1163.82	9974	1163.85	9976	1163.88	9978	1163.9
9980	1163.92	9982	1163.94	9984	1163.95	9986	1163.97	9988	1163.99
9990	1164.01	9992	1164.02	9994	1164.04	9996	1164.06	9998	1164.08
10000	1164.1	10002	1164.11	10004	1164.13	10006	1164.15	10008	1164.17
10010	1164.19	10012	1164.2	10014	1164.22	10016	1164.24	10018	1164.26
10020	1164.27	10022	1164.29	10024	1164.31	10026	1164.33	10028	1164.35
10030	1164.36	10032	1164.38	10034	1164.4	10036	1164.42	10038	1164.43
10040	1164.45	10042	1164.47	10044	1164.49	10046	1164.51	10048	1164.52
10050	1164.54	10052	1164.56	10054	1164.58	10056	1164.6	10058	1164.61
10060	1164.63	10062	1164.65	10064	1164.67	10066	1164.68	10068	1164.7
10070	1164.7	10072	1164.7	10074	1164.68	10076	1164.67	10078	1164.66

10080	1164.65	10082	1164.63	10084	1164.62	10086	1164.61	10088	1164.6
10090	1164.59	10092	1164.59	10094	1164.58	10096	1164.58	10098	1164.57
10100	1164.57	10102	1164.56	10104	1164.62	10106	1164.69	10108	1164.75
10110	1164.82	10112	1164.89	10114	1164.95	10116	1165.02	10118	1165.09
10120	1165.16	10122	1165.24	10124	1165.31	10126	1165.38	10128	1165.45
10130	1165.52	10132	1165.6	10134	1165.67	10136	1165.74	10138	1165.81
10140	1165.89	10142	1165.96	10144	1166.03	10146	1166.1	10148	1166.18
10150	1166.25	10152	1166.33	10154	1166.4	10156	1166.47	10158	1166.55
10160	1166.62	10162	1166.69	10164	1166.77	10166	1166.84	10168	1166.92
10170	1166.99	10172	1167.06	10174	1167.14	10176	1167.21	10178	1167.28
10180	1167.35	10182	1167.38	10184	1167.39	10186	1167.4	10188	1167.41
10190	1167.41	10192	1167.42	10194	1167.43	10196	1167.44	10198	1167.45
10200	1167.46	10202	1167.46	10204	1167.47	10206	1167.48	10208	1167.49
10210	1167.5	10212	1167.51	10214	1167.52	10216	1167.53	10218	1167.54
10220	1167.54	10222	1167.54	10224	1167.53	10226	1167.53	10228	1167.53
10230	1168.34	10232	1169.2	10234	1170.1	10236	1171.06	10238	1172.03
10240	1173	10242	1173.97	10244	1174.94	10246	1175.5	10248	1175.68
10250	1175.85	10252	1176.02	10254	1176.19	10256	1176.34	10258	1176.45
10260	1176.56	10262	1176.66	10264	1176.77	10266	1176.89	10268	1177.02
10270	1177.14	10272	1177.27	10274	1177.4	10276	1177.41	10278	1177.34
10280	1177.27	10282	1177.2	10284	1177.13	10286	1177.07	10288	1177
10290	1176.93	10292	1176.86	10294	1176.79	10296	1176.72	10298	1176.65
10300	1176.58								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9768	.035	10246	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9768	10246	402.94	402.94	.1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 9.047

INPUT
Description:

Station Elevation Data num= 301

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1177.68	9702	1177.69	9704	1177.71	9706	1177.72	9708	1177.74
9710	1177.75	9712	1177.77	9714	1177.78	9716	1177.8	9718	1177.81
9720	1177.83	9722	1177.84	9724	1177.85	9726	1177.85	9728	1177.84
9730	1177.83	9732	1177.82	9734	1177.82	9736	1177.81	9738	1177.8
9740	1177.38	9742	1176.88	9744	1176.38	9746	1175.88	9748	1175.38
9750	1174.88	9752	1174.38	9754	1173.88	9756	1173.38	9758	1173.31
9760	1173.31	9762	1173.31	9764	1173.31	9766	1173.31	9768	1173.31
9770	1173.31	9772	1172.95	9774	1171.95	9776	1170.95	9778	1169.95
9780	1168.95	9782	1167.95	9784	1166.95	9786	1165.95	9788	1164.95
9790	1164.06	9792	1164.06	9794	1164.06	9796	1164.06	9798	1164.06
9800	1164.06	9802	1164.06	9804	1164.06	9806	1164.06	9808	1164.06
9810	1164.06	9812	1164.06	9814	1164.06	9816	1164.06	9818	1164.06
9820	1164.06	9822	1164.06	9824	1164.06	9826	1164.06	9828	1164
9830	1163.59	9832	1163.18	9834	1162.77	9836	1162.67	9838	1162.72
9840	1162.76	9842	1162.81	9844	1162.85	9846	1162.9	9848	1162.94
9850	1162.98	9852	1163.03	9854	1163.07	9856	1163.13	9858	1163.09
9860	1163.05	9862	1162.99	9864	1162.91	9866	1162.84	9868	1162.76
9870	1162.69	9872	1162.61	9874	1162.53	9876	1162.46	9878	1162.38
9880	1162.31	9882	1162.23	9884	1162.16	9886	1162.08	9888	1162.01
9890	1161.93	9892	1161.86	9894	1161.78	9896	1161.7	9898	1161.65
9900	1161.84	9902	1162.04	9904	1162.24	9906	1162.49	9908	1162.71
9910	1162.95	9912	1163.22	9914	1163.48	9916	1163.73	9918	1163.77
9920	1163.79	9922	1163.82	9924	1163.84	9926	1163.87	9928	1163.89
9930	1163.92	9932	1163.95	9934	1163.97	9936	1164	9938	1164.02
9940	1164.05	9942	1163.96	9944	1163.81	9946	1163.65	9948	1163.49
9950	1163.33	9952	1163.19	9954	1163.09	9956	1162.98	9958	1162.88
9960	1162.78	9962	1162.68	9964	1162.58	9966	1162.48	9968	1162.38
9970	1162.29	9972	1162.25	9974	1162.2	9976	1162.16	9978	1162.11
9980	1162.07	9982	1162.1	9984	1162.1	9986	1162.11	9988	1162.13
9990	1162.14	9992	1162.16	9994	1162.17	9996	1162.2	9998	1162.24
10000	1162.28	10002	1162.33	10004	1162.37	10006	1162.41	10008	1162.45
10010	1162.49	10012	1162.53	10014	1162.57	10016	1162.62	10018	1162.66
10020	1162.7	10022	1162.81	10024	1162.95	10026	1163.09	10028	1163.22
10030	1163.36	10032	1163.49	10034	1163.63	10036	1163.71	10038	1163.77
10040	1163.83	10042	1163.89	10044	1163.95	10046	1164.02	10048	1164.08

10050	1164.14	10052	1164.2	10054	1164.26	10056	1164.32	10058	1164.38
10060	1164.44	10062	1164.5	10064	1164.56	10066	1164.62	10068	1164.68
10070	1164.75	10072	1164.81	10074	1164.87	10076	1164.93	10078	1164.99
10080	1165.05	10082	1165.11	10084	1165.17	10086	1165.24	10088	1165.3
10090	1165.37	10092	1165.43	10094	1165.49	10096	1165.53	10098	1165.61
10100	1165.68	10102	1165.68	10104	1165.71	10106	1165.74	10108	1165.77
10110	1165.8	10112	1165.83	10114	1165.86	10116	1165.89	10118	1165.92
10120	1165.94	10122	1165.97	10124	1166	10126	1166.03	10128	1166.06
10130	1166.09	10132	1166.12	10134	1166.15	10136	1166.18	10138	1166.21
10140	1166.24	10142	1166.26	10144	1166.29	10146	1166.32	10148	1166.35
10150	1166.38	10152	1166.41	10154	1166.44	10156	1166.47	10158	1166.5
10160	1167.41	10162	1168.32	10164	1169.24	10166	1170.16	10168	1171.07
10170	1171.99	10172	1172.91	10174	1173.7	10176	1173.93	10178	1174.14
10180	1174.31	10182	1174.48	10184	1174.67	10186	1174.87	10188	1175.07
10190	1175.27	10192	1175.47	10194	1175.67	10196	1175.88	10198	1176.08
10200	1176.28	10202	1176.48	10204	1176.68	10206	1176.88	10208	1177.08
10210	1177.28	10212	1177.48	10214	1177.69	10216	1177.89	10218	1178.09
10220	1178.29	10222	1178.52	10224	1178.8	10226	1179.08	10228	1179.36
10230	1179.51	10232	1179.3	10234	1179.09	10236	1178.88	10238	1178.67
10240	1178.46	10242	1178.24	10244	1178.03	10246	1177.82	10248	1177.61
10250	1177.4	10252	1177.19	10254	1176.98	10256	1176.77	10258	1176.56
10260	1176.32	10262	1176.07	10264	1175.82	10266	1175.4	10268	1174.98
10270	1174.56	10272	1174.15	10274	1173.75	10276	1173.34	10278	1172.93
10280	1172.84	10282	1172.85	10284	1172.85	10286	1172.85	10288	1172.85
10290	1172.86	10292	1172.86	10294	1172.86	10296	1172.86	10298	1172.87
10300	1172.87								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9770	.035	10174	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9770	10174	290.48	290.48	290.48 .1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 8.994

INPUT
Description:

Station Elevation Data num= 231

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1175.86	9702	1175.89	9704	1175.92	9706	1175.95	9708	1175.98
9710	1176	9712	1176.03	9714	1176.06	9716	1176.09	9718	1176.12
9720	1176.15	9722	1176.17	9724	1176.2	9726	1176.23	9728	1176.26
9730	1176.29	9732	1176.32	9734	1176.34	9736	1176.37	9738	1176.4
9740	1176.43	9742	1176.46	9744	1176.49	9746	1176.51	9748	1176.54
9750	1176.57	9752	1176.6	9754	1176.63	9756	1176.67	9758	1176.49
9760	1175.99	9762	1175.5	9764	1175	9766	1174.51	9768	1174.01
9770	1173.52	9772	1173.02	9774	1172.53	9776	1172.13	9784	1172.13
9786	1172.12	9788	1172.12	9790	1172.12	9792	1171.53	9794	1170.54
9796	1169.55	9798	1168.57	9800	1167.58	9802	1166.59	9804	1165.6
9806	1164.61	9808	1163.64	9832	1163.64	9834	1163.63	9876	1163.63
9878	1163.62	9922	1163.62	9924	1163.61	9956	1163.61	9958	1163.58
9960	1163.48	9962	1163.37	9964	1163.24	9966	1163.09	9968	1162.95
9970	1162.8	9972	1162.65	9974	1162.51	9976	1162.37	9978	1162.23
9980	1162.16	9982	1162.12	9984	1162.08	9986	1162.03	9988	1161.99
9990	1161.94	9992	1161.9	9994	1161.85	9996	1161.8	9998	1161.76
10000	1161.71	10002	1161.66	10004	1161.69	10006	1161.74	10008	1161.78
10010	1161.82	10012	1161.87	10014	1161.91	10016	1161.96	10018	1162
10020	1162.04	10022	1162.09	10024	1162.13	10026	1162.15	10028	1162.16
10030	1162.18	10032	1162.2	10034	1162.22	10036	1162.24	10038	1162.26
10040	1162.27	10042	1162.29	10044	1162.3	10046	1162.31	10048	1162.33
10050	1162.34	10052	1162.36	10054	1162.37	10056	1162.38	10058	1162.4
10060	1162.41	10062	1162.43	10064	1162.44	10066	1162.46	10068	1162.47
10070	1162.48	10072	1162.51	10074	1162.55	10076	1162.55	10078	1162.55
10080	1162.54	10082	1162.54	10084	1162.53	10086	1162.53	10088	1162.52
10090	1162.51	10092	1162.51	10094	1162.5	10096	1162.5	10098	1162.49
10100	1162.49	10102	1162.48	10104	1162.47	10106	1162.46	10108	1162.46
10110	1162.45	10112	1162.44	10114	1162.43	10116	1162.46	10118	1162.49
10120	1162.52	10122	1162.55	10124	1162.58	10126	1162.61	10128	1162.64
10130	1164.47	10132	1166.28	10134	1167.87	10136	1169.4	10138	1170.91
10140	1172.38	10142	1173.2	10144	1173.25	10146	1173.28	10148	1173.32
10150	1173.36	10152	1173.4	10154	1173.43	10156	1173.47	10158	1173.5

10160	1173.54	10162	1173.59	10164	1173.64	10166	1173.69	10168	1173.72
10170	1173.76	10172	1173.79	10174	1173.82	10176	1173.86	10178	1173.89
10180	1173.94	10182	1174.2	10184	1174.44	10186	1174.68	10188	1174.93
10190	1175.17	10192	1175.42	10194	1175.63	10196	1175.79	10198	1175.96
10200	1176.16	10202	1176.33	10204	1176.5	10206	1176.67	10208	1176.76
10210	1176.84	10212	1176.94	10214	1177.04	10216	1177.07	10218	1177.06
10220	1177.04	10222	1177.11	10224	1177.21	10226	1177.32	10228	1177.31
10230	1177.29	10232	1177.28	10234	1177.34	10236	1177.39	10238	1177.39
10240	1177.39	10242	1177.38	10244	1177.41	10246	1177.43	10248	1177.45
10250	1177.5	10252	1177.55	10254	1177.59	10256	1177.78	10258	1177.97
10260	1178.17	10262	1178.37	10264	1178.57	10266	1178.82	10268	1179.07
10270	1179.06	10272	1179.07	10274	1179.08	10276	1179.08	10278	1179.09
10280	1179.1	10282	1179.11	10284	1179.12	10286	1179.13	10288	1179.14
10290	1179.15	10292	1179.16	10294	1179.17	10296	1179.18	10298	1179.19
10300	1179.2								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9790	.035	10142	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9790	10142	90.73	90.73	.1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 8.977

INPUT
Description:

Station Elevation Data num= 236

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1175.12	9702	1175.09	9704	1175.06	9706	1175.08	9708	1175.11
9710	1175.14	9712	1175.17	9714	1175.2	9716	1175.22	9718	1175.23
9720	1175.25	9722	1175.26	9724	1175.28	9726	1175.29	9728	1175.31
9730	1175.32	9732	1175.33	9734	1175.35	9736	1175.36	9738	1175.38
9740	1175.39	9742	1175.41	9744	1175.42	9746	1175.44	9748	1175.45
9750	1175.47	9752	1175.48	9754	1175.49	9756	1175.51	9758	1175.52
9760	1175.54	9762	1175.55	9764	1175.57	9766	1175.58	9768	1175.6
9770	1175.61	9772	1175.63	9774	1175.23	9776	1174.73	9778	1174.23
9780	1173.73	9782	1173.23	9784	1172.73	9786	1172.23	9788	1171.75
9802	1171.75	9804	1171.22	9806	1170.22	9808	1169.22	9810	1168.22
9812	1167.22	9814	1166.22	9816	1165.22	9818	1164.22	9820	1163.51
9822	1163.51	9936	1163.51	9938	1163.46	9940	1163.41	9942	1163.36
9944	1163.31	9946	1163.26	9948	1163.21	9950	1163.16	9952	1163.11
9954	1163.06	9956	1163.01	9958	1162.97	9960	1162.92	9962	1162.87
9964	1162.82	9966	1162.77	9968	1162.72	9970	1162.67	9972	1162.65
9974	1162.64	9976	1162.63	9978	1162.62	9980	1162.62	9982	1162.61
9984	1162.61	9986	1162.6	9988	1162.56	9990	1162.14	9992	1161.69
9994	1161.64	9996	1161.62	9998	1161.59	10000	1161.56	10002	1161.53
10004	1161.51	10006	1161.48	10008	1161.45	10010	1161.42	10012	1161.39
10014	1161.36	10016	1161.33	10018	1161.31	10020	1161.31	10022	1161.34
10024	1161.37	10026	1161.41	10028	1161.44	10030	1161.47	10032	1161.5
10034	1161.54	10036	1161.57	10038	1161.6	10040	1161.64	10042	1161.67
10044	1161.7	10046	1161.74	10048	1161.77	10050	1161.8	10052	1161.84
10054	1161.88	10056	1161.92	10058	1161.96	10060	1162	10062	1162.04
10064	1162.08	10066	1162.12	10068	1162.16	10070	1162.2	10072	1162.24
10074	1162.27	10082	1162.27	10084	1162.26	10086	1162.26	10088	1162.28
10090	1162.29	10092	1162.3	10094	1162.31	10096	1162.32	10098	1162.33
10100	1162.34	10102	1162.35	10104	1162.37	10106	1162.38	10108	1163.49
10110	1164.95	10112	1166.49	10114	1168.23	10116	1168.66	10118	1168.61
10120	1168.55	10122	1168.49	10124	1168.44	10126	1168.35	10128	1168.25
10130	1168.16	10132	1169.15	10134	1170.53	10136	1171.93	10138	1172.69
10140	1172.77	10142	1172.84	10144	1172.92	10146	1173	10148	1173.08
10150	1173.15	10152	1173.23	10154	1173.31	10156	1173.39	10158	1173.46
10160	1173.54	10162	1173.7	10164	1173.97	10166	1174.25	10168	1174.52
10170	1174.79	10172	1175.06	10174	1175.33	10176	1175.61	10178	1175.88
10180	1176.15	10182	1176.36	10184	1176.55	10186	1176.74	10188	1176.93
10190	1177.12	10192	1177.32	10194	1177.51	10196	1177.7	10198	1177.89
10200	1177.99	10202	1178	10204	1178.01	10206	1178.02	10208	1178.02
10210	1178.03	10212	1178.04	10214	1178.05	10216	1178.06	10218	1178.06
10220	1178.07	10222	1178.08	10224	1178.09	10226	1178.1	10228	1178.11
10230	1178.11	10232	1178.12	10234	1178.14	10236	1178.17	10238	1178.2
10240	1178.23	10242	1178.27	10244	1178.3	10246	1178.33	10248	1178.36
10250	1178.39	10252	1178.42	10254	1178.45	10256	1178.49	10258	1178.52

10260	1178.55	10262	1178.58	10264	1178.61	10266	1178.64	10268	1178.67
10270	1178.71	10272	1178.74	10274	1178.77	10276	1178.8	10278	1178.83
10280	1178.86	10282	1178.89	10284	1178.93	10286	1178.96	10288	1178.98
10290	1178.9	10292	1178.79	10294	1178.68	10296	1178.57	10298	1178.45
10300	1178.34								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9802	.035	10140	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9802	10140	210.76	210.76	.1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 8.936

INPUT
Description:

Station Elevation Data num= 218

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1174.93	9704	1174.93	9706	1174.94	9708	1174.94	9710	1174.93
9712	1174.93	9714	1174.92	9716	1174.91	9718	1174.9	9720	1174.9
9722	1174.89	9724	1174.88	9726	1174.87	9728	1174.86	9730	1174.86
9732	1174.85	9734	1174.84	9736	1174.84	9738	1174.83	9740	1174.82
9742	1174.82	9744	1174.81	9746	1174.8	9748	1174.79	9750	1174.79
9752	1174.78	9754	1174.77	9756	1174.77	9758	1174.76	9760	1174.75
9762	1174.75	9764	1174.74	9766	1174.73	9768	1174.73	9770	1174.56
9772	1174.06	9774	1173.56	9776	1173.06	9778	1172.56	9780	1172.06
9782	1171.56	9784	1171.06	9786	1170.89	9798	1170.89	9800	1170.73
9802	1169.73	9804	1168.73	9806	1167.73	9808	1166.73	9810	1165.73
9812	1164.73	9814	1163.74	9816	1163.21	9960	1163.21	9962	1163.18
9964	1163.13	9966	1163.09	9968	1163.04	9970	1163	9972	1162.95
9974	1162.91	9976	1162.86	9978	1162.82	9980	1162.59	9982	1161.77
9984	1161.01	9986	1160.29	9988	1159.99	9990	1159.99	9992	1159.99
9994	1159.98	9996	1159.98	9998	1159.98	10000	1159.98	10002	1159.98
10004	1159.98	10006	1159.97	10008	1159.97	10010	1159.95	10012	1159.99
10014	1160.15	10016	1160.3	10018	1160.44	10020	1160.56	10022	1160.68
10024	1160.8	10026	1160.92	10028	1161.04	10030	1161.17	10032	1161.29
10034	1161.35	10036	1161.36	10038	1161.37	10040	1161.38	10042	1161.4
10044	1161.41	10046	1161.42	10048	1161.44	10050	1161.45	10052	1161.47
10054	1161.48	10056	1161.5	10058	1161.52	10060	1161.53	10062	1161.55
10064	1161.58	10066	1161.6	10068	1161.63	10070	1161.66	10072	1161.68
10074	1161.71	10076	1161.74	10078	1161.76	10080	1161.79	10082	1161.82
10084	1161.85	10086	1161.88	10088	1161.91	10090	1161.94	10092	1161.97
10094	1162	10096	1162.03	10098	1162.06	10100	1162.09	10102	1162.11
10104	1162.14	10106	1162.17	10108	1162.2	10110	1162.93	10112	1163.81
10114	1164.7	10116	1165.58	10118	1166.46	10120	1167.34	10122	1168.23
10124	1169.17	10126	1170.14	10128	1170.88	10130	1170.94	10132	1171.01
10134	1171.07	10136	1171.14	10138	1171.22	10140	1171.31	10142	1171.4
10144	1171.49	10146	1171.57	10148	1171.66	10150	1171.75	10152	1171.83
10154	1171.92	10156	1172.01	10158	1172.1	10160	1172.5	10162	1172.92
10164	1173.33	10166	1173.74	10168	1174.16	10170	1174.57	10172	1174.99
10174	1175.41	10176	1175.83	10178	1176.25	10180	1176.68	10182	1177.1
10184	1177.21	10186	1177.24	10188	1177.26	10190	1177.29	10192	1177.31
10194	1177.34	10196	1177.36	10198	1177.38	10200	1177.39	10202	1177.39
10204	1177.4	10206	1177.4	10208	1177.41	10210	1177.41	10212	1177.42
10214	1177.46	10216	1177.56	10218	1177.62	10232	1177.62	10234	1177.63
10236	1177.65	10238	1177.67	10240	1177.68	10242	1177.7	10244	1177.72
10246	1177.74	10248	1177.75	10250	1177.77	10252	1177.79	10254	1177.81
10256	1177.82	10258	1177.84	10260	1177.86	10262	1177.88	10264	1177.89
10266	1177.91	10268	1177.93	10270	1177.95	10272	1177.97	10274	1177.87
10276	1177.77	10278	1177.67	10280	1177.57	10282	1177.47	10284	1177.37
10286	1177.28	10288	1177.18	10290	1177.08	10292	1176.98	10294	1176.89
10296	1176.83	10298	1176.76	10300	1176.69				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9798	.035	10128	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9798	10128	289.44	289.44	.1	.3

CROSS SECTION RIVER: RIVER-1

REACH: Reach-1 RS: 8.883

INPUT
Description:

Station Elevation Data num= 246

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1175.86	9702	1175.86	9704	1175.9	9706	1175.94	9708	1175.97
9710	1176.01	9712	1176.05	9714	1176.08	9716	1176.12	9718	1176.15
9720	1176.16	9722	1176.18	9724	1176.2	9726	1176.21	9728	1176.23
9730	1176.25	9732	1176.26	9734	1176.28	9736	1176.3	9738	1176.32
9740	1176.33	9742	1176.35	9744	1176.37	9746	1176.38	9748	1176.4
9750	1176.42	9752	1176.43	9754	1176.13	9756	1175.63	9758	1175.13
9760	1174.63	9762	1174.13	9764	1173.63	9766	1173.13	9768	1172.63
9770	1172.13	9772	1171.63	9774	1171.13	9776	1170.63	9778	1170.13
9780	1169.71	9794	1169.71	9796	1169.05	9798	1168.05	9800	1167.05
9802	1166.05	9804	1165.05	9806	1164.05	9808	1163.06	9810	1162.23
9894	1162.23	9896	1162.19	9898	1162.06	9900	1161.92	9902	1161.8
9904	1161.69	9906	1161.58	9908	1161.53	9910	1161.52	9912	1161.52
9914	1161.52	9916	1161.53	9918	1161.53	9920	1161.53	9922	1161.52
9924	1161.51	9926	1161.49	9928	1161.48	9930	1161.46	9932	1161.44
9934	1161.43	9936	1161.41	9938	1161.39	9940	1161.38	9942	1161.36
9944	1161.34	9946	1161.33	9948	1161.31	9950	1161.29	9952	1161.28
9954	1161.26	9956	1161.32	9958	1161.39	9960	1161.47	9962	1161.54
9964	1161.61	9966	1161.68	9968	1161.75	9970	1161.82	9972	1161.89
9974	1161.79	9976	1161.21	9978	1160.64	9980	1160.04	9982	1159.44
9984	1159.44	9986	1159.44	9988	1159.44	9996	1159.44	9998	1159.51
10000	1159.61	10002	1159.71	10004	1159.81	10006	1159.91	10008	1160.01
10010	1160.1	10012	1160.2	10014	1160.3	10016	1160.4	10018	1160.44
10020	1160.45	10022	1160.47	10024	1160.48	10026	1160.5	10028	1160.51
10030	1160.52	10032	1160.54	10034	1160.55	10036	1160.57	10038	1160.58
10040	1160.6	10042	1160.62	10044	1160.64	10046	1160.66	10048	1160.68
10050	1160.7	10052	1160.72	10054	1160.74	10056	1160.76	10058	1160.77
10060	1160.79	10062	1160.81	10064	1160.83	10066	1160.85	10068	1160.87
10070	1160.89	10072	1160.91	10074	1160.93	10076	1160.95	10078	1160.97
10080	1161	10082	1161.04	10084	1161.08	10086	1161.12	10088	1161.16
10090	1161.2	10092	1161.23	10094	1161.87	10096	1162.7	10098	1163.52
10100	1164.34	10102	1165.17	10104	1165.99	10106	1166.88	10108	1167.8
10110	1168.73	10112	1169.65	10114	1170.47	10116	1170.51	10118	1170.55
10120	1170.59	10122	1170.63	10124	1170.67	10126	1170.71	10128	1170.75
10130	1170.8	10132	1170.84	10134	1170.88	10136	1170.92	10138	1170.97
10140	1171.02	10142	1171.07	10144	1171.12	10146	1171.17	10148	1171.22
10150	1171.27	10152	1171.32	10154	1171.37	10156	1171.65	10158	1172.12
10160	1172.6	10162	1173.07	10164	1173.54	10166	1174.02	10168	1174.5
10170	1174.98	10172	1175.47	10174	1175.85	10176	1175.89	10178	1175.92
10180	1175.96	10182	1175.96	10184	1175.95	10186	1175.95	10188	1175.94
10192	1175.94	10194	1175.98	10196	1176.02	10198	1176.05	10200	1176.09
10202	1176.13	10204	1176.15	10206	1176.11	10208	1176.06	10210	1176.02
10212	1176.01	10214	1176.01	10216	1176	10218	1176	10220	1175.99
10224	1175.99	10226	1175.98	10228	1175.98	10230	1175.97	10232	1175.97
10234	1175.96	10236	1175.96	10238	1175.95	10240	1175.95	10242	1175.94
10244	1175.94	10246	1175.93	10248	1175.93	10256	1175.93	10258	1175.88
10260	1175.8	10262	1175.73	10264	1175.65	10266	1175.57	10268	1175.5
10270	1175.42	10272	1175.35	10274	1175.28	10276	1175.2	10278	1175.13
10280	1175.06	10282	1174.98	10284	1174.91	10286	1174.89	10288	1174.93
10290	1174.96	10292	1174.99	10294	1175.02	10296	1175.05	10298	1175.1
10300	1175.13								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9794	.035	10114	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9794	10114	400.91	400.91	400.91	.1 .3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 8.807

INPUT
Description:

Station Elevation Data num= 301

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1171.88	9702	1171.8	9704	1171.72	9706	1171.65	9708	1171.57
9710	1171.51	9712	1171.63	9714	1171.76	9716	1171.88	9718	1172.01
9720	1172.16	9722	1172.32	9724	1172.36	9726	1172.4	9728	1172.44
9730	1172.48	9732	1172.52	9734	1172.56	9736	1172.6	9738	1172.64
9740	1172.68	9742	1172.71	9744	1172.72	9746	1172.71	9748	1172.66
9750	1172.58	9752	1172.52	9754	1172.48	9756	1172.08	9758	1171.58
9760	1171.08	9762	1170.58	9764	1170.08	9766	1169.58	9768	1169.08
9770	1168.58	9772	1168.08	9774	1168.07	9776	1168.07	9778	1168.07
9780	1168.07	9782	1168.07	9784	1168.07	9786	1168.07	9788	1167.59
9790	1166.59	9792	1165.59	9794	1164.59	9796	1163.59	9798	1162.6
9800	1161.6	9802	1160.6	9804	1160.1	9806	1160.1	9808	1160.1
9810	1160.1	9812	1160.1	9814	1160.1	9816	1159.49	9818	1158.68
9820	1158.44	9822	1158.4	9824	1158.36	9826	1158.32	9828	1158.28
9830	1158.24	9832	1158.2	9834	1158.17	9836	1158.13	9838	1158.09
9840	1158.05	9842	1158.01	9844	1157.97	9846	1157.97	9848	1157.99
9850	1158.01	9852	1158.03	9854	1158.05	9856	1158.07	9858	1158.09
9860	1158.11	9862	1158.13	9864	1158.16	9866	1158.18	9868	1158.2
9870	1158.22	9872	1158.24	9874	1158.26	9876	1158.28	9878	1158.31
9880	1158.36	9882	1158.41	9884	1158.46	9886	1158.51	9888	1158.55
9890	1158.6	9892	1158.65	9894	1158.7	9896	1158.75	9898	1158.8
9900	1158.86	9902	1158.92	9904	1158.97	9906	1159.03	9908	1159.08
9910	1159.14	9912	1159.2	9914	1159.25	9916	1159.31	9918	1159.36
9920	1159.4	9922	1159.36	9924	1159.33	9926	1159.3	9928	1159.26
9930	1159.23	9932	1159.19	9934	1159.16	9936	1159.12	9938	1159.09
9940	1159.05	9942	1159.02	9944	1158.98	9946	1158.95	9948	1158.91
9950	1158.8	9952	1158.7	9954	1158.6	9956	1158.5	9958	1158.44
9960	1158.42	9962	1158.39	9964	1158.37	9966	1158.34	9968	1158.32
9970	1158.29	9972	1158.27	9974	1158.24	9976	1158.22	9978	1158.19
9980	1158.16	9982	1158.14	9984	1158.11	9986	1158.09	9988	1158.07
9990	1158.06	9992	1158.09	9994	1158.12	9996	1158.15	9998	1158.19
10000	1158.22	10002	1158.25	10004	1158.28	10006	1158.32	10008	1158.35
10010	1158.38	10012	1158.41	10014	1158.45	10016	1158.48	10018	1158.51
10020	1158.54	10022	1158.57	10024	1158.61	10026	1158.64	10028	1158.67
10030	1158.7	10032	1158.74	10034	1158.77	10036	1158.8	10038	1158.83
10040	1158.87	10042	1158.9	10044	1158.93	10046	1158.96	10048	1159
10050	1159.03	10052	1159.06	10054	1159.09	10056	1159.12	10058	1159.14
10060	1159.16	10062	1159.18	10064	1159.2	10066	1159.22	10068	1159.24
10070	1159.26	10072	1159.28	10074	1159.31	10076	1159.32	10078	1159.34
10080	1159.36	10082	1159.38	10084	1159.57	10086	1160.62	10088	1161.66
10090	1162.7	10092	1163.75	10094	1164.85	10096	1165.96	10098	1167.06
10100	1168.17	10102	1169.28	10104	1169.69	10106	1169.71	10108	1169.73
10110	1169.75	10112	1169.78	10114	1169.8	10116	1169.82	10118	1169.84
10120	1169.86	10122	1169.89	10124	1169.92	10126	1169.95	10128	1169.99
10130	1170.02	10132	1170.06	10134	1170.12	10136	1170.19	10138	1170.25
10140	1170.32	10142	1170.64	10144	1171.15	10146	1171.66	10148	1172.16
10150	1172.67	10152	1172.8	10154	1172.81	10156	1172.83	10158	1172.85
10160	1172.86	10162	1172.88	10164	1172.89	10166	1172.91	10168	1172.93
10170	1172.96	10172	1173	10174	1173.04	10176	1173.08	10178	1173.12
10180	1173.16	10182	1173.2	10184	1173.24	10186	1173.28	10188	1173.32
10190	1173.36	10192	1173.4	10194	1173.44	10196	1173.48	10198	1173.52
10200	1173.56	10202	1173.6	10204	1173.53	10206	1173.28	10208	1173.02
10210	1172.75	10212	1172.71	10214	1172.72	10216	1172.74	10218	1172.75
10220	1172.77	10222	1172.79	10224	1172.8	10226	1172.82	10228	1172.83
10230	1172.86	10232	1172.89	10234	1172.93	10236	1172.96	10238	1172.99
10240	1173.03	10242	1173.06	10244	1173.1	10246	1173.11	10248	1173.1
10250	1173.08	10252	1173.07	10254	1173.05	10256	1173.04	10258	1173.02
10260	1173.01	10262	1172.99	10264	1172.98	10266	1172.96	10268	1172.95
10270	1172.93	10272	1172.92	10274	1172.9	10276	1172.89	10278	1172.87
10280	1172.86	10282	1172.84	10284	1172.83	10286	1172.84	10288	1172.85
10290	1172.86	10292	1172.87	10294	1172.88	10296	1172.89	10298	1172.9
10300	1172.91								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9786	.035	10104	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9786	10104	397.26	397.26	.1	.3

CROSS SECTION RIVER: RIVER-1

REACH: Reach-1 RS: 8.731

INPUT
Description:

Station Elevation Data num= 475

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9800	1174.18	9802	1173.11	9804	1172.04	9806	1171	9808	1169.97
9810	1168.94	9812	1167.92	9814	1166.89	9816	1165.86	9818	1164.84
9820	1163.81	9822	1162.78	9824	1161.75	9826	1160.73	9828	1159.7
9830	1158.67	9832	1157.65	9834	1157.4	9836	1157.34	9838	1157.28
9840	1157.22	9842	1156.75	9844	1156.12	9846	1155.24	9848	1155
9850	1155.05	9852	1155.1	9854	1155.14	9856	1155.19	9858	1155.24
9860	1155.22	9862	1155.2	9864	1155.17	9866	1155.15	9868	1155.12
9870	1155.1	9872	1155.07	9874	1155.05	9876	1155.02	9878	1155
9880	1154.97	9882	1154.95	9884	1154.93	9886	1154.9	9888	1154.88
9890	1154.87	9892	1154.86	9894	1154.84	9896	1154.83	9898	1154.8
9900	1154.75	9902	1154.7	9904	1154.64	9906	1154.58	9908	1154.53
9910	1154.47	9912	1154.41	9914	1154.36	9916	1154.3	9918	1154.25
9920	1154.19	9922	1154.13	9924	1154.08	9926	1154.03	9928	1154.01
9930	1153.99	9932	1153.98	9934	1153.96	9936	1153.94	9938	1153.92
9940	1153.91	9942	1153.89	9944	1153.87	9946	1153.85	9948	1153.84
9950	1153.82	9952	1153.8	9954	1153.78	9956	1153.77	9958	1153.74
9960	1153.71	9962	1153.68	9964	1153.65	9966	1153.62	9968	1153.6
9970	1153.64	9972	1153.69	9974	1153.74	9976	1153.79	9978	1153.84
9980	1153.88	9982	1153.93	9984	1154.03	10052	1154.99	10054	1155.01
10056	1155.03	10058	1155.05	10060	1155.08	10062	1155.1	10064	1155.12
10066	1155.15	10068	1155.17	10070	1155.19	10072	1155.21	10074	1155.24
10076	1155.26	10078	1155.28	10080	1155.3	10082	1155.33	10084	1155.35
10086	1155.36	10088	1155.37	10090	1155.39	10092	1155.42	10094	1155.45
10096	1155.47	10098	1155.5	10100	1155.51	10102	1155.52	10104	1155.54
10106	1155.55	10108	1155.56	10110	1155.57	10112	1155.59	10114	1155.6
10116	1155.61	10118	1155.63	10120	1155.64	10122	1155.65	10124	1155.66
10126	1155.7	10128	1155.78	10130	1155.87	10132	1155.95	10134	1156.03
10136	1155.99	10138	1155.93	10140	1155.87	10142	1155.81	10144	1155.76
10146	1155.7	10148	1155.64	10150	1155.63	10152	1155.61	10154	1155.6
10156	1155.59	10158	1155.58	10160	1155.57	10162	1155.56	10164	1155.55
10166	1155.53	10168	1155.52	10170	1155.51	10172	1155.5	10174	1155.49
10176	1155.48	10178	1155.47	10180	1155.45	10182	1155.44	10184	1155.43
10186	1155.42	10188	1155.41	10190	1155.4	10192	1155.4	10194	1155.4
10196	1155.39	10198	1155.39	10200	1155.39	10202	1155.39	10204	1155.38
10206	1155.38	10208	1155.38	10210	1155.35	10212	1155.31	10214	1155.28
10216	1155.25	10218	1155.24	10220	1155.22	10222	1155.2	10224	1155.18
10226	1155.17	10228	1155.15	10230	1155.13	10232	1155.12	10234	1155.1
10236	1155.08	10238	1155.06	10240	1155.05	10242	1155.03	10244	1155.01
10246	1154.99	10248	1154.98	10250	1154.96	10252	1154.94	10254	1154.93
10256	1154.91	10258	1154.89	10260	1154.87	10262	1154.86	10264	1154.84
10266	1154.82	10268	1154.81	10270	1154.79	10272	1154.75	10274	1154.71
10276	1154.67	10278	1154.63	10280	1154.6	10282	1154.6	10284	1154.59
10286	1154.59	10288	1154.58	10290	1154.58	10292	1154.59	10294	1154.62
10296	1154.65	10298	1154.68	10300	1154.71	10302	1154.74	10304	1154.77
10306	1154.79	10308	1154.82	10310	1154.85	10312	1154.88	10314	1154.91
10316	1154.94	10318	1154.97	10320	1155	10322	1155.03	10324	1155.06
10326	1155.09	10328	1155.12	10330	1155.15	10332	1155.18	10334	1155.21
10336	1155.24	10338	1155.27	10340	1155.3	10342	1155.33	10344	1155.36
10346	1155.39	10348	1155.42	10350	1155.45	10352	1155.48	10354	1155.51
10356	1155.54	10358	1155.57	10360	1155.6	10362	1155.63	10364	1155.66
10366	1155.69	10368	1155.72	10370	1155.76	10372	1155.79	10374	1155.82
10376	1155.86	10378	1155.88	10380	1155.87	10382	1155.87	10384	1155.86
10386	1155.86	10388	1155.85	10390	1155.85	10392	1155.84	10394	1155.84
10396	1155.83	10398	1155.82	10400	1155.82	10402	1155.81	10404	1155.81
10406	1155.8	10408	1155.79	10410	1155.79	10412	1155.78	10414	1155.77
10416	1155.77	10418	1155.76	10420	1155.75	10422	1155.75	10424	1155.74
10426	1155.74	10428	1155.73	10430	1155.71	10432	1155.7	10434	1155.69
10436	1155.67	10438	1155.66	10440	1155.64	10442	1155.63	10444	1155.62
10446	1155.6	10448	1155.59	10450	1155.57	10452	1155.56	10454	1155.55
10456	1155.54	10458	1155.53	10460	1155.52	10462	1155.51	10464	1155.49
10466	1155.48	10468	1155.47	10470	1155.46	10472	1155.47	10474	1155.48
10476	1155.5	10478	1155.51	10480	1155.53	10482	1155.54	10484	1155.55

10486	1155.56	10488	1155.57	10490	1155.58	10492	1155.59	10494	1155.6
10496	1155.61	10498	1155.62	10500	1155.63	10502	1155.64	10504	1155.65
10506	1155.66	10508	1155.67	10510	1155.68	10512	1155.69	10514	1155.7
10516	1155.71	10518	1155.72	10520	1155.73	10522	1155.75	10524	1155.76
10526	1155.77	10528	1155.78	10530	1155.79	10532	1155.8	10534	1155.81
10536	1155.83	10538	1155.84	10540	1155.85	10542	1155.86	10544	1155.87
10546	1155.88	10548	1155.9	10550	1155.91	10552	1155.94	10554	1155.97
10556	1156	10558	1156.04	10560	1156.07	10562	1156.1	10564	1156.13
10566	1156.17	10568	1156.2	10570	1156.23	10572	1156.24	10574	1156.23
10576	1156.23	10578	1156.22	10580	1156.22	10582	1156.84	10584	1158.02
10586	1159.2	10588	1160.39	10590	1161.58	10592	1162.76	10594	1163.95
10596	1165.14	10598	1166.32	10600	1167.51	10602	1168.7	10604	1169.57
10606	1169.62	10608	1169.66	10610	1169.71	10612	1169.76	10614	1169.81
10616	1169.86	10618	1169.89	10620	1169.93	10622	1169.96	10624	1170
10626	1170.03	10628	1170.04	10630	1170.01	10632	1169.98	10634	1169.95
10636	1169.92	10638	1169.9	10640	1169.95	10642	1170.24	10644	1170.53
10646	1170.82	10648	1171.11	10650	1171.39	10652	1171.68	10654	1171.75
10656	1171.72	10658	1171.68	10660	1171.65	10662	1171.62	10664	1171.58
10666	1171.55	10668	1171.51	10670	1171.48	10672	1171.44	10674	1171.41
10676	1171.37	10678	1171.34	10680	1171.34	10682	1171.32	10684	1171.31
10686	1171.29	10688	1171.28	10690	1171.27	10692	1171.25	10694	1171.24
10696	1171.22	10698	1171.21	10700	1171.19	10702	1171.18	10704	1171.16
10706	1171.15	10708	1171.13	10710	1171.12	10712	1171.1	10714	1171.09
10716	1171.07	10718	1171.06	10720	1171.04	10722	1171.03	10724	1171.01
10726	1171	10728	1170.98	10730	1170.97	10732	1170.95	10734	1170.94
10736	1170.93	10738	1170.91	10740	1170.9	10742	1170.88	10744	1170.87
10746	1170.84	10748	1170.79	10750	1170.78	10752	1170.74	10754	1170.71
10756	1170.67	10758	1170.63	10760	1170.59	10762	1170.56	10764	1170.52
10766	1170.48	10768	1170.44	10770	1170.41	10772	1170.37	10774	1170.33
10776	1170.29	10778	1170.26	10780	1170.22	10782	1170.18	10784	1170.15
10786	1170.11	10788	1170.07	10790	1170.03	10792	1170	10794	1169.96
10796	1169.92	10798	1169.88	10800	1169.85	10802	1169.82	10804	1169.8
10806	1169.77	10808	1169.74	10810	1169.72	10812	1169.69	10814	1169.67

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9800	.06	9810	.035	10604	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9810	10604	399.9 399.9	399.9	.1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 8.655

INPUT
Description:

Station Elevation Data num= 475

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9624	1170.01	9626	1170	9628	1169.99	9630	1169.97	9632	1169.96
9634	1169.95	9636	1169.93	9638	1169.92	9640	1169.91	9642	1169.89
9644	1169.88	9646	1169.87	9648	1169.85	9650	1169.84	9652	1169.83
9654	1169.81	9656	1169.8	9658	1169.78	9660	1169.77	9662	1169.76
9664	1169.74	9666	1169.73	9668	1169.72	9670	1169.7	9672	1169.69
9674	1169.68	9676	1169.66	9678	1169.65	9680	1169.63	9682	1169.63
9684	1169.64	9686	1169.64	9688	1169.65	9690	1169.65	9692	1169.66
9694	1169.66	9696	1169.66	9698	1169.67	9700	1169.67	9702	1169.68
9704	1169.68	9706	1169.69	9708	1169.69	9710	1169.7	9712	1169.7
9714	1169.71	9716	1169.71	9718	1169.71	9720	1169.72	9722	1169.72
9724	1169.73	9726	1169.73	9728	1169.74	9730	1169.74	9732	1169.75
9734	1169.75	9736	1169.76	9738	1169.76	9740	1169.76	9742	1169.77
9744	1169.77	9746	1169.78	9748	1169.78	9750	1169.79	9752	1169.79
9754	1169.8	9756	1169.8	9758	1169.81	9760	1169.81	9762	1169.81
9764	1169.82	9766	1169.82	9768	1169.83	9770	1169.83	9772	1169.84
9774	1169.84	9776	1169.85	9778	1169.85	9780	1169.86	9782	1169.86
9784	1169.86	9786	1169.57	9788	1169.01	9790	1168.45	9792	1167.89
9794	1167.33	9796	1166.77	9798	1165.65	9800	1165.09	9802	1164.53
9804	1163.97	9806	1163.41	9808	1162.85	9810	1162.27	9812	1161.65
9814	1161.03	9816	1160.41	9818	1159.79	9820	1159.17	9822	1158.55

9824	1157.93	9826	1157.31	9828	1156.69	9830	1156.07	9832	1155.63
9834	1155.58	9836	1155.54	9838	1155.5	9840	1155.46	9842	1155.42
9844	1155.37	9846	1155.33	9848	1155.29	9850	1155.25	9852	1155.2
9854	1155.16	9856	1155.12	9858	1155.08	9860	1155.04	9862	1154.99
9864	1154.95	9866	1154.91	9868	1154.87	9870	1154.82	9872	1154.78
9874	1154.74	9876	1154.7	9878	1154.66	9880	1154.61	9882	1154.56
9884	1154.51	9886	1154.46	9888	1154.4	9890	1154.35	9892	1154.33
9894	1154.33	9896	1154.3	9898	1154.28	9900	1154.26	9902	1154.23
9904	1154.21	9906	1154.19	9908	1154.16	9910	1154.16	9912	1154.15
9914	1154.14	9916	1154.14	9918	1154.13	9920	1154.12	9922	1154.12
9924	1154.11	9926	1154.1	9928	1154.1	9930	1154.09	9932	1154.08
9934	1154.08	9936	1154.07	9938	1154.07	9940	1154.07	9942	1154.07
9944	1154.05	9946	1153.97	9948	1153.91	9950	1153.84	9952	1153.78
9954	1153.72	9956	1153.66	9958	1153.59	9960	1153.53	9962	1153.47
9964	1153.41	9966	1153.34	9968	1153.28	9970	1153.22	9972	1153.16
9974	1153.1	9976	1153.03	9978	1152.97	9980	1152.91	9982	1152.85
9984	1152.78	9986	1152.72	9988	1152.67	9990	1152.65	9992	1152.64
9994	1152.62	9996	1152.61	9998	1152.59	10000	1152.58	10002	1152.57
10004	1152.55	10006	1152.56	10008	1152.64	10010	1152.73	10012	1152.81
10014	1152.9	10016	1152.98	10018	1153.07	10020	1153.15	10022	1153.24
10024	1153.33	10026	1153.34	10028	1153.36	10030	1153.38	10032	1153.41
10034	1153.43	10036	1153.46	10038	1153.49	10040	1153.52	10042	1153.55
10044	1153.58	10046	1153.61	10048	1153.64	10050	1153.66	10052	1153.69
10054	1153.72	10056	1153.75	10058	1153.78	10060	1153.81	10062	1153.84
10064	1153.86	10066	1153.89	10068	1153.92	10070	1153.95	10072	1153.98
10074	1154.01	10076	1154.04	10078	1154.07	10080	1154.09	10082	1154.12
10084	1154.15	10086	1154.18	10088	1154.21	10090	1154.24	10092	1154.27
10094	1154.29	10096	1154.32	10098	1154.35	10100	1154.38	10102	1154.41
10104	1154.44	10106	1154.47	10108	1154.5	10110	1154.52	10112	1154.55
10114	1154.55	10116	1154.55	10118	1154.54	10120	1154.53	10122	1154.52
10124	1154.52	10126	1154.51	10128	1154.5	10130	1154.5	10132	1154.51
10134	1154.51	10136	1154.52	10138	1154.52	10140	1154.53	10142	1154.52
10144	1154.5	10146	1154.48	10148	1154.46	10150	1154.44	10152	1154.42
10154	1154.41	10156	1154.39	10158	1154.37	10160	1154.35	10162	1154.33
10164	1154.31	10166	1154.29	10168	1154.27	10170	1154.23	10172	1154.19
10174	1154.15	10176	1154.12	10178	1154.08	10180	1154.04	10182	1154
10184	1153.96	10186	1153.92	10188	1153.88	10190	1154.06	10192	1154.23
10194	1154.4	10196	1154.46	10198	1154.46	10200	1154.47	10202	1154.48
10204	1154.48	10206	1154.49	10208	1154.5	10210	1154.51	10212	1154.51
10214	1154.52	10216	1154.53	10218	1154.53	10220	1154.54	10222	1154.52
10224	1154.51	10226	1154.49	10228	1154.47	10230	1154.45	10232	1154.43
10234	1154.41	10236	1154.38	10238	1154.36	10240	1154.34	10242	1154.32
10244	1154.29	10246	1154.27	10248	1154.25	10250	1154.23	10252	1154.22
10254	1154.25	10256	1154.27	10258	1154.29	10260	1154.32	10262	1154.34
10264	1154.36	10266	1154.39	10268	1154.41	10270	1154.44	10272	1154.46
10274	1154.48	10276	1154.51	10278	1154.53	10280	1154.55	10282	1154.56
10284	1154.57	10286	1154.57	10288	1154.58	10290	1154.58	10292	1154.58
10294	1154.59	10296	1154.59	10298	1154.59	10300	1154.6	10302	1154.6
10304	1154.61	10306	1154.61	10308	1154.61	10310	1154.62	10312	1154.62
10314	1154.62	10316	1154.63	10318	1154.63	10320	1154.64	10322	1154.64
10324	1154.65	10326	1154.66	10328	1154.66	10330	1155.07	10332	1156.18
10334	1157.29	10336	1158.39	10338	1159.5	10340	1160.61	10342	1161.72
10344	1162.83	10346	1163.94	10348	1165.05	10350	1166.18	10352	1167.3
10354	1168.43	10356	1168.87	10358	1168.94	10360	1169.02	10362	1169.12
10364	1169.23	10366	1169.33	10368	1169.44	10370	1169.54	10372	1169.65
10374	1169.76	10376	1169.86	10378	1169.88	10380	1169.85	10382	1169.82
10384	1169.79	10386	1169.76	10388	1169.73	10390	1169.7	10392	1169.67
10394	1169.65	10396	1169.85	10398	1170.18	10400	1170.5	10402	1170.81
10404	1171.12	10406	1171.13	10408	1171.14	10410	1171.14	10412	1171.15
10414	1171.16	10416	1171.17	10418	1171.18	10420	1171.19	10422	1171.2
10424	1171.2	10426	1171.21	10428	1171.22	10430	1171.23	10432	1171.24
10434	1171.26	10436	1171.29	10438	1171.31	10440	1171.34	10442	1171.36
10444	1171.39	10446	1171.39	10448	1171.37	10450	1171.36	10452	1171.34
10454	1171.32	10456	1171.4	10458	1171.44	10460	1171.44	10462	1171.45
10464	1171.45	10466	1171.45	10468	1171.46	10470	1171.46	10472	1171.46
10474	1171.46	10476	1171.45	10478	1171.41	10480	1171.37	10482	1171.33
10484	1171.27	10486	1171.19	10488	1171.11	10490	1171.03	10492	1170.93
10494	1170.84	10496	1170.74	10498	1170.65	10500	1170.58	10502	1170.51
10504	1170.43	10506	1170.35	10508	1170.28	10510	1170.21	10512	1170.15
10514	1170.11	10516	1170.07	10518	1170.05	10520	1170.03	10522	1170
10524	1169.98	10526	1169.95	10528	1169.93	10530	1169.92	10532	1169.9
10534	1169.89	10536	1169.87	10538	1169.85	10540	1169.83	10542	1169.81
10544	1169.81	10546	1169.8	10548	1169.78	10550	1169.77	10552	1169.75
10554	1169.74	10556	1169.73	10558	1169.73	10560	1169.71	10562	1169.7
10564	1169.69	10566	1169.69	10568	1169.7	10570	1169.7	10572	1169.7

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9624	.06	9784	.035	10356	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9784	10356	449.6	449.6	449.6	.2	.4

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 8.548

INPUT
Description:

Station Elevation Data num= 301

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1167.98	9702	1167.98	9704	1167.99	9706	1168.01	9708	1168.02
9710	1168.04	9712	1168.06	9714	1168.08	9716	1168.1	9718	1168.12
9720	1168.14	9722	1168.16	9724	1168.17	9726	1168.19	9728	1168.21
9730	1168.21	9732	1168.19	9734	1168.17	9736	1168.15	9738	1168.12
9740	1168.1	9742	1168.08	9744	1168.06	9746	1168.03	9748	1168.01
9750	1167.99	9752	1167.97	9754	1167.94	9756	1167.92	9758	1167.9
9760	1167.88	9762	1167.85	9764	1167.83	9766	1167.81	9768	1167.79
9770	1167.76	9772	1167.74	9774	1167.72	9776	1167.7	9778	1167.67
9780	1167.65	9782	1167.63	9784	1167.62	9786	1167.6	9788	1167.59
9790	1167.57	9792	1167.56	9794	1167.54	9796	1167.52	9798	1167.51
9800	1167.49	9802	1167.48	9804	1167.46	9806	1167.45	9808	1167.43
9810	1167.42	9812	1167.4	9814	1167.39	9816	1167.37	9818	1167.35
9820	1167.34	9822	1167.32	9824	1167.31	9826	1167.29	9828	1167.28
9830	1167.26	9832	1167.25	9834	1167.23	9836	1167.22	9838	1166.79
9840	1164.93	9842	1163.06	9844	1161.2	9846	1159.34	9848	1157.48
9850	1155.62	9852	1153.77	9854	1152.44	9856	1152.37	9858	1152.31
9860	1152.24	9862	1152.22	9864	1152.22	9866	1152.23	9868	1152.23
9870	1152.24	9872	1152.25	9874	1152.25	9876	1152.26	9878	1152.27
9880	1152.27	9882	1152.28	9884	1152.29	9886	1152.29	9888	1152.3
9890	1152.31	9892	1152.31	9894	1152.32	9896	1152.32	9898	1152.33
9900	1152.34	9902	1152.34	9904	1152.35	9906	1152.36	9908	1152.36
9910	1152.37	9912	1152.38	9914	1152.38	9916	1152.39	9918	1152.4
9920	1152.4	9922	1152.41	9924	1152.41	9926	1152.42	9928	1152.43
9930	1152.43	9932	1152.44	9934	1152.45	9936	1152.45	9938	1152.46
9940	1152.47	9942	1152.47	9944	1152.48	9946	1152.49	9948	1152.49
9950	1152.5	9952	1152.5	9954	1152.51	9956	1152.52	9958	1152.52
9960	1152.53	9962	1152.54	9964	1152.54	9966	1152.55	9968	1152.56
9970	1152.56	9972	1152.57	9974	1152.58	9976	1152.58	9978	1152.59
9980	1152.59	9982	1152.6	9984	1152.43	9986	1151.95	9988	1151.48
9990	1151	9992	1150.52	9994	1150.04	9996	1150.36	9998	1151.41
10000	1152.46	10002	1152.75	10004	1152.77	10006	1152.78	10008	1152.78
10010	1152.79	10012	1152.79	10014	1152.8	10016	1152.8	10018	1152.81
10020	1152.81	10022	1152.82	10024	1152.83	10026	1152.83	10028	1152.84
10030	1152.84	10032	1152.85	10034	1152.85	10036	1152.86	10038	1152.86
10040	1152.87	10042	1152.88	10044	1152.88	10046	1152.89	10048	1152.88
10050	1152.87	10052	1152.87	10054	1152.86	10056	1152.85	10058	1152.84
10060	1152.84	10062	1152.83	10064	1152.82	10066	1152.81	10068	1152.8
10070	1152.8	10072	1152.79	10074	1152.78	10076	1152.77	10078	1152.76
10080	1152.76	10082	1152.75	10084	1152.74	10086	1152.73	10088	1152.72
10090	1152.72	10092	1152.71	10094	1152.7	10096	1152.69	10098	1152.69
10100	1152.68	10102	1152.67	10104	1152.66	10106	1152.65	10108	1152.65
10110	1152.64	10112	1152.63	10114	1152.6	10116	1152.56	10118	1152.52
10120	1152.48	10122	1152.44	10124	1152.4	10126	1152.37	10128	1152.33
10130	1152.34	10132	1153.83	10134	1155.32	10136	1156.81	10138	1158.3
10140	1159.79	10142	1161.28	10144	1162.77	10146	1164.26	10148	1165.72
10150	1166.85	10152	1166.91	10154	1166.97	10156	1167.04	10158	1167.1
10160	1167.17	10162	1167.23	10164	1167.3	10166	1167.36	10168	1167.43
10170	1167.49	10172	1167.56	10174	1167.62	10176	1167.69	10178	1167.74
10180	1167.8	10182	1167.86	10184	1167.91	10186	1167.97	10188	1168.03
10190	1168.09	10192	1168.14	10194	1168.2	10196	1168.26	10198	1168.31
10200	1168.37	10202	1168.43	10204	1168.49	10206	1168.54	10208	1168.6
10210	1168.66	10212	1168.71	10214	1168.75	10216	1168.79	10218	1168.83
10220	1168.87	10222	1168.9	10224	1168.94	10226	1168.98	10228	1169.02
10230	1169.06	10232	1169.1	10234	1169.09	10236	1169.09	10238	1169.08
10240	1169.07	10242	1169.07	10244	1169.06	10246	1169.06	10248	1169.05
10250	1169.04	10252	1169.04	10254	1168.92	10256	1168.78	10258	1168.65
10260	1168.53	10262	1168.41	10264	1168.32	10266	1168.32	10268	1168.32
10270	1168.33	10272	1168.31	10274	1168.29	10276	1168.27	10278	1168.25
10280	1168.23	10282	1168.21	10284	1168.21	10286	1168.23	10288	1168.27

10290	1168.32	10292	1168.35	10294	1168.36	10296	1168.38	10298	1168.39
10300	1168.41								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9836	.035	10150	.06

Bank Sta: Left	Right	Lengths: Left Channel		Right	Coeff Contr.	Expan.
9836	10150	51.18	51.18	51.18	.1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 8.538

INPUT
Description: 9687.9
Station Elevation Data num= 301

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1168.19	9702	1168.21	9704	1168.22	9706	1168.24	9708	1168.26
9710	1168.28	9712	1168.3	9714	1168.32	9716	1168.34	9718	1168.36
9720	1168.37	9722	1168.39	9724	1168.41	9726	1168.43	9728	1168.45
9730	1168.47	9732	1168.49	9734	1168.51	9736	1168.52	9738	1168.54
9740	1168.56	9742	1168.58	9744	1168.6	9746	1168.62	9748	1168.64
9750	1168.65	9752	1168.67	9754	1168.69	9756	1168.71	9758	1168.73
9760	1168.75	9762	1168.77	9764	1168.79	9766	1168.8	9768	1168.82
9770	1168.84	9772	1168.83	9774	1168.81	9776	1168.78	9778	1168.76
9780	1168.74	9782	1168.71	9784	1168.69	9786	1168.67	9788	1168.65
9790	1168.62	9792	1168.6	9794	1168.58	9796	1168.56	9798	1168.53
9800	1168.5	9802	1168.47	9804	1168.44	9806	1168.42	9808	1168.39
9810	1168.36	9812	1168.33	9814	1168.3	9816	1168.28	9818	1168.25
9820	1168.22	9822	1168.19	9824	1168.17	9826	1168.14	9828	1168.11
9830	1168.08	9832	1168.05	9834	1168.02	9836	1167.99	9838	1167.96
9840	1167.93	9842	1167.91	9844	1167.67	9846	1165.87	9848	1164.08
9850	1162.28	9852	1160.49	9854	1158.7	9856	1156.9	9858	1155.11
9860	1153.31	9862	1151.52	9864	1149.72	9866	1147.93	9868	1146.13
9870	1144.34	9872	1142.55	9874	1142.15	9876	1142.15	9878	1142.14
9880	1142.14	9882	1142.14	9884	1142.14	9886	1142.14	9888	1142.14
9890	1142.14	9892	1142.14	9894	1142.14	9896	1142.14	9898	1142.14
9900	1142.14	9902	1142.14	9904	1142.13	9906	1142.13	9908	1142.13
9910	1142.13	9912	1142.13	9914	1142.13	9916	1142.13	9918	1142.13
9920	1142.13	9922	1142.13	9924	1142.13	9926	1142.13	9928	1142.13
9930	1142.13	9932	1142.12	9934	1142.12	9936	1142.12	9938	1142.12
9940	1142.12	9942	1142.12	9944	1142.12	9946	1142.13	9948	1142.13
9950	1142.13	9952	1142.14	9954	1142.14	9956	1142.15	9958	1142.15
9960	1142.16	9962	1142.16	9964	1142.16	9966	1142.17	9968	1142.17
9970	1142.18	9972	1142.18	9974	1142.18	9976	1142.19	9978	1142.19
9980	1142.2	9982	1142.2	9984	1142.21	9986	1142.21	9988	1142.21
9990	1142.22	9992	1142.22	9994	1142.23	9996	1142.23	9998	1142.23
10000	1142.24	10002	1142.25	10004	1142.26	10006	1142.27	10008	1142.28
10010	1142.29	10012	1142.3	10014	1142.31	10016	1142.32	10018	1142.33
10020	1142.34	10022	1142.35	10024	1142.35	10026	1142.36	10028	1142.37
10030	1142.38	10032	1142.39	10034	1142.4	10036	1142.41	10038	1142.42
10040	1142.43	10042	1142.44	10044	1142.45	10046	1142.46	10048	1142.47
10050	1142.48	10052	1142.49	10054	1142.5	10056	1142.51	10058	1142.52
10060	1142.53	10062	1142.54	10064	1142.55	10066	1142.55	10068	1142.56
10070	1142.57	10072	1142.58	10074	1142.59	10076	1142.6	10078	1142.61
10080	1142.62	10082	1142.63	10084	1142.64	10086	1142.65	10088	1142.66
10090	1142.67	10092	1142.68	10094	1142.69	10096	1142.7	10098	1142.71
10100	1142.72	10102	1142.73	10104	1142.74	10106	1142.75	10108	1142.75
10110	1142.76	10112	1142.77	10114	1142.78	10116	1142.79	10118	1142.81
10120	1142.82	10122	1142.84	10124	1143.96	10126	1145.75	10128	1147.54
10130	1149.33	10132	1151.13	10134	1152.94	10136	1154.75	10138	1156.55
10140	1158.36	10142	1160.17	10144	1161.97	10146	1163.78	10148	1165.59
10150	1167.1	10152	1167.18	10154	1167.25	10156	1167.33	10158	1167.41
10160	1167.49	10162	1167.57	10164	1167.65	10166	1167.73	10168	1167.81
10170	1167.89	10172	1167.97	10174	1168.04	10176	1168.1	10178	1168.15
10180	1168.18	10182	1168.22	10184	1168.26	10186	1168.3	10188	1168.33
10190	1168.37	10192	1168.41	10194	1168.44	10196	1168.48	10198	1168.52
10200	1168.55	10202	1168.59	10204	1168.63	10206	1168.66	10208	1168.7
10210	1168.74	10212	1168.78	10214	1168.81	10216	1168.85	10218	1168.89
10220	1168.93	10222	1168.97	10224	1169.01	10226	1169.04	10228	1169.08
10230	1169.12	10232	1169.16	10234	1169.2	10236	1169.19	10238	1168.99
10240	1168.84	10242	1168.76	10244	1168.68	10246	1168.59	10248	1168.51
10250	1168.42	10252	1168.38	10254	1168.4	10256	1168.4	10258	1168.39
10260	1168.38	10262	1168.37	10264	1168.36	10266	1168.35	10268	1168.35
10270	1168.29	10272	1168.22	10274	1168.19	10276	1168.17	10278	1168.14
10280	1168.12	10282	1168.09	10284	1168.06	10286	1168.04	10288	1168.01

10290	1167.98	10292	1167.98	10294	1168.01	10296	1168.04	10298	1168.07
10300	1168.1								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9842	.035	10152	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9842	10152	114.85	114.85	114.85	.1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 8.516

INPUT
Description:

Station Elevation Data num= 301

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1168.03	9702	1168.05	9704	1168.06	9706	1168.07	9708	1168.09
9710	1168.1	9712	1168.12	9714	1168.13	9716	1168.14	9718	1168.16
9720	1168.17	9722	1168.19	9724	1168.2	9726	1168.21	9728	1168.23
9730	1168.24	9732	1168.26	9734	1168.26	9736	1168.25	9738	1168.24
9740	1168.23	9742	1168.22	9744	1168.2	9746	1168.19	9748	1168.18
9750	1168.17	9752	1168.16	9754	1168.15	9756	1168.14	9758	1168.13
9760	1168.11	9762	1168.1	9764	1168.09	9766	1168.08	9768	1168.07
9770	1168.06	9772	1168.06	9774	1168.07	9776	1168.09	9778	1168.11
9780	1168.13	9782	1168.15	9784	1168.17	9786	1168.18	9788	1168.2
9790	1168.22	9792	1168.24	9794	1168.26	9796	1168.28	9798	1168.29
9800	1168.31	9802	1168.33	9804	1168.34	9806	1168.36	9808	1168.37
9810	1168.39	9812	1168.4	9814	1168.42	9816	1168.43	9818	1168.45
9820	1168.46	9822	1168.47	9824	1168.47	9826	1168.48	9828	1168.49
9830	1168.15	9832	1167.63	9834	1167.11	9836	1166.58	9838	1166.06
9840	1165.38	9842	1164.67	9844	1163.97	9846	1162.79	9848	1161.39
9850	1159.98	9852	1158.58	9854	1157.18	9856	1155.22	9858	1153.39
9860	1151.7	9862	1150.11	9864	1148.53	9866	1146.94	9868	1145.36
9870	1144.03	9872	1142.9	9874	1141.98	9876	1141.98	9878	1141.97
9880	1141.97	9882	1141.96	9884	1141.96	9886	1141.96	9888	1141.95
9890	1141.95	9892	1141.94	9894	1141.94	9896	1141.94	9898	1141.93
9900	1141.93	9902	1141.92	9904	1141.92	9906	1141.91	9908	1141.91
9910	1141.91	9912	1141.9	9914	1141.9	9916	1141.89	9918	1141.89
9920	1141.89	9922	1141.88	9924	1141.88	9926	1141.87	9928	1141.87
9930	1141.87	9932	1141.87	9934	1141.87	9936	1141.87	9938	1141.88
9940	1141.88	9942	1141.88	9944	1141.88	9946	1141.88	9948	1141.89
9950	1141.89	9952	1141.89	9954	1141.89	9956	1141.9	9958	1141.9
9960	1141.9	9962	1141.9	9964	1141.9	9966	1141.91	9968	1141.91
9970	1141.91	9972	1141.91	9974	1141.92	9976	1141.92	9978	1141.92
9980	1141.92	9982	1141.92	9984	1141.93	9986	1141.93	9988	1141.84
9990	1141.71	9992	1141.66	9994	1141.62	9996	1141.57	9998	1141.63
10000	1141.8	10002	1141.96	10004	1141.96	10006	1141.96	10008	1141.96
10010	1141.97	10012	1141.97	10014	1141.97	10016	1141.97	10018	1141.97
10020	1141.97	10022	1141.97	10024	1141.97	10026	1141.97	10028	1141.97
10030	1141.97	10032	1141.96	10034	1141.96	10036	1141.96	10038	1141.95
10040	1141.95	10042	1141.94	10044	1141.94	10046	1141.94	10048	1141.93
10050	1141.93	10052	1141.93	10054	1141.92	10056	1141.92	10058	1141.92
10060	1141.91	10062	1141.91	10064	1141.9	10066	1141.9	10068	1141.9
10070	1141.89	10072	1141.89	10074	1141.89	10076	1141.88	10078	1141.88
10080	1141.88	10082	1141.87	10084	1141.87	10086	1141.87	10088	1141.86
10090	1141.86	10092	1141.85	10094	1141.85	10096	1141.85	10098	1141.84
10100	1141.84	10102	1141.84	10104	1141.83	10106	1141.83	10108	1141.82
10110	1141.81	10112	1141.79	10114	1141.78	10116	1141.76	10118	1141.75
10120	1141.82	10122	1143.19	10124	1144.57	10126	1145.95	10128	1147.33
10130	1148.7	10132	1150.28	10134	1151.99	10136	1153.69	10138	1155.4
10140	1157.11	10142	1158.93	10144	1160.75	10146	1162.58	10148	1164.4
10150	1165.43	10152	1166.11	10154	1166.47	10156	1166.79	10158	1167.1
10160	1167.42	10162	1167.68	10164	1167.72	10166	1167.75	10168	1167.79
10170	1167.82	10172	1167.84	10174	1167.85	10176	1167.87	10178	1167.89
10180	1167.9	10182	1167.92	10184	1167.94	10186	1167.95	10188	1167.97
10190	1167.98	10192	1168	10194	1168.05	10196	1168.13	10198	1168.21
10200	1168.3	10202	1168.38	10204	1168.47	10206	1168.64	10208	1168.81
10210	1168.77	10212	1168.72	10214	1168.67	10216	1168.63	10218	1168.58
10220	1168.53	10222	1168.49	10224	1168.44	10226	1168.39	10228	1168.35
10230	1168.3	10232	1168.25	10234	1168.21	10236	1168.16	10238	1168.11
10240	1168.06	10242	1168.01	10244	1167.95	10246	1167.89	10248	1167.82
10250	1167.76	10252	1167.69	10254	1167.63	10256	1167.56	10258	1167.5

10260	1167.44	10262	1167.37	10264	1167.31	10266	1167.24	10268	1167.18
10270	1167.14	10272	1167.12	10274	1167.1	10276	1167.08	10278	1167.06
10280	1167.04	10282	1167.02	10284	1167	10286	1166.98	10288	1166.96
10290	1166.94	10292	1166.92	10294	1166.89	10296	1166.87	10298	1166.86
10300	1166.86								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.06	9830	.035	10158	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9830	10158	280	287.9	305	.1 .3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 8.457

INPUT
Description:

Station Elevation Data num= 38

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9671	1167.7	9683.56	1168.03	9692.73	1168.79	9781.82	1168.66	9788.33	1168.74
9805.47	1164.9	9818.92	1164.2	9863.11	1155.76	9935.63	1141.79	9966.53	1141.57
9997.45	1141.1	10030.06	1141.49	10060.82	1142.73	10091.35	1147.58	10193.92	1168.4
10250.52	1166.3	10262.83	1165.62	10335.04	1164.4	10341.2	1163.84	10367.82	1166.1
10371.1	1166.5	10407.65	1161.57	10475.04	1161.57	10493.68	1164.6	10503.74	1164.74
10527.6	1166.2	10556.27	1166.42	10564.7	1166.15	10598.14	1166.17	10619.41	1166.08
10699.88	1164.8	10770.72	1165.03	10863.67	1164.81	10911.53	1165.26	10978.23	1164.44
11020.28	1164.8	11034.69	1165.31	11083.15	1164.5				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9671	.06	9788.33	.035	10193.92	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9788.33	10193.92	365	361.88	355 .1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 8.39

INPUT
Description:

Station Elevation Data num= 30

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9792	1168	9802.8	1165.6	9814.94	1165.05	9828.78	1161.22	9850.73	1156.7
9900.76	1147.2	9926.76	1142.1	9950.4	1142.01	9968.87	1141.32	9998.25	1140.92
10028.95	1141.6	10035.16	1141.41	10058.42	1142.45	10114.24	1152.07	10190.49	1167.41
10211.61	1166.6	10240.54	1166.65	10279.51	1166.45	10290.31	1166.87	10298.53	1165.32
10401.7	1163.6	10431.35	1163.46	10515.87	1164.03	10577.34	1164.6	10632.74	1164.51
10712.67	1164.5	10774.86	1164.41	10829.78	1164.41	10932.22	1164.6	10946.6	1164

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9792	.06	9814.94	.035	10190.49	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
9814.94	10190.49	310	308.23	305 .1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 8.33

INPUT
Description:

Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

```
    9780  1166.4 9787.92 1164.42 9800.42    1164 9829.07 1156.43 9874.97 1147.97
 9898.66  1144.1  9954.3 1142.9410025.59 1140.5910060.91 1142.5310088.64 1148.05
10176.69  1166.410193.23 1165.8810260.92 1165.4210341.08 1165.4310388.98 1164.73
10416.78  1164.6

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9780     .06 9800.42    .03510176.69     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9800.4210176.69               555  565.26     545             .1      .3

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 8.22

INPUT
Description:



Station Elevation Data    num=      25
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9844  1163.2 9853.02  1161.4 9863.78 1160.58 9903.79  1152.1 9912.99  1150.3
 9942.26  1145.8 9957.57 1144.16 9978.73 1140.67 9982.77 1138.78 9997.52 1138.87
10022.85  1140.410030.36 1140.41 10059.2 1141.6210073.77 1140.7310098.68 1141.12
10111.36  1142.610121.98  1142.7 10195.8 1154.4610241.56 1164.5510257.47 1164.03
10293.89  1164.310325.89 1164.0210356.69 1165.3310382.29  1165.410492.32 1164.23

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9844     .06 9863.78    .03510241.56     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9863.7810241.56               485  512.82     565             .1      .3

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 8.12

INPUT
Description:



Station Elevation Data    num=      24
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9841  1162.2 9858.45  1162.6 9870.72 1159.87 9882.49 1159.32 9893.84 1157.08
 9934.41  1149.6 9990.41 1140.42 9998.97    113810012.37 1138.2510036.29 1137.97
10050.72    114110069.18 1139.8710081.41 1141.3710100.66 1141.3610109.14 1138.47
10131.16  1138.910138.76  1141.910172.82 1146.6810195.97 1150.5510260.19  1163.5
10278.49  1162.910317.31 1162.9510354.77 1162.2610372.33 1162.02

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9841     .06 9882.49    .03510260.19     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9882.4910260.19               365  370.41     370             .1      .3

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 8.052

INPUT
Description:



Station Elevation Data    num=      22
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    9812  1158.5  9848.5 1160.52 9858.22 1158.04 9871.97 1157.59 9879.48 1156.11
 9941.09  1145.9  9975.4 1140.15 9990.32 1136.4210013.47 1137.4410041.37  1139.2
10061.51  1138.3 10069.5 1140.1710082.68 1139.8610092.14 1137.0210113.77 1138.06
10148.19  1143.310177.35 1148.1610230.27 1157.3610251.73 1161.7210264.08 1161.26
10301.26  1162.310320.82  1161.4
```

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9812	.06	9848.5	.03	10251.73	.06

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

9848.5	10251.73		225	236.58	255	.1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 8.006

INPUT
Description:

Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9813	1158	9822.82	1158.06	9836.05	1159.57	9848.52	1159.66	9864.41	1157
9872.33	1156.8	9899.09	1151.07	9978.9	1140.44	9995.88	1136.11	10014.86	1136.65
10043.49	1138.11	10056.74	1137.68	10072.31	1139.34	10086.47	1139.08	10091.99	1137.1
10110.36	1137.8	10145	1142.23	10236.11	1158.45	10252.11	1161.51	10268.56	1160.37
10301.55	1161.3	10324.12	1160.84						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9813	.06	9848.52	.03	10252.11	.06

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

9848.52	10252.11		445	463.28	505	.1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 7.92

INPUT
Description:

Station Elevation Data num= 23

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9836	1160.4	9855.37	1160.45	9868.9	1156.67	9880.63	1155.58	9919.94	1148.19
9962.13	1141.6	9980.61	1139.05	9991.3	1135.74	10011.4	1136.14	10036.41	1137.04
10060.91	1136.71	10072.06	1139.35	10080.58	1138.66	10088.54	1136.53	10104.58	1136.63
10137.77	1140.41	10148.13	1141.41	10206.92	1150.48	10253.04	1158.75	10258.56	1160.29
10273.87	1159.61	10308.49	1160.43	10319.77	1160.02				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9836	.06	9855.37	.03	10258.56	.06

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

9855.37	10258.56		615	631.37	655	.1	.3

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 7.8

INPUT
Description:

Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9736	1153.5	9764.38	1153.41	9780.03	1157.33	9795.93	1156.96	9805.92	1155.45
9832.22	1158.1	9857.12	1158.52	9893.02	1150.65	9908.87	1147.75	9931.81	1142.94
9943.11	1142.1	9965.96	1138.01	9974.38	1135.77	9977.75	1135.65	10030.71	1136.12

```
10311.28  1157.210330.96 1157.09

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    9736     .06 9857.12    .03510243.64     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9857.1210243.64              230  259.16     355             .3       .5

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 7.751

INPUT
Description:



Station Elevation Data    num=      16
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
 9892.86  1161.1    9895    1160 9915.55 1159.53 9919.35 1157.94 9944.75 1155.49
 9965.55  1140.7 9978.33  1135.310034.63  1135.810077.55 1136.03 10176.7 1136.99
 10220.4  1151.4   10225 1154.9810239.55  1158.910278.43  1159.510320.22    1160
10372.86  1159.2

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 9892.86     .06 9919.35    .03510239.55     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9919.3510239.55              115   121.7     110             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 9892.86 9919.35 1161.1510239.5510372.86 1159.26
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 9892.86 9919.35 1157.94 10239.510372.86  1158.9

BRIDGE                 RIVER: RIVER-1
REACH: Reach-1            RS: 7.7395

INPUT
Description: Bridge #1



Distance from Upstream XS =       10
Deck/Roadway Width        =       89
Weir Coefficient          =     2.68
Bridge Deck/Roadway Skew  =
Upstream  Deck/Roadway Coordinates
    num=      15
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
 9892.86 1161.15       0 9912.86 1163.35       0    9925 1163.421155.391
 9944.75 1163.52 1155.49 9981.55 1163.65 1155.6210021.55 1163.73  1155.7
10061.55 1163.74 1155.7110101.55 1163.67 1155.6410141.55 1163.53  1155.5
10181.55 1163.32 1155.2910221.551163.041 1155.01   10225 1163.01 1154.98
10241.55 1162.87       010242.86 1162.86       010372.86  1159.2       0

Upstream Bridge Cross Section Data
Station Elevation Data    num=      16
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
 9892.86  1161.1    9895    1160 9915.55 1159.53 9919.35 1157.94 9944.75 1155.49
 9965.55  1140.7 9978.33  1135.310034.63  1135.810077.55 1136.03 10176.7 1136.99
 10220.4  1151.4   10225 1154.9810239.55  1158.910278.43  1159.510320.22    1160
10372.86  1159.2

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 9892.86     .06 9919.35    .03510239.55     .06

Bank Sta: Left   Right    Coeff Contr.   Expan.
       9919.3510239.55             .3       .5
Ineffective Flow     num=       2
```

```
  Sta L   Sta R    Elev   Sta L   Sta R    Elev
 9892.86 9919.35 1161.1510239.5510372.86 1159.26
Blocked Obstructions      num=        2
  Sta L   Sta R    Elev   Sta L   Sta R    Elev
 9892.86 9919.35 1157.94 10239.510372.86  1158.9

Downstream  Deck/Roadway Coordinates
    num=       15
     Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord
 9892.86 1161.15  1155.4 9912.86 1163.35  1155.4    9925 1163.421155.391
 9944.75 1163.52 1155.49 9981.55 1163.65 1155.6210021.55 1163.73  1155.7
10061.55 1163.74 1155.7110101.55 1163.67 1155.6410141.55 1163.53  1155.5
10181.55 1163.32 1155.2910221.551163.041 1155.01   10225 1163.01 1154.98
10241.55 1162.87       010242.86 1162.86       010372.86  1159.2       0

Downstream Bridge Cross Section Data
Station Elevation Data    num=       20
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
    9887    1160 9895.29 1159.68 9899.88 1157.98    9900    1154 9931.12    1146
 9958.45  1136.5 9962.95  1135.410073.21 1135.9110130.56 1136.4910159.07  1136.5
10176.73  1140.510189.17  1144.2   10222    115410228.35 1158.1410276.12 1159.02
10320.83  1158.310337.19  1157.510406.88  1155.910412.97 1156.6310448.47 1155.99

Manning's n Values         num=        3
     Sta   n Val     Sta   n Val     Sta   n Val
    9887     .06    9900     .035   10222     .06

Bank Sta: Left   Right    Coeff Contr.   Expan.
          9900   10222            .3       .5
Ineffective Flow      num=        2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
    9887    9900  1157.510219.5810448.47 1157.76
Blocked Obstructions      num=        1
   Sta L   Sta R    Elev
    9887    9900  1157.5

Upstream Embankment side slope                =       2 horiz. to 1.0 vertical
Downstream Embankment side slope              =       2 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =      .95
Elevation at which weir flow begins           = 1159.26
Energy head used in spillway design           =
Spillway height used in design                =
Weir crest shape                              = Broad Crested

Number of Piers =  3

Pier Data
Pier Station     Upstream=   10000    Downstream=    9980
Upstream      num=        2
    Width   Elev    Width   Elev
        3   1130        3   1156
Downstream      num=        2
    Width   Elev    Width   Elev
        3   1130        3   1156

Pier Data
Pier Station     Upstream=   10075    Downstream=   10055
Upstream      num=        2
    Width   Elev    Width   Elev
        3   1130        3   1156
Downstream      num=        2
    Width   Elev    Width   Elev
        3   1130        3   1156

Pier Data
Pier Station     Upstream=   10150    Downstream=   10130
Upstream      num=        2
    Width   Elev    Width   Elev
        3   1130        3   1156
Downstream      num=        2
    Width   Elev    Width   Elev
        3   1130        3   1156

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
```

```
       Energy
       Momentum              Cd   =       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 =.7905694
           Max Low Cord                =  1155.7

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

CROSS SECTION          RIVER: RIVER-1
REACH: Reach-1            RS: 7.728

INPUT
Description:




Station Elevation Data    num=      20
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
    9887     1160 9895.29 1159.68 9899.88 1157.98    9900     1154 9931.12     1146
 9958.45   1136.5 9962.95  1135.410073.21 1135.9110130.56 1136.4910159.07  1136.5
10176.73   1140.510189.17  1144.2   10222    115410228.35 1158.1410276.12 1159.02
10320.83   1158.310337.19  1157.510406.88  1155.910412.97 1156.6310448.47 1155.99

Manning's n Values        num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
    9887     .06     9900    .035    10222     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.    Expan.
          9900   10222               0       0       0              .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R     Elev   Sta L   Sta R     Elev
    9887    9900  1157.510219.5810448.47 1157.76
Blocked Obstructions     num=       1
   Sta L   Sta R     Elev
    9887    9900  1157.5



SUMMARY OF MANNING'S N VALUES

River:RIVER-1

      Reach          River Sta.       n1        n2        n3        n4        n5        n6
n7        n8        n9        n10       n11       n12       n13

 Reach-1              16.829            .058      .038      .038      .058
 Reach-1              16.732            .058      .038      .058
 Reach-1              16.637            .058      .038      .038      .058
 Reach-1              16.608            .058      .038      .058
 Reach-1              16.504            .058      .038      .038      .058
 Reach-1              16.411            .058      .038      .058
 Reach-1              16.348            .058      .038      .038      .058      .038
.058
 Reach-1              16.248            .058      .038      .038      .058      .038
.058      .038      .058
 Reach-1              16.167            .058      .038      .058      .038       .06
 Reach-1              16.066            .058      .038      .058      .038      .058
.038      .038      .058      .035
 Reach-1              15.966            .058      .038      .058      .058      .058
.035
```

Reach-1		15.885		.058	.038	.058	.038	.058
.035								
Reach-1		15.792		.058	.038	.058	.038	.0528
.035								
Reach-1		15.699		.058	.056	.058	.038	.058
Reach-1		15.623		.058	.056	.058	.038	.058
Reach-1		15.596		.058	.056	.056	.056	.058
.056	.053							
Reach-1		15.475		.038	.038	.035		
Reach-1		15.416		.058	.038	.035		
Reach-1		15.333		.058	.038	.038	.035	
Reach-1		15.248		.058	.038	.058		
Reach-1		15.144		.058	.038	.038	.058	.035
Reach-1		15.049		.058	.056	.056	.058	.035
.06								
Reach-1		14.983		.058	.038	.058	.035	
Reach-1		14.945		.058	.038	.043	.035	.053
Reach-1		14.85		.058	.038	.038	.035	.053
Reach-1		14.752		.058	.038	.058	.035	.053
Reach-1		14.653		.058	.038	.038	.058	.035
.053								
Reach-1		14.599		.058	.038	.058	.038	.058
.038	.058	.035						
Reach-1		14.495		.058	.038	.058	.038	.038
.058	.038	.058	.053					
Reach-1		14.379		.058	.038	.058	.038	.058
.038	.058	.038	.058	.053				
Reach-1		14.284		.058	.038	.058	.038	.058
.038	.058	.038	.058	.038	.038	.058	.053	
Reach-1		14.197		.058	.038	.058	.038	.058
.038	.058							
Reach-1		14.166		.05	.035	.05		
Reach-1		14.162		.05	.035	.05		
Reach-1		14.159		.05	.035	.05		
Reach-1		14.150		.05	.035	.05		
Reach-1		14.103		.05	.035	.05		
Reach-1		14.013		.05	.035	.05		
Reach-1		13.918		.05	.035	.05		
Reach-1		13.818		.05	.035	.05		
Reach-1		13.742		.05	.035	.05		
Reach-1		13.68		.05	.035	.05		
Reach-1		13.619		.05	.035	.05		
Reach-1		13.524		.06	.035	.06		
Reach-1		13.42		.06	.035	.06		
Reach-1		13.325		.06	.035	.06		
Reach-1		13.227		.06	.035	.06		
Reach-1		13.183		.06	.035	.06		
Reach-1		13.179		.06	.035	.06		
Reach-1		13.175		.06	.035	.06		
Reach-1		13.166		.06	.035	.06		
Reach-1		13.161		.06	.035	.06		
Reach-1		13.151		.06	.035	.06		
Reach-1		13.076		.06	.035	.06		
Reach-1		12.991		.06	.035	.06		
Reach-1		12.896		.06	.035	.06		
Reach-1		12.801		.06	.035	.06		
Reach-1		12.701		.06	.035	.06		
Reach-1		12.606		.06	.035	.06		
Reach-1		12.511		.06	.035	.06		
Reach-1		12.42		.06	.035	.06		
Reach-1		12.313		.06	.035	.06		
Reach-1		12.194		.06	.035	.06		
Reach-1		12.125		.06	.035	.06		
Reach-1		12.034		.06	.035	.06		
Reach-1		11.949		.06	.035	.06		
Reach-1		11.864		.06	.035	.085		
Reach-1		11.759		.06	.035	.085		
Reach-1		11.664		.06	.035	.06		
Reach-1		11.566		.06	.035	.06		
Reach-1		11.481		.06	.035	.06		
Reach-1		11.386		.06	.035	.06		
Reach-1		11.301		.06	.035	.06		
Reach-1		11.243		.06	.035	.06		
Reach-1		11.188		.06	.035	.06		
Reach-1		11.129		.06	.035	.06		
Reach-1		11.03		.06	.035	.06		

Reach-1	10.996	.06	.035	.06
Reach-1	10.988	Bridge		
Reach-1	10.98	.06	.035	.06
Reach-1	10.917	.06	.035	.06
Reach-1	10.862	.06	.035	.06
Reach-1	10.810	.06	.035	.06
Reach-1	10.806	.06	.035	.06
Reach-1	10.803	.06	.035	.06
Reach-1	10.794	.06	.035	.06
Reach-1	10.699	.06	.035	.06
Reach-1	10.612	.06	.035	.06
Reach-1	10.517	.06	.035	.06
Reach-1	10.443	.06	.035	.06
Reach-1	10.348	.06	.035	.06
Reach-1	10.271	.06	.035	.06
Reach-1	10.176	.06	.035	.06
Reach-1	10.096	.06	.035	.06
Reach-1	9.997	.06	.035	.06
Reach-1	9.984	.06	.035	.06
Reach-1	9.971001	Bridge		
Reach-1	9.958	.06	.035	.06
Reach-1	9.953	.06	.035	.06
Reach-1	9.908	.06	.035	.06
Reach-1	9.889	.06	.035	.06
Reach-1	9.794	.06	.035	.06
Reach-1	9.692	.06	.035	.06
Reach-1	9.592	.06	.035	.06
Reach-1	9.492	.06	.035	.06
Reach-1	9.367	.06	.035	.06
Reach-1	9.318	.06	.035	.06
Reach-1	9.289	.06	.035	.06
Reach-1	9.193	.06	.035	.06
Reach-1	9.129	.06	.035	.06
Reach-1	9.047	.06	.035	.06
Reach-1	8.994	.06	.035	.06
Reach-1	8.977	.06	.035	.06
Reach-1	8.936	.06	.035	.06
Reach-1	8.883	.06	.035	.06
Reach-1	8.807	.06	.035	.06
Reach-1	8.731	.06	.035	.06
Reach-1	8.655	.06	.035	.06
Reach-1	8.548	.06	.035	.06
Reach-1	8.538	.06	.035	.06
Reach-1	8.516	.06	.035	.06
Reach-1	8.457	.06	.035	.06
Reach-1	8.39	.06	.035	.06
Reach-1	8.33	.06	.035	.06
Reach-1	8.22	.06	.035	.06
Reach-1	8.12	.06	.035	.06
Reach-1	8.052	.06	.035	.06
Reach-1	8.006	.06	.035	.06
Reach-1	7.92	.06	.035	.06
Reach-1	7.8	.06	.035	.06
Reach-1	7.751	.06	.035	.06
Reach-1	7.7395	Bridge		
Reach-1	7.728	.06	.035	.06

SUMMARY OF REACH LENGTHS

River: RIVER-1

Reach	River Sta.	Left	Channel	Right
Reach-1	16.829	430	525.69	550
Reach-1	16.732	535	475.63	460
Reach-1	16.637	240	231.78	235
Reach-1	16.608	385	500.72	555
Reach-1	16.504	500	481.43	475
Reach-1	16.411	395	481.78	535
Reach-1	16.348	595	497.94	310
Reach-1	16.248	435	436.54	495
Reach-1	16.167	540	590.83	535
Reach-1	16.066	610	584.23	505

Reach-1	15.966	515	429.98	415
Reach-1	15.885	525	509.42	475
Reach-1	15.792	430	472.66	560
Reach-1	15.699	485	413.6	240
Reach-1	15.623	475	505.65	205
Reach-1	15.596	460	677.66	775
Reach-1	15.475	510	319.63	260
Reach-1	15.416	310	448.62	465
Reach-1	15.333	375	453.4	480
Reach-1	15.248	405	496.77	530
Reach-1	15.144	485	493.15	505
Reach-1	15.049	585	499.69	355
Reach-1	14.983	190	216.48	220
Reach-1	14.945	585	529.39	535
Reach-1	14.85	545	536.65	515
Reach-1	14.752	530	547.53	565
Reach-1	14.653	465	536.63	525
Reach-1	14.599	400	542.23	585
Reach-1	14.495	605	561.68	455
Reach-1	14.379	515	505.75	490
Reach-1	14.284	495	498.98	485
Reach-1	14.197	465	479.63	470
Reach-1	14.166	20	20	20
Reach-1	14.162	18	18	18
Reach-1	14.159	50	50	50
Reach-1	14.150	244.65	244.65	244.65
Reach-1	14.103	519.51	519.51	519.51
Reach-1	14.013	489.09	489.09	489.09
Reach-1	13.918	595.17	595.17	595.17
Reach-1	13.818	383.05	383.05	383.05
Reach-1	13.742	361.37	361.37	361.37
Reach-1	13.68	323.84	323.84	323.84
Reach-1	13.619	500.33	500.33	500.33
Reach-1	13.524	499.65	499.65	499.65
Reach-1	13.42	506.43	506.43	506.43
Reach-1	13.325	532.87	532.87	532.87
Reach-1	13.227	240.04	240.04	240.04
Reach-1	13.183	20	20	20
Reach-1	13.179	20.07	20.07	20.07
Reach-1	13.175	50	50	50
Reach-1	13.166	26.37	26.37	26.37
Reach-1	13.161	50.56	50.56	50.56
Reach-1	13.151	385.89	385.89	385.89
Reach-1	13.076	450.81	450.81	450.81
Reach-1	12.991	550.48	550.48	550.48
Reach-1	12.896	500.68	500.68	500.68
Reach-1	12.801	522.71	522.71	522.71
Reach-1	12.701	499.01	499.01	499.01
Reach-1	12.606	529.88	529.88	529.88
Reach-1	12.511	445.76	445.76	445.76
Reach-1	12.42	580.01	580.01	580.01
Reach-1	12.313	647.71	647.71	647.71
Reach-1	12.194	330.02	330.02	330.02
Reach-1	12.125	391.67	391.67	391.67
Reach-1	12.034	542.9	542.9	542.9
Reach-1	11.949	426.33	426.33	426.33
Reach-1	11.864	596.49	596.49	596.49
Reach-1	11.759	475.92	475.92	475.92
Reach-1	11.664	512.96	512.96	512.96
Reach-1	11.566	454.44	454.44	454.44
Reach-1	11.481	520.47	520.47	520.47
Reach-1	11.386	434.5	434.5	434.5
Reach-1	11.301	293.21	293.21	293.21
Reach-1	11.243	312.23	312.23	312.23
Reach-1	11.188	310.3	310.3	310.3
Reach-1	11.129	513.57	513.57	513.57
Reach-1	11.03	171.06	171.06	171.06
Reach-1	10.996	127.78	127.78	127.78
Reach-1	10.988	Bridge		
Reach-1	10.98	355.16	355.16	355.16
Reach-1	10.917	276.24	276.24	276.24
Reach-1	10.862	286.29	286.29	286.29
Reach-1	10.810	20	20	20
Reach-1	10.806	11	11	11
Reach-1	10.803	50	50	50
Reach-1	10.794	506.22	506.22	506.22

Reach-1	10.699	459.22	459.22	459.22
Reach-1	10.612	456.66	456.66	456.66
Reach-1	10.517	438.21	438.21	438.21
Reach-1	10.443	462.08	462.08	462.08
Reach-1	10.348	438.16	438.16	438.16
Reach-1	10.271	452.09	452.09	452.09
Reach-1	10.176	531.98	531.98	531.98
Reach-1	10.096	540.94	540.94	540.94
Reach-1	9.997	74.19	74.19	74.19
Reach-1	9.984	130	133.96	129
Reach-1	9.971001	Bridge		
Reach-1	9.958	22	27.43	28
Reach-1	9.953	183.24	183.24	183.24
Reach-1	9.908	104.44	104.44	104.44
Reach-1	9.889	489.29	489.29	489.29
Reach-1	9.794	554	554	554
Reach-1	9.692	526.34	526.34	526.34
Reach-1	9.592	557.6	557.6	557.6
Reach-1	9.492	433.72	433.72	433.72
Reach-1	9.367	459.27	459.27	459.27
Reach-1	9.318	154.63	154.63	154.63
Reach-1	9.289	457.57	457.57	457.57
Reach-1	9.193	391.34	391.34	391.34
Reach-1	9.129	402.94	402.94	402.94
Reach-1	9.047	290.48	290.48	290.48
Reach-1	8.994	90.73	90.73	90.73
Reach-1	8.977	210.76	210.76	210.76
Reach-1	8.936	289.44	289.44	289.44
Reach-1	8.883	400.91	400.91	400.91
Reach-1	8.807	397.26	397.26	397.26
Reach-1	8.731	399.9	399.9	399.9
Reach-1	8.655	449.6	449.6	449.6
Reach-1	8.548	51.18	51.18	51.18
Reach-1	8.538	114.85	114.85	114.85
Reach-1	8.516	280	287.9	305
Reach-1	8.457	365	361.88	355
Reach-1	8.39	310	308.23	305
Reach-1	8.33	555	565.26	545
Reach-1	8.22	485	512.82	565
Reach-1	8.12	365	370.41	370
Reach-1	8.052	225	236.58	255
Reach-1	8.006	445	463.28	505
Reach-1	7.92	615	631.37	655
Reach-1	7.8	230	259.16	355
Reach-1	7.751	115	121.7	110
Reach-1	7.7395	Bridge		
Reach-1	7.728	0	0	0

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: RIVER-1

Reach	River Sta.	Contr.	Expan.
Reach-1	16.829	.1	.3
Reach-1	16.732	.1	.3
Reach-1	16.637	.1	.3
Reach-1	16.608	.1	.3
Reach-1	16.504	.1	.3
Reach-1	16.411	.1	.3
Reach-1	16.348	.1	.3
Reach-1	16.248	.1	.3
Reach-1	16.167	.1	.3
Reach-1	16.066	.1	.3
Reach-1	15.966	.1	.3
Reach-1	15.885	.1	.3
Reach-1	15.792	.1	.3
Reach-1	15.699	.1	.3
Reach-1	15.623	.1	.3
Reach-1	15.596	.1	.3
Reach-1	15.475	.1	.3
Reach-1	15.416	.1	.3
Reach-1	15.333	.1	.3

Reach-1	15.248		.1	.3
Reach-1	15.144		.1	.3
Reach-1	15.049		.1	.3
Reach-1	14.983		.1	.3
Reach-1	14.945		.1	.3
Reach-1	14.85		.1	.3
Reach-1	14.752		.1	.3
Reach-1	14.653		.1	.3
Reach-1	14.599		.1	.3
Reach-1	14.495		.1	.3
Reach-1	14.379		.1	.3
Reach-1	14.284		.1	.3
Reach-1	14.197		.1	.3
Reach-1	14.166		.1	.3
Reach-1	14.162		.1	.3
Reach-1	14.159		.1	.3
Reach-1	14.150		.1	.3
Reach-1	14.103		.1	.3
Reach-1	14.013		.1	.3
Reach-1	13.918		.1	.3
Reach-1	13.818		.1	.3
Reach-1	13.742		.1	.3
Reach-1	13.68		.1	.3
Reach-1	13.619		.1	.3
Reach-1	13.524		.1	.3
Reach-1	13.42		.1	.3
Reach-1	13.325		.1	.3
Reach-1	13.227		.1	.3
Reach-1	13.183		.1	.3
Reach-1	13.179		.1	.3
Reach-1	13.175		.1	.3
Reach-1	13.166		.1	.3
Reach-1	13.161		.1	.3
Reach-1	13.151		.1	.3
Reach-1	13.076		.1	.3
Reach-1	12.991		.1	.3
Reach-1	12.896		.1	.3
Reach-1	12.801		.1	.3
Reach-1	12.701		.1	.3
Reach-1	12.606		.1	.3
Reach-1	12.511		.1	.3
Reach-1	12.42		.1	.3
Reach-1	12.313		.1	.3
Reach-1	12.194		.1	.3
Reach-1	12.125		.1	.3
Reach-1	12.034		.1	.3
Reach-1	11.949		.1	.3
Reach-1	11.864		.1	.3
Reach-1	11.759		.1	.3
Reach-1	11.664		.1	.3
Reach-1	11.566		.1	.3
Reach-1	11.481		.1	.3
Reach-1	11.386		.1	.3
Reach-1	11.301		.1	.3
Reach-1	11.243		.1	.3
Reach-1	11.188		.1	.3
Reach-1	11.129		.1	.3
Reach-1	11.03		.1	.3
Reach-1	10.996		.1	.3
Reach-1	10.988	Bridge		
Reach-1	10.98		.1	.3
Reach-1	10.917		.1	.3
Reach-1	10.862		.1	.3
Reach-1	10.810		.1	.3
Reach-1	10.806		.1	.3
Reach-1	10.803		.1	.3
Reach-1	10.794		.1	.3
Reach-1	10.699		.1	.3
Reach-1	10.612		.1	.3
Reach-1	10.517		.1	.3
Reach-1	10.443		.1	.3
Reach-1	10.348		.1	.3
Reach-1	10.271		.1	.3
Reach-1	10.176		.1	.3
Reach-1	10.096		.1	.3
Reach-1	9.997		.3	.5

Reach-1	9.984	.3	.5
Reach-1	9.971001	Bridge	
Reach-1	9.958	.3	.5
Reach-1	9.953	.3	.5
Reach-1	9.908	.3	.5
Reach-1	9.889	.3	.5
Reach-1	9.794	.1	.3
Reach-1	9.692	.1	.3
Reach-1	9.592	.1	.3
Reach-1	9.492	.1	.3
Reach-1	9.367	.1	.3
Reach-1	9.318	.1	.3
Reach-1	9.289	.1	.3
Reach-1	9.193	.1	.3
Reach-1	9.129	.1	.3
Reach-1	9.047	.1	.3
Reach-1	8.994	.1	.3
Reach-1	8.977	.1	.3
Reach-1	8.936	.1	.3
Reach-1	8.883	.1	.3
Reach-1	8.807	.1	.3
Reach-1	8.731	.1	.3
Reach-1	8.655	.2	.4
Reach-1	8.548	.1	.3
Reach-1	8.538	.1	.3
Reach-1	8.516	.1	.3
Reach-1	8.457	.1	.3
Reach-1	8.39	.1	.3
Reach-1	8.33	.1	.3
Reach-1	8.22	.1	.3
Reach-1	8.12	.1	.3
Reach-1	8.052	.1	.3
Reach-1	8.006	.1	.3
Reach-1	7.92	.1	.3
Reach-1	7.8	.3	.5
Reach-1	7.751	.3	.5
Reach-1	7.7395	Bridge	
Reach-1	7.728	.3	.5

Profile Output Table - Standard Table 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)			
Reach-1	16.829		2350.00	1374.90	1379.46	1377.97	1379.81
0.002958	4.77	507.92	187.88	0.46			
Reach-1	16.829		2350.00	1374.90	1379.46	1377.97	1379.81
0.002958	4.77	507.92	187.88	0.46			
Reach-1	16.829		1700.00	1374.90	1378.87	1377.50	1379.15
0.002914	4.22	405.03	158.37	0.44			
Reach-1	16.732		2350.00	1372.93	1377.81		1378.15
0.003404	4.71	498.84	166.60	0.48			
Reach-1	16.732		2350.00	1372.93	1377.81		1378.15
0.003404	4.71	498.84	166.60	0.48			
Reach-1	16.732		1700.00	1372.93	1377.32		1377.57
0.003077	4.06	418.55	161.93	0.45			
Reach-1	16.637		2350.00	1370.17	1374.64		1375.27
0.013268	6.36	369.56	218.54	0.86			
Reach-1	16.637		2350.00	1370.17	1374.64		1375.27
0.013268	6.36	369.56	218.54	0.86			
Reach-1	16.637		1700.00	1370.17	1374.28		1374.81
0.014382	5.83	291.67	208.91	0.87			
Reach-1	16.608		2350.00	1368.69	1373.09		1373.45
0.004820	4.84	485.33	201.79	0.55			
Reach-1	16.608		2350.00	1368.69	1373.09		1373.45
0.004820	4.84	485.33	201.79	0.55			
Reach-1	16.608		1700.00	1368.69	1372.64		1372.92
0.004916	4.31	394.70	198.64	0.54			
Reach-1	16.504		2350.00	1366.82	1371.22	1370.08	1371.52

0.003112	4.38	539.26	235.47	0.47			
Reach-1	16.504		2350.00	1366.82	1371.22	1370.08	1371.52
0.003112	4.38	539.26	235.47	0.47			
Reach-1	16.504		1700.00	1366.82	1370.64	1369.64	1370.89
0.003395	4.02	422.57	207.79	0.48			
Reach-1	16.411		2350.00	1364.41	1368.80		1369.38
0.006643	6.17	405.16	179.22	0.66			
Reach-1	16.411		2350.00	1364.41	1368.80		1369.38
0.006643	6.17	405.16	179.22	0.66			
Reach-1	16.411		1700.00	1364.41	1368.37		1368.81
0.005630	5.34	332.44	160.84	0.60			
Reach-1	16.348		2350.00	1362.60	1366.70		1366.92
0.003569	4.33	642.47	382.85	0.48			
Reach-1	16.348		2350.00	1362.60	1366.70		1366.92
0.003569	4.33	642.47	382.85	0.48			
Reach-1	16.348		1700.00	1362.60	1366.27		1366.47
0.003837	4.07	487.58	334.03	0.49			
Reach-1	16.248		2350.00	1360.22	1364.29		1364.77
0.007648	6.21	447.97	294.17	0.70			
Reach-1	16.248		2350.00	1360.22	1364.29		1364.77
0.007648	6.21	447.97	294.17	0.70			
Reach-1	16.248		1700.00	1360.22	1364.00		1364.37
0.006534	5.32	369.89	247.86	0.63			
Reach-1	16.167		2350.00	1358.98	1361.47		1361.77
0.005275	3.36	551.38	341.11	0.52			
Reach-1	16.167		2350.00	1358.98	1361.47		1361.77
0.005275	3.36	551.38	341.11	0.52			
Reach-1	16.167		1700.00	1358.98	1360.99		1361.30
0.006424	2.84	398.95	298.57	0.54			
Reach-1	16.066		2350.00	1354.42	1358.60		1358.83
0.005387	4.11	605.21	438.00	0.55			
Reach-1	16.066		2350.00	1354.42	1358.60		1358.83
0.005387	4.11	605.21	438.00	0.55			
Reach-1	16.066		1700.00	1354.42	1358.43		1358.59
0.003844	3.35	535.19	409.48	0.46			
Reach-1	15.966		2350.00	1351.84	1356.95		1357.10
0.001966	3.43	921.23	562.01	0.36			
Reach-1	15.966		2350.00	1351.84	1356.95		1357.10
0.001967	3.43	921.16	562.00	0.36			
Reach-1	15.966		1700.00	1351.84	1356.06		1356.28
0.004421	4.00	506.36	353.62	0.51			
Reach-1	15.885		4200.00	1348.40	1354.74		1355.37
0.006608	6.74	685.03	276.88	0.67			
Reach-1	15.885		4200.00	1348.40	1354.75		1355.37
0.006608	6.74	685.06	276.90	0.67			
Reach-1	15.885		1874.00	1348.40	1353.29		1353.72
0.008011	5.41	357.66	195.25	0.69			
Reach-1	15.792		4200.00	1345.20	1351.76	1350.93	1352.37
0.005386	6.73	732.31	295.30	0.62			
Reach-1	15.792		4200.00	1345.20	1351.76	1350.93	1352.37
0.005388	6.73	732.17	295.27	0.62			
Reach-1	15.792		1874.00	1345.20	1350.53	1349.30	1350.87
0.004148	4.83	423.90	211.04	0.52			
Reach-1	15.699		4200.00	1344.71	1349.40		1349.64
0.005118	4.49	1097.57	642.48	0.41			
Reach-1	15.699		4200.00	1344.71	1349.40		1349.64
0.005109	4.49	1098.36	642.71	0.41			
Reach-1	15.699		1874.00	1344.71	1348.04		1348.27
0.006929	4.11	499.57	306.80	0.45			
Reach-1	15.623		4200.00	1340.00	1347.81		1348.08
0.003720	4.40	1169.47	579.01	0.36			
Reach-1	15.623		4200.00	1340.00	1347.80		1348.06
0.003778	4.42	1160.53	574.42	0.37			
Reach-1	15.623		1874.00	1340.00	1345.91		1346.13
0.004431	3.79	494.62	166.45	0.37			

Reach-1	15.596		4200.00	1338.38	1343.76		1344.67
0.017129	7.68	546.66	164.81	0.74			
Reach-1	15.596		4200.00	1338.38	1343.83		1344.71
0.015999	7.52	558.59	165.24	0.72			
Reach-1	15.596		1874.00	1338.38	1343.10		1343.38
0.006837	4.27	439.16	160.83	0.46			
Reach-1	15.475		4200.00	1335.06	1340.23		1340.51
0.002928	4.29	978.43	337.67	0.44			
Reach-1	15.475		6600.00	1335.06	1341.40		1341.76
0.002390	4.77	1384.87	373.25	0.42			
Reach-1	15.475		1874.00	1335.06	1338.68		1338.93
0.006317	4.00	468.70	320.59	0.58			
Reach-1	15.416		4200.00	1333.40	1339.85		1340.00
0.000899	3.10	1355.50	314.01	0.26			
Reach-1	15.416		6600.00	1333.40	1341.01		1341.24
0.001035	3.82	1727.75	324.63	0.29			
Reach-1	15.416		1874.00	1333.40	1338.29		1338.36
0.000713	2.13	878.48	299.51	0.22			
Reach-1	15.333		4200.00	1333.64	1338.93	1337.69	1339.27
0.003400	4.68	897.88	326.98	0.48			
Reach-1	15.333		6600.00	1333.64	1340.04	1338.40	1340.48
0.003001	5.32	1241.37	359.77	0.47			
Reach-1	15.333		1874.00	1333.64	1337.40	1336.55	1337.67
0.005049	4.11	455.76	252.16	0.54			
Reach-1	15.248		4200.00	1331.18	1337.05		1337.61
0.003891	6.08	740.95	263.92	0.54			
Reach-1	15.248		6600.00	1331.18	1337.94		1338.78
0.004632	7.53	1005.68	319.31	0.61			
Reach-1	15.248		1874.00	1331.18	1335.78		1336.04
0.002677	4.04	468.02	183.51	0.42			
Reach-1	15.144		4200.00	1329.20	1335.27		1335.62
0.003976	5.01	938.79	401.92	0.52			
Reach-1	15.144		6600.00	1329.20	1336.08		1336.56
0.004053	5.89	1285.16	468.22	0.54			
Reach-1	15.144		1874.00	1329.20	1334.10		1334.33
0.004703	4.01	508.44	332.39	0.52			
Reach-1	15.049		4200.00	1327.09	1333.63		1333.84
0.003166	3.92	1302.77	622.93	0.33			
Reach-1	15.049		6600.00	1327.09	1334.83		1335.01
0.002232	3.84	2227.92	816.50	0.29			
Reach-1	15.049		1874.00	1327.09	1331.81		1331.99
0.004673	3.46	567.39	261.18	0.37			
Reach-1	14.983		4200.00	1323.95	1330.97		1331.79
0.005437	7.29	585.41	160.42	0.64			
Reach-1	14.983		6600.00	1323.95	1331.82	1330.99	1333.14
0.007234	9.31	764.59	300.87	0.75			
Reach-1	14.983		1874.00	1323.95	1329.62		1329.97
0.003508	4.79	390.97	130.37	0.49			
Reach-1	14.945		4200.00	1323.89	1330.11	1329.31	1330.66
0.004303	6.51	826.25	701.19	0.57			
Reach-1	14.945		6600.00	1323.89	1330.57	1330.14	1331.51
0.006797	8.71	1043.85	825.36	0.73			
Reach-1	14.945		1874.00	1323.89	1328.87	1327.51	1329.20
0.003533	4.77	435.28	517.28	0.49			
Reach-1	14.85		6100.00	1323.06	1327.33		1327.75
0.006116	5.64	1190.67	556.63	0.63			
Reach-1	14.85		6600.00	1323.06	1327.45		1327.89
0.006009	5.73	1258.51	559.30	0.63			
Reach-1	14.85		2052.00	1323.06	1326.02		1326.30
0.008598	4.67	502.34	464.02	0.68			
Reach-1	14.752		6100.00	1319.77	1325.52	1324.08	1325.77
0.002351	4.04	1642.79	766.14	0.40			
Reach-1	14.752		6600.00	1319.77	1325.66	1324.18	1325.92
0.002349	4.15	1753.44	799.09	0.41			
Reach-1	14.752		2052.00	1319.77	1323.99	1322.43	1324.10
0.002306	2.70	760.99	443.57	0.36			

Reach-1	14.653		6100.00	1317.90	1322.63		1323.35
0.010576	7.48	992.42	676.88	0.83			
Reach-1	14.653		6600.00	1317.90	1322.76		1323.50
0.010663	7.64	1080.40	732.42	0.83			
Reach-1	14.653		2052.00	1317.90	1321.29		1321.75
0.009867	5.61	396.18	285.51	0.75			
Reach-1	14.599		6100.00	1315.07	1320.01		1320.31
0.003547	4.39	1388.51	583.94	0.48			
Reach-1	14.599		6600.00	1315.07	1320.14		1320.45
0.003544	4.52	1467.03	626.31	0.48			
Reach-1	14.599		2052.00	1315.07	1318.58		1318.72
0.003696	3.02	665.70	448.59	0.44			
Reach-1	14.495		6100.00	1312.16	1317.11		1317.73
0.008014	7.54	1151.16	800.04	0.75			
Reach-1	14.495		6600.00	1312.16	1317.22		1317.85
0.008084	7.72	1238.29	894.39	0.75			
Reach-1	14.495		2052.00	1312.16	1315.76		1316.17
0.007458	5.64	446.34	328.35	0.67			
Reach-1	14.379		6100.00	1309.18	1314.42		1314.65
0.003989	4.45	1758.37	1317.76	0.50			
Reach-1	14.379		6600.00	1309.18	1314.51		1314.75
0.004011	4.57	1879.55	1355.95	0.51			
Reach-1	14.379		2052.00	1309.18	1312.94		1313.17
0.003910	3.45	583.11	424.86	0.47			
Reach-1	14.284		6100.00	1305.40	1310.70	1310.70	1311.49
0.010620	8.76	989.95	643.81	0.86			
Reach-1	14.284		6600.00	1305.40	1310.83	1310.83	1311.62
0.010331	8.78	1072.98	697.81	0.85			
Reach-1	14.284		2052.00	1305.40	1309.43	1309.43	1310.01
0.011022	7.15	384.86	335.38	0.83			
Reach-1	14.197		6100.00	1303.30	1308.80	1306.89	1308.98
0.001732	3.55	1862.93	790.72	0.34			
Reach-1	14.197		6600.00	1303.30	1309.00	1307.06	1309.19
0.001629	3.58	2027.94	836.39	0.34			
Reach-1	14.197		2052.00	1303.30	1306.54	1304.88	1306.70
0.002259	3.25	635.88	305.42	0.37			
Reach-1	14.166		6100.00	1302.39	1306.38		1307.45
0.006569	8.27	737.35	195.96	0.75			
Reach-1	14.166		6600.00	1302.39	1306.56		1307.70
0.006643	8.55	771.64	196.66	0.76			
Reach-1	14.166		2052.00	1302.39	1304.53		1304.98
0.006395	5.40	380.02	188.52	0.67			
Reach-1	14.162		6100.00	1302.32	1305.63	1305.63	1307.22
0.012472	10.10	604.25	192.96	1.01			
Reach-1	14.162		6600.00	1302.32	1305.81	1305.81	1307.47
0.012237	10.34	638.16	193.66	1.00			
Reach-1	14.162		2052.00	1302.32	1303.97	1303.97	1304.76
0.015715	7.11	288.69	186.30	1.01			
Reach-1	14.159		6100.00	1295.00	1296.36	1298.25	1305.72
0.227682	24.56	248.38	185.44	3.74			
Reach-1	14.159		6600.00	1295.00	1296.45	1298.41	1306.06
0.214520	24.87	265.33	185.80	3.67			
Reach-1	14.159		2052.00	1295.00	1295.51	1296.58	1303.20
0.681613	22.25	92.21	182.04	5.51			
Reach-1	14.150		6100.00	1294.78	1299.43	1298.03	1300.18
0.003750	6.96	876.31	197.71	0.58			
Reach-1	14.150		6600.00	1294.78	1300.89	1298.21	1301.38
0.001751	5.64	1169.40	203.55	0.41			
Reach-1	14.150		2052.00	1294.78	1297.13	1296.36	1297.48
0.004143	4.74	433.15	188.53	0.55			
Reach-1	14.103		6100.00	1293.77	1298.64		1299.31
0.003190	6.61	923.11	199.46	0.54			
Reach-1	14.103		8800.00	1293.77	1299.91		1300.77
0.003040	7.46	1179.80	204.54	0.55			
Reach-1	14.103		2052.00	1293.77	1296.09		1296.44

0.004345	4.80	427.55	189.26	0.56		
Reach-1	14.013		6100.00	1291.61	1297.73	1298.15
0.001470	5.18	1177.46	204.50	0.38		
Reach-1	14.013		8800.00	1291.61	1298.76	1299.38
0.002135	6.31	1394.54	238.42	0.46		
Reach-1	14.013		2052.00	1291.61	1294.05	1294.37
0.003651	4.55	450.96	189.76	0.52		
Reach-1	13.918		9800.00	1289.67	1295.77	1296.85
0.003851	8.36	1172.06	204.42	0.62		
Reach-1	13.918		12000.00	1289.67	1296.63	1297.85
0.004019	8.87	1352.70	222.78	0.63		
Reach-1	13.918		2221.00	1289.67	1292.20	1292.55
0.003785	4.74	468.23	190.14	0.53		
Reach-1	13.818		9800.00	1287.37	1293.37	1294.49
0.004072	8.51	1151.50	203.97	0.63		
Reach-1	13.818		12000.00	1287.37	1294.13	1295.44
0.004072	9.17	1308.91	207.07	0.64		
Reach-1	13.818		2221.00	1287.37	1289.84	1290.21
0.004082	4.85	457.49	189.88	0.55		
Reach-1	13.742		9800.00	1285.81	1291.81	1292.93
0.004070	8.51	1151.65	203.98	0.63		
Reach-1	13.742		12000.00	1285.81	1292.57	1293.88
0.004072	9.17	1308.96	207.20	0.64		
Reach-1	13.742		2221.00	1285.81	1288.29	1288.65
0.004064	4.85	458.09	189.89	0.55		
Reach-1	13.68		9800.00	1284.34	1290.34	1291.46
0.004075	8.51	1151.26	203.99	0.63		
Reach-1	13.68		12000.00	1284.34	1291.10	1292.41
0.004077	9.17	1308.39	207.06	0.64		
Reach-1	13.68		2221.00	1284.34	1286.82	1287.18
0.004073	4.85	457.81	189.90	0.55		
Reach-1	13.619		9800.00	1283.02	1289.02	1290.14
0.004073	8.51	1151.47	203.99	0.63		
Reach-1	13.619		12000.00	1283.02	1289.78	1291.09
0.004080	9.17	1308.12	207.29	0.64		
Reach-1	13.619		2221.00	1283.02	1285.50	1285.87
0.004033	4.84	459.20	189.93	0.55		
Reach-1	13.524		9800.00	1280.98	1286.93	1288.08
0.004175	8.58	1142.50	203.81	0.64		
Reach-1	13.524		12000.00	1280.98	1287.69	1289.02
0.004173	9.24	1298.81	206.87	0.65		
Reach-1	13.524		2221.00	1280.98	1283.43	1283.80
0.004208	4.90	453.23	189.80	0.56		
Reach-1	13.42		9800.00	1278.89	1284.87	1286.00
0.004127	8.55	1146.48	203.80	0.64		
Reach-1	13.42		12000.00	1278.89	1285.63	1286.94
0.004132	9.21	1302.68	206.86	0.65		
Reach-1	13.42		2221.00	1278.89	1281.36	1281.73
0.004093	4.86	457.04	189.79	0.55		
Reach-1	13.325		9800.00	1276.80	1282.77	1283.90
0.004145	8.56	1145.08	203.86	0.64		
Reach-1	13.325		12000.00	1276.80	1283.52	1284.84
0.004166	9.23	1299.48	206.87	0.65		
Reach-1	13.325		2221.00	1276.80	1279.25	1279.62
0.004229	4.91	452.56	189.79	0.56		
Reach-1	13.227		9800.00	1274.58	1280.43	1281.61
0.004437	8.74	1120.77	203.39	0.66		
Reach-1	13.227		12000.00	1274.58	1281.14	1282.53
0.004479	9.47	1267.11	206.24	0.67		
Reach-1	13.227		2221.00	1274.58	1277.07	1277.43
0.003979	4.82	461.09	189.97	0.54		
Reach-1	13.183		9800.00	1273.58	1278.76	1280.29
0.006664	9.93	986.82	201.03	0.79		
Reach-1	13.183		12000.00	1273.58	1279.44	1281.21
0.006576	10.66	1125.48	203.77	0.80		

Reach-1	13.183		2221.00	1273.58	1275.72		1276.21
0.006585	5.62	395.36	188.89	0.68			
Reach-1	13.179		9800.00	1273.50	1277.93	1277.93	1280.06
0.011307	11.72	836.01	197.71	1.00			
Reach-1	13.179		12000.00	1273.50	1278.57	1278.57	1280.98
0.010752	12.45	963.88	200.28	1.00			
Reach-1	13.179		2221.00	1273.50	1275.16	1275.16	1275.99
0.015391	7.28	304.89	186.65	1.00			
Reach-1	13.175		9800.00	1264.50	1266.45	1268.97	1278.46
0.184755	27.81	352.45	186.29	3.56			
Reach-1	13.175		12000.00	1264.50	1266.82	1269.60	1279.42
0.154445	28.48	421.29	187.58	3.35			
Reach-1	13.175		2221.00	1264.50	1265.03	1266.19	1274.19
0.818038	24.28	91.46	181.56	6.03			
Reach-1	13.166		9800.00	1264.36	1271.40	1268.79	1272.20
0.002360	7.16	1369.12	208.49	0.49			
Reach-1	13.166		12000.00	1264.36	1272.31	1269.41	1273.23
0.002347	7.69	1560.57	212.13	0.50			
Reach-1	13.166		2221.00	1264.36	1267.23	1266.02	1267.50
0.002470	4.16	534.17	191.81	0.44			
Reach-1	13.161		9800.00	1264.28	1271.34		1272.14
0.002348	7.15	1370.78	208.25	0.49			
Reach-1	13.161		12000.00	1264.28	1272.25		1273.17
0.002336	7.68	1562.02	211.89	0.50			
Reach-1	13.161		2221.00	1264.28	1267.17		1267.43
0.002431	4.14	536.53	191.55	0.44			
Reach-1	13.151		9800.00	1264.13	1271.23		1272.02
0.002312	7.11	1377.50	208.38	0.49			
Reach-1	13.151		12000.00	1264.13	1272.14		1273.05
0.002304	7.65	1569.05	212.02	0.50			
Reach-1	13.151		2221.00	1264.13	1267.05		1267.31
0.002356	4.10	541.73	191.66	0.43			
Reach-1	13.076		9800.00	1263.14	1270.38		1271.14
0.002180	6.98	1403.50	208.87	0.47			
Reach-1	13.076		12000.00	1263.14	1271.30		1272.17
0.002185	7.52	1595.76	212.52	0.48			
Reach-1	13.076		2221.00	1263.14	1266.24		1266.47
0.001970	3.88	572.41	192.30	0.40			
Reach-1	12.991		9800.00	1261.98	1269.45		1270.18
0.002060	6.86	1429.11	209.37	0.46			
Reach-1	12.991		12000.00	1261.98	1270.35		1271.20
0.002084	7.41	1620.30	212.99	0.47			
Reach-1	12.991		2400.00	1261.98	1265.35		1265.60
0.001919	3.96	605.36	192.99	0.39			
Reach-1	12.896		9800.00	1260.95	1268.19		1268.97
0.002306	7.11	1378.59	208.39	0.49			
Reach-1	12.896		12000.00	1260.95	1269.07		1269.99
0.002323	7.67	1564.84	211.94	0.50			
Reach-1	12.896		2400.00	1260.95	1264.18		1264.45
0.002256	4.17	575.91	192.37	0.42			
Reach-1	12.801		9800.00	1259.88	1267.00		1267.80
0.002384	7.18	1364.11	208.10	0.49			
Reach-1	12.801		12000.00	1259.88	1267.87		1268.80
0.002409	7.76	1546.80	211.59	0.51			
Reach-1	12.801		2400.00	1259.88	1263.04		1263.31
0.002315	4.20	571.30	192.26	0.43			
Reach-1	12.701		9800.00	1258.67	1265.70		1266.52
0.002491	7.29	1345.19	207.75	0.50			
Reach-1	12.701		12000.00	1258.67	1266.54		1267.51
0.002534	7.88	1522.01	211.13	0.52			
Reach-1	12.701		2400.00	1258.67	1261.83		1262.11
0.002303	4.19	572.26	192.29	0.43			
Reach-1	12.606		9800.00	1257.52	1264.31		1265.20
0.002798	7.56	1296.62	206.81	0.53			
Reach-1	12.606		12000.00	1257.52	1265.11		1266.15

0.002869	8.20	1462.89	210.00	0.55		
Reach-1	12.606		2400.00	1257.52	1260.68	1260.95
0.002319	4.20	570.99	192.26	0.43		
Reach-1	12.511		9800.00	1256.28	1261.71	1263.10
0.005699	9.46	1035.94	201.71	0.74		
Reach-1	12.511		12000.00	1256.28	1262.40	1264.02
0.005694	10.19	1177.19	204.49	0.75		
Reach-1	12.511		2400.00	1256.28	1258.63	1259.11
0.005628	5.52	434.77	189.41	0.64		
Reach-1	12.42		9800.00	1253.85	1259.14	1260.52
0.005858	9.44	1037.62	206.82	0.74		
Reach-1	12.42		12000.00	1253.85	1259.76	1261.40
0.006045	10.28	1166.82	209.32	0.77		
Reach-1	12.42		2400.00	1253.85	1256.18	1256.64
0.005432	5.40	444.58	195.01	0.63		
Reach-1	12.313		9800.00	1250.65	1255.84	1257.16
0.005676	9.21	1064.40	215.56	0.73		
Reach-1	12.313		12000.00	1250.65	1256.71	1258.13
0.005048	9.57	1253.82	219.04	0.70		
Reach-1	12.313		2400.00	1250.65	1252.85	1253.32
0.006020	5.47	438.36	203.61	0.66		
Reach-1	12.194		10350.00	1247.10	1252.90	1253.99
0.004122	8.39	1233.17	225.86	0.63		
Reach-1	12.194		13400.00	1247.10	1253.90	1255.21
0.004025	9.16	1462.71	230.38	0.64		
Reach-1	12.194		2529.00	1247.10	1249.53	1249.93
0.004573	5.08	498.18	210.97	0.58		
Reach-1	12.125		10350.00	1245.31	1250.58	1252.20
0.006951	10.21	1013.48	204.68	0.81		
Reach-1	12.125		13400.00	1245.31	1251.36	1253.38
0.007323	11.42	1173.79	208.29	0.85		
Reach-1	12.125		2529.00	1245.31	1247.70	1248.20
0.005968	5.72	442.28	191.20	0.66		
Reach-1	12.034		10350.00	1243.20	1248.00	1249.44
0.006860	9.63	1074.71	235.16	0.79		
Reach-1	12.034		13400.00	1243.20	1248.85	1250.56
0.006613	10.49	1277.93	239.13	0.80		
Reach-1	12.034		2529.00	1243.20	1245.33	1245.79
0.006278	5.46	462.88	222.79	0.67		
Reach-1	11.949		10350.00	1240.27	1245.00	1246.09
0.005244	8.41	1230.90	269.98	0.69		
Reach-1	11.949		13900.00	1240.27	1245.89	1247.27
0.005278	9.42	1474.91	273.58	0.72		
Reach-1	11.949		2529.00	1240.27	1242.31	1242.68
0.005206	4.86	520.14	259.24	0.60		
Reach-1	11.864		10350.00	1237.96	1242.60	1243.76
0.005667	8.64	1197.93	267.37	0.72		
Reach-1	11.864		13900.00	1237.96	1243.53	1244.96
0.005538	9.60	1448.56	271.09	0.73		
Reach-1	11.864		2529.00	1237.96	1239.95	1240.34
0.005767	5.03	502.49	256.76	0.63		
Reach-1	11.759		10350.00	1234.74	1239.90	1240.86
0.004069	7.83	1321.45	266.33	0.62		
Reach-1	11.759		13900.00	1234.74	1241.00	1242.15
0.003842	8.60	1616.23	270.73	0.62		
Reach-1	11.759		2529.00	1234.74	1236.86	1237.22
0.004751	4.77	530.45	254.18	0.58		
Reach-1	11.664		10350.00	1232.17	1237.75	1238.85
0.004297	8.41	1230.52	231.67	0.64		
Reach-1	11.664		13900.00	1232.17	1238.90	1240.23
0.004144	9.28	1497.69	236.24	0.65		
Reach-1	11.664		2529.00	1232.17	1234.46	1234.88
0.005074	5.16	489.72	218.46	0.61		
Reach-1	11.566		10350.00	1229.40	1235.11	1236.43
0.005090	9.24	1120.40	207.72	0.70		

Reach-1	11.566		13900.00	1229.40	1236.16		1237.83
0.005191	10.36	1341.18	211.93	0.73			
Reach-1	11.566		2529.00	1229.40	1231.91		1232.35
0.004787	5.31	476.36	194.92	0.60			
Reach-1	11.481		10350.00	1226.89	1232.43		1233.92
0.005970	9.80	1056.56	202.13	0.76			
Reach-1	11.481		13900.00	1226.89	1233.71		1235.43
0.005326	10.53	1319.58	207.27	0.74			
Reach-1	11.481		2529.00	1226.89	1229.18		1229.74
0.006931	6.00	421.18	189.14	0.71			
Reach-1	11.386		10350.00	1223.71	1230.92		1231.79
0.002543	7.48	1383.72	208.50	0.51			
Reach-1	11.386		13900.00	1223.71	1232.37		1233.42
0.002455	8.23	1689.13	214.27	0.52			
Reach-1	11.386		2529.00	1223.71	1226.39		1226.82
0.004514	5.26	480.39	190.38	0.58			
Reach-1	11.301		10350.00	1221.27	1229.71		1230.69
0.002499	7.92	1306.66	178.01	0.52			
Reach-1	11.301		13900.00	1221.27	1231.01		1232.27
0.002737	9.01	1542.83	185.17	0.55			
Reach-1	11.301		2529.00	1221.27	1225.23		1225.54
0.001993	4.49	563.69	153.28	0.41			
Reach-1	11.243		10350.00	1220.89	1228.80		1229.88
0.002962	8.34	1241.38	178.07	0.56			
Reach-1	11.243		13900.00	1220.89	1229.94		1231.37
0.003355	9.60	1447.47	184.10	0.60			
Reach-1	11.243		2529.00	1220.89	1224.52		1224.88
0.002526	4.79	527.96	155.58	0.46			
Reach-1	11.188		10350.00	1220.47	1228.35		1229.04
0.001856	6.69	1547.18	218.19	0.44			
Reach-1	11.188		13900.00	1220.47	1229.47		1230.40
0.002122	7.74	1794.81	224.32	0.48			
Reach-1	11.188		2529.00	1220.47	1223.94		1224.18
0.001803	3.96	637.98	194.35	0.39			
Reach-1	11.129		10900.00	1220.06	1228.06		1228.52
0.001174	5.46	1995.26	271.11	0.35			
Reach-1	11.129		13900.00	1220.06	1229.25		1229.80
0.001192	5.99	2320.24	277.36	0.37			
Reach-1	11.129		2586.00	1220.06	1223.58		1223.73
0.001063	3.10	834.27	247.66	0.30			
Reach-1	11.03		10900.00	1219.39	1225.99		1227.36
0.004636	9.40	1159.69	195.41	0.68			
Reach-1	11.03		13900.00	1219.39	1226.98		1228.61
0.004661	10.25	1355.92	201.11	0.70			
Reach-1	11.03		2586.00	1219.39	1222.19		1222.69
0.004863	5.64	458.59	173.45	0.61			
Reach-1	10.996		10900.00	1218.50	1225.75	1223.29	1226.62
0.002667	7.48	1457.54	229.54	0.52			
Reach-1	10.996		13900.00	1218.50	1226.80	1224.11	1227.84
0.002715	8.17	1702.22	237.88	0.54			
Reach-1	10.996		2586.00	1218.50	1221.81	1220.37	1222.08
0.002202	4.22	613.09	198.14	0.42			
Reach-1	10.988		Bridge				
Reach-1	10.98		10900.00	1217.72	1223.87		1225.24
0.005006	9.36	1164.35	209.81	0.70			
Reach-1	10.98		13900.00	1217.72	1224.77		1226.40
0.005121	10.27	1353.83	215.86	0.72			
Reach-1	10.98		2586.00	1217.72	1220.32		1220.81
0.005241	5.62	460.49	185.67	0.63			
Reach-1	10.917		10900.00	1216.30	1223.08		1223.86
0.002433	7.12	1569.05	289.82	0.50			
Reach-1	10.917		13900.00	1216.30	1224.02		1224.97
0.002483	7.84	1854.22	326.16	0.51			
Reach-1	10.917		2586.00	1216.30	1219.51		1219.73
0.001735	3.74	690.90	223.20	0.37			

Reach-1	10.862		10900.00	1215.43	1221.18		1222.72
0.007086	9.96	1094.74	233.26	0.81			
Reach-1	10.862		13900.00	1215.43	1221.86		1223.76
0.007637	11.07	1255.68	241.32	0.86			
Reach-1	10.862		2586.00	1215.43	1218.51	1217.88	1218.94
0.005215	5.25	492.84	219.01	0.62			
Reach-1	10.810		10900.00	1215.03	1219.54		1220.74
0.006099	8.79	1239.78	285.25	0.74			
Reach-1	10.810		13900.00	1215.03	1220.29		1221.70
0.005870	9.54	1467.05	340.44	0.75			
Reach-1	10.810		2586.00	1215.03	1216.97		1217.35
0.005769	4.95	522.50	274.04	0.63			
Reach-1	10.806		10900.00	1215.00	1218.70	1218.70	1220.52
0.011610	10.82	1010.98	281.61	1.00			
Reach-1	10.806		13900.00	1215.00	1219.33	1219.33	1221.47
0.011079	11.75	1189.46	284.35	1.00			
Reach-1	10.806		2586.00	1215.00	1216.43	1216.43	1217.14
0.016069	6.76	382.67	271.41	1.00			
Reach-1	10.803		10900.00	1207.82	1209.70	1211.89	1219.48
0.157369	25.11	434.14	237.79	3.27			
Reach-1	10.803		15500.00	1207.82	1210.44	1212.94	1220.41
0.103743	25.34	611.71	241.49	2.81			
Reach-1	10.803		2586.00	1207.82	1208.35	1209.40	1215.72
0.640527	21.78	118.71	231.06	5.36			
Reach-1	10.794		10900.00	1207.72	1214.51	1211.80	1215.18
0.002072	6.57	1658.84	261.84	0.46			
Reach-1	10.794		15500.00	1207.72	1215.96	1212.86	1216.85
0.002165	7.58	2045.90	269.10	0.48			
Reach-1	10.794		2586.00	1207.72	1210.73	1209.30	1210.94
0.001802	3.66	706.61	242.97	0.38			
Reach-1	10.699		10900.00	1206.71	1212.71		1213.75
0.003786	8.18	1332.04	237.91	0.61			
Reach-1	10.699		15500.00	1206.71	1213.89		1215.32
0.004161	9.59	1616.63	243.94	0.66			
Reach-1	10.699		2586.00	1206.71	1209.53		1209.82
0.002761	4.31	599.62	221.97	0.46			
Reach-1	10.612		10900.00	1205.80	1210.85		1211.86
0.004460	8.05	1354.05	281.05	0.65			
Reach-1	10.612		15500.00	1205.80	1211.82		1213.23
0.004981	9.51	1629.26	285.58	0.70			
Reach-1	10.612		2586.00	1205.80	1208.15		1208.42
0.003323	4.23	611.06	267.87	0.49			
Reach-1	10.517		10900.00	1204.88	1209.46		1210.07
0.003049	6.30	1729.24	390.48	0.53			
Reach-1	10.517		15500.00	1204.88	1210.32		1211.20
0.003439	7.49	2070.41	395.01	0.58			
Reach-1	10.517		2586.00	1204.88	1207.16		1207.30
0.001787	3.06	844.75	378.41	0.36			
Reach-1	10.443		10900.00	1203.95	1207.49		1208.27
0.005742	7.08	1539.65	470.28	0.69			
Reach-1	10.443		15500.00	1203.95	1208.45		1209.39
0.004990	7.78	1991.84	474.83	0.67			
Reach-1	10.443		2586.00	1203.95	1205.21		1205.64
0.011932	5.30	487.70	398.47	0.84			
Reach-1	10.348		10900.00	1201.00	1205.80		1206.39
0.002879	6.12	1781.25	403.01	0.51			
Reach-1	10.348		15500.00	1201.00	1206.80		1207.58
0.003010	7.10	2183.24	408.30	0.54			
Reach-1	10.348		2586.00	1201.00	1203.29		1203.46
0.002382	3.30	783.79	389.43	0.41			
Reach-1	10.271		10900.00	1198.24	1203.64		1204.56
0.006219	7.72	1411.26	400.79	0.73			
Reach-1	10.271		15500.00	1198.24	1204.46		1205.69
0.006310	8.89	1743.17	404.82	0.76			
Reach-1	10.271		2586.00	1198.24	1201.09		1201.57

0.009434	5.59	462.60	292.22	0.78			
Reach-1	10.176		11450.00	1195.55	1201.90		1202.53
0.003184	6.38	1793.98	410.59	0.54			
Reach-1	10.176		15500.00	1195.55	1202.85		1203.63
0.003061	7.09	2185.68	414.30	0.54			
Reach-1	10.176		2643.00	1195.55	1199.16		1199.37
0.002820	3.71	713.06	337.38	0.45			
Reach-1	10.096		11450.00	1193.83	1200.12		1200.80
0.003314	6.62	1729.18	385.57	0.55			
Reach-1	10.096		15500.00	1193.83	1201.25		1202.04
0.002909	7.15	2167.83	390.22	0.53			
Reach-1	10.096		2643.00	1193.83	1197.22		1197.49
0.004591	4.19	630.94	358.10	0.56			
Reach-1	9.997		11450.00	1191.76	1197.59		1198.69
0.004454	8.42	1359.83	263.35	0.65			
Reach-1	9.997		15500.00	1191.76	1198.74		1200.07
0.004408	9.27	1671.99	277.85	0.67			
Reach-1	9.997		2643.00	1191.76	1194.24		1194.66
0.005953	5.25	503.46	247.47	0.65			
Reach-1	9.984		11450.00	1191.00	1197.47	1195.38	1198.28
0.002814	7.22	1585.48	273.68	0.53			
Reach-1	9.984		15500.00	1191.00	1198.63	1196.26	1199.66
0.002880	8.14	1904.10	279.03	0.55			
Reach-1	9.984		2643.00	1191.00	1194.08	1192.81	1194.31
0.002173	3.86	684.94	250.50	0.41			
Reach-1	9.971001		Bridge				
Reach-1	9.958		11450.00	1190.47	1195.95		1197.22
0.005715	9.05	1265.11	265.30	0.73			
Reach-1	9.958		15500.00	1190.47	1197.05		1198.58
0.005384	9.94	1558.73	271.06	0.73			
Reach-1	9.958		2643.00	1190.47	1192.96		1193.39
0.005746	5.24	504.29	241.88	0.64			
Reach-1	9.953		11450.00	1189.74	1195.40		1196.96
0.007645	10.00	1144.61	256.83	0.84			
Reach-1	9.953		15500.00	1189.74	1196.16		1198.24
0.008417	11.55	1341.83	260.51	0.90			
Reach-1	9.953		2643.00	1189.74	1192.81	1192.23	1193.23
0.005446	5.20	507.97	236.39	0.63			
Reach-1	9.908		11450.00	1188.87	1193.24	1193.24	1195.14
0.011558	11.08	1033.52	271.24	1.00			
Reach-1	9.908		15500.00	1188.87	1194.10	1194.10	1196.42
0.010859	12.21	1269.68	274.51	1.00			
Reach-1	9.908		2643.00	1188.87	1190.79	1190.79	1191.54
0.016137	6.92	381.98	262.02	1.01			
Reach-1	9.889		11450.00	1185.46	1190.32	1190.99	1193.28
0.019853	13.81	829.12	234.19	1.29			
Reach-1	9.889		15500.00	1185.46	1191.22	1191.94	1194.66
0.017418	14.89	1041.02	237.70	1.25			
Reach-1	9.889		2643.00	1185.46	1187.99	1188.29	1189.22
0.028386	8.88	297.73	214.37	1.33			
Reach-1	9.794		11450.00	1176.99	1185.65	1182.22	1186.02
0.001094	4.83	2371.97	368.98	0.34			
Reach-1	9.794		19000.00	1176.99	1187.61	1183.51	1188.20
0.001269	6.12	3103.11	376.95	0.38			
Reach-1	9.794		2643.00	1176.99	1182.08	1179.64	1182.17
0.000760	2.45	1078.05	354.14	0.25			
Reach-1	9.692		11450.00	1176.99	1184.75		1185.24
0.001777	5.61	2041.39	365.22	0.42			
Reach-1	9.692		19000.00	1176.99	1186.54		1187.31
0.001982	7.03	2701.19	372.62	0.46			
Reach-1	9.692		2643.00	1176.99	1181.51		1181.65
0.001176	2.99	883.98	299.12	0.31			
Reach-1	9.592		11450.00	1175.70	1181.73	1181.62	1183.22
0.011380	9.80	1168.20	365.27	0.97			

Reach-1	9.592		19000.00	1175.70	1182.89	1182.89	1185.09
0.011331	11.91	1594.68	370.33	1.01			
Reach-1	9.592		2643.00	1175.70	1179.91	1179.43	1180.32
0.008158	5.14	514.36	330.67	0.73			
Reach-1	9.492		11450.00	1173.77	1178.70		1179.36
0.004175	6.50	1760.85	480.92	0.60			
Reach-1	9.492		19000.00	1173.77	1179.96	1178.68	1180.96
0.004328	8.01	2371.96	486.20	0.64			
Reach-1	9.492		2643.00	1173.77	1176.42		1176.66
0.005260	3.91	675.73	471.44	0.58			
Reach-1	9.367		12000.00	1171.33	1176.29		1177.19
0.005846	7.64	1570.46	433.89	0.71			
Reach-1	9.367		19000.00	1171.33	1177.47		1178.75
0.005936	9.07	2094.87	452.44	0.74			
Reach-1	9.367		2700.00	1171.33	1173.99		1174.28
0.005675	4.35	620.29	390.22	0.61			
Reach-1	9.318		12000.00	1168.41	1174.37		1174.99
0.003719	6.33	1895.15	494.35	0.57			
Reach-1	9.318		19000.00	1168.41	1175.46		1176.41
0.004076	7.79	2438.68	498.67	0.62			
Reach-1	9.318		2700.00	1168.41	1172.02		1172.21
0.003605	3.54	761.70	464.04	0.49			
Reach-1	9.289		12000.00	1167.93	1172.63	1172.63	1173.95
0.012871	9.21	1303.44	492.38	1.00			
Reach-1	9.289		19000.00	1167.93	1173.69	1173.58	1175.37
0.010650	10.41	1825.33	497.13	0.96			
Reach-1	9.289		2700.00	1167.93	1170.94		1171.33
0.009598	4.99	541.26	411.67	0.77			
Reach-1	9.193		12000.00	1164.47	1170.95	1169.13	1171.42
0.002303	5.48	2190.00	494.59	0.46			
Reach-1	9.193		19000.00	1164.47	1172.73		1173.32
0.001906	6.18	3073.01	501.58	0.44			
Reach-1	9.193		2700.00	1164.47	1167.63		1167.93
0.005884	4.39	614.73	391.97	0.62			
Reach-1	9.129		12000.00	1163.16	1170.37		1170.72
0.001306	4.77	2516.42	457.17	0.36			
Reach-1	9.129		19000.00	1163.16	1172.19		1172.68
0.001285	5.66	3354.74	464.57	0.37			
Reach-1	9.129		2700.00	1163.16	1166.69		1166.82
0.001536	2.98	905.77	377.17	0.34			
Reach-1	9.047		12000.00	1161.65	1169.67		1170.13
0.001612	5.43	2210.07	386.37	0.40			
Reach-1	9.047		19000.00	1161.65	1171.40		1172.07
0.001709	6.59	2884.60	393.61	0.43			
Reach-1	9.047		2700.00	1161.65	1165.98		1166.15
0.001822	3.28	822.88	336.87	0.37			
Reach-1	8.994		12000.00	1161.66	1169.06		1169.61
0.001867	5.97	2009.89	338.56	0.43			
Reach-1	8.994		19000.00	1161.66	1170.63		1171.49
0.002182	7.47	2544.74	343.80	0.48			
Reach-1	8.994		2700.00	1161.66	1165.43		1165.61
0.001904	3.36	802.93	326.72	0.38			
Reach-1	8.977		12000.00	1161.31	1168.68		1169.40
0.002684	6.79	1766.33	321.97	0.51			
Reach-1	8.977		19000.00	1161.31	1170.10		1171.23
0.003180	8.53	2227.77	327.14	0.58			
Reach-1	8.977		2700.00	1161.31	1165.19		1165.41
0.002440	3.78	714.62	294.24	0.43			
Reach-1	8.936		12000.00	1159.95	1168.12		1168.84
0.002600	6.78	1770.10	316.55	0.51			
Reach-1	8.936		19000.00	1159.95	1169.30		1170.52
0.003521	8.86	2143.51	321.39	0.60			
Reach-1	8.936		2700.00	1159.95	1164.58		1164.83
0.003030	3.99	676.13	301.45	0.47			
Reach-1	8.883		12000.00	1159.44	1167.44		1168.12

0.002325	6.63	1810.57	307.98	0.48			
Reach-1	8.883		19000.00	1159.44	1167.72		1169.28
0.005001	10.01	1898.94	309.17	0.71			
Reach-1	8.883		2700.00	1159.44	1163.08	1162.70	1163.51
0.007366	5.30	509.05	288.95	0.70			
Reach-1	8.807		12000.00	1157.97	1167.14		1167.50
0.000828	4.85	2475.03	309.23	0.30			
Reach-1	8.807		19000.00	1157.97	1166.75		1167.76
0.002430	8.07	2355.84	307.76	0.51			
Reach-1	8.807		2700.00	1157.97	1160.70		1161.06
0.005087	4.78	565.05	284.37	0.60			
Reach-1	8.731		41000.00	1153.60	1166.96		1167.29
0.000452	4.56	8985.40	785.22	0.24			
Reach-1	8.731		41000.00	1153.60	1166.96		1167.29
0.000452	4.56	8985.40	785.22	0.24			
Reach-1	8.731		13500.00	1153.60	1160.47		1160.65
0.000716	3.41	3963.79	761.63	0.26			
Reach-1	8.655		41000.00	1152.55	1166.37		1167.01
0.000887	6.42	6386.12	553.62	0.33			
Reach-1	8.655		41000.00	1152.55	1166.37		1167.01
0.000887	6.42	6386.12	553.62	0.33			
Reach-1	8.655		13500.00	1152.55	1159.94		1160.27
0.001183	4.61	2931.07	521.29	0.34			
Reach-1	8.548		41000.00	1150.04	1161.16	1161.16	1165.37
0.009135	16.46	2490.92	297.80	1.00			
Reach-1	8.548		41000.00	1150.04	1161.16	1161.16	1165.37
0.009136	16.46	2490.85	297.80	1.00			
Reach-1	8.548		13500.00	1150.04	1156.65	1156.65	1158.71
0.011469	11.52	1172.13	286.89	1.00			
Reach-1	8.538		41000.00	1142.12	1161.29	1151.60	1162.28
0.000823	7.98	5137.21	292.15	0.34			
Reach-1	8.538		41000.00	1142.12	1161.29	1151.60	1162.28
0.000823	7.98	5137.21	292.15	0.34			
Reach-1	8.538		13500.00	1142.12	1154.18	1146.79	1154.47
0.000430	4.33	3114.83	276.33	0.23			
Reach-1	8.516		41000.00	1141.57	1161.24		1162.18
0.000766	7.78	5272.39	296.32	0.32			
Reach-1	8.516		41000.00	1141.57	1161.24		1162.18
0.000766	7.78	5272.39	296.32	0.32			
Reach-1	8.516		13500.00	1141.57	1154.15		1154.42
0.000384	4.18	3233.18	279.36	0.22			
Reach-1	8.457		41000.00	1141.10	1160.20		1161.78
0.001889	10.10	4059.89	313.65	0.49			
Reach-1	8.457		41000.00	1141.10	1160.20		1161.78
0.001889	10.10	4059.89	313.65	0.49			
Reach-1	8.457		13500.00	1141.10	1153.64		1154.21
0.001110	6.08	2220.62	247.06	0.36			
Reach-1	8.39		41000.00	1140.92	1159.35		1161.05
0.002116	10.46	3917.83	312.54	0.52			
Reach-1	8.39		41000.00	1140.92	1159.35		1161.05
0.002116	10.46	3917.83	312.54	0.52			
Reach-1	8.39		13500.00	1140.92	1153.20		1153.79
0.001194	6.18	2184.86	250.70	0.37			
Reach-1	8.33		41000.00	1140.59	1158.66		1160.38
0.002210	10.52	3897.48	318.94	0.53			
Reach-1	8.33		41000.00	1140.59	1158.66		1160.38
0.002210	10.52	3897.48	318.94	0.53			
Reach-1	8.33		13500.00	1140.59	1152.83		1153.41
0.001255	6.16	2192.84	262.93	0.38			
Reach-1	8.22		41000.00	1138.78	1157.50		1159.13
0.002125	10.24	4004.47	331.29	0.52			
Reach-1	8.22		41000.00	1138.78	1157.50		1159.13
0.002125	10.24	4004.47	331.29	0.52			
Reach-1	8.22		13500.00	1138.78	1152.26		1152.75
0.001007	5.63	2399.50	278.96	0.34			

Reach-1	8.12		41000.00	1137.97	1156.28		1157.99
0.002275	10.50	3904.58	326.23	0.53			
Reach-1	8.12		41000.00	1137.97	1156.28		1157.99
0.002275	10.50	3904.58	326.23	0.53			
Reach-1	8.12		13500.00	1137.97	1151.84		1152.27
0.000825	5.28	2556.38	280.06	0.31			
Reach-1	8.052		41000.00	1136.42	1155.57		1157.15
0.002069	10.08	4068.21	337.28	0.51			
Reach-1	8.052		41000.00	1136.42	1155.57		1157.15
0.002069	10.08	4068.21	337.28	0.51			
Reach-1	8.052		13500.00	1136.42	1151.63		1151.98
0.000617	4.77	2829.06	290.77	0.27			
Reach-1	8.006		41000.00	1136.11	1155.05		1156.65
0.002122	10.17	4032.16	336.50	0.52			
Reach-1	8.006		41000.00	1136.11	1155.05		1156.65
0.002122	10.17	4032.16	336.50	0.52			
Reach-1	8.006		13500.00	1136.11	1151.50		1151.83
0.000590	4.65	2902.00	299.96	0.26			
Reach-1	7.92		41000.00	1135.74	1154.03		1155.66
0.002179	10.23	4006.66	337.85	0.52			
Reach-1	7.92		41000.00	1135.74	1154.03		1155.66
0.002179	10.23	4006.66	337.85	0.52			
Reach-1	7.92		13500.00	1135.74	1151.28		1151.57
0.000481	4.33	3119.37	307.91	0.24			
Reach-1	7.8		41000.00	1135.65	1152.49		1154.22
0.002352	10.55	3886.59	332.21	0.54			
Reach-1	7.8		41000.00	1135.65	1152.49		1154.22
0.002352	10.55	3886.59	332.21	0.54			
Reach-1	7.8		13500.00	1135.65	1151.05		1151.30
0.000367	3.95	3420.07	317.25	0.21			
Reach-1	7.751		41000.00	1135.30	1151.60	1146.57	1153.55
0.002248	11.22	3652.64	270.42	0.54			
Reach-1	7.751		41000.00	1135.30	1151.60	1146.57	1153.55
0.002248	11.22	3652.64	270.42	0.54			
Reach-1	7.751		13500.00	1135.30	1150.97	1141.22	1151.21
0.000281	3.87	3485.62	268.01	0.19			
Reach-1	7.7395		Bridge				
Reach-1	7.728		41000.00	1135.40	1150.50	1146.26	1152.52
0.002645	11.41	3593.64	296.66	0.58			
Reach-1	7.728		41000.00	1135.40	1150.50	1146.25	1152.52
0.002645	11.41	3593.64	296.66	0.58			
Reach-1	7.728		13500.00	1135.40	1150.50	1141.03	1150.72
0.000287	3.76	3593.64	296.66	0.19			

ERRORS WARNINGS AND NOTES
Errors Warnings and Notes for Plan : Plan 01

River: RIVER-1 Reach: Reach-1 RS: 16.829 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: RIVER-1 Reach: Reach-1 RS: 16.829 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: RIVER-1 Reach: Reach-1 RS: 16.829 Profile: PF 3
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 16.732 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.
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 16.732 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.
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 16.732 Profile: PF 3
Warning:The conveyance ratio (upstream 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.
River: RIVER-1 Reach: Reach-1 RS: 16.637 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.
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 16.637 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.
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 16.637 Profile: PF 3
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.
River: RIVER-1 Reach: Reach-1 RS: 16.608 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: RIVER-1 Reach: Reach-1 RS: 16.608 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: RIVER-1 Reach: Reach-1 RS: 16.608 Profile: PF 3
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 16.504 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.
River: RIVER-1 Reach: Reach-1 RS: 16.504 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.
River: RIVER-1 Reach: Reach-1 RS: 16.504 Profile: PF 3
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: RIVER-1 Reach: Reach-1 RS: 16.411 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: RIVER-1 Reach: Reach-1 RS: 16.411 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.
River: RIVER-1 Reach: Reach-1 RS: 16.411 Profile: PF 3
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: RIVER-1 Reach: Reach-1 RS: 16.348 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.
River: RIVER-1 Reach: Reach-1 RS: 16.348 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.
River: RIVER-1 Reach: Reach-1 RS: 16.348 Profile: PF 3
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: RIVER-1 Reach: Reach-1 RS: 16.248 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: RIVER-1 Reach: Reach-1 RS: 16.248 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.
River: RIVER-1 Reach: Reach-1 RS: 16.248 Profile: PF 3
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: RIVER-1 Reach: Reach-1 RS: 16.167 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: RIVER-1 Reach: Reach-1 RS: 16.167 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.
River: RIVER-1 Reach: Reach-1 RS: 16.167 Profile: PF 3
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: RIVER-1 Reach: Reach-1 RS: 16.066 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.
River: RIVER-1 Reach: Reach-1 RS: 16.066 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.
River: RIVER-1 Reach: Reach-1 RS: 16.066 Profile: PF 3

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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.
River: RIVER-1  Reach: Reach-1      RS: 15.966      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: RIVER-1  Reach: Reach-1      RS: 15.966      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.
River: RIVER-1  Reach: Reach-1      RS: 15.966      Profile: PF 3
     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: RIVER-1  Reach: Reach-1      RS: 15.885      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: RIVER-1  Reach: Reach-1      RS: 15.885      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.
River: RIVER-1  Reach: Reach-1      RS: 15.885      Profile: PF 3
     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: RIVER-1  Reach: Reach-1      RS: 15.792      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: RIVER-1  Reach: Reach-1      RS: 15.792      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.
River: RIVER-1  Reach: Reach-1      RS: 15.792      Profile: PF 3
     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: RIVER-1  Reach: Reach-1      RS: 15.699      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: RIVER-1  Reach: Reach-1      RS: 15.699      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.
River: RIVER-1  Reach: Reach-1      RS: 15.699      Profile: PF 3
     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: RIVER-1  Reach: Reach-1      RS: 15.623      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.
River: RIVER-1  Reach: Reach-1      RS: 15.623      Profile: PF#2
     Warning:Divided flow computed for this cross-section.
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Warning:The 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.
River: RIVER-1 Reach: Reach-1 RS: 15.623 Profile: PF 3
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: RIVER-1 Reach: Reach-1 RS: 15.596 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.
River: RIVER-1 Reach: Reach-1 RS: 15.596 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.
River: RIVER-1 Reach: Reach-1 RS: 15.596 Profile: PF 3
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 15.475 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.
River: RIVER-1 Reach: Reach-1 RS: 15.475 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.
River: RIVER-1 Reach: Reach-1 RS: 15.475 Profile: PF 3
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: RIVER-1 Reach: Reach-1 RS: 15.416 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.
River: RIVER-1 Reach: Reach-1 RS: 15.416 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.
River: RIVER-1 Reach: Reach-1 RS: 15.416 Profile: PF 3
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: RIVER-1 Reach: Reach-1 RS: 15.333 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: RIVER-1 Reach: Reach-1 RS: 15.333 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.
River: RIVER-1 Reach: Reach-1 RS: 15.333 Profile: PF 3
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: RIVER-1 Reach: Reach-1 RS: 15.248 Profile: PF#1

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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.
River: RIVER-1  Reach: Reach-1     RS: 15.248     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.
River: RIVER-1  Reach: Reach-1     RS: 15.248     Profile: PF 3
     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: RIVER-1  Reach: Reach-1     RS: 15.144     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: RIVER-1  Reach: Reach-1     RS: 15.144     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.
River: RIVER-1  Reach: Reach-1     RS: 15.144     Profile: PF 3
     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: RIVER-1  Reach: Reach-1     RS: 15.049     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.
River: RIVER-1  Reach: Reach-1     RS: 15.049     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.
River: RIVER-1  Reach: Reach-1     RS: 15.049     Profile: PF 3
     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: RIVER-1  Reach: Reach-1     RS: 14.983     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: RIVER-1  Reach: Reach-1     RS: 14.983     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.
River: RIVER-1  Reach: Reach-1     RS: 14.945     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: RIVER-1  Reach: Reach-1     RS: 14.945     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: RIVER-1  Reach: Reach-1     RS: 14.945     Profile: PF 3
     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.
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This may indicate the need for additional cross sections.
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 14.85 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.
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 14.85 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.
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 14.85 Profile: PF 3
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.
River: RIVER-1 Reach: Reach-1 RS: 14.752 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.
River: RIVER-1 Reach: Reach-1 RS: 14.752 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.
River: RIVER-1 Reach: Reach-1 RS: 14.752 Profile: PF 3
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.
River: RIVER-1 Reach: Reach-1 RS: 14.653 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.
River: RIVER-1 Reach: Reach-1 RS: 14.653 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.
River: RIVER-1 Reach: Reach-1 RS: 14.653 Profile: PF 3
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.
River: RIVER-1 Reach: Reach-1 RS: 14.599 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.
River: RIVER-1 Reach: Reach-1 RS: 14.599 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.
River: RIVER-1 Reach: Reach-1 RS: 14.599 Profile: PF 3
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.
River: RIVER-1 Reach: Reach-1 RS: 14.495 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: RIVER-1 Reach: Reach-1 RS: 14.495 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.
River: RIVER-1 Reach: Reach-1 RS: 14.495 Profile: PF 3
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: RIVER-1 Reach: Reach-1 RS: 14.379 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.
River: RIVER-1 Reach: Reach-1 RS: 14.379 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.
River: RIVER-1 Reach: Reach-1 RS: 14.379 Profile: PF 3
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.
River: RIVER-1 Reach: Reach-1 RS: 14.284 Profile: PF#1
Warning:The energy equation could not be balanced within the specified number of iterations. The program selected the water
surface that had the least amount of error between computed and assumed values.
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.
River: RIVER-1 Reach: Reach-1 RS: 14.284 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.
River: RIVER-1 Reach: Reach-1 RS: 14.284 Profile: PF 3
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 conveyance ratio (upstream 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.
River: RIVER-1 Reach: Reach-1 RS: 14.197 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: Manning's n values were composited to a single value in the main channel.
River: RIVER-1 Reach: Reach-1 RS: 14.197 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: Manning's n values were composited to a single value in the main channel.
River: RIVER-1 Reach: Reach-1 RS: 14.197 Profile: PF 3
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: Manning's n values were composited to a single value in the main channel.
River: RIVER-1 Reach: Reach-1 RS: 14.166 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.

River: RIVER-1 Reach: Reach-1 RS: 14.166 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.
River: RIVER-1 Reach: Reach-1 RS: 14.166 Profile: PF 3
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: RIVER-1 Reach: Reach-1 RS: 14.162 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.
River: RIVER-1 Reach: Reach-1 RS: 14.162 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.
River: RIVER-1 Reach: Reach-1 RS: 14.162 Profile: PF 3
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 conveyance ratio (upstream 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.
River: RIVER-1 Reach: Reach-1 RS: 14.159 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: Program found supercritical flow starting at this cross section.
River: RIVER-1 Reach: Reach-1 RS: 14.159 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: Program found supercritical flow starting at this cross section.

River: RIVER-1 Reach: Reach-1 RS: 14.159 Profile: PF 3
Warning:The 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: Program found supercritical flow starting at this cross section.
River: RIVER-1 Reach: Reach-1 RS: 14.150 Profile: PF#1
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: RIVER-1 Reach: Reach-1 RS: 14.150 Profile: PF#2
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: RIVER-1 Reach: Reach-1 RS: 14.150 Profile: PF 3
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: RIVER-1 Reach: Reach-1 RS: 14.103 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.
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 14.103 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: RIVER-1 Reach: Reach-1 RS: 14.103 Profile: PF 3
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 14.013 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.
River: RIVER-1 Reach: Reach-1 RS: 14.013 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.
River: RIVER-1 Reach: Reach-1 RS: 14.013 Profile: PF 3
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 13.918 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: RIVER-1 Reach: Reach-1 RS: 13.918 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: RIVER-1 Reach: Reach-1 RS: 13.918 Profile: PF 3
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 13.818 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: RIVER-1 Reach: Reach-1 RS: 13.818 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: RIVER-1 Reach: Reach-1 RS: 13.818 Profile: PF 3
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 13.742 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: RIVER-1 Reach: Reach-1 RS: 13.742 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.
River: RIVER-1 Reach: Reach-1 RS: 13.742 Profile: PF 3
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 13.68 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: RIVER-1 Reach: Reach-1 RS: 13.68 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: RIVER-1 Reach: Reach-1 RS: 13.68 Profile: PF 3
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 13.619 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: RIVER-1 Reach: Reach-1 RS: 13.619 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.
River: RIVER-1 Reach: Reach-1 RS: 13.619 Profile: PF 3
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 13.524 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: RIVER-1 Reach: Reach-1 RS: 13.524 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: RIVER-1 Reach: Reach-1 RS: 13.524 Profile: PF 3
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 13.42 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: RIVER-1 Reach: Reach-1 RS: 13.42 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.
River: RIVER-1 Reach: Reach-1 RS: 13.42 Profile: PF 3
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 13.325 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: RIVER-1 Reach: Reach-1 RS: 13.325 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: RIVER-1 Reach: Reach-1 RS: 13.325 Profile: PF 3
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 13.227 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: RIVER-1 Reach: Reach-1 RS: 13.227 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: RIVER-1 Reach: Reach-1 RS: 13.227 Profile: PF 3
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 13.183 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.
River: RIVER-1 Reach: Reach-1 RS: 13.183 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.
River: RIVER-1 Reach: Reach-1 RS: 13.183 Profile: PF 3
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: RIVER-1 Reach: Reach-1 RS: 13.179 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.
River: RIVER-1 Reach: Reach-1 RS: 13.179 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.
River: RIVER-1 Reach: Reach-1 RS: 13.179 Profile: PF 3
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.
River: RIVER-1 Reach: Reach-1 RS: 13.175 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: Program found supercritical flow starting at this cross section.
River: RIVER-1 Reach: Reach-1 RS: 13.175 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: Program found supercritical flow starting at this cross section.
River: RIVER-1 Reach: Reach-1 RS: 13.175 Profile: PF 3
Warning:The 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: Program found supercritical flow starting at this cross section.
River: RIVER-1 Reach: Reach-1 RS: 13.166 Profile: PF#1
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: RIVER-1 Reach: Reach-1 RS: 13.166 Profile: PF#2
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: RIVER-1 Reach: Reach-1 RS: 13.166 Profile: PF 3
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: RIVER-1 Reach: Reach-1 RS: 12.991 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: RIVER-1 Reach: Reach-1 RS: 12.991 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: RIVER-1 Reach: Reach-1 RS: 12.991 Profile: PF 3
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 12.896 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: RIVER-1 Reach: Reach-1 RS: 12.896 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: RIVER-1 Reach: Reach-1 RS: 12.896 Profile: PF 3
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 12.801 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: RIVER-1 Reach: Reach-1 RS: 12.801 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: RIVER-1 Reach: Reach-1 RS: 12.801 Profile: PF 3
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 12.701 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: RIVER-1 Reach: Reach-1 RS: 12.701 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: RIVER-1 Reach: Reach-1 RS: 12.701 Profile: PF 3
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 12.606 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.
River: RIVER-1 Reach: Reach-1 RS: 12.606 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.
River: RIVER-1 Reach: Reach-1 RS: 12.606 Profile: PF 3
Warning:The conveyance ratio (upstream 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.
River: RIVER-1 Reach: Reach-1 RS: 12.511 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: RIVER-1 Reach: Reach-1 RS: 12.511 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: RIVER-1 Reach: Reach-1 RS: 12.511 Profile: PF 3
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 12.42 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: RIVER-1 Reach: Reach-1 RS: 12.42 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.
River: RIVER-1 Reach: Reach-1 RS: 12.42 Profile: PF 3
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 12.313 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: RIVER-1 Reach: Reach-1 RS: 12.313 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: RIVER-1 Reach: Reach-1 RS: 12.313 Profile: PF 3
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 12.194 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.
River: RIVER-1 Reach: Reach-1 RS: 12.194 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.
River: RIVER-1 Reach: Reach-1 RS: 12.194 Profile: PF 3
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 12.125 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: RIVER-1 Reach: Reach-1 RS: 12.125 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: RIVER-1 Reach: Reach-1 RS: 12.125 Profile: PF 3
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 12.034 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: RIVER-1 Reach: Reach-1 RS: 12.034 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: RIVER-1 Reach: Reach-1 RS: 12.034 Profile: PF 3
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 11.949 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: RIVER-1 Reach: Reach-1 RS: 11.949 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: RIVER-1 Reach: Reach-1 RS: 11.949 Profile: PF 3
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 11.864 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: RIVER-1 Reach: Reach-1 RS: 11.864 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: RIVER-1 Reach: Reach-1 RS: 11.864 Profile: PF 3
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 11.759 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: RIVER-1 Reach: Reach-1 RS: 11.759 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: RIVER-1 Reach: Reach-1 RS: 11.759 Profile: PF 3
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 11.664 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: RIVER-1 Reach: Reach-1 RS: 11.664 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: RIVER-1 Reach: Reach-1 RS: 11.664 Profile: PF 3
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 11.566 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: RIVER-1 Reach: Reach-1 RS: 11.566 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: RIVER-1 Reach: Reach-1 RS: 11.566 Profile: PF 3
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 11.481 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.
River: RIVER-1 Reach: Reach-1 RS: 11.481 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.
River: RIVER-1 Reach: Reach-1 RS: 11.481 Profile: PF 3
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 11.386 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: RIVER-1 Reach: Reach-1 RS: 11.386 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: RIVER-1 Reach: Reach-1 RS: 11.386 Profile: PF 3
Warning:The conveyance ratio (upstream 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.
River: RIVER-1 Reach: Reach-1 RS: 11.243 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.
River: RIVER-1 Reach: Reach-1 RS: 11.129 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.
River: RIVER-1 Reach: Reach-1 RS: 11.129 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.
River: RIVER-1 Reach: Reach-1 RS: 11.129 Profile: PF 3
Warning:The conveyance ratio (upstream 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.
River: RIVER-1 Reach: Reach-1 RS: 11.03 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.
River: RIVER-1 Reach: Reach-1 RS: 11.03 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.
River: RIVER-1 Reach: Reach-1 RS: 11.03 Profile: PF 3
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: RIVER-1 Reach: Reach-1 RS: 10.98 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.
River: RIVER-1 Reach: Reach-1 RS: 10.98 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.
River: RIVER-1 Reach: Reach-1 RS: 10.98 Profile: PF 3
Warning:The conveyance ratio (upstream 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.
River: RIVER-1 Reach: Reach-1 RS: 10.917 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.
River: RIVER-1 Reach: Reach-1 RS: 10.917 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.
River: RIVER-1 Reach: Reach-1 RS: 10.917 Profile: PF 3
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: RIVER-1 Reach: Reach-1 RS: 10.862 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: RIVER-1 Reach: Reach-1 RS: 10.862 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: RIVER-1 Reach: Reach-1 RS: 10.862 Profile: PF 3
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 10.810 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.
River: RIVER-1 Reach: Reach-1 RS: 10.810 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.
River: RIVER-1 Reach: Reach-1 RS: 10.810 Profile: PF 3
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: RIVER-1 Reach: Reach-1 RS: 10.806 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.
River: RIVER-1 Reach: Reach-1 RS: 10.806 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.
River: RIVER-1 Reach: Reach-1 RS: 10.806 Profile: PF 3
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.
River: RIVER-1 Reach: Reach-1 RS: 10.803 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.
River: RIVER-1 Reach: Reach-1 RS: 10.803 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.
River: RIVER-1 Reach: Reach-1 RS: 10.803 Profile: PF 3
Warning:The 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.
River: RIVER-1 Reach: Reach-1 RS: 10.794 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: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: RIVER-1 Reach: Reach-1 RS: 10.794 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: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: RIVER-1 Reach: Reach-1 RS: 10.794 Profile: PF 3
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: RIVER-1 Reach: Reach-1 RS: 10.699 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: RIVER-1 Reach: Reach-1 RS: 10.699 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: RIVER-1 Reach: Reach-1 RS: 10.699 Profile: PF 3
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 10.612 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: RIVER-1 Reach: Reach-1 RS: 10.612 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.
River: RIVER-1 Reach: Reach-1 RS: 10.612 Profile: PF 3
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 10.517 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: RIVER-1 Reach: Reach-1 RS: 10.517 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: RIVER-1 Reach: Reach-1 RS: 10.517 Profile: PF 3
Warning:The conveyance ratio (upstream 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.
River: RIVER-1 Reach: Reach-1 RS: 10.443 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: RIVER-1 Reach: Reach-1 RS: 10.443 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: RIVER-1 Reach: Reach-1 RS: 10.443 Profile: PF 3
Warning:The conveyance ratio (upstream 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.
River: RIVER-1 Reach: Reach-1 RS: 10.348 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.
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 10.348 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.
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 10.348 Profile: PF 3
Warning:The conveyance ratio (upstream 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.
River: RIVER-1 Reach: Reach-1 RS: 10.271 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.
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 10.271 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.
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 10.271 Profile: PF 3
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.
River: RIVER-1 Reach: Reach-1 RS: 10.176 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: RIVER-1 Reach: Reach-1 RS: 10.176 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: RIVER-1 Reach: Reach-1 RS: 10.176 Profile: PF 3
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: RIVER-1 Reach: Reach-1 RS: 10.096 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: RIVER-1 Reach: Reach-1 RS: 10.096 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.
River: RIVER-1 Reach: Reach-1 RS: 10.096 Profile: PF 3
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 9.997 Profile: PF 3
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: RIVER-1 Reach: Reach-1 RS: 9.958 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.
River: RIVER-1 Reach: Reach-1 RS: 9.953 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: RIVER-1 Reach: Reach-1 RS: 9.953 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: RIVER-1 Reach: Reach-1 RS: 9.953 Profile: PF 3
Warning:The conveyance ratio (upstream 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.
River: RIVER-1 Reach: Reach-1 RS: 9.908 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 energy loss was 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: RIVER-1 Reach: Reach-1 RS: 9.908 Profile: PF#2
Warning:The energy equation could not be balanced within the specified number of iterations. The program selected the water
surface that had the least amount of error between computed and assumed values.
Warning:The energy loss was 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.
River: RIVER-1 Reach: Reach-1 RS: 9.908 Profile: PF 3
Warning:The energy equation could not be balanced within the specified number of iterations. The program selected the water
surface that had the least amount of error between computed and assumed values.
Warning:The energy loss was 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.
River: RIVER-1 Reach: Reach-1 RS: 9.889 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.
River: RIVER-1 Reach: Reach-1 RS: 9.889 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.
River: RIVER-1 Reach: Reach-1 RS: 9.889 Profile: PF 3
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: RIVER-1 Reach: Reach-1 RS: 9.794 Profile: PF#1
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: RIVER-1 Reach: Reach-1 RS: 9.794 Profile: PF#2
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: RIVER-1 Reach: Reach-1 RS: 9.794 Profile: PF 3
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: RIVER-1 Reach: Reach-1 RS: 9.692 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.
River: RIVER-1 Reach: Reach-1 RS: 9.692 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.
River: RIVER-1 Reach: Reach-1 RS: 9.692 Profile: PF 3
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.
River: RIVER-1 Reach: Reach-1 RS: 9.592 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.
River: RIVER-1 Reach: Reach-1 RS: 9.592 Profile: PF#2
Warning:The energy equation could not be balanced within the specified number of iterations. The program selected the water
surface that had the least amount of error between computed and assumed values.
Warning:The 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.
River: RIVER-1 Reach: Reach-1 RS: 9.592 Profile: PF 3
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 9.492 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: RIVER-1 Reach: Reach-1 RS: 9.492 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: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: RIVER-1 Reach: Reach-1 RS: 9.492 Profile: PF 3
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 9.367 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: RIVER-1 Reach: Reach-1 RS: 9.367 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: RIVER-1 Reach: Reach-1 RS: 9.367 Profile: PF 3
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 9.318 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.
River: RIVER-1 Reach: Reach-1 RS: 9.318 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.
River: RIVER-1 Reach: Reach-1 RS: 9.318 Profile: PF 3
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: RIVER-1 Reach: Reach-1 RS: 9.289 Profile: PF#1
Warning:The energy equation could not be balanced within the specified number of iterations. The program selected the water
surface that had the least amount of error between computed and assumed values.
Warning:The 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.
River: RIVER-1 Reach: Reach-1 RS: 9.289 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.
River: RIVER-1 Reach: Reach-1 RS: 9.289 Profile: PF 3
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 9.193 Profile: PF#1
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: RIVER-1 Reach: Reach-1 RS: 9.193 Profile: PF 3
Warning:The conveyance ratio (upstream 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.
River: RIVER-1 Reach: Reach-1 RS: 8.936 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: RIVER-1 Reach: Reach-1 RS: 8.936 Profile: PF 3
Warning:The conveyance ratio (upstream 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.
River: RIVER-1 Reach: Reach-1 RS: 8.883 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.
River: RIVER-1 Reach: Reach-1 RS: 8.883 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.
River: RIVER-1 Reach: Reach-1 RS: 8.883 Profile: PF 3
Warning:The energy loss was 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: RIVER-1 Reach: Reach-1 RS: 8.807 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.
River: RIVER-1 Reach: Reach-1 RS: 8.807 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.
River: RIVER-1 Reach: Reach-1 RS: 8.807 Profile: PF 3
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: RIVER-1 Reach: Reach-1 RS: 8.731 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.
River: RIVER-1 Reach: Reach-1 RS: 8.731 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.
River: RIVER-1 Reach: Reach-1 RS: 8.655 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.
River: RIVER-1 Reach: Reach-1 RS: 8.655 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.
River: RIVER-1 Reach: Reach-1 RS: 8.655 Profile: PF 3
Warning:The 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.
River: RIVER-1 Reach: Reach-1 RS: 8.548 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.
River: RIVER-1 Reach: Reach-1 RS: 8.548 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.
River: RIVER-1 Reach: Reach-1 RS: 8.548 Profile: PF 3
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.
River: RIVER-1 Reach: Reach-1 RS: 8.538 Profile: PF#1
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: RIVER-1 Reach: Reach-1 RS: 8.538 Profile: PF#2
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: RIVER-1 Reach: Reach-1 RS: 8.538 Profile: PF 3
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: RIVER-1 Reach: Reach-1 RS: 8.516 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.
River: RIVER-1 Reach: Reach-1 RS: 8.516 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.
River: RIVER-1 Reach: Reach-1 RS: 8.516 Profile: PF 3
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: RIVER-1 Reach: Reach-1 RS: 8.33 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: RIVER-1 Reach: Reach-1 RS: 8.33 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: RIVER-1 Reach: Reach-1 RS: 8.22 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: RIVER-1 Reach: Reach-1 RS: 8.22 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: RIVER-1 Reach: Reach-1 RS: 7.92 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: RIVER-1 Reach: Reach-1 RS: 7.92 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.

APPENDIX B

MANNING'S N-VALUE CALCULATION SHEETS

Appendix B
Table B-1
Determination of Manning's Roughness Coefficients by FCDMC Method

Project: Middle New Dam Spillway Flows Delineation
Steam: New River
Reach Description: X-SEC 8.655 THROUGH X-SEC 11.644

By: PJE Date: 9/28/98
Checked By: Date:

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032	0.028		0.028
	Coarse Sand		0.026 - 0.035			
	Fine Gravel		0.024			
	Gravel		0.028 - 0.035		0.035	
	Coarse Gravel		0.028			
	Cobble		0.030 - 0.050			
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000	0.000	0.000	0.000
	Minor		0.001 - 0.005			
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004	0.000	0.000	0.000
	Minor		0.005 - 0.015			
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010			
	Medium		0.010 - 0.025			
	Large		0.025 - 0.050	0.032		0.032
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000	0.000	0.000	0.000
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00	1.000	1.000	1.000
	Appreciable		1.15			
	Severe		1.30			
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.060	0.035	0.060
Photograph No.:				35	31,32,33,34,36,37, 38,40	39,41

Appendix B
Table B-2
Determination of Manning's n Value by FCDMC Method

Project: Middle New Dam Spillway Delineation
Steam: New River
Reach Description: X-SEC 11.644 THROUGH X-SEC 11.949
By: PJE Date: 9/28/98
Checked By: Date:

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032	0.028		0.028
	Coarse Sand		0.026 - 0.035			
	Fine Gravel		0.024			
	Gravel		0.028 - 0.035			
	Coarse Gravel		0.028			
	Cobble		0.030 - 0.050		0.035	
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000	0.000	0.000	0.000
	Minor		0.001 - 0.005			
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004		0.000	0.000
	Minor		0.005 - 0.015			
	Appreciable		0.020 - 0.030	0.025		
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010			
	Medium		0.010 - 0.025			
	Large		0.025 - 0.050	0.032		0.032
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000	0.000	0.000	0.000
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00	1.000	1.000	1.000
	Appreciable		1.15			
	Severe		1.30			
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.085	0.035	0.060
Photograph No.:					30	

Appendix B
Table B-3
Determination of Manning's n Value by FCDMC Method

Project: Middle New Dam Spillway Delineation
Steam: New River
Reach Description: X-SEC 11.949 THROUGH X-SEC 13.918
By: PJE Date: 9/28/98
Checked By: Date:

Channel Conditions		Manning's n Adjustment		Left Overbank	Main Channel	Right Overbank
Channel Bed Material	Concrete	n_0	0.012 - 0.018			
	Rock Cut		0.025			
	Firm Soil		0.025 - 0.032	0.028		0.028
	Coarse Sand		0.026 - 0.035			
	Fine Gravel		0.024			
	Gravel		0.028 - 0.035		0.035	
	Coarse Gravel		0.028			
	Cobble		0.030 - 0.050			
	Boulder		0.040 - 0.070			
Degree of Irregularity	Smooth	n_1	0.000	0.000	0.000	0.000
	Minor		0.001 - 0.005			
	Moderate		0.006 - 0.010			
	Severe		0.011 - 0.020			
Effects of Obstructions	Negligable	n_2	0.000 - 0.004	0.000	0.000	0.000
	Minor		0.005 - 0.015			
	Appreciable		0.020 - 0.030			
	Severe		0.040 - 0.060			
Vegetation	Small	n_3	0.002 - 0.010			
	Medium		0.010 - 0.025			
	Large		0.025 - 0.050	0.032		0.032
	Very Large		0.050 - 0.100			
Variations in Channel Cross Section	Gradual	n_4	0.000	0.000	0.000	0.000
	Alternating (occasionally)		0.001 - 0.005			
	Alternating (frequently)		0.010 - 0.015			
Degree of Meandering	Minor	m	1.00	1.000	1.000	1.000
	Appreciable		1.15			
	Severe		1.30			
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.060	0.035	0.060
Photograph No.:				28	27,30	29

Appendix B
Table B-4
Determination of Manning's n Value by FCDMC Method

Project: New River Dam Spillway Delineation
Steam: New River
Reach Description: X-SEC 13.918 TO DAM
By: PJE Date:
Checked By: Date:

Channel Conditions		Manning's n Adjustment		ZONE 1	ZONE 2	ZONE 3	ZONE 4	ZONE 5	ZONE 6
Channel Bed Material	Concrete	n_0	0.012 - 0.018						
	Rock Cut		0.025						
	Firm Soil		0.025 - 0.032	0.030	0.028	0.028			
	Coarse Sand		0.026 - 0.035					0.035	
	Fine Gravel		0.024						
	Gravel		0.028 - 0.035						0.035
	Coarse Gravel		0.028						
	Cobble		0.030 - 0.050				0.035		
	Boulder		0.040 - 0.070						
Degree of Irregularity	Smooth	n_1	0.000						
	Minor		0.001 - 0.005						
	Moderate		0.006 - 0.010					0.008	
	Severe		0.011 - 0.020						
Effects of Obstructions	Negligable	n_2	0.000 - 0.004						
	Minor		0.005 - 0.015						
	Appreciable		0.020 - 0.030						
	Severe		0.040 - 0.060						
Vegetation	Small	n_3	0.002 - 0.010	0.005					
	Medium		0.010 - 0.025						
	Large		0.025 - 0.050		0.025	0.030			0.025
	Very Large		0.050 - 0.100						
Variations in Channel Cross Section	Gradual	n_4	0.000						
	Alternating (occasionally)		0.001 - 0.005				0.003		
	Alternating (frequently)		0.010 - 0.015						
Degree of Meandering	Minor	m	1.00	1.000	1.000	1.000	1.000		1.000
	Appreciable		1.15						
	Severe		1.30					1.300	
$n = (n_0 + n_1 + n_2 + n_3 + n_4)m$				0.035	0.053	0.058	0.038	0.056	0.060
Photograph No.:				14	7,15,17, 19,25	8,10,11, 20,22	9,12,21, 23,26		16,18, 24

Appendix B
Table B-5

New River Dam Spillway Delineation Study
Estimation of the Effects of Flow on Vegetation

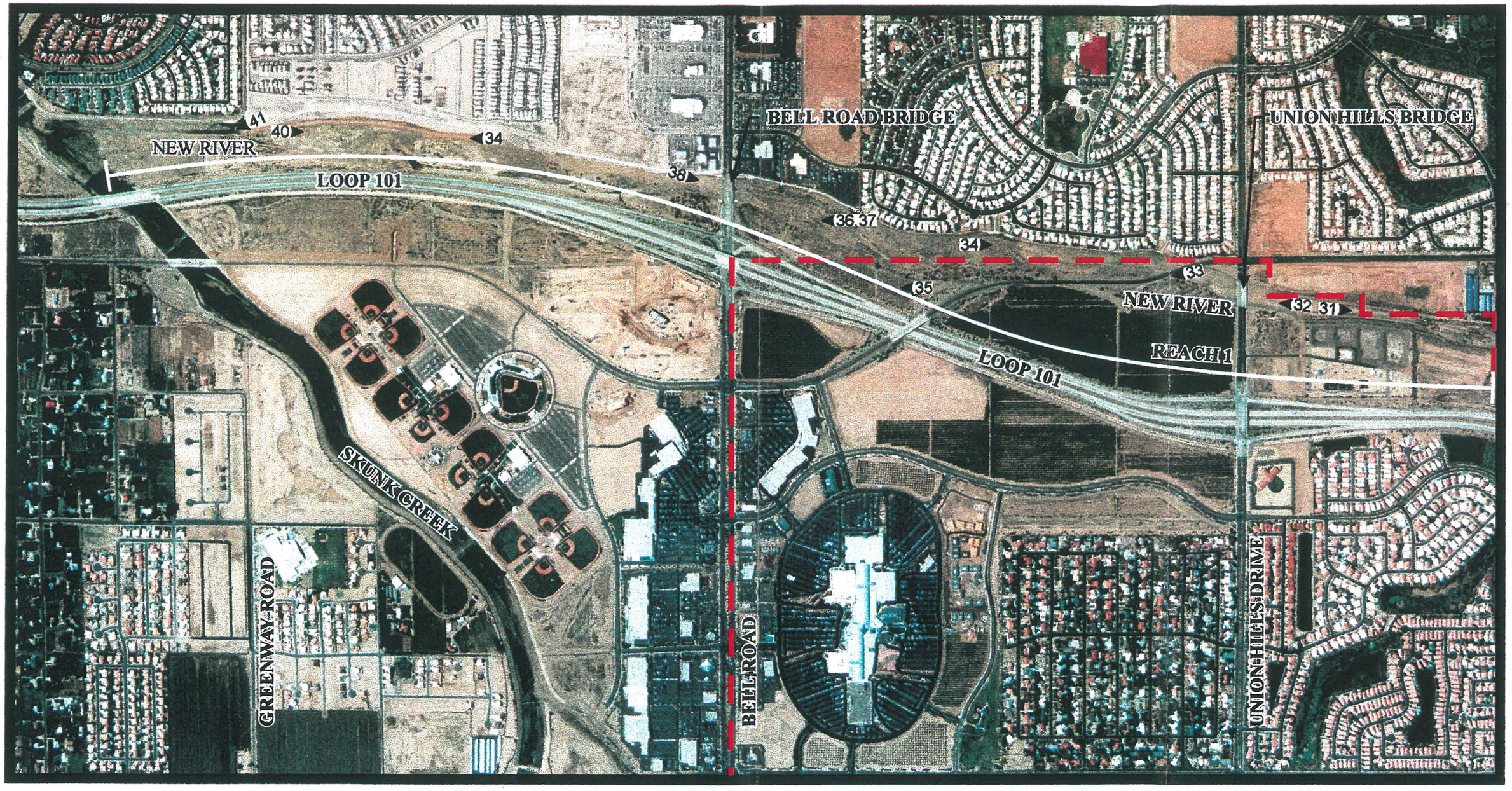
Assumptions:

1) Use average hydraulic properities for each reach.
2) Hydraulic properioties are based on FEMA 100-year discharges.
3) Use proceedures cited in "Method to Estimate Effects of Flow-Induced Vegetation Changes on Channel Conveyances of Streams in Central Arizona.

Reach	Reach Length	Average Vel Chnl	Average R	Average W.S. Slope	Average Invert Slope	d_{50}	SP	t_o	SP2	t_c	SP-SP2	t_o/t_c
	(ft)	(fps)	(ft)	(ft/ft)	(ft/ft)	(ft)	(ft-lb/s/ft2)	(lb/ft2)	(ft-lb/s/ft2)	(lb/ft2)	(ft-lb/s/ft2)	(lb/ft2)
1	2	3	4	5	6	7	8	9	10	11	12	13
1	16,993	7.7	5.52	0.0043465	0.0046507	0.26	11.60	1.60	4.94	0.003302	6.66	485.12
2	1,569	7.3	3.64	0.0041243	0.0043856	0.26	6.84	1.00	5.69	0.003302	1.15	301.80
3	9,906	6.4	3.85	0.0051617	0.0048821	0.26	7.97	1.17	5.84	0.003302	2.13	354.89
4	16,517	5.6	2.54	0.0046675	0.0047922	0.26	4.12	0.76	7.27	0.003302	-3.15	230.33

Column 1 Reach identification.
Column 2 Reach length.
Column 3 Average channel velocity for reach.
Column 4 Average hydraulic radius for reach.
Column 5 Average water surface evelavation for reach.
Column 6 Average invert slope for reach.
Column 7 Estimated d_{50} bed material grain size for reach.
Column 8 Stream Power = SP= 62.4 RS_wV R=Column 4, S_w = Column 5 and V = Column 3
Column 9 Shear Stress = t_o =62.4RS_o R=Column 4, S_o = Column 6
Column 10 Vegetation- susceptibility threshold = SP2= 2.054$K_v^{0.231}$ Kv = Vegetation- susceptibility Index
Column 11 Critical Shear Stress = t_c = 0.0127 d_{50}
Column 12 If positive value vegetation will bend over at peak flows.
Column 13 Ratio of shear stress to critical shear stress

MAP OF MANNING'S N-VALUES AND PHOTO LOCATION MAP



Legend

CITY OF PEORIA/GLENDALE BOUNDARY

◀01 PHOTOGRAPH VIEW DIRECTION AND LOCATION

Stantec

P:\28900058\GRAPHICS\SCHB_1.CDR

Client/Project

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

MIDDLE NEW RIVER WATERCOURSE MASTER PLAN AND MANNINGS "n" VALUE PHOTO LOCATIONS

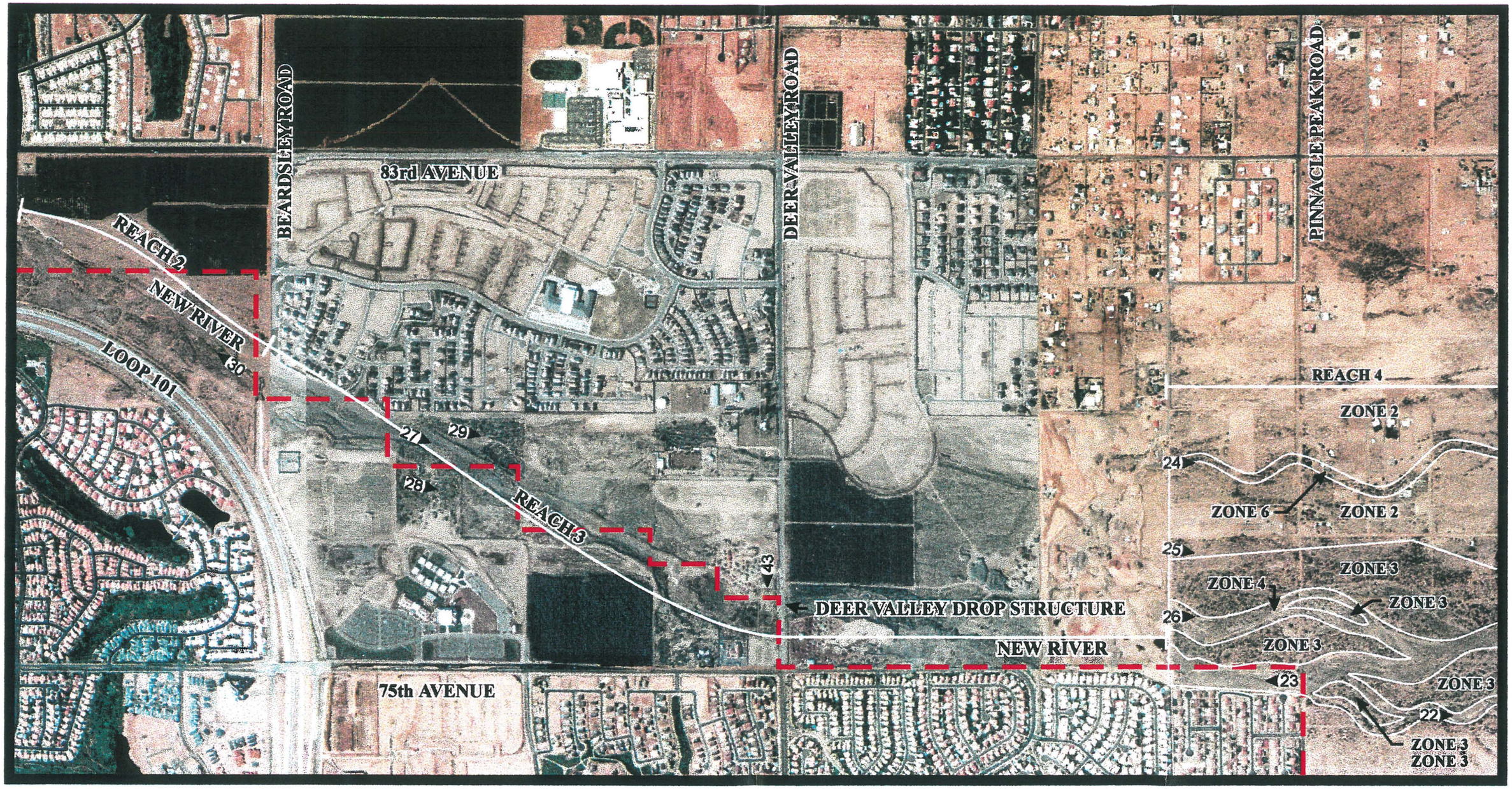
Figure No.

B1

Title

Aerial Photo 1

Date: February 24, 1999
Project Number: 28900058



Legend

CITY OF PEORIA/GLENDALE BOUNDARY

◀01 PHOTOGRAPH VIEW DIRECTION AND LOCATION

Stantec

P:\28900058\GRAPHICS\MNRWMB_2.CDR

Client/Project

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

MIDDLE NEW RIVER WATERCOURSE MASTER PLAN AND MANNINGS "n" VALUE PHOTO LOCATIONS

Figure No.

B2

Title

Aerial Photo 2

Date: February 24, 1999
Project Number: 28900058

PINNACLE PEAK ROAD
83rd AVENUE
HAPPY VALLEY ROAD
ZONE 2
EMERGENCY SPILLWAY
"n" = 0.035
5
4
6
1
7
2
3
ZONE 6
NEW RIVER DAM
ZONE 2
ROCK SPRINGS CREEK
ZONE 2
8
ZONE 3
17
16
ZONE 6
18
ZONE 2
15
ZONE 4
9
ZONE 2
19
ZONE 3
10
HAPPY VALLEY ROAD
SANITARY SEWER CROSSING
14
ZONE 1
PRINCIPAL OUTLET
ZONE 3
20
ZONE 3
11
ZONE 3
12
ZONE 3
ZONE 4
21
ZONE 3
13
ZONE 3
NEW RIVER
ZONE 5
ZONE 5
REACH 4
JOMAX ROAD

Legend

CITY OF PEORIA/GLENDALE BOUNDARY

◀01 PHOTOGRAPH VIEW DIRECTION AND LOCATION

Stantec

P:\28900058\GRAPHICS\MNRWMB_3.CDR

Client/Project
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
MIDDLE NEW RIVER WATERCOURSE MASTER PLAN AND MANNINGS "n" VALUE PHOTO LOCATIONS

Figure No.
B3

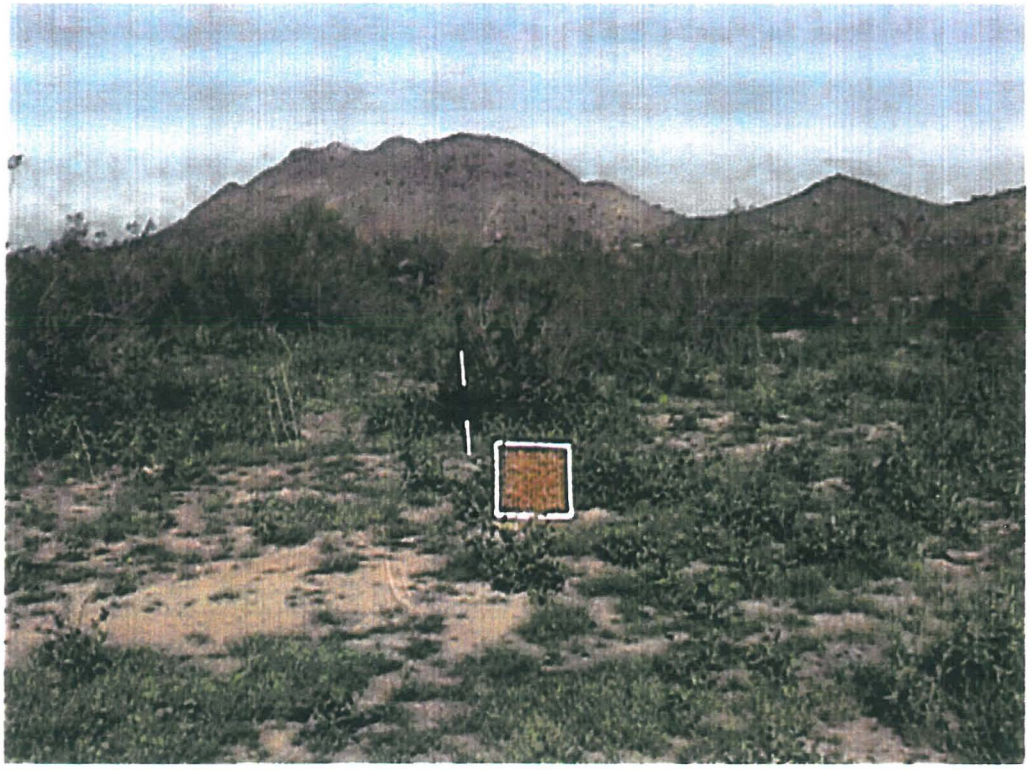
Title
Aerial Photo 3

Date: February 25, 1999
Project Number: 28900058

PHOTOGRAPHS

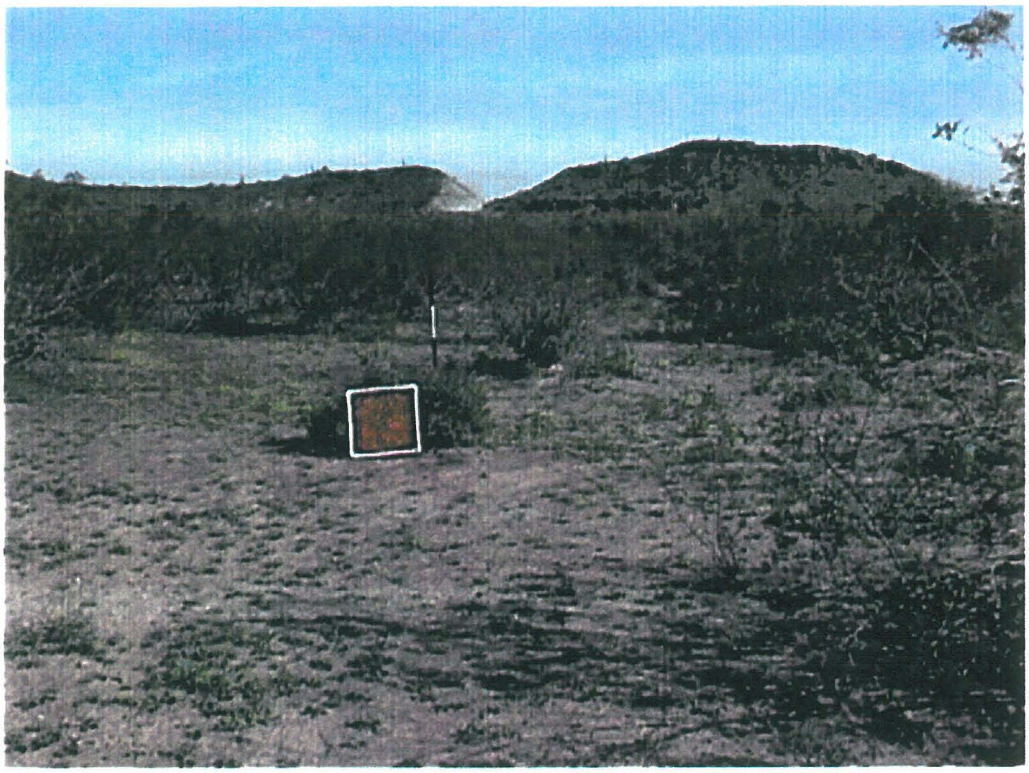
Photograph 1
East flow path downstream of emergency spillway

Photograph 2
East flow path downstream of emergency spillway

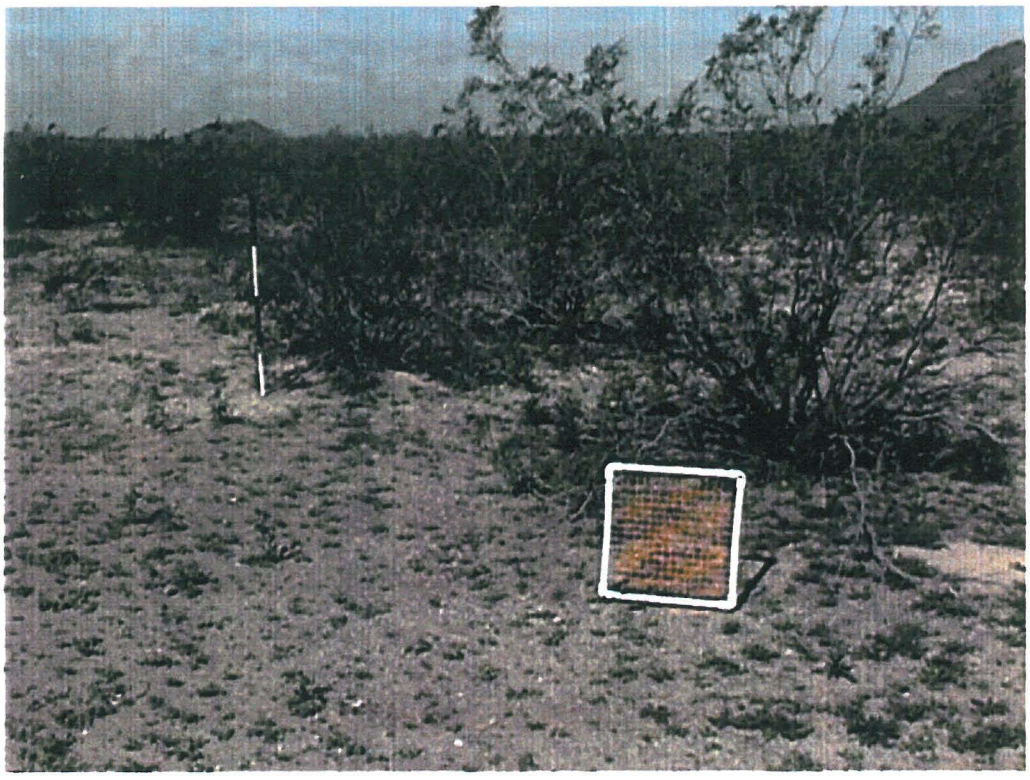


Photograph 3
East flow path downstream of emergency spillway at confluence with New River west overbank area.

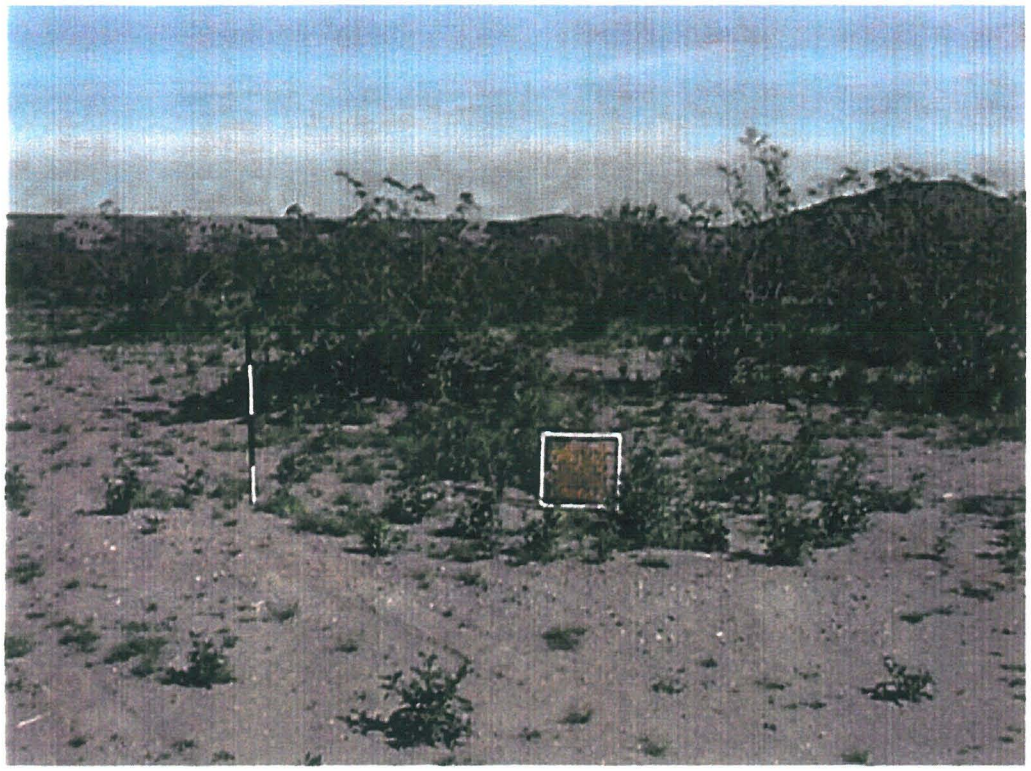
Photograph 4
South flow path downstream of emergency spillway



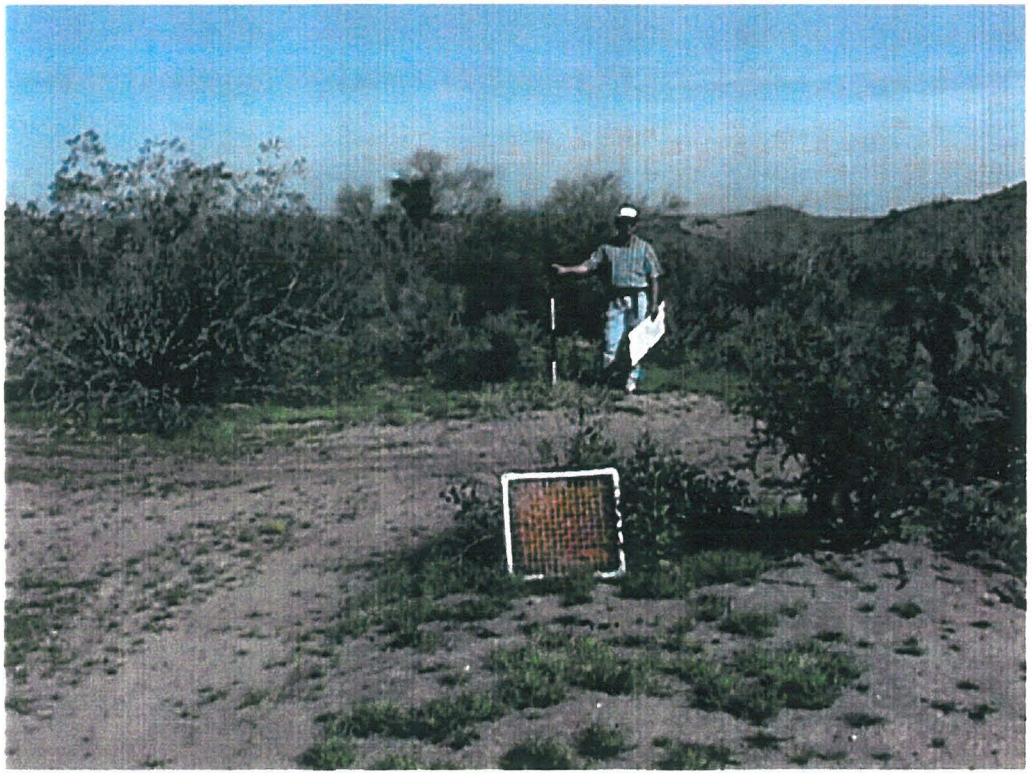
Photograph 5
South flow path downstream of emergency spillway at confluence with Rock Springs Creek



Photograph 6
Vegetation cover, Rock Springs Creek



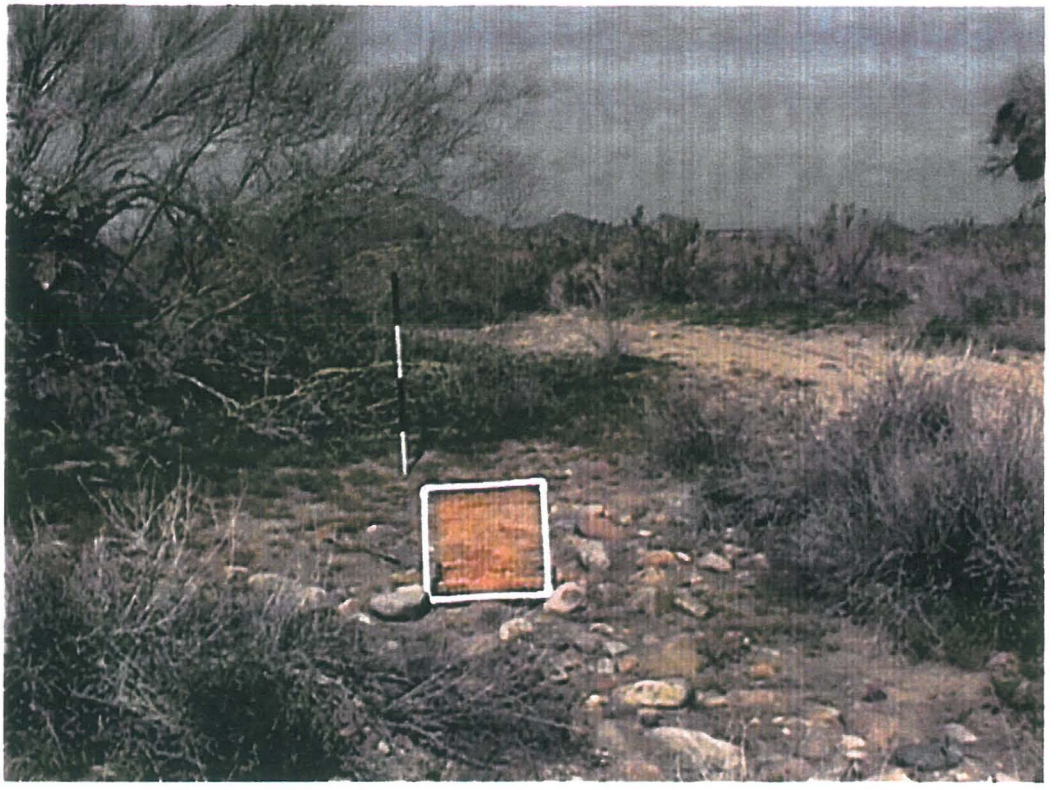
Photograph 7
Vegetation Cover within a Mannings "n" value Zone 2 classification



Photograph 8
Vegetation cover within a Mannings "n" value Zone 3 classification

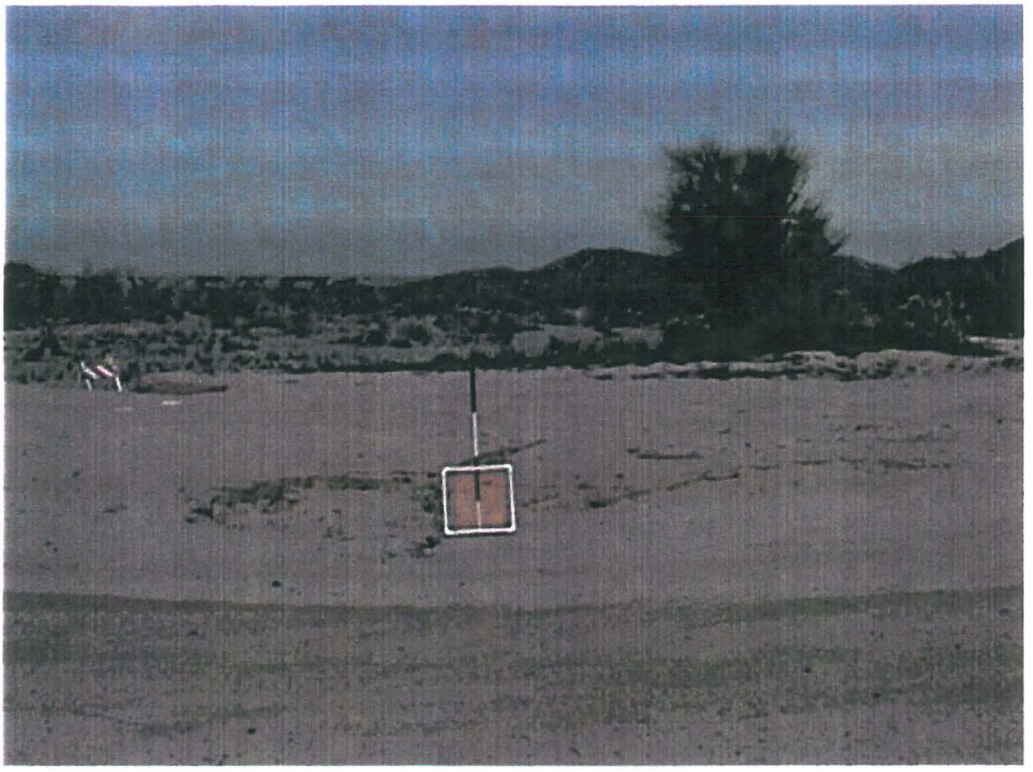
Photograph 9
Vegetation cover within a Mannings "n" value Zone 4 (New River Channel) classification

Photograph 10
Vegetation cover within a Mannings "n" value Zone 3 classification

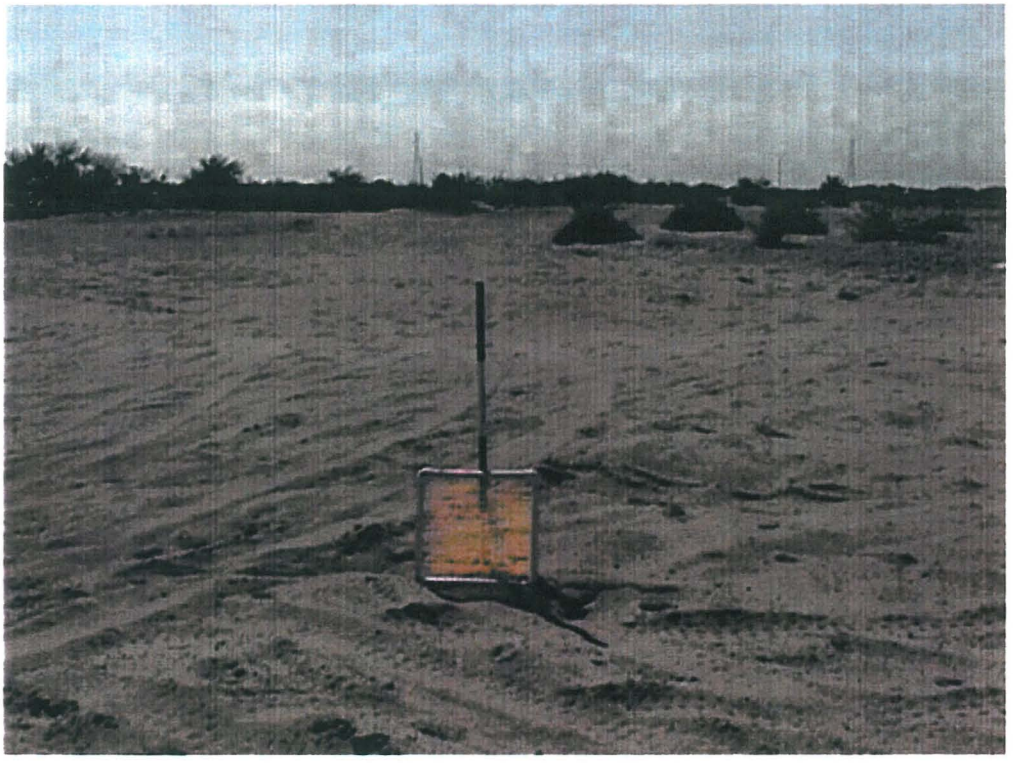


Photograph 11
Vegetation cover within a Mannings "n" value Zone 3 classification

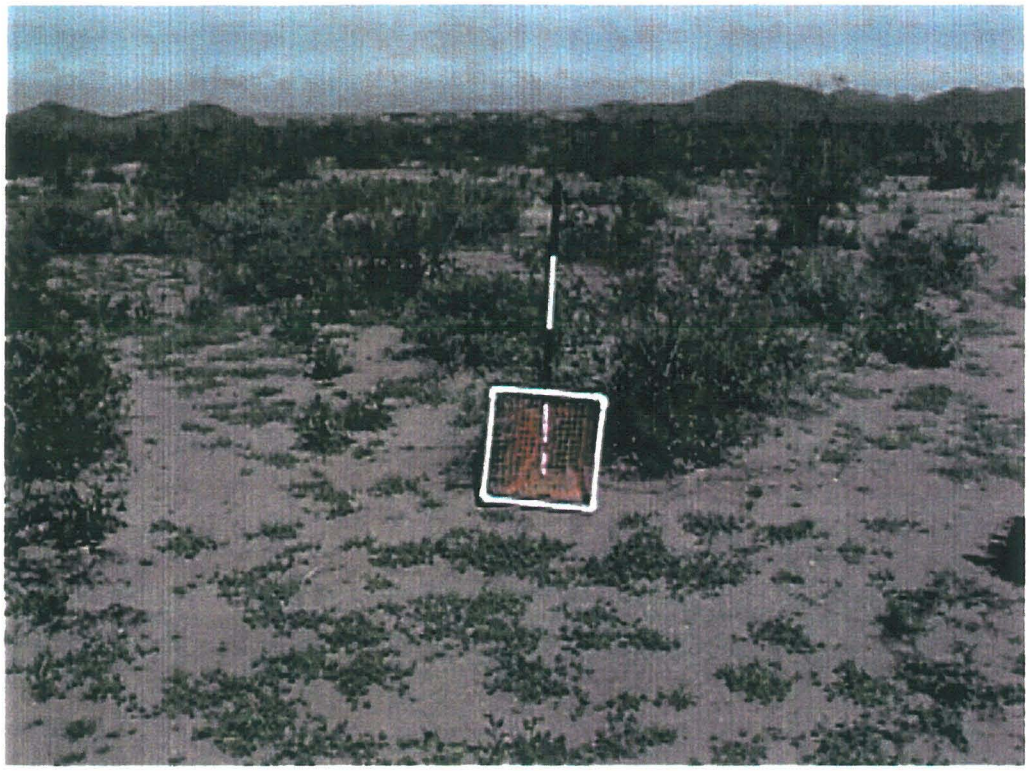
Photograph 12
Vegetation cover within a Mannings "n" value Zone 4 classification



Photograph 13
Looking upstream on left bank of New River



Photograph 14
Vegetation cover within a Mannings "n" value Zone 1 classification

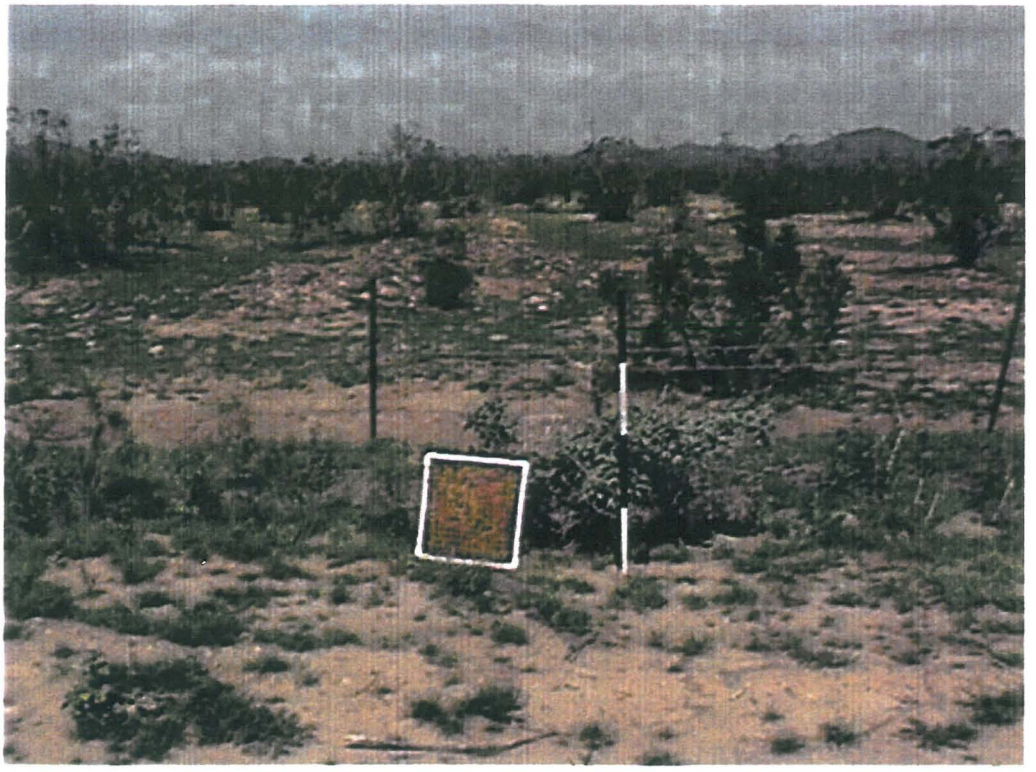


Photograph 15
Vegetation cover within a Mannings "n" value Zone 2 classification

Photograph 16
Vegetative cover within Rock Springs Creek (Mannings "n" value Zone 6)

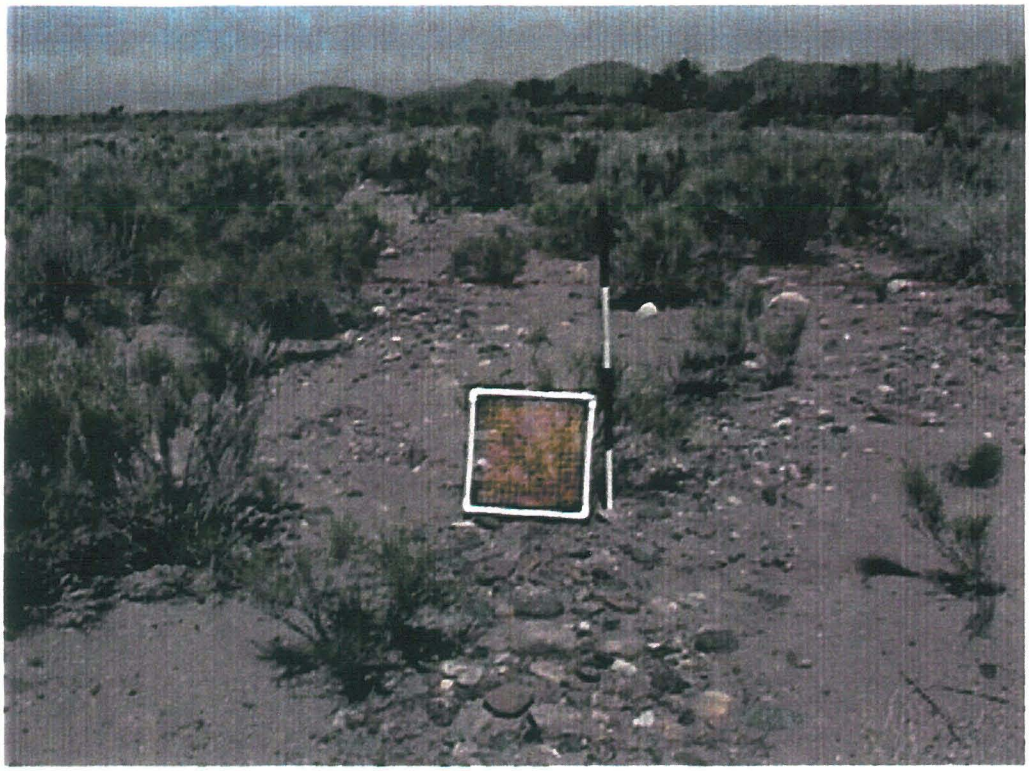
Photograph 17
Vegetative cover within a Mannings "n" value Zone 2 classification

Photograph 18
Vegetative cover within a Mannings "n" value Zone 6 (Rock Springs Creek Channel)



Photograph 19
Vegetative cover within a Mannings "n" value Zone 2 classification

Photograph 20
Vegetative cover within a Mannings "n" value Zone 3

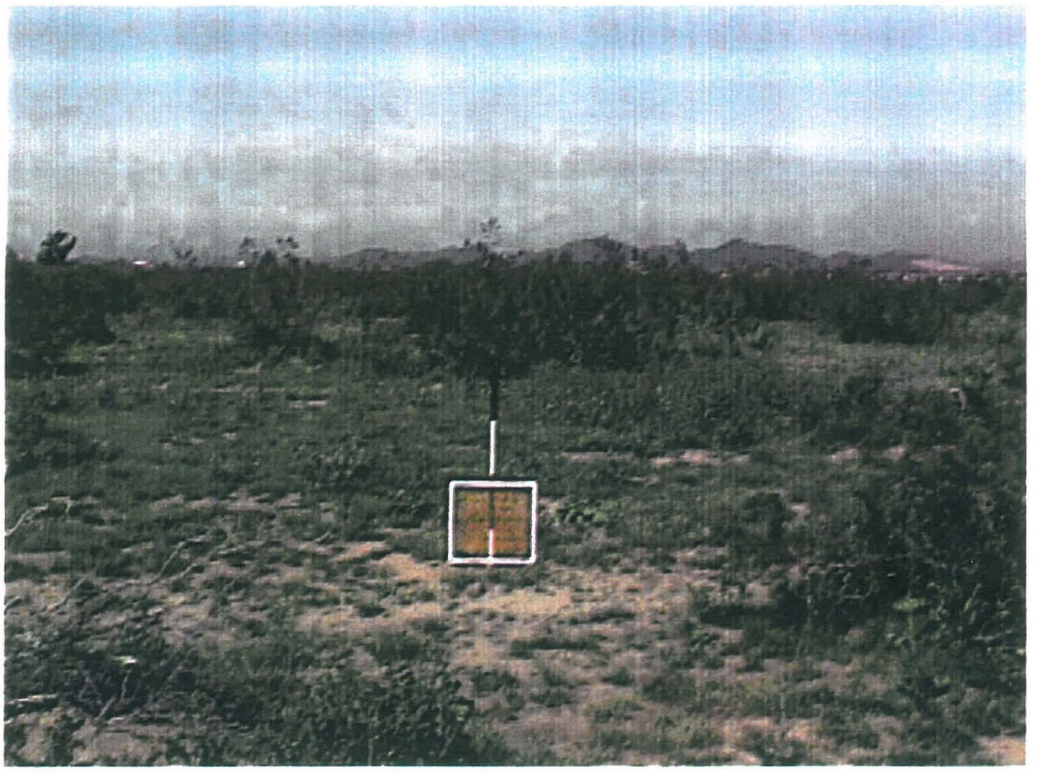


Photograph 21
Vegetative cover within a Mannings "n" value Zone 4

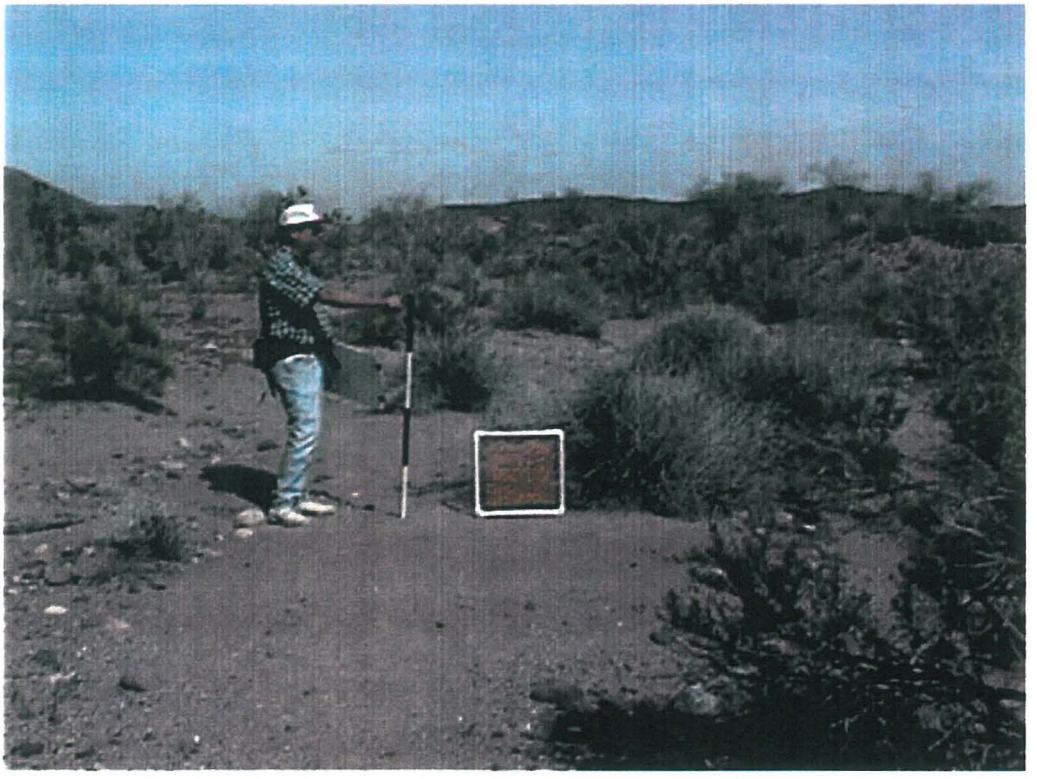
Photograph 22
Vegetative cover within a Mannings "n" value Zone 3

Photograph 23
Vegetative cover within a Mannings "n" value Zone 4 (New River Channel)

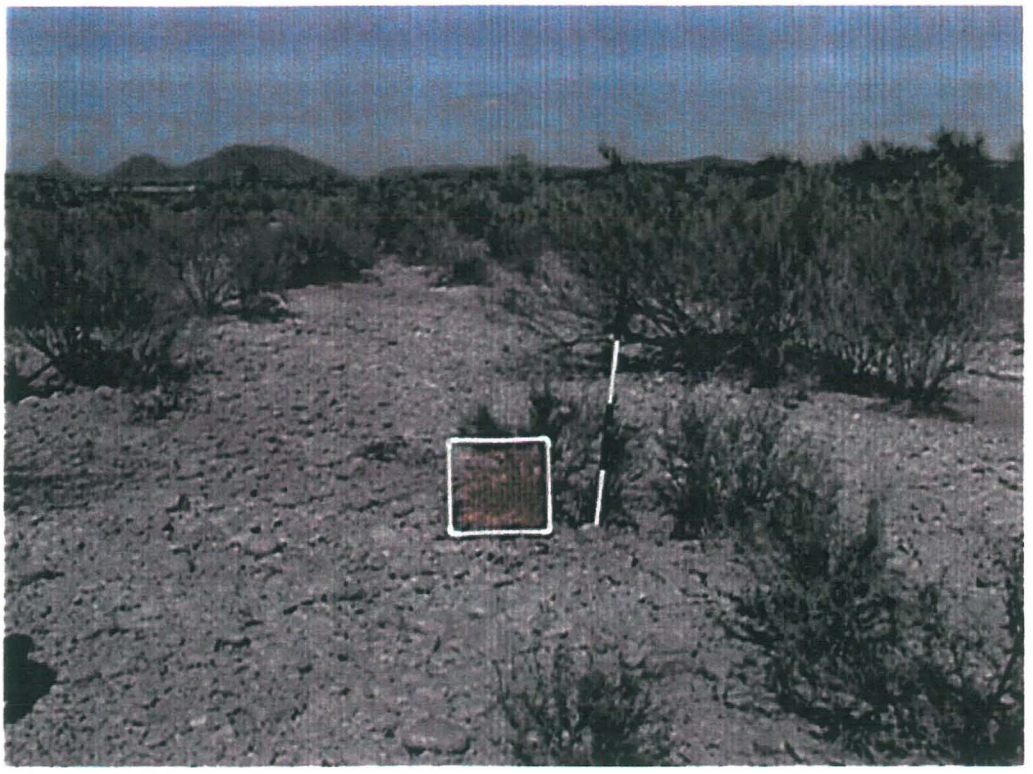
Photograph 24
Vegetative cover within a Mannings "n" value Zone 6 (Rock Springs Creek Channel)



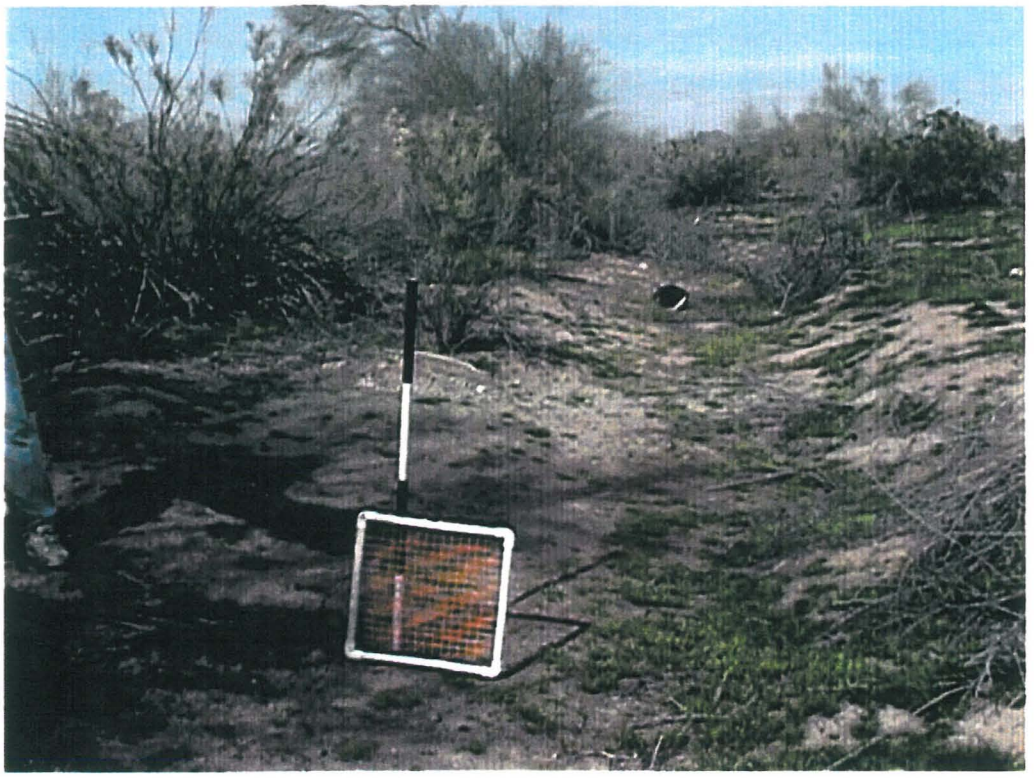
Photograph 25
Vegetative cover within a Mannings "n" value Zone 2



Photograph 26
Vegetative cover within a Mannings "n" value Zone 4

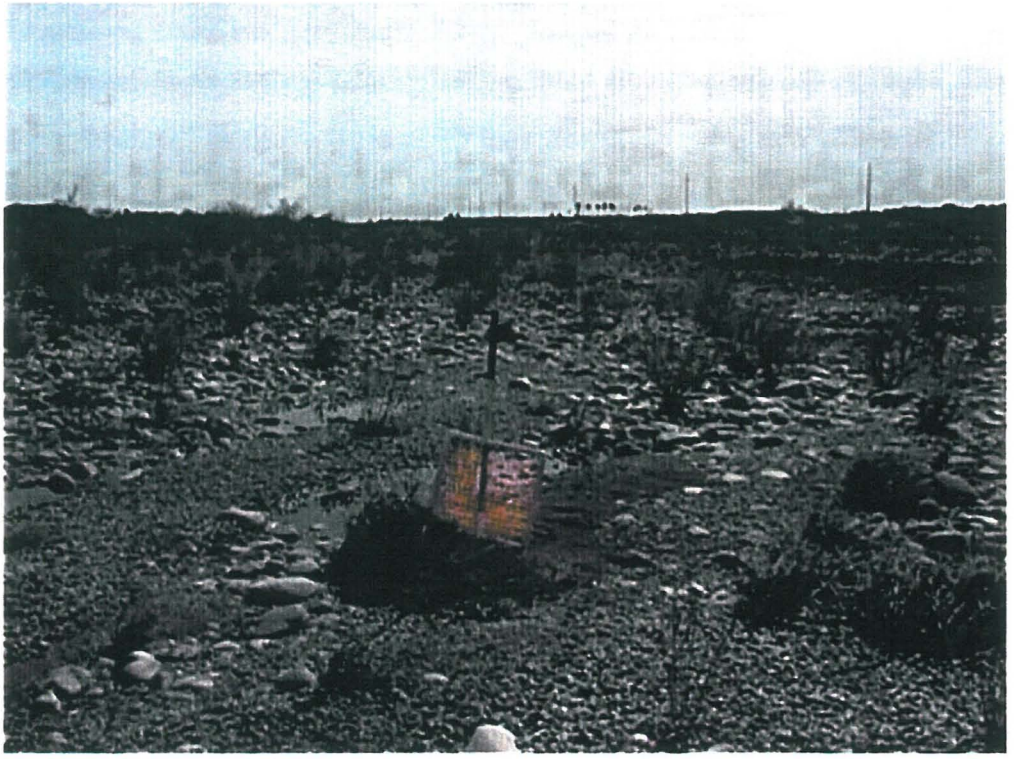


Photograph 27
Vegetative cover New River Channel

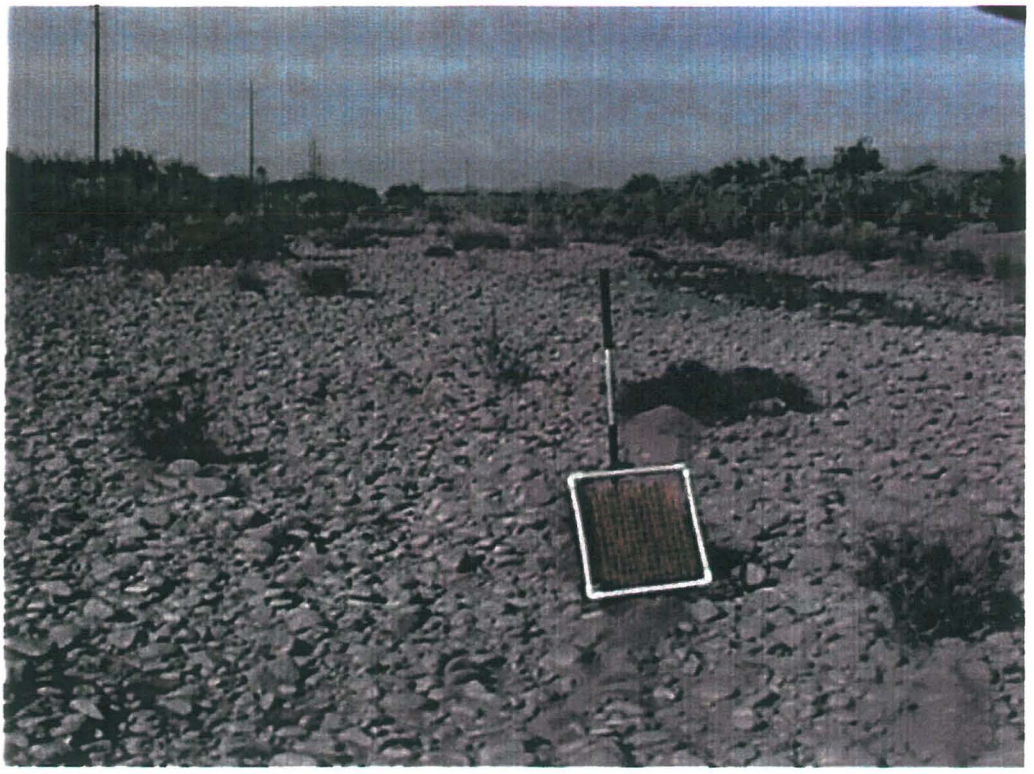


Photograph 28
Vegetative cover New River left overbank

Photograph 29
Vegetative cover New River right over bank



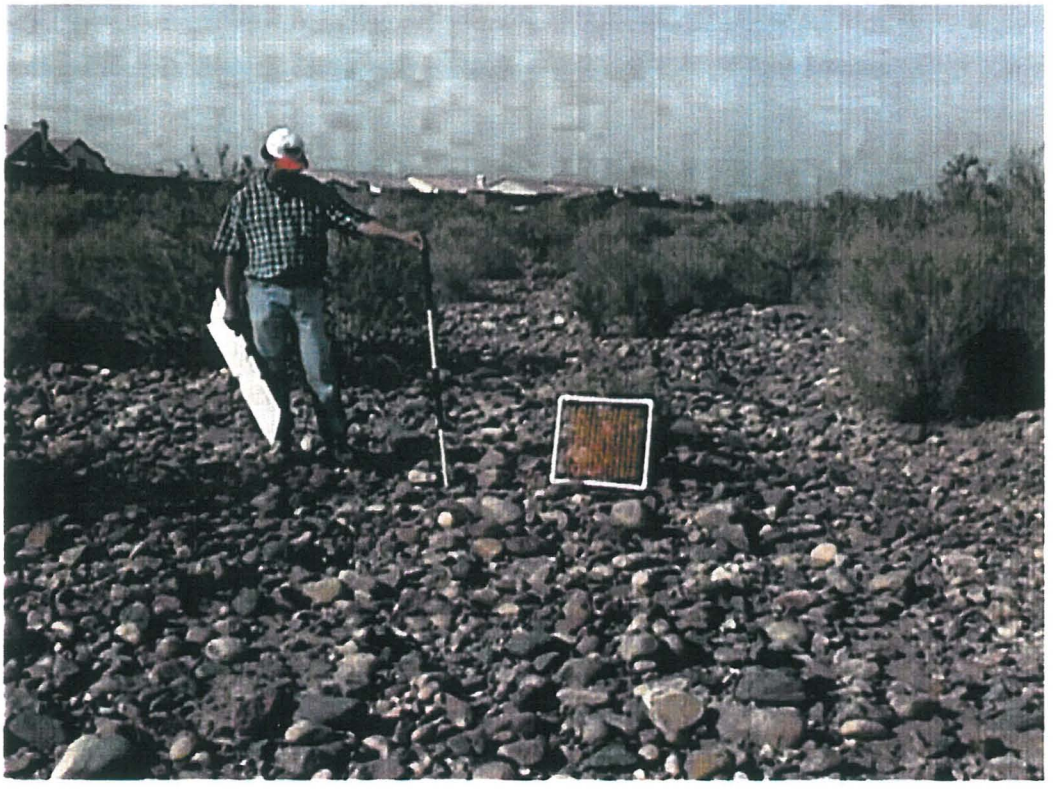
Photograph 30
Vegetative cover New River Channel



Photograph 31
Vegetative cover New River Channel

Photograph 32
Vegetative cover New River Channel upstream of Union Hills Bridge

Photograph 33
Vegetative cover New River Channel downstream of Union Hills Bridge

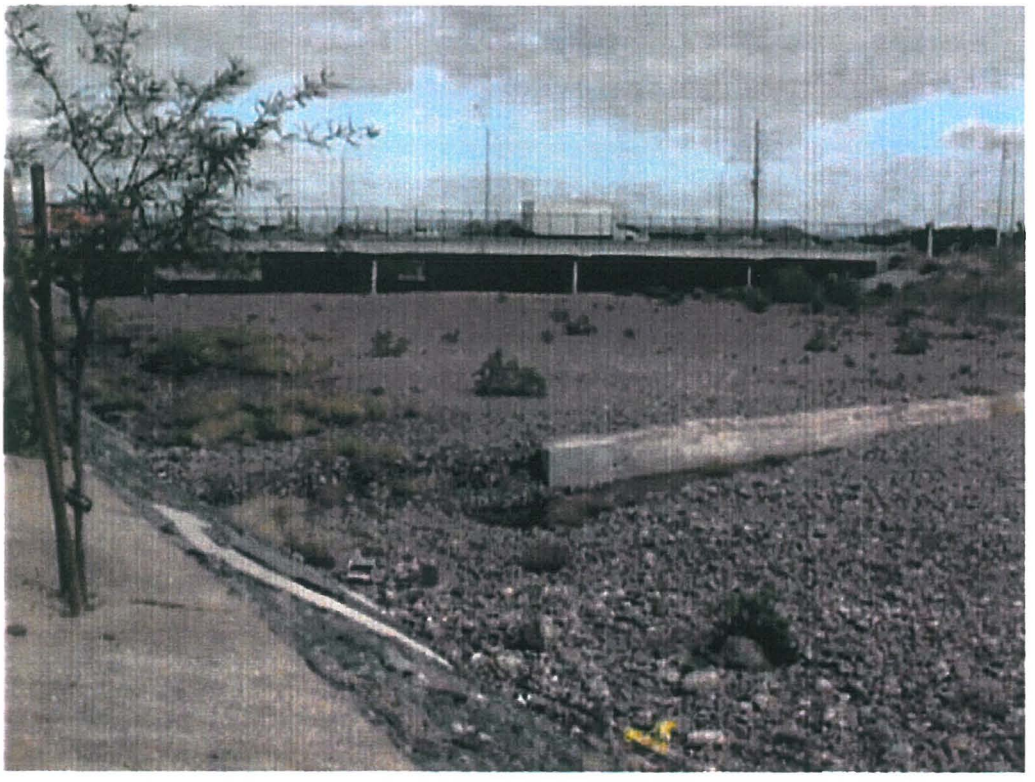


Photograph 34
Vegetative cover New River Channel

Photograph 35
Vegetative cover New River Left Overbank

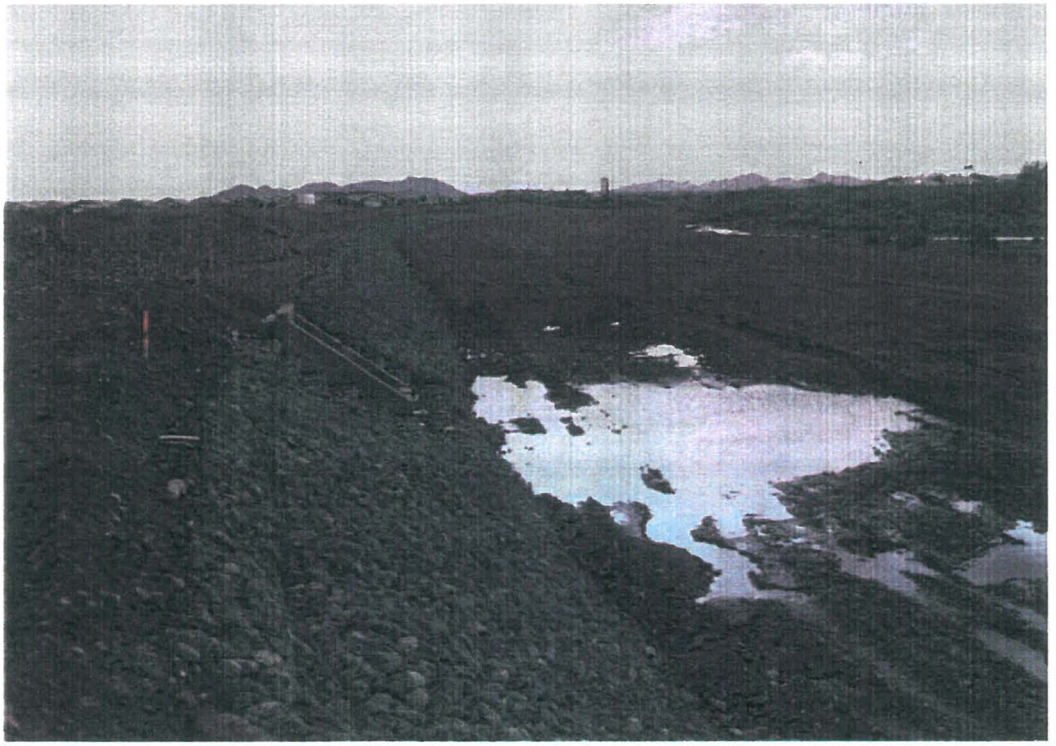
Photograph 36
Bell Road Bridge at New River

Photograph 37
Vegetative cover New River Channel downstream of Bell Road



Photograph 38
Encased irrigation line downstream of Bell Road Bridge

Photograph 39
Vegetative cover New River Channel



Photograph 40
Vegetative cover New River Channel

Photograph 41
Vegetative cover New River Channel

Photograph 42
Armoring over sanitary sewer line, New River at Happy Valley Road

Photograph 43
Drop Structure at Deer Valley Road

APPENDIX C

EROSION AND SEDIMENT TRANSPORT

ATL SEDIMENT DATA (REACH NO. 1)

ATL JOB NO.: 188269 November 29, 1988

REPORT OF

GEOTECHNICAL INVESTIGATION

FOR

BURGESS & NIPLE, INC.

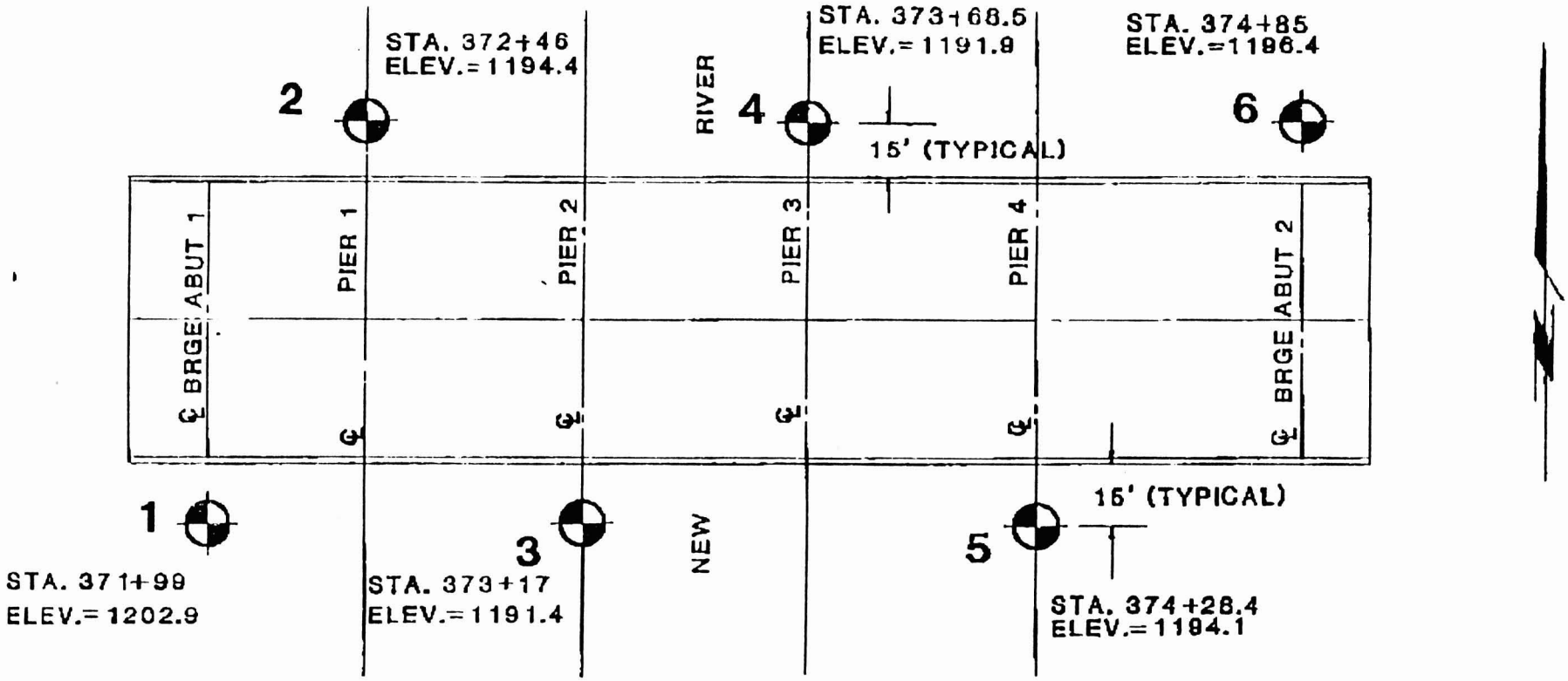
PROJECT

BELL ROAD IMPROVEMENT PROJECT
NEW RIVER BRIDGE
MARICOPA COUNTY, ARIZONA

REVIEWED BY:

Registered Professional Engineer (Civil) CERTIFICATE NO. 10108 ROGER E. FALMENBERG Date Signed 11-29-88 ARIZONA, U.S.A.

REGISTERED PROFESSIONAL ENGINEER (CIVIL) CERTIFICATE NO. 21916 MARK DODDS Date Signed 11-29-88 ARIZONA, U.S.A.



NOT TO SCALE

⊕ BORING LOCATION

ATL Testing Laboratories

SITE PLAN
NEW RIVER BRIDGE

ATL JOB NO. 188269

ATL TESTING LABORATORIES

ATL

TESTING LABORATORIES

PROJECT: New River Bridge DATE: 8-25-88

LOCATION: Phoenix, Arizona

MATERIAL: Drill soil DATE OF SAMPLE: 8-15-88

REQUESTED BY: ATL/M. Dodds

LOG	DEPTH	MOISTURE	USCS	LL	PI	SIEVE ANALYSIS-PERCENT PASSING														
						200	100	50	40	30	16	10	8	4	1/4	3/8	1/2	3/4	1	1 1/2
3	10-14'	4.2	SC	32	17	20	23	29	34	41	55	64	87	78	85	94	98	100	---	---
4	0-5'	1.1	GP-GM		NP	8.8	11	15	18	23	32	36	37	40	43	47	51	60	68	77
4	5-10'	2.3	GC	29	16	19.4	22	26	28	31	37	42	44	51	56	61	71	77	83	92
5	25-30'	9.8	SC	45	30	44	49	56	60	65	74	80	82	87	90	95	98	100	---	---

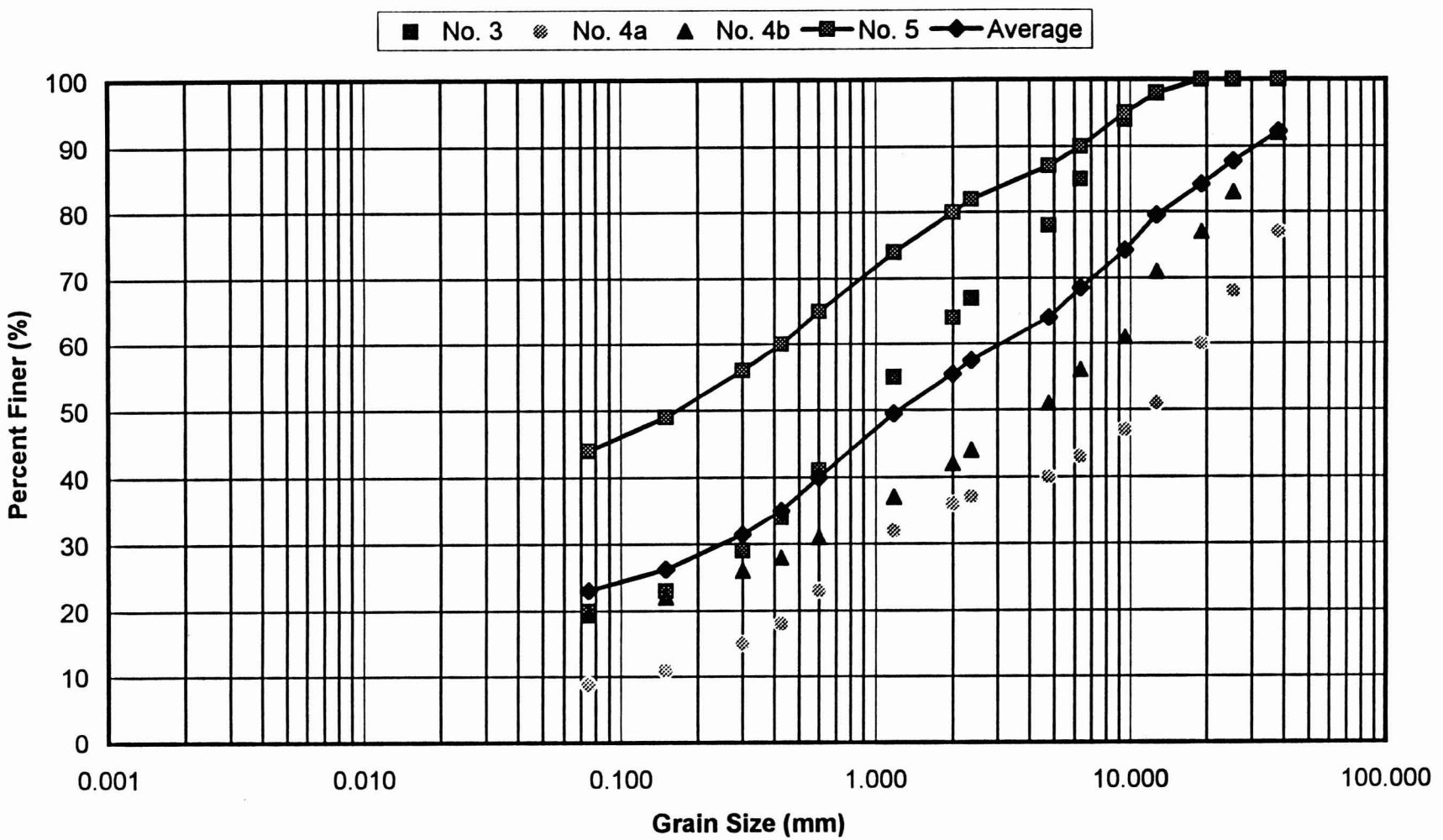
PLATE

TABLE C-1
Size Gradation of Sediment Data Collected at the Bell Road Bridge in the New River
(Data Source: ATL, 1988)

Item No.	Sieve Size		No. 3	No. 4a	No. 4b	No. 5	Average
			Percent Finer	Percent Finer	Percent Finer	Percent Finer	Percent Finer
	Standard	(mm)	(%)	(%)	(%)	(%)	(%)
(1)	(2)	(3)	(4)	(5)	(6)	(8)	(6)
1	1 1/2"	38.100	100.0	77.0	92.0	100.0	92.3
2	1"	25.400	100.0	68.0	83.0	100.0	87.8
3	3/4"	19.050	100.0	60.0	77.0	100.0	84.3
4	1/2"	12.700	98.0	51.0	71.0	98.0	79.5
5	3/8"	9.525	94.0	47.0	61.0	95.0	74.3
6	1/4"	6.350	85.0	43.0	56.0	90.0	68.5
7	No. 4	4.750	78.0	40.0	51.0	87.0	64.0
8	No. 8	2.360	67.0	37.0	44.0	82.0	57.5
9	No. 10	2.000	64.0	36.0	42.0	80.0	55.5
10	No. 16	1.180	55.0	32.0	37.0	74.0	49.5
11	No. 30	0.600	41.0	23.0	31.0	65.0	40.0
12	No. 40	0.425	34.0	18.0	28.0	60.0	35.0
13	No. 50	0.300	29.0	15.0	26.0	56.0	31.5
14	No. 100	0.150	23.0	11.0	22.0	49.0	26.3
15	No. 200	0.075	20.0	8.8	19.4	44.0	23.1

NOTES:
(1) All sediment samples are taken from the river channel.
(2) Sample Nos. 4a and 4b are taken from depths of 0-5.0 ft and 5.0-10.0 ft, respectively.

FIGURE C-1
Size Gradation Plot of Sediment Data Collected at the Bell Road Bridge in the New River



WPA Sediment Data (Reach No. 1)

TABLE C-2
Size Gradation of Bank Data Collected above Skunk Creek in the New River
(Data Source: Wood, Patel & Assoc., 1994)

Item No	Grain Size (mm)	Right Bank Sediment Samples					Average % Finer
		No. 37 % Finer	No. 40 % Finer	No. 43 % Finer	No. 45 % Finer	No. 48 % Finer	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	0.075	7.0	7.0	28.0	2.0	37.0	16.2
2	0.150	10.0	8.0	38.0	3.0	46.0	19.2
3	0.300	19.0	11.0	50.0	5.0	52.0	26.2
4	0.600	36.0	17.0	63.0	12.0	59.0	36.0
5	1.180	56.0	27.0	75.0	24.0	66.0	48.2
6	2.360	67.0	36.0	81.0	32.0	69.0	56.4
7	4.750	71.0	41.0	83.0	37.0	72.0	60.2
8	19.050	82.0	57.0	87.0	55.0	77.0	70.6
9	25.400	87.0	64.0	88.0	64.0	82.0	76.0
10	50.800	94.0	79.0	100.0	85.0	96.0	88.0
11	76.200	100.0	100.0	100.0	96.0	100.0	98.4

TABLE C-3
Size Gradation of Channel Data Collected above Skunk Creek in the New River
(Data Source: Wood, Patel & Assoc., 1994)

Item No	Grain Size (mm)	Main Channel Sediment Samples				Average % Finer
		No. 38 % Finer	No. 41 % Finer	No. 44 % Finer	No. 46 % Finer	
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	0.075	11.0	3.0	5.0	4.0	5.8
2	0.150	13.0	4.0	5.0	5.0	6.8
3	0.300	16.0	6.0	6.0	7.0	8.8
4	0.600	20.0	13.0	18.0	13.0	16.0
5	1.180	31.0	26.0	31.0	21.0	27.3
6	2.360	44.0	38.0	41.0	28.0	37.8
7	4.750	52.0	46.0	46.0	33.0	44.3
8	19.050	73.0	70.0	57.0	50.0	62.5
9	25.400	82.0	76.0	62.0	57.0	69.3

FIGURE C-2
Size Gradation Plot of Bank Data Collected above Skunk Creek in the New River

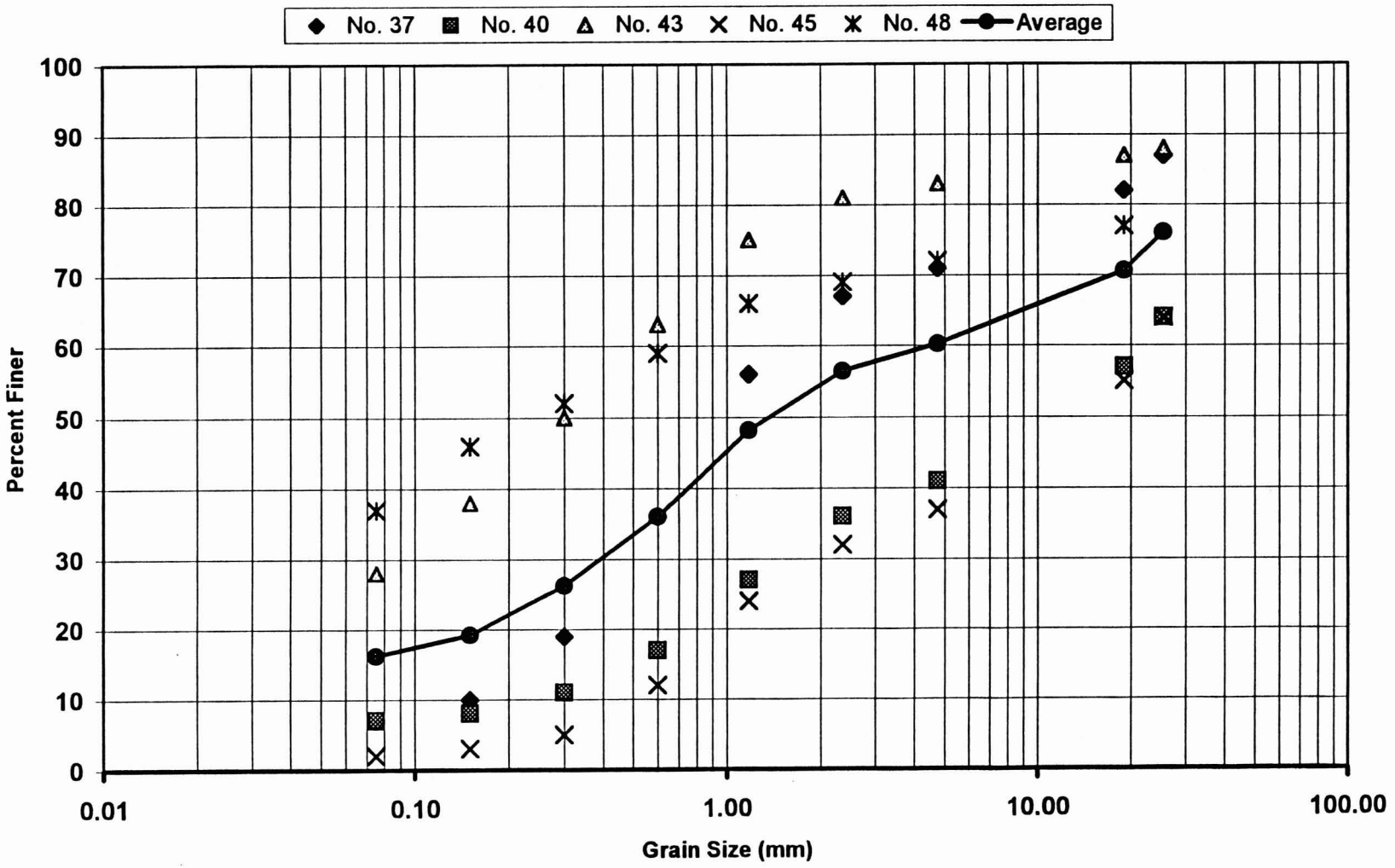
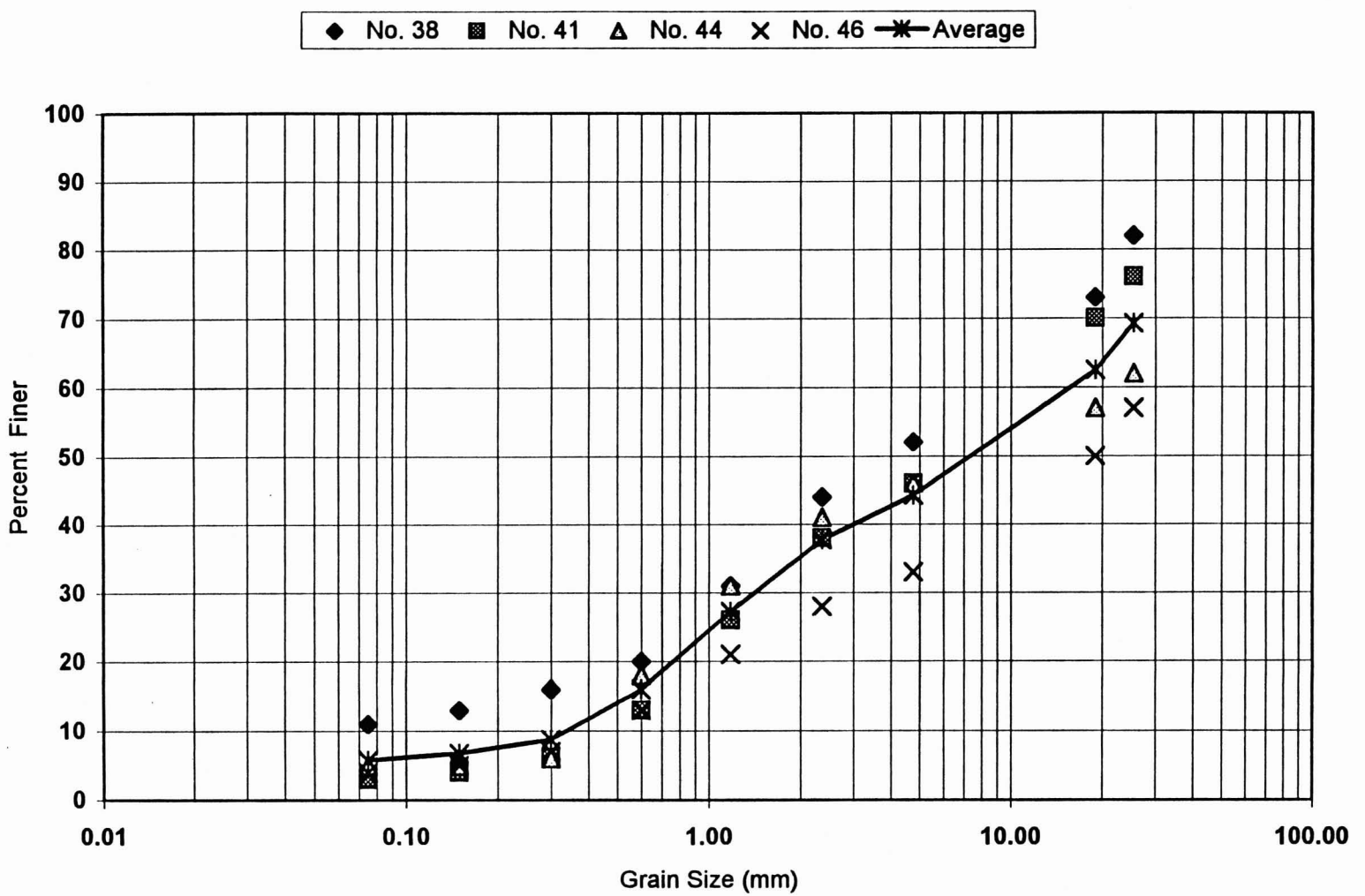


FIGURE C-3
Size Gradation Plot of Channel Data Collected above Skunk Creek in the New River



HDR SEDIMENT DATA (REACH NO. 1)

FIGURE C-4C
Size Gradation Plot of Right Bank Data Collected at Uniion Hills Drive

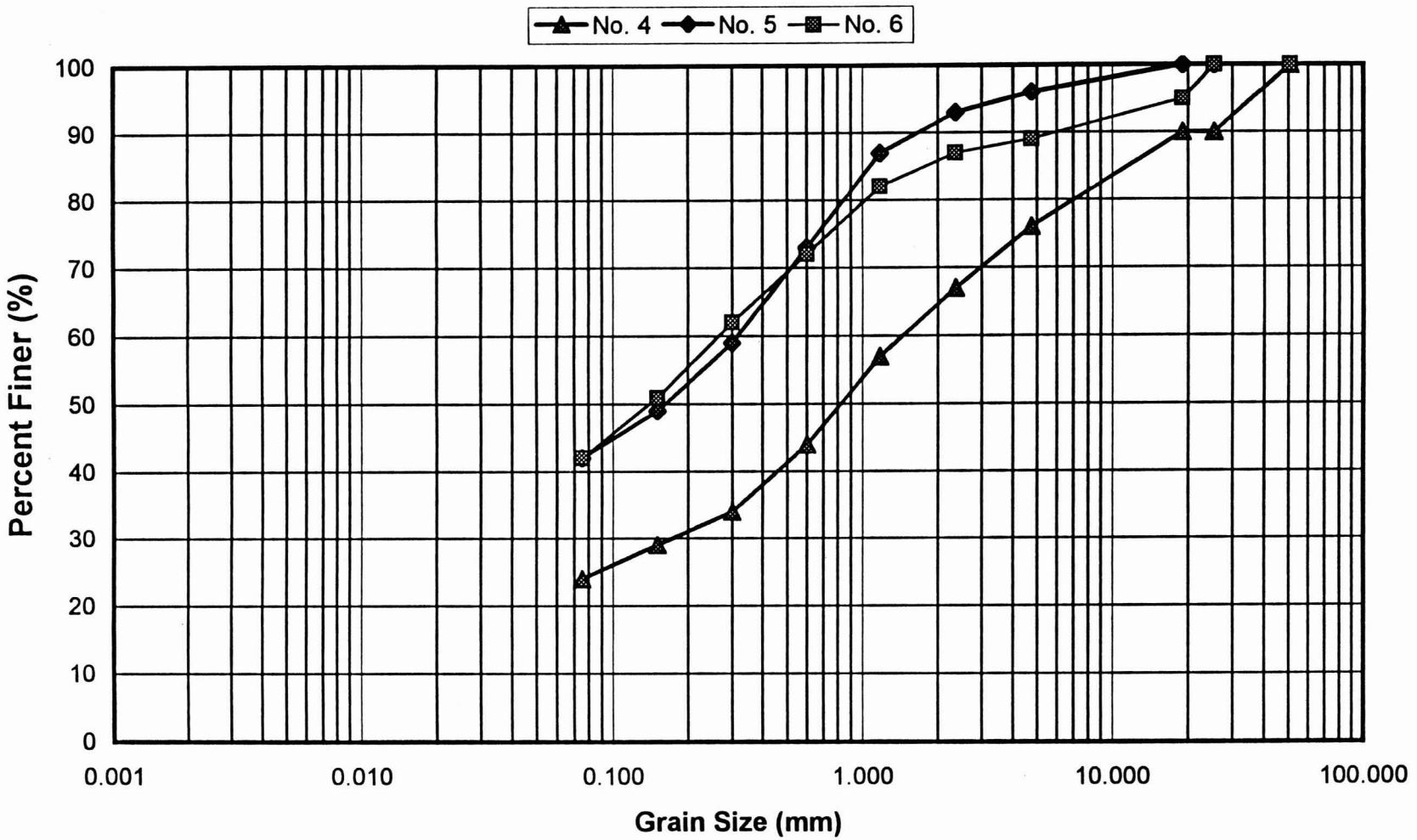


FIGURE C-4B
Size Gradation Plot of Channel Data Collected at Union Hills Drive

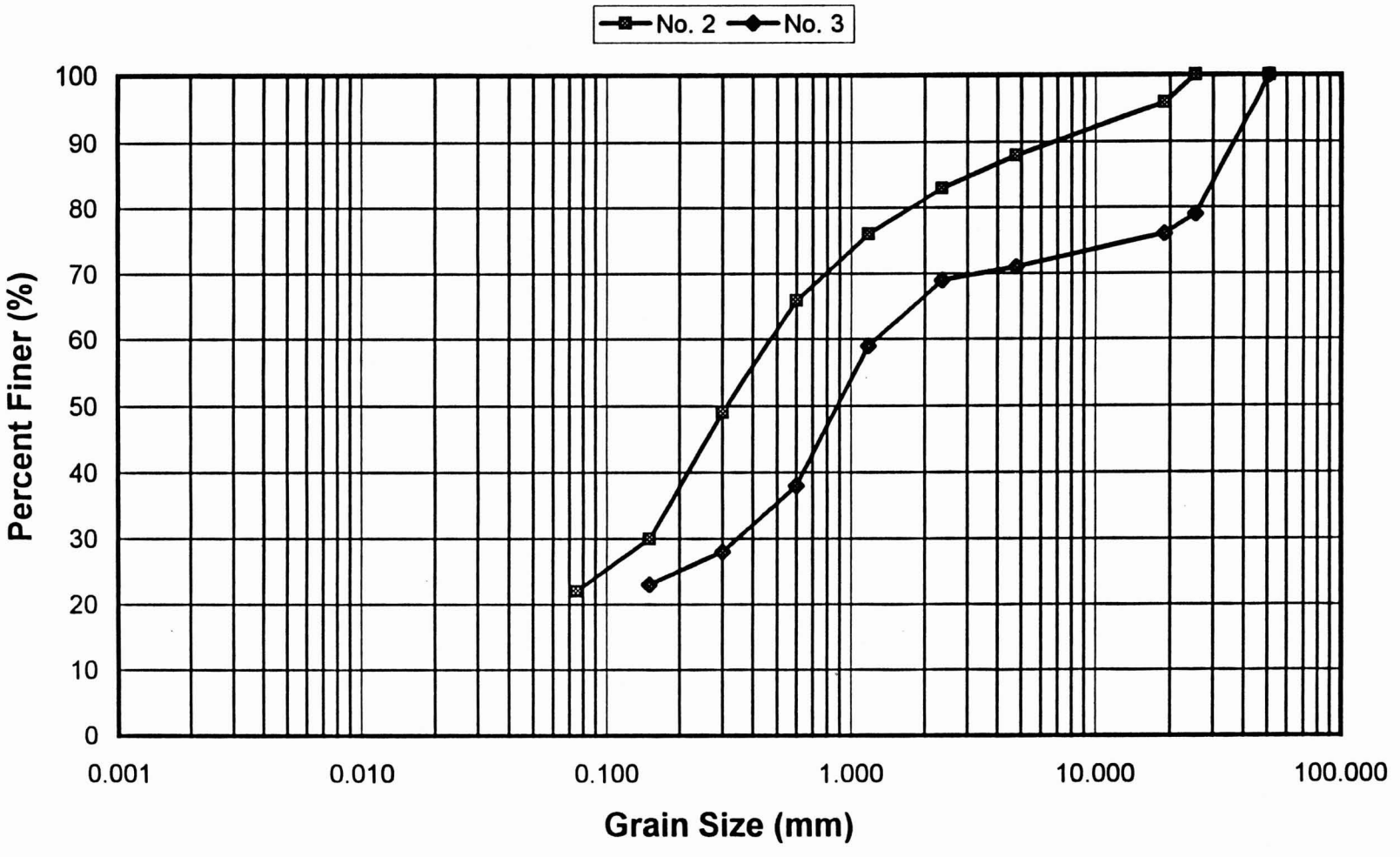


FIGURE C-4A
Size Gradation Plot of Left Bank Data Collected at Union Hills Drive

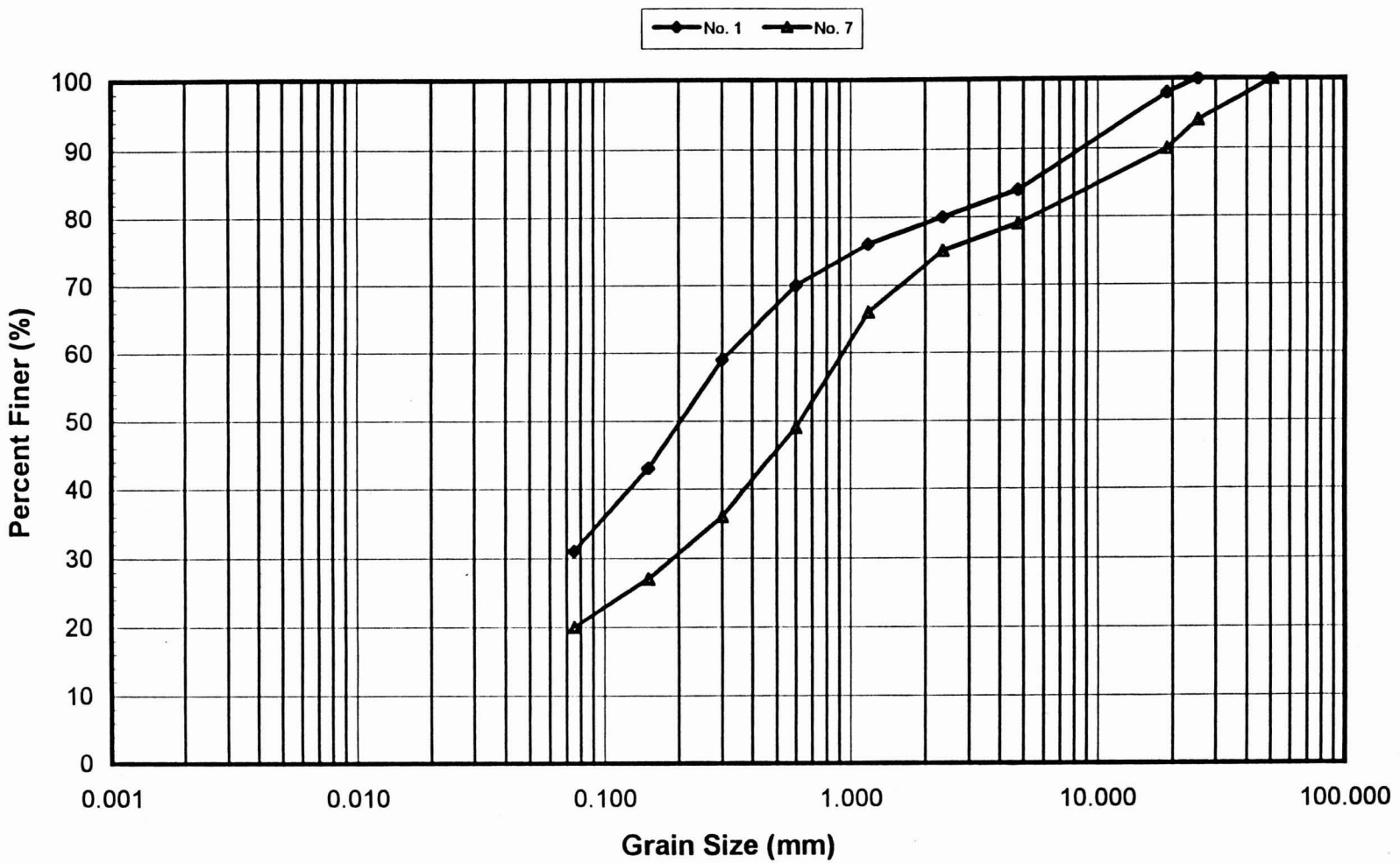


TABLE C-4
Size Gradation of Sediment Data Collected at Union Hills Drive
(Data Source: HDR, 1995)

Item No.	Sieve Size		Left Bank		Main Channel		Right Bank		
			No. 1	No. 7	No. 2	No. 3	No. 4	No. 5	No. 6
			Percent Finer	Percent Finer	Percent Finer	Percent Finer	Percent Finer	Percent Finer	Percent Finer
	Standard	(mm)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	2"	50.800	100.0	100.0	100.0	100.0	100.0	100.0	100.0
2	1"	25.400	100.0	94.0	100.0	79.0	90.0	100.0	100.0
3	3/4"	19.050	98.0	90.0	96.0	76.0	90.0	100.0	95.0
4	No.4	4.750	84.0	79.0	88.0	71.0	76.0	96.0	89.0
5	No.8	2.360	80.0	75.0	83.0	69.0	67.0	93.0	87.0
6	No.16	1.180	76.0	66.0	76.0	59.0	57.0	87.0	82.0
7	No.30	0.600	70.0	49.0	66.0	38.0	44.0	73.0	72.0
8	No.50	0.300	59.0	36.0	49.0	28.0	34.0	59.0	62.0
9	No.100	0.150	43.0	27.0	30.0	23.0	29.0	49.0	51.0
10	No.200	0.075	31.0	20.0	22.0	21.0	24.0	42.0	42.0

LABORATORY TEST RESULTS

Date: 18-Apr-95

SAMPLE SOURCE: As noted below

TESTING PERFORMED: Sieve Analysis, Atterberg Limits (ASTM C136, D1140, D4318)

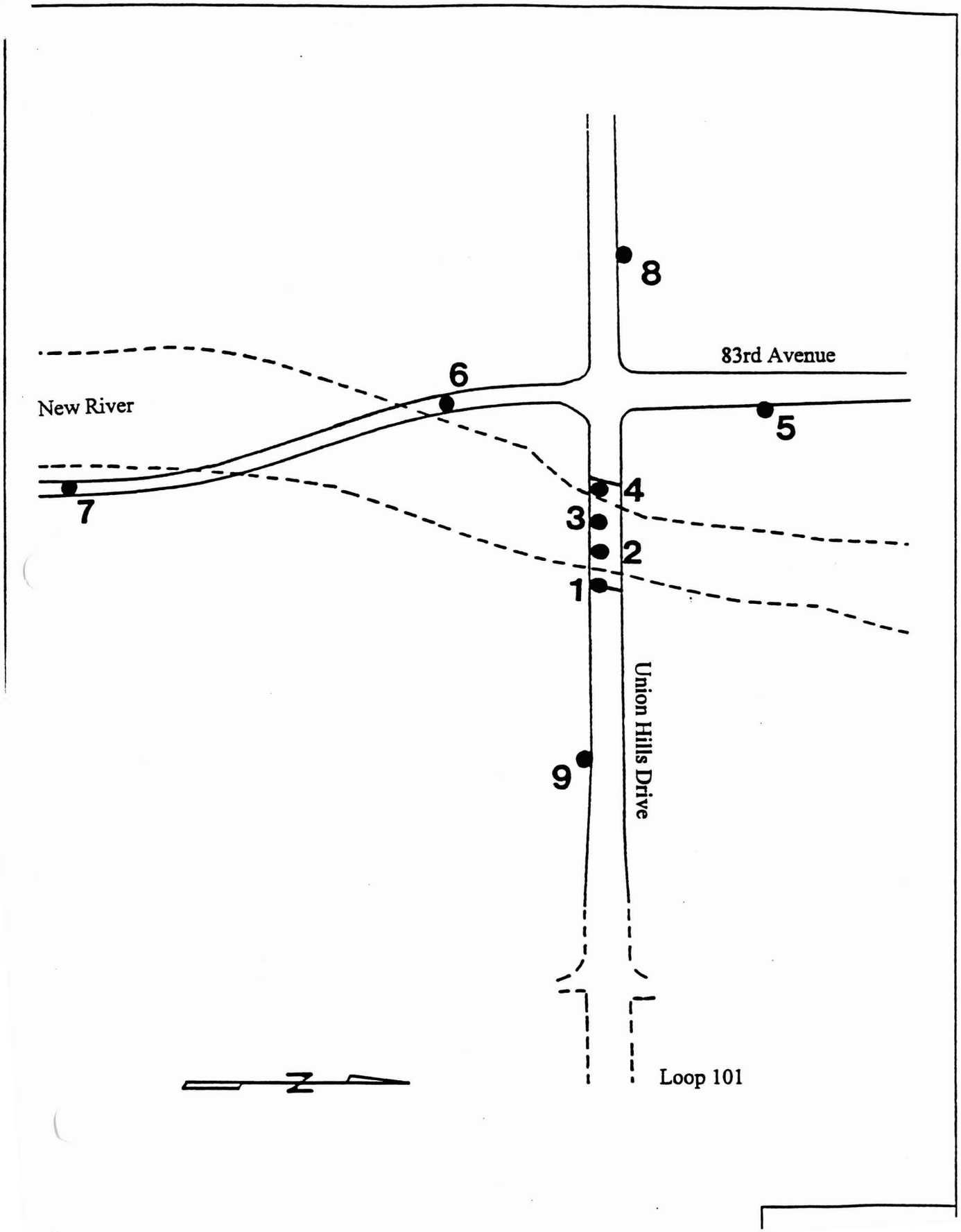
SAMPLED BY: RAM/Miller

RESULTS:

Sample Source	Atterberg Limits		Sieve Size - Accumulative Percent Passing											Soil Class.*
	LL	PI	200	100	50	30	16	8	4	3/4"	1"	2"	3"	
1 @ 45'-50'	34	14	31	43	59	70	76	80	84	98	100			SC
2 @ 0'-10'	26	4	22	30	49	66	76	83	88	96	100			SM
3 @ 0'-10'	60	38	21	23	28	38	59	69	71	76	79	100		SC
4 @ 10'-20'	49	27	24	29	34	44	57	67	76	90	90	100		SC
5 @ 0'-5'	30	11	42	49	59	73	87	93	96	100				SC
6 @ 0'-5'	29	11	42	51	62	72	82	87	89	95	100			SC
7 @ 0'-5'		NP	20	27	36	49	66	75	79	90	94	100		SM
8 @ 0'-5'	36	19	25	30	40	49	60	67	72	90	95	100		SC
9 @ 0'-5'		NP	44	58	71	84	93	97	98	100				SM

NP = Non-Plastic

* Unified Soil Classification System



● Test Boring Location

FOREE & VANN SEDIMENT DATA (REACH NO. 3)

FOREE & VANN, INC.
13 NORTH 24TH AVENUE, SUITE 7, PHOENIX, ARIZONA 85021-2851
TELEPHONE (602) 943-6997 FACSIMILE (602) 943-7179

August 30, 1996 Project 8130

Mr. Mike Vinson
Coe & Van Loo Consultants, Inc.
4550 North 12th Street
Phoenix, Arizona 85014

Transmitted herewith is a copy of the Scour Analysis Data report for the below-referenced subject site. The data provide information regarding subsurface soil conditions in the area of a proposed bridge.

SCOUR ANALYSIS DATA
NEW RIVER CROSSING
HAPPY VALLEY ROAD
PEORIA, ARIZONA

Questions regarding any of the comments expressed herein should be referred to this office as soon as possible.

Respectfully submitted,

FOREE & VANN, INC.

REGISTERED PROFESSIONAL ENGINEER CIVIL CERTIFICATE NO. 26867 STANLEY G. O'SICK 8/30/96

Stanley G. O'Sick, P.E.
Project Engineer, Environmental Services

Copies: Addressee (4)

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Field Investigation 2

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Limitations 3

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INTRODUCTION AND SCOPE OF WORK

As requested by Coe & Van Loo Consultants, Inc. this firm has performed a subsurface soil investigation of the New River channel at Happy Valley Road. The New River channel lies near the alignment of 75th Avenue at Happy Valley Road, which is an unimproved dirt road in the subject site's vicinity.

The subsurface soil investigation consisted of two exploratory test pits which were excavated with a backhoe for the purpose of visually identifying changes in soil strata and retrieving grab samples for sieve analyses and plasticity index tests.

It is the understanding of this firm that this data will be used in the design of a bridge to cross New River at Happy Valley Road.

FIELD INVESTIGATION

The New River channel is about 135 feet wide at Happy Valley Road, which dips through the channel. West and east of the channel is a wide shallow floodplain. There are no obvious structures, utilities, or pavements in the vicinity of the subject site.

On August 26, 1996, Scot Sandefur supervised two excavations at the subject site conducted with a standard backhoe having a 24 inch bucket. The approximate locations of these exploratory test pits are tabulated below:

Test Pit #	Test Pit Location	Comments
1	20 feet west of the east bank at 60 feet north of the edge of the existing roadway	This is the very lowest point in the channel near the roadway (cut bank).
2	30 feet east of the west bank at 50 feet south of the edge of the existing roadway	This point is about 3 feet higher in elevation that the other location (point bar).

The soils encountered were poorly graded gravels with a maximum particle size of about 18 inches; the percentage of particles of size 8 inches or greater in diameter was estimated to be about 10% in all of the soils encountered. The binder (minus # 40) material changed from non-plastic silt to medium-plasticity clay at about 9 feet in Test Pit # 1 and at about 12 feet in Test Pit # 2.

A log of each test pit is included in Section II.

At each test pit, a bulk soil sample (5-gallon bucket) was obtained at 3 feet, 6 feet, 9 feet, and 12 feet in depth below the existing subject site grade (bottom of the channel). Care was taken to ensure that the percent of cobbles was representative of the in-situ soil, although no particles greater that 8 inches in diameter could be included in any sample. A total of eight samples were obtained and submitted to the Foree & Vann, Inc. geotechnical laboratory.

LABORATORY ANALYSES

A sieve analysis and plasticity index test were conducted on each of the eight samples. The sieve analysis and plasticity index test results may be found in Section III. The sieve analysis data are plotted as a Grain Size Distribution Curve for each sample, also included in Section III.

LIMITATIONS

Our professional services have been performed using that degree of skill ordinarily exercised, under similar circumstances, by reputable geotechnical engineers practicing in this or similar localities. No other warranty, express or implied, is made.

This report is not intended as a bidding document and any contractor reviewing the report must draw his own conclusions regarding specific construction techniques to be used on this project.

The data presented in this report are representative of the subsurface soils at the locations and to depths investigated only.

This report is for the sole use of Coe & Van Loo Consultants, Inc. No other entity may rely on this data without the express written consent of Coe & Van Loo Consultants, Inc. and Foree & Vann, Inc.

Project: 8130 Date: 8/30/96 Test Pit #: 1 Stopped Excavation at 13.0 Feet.

Blow Count	Sample Type	USCS	Symbol	DESCRIPTION	In Situ Moisture	% Dist. Boulders	% Dist. Cobbles	% Dist. Gravel	% Dist. Sand	% Dist. Silt/Clay	Grad. Well	Grad. Medium	Grad. Poor	Grain Shape Subang.	Grain Shape Angular	Grain Shape Submd.	Grain Shape Rounded	Relative Density/ Consistency	Estimated P.I.	Degree of Cementation
0		GP		COBBLY SANDY GRAVEL trace silt	Dry	T	40	40	20	T			X			X	X	Loose	N.P.	None
1					Slightly Damp															
2																				
3		G			Slightly Damp	T	30	45	25	T			X			X	X	Med. Dense	N.P.	None
4																				
5																				
6		G	GP	SANDY GRAVEL with cobbles trace silt	Damp	T	15	55	30	T			X			X	X	Med. Dense	N.P.	None
7																				
8																				
9		G	GP	COBBLY SANDY GRAVEL trace clay	Damp to Moist	T	20	50	30	T			X			X	X	Dense	25	None
10																				
11																				
12		G	GP	SANDY GRAVEL with cobbles trace clay	Damp to Moist	T	15	55	30	T			X			X	X	Dense	20	None
13				Stopped backhoe excavation and sampling at 13.0 feet. Note: Infrequent boulders up to 18 inches in diameter were encountered throughout the excavation. Boulders ranging from 8 to 18 inches in diameter are estimated to be present overall.																

B[illegible]k C=Bull Nose D=Dutch Cone G=Grab L=Bulk Disturbed N=SPT P=Push R=Ring

Foree & Vann, Inc. provides this scour analysis data for the use of the client in their bridge design. The test pit log represents this firm's interpretation of the subsurface conditions at the test pit location, at the indicated depths, under conditions of the field effort.

Project: 8130 Date: 8/30/96 Test Pit #: 2 Stopped Excavation at 13.0 Feet.

Blow Count	Sample Type	USCS	Symbol	DESCRIPTION	In Situ Moisture	% Dist. Boulders	% Dist. Cobbles	% Dist. Gravel	% Dist. Sand	% Dist. Silt/Clay	Grad. Well	Grad. Medium	Grad. Poor	Grain Shape Subang.	Grain Shape Angular	Grain Shape Submd.	Grain Shape Rounded	Relative Density/ Consistency	Estimated P.I.	Degree of Cementation
0		GP		COBBLY SANDY GRAVEL trace silt	Dry	T	40	40	20	T			X			X	X	Loose	N.P.	None
1					Slightly Damp															
2																				
3	G	GP		SANDY GRAVEL with cobbles trace silt	Slightly Damp	T	15	40	45	T			X			X	X	Med. Dense	N.P.	None
4																				
5																				
6	G	GP		COBBLY GRAVEL with sand trace silt	Damp	T	40	45	15	T			X			X	X	Med. Dense	N.P.	None
7																				
8																				
9	G	GP		COBBLY SANDY GRAVEL trace silt	Damp	T	35	45	20	T			X			X	X	Dense	N.P.	None
0																				
1																				
2	G	GP		COBBLY SANDY GRAVEL trace clay	Damp to Moist	T	35	45	20	T			X			X	X	Dense	20	None
3				Stopped backhoe excavation and sampling at 13.0 feet. Note: Infrequent boulders up to 18 inches in diameter were encountered throughout the excavation. Boulders ranging from 8 to 18 inches in diameter are estimated to be present overall.																

0 1 2 3 4 5 6 7 8 9 10 11 12 13

B=Block C=Bull Nose D=Dutch Cone G=Grab L=Bulk Disturbed N=SPT P=Push R=Ring

Foree & Vann, Inc. provides this scour analysis data for the use of the client in their bridge design. The test pit log represents this firm's interpretation of the subsurface conditions at the test pit location, at the indicated depths, under conditions of the field effort.

FOREE & VANN, INC.

9013 N. 24th Ave, Suite 7, Phoenix AZ 85021-2851

Material Qualification

Project: New River Crossing — Project No: 8130

Project Location: Happy Valley Road, Peoria — Lab No: 8130

Sample Location: Pits #1 and #2 — Sample Date: 8/26/96

Sample Description: River run — Sample ID: A-H

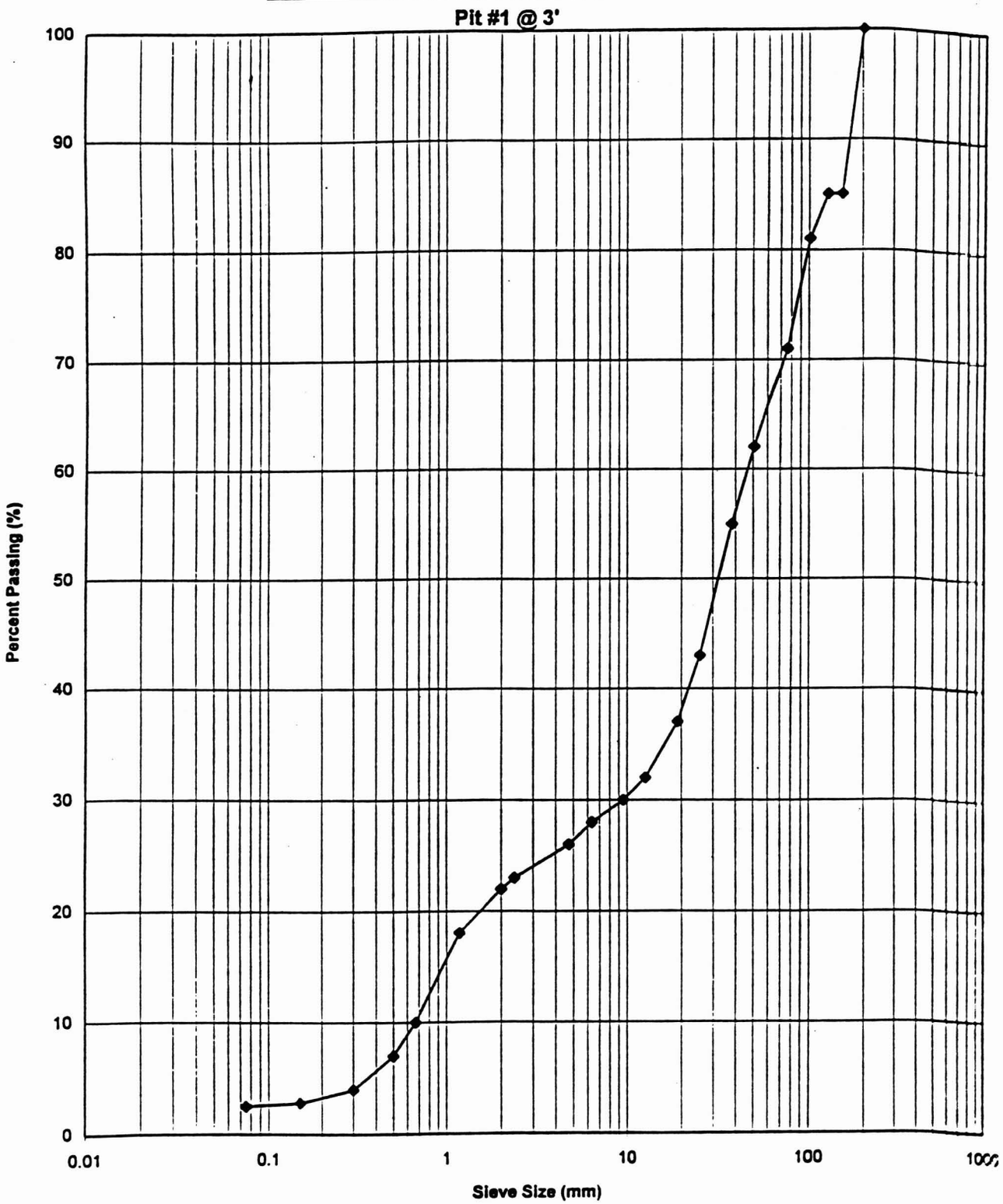
Mechanical Sieve Analysis (ASTM C136)

Sieve Size	% Passing							
	Pit #1 (3')	Pit #1 (6')	Pit #1 (9')	Pit #1 (12')	Pit #2 (3')	Pit #2 (6')	Pit #2 (9')	Pit #2 (12')
8 in	100	100	100	100	100	100	100	100
6 in	85	100	100	100	100	91	83	80
5 in	85	100	91	95	100	83	76	73
4 in	81	100	90	94	100	71	68	68
3 in	71	86	80	87	87	58	67	63
2 in	62	74	73	70	73	43	56	48
1 1/2 in	55	64	61	62	70	38	50	43
1 in	43	52	53	54	64	32	45	38
3/4 in	37	45	47	49	60	28	40	34
1/2 in	32	39	41	42	54	23	33	30
3/8 in	30	35	37	38	51	21	31	27
1/4 in	28	31	32	33	47	18	26	23
#4	26	29	30	29	45	17	21	21
#8	23	26	26	26	40	15	17	19
#10	22	24	24	24	37	14	16	18
#16	18	18	17	19	28	12	13	16
#30	10	9	9	12	12	9	7	11
#40	7	7	7	10	8	7	5	8
#50	4	5	6	8	5	6	4	6
#100	2.8	3	4.6	6	3	3	3	5
#200	2.5	2.4	4.2	4.4	1.9	2.1	2.6	3.6

Plasticity Index (ASTM D4318)

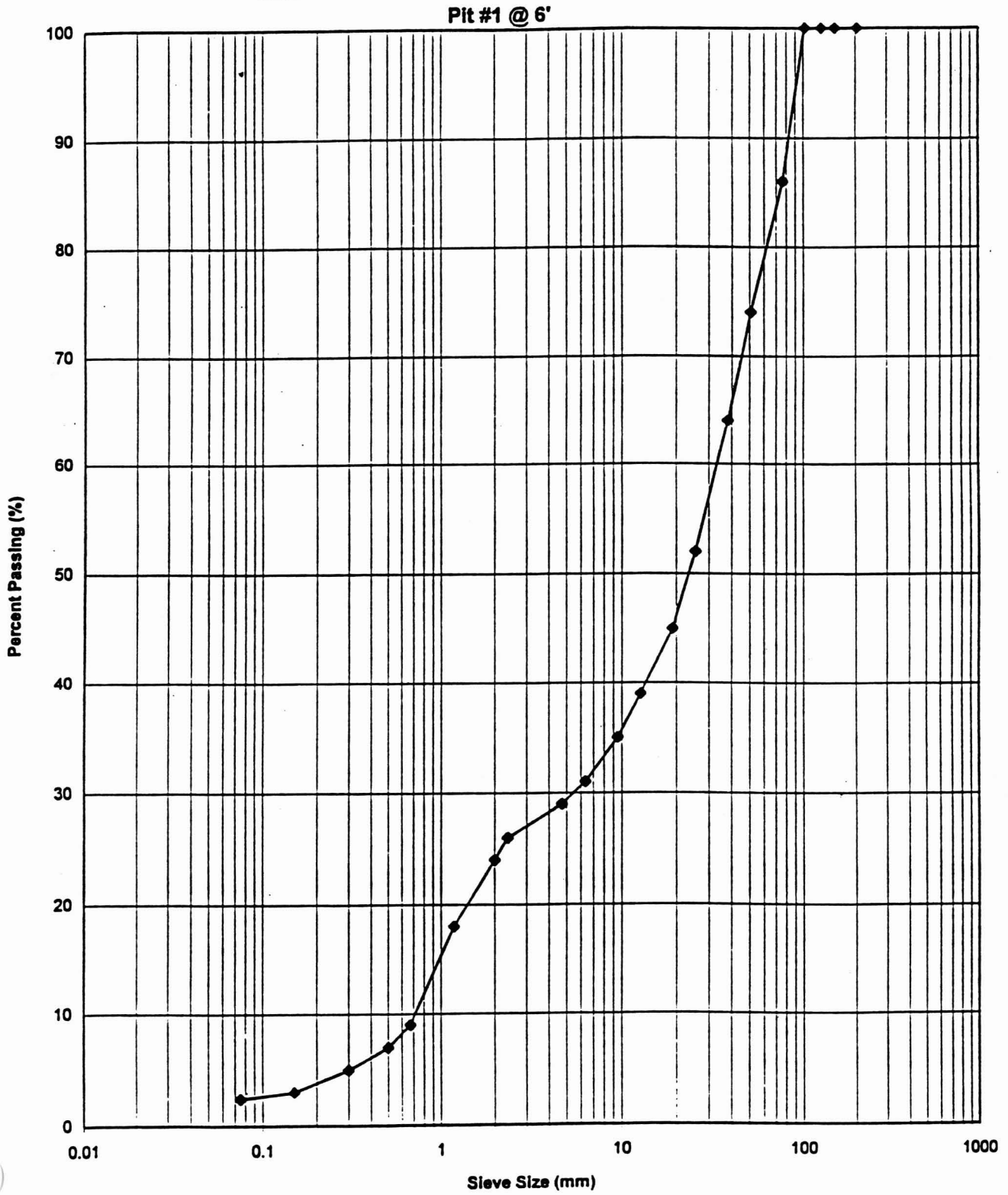
	Test Results							
	Pit #1 (3')	Pit #1 (6')	Pit #1 (9')	Pit #1 (12')	Pit #2 (3')	Pit #2 (6')	Pit #2 (9')	Pit #2 (12')
Liquid Limit	NA	NA	49	57	NA	NA	NA	41
Plastic Index	NP	NP	24	19	NP	NP	NP	19

SIEVE ANALYSIS ASTM D-422



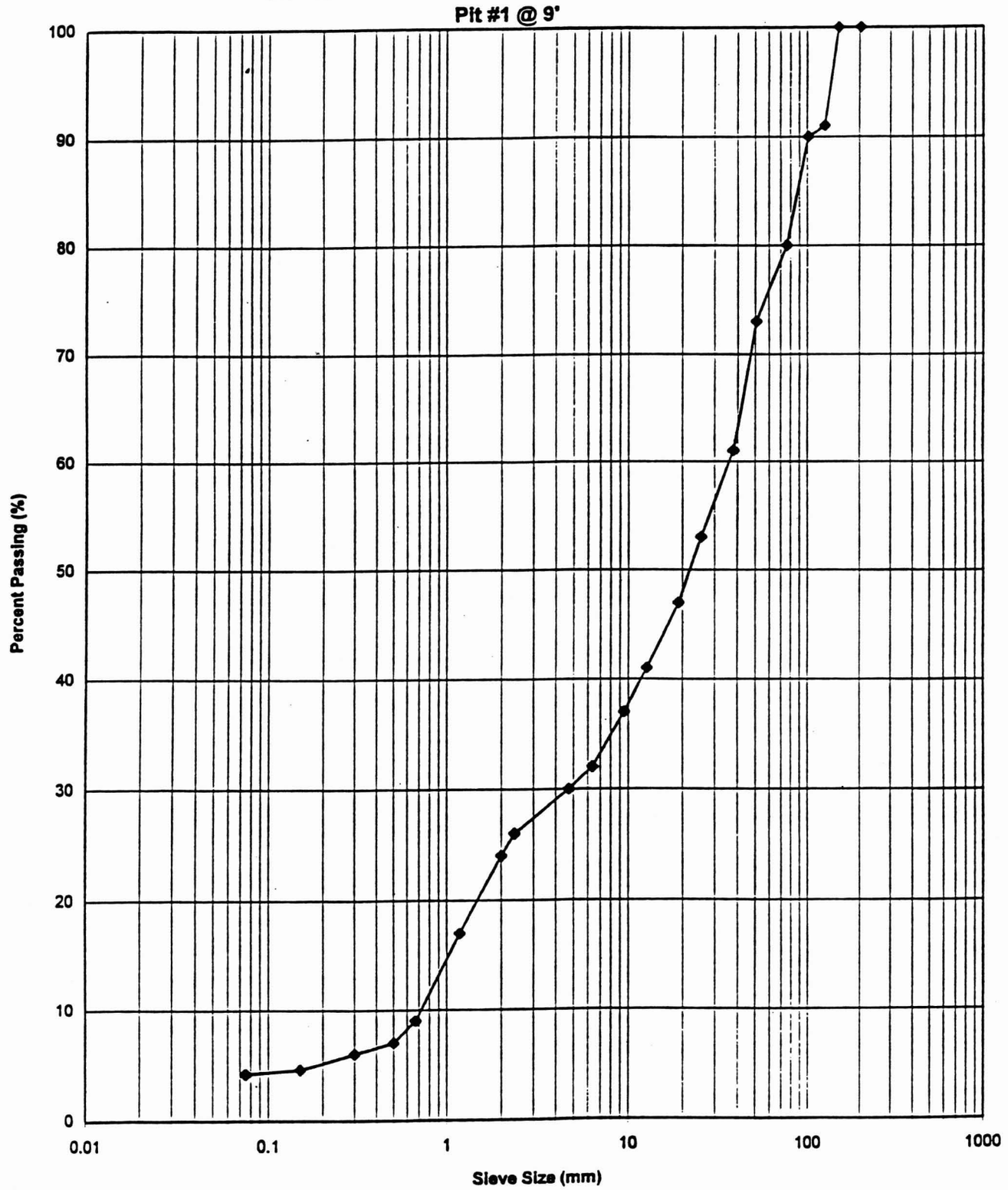
Foree Vann, Inc. Project No. 8130

SIEVE ANALYSIS ASTM D-422



Foree Vann, Inc. Project No. 8130

SIEVE ANALYSIS ASTM D-422



Foree Vann, Inc. Project No. 8130

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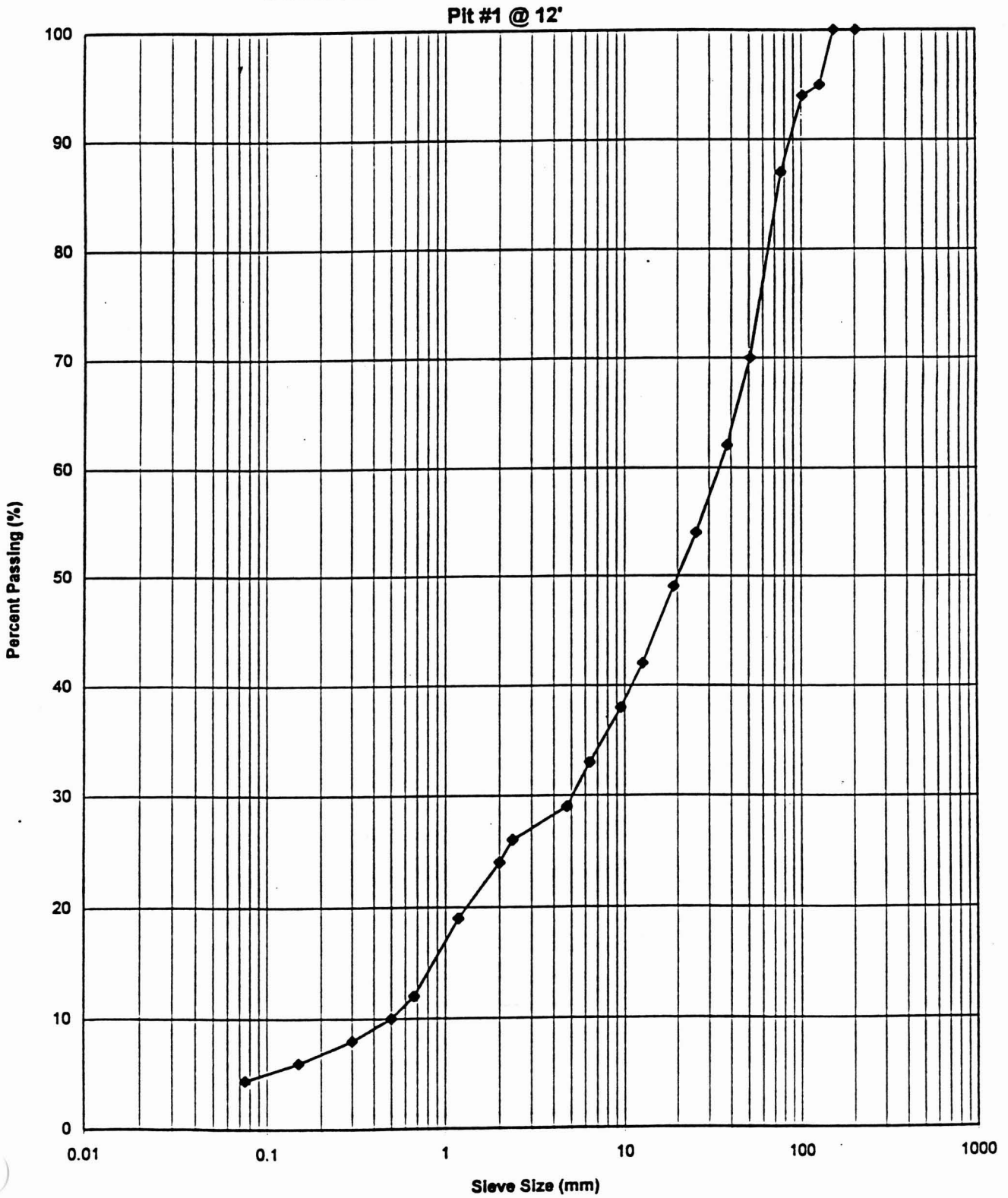

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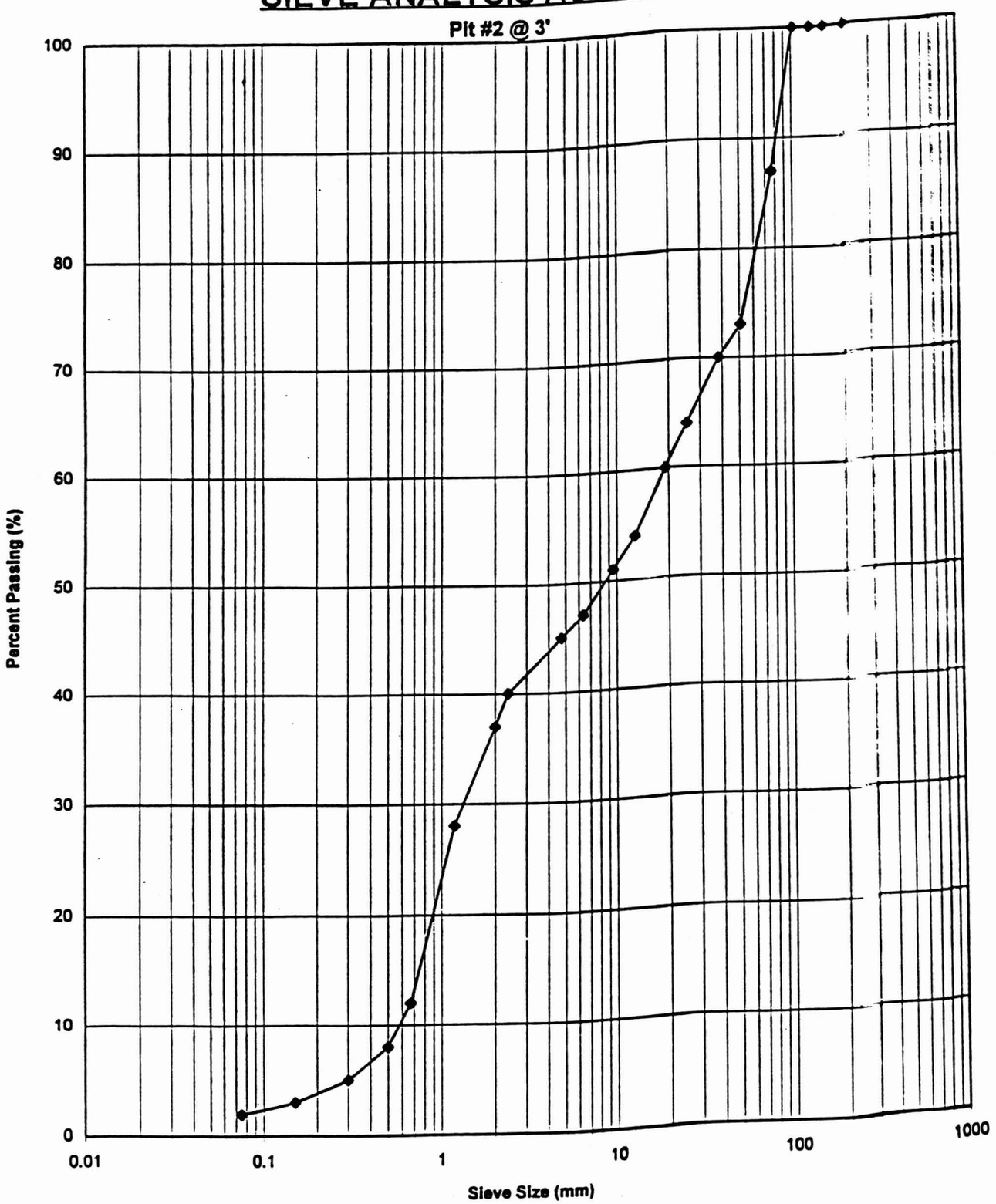
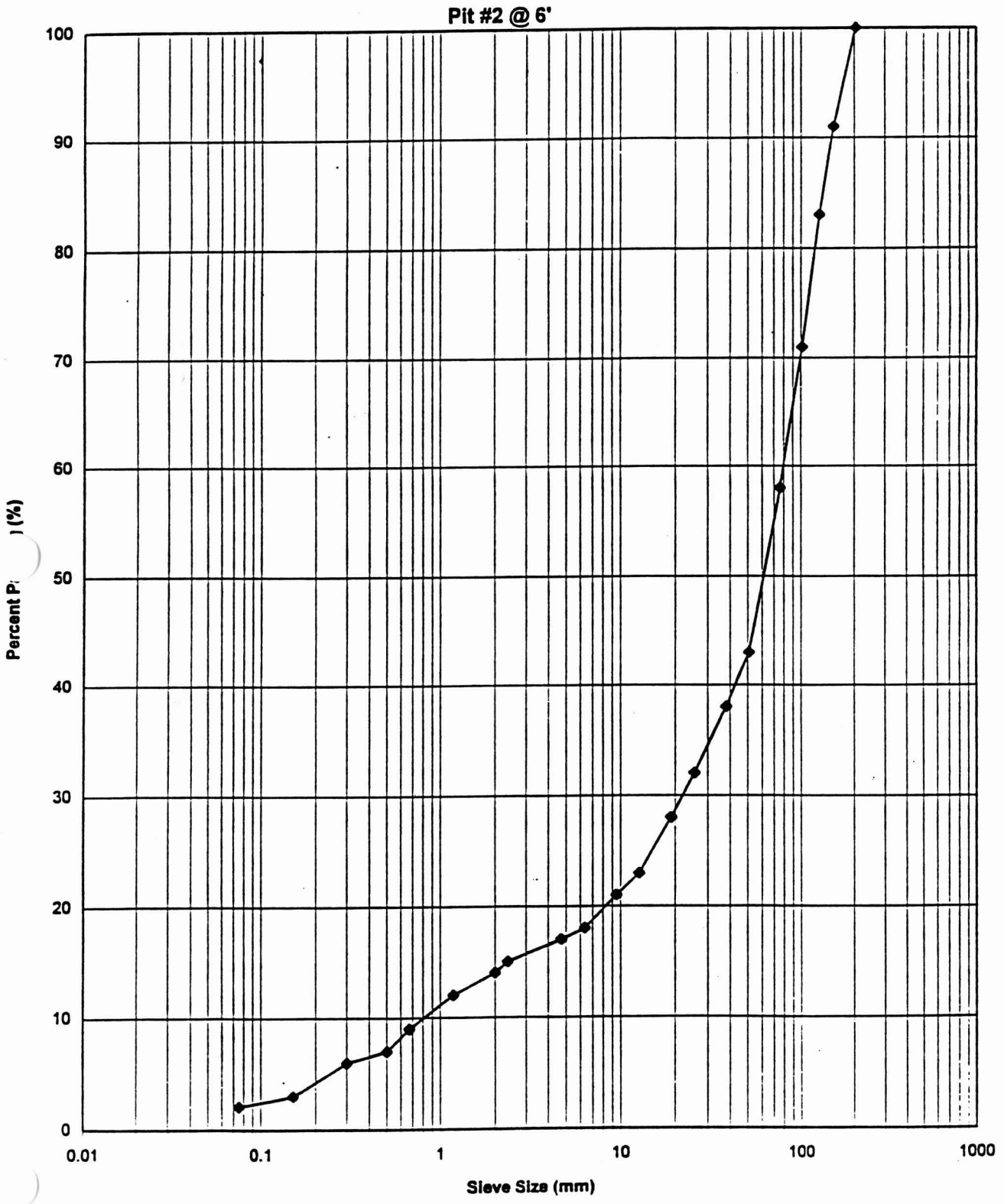


Foree Vann, Inc. Project No. 8130

SIEVE ANALYSIS ASTM D-422



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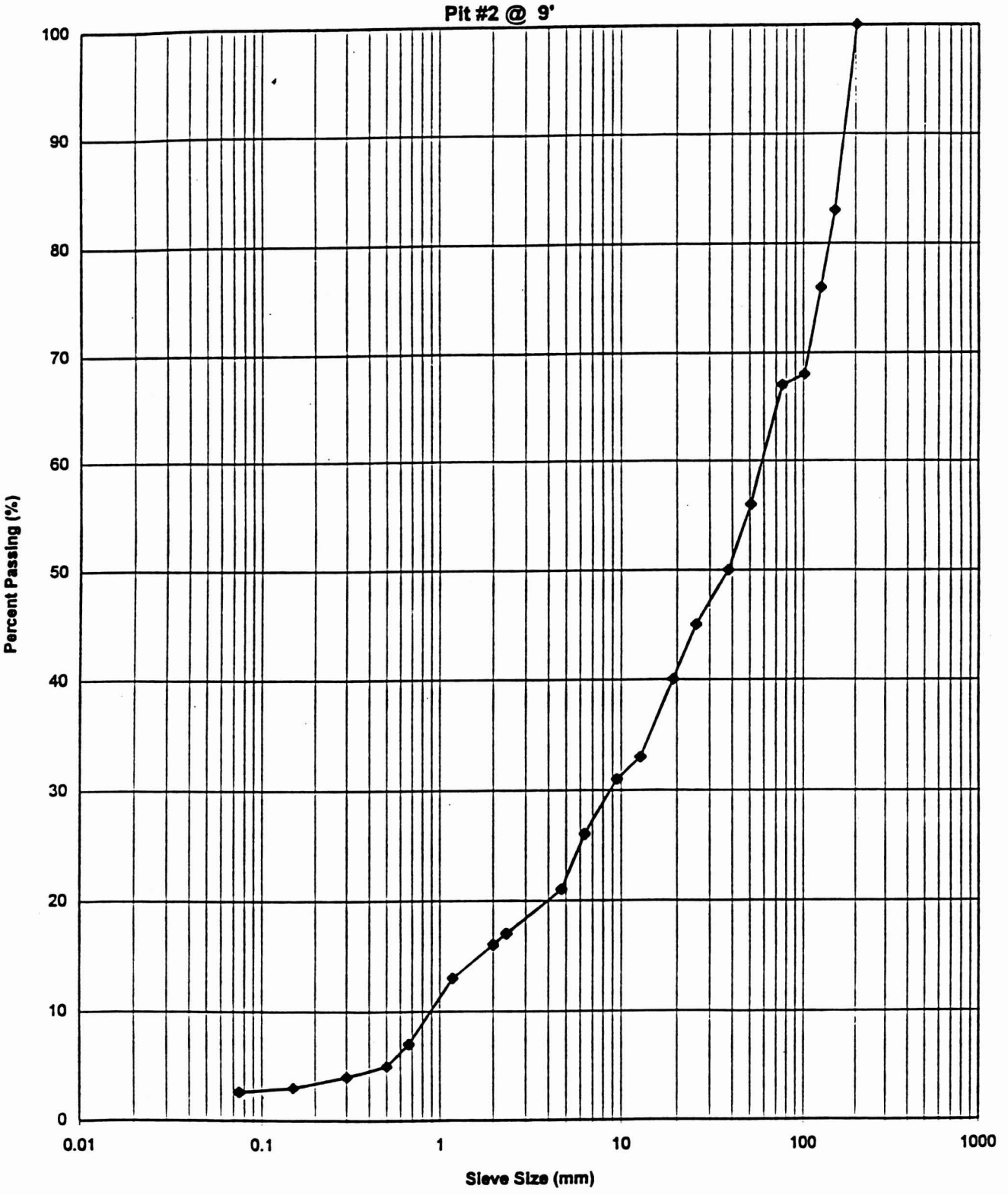
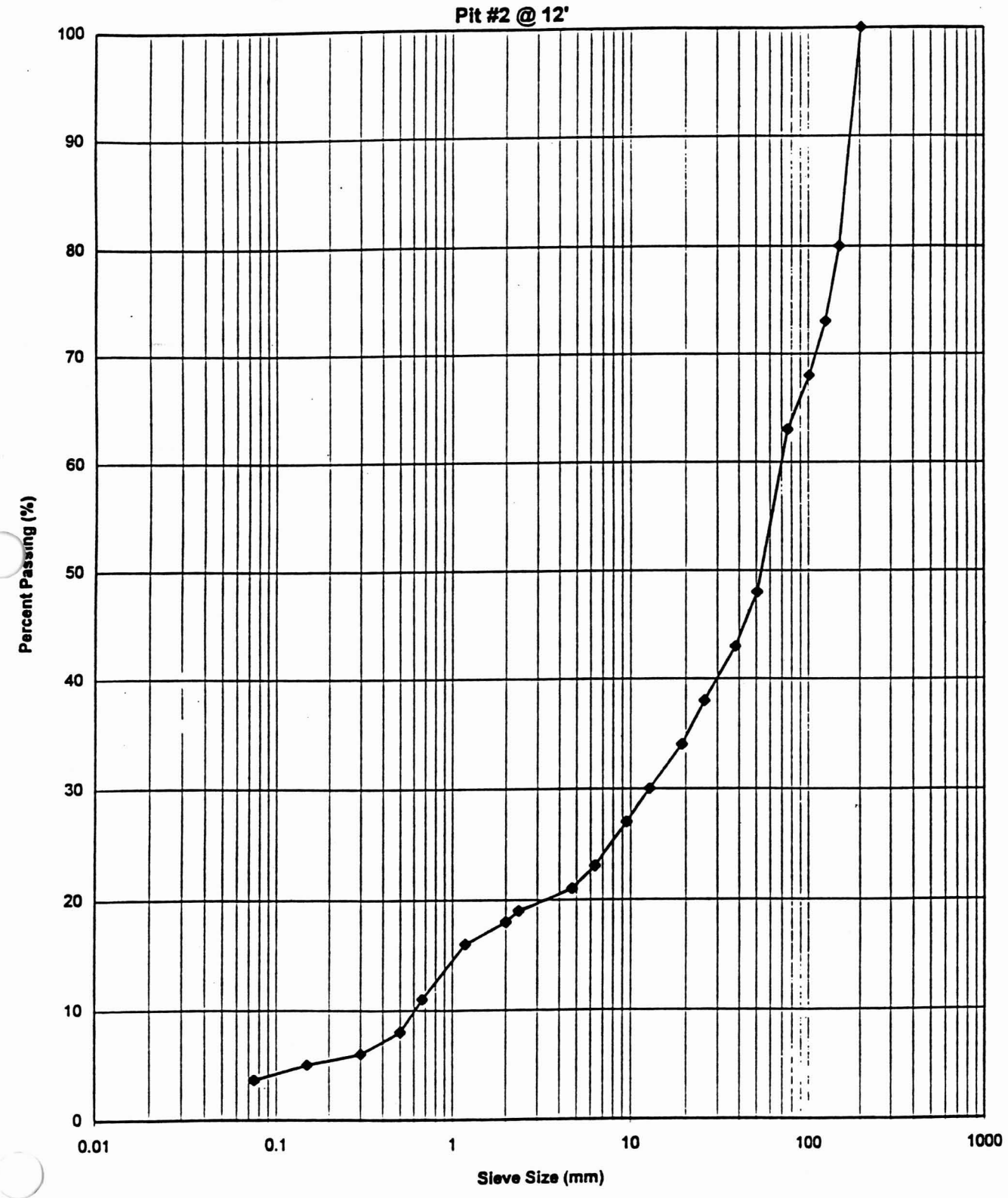


Foree Vann, Inc. Project No. 8130

SIEVE ANALYSIS ASTM D-422



Foree Vann, Inc. Project No. 8130

FOREE & VANN, INC.
9013 NORTH 24TH AVENUE, SUITE 7, PHOENIX, ARIZONA 85021-2851
TELEPHONE (602) 943-6997 FACSIMILE (602) 943-7179

October 1, 1996 Project 8130

Mr. Nasir Raza
Coe & Van Loo Consultants, Inc.
4550 North 12th Street
Phoenix, Arizona 85014

Re: Additional Soil Design Parameters
New River Crossing
Happy Valley Road
Peoria, Arizona

Dear Mr. Raza:

As requested, this firm is pleased to provide additional design parameters based on the existing soil data obtained from exploratory test pits on August 26, 1996. It is our understanding that this additional information will be used in the design of a soil-cement drop structure.

Design Parameters

The following soil parameters may be utilized in your design:

Depth Below Existing Channel Surface	0 - 3 feet	3 - 9 feet	Below 9 feet
Angle of Internal Friction, ϕ	34°	36°	38°
Unit Weight	110 PCF	115 PCF	120 PCF

Cohesion	zero (all materials encountered)

Depth Below Existing Channel Surface	7.5 feet	15.0 feet
Bearing Capacity	2750 PSF	3750 PSF

Note: PCF = pounds per cubic foot
PSF = pounds per square foot

Limitations

Our professional services have been performed using that degree of skill ordinarily exercised, under similar circumstances, by reputable geotechnical engineers practicing in this or similar localities. No other warranty, express or implied, is made.

This report is not intended as a bidding document and any contractor reviewing the report must draw his own conclusions regarding specific construction techniques to be used on this project.

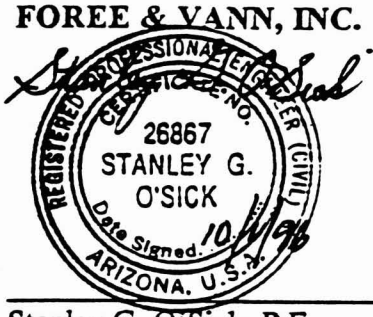
The data presented in this report are representative of the subsurface soils at the locations and to depths investigated only.

This report is for the sole use of Coe & Van Loo Consultants, Inc. No other entity may rely on this data without the express written consent of Coe & Van Loo Consultants, Inc. and Foree & Vann, Inc.

Please call if you have any questions or need further information.

Sincerely,

FOREE & VANN, INC.



Stanley G. O'Sick, P.E.
Project Engineer, Environmental Services

Copies: Addressee (2) and via FAX 264-0928

TABLE C-5
Size Gradation Data of Sediment Data from Test Pit No. 1, Happy Valley Road
(Data Source: Foree & Vann (CVL, 1998))

Item No.	Sieve Size	Sieve Size (mm)	PERCENT FINER				
			Pit # 1 Depth = 3 ft	Pit # 1 Depth = 6 ft	Pit # 1 Depth = 9 ft	Pit # 1 Depth = 12 ft	Average
			(%)	(%)	(%)	(%)	(%)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	8 in	203.2	100.0	100.0	100.0	100.0	100.0
2	6 in	152.4	85.0	100.0	100.0	100.0	96.3
3	5 in	127.0	85.0	100.0	91.0	95.0	92.8
4	4 in	101.6	81.0	100.0	90.0	94.0	91.3
5	3 in	76.2	71.0	86.0	80.0	87.0	81.0
6	2 in	50.8	62.0	74.0	73.0	70.0	69.8
7	1 1/2 in	38.10	55.0	64.0	61.0	62.0	60.5
8	1 in	25.40	43.0	52.0	53.0	54.0	50.5
9	3/4 in	19.05	37.0	45.0	47.0	49.0	44.5
10	1/2 in	12.70	32.0	39.0	41.0	42.0	38.5
11	3/8 in	9.53	30.0	35.0	37.0	38.0	35.0
12	1/4 in	6.35	28.0	31.0	32.0	33.0	31.0
13	# 4	4.75	26.0	29.0	30.0	29.0	28.5
14	# 8	2.36	23.0	26.0	26.0	26.0	25.3
15	# 10	2.00	22.0	24.0	24.0	24.0	23.5
16	# 16	1.18	18.0	18.0	17.0	19.0	18.0
17	# 30	0.60	10.0	9.0	9.0	12.0	10.0
18	# 40	0.425	7.0	7.0	7.0	10.0	7.8
19	# 50	0.300	4.0	5.0	6.0	8.0	5.8
20	# 100	0.150	2.8	3.0	4.6	4.6	3.8
21	# 200	0.075	2.5	2.4	4.2	4.2	3.3

TABLE C-6
Size Gradation Data of Sediment Data from Test Pit No. 2, Happy Valley Road
(Data Source: Foree & Vann (CVL, 1998))

Item No.	Sieve Size	Sieve Size (mm)	PERCENT FINER				
			Pit # 2 Depth = 3 ft	Pit # 2 Depth = 6 ft	Pit # 2 Depth = 9 ft	Pit # 2 Depth = 12 ft	Average
			(%)	(%)	(%)	(%)	(%)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	8 in	203.2	100.0	100.0	100.0	100.0	100.0
2	6 in	152.4	100.0	91.0	83.0	80.0	88.5
3	5 in	127.0	100.0	83.0	76.0	73.0	83.0
4	4 in	101.6	100.0	71.0	68.0	68.0	76.8
5	3 in	76.2	87.0	58.0	67.0	63.0	68.8
6	2 in	50.8	73.0	43.0	56.0	48.0	55.0
7	1 1/2 in	38.10	70.0	38.0	50.0	43.0	50.3
8	1 in	25.40	64.0	32.0	45.0	38.0	44.8
9	3/4 in	19.05	60.0	28.0	40.0	34.0	40.5
10	1/2 in	12.70	54.0	23.0	33.0	30.0	35.0
11	3/8 in	9.53	51.0	21.0	31.0	27.0	32.5
12	1/4 in	6.35	47.0	18.0	26.0	23.0	28.5
13	# 4	4.75	45.0	17.0	21.0	21.0	26.0
14	# 8	2.36	40.0	15.0	17.0	19.0	22.8
15	# 10	2.00	37.0	14.0	16.0	18.0	21.3
16	# 16	1.18	28.0	12.0	13.0	16.0	17.3
17	# 30	0.60	12.0	9.0	7.0	11.0	9.8
18	# 40	0.425	8.0	7.0	5.0	8.0	7.0
19	# 50	0.300	5.0	6.0	4.0	6.0	5.3
20	# 100	0.150	3.0	3.0	3.0	5.0	3.5
21	# 200	0.075	1.9	2.1	2.6	3.6	2.6

FIGURE C-5
Size Gradation Plot of Sediment Data from Test Pit No. 1

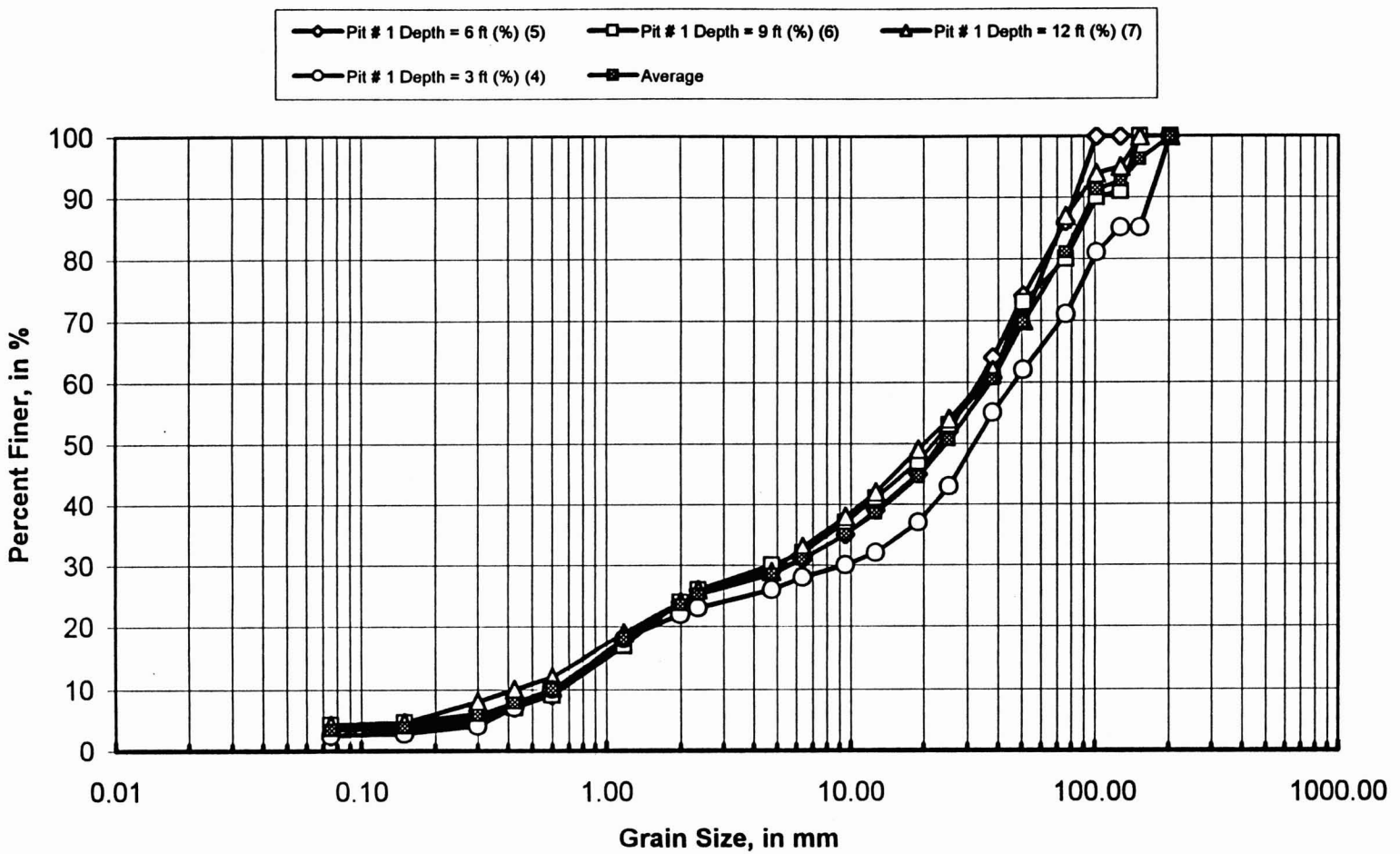
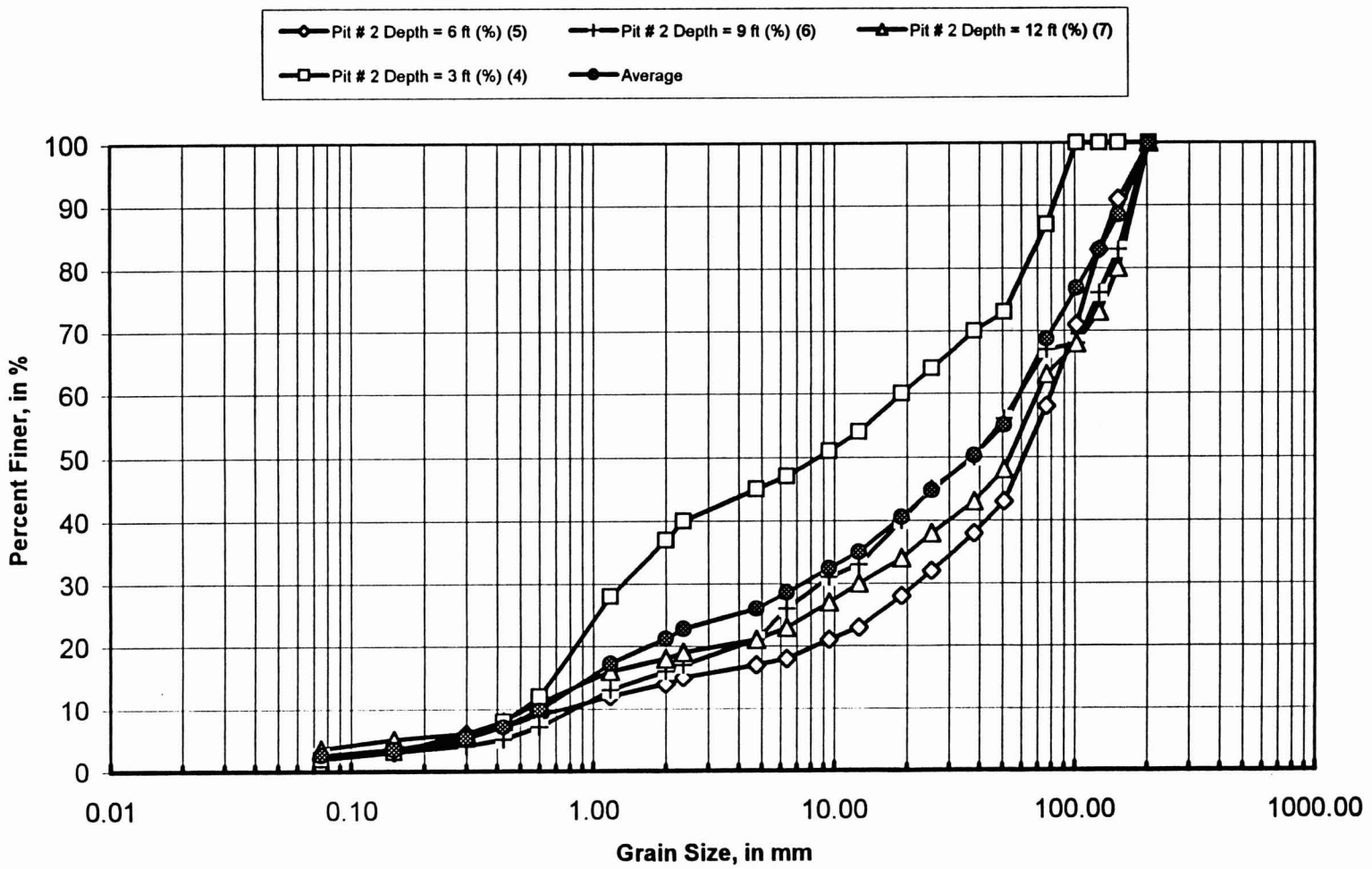


FIGURE C-6
Size Gradation Plot of Sediment Data from Test Pit No. 2



STANTEC SEDIMENT DATA

TABLE C-7
SEDIMENT DATA COLLECTION INFORMATION

Sample No.	Sample ID	Location Lot #	Date	Day	Sampling Order	Depth Range (ft)	Notes	Location Description (ft)	Waypoint No.	GPS Reading Order	GPS Reading
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1	1L	2	14-Sep	Mon.	2	0-3.0 ft.	Uniform bank material profile to 5.0 ft deep.	10 ft from bank	60	16	N33° 43' 43.7", W112° 13' 33.6"
2	1C	2	14-Sep	Mon.	1	0-8.0 inch.	River bed is armored. Count bed materials.	Thalweg	61	17	N33° 43' 42.8", W112° 13' 36.2"
3	1R	2	14-Sep	Mon.	3	0-3.0 ft.	Uniform bank material profile to 4.0 ft deep.	20 ft from bank	62	18	N33° 43' 42.4", W112° 13' 37.1"
4	2L	4	-	-	-	-	-	-	-	-	-
5	2C	4	-	-	-	-	-	-	-	-	-
6	2R	8	-	-	-	-	-	-	-	-	-
7	3L	50	14-Sep	Mon.	4	0- 2.5 ft.		15 ft from bank	65	19	N33° 42' 11.8", W112° 13' 12.3"
8	3C	40	14-Sep	Mon.	5	0-8.0 inch.	River bed is armored. Count bed materials.	Thalweg	64	20	N33° 42' 11.7", W112° 12' 12.0"
9	3R	40	14-Sep	Mon.	6	0-3.0 ft.		40 ft from bank	63	21	N33° 42' 12.2", W112° 13' 18.5"
10	4L	201	16-Sep	Wed.	24	0-1.0 ft.	Hit rocks at 1.0 ft.	20 ft. from bank.	59	15	N33° 41' 13.5", W112° 13' 15.9"
11	4C1	171	16-Sep	Wed.	21	0-10.0 ft.	Sample is taken at about 8.0-10.0 ft.	20 ft. north of roadway.	56	12	N33° 41' 21.6", W112° 13' 17.9"
12	4C2		16-Sep	Wed.	22	0-3.0 ft.	Near Thalweg.	About 60 ft south of roadway	57	13	N33° 41' 18.6", W112° 13' 21.2"
13	4R	201	16-Sep	Wed	23	0-2.0 ft.	The same bank material profile to 6.0 ft deep.	About 15 ft from bank.	58	14	N33° 41' 12.8", W112° 13' 21.0"
14	5L	275	14-Sep	Mon.	9	0-1.0 ft.	Material is hard. Tried 2 locations.	70 ft. from bank.	66	22	N33° 40' 23.3", W112° 13' 32.2"
15	5C	273	14-Sep	Mon.	7	0-8.0 inch.	River bed is armored. Count bed materials.	Thalweg	67	23	N33° 40' 22.9", W112° 13' 39.4"
16	5R	273	14-Sep	Mon.	8	0-4.0 ft.	Materials taken from 2.0 - 4.0 ft.	50 ft. from bank.	68	24	N33° 40' 22.3", W112° 13' 41.3"
17	6L	293	16-Sep	Wed.	20	0-5.0 ft	First 2.5 ft - fine materials; second 2.5 ft - with stones. Took samples from 2.5 ft to 5.0 ft.	20 ft from bank.	55	9	N33° 39' 34.9", W112° 14' 3.1"
18	6C	287	16-Sep	Wed.	19	0-8.0 inch.	River bed is armored. Count bed materials.	Thalweg	54	10	N33° 39' 34.8", W112° 14' 6.9"
19	6R	292	16-Sep	Wed.	18	0 -2.5'	Bank materials are the same to 5.0 ft deep.	20 ft from bank.	53	11	N33° 39' 36.6", W112° 14' 9.2"
20	7L	323	15-Sep	Tue.	10	0-2.0 ft		Near road. 10 ft from bank.	52	1	N33° 37' 40.8", W112° 14' 32.6"
21	7C	-	15-Sep	Tue.	11	0-8.0 inch.	River bed is armored. Count bed materials.	Thalweg	46	2	N33° 38' 55.6", W112° 14' 12.5"
22	7R	293	15-Sep	Tue.	12	0-1.0'	Tried 3 locations. Penetration is hard. Took sample from first location.	10.0 ft from bank.	45	3	N33° 39' 10.6", W112° 14' 10.4"
23	8L	555	15-Sep	Tue.	14	0-1.5 ft	The bank profile is uniform with depth to 10.0 ft.	15.0 ft from bank.	48	5	N33° 38' 8.5", W112° 14' 23.5"
24	8C	556	15-Sep	Tue.	13	0-3.0 ft	Sample is taken at the channel at the cut section.	Near thalweg.	47	4	N33° 38' 8.8", W112° 14' 25.4"
25	9L1	594	15-Sep	Tue.	16	0-4.0 ft	The bank profile is uniform with depth to 12.0 ft.	Bank materials	51	7	N33° 37' 45.4", W112° 14' 23.5"
26	9L2	605	15-Sep	Tue.	17	0-4.0 ft	The bank profile is uniform with depth to 12.0 ft.	Bank materials	50	6	N33° 37' 25.1", W112° 14' 29.3"
27	9C	595	15-Sep	Tue.	15	0-1.0 ft	Took samples at the bed. Hitting rocks at 1.0 ft deep.	Thalweg	49	8	N33° 37' 27.2", W112° 14' 31.6"

Laboratory Consultants, Ltd.

STANDARD SIEVE ANALYSIS

Client: Stantech Consulting
Sample Identification: 1L
Date(s) Analyzed: 09/29-10/05/98
Date Reported: 10/07/98 (Revised)
Laboratory Number: 982335-01

SIEVE SIZE	% RETAINED	CUMULATIVE % PASSING
1"	15.2	84.8
3/4"	10.5	74.3
1/2"	11.1	63.1
3/8"	5.7	57.4
1/4"	2.7	54.7
#4	1.1	53.6
#8	2.9	50.7
#10	0.9	49.9
#16	2.8	47.1
#30	5.6	41.5
#40	3.5	38.0
#50	5.3	32.7
#100	11.1	21.6
#200	9.0	12.6
-#200	12.8	

Analyst: Daolang D. J

947 South 48th Street, Suite 127 Tempe, Arizona 85281 Phone (602) 858-1841 Fax (602) 858-0752

MEMBER ACIL

Laboratory Consultants, Ltd.

STANDARD SIEVE ANALYSIS

Client: Stantech Consulting
Sample Identification: 1R
Date(s) Analyzed: 09/29-10/05/98
Date Reported: 10/05/98
Laboratory Number: 982335-02

SIEVE SIZE	% RETAINED	CUMULATIVE % PASSING
1"	24.8	75.2
3/4"	2.4	72.9
1/2"	5.6	67.3
3/8"	4.1	63.2
1/4"	3.9	59.3
#4	1.8	57.5
#8	3.4	54.1
#10	1.2	52.8
#16	3.5	49.3
#30	5.7	43.6
#40	3.0	40.6
#50	3.9	36.7
#100	10.0	26.7
#200	10.7	16.0
-#200	16.5	

Analyst: Gadang

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Laboratory Consultants, Ltd.

STANDARD SIEVE ANALYSIS

Client: Stantech Consulting
Sample Identification: 3L
Date(s) Analyzed: 09/29-10/05/98
Date Reported: 10/05/98
Laboratory Number: 982335-03

SIEVE SIZE	% RETAINED	CUMULATIVE % PASSING
1"	4.9	95.1
3/4"	4.6	90.5
1/2"	2.0	88.5
3/8"	0.6	87.9
1/4"	0.4	87.4
#4	0.3	87.2
#8	1.2	85.9
#10	0.3	85.6
#16	1.4	84.2
#30	3.5	80.7
#40	3.0	77.7
#50	5.9	71.8
#100	18.1	53.7
#200	17.8	35.9
-#200	36.4	

Analyst: Gadang

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STANDARD SIEVE ANALYSIS

Client: Stantech Consulting
Sample Identification: 3R
Date(s) Analyzed: 09/29-10/05/98
Date Reported: 10/05/98
Laboratory Number: 982335-04

SIEVE SIZE	% RETAINED	CUMULATIVE % PASSING
1"	8.4	91.6
3/4"	0.0	91.6
1/2"	0.6	91.0
3/8"	0.0	91.0
1/4"	0.1	90.9
#4	0.1	90.7
#8	0.8	89.9
#10	0.5	89.4
#16	2.7	86.7
#30	5.8	80.8
#40	3.3	77.5
#50	4.2	73.4
#100	9.5	63.8
#200	13.2	50.6
-#200	50.5	

Analyst: Dadang

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Laboratory Consultants, Ltd.

STANDARD SIEVE ANALYSIS

Client: Stantech Consulting
Sample Identification: 4C1
Date(s) Analyzed: 09/29-10/05/98
Date Reported: 10/05/98
Laboratory Number: 982335-05

SIEVE SIZE	% RETAINED	CUMULATIVE % PASSING
1"	3.8	96.2
3/4"	7.5	88.7
1/2"	6.0	82.7
3/8"	2.3	80.4
1/4"	2.1	78.2
#4	1.3	76.9
#8	5.0	71.8
#10	1.5	70.3
#16	5.7	64.6
#30	13.3	51.4
#40	4.9	46.4
#50	3.2	43.2
#100	3.0	40.2
#200	2.0	38.2
-#200	38.5	

Analyst: Gadang

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MEMBER AGIL

Laboratory Consultants, Ltd.

STANDARD SIEVE ANALYSIS

Client: Stantech Consulting
Sample Identification: 4C2
Date(s) Analyzed: 09/29-10/05/98
Date Reported: 10/07/98 (Revised)
Laboratory Number: 982335-06

SIEVE SIZE	% RETAINED	CUMULATIVE % PASSING
1"	1.9	98.1
3/4"	9.9	88.2
1/2"	8.4	79.9
3/8"	1.3	78.6
1/4"	2.5	76.1
#4	1.6	74.5
#8	4.6	69.9
#10	1.8	68.1
#16	7.0	61.1
#30	17.4	43.7
#40	9.5	34.3
#50	9.8	24.4
#100	8.4	16.0
#200	5.2	10.8
-#200	10.6	

Analyst: Gadang

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STANDARD SIEVE ANALYSIS

Client: Stantech Consulting
Sample Identification: 4L
Date(s) Analyzed: 09/29-10/05/98
Date Reported: 10/05/98
Laboratory Number: 982335-07

SIEVE SIZE	% RETAINED	CUMULATIVE % PASSING
1"	9.8	90.2
3/4"	12.3	78.0
1/2"	14.8	63.2
3/8"	8.9	54.3
1/4"	6.9	47.4
#4	4.7	42.7
#8	8.0	34.7
#10	2.0	32.6
#16	6.7	26.0
#30	11.2	14.8
#40	4.5	10.2
#50	3.5	6.7
#100	3.2	3.5
#200	1.3	2.2
-#200	2.5	

Analyst: D. Dadang

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STANDARD SIEVE ANALYSIS

Client: Stantech Consulting
Sample Identification: 4R
Date(s) Analyzed: 09/29-10/05/98
Date Reported: 10/07/98 (Revised)
Laboratory Number: 982335-08

SIEVE SIZE	% RETAINED	CUMULATIVE % PASSING
1"	14.0	86.0
3/4"	13.8	72.2
1/2"	4.1	68.1
3/8"	0.6	67.5
1/4"	2.0	65.5
#4	1.2	64.4
#8	2.7	61.7
#10	1.1	60.6
#16	5.1	55.5
#30	15.1	40.4
#40	9.1	31.2
#50	11.2	20.0
#100	11.5	8.5
#200	5.2	3.2
-#200	3.7	

Analyst: Gadang

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STANDARD SIEVE ANALYSIS

Client: Stantech Consulting
Sample Identification: 5L
Date(s) Analyzed: 09/29-10/05/98
Date Reported: 10/07/98 (Revised)
Laboratory Number: 982335-09

SIEVE SIZE	% RETAINED	CUMULATIVE % PASSING
1"	12.1	87.9
3/4"	6.9	81.0
1/2"	5.1	75.9
3/8"	2.4	73.5
1/4"	4.1	69.4
#4	2.8	66.7
#8	7.1	59.6
#10	2.2	57.4
#16	5.7	51.7
#30	7.1	44.7
#40	3.0	41.7
#50	3.0	38.6
#100	4.8	33.9
#200	5.2	28.6
-#200	28.2	

Analyst: Gadang

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STANDARD SIEVE ANALYSIS

Client: Stantech Consulting
Sample Identification: 5R
Date(s) Analyzed: 09/29-10/05/98
Date Reported: 10/07/98 (Revised)
Laboratory Number: 982335-10

SIEVE SIZE	% RETAINED	CUMULATIVE % PASSING
1"	10.7	89.3
3/4"	7.9	81.5
1/2"	11.6	69.9
3/8"	1.9	68.0
1/4"	3.1	64.9
#4	1.5	63.3
#8	4.9	58.4
#10	1.5	56.9
#16	6.2	50.7
#30	14.0	36.7
#40	5.5	31.2
#50	5.1	26.1
#100	7.5	18.6
#200	6.8	11.8
-#200	11.8	

Analyst: Gadary

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STANDARD SIEVE ANALYSIS

Client: Stantech Consulting
Sample Identification: 6L
Date(s) Analyzed: 09/29-10/05/98
Date Reported: 10/07/98 (Revised)
Laboratory Number: 982335-11

SIEVE SIZE	% RETAINED	CUMULATIVE % PASSING
1"	2.5	97.5
3/4"	1.3	96.2
1/2"	7.9	88.3
3/8"	3.1	85.2
1/4"	3.4	81.8
#4	2.3	79.6
#8	4.9	74.7
#10	1.8	72.9
#16	8.4	64.5
#30	25.3	39.2
#40	9.6	29.6
#50	9.1	20.6
#100	8.8	11.8
#200	4.2	7.7
-#200	7.7	

Analyst: Dadang

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STANDARD SIEVE ANALYSIS

Client: Stantech Consulting
Sample Identification: 6R
Date(s) Analyzed: 09/29-10/05/98
Date Reported: 10/05/98
Laboratory Number: 982335-12

SIEVE SIZE	% RETAINED	CUMULATIVE % PASSING
1"	16.1	83.9
3/4"	4.6	79.2
1/2"	5.8	73.5
3/8"	3.8	69.7
1/4"	2.9	66.8
#4	1.8	65.0
#8	6.4	58.6
#10	2.2	56.4
#16	9.4	47.0
#30	20.6	26.4
#40	6.8	19.6
#50	5.4	14.1
#100	5.0	9.2
#200	2.2	7.0
-#200	7.3	

Analyst: Gadang

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Laboratory Consultants, Ltd.

STANDARD SIEVE ANALYSIS

Client: Stantech Consulting
Sample Identification: 7L
Date(s) Analyzed: 09/29-10/05/98
Date Reported: 10/05/98
Laboratory Number: 982335-13

SIEVE SIZE	% RETAINED	CUMULATIVE % PASSING
1"	15.7	84.3
3/4"	9.3	75.0
1/2"	5.9	69.1
3/8"	5.6	63.5
1/4"	4.2	59.3
#4	2.3	57.0
#8	6.4	50.7
#10	2.4	48.3
#16	8.0	40.3
#30	16.3	23.9
#40	5.3	18.6
#50	4.5	14.2
#100	3.9	10.2
#200	1.9	8.3
-#200	8.5	

Analyst: D. adang

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STANDARD SIEVE ANALYSIS

Client: Stantech Consulting
Sample Identification: 7R
Date(s) Analyzed: 09/29-10/05/98
Date Reported: 10/05/98
Laboratory Number: 982335-14

SIEVE SIZE	% RETAINED	CUMULATIVE % PASSING
1"	2.0	98.0
3/4"	0.6	97.4
1/2"	6.6	90.8
3/8"	0.2	90.6
1/4"	0.7	89.9
#4	3.6	86.3
#8	0.3	86.1
#10	0.5	85.5
#16	6.0	79.5
#30	3.8	75.8
#40	4.2	71.5
#50	4.0	67.5
#100	7.8	59.7
#200	7.6	52.1
-#200	52.4	

Analyst: Gadang

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Laboratory Consultants, Ltd.

STANDARD SIEVE ANALYSIS

Client: Stantech Consulting
Sample Identification: 8C
Date(s) Analyzed: 09/29-10/05/98
Date Reported: 10/05/98
Laboratory Number: 982335-15

SIEVE SIZE	% RETAINED	CUMULATIVE % PASSING
1"	17.0	83.0
3/4"	14.8	68.2
1/2"	7.6	60.6
3/8"	4.7	55.9
1/4"	5.6	50.3
#4	2.6	47.8
#8	5.9	41.8
#10	1.7	40.1
#16	5.7	34.4
#30	10.5	23.9
#40	4.0	19.9
#50	3.1	16.8
#100	2.7	14.0
#200	1.6	12.4
-#200	12.8	

Analyst: D. Gadang

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STANDARD SIEVE ANALYSIS

Client: Stantech Consulting
Sample Identification: 8L
Date(s) Analyzed: 09/29-10/05/98
Date Reported: 10/05/98
Laboratory Number: 982335-16

SIEVE SIZE	% RETAINED	CUMULATIVE % PASSING
1"	0.0	100.0
3/4"	0.0	100.0
1/2"	12.9	87.1
3/8"	4.2	82.8
1/4"	2.6	80.2
#4	1.6	78.6
#8	4.4	74.2
#10	1.0	73.1
#16	4.4	68.7
#30	8.6	60.1
#40	4.2	55.9
#50	4.5	51.4
#100	7.4	44.0
#200	7.9	36.1
-#200	36.0	

Analyst: D. Gadang

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STANDARD SIEVE ANALYSIS

Client: Stantech Consulting
Sample Identification: 9C
Date(s) Analyzed: 09/29-10/05/98
Date Reported: 10/05/98
Laboratory Number: 982335-17

SIEVE SIZE	% RETAINED	CUMULATIVE % PASSING
1"	25.0	75.0
3/4"	12.4	62.7
1/2"	7.5	55.1
3/8"	3.6	51.5
1/4"	4.0	47.5
#4	2.0	45.6
#8	5.4	40.2
#10	1.6	38.5
#16	5.8	32.7
#30	10.1	22.6
#40	3.7	18.9
#50	3.0	16.0
#100	3.1	12.9
#200	2.0	10.9
-#200	10.6	

Analyst: Gadang

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STANDARD SIEVE ANALYSIS

Client: Stantech Consulting
Sample Identification: 9L1
Date(s) Analyzed: 09/29-10/05/98
Date Reported: 10/05/98
Laboratory Number: 982335-18

SIEVE SIZE	% RETAINED	CUMULATIVE % PASSING
1"	10.6	89.4
3/4"	9.9	79.5
1/2"	6.9	72.6
3/8"	4.4	68.2
1/4"	4.3	63.9
#4	2.2	61.7
#8	6.2	55.6
#10	2.1	53.4
#16	7.9	45.5
#30	15.5	30.0
#40	5.9	24.1
#50	5.1	19.0
#100	6.7	12.3
#200	6.7	5.6
-#200	5.4	

Analyst: Dadang

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Laboratory Consultants, Ltd.

STANDARD SIEVE ANALYSIS

Client: Stantech Consulting
Sample Identification: 9L2
Date(s) Analyzed: 09/29-10/05/98
Date Reported: 10/05/98
Laboratory Number: 982335-19

SIEVE SIZE	% RETAINED	CUMULATIVE % PASSING
1"	11.7	88.3
3/4"	6.2	82.1
1/2"	9.0	73.1
3/8"	2.8	70.2
1/4"	3.8	66.4
#4	1.7	64.7
#8	5.9	58.8
#10	2.0	56.8
#16	6.2	50.6
#30	11.2	39.4
#40	4.4	35.0
#50	4.0	31.0
#100	5.1	25.9
#200	4.1	21.8
-#200	21.7	

Analyst: Dadang

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TABLE C-8
Sediment Gradation from Laboratory Consultants, Ltd.

Item No.	Sieve Size		Sample 1L		Sample 1R		Sample 3L		Sample 3R	
			Percentage Retained	Percent Finer	Percentage Retained	Percent Finer	Percentage Retained	Percent Finer	Percentage Retained	Percent Finer
	Standard	(mm)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1	1"	25.400	15.2	85.0	24.8	75.7	4.9	95.5	8.4	91.3
2	3/4"	19.050	10.5	74.5	2.4	73.3	4.6	90.9	0.0	91.3
3	1/2"	12.700	11.1	63.4	5.6	67.7	2.0	88.9	0.6	90.7
4	3/8"	9.525	5.7	57.7	4.1	63.6	0.6	88.3	0.0	90.7
5	1/4"	6.350	2.7	55.0	3.9	59.7	0.4	87.9	0.1	90.6
6	No.4	4.750	1.1	53.9	1.8	57.9	0.3	87.6	0.1	90.5
7	No.8	2.360	2.9	51.0	3.4	54.5	1.2	86.4	0.8	89.7
8	No.10	2.000	0.9	50.1	1.2	53.3	0.3	86.1	0.5	89.2
9	No.16	1.180	2.8	47.3	3.5	49.8	1.4	84.7	2.7	86.5
10	No.30	0.600	5.6	41.7	5.7	44.1	3.5	81.2	5.8	80.7
11	No.40	0.425	3.5	38.2	3.0	41.1	3.0	78.2	3.3	77.4
12	No.50	0.300	5.3	32.9	3.9	37.2	5.9	72.3	4.2	73.2
13	No.100	0.150	11.1	21.8	10.0	27.2	18.1	54.2	9.5	63.7
14	No.200	0.075	9.0	12.8	10.7	16.5	17.8	36.4	13.2	50.5
15	No.-200		12.8		16.5		36.4		50.5	

TABLE C-9
Sediment Gradation from Laboratory Consultants, Ltd.

Item No.	Sieve Size		Sample 4C1		Sample 4C2		Sample 4L		Sample 4R	
			Percentage Retained	Percent Finer	Percentage Retained	Percent Finer	Percentage Retained	Percent Finer	Percentage Retained	Percent Finer
	Standard	(mm)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1	1"	25.400	3.8	96.3	1.9	98.0	9.8	90.5	14.0	86.4
2	3/4"	19.050	7.5	88.8	9.9	88.1	12.3	78.2	13.8	72.6
3	1/2"	12.700	6.0	82.8	8.4	79.7	14.8	63.4	4.1	68.5
4	3/8"	9.525	2.3	80.5	1.3	78.4	8.9	54.5	0.6	67.9
5	1/4"	6.350	2.1	78.4	2.5	75.9	6.9	47.6	2.0	65.9
6	No.4	4.750	1.3	77.1	1.6	74.3	4.7	42.9	1.2	64.7
7	No.8	2.360	5.0	72.1	4.6	69.7	8.0	34.9	2.7	62.0
8	No.10	2.000	1.5	70.6	1.8	67.9	2.0	32.9	1.1	60.9
9	No.16	1.180	5.7	64.9	7.0	60.9	6.7	26.2	5.1	55.8
10	No.30	0.600	13.3	51.6	17.4	43.5	11.2	15.0	15.1	40.7
11	No.40	0.425	4.9	46.7	9.5	34.0	4.5	10.5	9.1	31.6
12	No.50	0.300	3.2	43.5	9.8	24.2	3.5	7.0	11.2	20.4
13	No.100	0.150	3.0	40.5	8.4	15.8	3.2	3.8	11.5	8.9
14	No.200	0.075	2.0	38.5	5.2	10.6	1.3	2.5	5.2	3.7
15	No.-200		38.5		10.6		2.5		3.7	

TABLE C-10
Sediment Gradation from Laboratory Consultants, Ltd.

Item No.	Sieve Size		Sample 5L		Sample 5R		Sample 6L		Sample 6R	
			Percentage Retained	Percent Finer	Percentage Retained	Percent Finer	Percentage Retained	Percent Finer	Percentage Retained	Percent Finer
	Standard	(mm)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1	1"	25.400	12.1	87.6	10.7	89.3	2.5	97.8	16.1	84.2
2	3/4"	19.050	6.9	80.7	7.9	81.4	1.3	96.5	4.6	79.6
3	1/2"	12.700	5.1	75.6	11.6	69.8	7.9	88.6	5.8	73.8
4	3/8"	9.525	2.4	73.2	1.9	67.9	3.1	85.5	3.8	70.0
5	1/4"	6.350	4.1	69.1	3.1	64.8	3.4	82.1	2.9	67.1
6	No.4	4.750	2.8	66.3	1.5	63.3	2.3	79.8	1.8	65.3
7	No.8	2.360	7.1	59.2	4.9	58.4	4.9	74.9	6.4	58.9
8	No.10	2.000	2.2	57.0	1.5	56.9	1.8	73.1	2.2	56.7
9	No.16	1.180	5.7	51.3	6.2	50.7	8.4	64.7	9.4	47.3
10	No.30	0.600	7.1	44.2	14.0	36.7	25.3	39.4	20.6	26.7
11	No.40	0.425	3.0	41.2	5.5	31.2	9.6	29.8	6.8	19.9
12	No.50	0.300	3.0	38.2	5.1	26.1	9.1	20.7	5.4	14.5
13	No.100	0.150	4.8	33.4	7.5	18.6	8.8	11.9	5.0	9.5
14	No.200	0.075	5.2	28.2	6.8	11.8	4.2	7.7	2.2	7.3
15	No.-200		28.2		11.8		7.7		7.3	

TABLE 11
Sediment Gradation from Laboratory Consultants, Ltd.

Item No.	Sieve Size		Sample 7L		Sample 7R		Sample 8C		Sample 8L	
			Percentage Retained	Percent Finer	Percentage Retained	Percent Finer	Percentage Retained	Percent Finer	Percentage Retained	Percent Finer
	Standard	(mm)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1	1"	25.400	15.7	84.5	2.0	98.3	17.0	83.3	0.0	99.7
2	3/4"	19.050	9.3	75.2	0.6	97.7	14.8	68.5	0.0	99.7
3	1/2"	12.700	5.9	69.3	6.6	91.1	7.6	60.9	12.9	86.8
4	3/8"	9.525	5.6	63.7	0.2	90.9	4.7	56.2	4.2	82.6
5	1/4"	6.350	4.2	59.5	0.7	90.2	5.6	50.6	2.6	80.0
6	No.4	4.750	2.3	57.2	3.6	86.6	2.6	48.0	1.6	78.4
7	No.8	2.360	6.4	50.8	0.3	86.3	5.9	42.1	4.4	74.0
8	No.10	2.000	2.4	48.4	0.5	85.8	1.7	40.4	1.0	73.0
9	No.16	1.180	8.0	40.4	6.0	79.8	5.7	34.7	4.4	68.6
10	No.30	0.600	16.3	24.1	3.8	76.0	10.5	24.2	8.6	60.0
11	No.40	0.425	5.3	18.8	4.2	71.8	4.0	20.2	4.2	55.8
12	No.50	0.300	4.5	14.3	4.0	67.8	3.1	17.1	4.5	51.3
13	No.100	0.150	3.9	10.4	7.8	60.0	2.7	14.4	7.4	43.9
14	No.200	0.075	1.9	8.5	7.6	52.4	1.6	12.8	7.9	36.0
15	No.-200		8.5		52.4		12.8		36.0	

TABLE 12
Sediment Gradation from Laboratory Consultants, Ltd.

Item No.	Sieve Size		Sample 9C		Sample 9L1		Sample 9L2	
			Percentage Retained	Percent Finer	Percentage Retained	Percent Finer	Percentage Retained	Percent Finer
	Standard	(mm)	(%)	(%)	(%)	(%)	(%)	(%)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	1"	25.400	25.0	74.8	10.6	89.2	11.7	88.1
2	3/4"	19.050	12.4	62.4	9.9	79.3	6.2	81.9
3	1/2"	12.700	7.5	54.9	6.9	72.4	9.0	72.9
4	3/8"	9.525	3.6	51.3	4.4	68.0	2.8	70.1
5	1/4"	6.350	4.0	47.3	4.3	63.7	3.8	66.3
6	No.4	4.750	2.0	45.3	2.2	61.5	1.7	64.6
7	No.8	2.360	5.4	39.9	6.2	55.3	5.9	58.7
8	No.10	2.000	1.6	38.3	2.1	53.2	2.0	56.7
9	No.16	1.180	5.8	32.5	7.9	45.3	6.2	50.5
10	No.30	0.600	10.1	22.4	15.5	29.8	11.2	39.3
11	No.40	0.425	3.7	18.7	5.9	23.9	4.4	34.9
12	No.50	0.300	3.0	15.7	5.1	18.8	4.0	30.9
13	No.100	0.150	3.1	12.6	6.7	12.1	5.1	25.8
14	No.200	0.075	2.0	10.6	6.7	5.4	4.1	21.7
15	No.-200		10.6		5.4		21.7	

TABLE 13
Sediment Gradation for Sample 1C

Item No.	Size D						Weighting Factor D^3	Count in Size Range	Count x D^3	Percentage	Percent Finer
	Size Range				Geometric Mean						
	From	To	From	To							
	(in)	(in)	(mm)	(mm)	(in)	(mm)	(1000 mm^3)		(10^6 mm^3)	(%)	(%)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1	0.00	0.75	0.062	19.05	0.04	1.09	0.00	0	6.0	10.0	10.0
2	0.75	1.25	19.05	31.75	0.97	24.59	14.9	8	0.1	0.2	10.2
3	1.25	1.75	31.75	44.45	1.48	37.57	53.0	53	2.8	4.7	14.9
4	1.75	2.25	44.45	57.15	1.98	50.40	128.0	32	4.1	6.8	21.7
5	2.25	2.75	57.15	69.85	2.49	63.18	252.2	38	9.6	16.0	37.7
6	2.75	3.25	69.85	82.55	2.99	75.93	437.8	19	8.3	13.9	51.6
7	3.25	3.75	82.55	95.25	3.49	88.67	697.2	9	6.3	10.5	62.1
8	3.75	4.25	95.25	107.95	3.99	101.40	1042.6	5	5.2	8.7	70.8
9	4.25	4.75	107.95	120.65	4.49	114.12	1486.4	6	8.9	14.9	85.7
10	4.75	5.25	120.65	133.35	4.99	126.84	2040.7	2	4.1	6.8	92.5
11	5.25	5.75	133.35	146.05	5.49	139.56	2718.0	0	0.0	0.0	92.5
12	5.75	6.25	146.05	158.75	5.99	152.27	3530.4	0	0.0	0.0	92.5
13	6.25	6.75	158.75	171.45	6.50	164.98	4490.3	1	4.5	7.5	100.0
								173	59.9	100.0	

NOTE: Field observation indicates that about 5.0 % to 10 % of the bed materials are smaller than 0.75 inches.

Figure C-7
Size Gradation (Sample 1C)
Middle New River Project

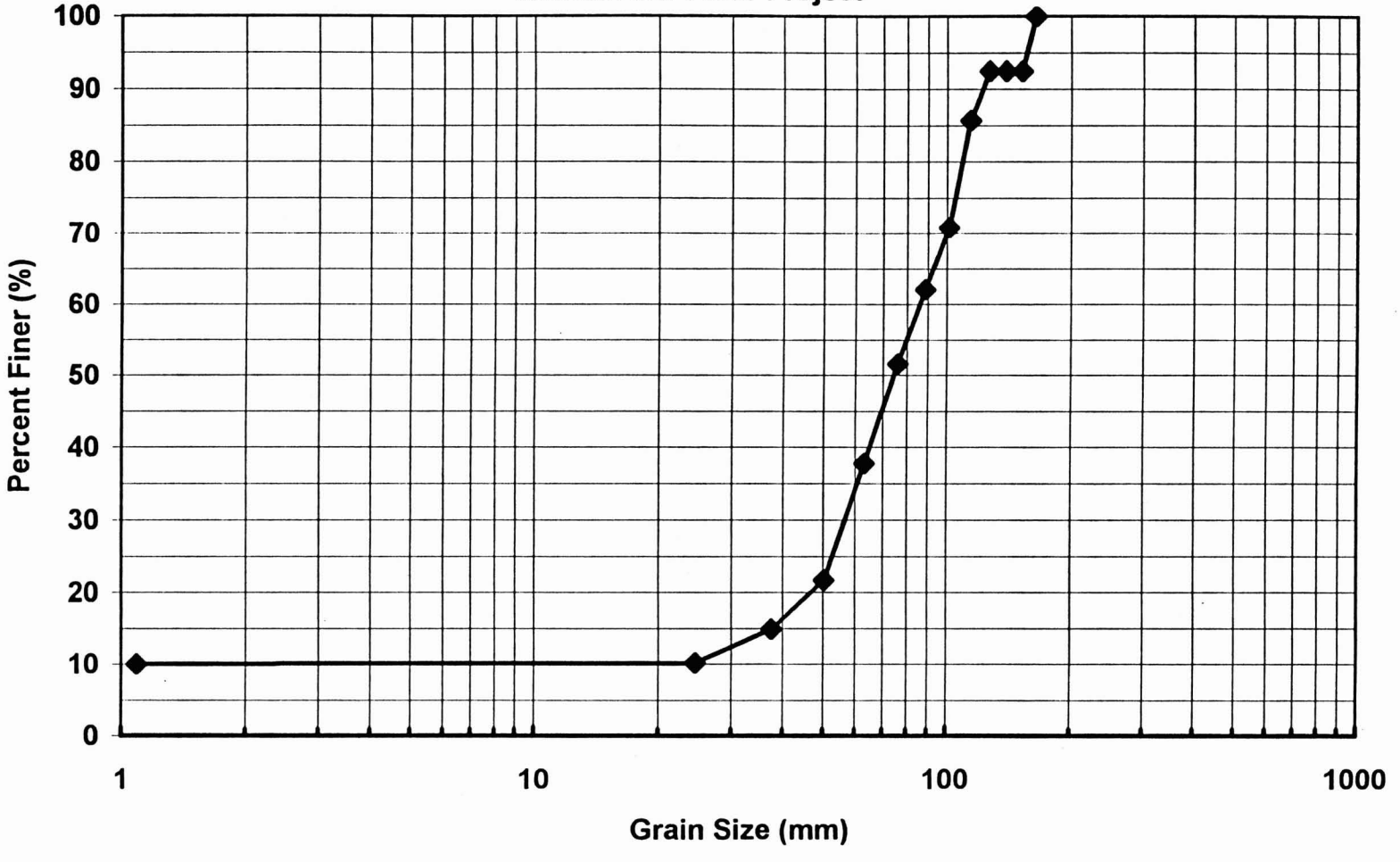


TABLE 14
Sediment Gradation for Sample 3C

Item No.	Size D						Weighting Factor D^3 (1000 mm^3)	Count in Size Range	Count x D^3 (10^6 mm^3)	Percentage (%)	Percent Finer (%)
	Size Range				Geometric Mean						
	From (in)	To (in)	From (mm)	To (mm)	(in)	(mm)					
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1	0.00	0.75	0.06	19.05	0.04	1.09	0.0	0	6.8	10.0	10.0
2	0.75	1.25	19.05	31.75	0.97	24.59	14.9	32	0.5	0.7	10.7
3	1.25	1.75	31.75	44.45	1.48	37.57	53.0	26	1.4	2.0	12.7
4	1.75	2.25	44.45	57.15	1.98	50.40	128.0	29	3.7	5.5	18.2
5	2.25	2.75	57.15	69.85	2.49	63.18	252.2	28	7.1	10.5	28.7
6	2.75	3.25	69.85	82.55	2.99	75.93	437.8	25	10.9	16.2	44.9
7	3.25	3.75	82.55	95.25	3.49	88.67	697.2	13	9.1	13.4	58.3
8	3.75	4.25	95.25	107.95	3.99	101.40	1042.6	9	9.4	13.9	72.2
9	4.25	4.75	107.95	120.65	4.49	114.12	1486.4	3	4.5	6.6	78.8
10	4.75	5.25	120.65	133.35	4.99	126.84	2040.7	7	14.3	21.2	100.0
11	5.25	5.75	133.35	146.05	5.49	139.56	2718.0	0	0.0	0.0	100.0
12	5.75	6.25	146.05	158.75	5.99	152.27	3530.4	0	0.0	0.0	100.0
13	6.25	6.75	158.75	171.45	6.50	164.98	4490.3	0	0.0	0.0	100.0
								172	67.5	100.0	

NOTE: Field observation indicates that about 5.0 to 10.0 % of the bed materials are smaller than 0.75 inches.

Figure C-8
Size Gradation (Sample 3C)
Middle New River Project

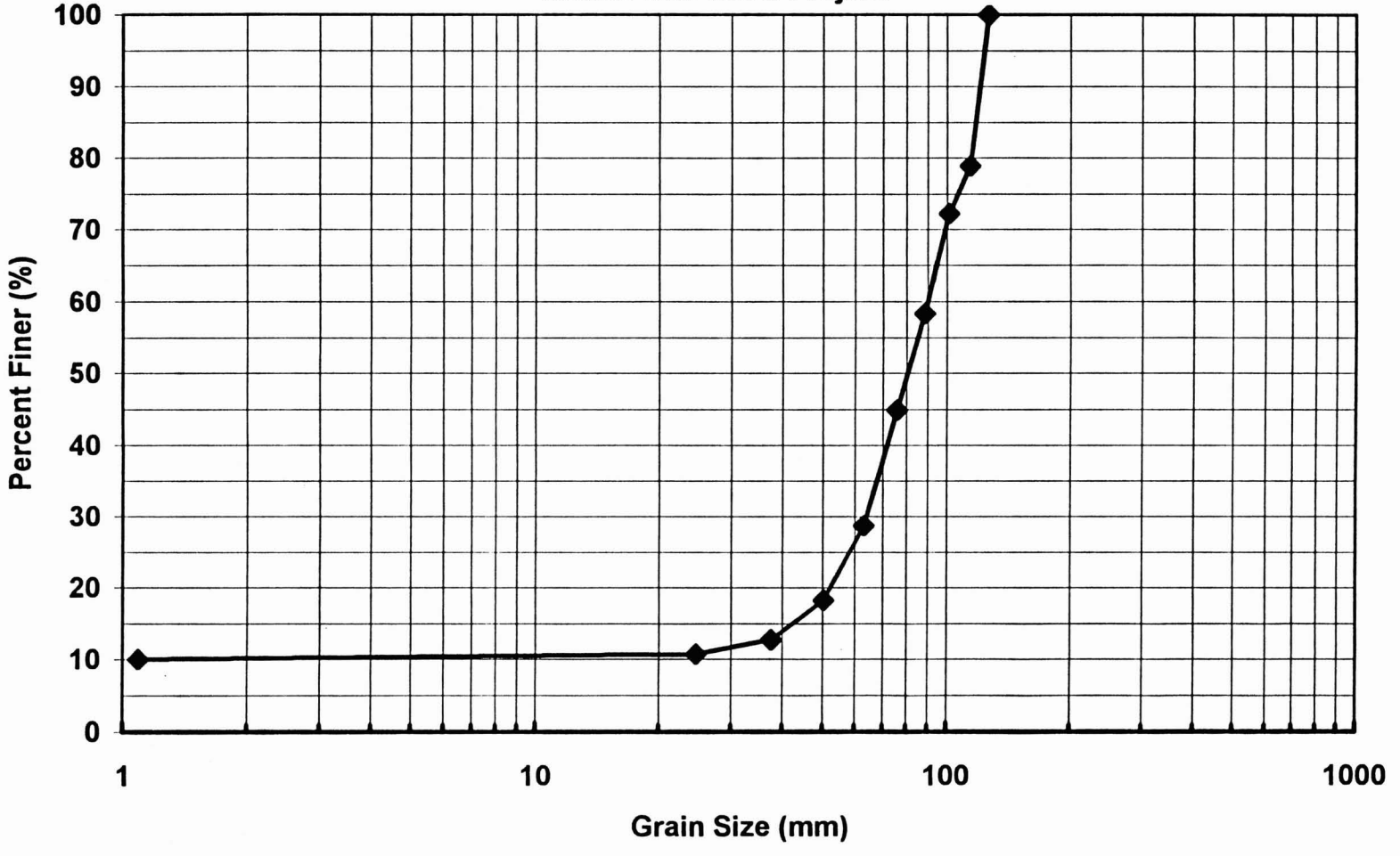


TABLE C-15
Sediment Gradation for Sample 5C

Item No.	Size D						Weighting Factor D^3	Count in Size Range	Count x D^3	Percentage	Percent Finer
	Size Range				Geometric Mean						
	From (in)	To (in)	From (mm)	To (mm)	(in)	(mm)	(1000 mm^3)		(10^6 mm^3)	(%)	(%)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1	0.00	0.75	0.06 -	19.05	0.04	1.09	0.0	0	5.5	10.0	10.0
2	0.75	1.25	19.05 -	31.75	0.97	24.59	14.9	34	0.5	0.9	10.9
3	1.25	1.75	31.75 -	44.45	1.48	37.57	53.0	42	2.2	4.0	15.0
4	1.75	2.25	44.45 -	57.15	1.98	50.40	128.0	41	5.2	9.5	24.5
5	2.25	2.75	57.15 -	69.85	2.49	63.18	252.2	27	6.8	12.4	36.9
6	2.75	3.25	69.85 -	82.55	2.99	75.93	437.8	14	6.1	11.1	48.0
7	3.25	3.75	82.55 -	95.25	3.49	88.67	697.2	8	5.6	10.1	58.2
8	3.75	4.25	95.25 -	107.95	3.99	101.40	1042.6	14	14.6	26.5	84.7
9	4.25	4.75	107.95 -	120.65	4.49	114.12	1486.4	2	3.0	5.4	90.1
10	4.75	5.25	120.65 -	133.35	4.99	126.84	2040.7	0	0.0	0.0	90.1
11	5.25	5.75	133.35 -	146.05	5.49	139.56	2718.0	2	5.4	9.9	100.0
12	5.75	6.25	146.05 -	158.75	5.99	152.27	3530.4	0	0.0	0.0	100.0
13	6.25	6.75	158.75 -	171.45	6.50	164.98	4490.3	0	0.0	0.0	100.0
								184	55.0	100.0	

NOTE: Field observation indicates that about 5.0 to 10,0 % of the bed materials are smaller than 0.75 inches.

Figure C-9
Size Gradation (Sample 5C)
Middle New River Project

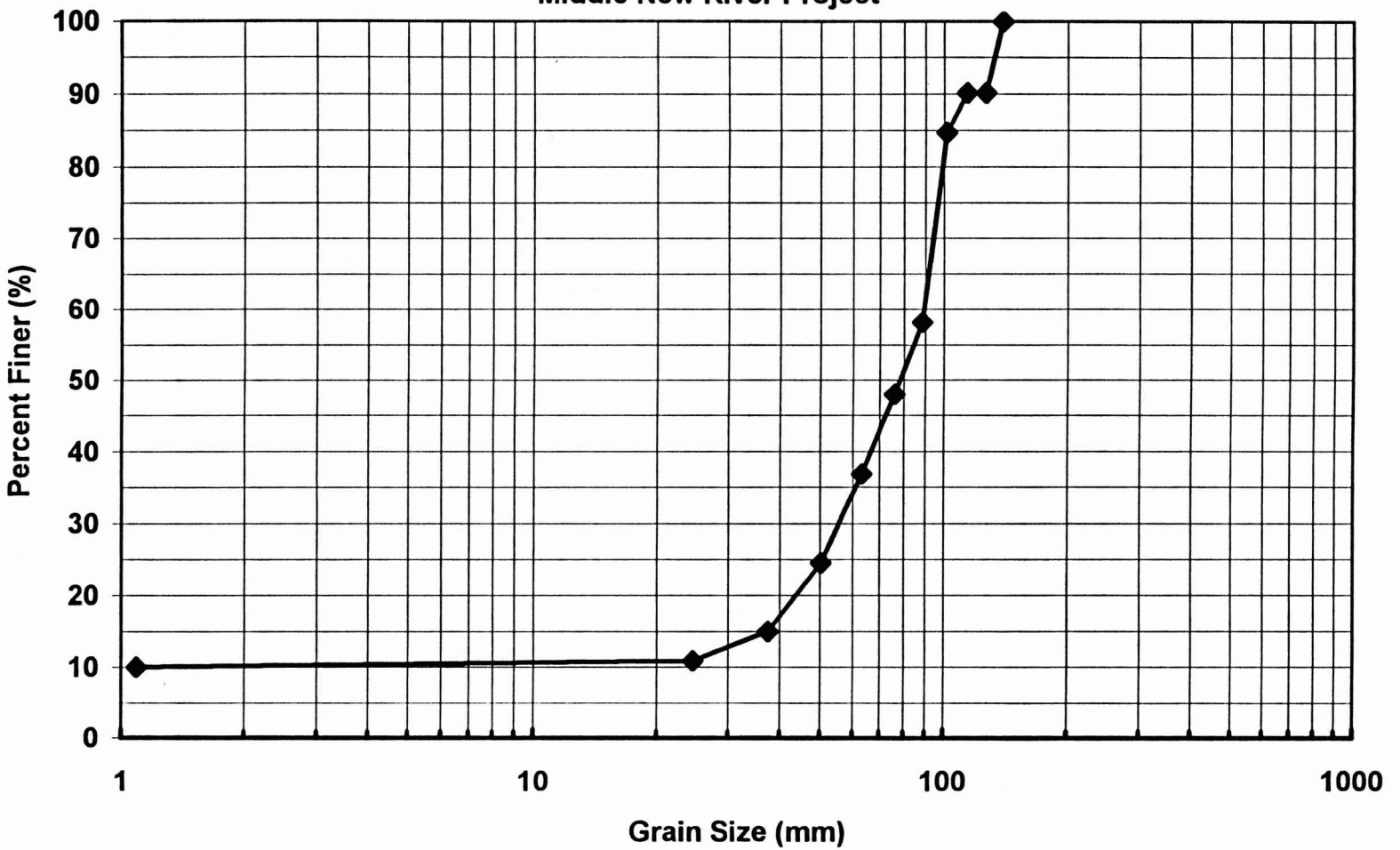


TABLE C-16
Sediment Gradation for Sample 6C

Item No.	Size D						Weighting Factor D^3 (1000 mm^3)	Count in Size Range (mm)	Count x D^3 (10^6 mm^3)	Percentage (%)	Percent Finer (%)
	Size Range				Geometric Mean						
	From (in)	To (in)	From (mm)	To (mm)	(in)	(mm)					
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1	0.00	0.75	0.06	19.05	0.04	1.09	0.0	0	6.4	10.0	10.0
2	0.75	1.25	19.05	31.75	0.97	24.59	14.9	116	1.7	2.7	12.8
3	1.25	1.75	31.75	44.45	1.48	37.57	53.0	67	3.6	5.6	18.3
4	1.75	2.25	44.45	57.15	1.98	50.40	128.0	33	4.2	6.6	25.0
5	2.25	2.75	57.15	69.85	2.49	63.18	252.2	23	5.8	9.1	34.1
6	2.75	3.25	69.85	82.55	2.99	75.93	437.8	19	8.3	13.1	47.1
7	3.25	3.75	82.55	95.25	3.49	88.67	697.2	10	7.0	10.9	58.1
8	3.75	4.25	95.25	107.95	3.99	101.40	1042.6	7	7.3	11.5	69.5
9	4.25	4.75	107.95	120.65	4.49	114.12	1486.4	3	4.5	7.0	76.5
10	4.75	5.25	120.65	133.35	4.99	126.84	2040.7	6	12.2	19.2	95.7
11	5.25	5.75	133.35	146.05	5.49	139.56	2718.0	1	2.7	4.3	100.0
12	5.75	6.25	146.05	158.75	5.99	152.27	3530.4	0	0.0	0.0	100.0
13	6.25	6.75	158.75	171.45	6.50	164.98	4490.3	0	0.0	0.0	100.0
								285	63.7	100.0	

NOTE: Field observation indicates that about 5.0 % to 10.0 % of the bed materials are smaller than 0.75 inches.

Figure C-10
Size Gradation (Sample 6C)
Middle New River Project

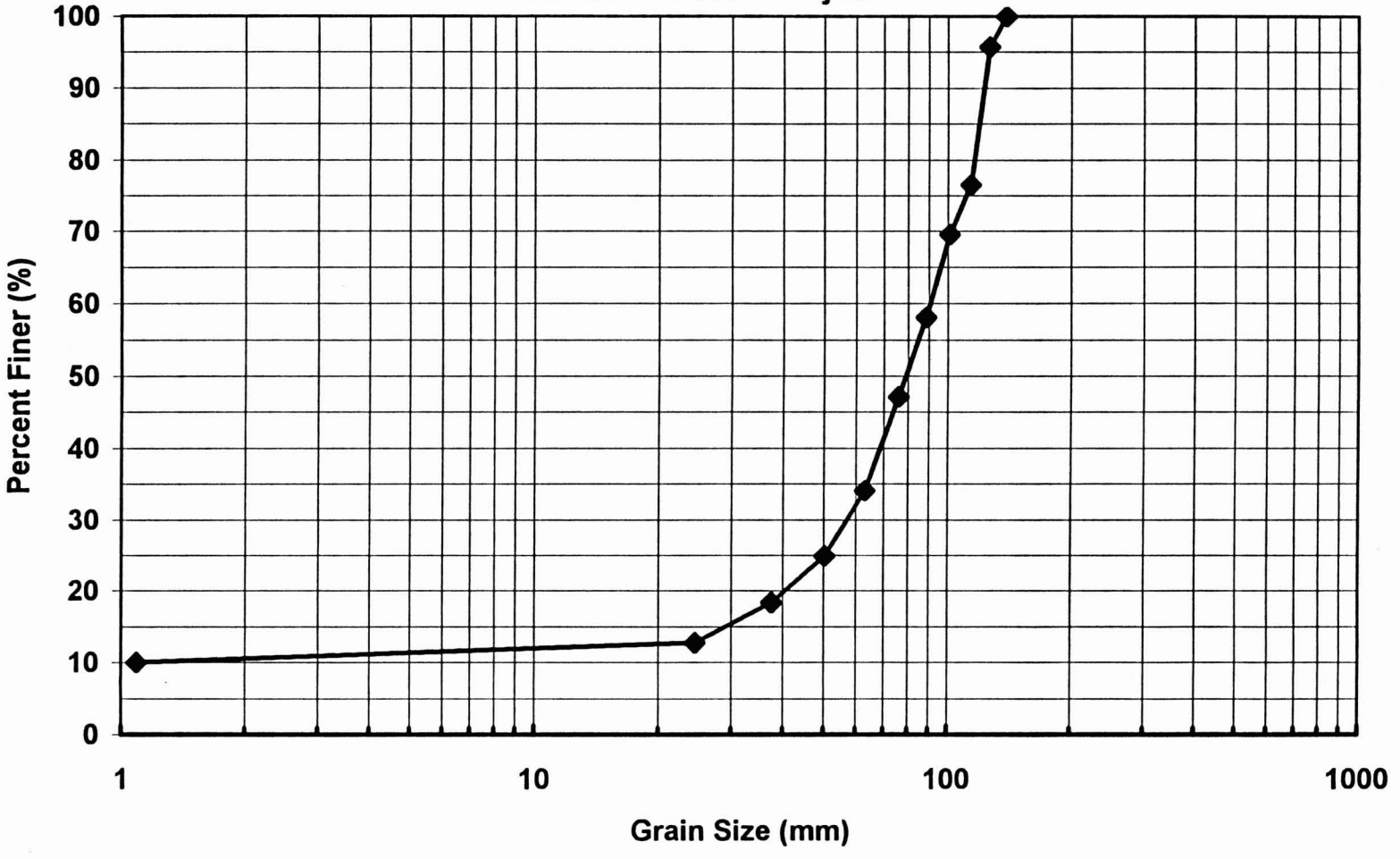
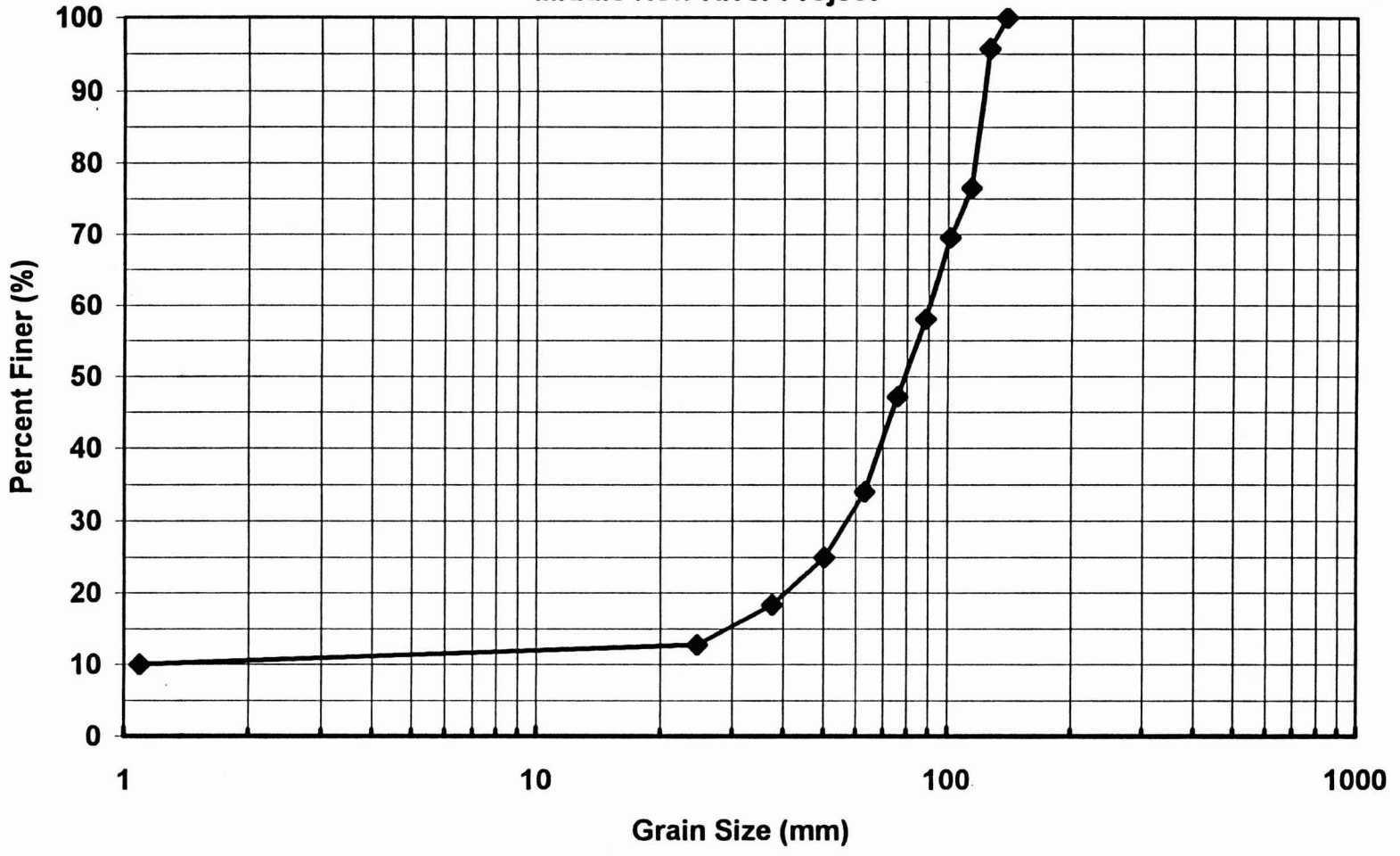


TABLE C-17
Sediment Gradation for Sample 7C

Item No.	Size D						Weighting Factor D^3	Count in Size Range	Count x D^3	Percentage	Percent Finer
	Size Range				Geometric Mean						
	From (in)	To (in)	From (mm)	To (mm)	(in)	(mm)	(1000 mm^3)		(10^6 mm^3)	(%)	(%)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1	0.00	0.75	0.06	19.05	0.04	1.09	0.0	0	6.1	10.0	10.0
2	0.75	1.25	19.05	31.75	0.97	24.59	14.9	20	0.3	0.5	10.5
3	1.25	1.75	31.75	44.45	1.48	37.57	53.0	46	2.4	4.0	14.5
4	1.75	2.25	44.45	57.15	1.98	50.40	128.0	40	5.1	8.4	22.9
5	2.25	2.75	57.15	69.85	2.49	63.18	252.2	17	4.3	7.0	29.9
6	2.75	3.25	69.85	82.55	2.99	75.93	437.8	17	7.4	12.2	42.2
7	3.25	3.75	82.55	95.25	3.49	88.67	697.2	12	8.4	13.7	55.9
8	3.75	4.25	95.25	107.95	3.99	101.40	1042.6	6	6.3	10.3	66.2
9	4.25	4.75	107.95	120.65	4.49	114.12	1486.4	4	5.9	9.8	75.9
10	4.75	5.25	120.65	133.35	4.99	126.84	2040.7	2	4.1	6.7	82.6
11	5.25	5.75	133.35	146.05	5.49	139.56	2718.0	0	0.0	0.0	82.6
12	5.75	6.25	146.05	158.75	5.99	152.27	3530.4	3	10.6	17.4	100.0
13	6.25	6.75	158.75	171.45	6.50	164.98	4490.3	0	0.0	0.0	100.0
								167	60.9	100.0	

NOTE: Field observation indicates that about 5.0 % to 10.0 % of the bed materials are smaller than 0.75 inches.

Figure C-11
Size Gradation (Sample 7C)
Middle New River Project



SEDIMENT DATA SUMMARY

TABLE C-18
SUMMARY TABLE FOR D50, D65, D75 AND D90 (BANK DATA)

Item No.	Sample ID	D50 (mm)	D65 (mm)	D75 (mm)	D90 (mm)	Data Source	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	1L	1.971	13.615	19.352		Collected	
2	1R	1.227	10.609	23.550		Collected	
3	3L	0.132	0.240	0.357	16.193	Collected	Recommended
4	3R	0.075	0.171	0.354	3.256	Collected	Recommended
5	4L	7.454	13.386	17.677		Collected	
6	4R	0.957	5.150	20.154		Collected	
7	5L	1.074	4.312	11.906	27.610	Collected	Recommended
8	5R	1.151	6.555	15.547	25.963	Collected	Recommended
9	UH_7L	0.634	1.146	19.050		(HDR,1995), Sample # 7	
10	UH_5R	0.165	0.429	1.770		(HDR,1995), Sample # 5	
11	6L	0.843	1.209	2.409		Collected	
12	6R	1.416	4.638	14.014		Collected	
13	7L	2.240	10.262	18.835		Collected	
14	7R	0.075	0.246	0.558	6.261	Collected	Recommended
16	8L	0.274	0.937	2.903	14.275	Collected	Recommended
17	9L1	1.668	7.310	15.093		Collected	
18	9L2	1.154	5.126	14.182		Collected	
19	WP_43	0.300	0.697	1.180	28.580	(Wood, Patel & Assoc., 1994)	
20	WP_BankAverage	1.244	10.311	23.048	28.040	(Wood, Patel & Assoc., 1994)	

NOTES:

(1) These values were from linear interpolation performed for the size gradations.

(2) Samples 6 to 9 are in Reach No. 1 (Downstream study limit to Beardsley Rd).

(3) Samples 4 to 5 are in Reach No. 2 (Beardsley Rd. to Pinnacle Peak Rd.)

(4) Samples 1 to 3 are in Reach No. 3 (Pinnacle Peak Rd. to Upstream study limit).

RAM ASSOCIATES, INC. SEDIMENT DATA

R·A·M

RICKER • ATKINSON • McBEE & ASSOCIATES, INC.

Geotechnical Engineering • Construction Materials Testing

Stantec Consulting, Inc.
7776 Point Parkway West, Suite 290
Phoenix, Arizona 85044

March 29, 1999

Attention: Scot S. Schlund, P.E.

Subject: Geotechnical Services
Middle New River Water Course Master Plan
Deer Valley Road to Bell Road
Glendale/Peoria, Arizona

R.A.M. Project No. G04027

At your request this firm has performed a field exploration and laboratory testing services for the subject project. These services included excavating 3 test pits at the locations shown on the attached site plan to depths of 10 to 14 feet. Representative samples of minus 3-inch material were obtained at five-foot intervals from each test pit and the percentage of plus 3-inch material estimated and shown on the test pit logs. These estimates are based on visual observation. The representative samples were returned to our laboratory where sieve analysis and Atterberg Limits tests were performed. The results of the field exploration and laboratory testing are attached.

If you have any questions, please do not hesitate to call.

Respectively submitted,
RICKER, ATKINSON, MCBEE & ASSOCIATES, INC.

Registered Professional Engineer (Civil) CERTIFICATE NO. 10971 KENNETH L. RICKER Date Signed 3-29-99 ARIZONA U.S.A.

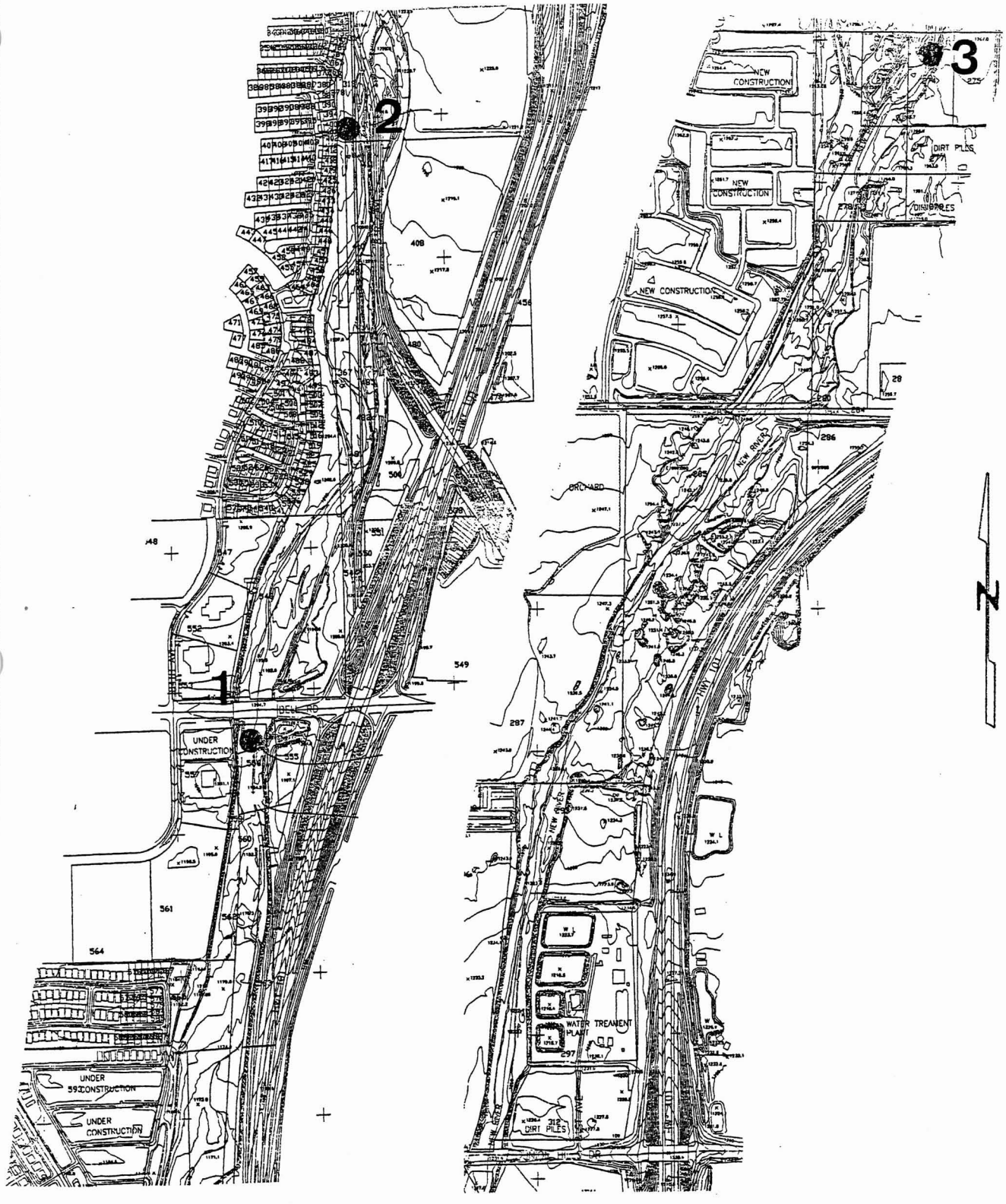
By: Kenneth L. Ricker, P.E.

Registered Professional Engineer (Civil) CERTIFICATE NO. 21852 CHARLES H. ATKINSON Date Signed 3-29-99 ARIZONA, U.S.A.

Reviewed by: Charles H. Atkinson, P.E.

/mp
Copies to: Addressee (3)

2105 South Hardy Drive, Suite 13, Tempe, AZ 85282 • Telephone (602) 921-8100 • Facsimile (602) 921-4081



● Test Boring Location

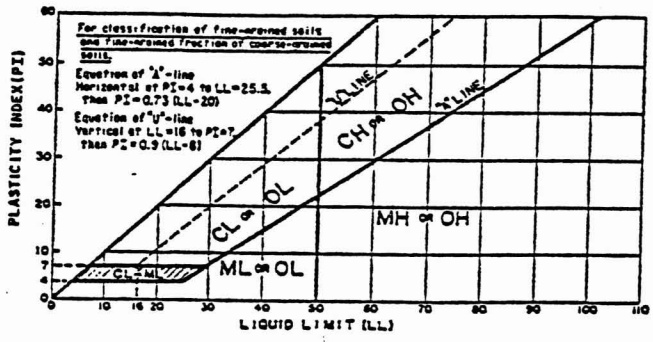
SITE PLAN

LEGEND

CLASSIFICATION OF SOILS

ASTM Designation: D2487-83
(Based on Unified Soil Classification System)

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests				Soil Classification	
				Group Symbol	Name
COARSE-GRAINED SOILS More than 50% retained on No. 200 Sieve	Gravels More than 50% coarse fraction retained on No. 4 Sieve	Clean Gravels Less than 5% fines	$Cu \geq 4$ and $1 \leq Cc \leq 3$	GW	Well graded gravel
			$Cu < 4$ and/or $1 > Cc > 3$	GP	Poorly graded gravel
		Gravels with Fines More than 12% fines	Fines classify as ML or MH	GM	Silty gravel
			Fines classify as CL or CH	GC	Clayey gravel
	Sands 50% or more of coarse fraction passes No. 4 sieve	Clean Sands Less than 5% fines	$Cu \geq 6$ and $1 \leq Cc \leq 3$	SW	Well-graded sand
			$Cu < 6$ and/or $1 > Cc > 3$	SP	Poorly graded sand
		Sands with Fines More than 12% fines	Fines classify as ML or MH	SM	Silty sand
			Fines classify as CL or CH	SC	Clayey sand
FINE-GRAINED SOILS 50% or more passes the No. 200 Sieve	Silts and Clays Liquid limit less than 50	Inorganic	PI>7 and plots on or above "A" line	CL	Lean clay
			PI<4 or plots below "A" line	ML	Silt
		Organic	Liquid Limit - oven dried / Liquid limit - not dried <0.75	OL	Organic clay / Organic silt
	Silts and Clays Liquid limit 50 or more	Inorganic	PI plots on or above "A" line	CH	Fat clay
			PI plots below "A" line	MH	Elastic silt
		Organic	Liquid limit - oven dried / Liquid limit - not dried <0.75	OH	Organic clay / Organic silt
HIGHLY ORGANIC SOILS	Primarily organic matter, dark in color, and organic odor			PT	Peat



TEST BORING LOG DEFINITIONS

Blows per foot using 140 pound hammer with 30 inch free-fall.

Depth, feet	Blows/Foot		Sample Type	Dry Density pcf	Water Content, %	Unified Classification	Description
	C	N/R					

C = Continuous Penetration Resistance (2 inch diameter rod)
N = Standard Penetration Resistance (ASTM D1586)
R = Penetration Resistance (3 inch diameter ring line sampler)

U.S. STANDARD SERIES SIEVE				GRAIN SIZES	CLEAR SQUARE SIEVE OPENINGS			
200		40	10	4	3/4"		3"	12"
SILTS & CLAYS DISTINGUISHED ON BASIS OF PLASTICITY	SAND				GRAVEL		COBBLES	BOULDERS
	FINE	MEDIUM	COARSE		FINE	COARSE		

MOISTURE CONDITION (INCREASING MOISTURE →)

DRY — SLIGHTLY DAMP — DAMP (Plastic Limit) — MOIST — VERY MOIST — WELL (SATURATED) (Liquid Limit)

CONSISTENCY CORRELATION		RELATIVE DENSITY CORRELATION	
CLAYS & SILTS	BLOWS/FOOT*	SANDS & GRAVELS	BLOWS/FOOT*
VERY SOFT	0-2	VERY LOOSE	0-4
SOFT	2-4	LOOSE	4-10
FIRM	4-8	MEDIUM DENSE	10-30
STIFF	8-16	DENSE	30-50
VERY STIFF	16-32	VERY DENSE	OVER 50
HARD	OVER 32		

***Number of blows of 140 lb. hammer falling 30" to drive a 2" O.D. (1-3/8" I.D.) split-spoon sampler (ASTM D1586).**

TEST PIT LOG

Project: **Middle New River Water Course Master Plan** TEST PIT: 1

Elevation: Not Determined Datum: --- Date: 3-15-99

Depth, feet	Blows/Foot C	Blows/Foot N/R	Sample Type	Dry Density, pcf	Water Content, %	Unified Classification	Description
						GP/GC	Sand and Gravel, Some Clay, Some Cobbles; brown, nearly dry, medium dense to dense, medium plasticity fines. 5% +3" material
5							10% +3" material
10						GP/GM	Sand and Gravel, Some Silt, Some Cobbles; brown, nearly dry, medium dense to dense, some high plastic silt fines. 7% +3" material
15							Stopped drilling at 14 feet. No Groundwater Observed.
20							
25							

This test pit log represents the conditions encountered on the date of excavation at this particular location. No other warranty is expressed or implied to the actual conditions which may exist within the vicinity of this test pit location.

TEST PIT LOG

Project: **Middle New River Water Course Master Plan** TEST PIT: 2
Elevation: Not Determined Datum: --- Date: 3-15-99

Depth, feet	Blows/Foot C	Blows/Foot N/R	Sample Type	Dry Density, pcf	Water Content, %	Unified Classification	Description
5						GP	Sand and Gravel, Trace Silt, Some Cobbles; brown, nearly dry, medium dense to dense, no to low plasticity fines. 15% +3" material
10						GP/ GC	Sand and Gravel, Some Clay, Some Cobbles; brown, nearly dry, medium dense to dense, medium plasticity fines. 7% +3" material
15							Stopped drilling at 10 feet. No Groundwater Observed.
20							
25							

This test pit log represents the conditions encountered on the date of excavation at this particular location. No other warranty is expressed or implied to the actual conditions which may exist within the vicinity of this test pit location.

TEST PIT LOG

Project: **Middle New River Water Course Master Plan** TEST PIT: 3

Elevation: Not Determined Datum: --- Date: 3-15-99

Depth, feet	Blows/Foot C	Blows/Foot N/R	Sample Type	Dry Density, pcf	Water Content, %	Unified Classification	Description
						GP	Cobbles, Some Gravel, Trace Sand; brown, nearly dry, medium dense. 80%+3" material.
5						GP/ GM	Sand and Gravel, Some Silt, Some Cobbles; brown, nearly dry, medium dense to dense, some high plastic silt fines. 15%+3" material
							10%+3" material
10							
							Stopped drilling at 11 feet. No Groundwater Observed.
15							
20							
25							

This test pit log represents the conditions encountered on the date of excavation at this particular location. No other warranty is expressed or implied to the actual conditions which may exist within the vicinity of this test pit location.

LABORATORY TEST RESULTS

Date: 24-Mar-99

SAMPLE SOURCE: As noted below

TESTING PERFORMED: Sieve Analysis, Percent Passing No. 200 Sieve, Atterberg Limits (ASTM C136, D1140, D4318)

SAMPLED BY: RAM/Taylor

RESULTS:

Sample	Atterberg Limits		Sieve Size - Accumulative Percent Passing											Soil
Source	LL	PI	200	100	50	30	16	8	4	3/4"	1"	2"	3"	Class.*
1 @ 0'-5'	31	11	7.9	10	12	18	28	36	40	56	61	89	100	GP-GC
1 @ 5'-10'	56	23	7.5	9	12	17	28	38	45	63	68	91	100	GP-GC
1 @ 10'-14'	51	17	9.2	12	16	26	41	51	57	74	80	100		GW-GM
2 @ 0'-5'		NP	4.7	6	9	16	27	36	43	62	68	87	100	GP
2 @ 5'-10'	43	20	6.4	8	12	20	33	45	53	77	83	97	100	SP-SC
3 @ 0'-5'	43	15	7.3	9	12	21	33	41	47	68	74	93	100	GP-GM
3 @ 5'-10'	50	18	8.6	12	16	24	32	38	44	65	73	96	100	GP-GM

NP = Non-Plastic

* Unified Soil Classification System

APPENDIX D

ALTERNATIVE ANALYSIS HEC-RAS COMPUTER SUMMARY OUTPUT

MODEL B HEC-RAS OUTPUT

MIDDLE NEW RIVER WATERCOURSE MASTER PLAN
ALTERNATIVE 5 MODEL B - LOW FLOW CHANNEL
HEC-RAS SUMMERY OUTPUT TABLE
JOB # 2890058

Reach	River Sta	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 # Chnl
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1	500	12000	1006.84	1014.03		1014.54	0.002443	5.77	2079.01	331.72	0.41
1	500	2700	1006.84	1010.1		1010.27	0.002447	3.28	823.11	308.16	0.35
1	400	12000	1005.13	1012.33		1012.85	0.002425	5.76	2083.72	331.8	0.4
1	400	2700	1005.13	1008.39		1008.56	0.002456	3.28	822.28	308.15	0.35
1	300	12000	1003.42	1010.66		1011.17	0.002374	5.72	2097.86	332.06	0.4
1	300	2700	1003.42	1006.67		1006.84	0.002468	3.29	821.04	308.12	0.36
1	200	12000	1001.71	1009.07		1009.56	0.002245	5.62	2135.28	332.73	0.39
1	200	2700	1001.71	1005.26		1005.39	0.001757	2.96	911.35	309.88	0.3
1	100	12000	1000	1004.2	1004.2	1006	0.018014	10.76	1115.32	313.8	1.01
1	100	2700	1000	1001.55	1001.55	1002.32	0.023675	7.04	383.63	251.19	1
2	500	10350	1005.16	1011.97		1012.45	0.002249	5.6	1847.61	311.24	0.41
2	500	2530	1005.16	1008.38		1008.55	0.002255	3.29	769.25	289.71	0.36
2	400	10350	1003.87	1010.68		1011.16	0.002251	5.6	1847.04	311.23	0.41
2	400	2530	1003.87	1007.1		1007.26	0.002236	3.28	771.22	289.75	0.35
2	300	10350	1002.58	1009.38		1009.87	0.002258	5.61	1845.24	311.2	0.41
2	300	2530	1002.58	1005.82		1005.99	0.002186	3.26	776.61	289.86	0.35
2	200	10350	1001.29	1008.08		1008.57	0.002274	5.62	1841.15	311.12	0.41
2	200	2530	1001.29	1004.71		1004.86	0.001776	3.06	827.88	290.92	0.32
2	100	10350	1000	1003.98	1003.98	1005.67	0.016481	10.42	992.86	294.31	1
2	100	2530	1000	1001.56	1001.56	1002.34	0.021586	7.08	357.28	232.24	1.01
3	500	6100	1005.32	1010.61		1010.98	0.002536	4.86	1255.38	276.53	0.4
3	500	2052	1005.32	1008.32		1008.48	0.002552	3.22	637.89	262.79	0.36
3	400	6100	1003.99	1009.29		1009.66	0.002514	4.85	1258.82	276.61	0.4
3	400	2052	1003.99	1006.99		1007.15	0.002537	3.21	639.04	262.82	0.36
3	300	6100	1002.66	1008		1008.36	0.002443	4.8	1270.14	276.85	0.4
3	300	2052	1002.66	1005.67		1005.83	0.002505	3.2	641.58	262.88	0.36
3	200	6100	1001.33	1006.79		1007.13	0.002255	4.68	1302.34	277.55	0.38
3	200	2052	1001.33	1004.55		1004.68	0.001931	2.95	694.99	264.09	0.32
3	100	6100	1000	1003.12	1003.12	1004.41	0.019283	9.11	669.34	263.51	1.01
3	100	2052	1000	1001.47	1001.47	1002.2	0.023069	6.87	298.67	205.89	1.01

MIDDLE NEW RIVER WATERCOURSE MASTER PLAN
ALTERNATIVE 4 MODEL B - BENCH AND SOIL CEMENT
HEC-RAS SUMMERY OUTPUT TABLE
JOB # 2890058

Reach	River Sta	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 # Chnl
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1	500	12000	1005.84	1011.48		1012.15	0.002604	6.57	1825.13	342.55	0.5
1	500	2700	1005.84	1008.16		1008.38	0.002608	3.76	718.96	314.29	0.44
1	400	12000	1004.38	1010.03		1010.7	0.002581	6.56	1830.19	342.6	0.5
1	400	2700	1004.38	1006.7		1006.92	0.002618	3.76	718.16	314.28	0.44
1	300	12000	1002.92	1008.62		1009.28	0.002503	6.49	1847.61	342.81	0.49
1	300	2700	1002.92	1005.23		1005.45	0.002646	3.77	715.8	314.25	0.44
1	200	12000	1001.46	1007.31		1007.93	0.002297	6.33	1897.22	343.39	0.47
1	200	2700	1001.46	1004.09		1004.26	0.001719	3.31	816.18	315.52	0.36
1	100	12000	1000	1003.61	1003.61	1005.33	0.012072	10.53	1139.81	334.45	1.01
1	100	2700	1000	1001.34	1001.34	1002.01	0.016439	6.56	411.52	310.35	1
2	500	10350	1004.51	1009.95		1010.54	0.002412	6.17	1676.96	326.76	0.48
2	500	2530	1004.51	1006.86		1007.07	0.002419	3.65	693.74	299.42	0.42
2	400	10350	1003.38	1008.83		1009.42	0.002397	6.16	1680.29	326.79	0.48
2	400	2530	1003.38	1005.74		1005.95	0.002391	3.63	696.14	299.43	0.42
2	300	10350	1002.26	1007.72		1008.31	0.002382	6.15	1683.5	326.84	0.48
2	300	2530	1002.26	1004.64		1004.84	0.00233	3.61	701.68	299.52	0.42
2	200	10350	1001.13	1006.63		1007.21	0.00232	6.1	1697.23	327.01	0.47
2	200	2530	1001.13	1003.72		1003.89	0.001757	3.31	764.67	300.36	0.37
2	100	10350	1000	1003.39	1003.39	1005	0.012339	10.19	1016.19	318.57	1
2	100	2530	1000	1001.32	1001.32	1001.99	0.016543	6.53	387.26	295.29	1.01
3	500	6100	1004.52	1008.61		1009.07	0.002682	5.4	1129.39	291.38	0.48
3	500	2052	1004.52	1006.7		1006.9	0.002696	3.54	579.63	283.73	0.44
3	400	6100	1003.39	1007.5		1007.95	0.002657	5.39	1132.59	291.42	0.48
3	400	2052	1003.39	1005.57		1005.77	0.002684	3.54	580.35	283.74	0.44
3	300	6100	1002.26	1006.41		1006.85	0.002568	5.33	1144.53	291.58	0.47
3	300	2052	1002.26	1004.45		1004.64	0.002654	3.52	582.36	283.77	0.43
3	200	6100	1001.13	1005.4		1005.81	0.002321	5.17	1180.61	292.08	0.45
3	200	2052	1001.13	1003.54		1003.69	0.001912	3.19	643.46	284.63	0.37
3	100	6100	1000	1002.57	1002.57	1003.78	0.013526	8.86	688.53	285.26	1
3	100	2052	1000	1001.24	1001.24	1001.86	0.016769	6.3	325.73	264.96	1

MIDDLE NEW RIVER WATERCOURSE MASTER PLAN
ALTERNATIVE 3 MODEL B - SACRIFICIAL COVER
HEC-RAS SUMMERY OUTPUT TABLE
JOB # 2890058

Reach	River Sta	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 # Chnl
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1	500	12000	1007.61	1013		1013.76	0.003016	6.98	1719.64	329.58	0.54
1	500	2700	1007.61	1009.82		1010.05	0.003035	3.92	689.12	316.82	0.47
1	400	12000	1005.71	1011.11		1011.86	0.003008	6.97	1721.09	329.59	0.54
1	400	2700	1005.71	1007.94		1008.17	0.002936	3.88	696.14	316.91	0.46
1	300	12000	1003.8	1009.27		1010.01	0.002875	6.88	1745.2	329.89	0.53
1	300	2700	1003.8	1005.94		1006.19	0.003383	4.05	666.82	316.54	0.49
1	200	12000	1001.9	1007.67		1008.33	0.002405	6.51	1844.18	331.09	0.49
1	200	2700	1001.9	1004.46		1004.64	0.001836	3.36	802.87	318.26	0.37
1	100	12000	1000	1003.58	1003.58	1005.34	0.01193	10.65	1127.14	322.31	1
1	100	2700	1000	1001.33	1001.33	1001.99	0.016472	6.54	412.84	313.32	1
2	500	10350	1005.78	1010.79		1011.46	0.00288	6.58	1582.48	325.91	0.52
2	500	2530	1005.78	1007.94		1008.16	0.002882	3.79	670.06	314.51	0.46
2	400	10350	1004.33	1009.36		1010.02	0.002839	6.55	1589.39	326	0.52
2	400	2530	1004.33	1006.5		1006.72	0.002856	3.78	671.89	314.53	0.45
2	300	10350	1002.89	1007.97		1008.62	0.00274	6.48	1606.88	326.21	0.51
2	300	2530	1002.89	1005.03		1005.26	0.002961	3.82	664.58	314.44	0.46
2	200	10350	1001.45	1006.71		1007.31	0.00245	6.27	1663.05	326.9	0.49
2	200	2530	1001.45	1003.9		1004.07	0.001891	3.33	761.47	315.67	0.38
2	100	10350	1000	1003.26	1003.26	1004.87	0.012199	10.22	1017.54	318.9	1
2	100	2530	1000	1001.28	1001.28	1001.92	0.01653	6.42	395.04	310.99	1
3	500	6100	1006.02	1010.44		1011.01	0.002944	6.02	1013.58	237.94	0.51
3	500	2052	1006.02	1008.33		1008.57	0.002947	3.96	518.64	229.47	0.46
3	400	6100	1004.52	1008.95		1009.51	0.002934	6.01	1014.72	237.99	0.51
3	400	2052	1004.52	1006.82		1007.07	0.00297	3.97	517.4	229.46	0.47
3	300	6100	1003.01	1007.5		1008.05	0.002803	5.93	1029.15	238.2	0.5
3	300	2052	1003.01	1005.3		1005.55	0.003019	3.99	514.82	229.4	0.47
3	200	6100	1001.51	1006.22		1006.71	0.002388	5.64	1081.59	239.11	0.47
3	200	2052	1001.51	1004.12		1004.31	0.001952	3.49	588.22	230.69	0.38
3	100	6100	1000	1002.85	1002.85	1004.24	0.012881	9.48	643.24	231.63	1
3	100	2052	1000	1001.38	1001.38	1002.07	0.016211	6.65	308.73	225.78	1

MIDDLE NEW RIVER WATERCOURSE MASTER PLAN
ALTERNATIVE 2 MODEL B - TRAPEZOID GABION MATTRESS
HEC-RAS SUMMERY OUTPUT TABLE
JOB # 2890058

Reach	River Sta	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 # Chnl
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1	500	12000	1006.18	1012.82		1013.6	0.00243	7.09	1691.58	267.91	0.5
1	500	2700	1006.18	1008.91		1009.16	0.002425	4.01	673.36	252.25	0.43
1	400	12000	1004.64	1011.29		1012.07	0.002419	7.08	1694.08	267.95	0.5
1	400	2700	1004.64	1007.36		1007.61	0.002442	4.02	671.94	252.23	0.43
1	300	12000	1003.09	1009.79		1010.56	0.002361	7.03	1706.81	268.14	0.49
1	300	2700	1003.09	1005.82		1006.07	0.002411	4	674.62	252.27	0.43
1	200	12000	1001.55	1008.35		1009.09	0.002249	6.92	1733.1	268.53	0.48
1	200	2700	1001.55	1004.6		1004.8	0.001679	3.58	753.64	253.52	0.37
1	100	12000	1000	1004.19	1004.19	1006.23	0.011439	11.48	1045.35	258.08	1.01
1	100	2700	1000	1001.56	1001.56	1002.34	0.015677	7.08	381.49	247.58	1
2	500	10350	1004.88	1011.62		1012.39	0.002387	7.05	1468.65	231.36	0.49
2	500	2530	1004.88	1007.79		1008.05	0.002393	4.14	611.42	216.03	0.43
2	400	10350	1003.66	1010.4		1011.17	0.002389	7.05	1468.34	231.36	0.49
2	400	2530	1003.66	1006.58		1006.84	0.00237	4.13	613.28	216.07	0.43
2	300	10350	1002.44	1009.18		1009.95	0.002393	7.05	1467.51	231.34	0.49
2	300	2530	1002.44	1005.39		1005.65	0.00228	4.08	620.61	216.2	0.42
2	200	10350	1001.22	1007.95		1008.72	0.002404	7.06	1465.39	231.31	0.49
2	200	2530	1001.22	1004.38		1004.61	0.001808	3.8	666.43	217.05	0.38
2	100	10350	1000	1004.23	1004.23	1006.28	0.011444	11.5	899.89	221.31	1.01
2	100	2530	1000	1001.67	1001.67	1002.5	0.015395	7.31	346.19	211.07	1.01
3	500	6100	1004.69	1009.48		1010	0.002505	5.83	1046.76	228.23	0.48
3	500	2052	1004.69	1007.19		1007.42	0.002505	3.84	534.68	219.07	0.43
3	400	6100	1003.52	1008.31		1008.84	0.002494	5.82	1048.26	228.29	0.48
3	400	2052	1003.52	1006.02		1006.24	0.002512	3.84	534.19	219.08	0.43
3	300	6100	1002.34	1007.17		1007.69	0.002425	5.77	1057.4	228.42	0.47
3	300	2052	1002.34	1004.87		1005.09	0.002411	3.79	540.98	219.19	0.43
3	200	6100	1001.17	1006.09		1006.59	0.00229	5.67	1076.48	228.75	0.46
3	200	2052	1001.17	1003.91		1004.1	0.001832	3.49	588.48	220.05	0.38
3	100	6100	1000	1002.94	1002.94	1004.39	0.012827	9.65	632.01	220.84	1.01
3	100	2052	1000	1001.43	1001.43	1002.14	0.01605	6.76	303.58	214.81	1

MIDDLE NEW RIVER WATERCOURSE MASTER PLAN
ALTERNATIVE 1 MODEL B - SOIL CEMENT LINING
HEC-RAS SUMMERY OUTPUT TABLE
JOB # 2890058

Reach	River Sta	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 # Chnl
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1	500	12000	1005.3	1011.01		1011.68	0.002459	6.54	1835.86	332.83	0.49
1	500	2700	1005.3	1007.64		1007.85	0.002452	3.66	737.07	319.36	0.42
1	400	12000	1003.98	1009.7		1010.36	0.002449	6.53	1838.03	332.86	0.49
1	400	2700	1003.98	1006.32		1006.53	0.002472	3.67	735.3	319.34	0.43
1	300	12000	1002.65	1008.41		1009.06	0.002393	6.48	1851.3	333.02	0.48
1	300	2700	1002.65	1005		1005.2	0.002435	3.66	738.61	319.38	0.42
1	200	12000	1001.33	1007.17		1007.8	0.002287	6.39	1877.35	333.33	0.47
1	200	2700	1001.33	1003.94		1004.11	0.001703	3.28	823.57	320.44	0.36
1	100	12000	1000	1003.56	1003.56	1005.31	0.012	10.64	1127.78	324.22	1.01
1	100	2700	1000	1001.32	1001.32	1001.98	0.016535	6.53	413.4	315.29	1.01
2	500	10350	1004.05	1010.24		1010.86	0.002103	6.32	1637.06	276.86	0.46
2	500	2530	1004.05	1006.72		1006.93	0.00209	3.68	688.24	262.79	0.4
2	400	10350	1003.03	1009.21		1009.84	0.00211	6.33	1635.41	276.81	0.46
2	400	2530	1003.03	1005.72		1005.92	0.002057	3.66	691.58	262.83	0.4
2	300	10350	1002.02	1008.17		1008.8	0.002147	6.36	1626.49	276.71	0.46
2	300	2530	1002.02	1004.74		1004.94	0.001975	3.61	700.23	262.98	0.39
2	200	10350	1001.01	1007.09		1007.73	0.002234	6.44	1606.67	276.42	0.47
2	200	2530	1001.01	1003.88		1004.06	0.001645	3.42	740.55	263.59	0.36
2	100	10350	1000	1003.69	1003.69	1005.5	0.011907	10.81	957.43	266.86	1.01
2	100	2530	1000	1001.45	1001.45	1002.18	0.016077	6.84	370.08	257.91	1.01
3	500	6100	1004.1	1008.52		1008.99	0.002446	5.5	1109.86	260.01	0.47
3	500	2052	1004.1	1006.4		1006.61	0.002445	3.61	568.93	251.56	0.42
3	400	6100	1003.08	1007.5		1007.97	0.002442	5.49	1110.42	260.02	0.47
3	400	2052	1003.08	1005.38		1005.58	0.002452	3.61	568.42	251.55	0.42
3	300	6100	1002.05	1006.5		1006.96	0.00239	5.46	1117.83	260.14	0.46
3	300	2052	1002.05	1004.38		1004.58	0.002344	3.56	576.31	251.67	0.41
3	200	6100	1001.03	1005.53		1005.98	0.002296	5.39	1131.82	260.35	0.46
3	200	2052	1001.03	1003.54		1003.71	0.001834	3.3	621.15	252.38	0.37
3	100	6100	1000	1002.67	1002.67	1003.99	0.013194	9.22	661.38	253.02	1.01
3	100	2052	1000	1001.3	1001.3	1001.94	0.016561	6.45	318.21	247.54	1

MODEL C HEC-RAS OUTPUT

MIDDLE NEW RIVER WATERCOURSE MASTER PLAN
ALTERNATIVE 1 MODEL C - SOIL CEMENT LINING
HEC-RAS SUMMERY OUTPUT TABLE
JOB # 2890058

Reach	River Sta	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 # Chnl
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1	500	12000	1003.5	1010.27		1010.8	0.001584	5.84	2056.21	317.1	0.4
1	500	2700	1003.5	1006.31		1006.48	0.00152	3.25	831.39	301.25	0.34
1	400	12000	1002.63	1009.34		1009.88	0.001633	5.89	2036.75	316.85	0.41
1	400	2700	1002.63	1005.45		1005.61	0.001516	3.24	832.2	301.26	0.34
1	300	12000	1001.75	1008.37		1008.92	0.001713	5.98	2006.75	316.47	0.42
1	300	2700	1001.75	1004.6		1004.76	0.00146	3.21	841.69	301.39	0.34
1	200	12000	1000.88	1007.29		1007.89	0.001901	6.18	1942.59	315.66	0.44
1	200	2700	1000.88	1003.81		1003.96	0.00133	3.12	866.09	301.71	0.32
1	100	12000	1000	1003.72	1003.72	1005.55	0.011821	10.85	1105.59	304.87	1
1	100	2700	1000	1001.38	1001.38	1002.07	0.016292	6.67	404.66	295.53	1
2	500	10350	1000.43	1007.31		1007.64	0.000966	4.59	2255.97	345.43	0.32
2	500	2530	1000.43	1003.81		1003.9	0.000628	2.35	1077.46	327.4	0.23
2	400	10350	1000.33	1006.91		1007.27	0.001123	4.81	2152.56	343.93	0.34
2	400	2530	1000.33	1003.56		1003.66	0.000728	2.46	1029.73	326.67	0.24
2	300	10350	1000.22	1006.43		1006.83	0.001368	5.11	2023.63	341.99	0.37
2	300	2530	1000.22	1003.27		1003.38	0.000886	2.61	969.54	325.72	0.27
2	200	10350	1000.11	1005.78		1006.27	0.001859	5.63	1839.57	339.2	0.43
2	200	2530	1000.11	1002.88		1003.01	0.001221	2.88	879.17	324.28	0.31
2	100	10350	1000	1003.22	1003.22	1004.8	0.012414	10.11	1023.93	326.58	1.01
2	100	2530	1000	1001.27	1001.27	1001.9	0.016758	6.38	396.53	316.52	1
3	500	6100	1002.79	1008.89		1009.36	0.00167	5.49	1110.45	194.24	0.4
3	500	2052	1002.79	1006.03		1006.23	0.001585	3.59	571.21	182.81	0.36
3	400	6100	1002.09	1008.13		1008.61	0.001728	5.55	1098.56	194	0.41
3	400	2052	1002.09	1005.33		1005.53	0.001584	3.59	571.36	182.81	0.36
3	300	6100	1001.39	1007.32		1007.82	0.001835	5.66	1077.95	193.57	0.42
3	300	2052	1001.39	1004.63		1004.83	0.001579	3.59	571.92	182.82	0.36
3	200	6100	1000.7	1006.42		1006.95	0.00208	5.89	1036.11	192.71	0.45
3	200	2052	1000.7	1003.93		1004.13	0.001604	3.61	569.14	182.76	0.36
3	100	6100	1000	1003.37	1003.37	1005	0.012322	10.26	594.31	183.31	1
3	100	2052	1000	1001.64	1001.64	1002.45	0.015401	7.22	284.23	176.42	1

MIDDLE NEW RIVER WATERCOURSE MASTER PLAN
ALTERNATIVE 2 MODEL C - TRAPEZOID GABION MATTRESS
HEC-RAS SUMMERY OUTPUT TABLE
JOB # 2890058

Reach	River Sta	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 # Chnl
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1	500	12000	1003.4	1010		1010.56	0.001728	6	2001.09	316.4	0.42
1	500	2700	1003.4	1006.14		1006.31	0.001665	3.34	808.68	300.95	0.36
1	400	12000	1002.55	1009.1		1009.67	0.001774	6.05	1985.03	316.2	0.43
1	400	2700	1002.55	1005.29		1005.47	0.001651	3.33	810.82	300.98	0.36
1	300	12000	1001.7	1008.16		1008.74	0.001861	6.14	1955.52	315.82	0.43
1	300	2700	1001.7	1004.47		1004.64	0.001601	3.3	818.47	301.08	0.35
1	200	12000	1000.85	1007.12		1007.74	0.002049	6.32	1897.84	315.09	0.45
1	200	2700	1000.85	1003.71		1003.86	0.001446	3.2	844.28	301.42	0.34
1	100	12000	1000	1003.72	1003.72	1005.55	0.011821	10.85	1105.59	304.87	1
1	100	2700	1000	1001.38	1001.38	1002.07	0.016292	6.67	404.66	295.53	1
2	500	10350	1000.5	1007.35		1007.69	0.000992	4.66	2219.03	337.42	0.32
2	500	2530	1000.5	1003.84		1003.93	0.000655	2.39	1059.14	323.38	0.23
2	400	10350	1000.38	1006.95		1007.32	0.001146	4.88	2121.74	336.26	0.34
2	400	2530	1000.38	1003.59		1003.69	0.000751	2.49	1015.66	322.84	0.25
2	300	10350	1000.25	1006.45		1006.87	0.001387	5.17	2000.07	334.81	0.37
2	300	2530	1000.25	1003.29		1003.4	0.000902	2.63	960.5	322.16	0.27
2	200	10350	1000.13	1005.8		1006.3	0.00188	5.69	1820.41	332.66	0.43
2	200	2530	1000.13	1002.89		1003.03	0.001237	2.9	872.43	321.06	0.31
2	100	10350	1000	1003.23	1003.23	1004.82	0.012371	10.14	1020.78	322.9	1
2	100	2530	1000	1001.27	1001.27	1001.9	0.016783	6.39	395.68	315.06	1.01
3	500	6100	1002.32	1008.87		1009.32	0.001476	5.38	1134.15	186.34	0.38
3	500	2052	1002.32	1005.85		1006.04	0.001339	3.48	589.6	174.19	0.33
3	400	6100	1001.74	1008.18		1008.65	0.001561	5.48	1114.11	185.91	0.39
3	400	2052	1001.74	1005.25		1005.44	0.001364	3.5	586.21	174.11	0.34
3	300	6100	1001.16	1007.43		1007.92	0.00171	5.64	1082.37	185.22	0.41
3	300	2052	1001.16	1004.63		1004.82	0.001418	3.54	579.23	173.95	0.34
3	200	6100	1000.58	1006.55		1007.1	0.002014	5.94	1027.54	184.03	0.44
3	200	2052	1000.58	1003.97		1004.17	0.001536	3.63	564.97	173.62	0.35
3	100	6100	1000	1003.5	1003.5	1005.19	0.012207	10.45	583.95	174.06	1.01
3	100	2052	1000	1001.71	1001.71	1002.55	0.01521	7.35	279.06	166.87	1

MIDDLE NEW RIVER WATERCOURSE MASTER PLAN
ALTERNATIVE 3 MODEL C - SACRIFICIAL COVER
HEC-RAS SUMMERY OUTPUT TABLE
JOB # 2890058

Reach	River Sta	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 # Chnl
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1	500	12000	1002.24	1010.22		1010.76	0.001333	5.89	2036.73	271.13	0.38
1	500	2700	1002.24	1005.69		1005.85	0.001128	3.18	848.74	253	0.31
1	400	12000	1001.68	1009.49		1010.06	0.001434	6.03	1990.61	270.45	0.39
1	400	2700	1001.68	1005.11		1005.27	0.001153	3.2	843.03	252.9	0.31
1	300	12000	1001.12	1008.68		1009.28	0.001604	6.24	1921.64	269.42	0.41
1	300	2700	1001.12	1004.5		1004.66	0.001206	3.25	831.5	252.72	0.32
1	200	12000	1000.56	1007.69		1008.38	0.001946	6.64	1808.35	267.74	0.45
1	200	2700	1000.56	1003.85		1004.02	0.001322	3.34	808.35	252.36	0.33
1	100	12000	1000	1004.22	1004.22	1006.27	0.011301	11.47	1045.97	256.09	1
1	100	2700	1000	1001.57	1001.57	1002.35	0.015619	7.09	380.63	245.48	1
2	500	10350	1001.37	1008.4		1008.82	0.001221	5.23	1978.94	295.7	0.36
2	500	2530	1001.37	1004.63		1004.76	0.000954	2.83	894.17	280.65	0.28
2	400	10350	1001.03	1007.85		1008.3	0.001349	5.4	1918.33	294.88	0.37
2	400	2530	1001.03	1004.23		1004.36	0.001016	2.88	877.09	280.4	0.29
2	300	10350	1000.68	1007.23		1007.72	0.001549	5.63	1837.51	293.79	0.4
2	300	2530	1000.68	1003.8		1003.93	0.001112	2.96	853.37	280.07	0.3
2	200	10350	1000.34	1006.44		1007.01	0.001959	6.06	1707.84	292.01	0.44
2	200	2530	1000.34	1003.29		1003.44	0.001335	3.14	806.9	279.4	0.33
2	100	10350	1000	1003.55	1003.55	1005.3	0.012035	10.61	975.16	281.8	1.01
2	100	2530	1000	1001.4	1001.4	1002.09	0.016281	6.71	377.23	273.18	1.01
3	500	6100	1002.81	1009.01		1009.49	0.00168	5.56	1097.94	189.55	0.41
3	500	2052	1002.81	1006.11		1006.31	0.001588	3.63	564.81	177.94	0.36
3	400	6100	1002.11	1008.24		1008.73	0.001745	5.62	1084.96	189.28	0.41
3	400	2052	1002.11	1005.4		1005.61	0.001595	3.64	564.05	177.93	0.36
3	300	6100	1001.41	1007.42		1007.93	0.001864	5.74	1062.48	188.8	0.43
3	300	2052	1001.41	1004.69		1004.9	0.00161	3.65	562.4	177.89	0.36
3	200	6100	1000.7	1006.51		1007.06	0.002095	5.96	1023.86	187.98	0.45
3	200	2052	1000.7	1003.98		1004.19	0.001616	3.65	561.76	177.88	0.36
3	100	6100	1000	1003.44	1003.44	1005.1	0.012217	10.35	589.64	178.5	1
3	100	2052	1000	1001.68	1001.68	1002.5	0.015289	7.29	281.64	171.46	1

MIDDLE NEW RIVER WATERCOURSE MASTER PLAN
ALTERNATIVE 4 MODEL C - BENCH AND SOIL CEMENT
HEC-RAS SUMMERY OUTPUT TABLE
JOB # 2890058

Reach	River Sta	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 # Chnl
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1	500	12000	1003.14	1012.86		1013.53	0.001357	6.59	1834.74	215.62	0.39
1	500	2700	1003.14	1007.39		1007.61	0.001216	3.73	723.49	178.74	0.33
1	400	12000	1002.35	1011.92		1012.62	0.001433	6.71	1803.02	215.03	0.4
1	400	2700	1002.35	1006.59		1006.81	0.001224	3.74	721.96	178.7	0.33
1	300	12000	1001.57	1010.89		1011.63	0.001575	6.91	1749.77	214.04	0.42
1	300	2700	1001.57	1005.77		1005.99	0.001262	3.78	715.11	178.55	0.33
1	200	12000	1000.78	1009.69		1010.51	0.001851	7.27	1662.1	212.39	0.45
1	200	2700	1000.78	1004.92		1005.15	0.001329	3.84	703.65	178.29	0.34
1	100	12000	1000	1005.48	1005.48	1007.93	0.010827	12.55	956.69	198.66	1
1	100	2700	1000	1002.03	1002.03	1003.03	0.014485	8.03	336.35	169.85	1.01
2	500	10350	1001.33	1009.72		1010.18	0.001117	5.42	1908.69	251.55	0.35
2	500	2530	1001.33	1005.31		1005.45	0.000852	3.02	838.53	218.88	0.27
2	400	10350	1001	1009.13		1009.62	0.001246	5.61	1843.88	250.52	0.36
2	400	2530	1001	1004.88		1005.03	0.000923	3.09	818.19	218.51	0.28
2	300	10350	1000.67	1008.45		1008.99	0.001457	5.9	1754.93	249.09	0.39
2	300	2530	1000.67	1004.41		1004.57	0.001046	3.21	787.01	217.94	0.3
2	200	10350	1000.33	1007.58		1008.21	0.001864	6.37	1623.71	246.98	0.44
2	200	2530	1000.33	1003.84		1004.02	0.001291	3.43	737.58	217.03	0.33
2	100	10350	1000	1004.32	1004.32	1006.3	0.011611	11.27	918.07	235.27	1.01
2	100	2530	1000	1001.67	1001.67	1002.51	0.015369	7.32	345.46	209.68	1.01
3	500	6100	1002.69	1008.89		1009.33	0.001614	5.33	1144.72	204.35	0.4
3	500	2052	1002.69	1006.1		1006.29	0.001527	3.47	590.56	193.2	0.35
3	400	6100	1002.02	1008.15		1008.61	0.001678	5.39	1130.72	204.07	0.4
3	400	2052	1002.02	1005.43		1005.61	0.001541	3.48	588.88	193.16	0.35
3	300	6100	1001.35	1007.37		1007.84	0.001797	5.51	1106.63	203.6	0.42
3	300	2052	1001.35	1004.73		1004.92	0.001578	3.51	584.6	193.07	0.36
3	200	6100	1000.67	1006.48		1006.99	0.002027	5.73	1065.46	202.79	0.44
3	200	2052	1000.67	1004.02		1004.21	0.001642	3.55	577.44	192.93	0.36
3	100	6100	1000	1003.49	1003.49	1005.07	0.012516	10.09	604.41	193.48	1.01
3	100	2052	1000	1001.67	1001.67	1002.5	0.015395	7.3	280.91	171.23	1.01

MIDDLE NEW RIVER WATERCOURSE MASTER PLAN
ALTERNATIVE 5 MODEL C - LOW FLOW CHANNEL
HEC-RAS SUMMERY OUTPUT TABLE
JOB # 2890058

Reach	River Sta	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 # Chnl
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1	500	12000	1003.39	1012.94		1013.36	0.001451	5.19	2312.72	291.59	0.32
1	500	2700	1003.39	1007.63		1007.78	0.001304	3.16	854.23	209.96	0.28
1	400	12000	1002.54	1011.95		1012.38	0.001535	5.28	2271.29	290.74	0.33
1	400	2700	1002.54	1006.77		1006.93	0.001313	3.17	852.49	209.93	0.28
1	300	12000	1001.7	1010.87		1011.33	0.001694	5.45	2200.28	289.27	0.35
1	300	2700	1001.7	1005.9		1006.06	0.00135	3.19	845.26	209.79	0.28
1	200	12000	1000.85	1009.6		1010.12	0.002018	5.77	2080.19	286.77	0.38
1	200	2700	1000.85	1004.98		1005.15	0.001419	3.24	832.21	209.54	0.29
1	100	12000	1000	1005.04	1005.04	1007.04	0.017198	11.35	1057.37	264.51	1
1	100	2700	1000	1001.81	1001.81	1002.7	0.022614	7.6	355.42	200.23	1
2	500	10350	1002.52	1011.47		1011.83	0.001352	4.8	2157.85	290.46	0.31
2	500	2530	1002.52	1006.71		1006.84	0.001165	2.96	853.44	212.15	0.26
2	400	10350	1001.89	1010.66		1011.04	0.001459	4.91	2105.84	289.38	0.32
2	400	2530	1001.89	1006.04		1006.18	0.001203	2.99	844.84	211.99	0.26
2	300	10350	1001.26	1009.76		1010.16	0.001643	5.11	2027.07	287.73	0.34
2	300	2530	1001.26	1005.33		1005.48	0.001277	3.05	829.37	211.7	0.27
2	200	10350	1000.63	1008.67		1009.13	0.002025	5.46	1896.14	284.97	0.37
2	200	2530	1000.63	1004.56		1004.71	0.001443	3.17	798.6	211.12	0.29
2	100	10350	1000	1004.61	1004.61	1006.44	0.018047	10.86	953.11	264.25	1.01
2	100	2530	1000	1001.72	1001.72	1002.57	0.022997	7.41	341.46	202.29	1.01
3	500	6100	1009.58	1015.44		1015.91	0.003009	5.5	1109.39	230.25	0.44
3	500	2052	1009.58	1012.98		1013.19	0.003036	3.67	559.64	215.48	0.4
3	400	6100	1007.18	1013.05		1013.52	0.002993	5.49	1111.13	230.26	0.44
3	400	2052	1007.18	1010.61		1010.81	0.002917	3.62	566.57	215.66	0.39
3	300	6100	1004.79	1010.71		1011.17	0.002898	5.43	1122.54	230.56	0.43
3	300	2052	1004.79	1008.11		1008.34	0.003333	3.77	543.72	215.02	0.42
3	200	6100	1002.39	1008.76		1009.15	0.002187	4.97	1227.4	233.26	0.38
3	200	2052	1002.39	1006.19		1006.34	0.001912	3.18	645.89	217.85	0.33
3	100	6100	1000	1003.71	1003.71	1005.18	0.018499	9.71	627.96	217.35	1.01
3	100	2052	1000	1001.78	1001.78	1002.65	0.021782	7.51	273.26	157.65	1.01

APPENDIX E

PUBLIC MEETING SUMMARY REPORT

MIDDLE NEW RIVER WATERCOURSE MASTER PLAN
PUBLIC MEETINGS
January 12 & 19, 1999

The second of three public meetings were held with the District, and the cities of Glendale and Peoria. The meetings were held on January 12, 1999 at Centennial High School in Glendale and on January 19, 1999 at Hillcrest Middle School in Peoria. In order to inform the public of this meeting, newsletters were mailed to the residences within the 500 foot buffer zone of Middle New River. A public notice was also placed in the Arizona Republic and Gazette in the West section of the paper. Additionally, notices were posted at both libraries within the City of Peoria.

The purpose of the meeting was to gain input from the public on the six preliminary alternatives proposed by Stantec for the channel improvements. The format of the meeting was an open house style with five stations (Alternatives 1 and 2 at Station 1). Each of the stations displayed a proposed alternative and a facilitator at the station recorded the citizen's city of residence along with comments about likes and dislikes of each of the alternatives. It was explained at each station that the alternatives shown were to be applied to new construction only and not to areas where the channel was already improved by previous development. Additionally, staff members from the District, the cities and Stantec were available to discuss technical issues as needed.

Summary of Comments

As was apparent during the first public meeting (held in May 1998), the strong desires and concerns of the citizens focus around privacy and safety issues. There is a strong concern that the placement of trails and/or sidewalks need to be well away from the property lines or fences. Which means that the alternatives which showing the trail in the bottom of the river bed and/or on a bench are more popular options. Other more popular comments were in regards to the "natural" look provided by landscape features. This included comments about keeping native landscape materials and not providing trees close to homes.

The actual, recorded public comments are provided on the next several pages which show both the "likes" and "dislikes" of each of the alternatives presented. Several of the comments were expressed by multiple citizens and these are shown by the number of respondents in parentheses. A few questions were also asked as it related to the particular alternative if it were to be selected.

PUBLIC COMMENTS
January 12, 1999

Alternatives 1 & 2, Structural Type Trapezoidal Section

This alternative represents a structured form of hard scape for bank armoring with a trail on the top of the bank and the use of native shrubs in the river bottom. This maintains the natural look of existing desert plant life.

PUBLIC COMMENT
Alternatives 1 & 2
January 12, 1999

CITY IN WHICH YOU RESIDE	WHAT DO YOU LIKE?	WHAT DON'T YOU LIKE?
Peoria	Like using native shrubs	Does not want a sidewalk on the bank
Peoria	Would like drinking fountains on the bank (2)	
Peoria	Would like exercise stations and a multi-use field, grassy (2)	
Peoria	Wants a buffer zone on the bank	
Peoria	Would like emergency phones	

PUBLIC COMMENT
Alternatives 1 & 2
January 19, 1999

CITY IN WHICH YOU RESIDE	WHAT DO YOU LIKE?	WHAT DON'T YOU LIKE?
Peoria	Native shrub- "natural landscape" doesn't ruin ecology	Don't want a sidewalk so close to my back wall, danger of kids "hanging out" and a large noise factor
Peoria		Trees planted too close, if not a type of tree that's clean, could ruin pool. Allergy factors
Glendale	Prefer Alternative 1 with soil cement	Have a concern about Glendale side of Reach 2 - Bank is eroding
Glendale		Concern of graffiti on armoring
Glendale		Doesn't like Alternative 1 or 2, likes natural alternative best, Alternative 3
Peoria	Like natural look of soil cement vs. gabion mattresses	Don't like the sidewalk so close to property for privacy, safety, noise and pollution reasons

Alternative 3 **Structural Type Trapezoidal Section with Trail Bench**

This alternative provides for hard scape bank armoring with the trail on a bench below the top of the bank. This alternative also provides for the natural, desert vegetation in the river bottom.

PUBLIC COMMENT
Alternative 3
January 12, 1999

CITY IN WHICH YOU RESIDE	WHAT DO YOU LIKE?	WHAT DON'T YOU LIKE?
Peoria	Looks more natural, because we used landscape on the bank	No privacy or buffer for security between Homeowners and trail
Peoria	This is a softer slope	Cannot monitor public on trails
Peoria	Looks more natural on slope	Need gabion from property line to river bed. (Want user unfriendly)

PUBLIC COMMENT
Alternative 3
January 19, 1999

CITY IN WHICH YOU RESIDE	WHAT DO YOU LIKE?	WHAT DON'T YOU LIKE?
Peoria	Landscape slope, native shrubs keep it natural	Trail too close to homes, no privacy
Peoria	Can landscape slope	Don't choose vegetation against the wall (allergies)
Peoria		Crime, trash throwing and privacy re: trail location. No guarantee of police protection (Union Hills & Bell)
Glendale	Better access to river bed	In a hard rain the slope will still wash away
Glendale	Natural slope and landscape, likes combination of Alternatives 3 & 5. Access to river bed	Concern of graffiti on cement

Alternative 4 Structural Type Trapezoidal Section with Landscape Enhancement

This alternative provides for a hard scape bank armoring with landscape materials over the armoring to maintain a more natural look as well as provide accessibility to the river bed. The trail is located at the top of the embankment and the river bed is maintained in a natural, desert vegetation.

PUBLIC COMMENT
Alternative 4
January 12 1999

CITY IN WHICH YOU RESIDE	WHAT DID YOU LIKE?	WHAT DON'T YOU LIKE?
Peoria Dave Brown - Horton Homes	Like the bench trail Bell Park * Have only 18' to work within some places * Back of home 22' from wall * Want a user "unfriendly" path parallel to wall for security purposes	Cost * Want more cost-effective * Address minimizing landscape in an effort to hold costs down Consider step embankment vs. trail bench Relocate trail to the east side
Peoria	No comments	Don't like the look, too sterile, like a more natural look
Peoria	Trail bench affords more privacy, Home close to security wall	No comments

PUBLIC COMMENT
Alternative 4
January 19, 1999

CITY IN WHICH YOU RESIDE	WHAT DO YOU LIKE?	WHAT DON'T YOU LIKE?
Peoria	Trail bench away from property a) Is away from yard b) Provides more security and privacy	Prefers no trees. Trees are close to property. Foliage causes: a) Damage to pools b) Blocks view c) Allergies
Peoria	Best Alternative for stretch between Bell Road and Union Hills	Position trees lower
Peoria	Likes native shrubs, preserves environment	
Peoria	Security a big factor	
Glendale	Provide landscape enhancement for alternative 4	Concern of graffiti on cement

Alternative 5 Low Flow Channel Section

This alternative provides a low flow channel within the river bed on one side of the channel to control the peak flows of the river. The low flow channel has hardscape bank armoring and the trails can be both in the bottom of the channel and on the embankment. The landscape maintains a natural, desert vegetation.

PUBLIC COMMENT
Alternative 5
January 12 1999

CITY IN WHICH YOU RESIDE	WHAT DO YOU LIKE?	WHAT DON'T YOU LIKE?
Peoria	Would like low flows in dependable location (2)	Need hand rail next to low flow channel
Peoria	Like better than alternative 2 based on construction (2)	Doesn't like steep slopes
Peoria	Trails on sides	
Peoria	Concerned about who will be building next to his house when the current developer is finished with this project	
Peoria	Likes alternative 3 better - it has a more natural slope	

PUBLIC COMMENT
Alternative 5
January 19, 1999

CITY IN WHICH YOU RESIDE	WHAT DO YOU LIKE ?	WHAT DON'T YOU LIKE?
Peoria	Not as good as "natural" but has possibilities	Doesn't like man-made additions
Peoria	Like the stepped down trail (Alternative 4) or trail in bottom (5)	Needs bridges across low flow
Peoria	Like trail in bottom	Children will play on low-flow channel. Dangerous
Peoria	Likes Alternatives 3 & 4 combination	
Glendale	Likes very much but	This needs a guard rail!!!!!!!!!!!
Glendale/Peoria	Likes best	Safety rail or hedge so cannot fall in, in the dark
Glendale/Peoria		Needs crossing
Glendale/Peoria	Question	How is low flow channel located?

PUBLIC COMMENT (cont.)
Alternative 5
January 19, 1999

CITY IN WHICH YOU RESIDE	WHAT DO YOU LIKE ?	WHAT DON'T YOU LIKE?
Glendale	Historic flow path least expensive (Earth moving)	
Peoria	Likes minimal development - Prefer low flow channel away from side (8-10 Ft)	Need low-flow crossing for bicycles
Glendale/Peoria	Likes low-flow channel alternative (5), but wants with landscaped edges (like alternative 3), and the sides	
Glendale/Peoria	Wants to have the ability to plant grass or other than native vegetation to fit plans for land use	
Glendale/Peoria	Wants option of trail in the bottom	

Alternative 6 **Non Structural Channel Section**

This alternative affords for a meandering channel and allows the river to maintain a natural channel appearance. There is no hardscape bank armoring and all vegetation can remain natural, desert vegetation. Some channel improvements may be required at locations. This alternative can only be applied to those areas within Reach 3 of Middle New River.

PUBLIC COMMENT
Alternative 6
January 12 1999

CITY IN WHICH YOU RESIDE	WHAT DO YOU LIKE?	WHAT DON'T YOU LIKE?
Peoria	Doesn't apply to my neighbor-hood, but I like the idea where it works	

PUBLIC COMMENT
Alternative 6
January 19, 1999

CITY IN WHICH YOU RESIDE	WHAT DO YOU LIKE?	WHAT DON'T YOU LIKE?
Peoria	Like that we are leaving the natural vegetation	
Glendale	Like this option best, want to see it extended just south of Reach #3	
Peoria	Favorite overall, wish this was possible everywhere	

Special Public Meetings

Two residential areas which are potentially impacted by the Middle New River expressed interest in having our project team provide a special presentation. These included the Bell Park Development in Peoria and the Hillcrest Development in Glendale/Peoria. The team will be having two separate meetings to address their issues. A special flyer will be distributed to the residents in the area inviting them to this meeting.

Summary

The meeting format and the meetings were a success. This was a good opportunity to again gain valuable input from the citizens to aid Stantec, the District and the Cities in developing the best possible approach to the Master Plan for Middle New River.

MIDDLE NEW RIVER WATERCOURSE MASTER PLAN
SPECIAL NEIGHBORHOOD MEETINGS
MEETING NOTES
March 3, 1999 – Bell Park
March 11, 1999 – Hillcrest

SUMMARY REPORT

Two meeting participants from the public meetings held in January requested special meetings to be held in their respective neighborhoods. This included the Bell Park and Hillcrest residential areas. The format of the meeting was very similar to the public meetings held in January. The Bell Park meeting occurred on March 3, 1999 and was held at Sunrise High School. The Hillcrest meeting occurred on March 11, 1999 at the Hillcrest Middle School.

Special Notifications

A special meeting announcement was prepared in the form of a "door hanger". These were then distributed to every household in each of the residential areas totaling approximately 1500. This extra effort was required to ensure that all homeowners were notified. This was in lieu of the normal notification of the residents located within 500 feet of the Middle New River.

Project Description

Project team members described the project in depth and then up dated everyone as to the status of the project and the previous public meetings. This included providing estimated construction costs for each of the alternatives to be presented. The participants were given an opportunity for general questions and answers about the project. They were then given the opportunity to meet with the various staff members one-on-one to discuss any other items in more detail.

Project Questionnaire

The team provided each of the attendees with a questionnaire. This questionnaire represented each of the five alternatives. Each person was asked to provide their input as to the "likes" and "dislikes" of each of the alternatives. This information is provided in detail in the next several pages of this report.

Findings

It was apparent that the public is very concerned with safety issues as it pertains to each of the alternatives. Their concerns are very much related to keeping their property safe and secure. This was expressed by their desire for all paths to be located away from houses, in the riverbed or on a shelf. They are also concerned with the costs of these alternatives and made it a point to bring that to the team's attention. It was also apparent that many of the citizens wish this type of project had begun many years ago, prior to all of the development in the area, instead of after the fact.

Alternatives 1 & 2, Structural Type Trapezoidal Section

This alternative represents a structured form of hardscape for bank armoring with a trail on the top of the bank and the use of native shrubs in the river bottom. This maintains the natural look of the desert plant life.

PUBLIC COMMENTS
Alternatives 1 & 2
March 3, 1999

CITY IN WHICH YOU RESIDE	WHAT DO YOU LIKE?	WHAT DON'T YOU LIKE?
Peoria	Nothing	Do not want trail at top of river bank
Peoria	Trees behind property walls	The trail is behind the houses causing potential break-ins, prefer trail to be on east side of bank
Peoria	Good only if installed on the east bank of the river, not acceptable on west bank	Too close to existing homes
Peoria	General concept okay	Trail behind wall
Peoria	Least costly, steep incline for security	Trail near property line wall
Peoria	Concrete side walls for better protection	Concerned about bank erosion with heavy flow, locate trail on east side of river
Peoria		Put it on the east side
Peoria		No concrete sides on all plans
Peoria		Put trails on east side of wash
Peoria		Cost – concrete look is ugly

Peoria	1 & 2 would be my second choice	
Peoria	Natural landscaping – after seeing areas that have been "planted" or "grassed" and then hard rain occurs, the "beautiful park like area is an unsightly muddy mess – if left natural they recover quicker	Positioning of trails and planting of trees – crime hazard – privacy hazard, problems with vegetation for allergies/health and mess cleaning up – If walls were at the bottom or on side away from homes they would not be bad. I strongly feel that a path so close to the homes in the Bell Park area will bring a higher crime rate…easier access for theft, graffiti, teasing animals in yards – trash collection behind yards and being thrown in yards.
Peoria	Nothing other than bank armoring that is steep	Don't want a trail behind houses

PUBLIC COMMENTS
Alternatives 1 & 2
March 11, 1999

CITY IN WHICH YOU RESIDE	WHAT DO YOU LIKE?	WHAT DON'T YOU LIKE?
Peoria		Banks too steep
Peoria	Acceptable but I prefer #5	Limited area for parks and equestrian use
Peoria	Seems like a viable alternative for most areas. I like the idea of being able to change to different alternatives.	
Peoria	Would work in highly commercial areas	
Glendale	Gabions – prefer this alternative	
Peoria	Looks better than #2	#2 is not a pleasant thing to look at

Glendale		Not as attractive
Peoria	Use of potential trails may be safer since they would not be "hidden" in a "ditch" as in alternative #4	
Peoria	Best two out of the 5 options	
Glendale	Protection to homes and businesses – safety before beauty	What will happen to surrounding property values? Will they go down?
Glendale	Basic – would work in some areas	Basic – no options for narrow bank areas – not a lot of options in other areas
Glendale		Not real excited by any concrete faced wall plan
Glendale	Cost low	Too plain

Alternative 3 Structural Type Trapezoidal Section with Trail Bench

This alternative provides for hardscape bank armoring with the trail on a bench below the top of the bank. This alternative also provides for the natural, desert vegetation in the river bottom.

PUBLIC COMMENTS
Alternative 3
March 3, 1999

CITY IN WHICH YOU RESIDE	WHAT DO YOU LIKE?	WHAT DON'T YOU LIKE?
Peoria		Do not want trail at top of river bank
Peoria	Property wall vegetation	Too costly and trail still remains too close to housing

Peoria	Tree behind property walls, the vegetation over the gabion	The trail is behind the houses (potential break-ins) Prefer trail to be on east side of bank
Peoria		Cost too much to install and maintain
Peoria	Good to get trail from behind residents	Maintenance costs – cost to construct - $4.2 million !!!
Peoria	Worst option – put path in river bottom or on bank opposite from homes is the best placement if there needs to be any. The tiered trail also will help protect the visual line of those of us in the homes that enjoy our view.	Don't use added planting and soil, it will be wiped out and too costly
Peoria	Nothing other than bank armoring that is steep	Don't want a trail behind houses

PUBLIC COMMENTS
Alternative 3
March 11, 1999

Peoria	The fact that you use a more natural looking substance to control the banks of the river	
Peoria		Too expensive
Glendale		Maintenance costs
Peoria	Landscape enhancement	
Glendale	Nice to have landscaping for aesthetics	Rather expensive – long term expense for maintaining landscaping in the future
Glendale	Nothing, too much maintenance	
Glendale		Costs

Glendale	Option for narrow bank areas	Expensive
Glendale	This would be more appropriate where parks or crossings open up views of the stream bed	It seems interesting that the most expensive version uses an armored bank and then back fills it with overburden to make it appear better, but would probably require more maintenance
Glendale	More landscaping	Long term maintenance – more cost
Glendale		Too costly

Alternative 4 Structural Type Trapezoidal Section with Landscape Enhancement

This alternative provides for a hardscape bank armoring with landscape materials over the armoring to maintain a more natural look as well as provide accessibility to the riverbed. The trail is located at the top of the embankment and the riverbed is maintained as natural, desert vegetation.

PUBLIC COMMENT
Alternative 4
March 3, 1999

CITY IN WHICH YOU RESIDE	WHAT DO YOU LIKE?	WHAT DON'T YOU LIKE?
Peoria	Perhaps the most acceptable – because trail is not directly behind fence	Would prefer trail on east side of river
Peoria	The trail is getting further from our property – move to east bank	Want more buffer zone
Peoria	# 4 is good and I think it is the best, but I would like to see the trail located on the east bank	There is only one handrail. I would like to see two of them, one on each side of the trail
Peoria	Additional footage from existing walls	Still too close to housing

PUBLIC COMMENTS
Alternative 4
March 11, 1999

CITY IN WHICH YOU RESIDE	WHAT DO YOU LIKE?	WHAT DON'T YOU LIKE?
Peoria	Recessed trail is a good idea	
Peoria	Offset recreation trail is good but put it on the east side – Using rock (gabion) as opposed to soil cement	
Peoria	The trail's tiered approach with trees behind property walls. If you follow this plan put a fence between trail and 20 ft. buffer to houses to deter people from breaking-in to houses backing up to the river	It is still behind the houses – potential break-ins, prefer trail to be on east side
Peoria	Better security – trail away from wall	Cost too much to install and maintain ($2 million per mile)
Peoria	Yes on landscape	No trail on west side
Peoria	I like this one the best. Keeps pedestrians away from our property line	Keep trails away from west side of wash
Peoria	I prefer #4 among all the others, Would like it on the west side of river	
Peoria	I like this plan, would like the trail on west side like the picture not east side	
Peoria	The terraced trail is a better option. Bottom being natural is very nice. Best option	Put trail opposite homes or in bottom
Peoria	The railing halfway up the ramp	Don't want a trail behind houses

Peoria	It's away from homes	Foot traffic will be more likely to move often

Alternative 5 Low Flow Channel Section

This alternative provides a low flow channel within the riverbed on one side of the channel to control the peak flows of the river. The low flow channel has hardscape bank armoring and the trails can be both in the bottom of the channel and on the embankment. The landscape maintains a natural, desert vegetation.

PUBLIC COMMENT
Alternative 5
March 3, 1999

CITY IN WHICH YOU RESIDE	WHAT DO YOU LIKE?	WHAT DON'T YOU LIKE?
Peoria	Placing the trail in the river bottom	Remove trail from behind fences
Peoria	Could the trail be taken from the top and placed in the center of the river bottom? Desert landscaping and keep the trail low; away from top	No buffer zone, the trail is on top
Peoria	Concept of trail located in river bottom	Trails close to housing
Peoria	General concept okay	Recessed channel could expand during a heavy storm and erode the river bed
Peoria	Hide the trail in the bottom of the wash not up behind wall	Trail still behind property walls, prefer it to be on east side (potential break-ins)
Peoria	Water flow lower – east side	Trail near property line wall
Peoria	Very good plan	With trail in very bottom of wash
Peoria	Possibilities for usage of more areas – Maintenance confined to ditch	Channel becomes unreliable after a few storms

Peoria		Changing the natural landscape becomes more unsightly at that area – changing or planting is expensive and will be wiped out easily and looks atrocious
Peoria	Skip bank armoring	Trail on the bank
Peoria	Channel away from homes	Trail behind property would like a lower trail like #4 with rock up to walls

PUBLIC COMMENTS
Alternative 5
March 11, 1999

CITY IN WHICH YOU RESIDE	WHAT DO YOU LIKE?	WHAT DON'T YOU LIKE?
Glendale	Allows for citizen use of our bank area – a major plus	
Glendale	More economical – I like the idea Of being able to have an equestrian trail. I like this plan the most	
Glendale	Practical, serves need, blends with the natural setting, sensible cost, provides for a huge flood problem, easy flood maintenance cost	
	I prefer this option due to the factor of decreased cost, the "appearance" of greater visibility for public use across a greater span and containing the need of greater volume control to a smaller space	

Glendale	Potentially more casual recreational use of river bottom	
	A more natural meandering trail for a water flow for light runoff	
Glendale	Landscape feature	
Glendale	Less expensive. Leaves bed area for other recreation. Could trail be put along recreational area?	If channel did not meander
Glendale	Seems less costly and allows more use of more parts of the total riverbed. All in all, I like this the best and think it has the most usage. This also allows amenities the local communities desire	
Glendale		Expensive
Glendale	An option such as this would be best, I feel a smaller channel seems like a better visual option leaving the overflow area as a natural area	
	This seems to be most cost effective and visually pleasing. I like the possibility of having low flow channel along with recreation areas	
Glendale	Allows for citizen use of bank area, a major plus	

Alternative 6 Non Structural Channel Section

This alternative affords for a meandering channel and allows the river to maintain a natural channel appearance. There is no hardscape bank armoring and all vegetation can remain natural, desert vegetation. Some channel improvements may be required at locations. This alternative can only be applied to those areas within Reach 3 of Middle New River.

PUBLIC COMMENTS
Alternative 6
March 3, 1999

CITY IN WHICH YOU RESIDE	WHAT DO YOU LIKE?	WHAT DON'T YOU LIKE?
Peoria	Great, no trails	
Peoria		Not too practical in our area
Peoria	Natural setting	

PUBLIC COMMENTS
Alternative 6
March 11, 1999

CITY IN WHICH YOU RESIDE	WHAT DO YOU LIKE?	WHAT DON'T YOU LIKE?
Peoria	A must for this area	
Glendale	Nice to maintain natural look	Not applicable for areas already populated
Glendale	Nice to preserve natural look where viable	
	Natural desert is maintained	Wildlife is preserved
Glendale	Natural look	
Glendale	Natural approach. Less expensive. Good for Reach 3	Would take homes in Reaches 2 & 3
Glendale	Preserves natural settings, may actually work best in reach 3 to address the wider streambed	
Glendale	The best: natural setting for river banks and us (urbanites)	That it is too late to have the whole river left this way

CITY IN WHICH YOU RESIDE	WHAT DO YOU LIKE?	WHAT DON'T YOU LIKE?
Glendale		Looks unattractive over time. Requires high land acquisition costs
	Natural look	Safe??

March 3, 1999
Other comments, suggestions or concerns you may have:

- Would like obstructions placed on existing lane behind walls to discourage use
- Was pleased to see concern on the part of all the people involved in this undertaking for the people who will be affected by these projects
- Break-ins have already occurred. Put large river rock behind property walls to discourage people from walking behind property walls. I do not want a trail behind my property wall. I think it is much safer for the residents to put the trail on the eastside and put river rock behind our wall to discourage unwanted visitors. Do the most practical landscaping so the if there is a flood the landscaping, etc. is not ruined. Best alternative is to put the trail on the bottom of the wash with just dirt no paving.
- Alternative: put walkway on the eastside of river or in middle of river bottom
- Concerned over increased water flow within channel due to over-development – Reach 2 and Reach 3 areas. I like natural vegetation in the river bottom, not man made green belts. Grade controlling is a good idea and it makes sense to me.
- Keep it as natural as it can be, not user friendly – no motor bike paths, make sure we are not flooded.
- Drop structures which are recreational/equestrian friendly are excellent. Trail possibly on east -side – Glendale, will need crossover. Put slope down into bottom of river – keep the trail in bottom.
- If we have existing bank protection that is good, why spend the money?? At least in some areas.

March 11, 1999
Other comments suggestions or concerns you may have:

- Would like to see trails and park for public use on the Glendale and Peoria sides of the New River Wash. Would like to see enforcement and fines if necessary to the sand and gravel operations if they are violating and affecting the flow of the river. What good does it do to make and implement these plans if they do not follow through –they could defeat the whole process by their negligence.

Middle New River Watercourse Master Plan
Special Meeting Notes

- Looks like all can be used throughout entire project tying them all together
- I really like all suggestions. Just wish this was completed a lot earlier. Glad for the people north of us, but our builder unfortunately promised future improvements when in fact you were not even researching this river. I'm very disappointed in how Arizona handles their citizens and the environment.
- In any alternative, the river bottom should be open for hiking, biking, or horseback riding. It should not be a fenced off area where people are prohibited.
- Why not leave it as is? Is it mandatory that this be done?
- I liked #5 wherever possible, with #4 near bridged crossings and #6 in the north (reach 3) where possible to define the wider riverbed.
- Very good presentations!!

Middle New River
Residential Public Meeting Notes
May 5 & 6, 1998

SUMMARY REPORT

The first two public meetings were held in Glendale and Peoria on the above stated dates. The attendance sheets, agendas and comment sheets are provided as attachments to this report. Each of the meetings was conducted as follows:

Introduction and Welcome

Renee Hoekstra of RH & Associates provided the introduction and welcome, with each of the team members introducing themselves to the attendees. A brief description was provided of the "Partnering with the Public" approach to explain how this new format enables our team to begin working with the public earlier in the project and make them an integral part of the project team.

Project Goals

Doug Williams of the Flood Control District (FCD) provided an informative overview of the need for the Master Plan, the basis for the intergovernmental agreements and the relationship between FCD and the Cities of Glendale and Peoria, and the overall goals of the master plan project. He also provided some basic information and terminology of flood control projects and elements and an understanding of the flood plain and the affect the project will have on the residents.

Project Description

Scot Schlund of Stantech provided a description of the project objectives and the work items to be included in their scope of work. He first provided a tour through the project to orient the attendees with the location of the project. Additionally, this included an explanation of the overall schedule and the milestones specific to the need for public input and involvement.

Brainstorming Session

This session allowed the attendees to ask general questions about the master plan to gain a better understanding of the process and terminology. The team members provided answers to all of these questions. The following represents a list of the questions asked by the attendees during both of the sessions:

- ✧ What is the 100-year plan as it relates to protecting the existing homes and what is the probability of flooding?

- ✧ What is FEMA and what is their involvement in flood protection standards?
- ✧ Define the legal and land rights of the sand and gravel operations in the river.
- ✧ Will we have the hazardous materials identified with this plan and can we have a copy of those plans?
- ✧ If there has not been a catastrophe in the past, why are we doing this now?
- ✧ If there is a possibility of it being unsafe, can this be used for recreational purposes?
- ✧ What is the magnitude of the creek's runoff as it relates to a 100-year event?
- ✧ There was concern expressed about the erosion at Pinnacle Peak Road.
- ✧ There was concern expressed about development that might change the location of flood flows.
- ✧ What available funding is there for implementation of the plan?
- ✧ Is this going to affect the safety of our homes?
- ✧ How will the plan deal with present constructed works near Skunk Creek?
- ✧ Gravel pits are a real concern and can we do anything to stop them?
- ✧ For remote trails in the area, would there be some type of early warning signal that lets people know when water is going to be flowing in the river?

Information Exchange

During each of the meetings, the attendees were asked to identify any areas of concern, needs or wishes for the Middle New River Project as it related to five major categories (Transportation, Environmental/Aesthetics, Flood Control, Recreational, and Safety). They were also asked to prioritize first, second and third choices as to the most important category. The number in parenthesis represents the total number of votes in each of the categories by the attendees in each of the represented cities. *(As an example, Transportation was rated with the highest priority by 3 individuals who reside within the City of Glendale.)*

TRANSPORTATION CATEGORY

Areas of Concern

- ◆ No additional roads between Deer Valley and Happy Valley, north to south (2 other similar comments were made)
- ◆ No bridges into existing housing tracts
- ◆ A bridge is needed on Deer Valley Road where the river flows south
- ◆ Type of crossings to be used at each of the major east/west roads

Rating for the Transportation Category

First, second and third choice of importance is listed.

1st	(3) Glendale	(1) Peoria	**3rd**	(1) Glendale	(1) Peoria
2nd	(1) Glendale	(1) Peoria			

ENVIRONMENTAL/AESTHETICS

Areas of Concern

- Make it look like the natural environment
  (2 other similar comments were made)
- Natural looking "soft" structures
- Soft structures only
- Have a natural desert landscape with minimal maintenance needs
- Sand & Gravel operations are so close to the residential areas that this ruins any aesthetics you try to provide with engineering
- Natural beauty preserved
- Keep natural habitat for wildlife

Rating for Environmental/Aesthetics

First, second and third choice of importance is listed.

1st	(10) Glendale	**3rd**	(2) Peoria
2nd	(3) Glendale		

FLOOD CONTROL

Areas of Concern

- Walking and horse trails
  (3 other similar comments)
- No motorized vehicles
  (5 other similar comments)
- Not for roller blades, skateboards (no hard structures)
- Playground equipment

- Provide soft structure (green belt) to facilitate trails in river bottom where high density residential areas are not in place
- Hiking trails preferred

Ratings for Flood Control

First, second and third choice of importance is listed.

1st	(1) Peoria	(1) Glendale	**3rd**	(8) Glendale
2nd	No ratings			

SAFETY

Areas of Concern

- A soft, open channel shouldn't need lights?
- Positive identification of hazardous materials
- No power lines along channel
- No hard structures where kids can ride/roller blade, etc.
- Safety concerns for homeowners directly located on the New River west bank, limited width should be allowed from existing fences to banks
- Health hazard from gravel operations - minimize width
- Keeping flood lights, over-population and crime out of future recreational areas

Ratings for Safety

First, second and third choice of importance is listed.

1st	(4) Glendale	(6) Peoria	**3rd**	(1) Glendale
2nd	(5) Glendale	(4) Peoria		

Public Meeting Comment Sheets

Each attendee was asked to complete a Comment Sheet to help the team identify any other areas of concern and to gain insight regarding the format of the meeting. A summary of these sheets is as follows:

	Question	Yes	No
1.	Was the information we provided clear?	100%	
2.	Was the meeting location convenient?	100%	
3.	Did you feel you had a good opportunity to share your ideas and concerns?	100%	

The comment sheets also provided an opportunity for any other comments. These are listed below:

- Please put us on your mailing list for future information
- Most informative meeting. People conducting the meeting were very cordial
- Keep existing down river developments as safe as possible is the highest priority
- Where 83rd Avenue backs up to the river, most homeowners do not want trails against their fence line
- Thanks for giving us the information and listening to our concerns
- Thank you for making us feel we might have a say
- Doug is a wonderful speaker and a credit to Flood Control
- Needed better signage for the meeting

Meeting Wrap-up

Renee once again thanked everyone for attending and for participating.

Middle New River
Landowners Public Meeting Notes
May 12, 1998

SUMMARY REPORT

The third public meeting in the first series was held in Glendale on the above stated date. The attendance sheets, agendas and partnering team charter are provided as attachments to this report. The meeting was very similar to the first two public meetings with a few changes as noted. This meeting was conducted as follows:

Introduction and Welcome

Renee Hoekstra of RH & Associates provided introductions and welcome, with each of the team members' introducing themselves to the attendees. A description was provided of the "Partnering with the Public" approach to explain what the term Partnering means to this project and how this new format is enabling our team to begin working with the public at an earlier point in the project. It was explained that the landowners are an integral part of the project team and we wanted to ensure that they participated at the beginning of the Master Plan. We explained that the information obtained during the public meetings would be used as the basis for helping the project team to formulate the best possible alternatives for the Master Plan.

Project Goals

Doug Williams of the Flood Control District (FCD) provided an informative overview of the need for the Master Plan, the basis for the intergovernmental agreements and the relationship between FCD and the Cities of Glendale and Peoria, and the overall goals of the master plan project. He also provided some basic information and terminology of flood control projects and elements and an understanding of the flood plain and the affect the project will have on the landowners.

Project Description

Scot Schlund of Stantech provided a description of the project objectives and the work items to be included in their scope of work. He first provided a tour through the project to orient the attendees with the location of the project. Additionally, this included an explanation of the overall schedule and the milestones specific to the need for public input and involvement.

Brainstorming Session

Middle New River Watercourse Master Plan
Public Meeting Notes - Landowners
May 12 1998

This session allowed the attendees to ask general questions about the master plan process to gain a better understanding of the process and terminology. The team members provided answers to all of these questions. The following represents a list of the questions asked by the attendees during this session:

- ✧ We would like a clarification on how this project is going to affect future zoning of property and what is the timing of zoning requirements?
- ✧ Who will give the information on what will be done where, the developer or the public?
- ✧ Has there been any discussion for providing for recreational amenities and where? Who pays for the development?
- ✧ Who pays for hardscape infrastructure, etc. to implement the plan developed?
- ✧ Will the City or County be participating financially to the implementation plan?
- ✧ Church of Joy was interested in knowing when they needed to fill-in some land on a parcel they just purchased and who has jurisdiction?

Information Exchange

During each of the meetings, the attendees were asked to identify any areas of concerns, needs or wishes for the Middle New River Project as it related to six major categories (Transportation, Environmental/Aesthetics, Flood Control, Recreational, Safety, and Financial). They were also asked to prioritize first, second and third choices as to the most important category. They were also asked to prioritize first, second and third choices as to the most important category. The number in parenthesis represents the total number of votes in each of the categories by the attendees in each of the represented cities. *(As an example, Transportation was rated with the highest priority by 3 individuals who reside within the City of Glendale.)*

TRANSPORTATION

Areas of Concern

- ◆ Access from parcel 236 (owned by Church of Joy) for at least a right turn out of the property as the Deer Valley bridge is designed.
- ◆ Early access to hidden plans on development of Pinnacle Peak or Happy Valley bridges or whatever.

Ratings for Transportation

1st None **3rd** (1) Peoria (1) Glendale

2nd (2) Peoria

ENVIRONMENTAL/AESTHETICS

Areas of Concern

No concerns were expressed

Ratings for Environmental/Aesthetics

1st None
2nd (2) Peoria
3rd (1) Peoria

FLOOD CONTROL

Areas of Concern

- Natural banking as explained

Ratings for Flood Control

1st (5) Peoria
2nd (1) Peoria
3rd None

SAFETY

Areas of Concern

None were provided

Ratings for Safety

1st None
2nd None
3rd None

RECREATIONAL

Areas of Concern

- To have a community recreational area all along New River from Deer Valley to Beardsley

Ratings for Recreational

1st	**(1) Peoria**		**3rd**	(2) Peoria
2nd	(1) Peoria	(1) Glendale		

FINANCIAL

Areas of Concern

- To have County, Glendale and Peoria assist with the cost of making New River a community recreational area
- Make development possible during this study through mutual information and sharing with all authorities, do not put a moratorium on development to wait until this is finished.

Ratings for Financial

1st	(1) Peoria	(1) Glendale	**3rd**	(2) Peoria
2nd	(1) Peoria			

Meeting Wrap-up

Renee once again thanked everyone for attending and for participating.

APPENDIX F

STEERING COMMITTEE MEETING NOTES

Stantech Consulting, Inc.

Flood Control District of Maricopa County
Middle New River Watercourse Master Plan
Meeting No. 1
Meeting Minutes

5 March 1998, 10:00 a.m.

Attendance:	***Affiliation:***
Doug Williams	Flood Control District of Maricopa County
Russ Miracle	Flood Control District of Maricopa County
Thomas Sedlmeier	City of Glendale
Scott Friend	City of Peoria
Renee Hoekstra	RH & Associates
Rick Elsey	Rowland Companies
Scot Schlund	Stantech Consulting Inc.
Pat Ellison	Stantech Consulting Inc.

General

1. Prior to the start of the meeting Doug handed out:
   a) Ownership Maps for the project.
   b) Watercourse Master Plans-Definition
   c) IGA FCD-87033 (IGA between FCDMC and City of Glendale)
   d) Maps of the project.
   e) IGA FCD-87012 (IGA between FCDMC and City of Peoria).
   f) IGA between United States of America and FCDMC for local cooperation at Phoenix, Arizona and vicinity (including New River) Flood Control Project, Gila River Basin, Arizona.

Items Doug handed out to Stantech:

   a) Riparian Rape, June 29 - July 5, 1995 (article).
   b) Ordinance No. 1271, an ordinance enacting Chapter 17.10 of the Salt Lake County Code of Ordinances, 1986, relating to Flood Control.
   c) Model Ordinance for Wetland, Waterbody, and Watercourse Protection Summary.
   d) Gila River Basin, Phoenix, Arizona and vicinity (including New River) "New River Dam" construction drawings.

Scot opened the meeting and handed out the meeting agenda.

Survey and Mapping

1. Scot related that Alcocer Surveyors has finished laying out panels and that the south half of the project has been flown and that the north half is being flown today.

2. The surveyor (Richard Alcocer) has related to Scot that he feels that he has nailed down enough 1st order control to start running loops.

3. Gravel pits along the study reach are full of storm water runoff, additional survey will be required to supplement aerial generated topography.

4. The surveyor has also related to Scot that he had started to run loops on the southern portion of the project and found that the first order control that he had been given was bad. There is a potential for a change order to cover the cost of resurvey due to the bad data.

5. Doug related that first order control obtained from ADOT may be bad.

6. The survey loops need to check in with the ACDC ADMS benches.

7. A discussion ensued concerning the cost of additional survey that will be needed to fill in areas which may be inundated at the time of aerial photography flights. There may be monies available from the budget set for mapping verification or non-authorized task items that could be used.

8. Russ requested that the potential for change order be documented.

9. Mapping is scheduled to be completed by the end of May.

Data Collection

Hydrology

1. Scot handed out a summary of peak discharges that had been compiled from FEMA studies and studies conducted by the Army Corps of Engineers. Scot requested that the FCDMC review the discharges and comment.

2. Russ related that the discharges more than likely are fine however there is a concern about the magnitude and impact of the spillway discharge. Part of the product of the study will be a delineation of the spillway flow.

3. Scot related that the determination of the inundation limits for spillway flows will commence after the mapping is complete, sometime in June.

4. Scot related that floodplain mapping from the Corp's of Engineers (1981) has been obtained from the FCDMC.

5. Scot presented an Archeological Site exhibit which depicts areas in which archeological sites have been identified.

6. Scott Friend related that a developer has given the City of Peoria approximately 13 acres within one of the sites depicted on the map for use as a park.

7. Scot Schlund asked Scott for names of people to contact concerning information on the archeological site given to City of Peoria.

Hydrogeologic Conditions

1. Scot related that Dr. Herman Bouwer is on Stantech's team to evaluate the potential for groundwater recharge. The evaluation has started and the City of Glendale and the City of Peoria will be contacted concerning recharge possibilities utilizing effluent or CAP water.

2. Research on the hydrogeologic conditions to determine if groundwater recharge is a possibility in the study area has started.

3. Doug related that the District is investigating groundwater recharge behind New River Dam.

4. Scott Friend related that there is a landfill located on Parcels 136 and 171 that may be of environmental concern.

Other Business

Updated Ownership Map and Mailing List

1. Doug discussed the Updated Ownership Map and Mailing Lists handout that he provided.

2. There can be 20% to 25% error in the listings. Maps will be updated quarterly.

Church of Joy Coordination

1. Rick gives Scot the approved PAD for the Church of Joy and relates that the development that the Church is planning will extend along the east bank of New River between Deer Valley Road and Beardsley Road.

2. Rick relates that the Church does intend to develop in the floodplain and go through the FEMA process.

3. Doug request from the City of Peoria copies of Long Range Land Use Plans. Scott Friend will send copies to Doug.

Right of Entry

1. Doug related that the District is processing rights of entry for approximately 20 properties for the sediment samples. Doug expressed concern, for the need of rights of entry for walking across property.

Public Involvement

1. Renee related that personal from the City of Glendale and the City of Peoria have related that at this time a work secession with the city councils would not be advisable. A packet of information should be developed to present to the councils prior to a work secession.

2. A discussion took place concerning the development of a Project Fact Sheet to be distributed to the city councils and the public. Facts sheets should be sent out to the councils by March 27th and then to the public by April 10th.

3. Target date for the first open house is set for the first week in May.

Implementation Plan

1. A draft Implementation Plan and schedule will be drafted by Doug by the end of April. The Implementation Plan may include using Zoning Ordinances or Floodplain Regulations. Tom suggested looking at the City of Glendale's Airport Overlay Zoning as an example for implementation.

Information Flow

1. Flow of information will be to the District with Doug being the primary contact, copies are to be sent to Scot Schlund.

Project Fact Sheet Development

1. Fact Sheet development meeting schedule for Tuesday March 10th, at Stantech office.

Field Trip

1. To be scheduled.

Next Meeting

April 2nd 1998 at City of Glendale. Tom will send out reminders.

Stantech Consulting, Inc.

Flood Control District of Maricopa County

Middle New River Watercourse Master Plan

Meeting No. 2

Meeting Minutes

2 April 1998, 10:00 a.m.

Attendance:	*Affiliation:*
Doug Williams	Flood Control District of Maricopa County
Russ Miracle	Flood Control District of Maricopa County
Dan Carroll	Flood Control District of Maricopa County
Thomas Sedlmeier	City of Glendale
Grant Anderson	City of Glendale
Dan Sherwood	City of Glendale
Scott Friend	City of Peoria
David Fitzhugh	City of Peoria
Renee Hoekstra	RH & Associates
Scot Schlund	Stantech Consulting, Inc.
Pat Ellison	Stantech Consulting, Inc.

Minutes for Meeting No. 1

Minutes of the 1st meeting were handed out. A request for comments or corrections was made.

Survey and Mapping

Scot related that the ground survey was in it final stages and the surveyor would be sending information to the aerial mapper.

Data Collection

Pat gave an overview of the data that had been collected and handed out request for additional information . Scott Friend to provide grading and drainage plans that are available for specific areas with in Peoria (areas adjacent to Rock Creek and New River). Tom Sedlmeier provided City of Glendale's General Plan, and the Arrowhead Ranch Specific Plan.

Other Business

1. A discussion by attendees of 100-year peak discharges utilized by FEMA and the Corps of Engineers for previous floodplain delineation and planning purposes took place.

   A general consensus was obtained to use Corps of Engineers future condition 100-year peak discharges for planning purposes.

2. Doug opened a discussion concerning public meetings. The public meeting agenda will include an opening explanation of the project followed by workshops to get public input. Letters will be distributed to the public that will contain information on the project and meeting times. Meetings will be on May 5th, 6th and 12th. Residents within 500 feet of the

existing floodplain will be invited to attend the meetings. Letters will go out in the next two weeks.

3. Renee presented a draft fact sheet to be included with the letters going out to the public and requested comments.

   a. Do not make it look like junk mail

   b. Take 500 foot study area line off of map as this may be confusing

   c. Letters to have a contact person/phone number (FCDMC to provide)

   d. FCDMC to develop a Web-Site with letter, fact sheet and possible hot line

   e. Camera ready logos from all agencies needed (Rene to collect)

   f. Use FCDMC envelopes to mail out letters

   g. 1000 copies of fact sheet to be made

   There may be public concerns that the Master Course Study is tied to a power line alignment study being conducted by APS.

4. Tentative filed trip date is set for April 29th 1998. Will meet at the Church of Joy (parking lot) at 8:30 a.m.

Next Meeting

7 May 1998 - 10:00 a.m. at the City of Peoria.

Stantech Consulting, Inc.

Middle New River Watercourse Master Plan

Public Meeting Outline

May 1998

Project Area Description

- Study Area
- Key Features
  - New River
  - Loop 101
  - Arrowhead Towne Center
  - New River
  - Rock Springs Creek

Two Major Work Products

- Spillway Inundation Study
- Watercourse Master Plan Study

Work Plan

- Conduct Public Meetings
- Update Topographic Mapping
- Update FEMA regulatory water surface elevations
- Identify and document existing quality of biological habitat
- Identify waste deposits or hazardous materials
- Evaluate potential for groundwater recharge
- Conduct a literature search of known archeological sites
- Document inundation area of emergency spillway flows below New River Dam
- Formulate Watercourse Master Plan alternatives to be studied
- Conduct feasibility studies of the alternatives
- Select a preferred plan
- Conduct pre-design study
- Develop Watercourse Master Plan in accordance with Arizona Revised Statutes

Project Schedule

- Notice to proceed
- Major tasks

- Finish

Stantech Consulting, Inc.

Flood Control District of Maricopa County
Middle New River Watercourse Master Plan
Meeting No. 3
Meeting Minutes

7 May 1998, 10:00 a.m.

Attendance:	*Affiliation:*
Doug Williams	Flood Control District of Maricopa County
Shirley Medler	City of Glendale
Dan Sherwood	City of Glendale
Scott Friend	City of Peoria
David Fitzhugh	City of Peoria
Renee Hoekstra	RH & Associates
Rick Elsey	Rowland Companies
Scot Schlund	Stantech Consulting, Inc.
Pat Ellison	Stantech Consulting, Inc.

Minutes for Meeting No. 3

Minutes of the 2nd meeting were handed out. A request for comments or corrections was made. Dan Sherwood and Rick Elsey related that they did not receive minutes that were e-mailed out. If attendees have comments they can forward the comments to Scot or Pat. (None received as of 25 June 1998).

Survey and Mapping

Scot reported on surveying aerial mapping efforts. There has been some delay to the schedule for surveying and mapping do, to weather and problems with bench marks and ERM's. Scot will meet with the aerial mapping company to firm up the mapping completion date.

Data Collection

Pat related that the information requested in the last meeting has been provided. Dave and Scott related that there may be plans for a utility crossing of New River near the Jomax Road alignment. Dan related that he did not believe that Glendale had any utilities crossing New River. Details concerning the City of Peoria's River Trails and Path Master Plan will become available in the later part of July or in August. Doug asked that we coordinate with Cella Barr Associates (Peoria's consultant for Trails Master Plan) so that we are aware of typical sections that they are developing along the study reach and that CBA is aware of any hydraulic concerns that we may have. Doug related that he had a contact person at APS to inquirer about electric utilities in the river reach.

Pat requested copies of any LOMR or CLOMR submittals that the cities may have.

Scot gave an update on the Archeological and Hazardous Waste data collecting efforts. Efforts are restricted to literature research and should be completed by the end of May with a report prepared sometime in June.

Other Business

1. A discussion took place concerning the recent public meetings. Comments that were received from attendees of the public meetings will be mailed out in future news letters and will be included in the finial Master Plan report.
2. The format of the upcoming the public meeting on May 12th 1998, was discussed. Dignitaries from the Cities of Glendale and Peoria and the FCDMC may attend. Dignitaries should be introduced and allowed time to speak if they so wish. Speaker cards were suggested to be used to identify dignitaries that are in attendance and whether they wanted to address the public. It is anticipated that after the question and answer period (Q/A lasting approximately 30 minutes) that the attendees will break-up in to two work groups. Representatives from FCDMC and Stantech will be in each work group.
3. Rene and Scot to meet with Doug at 9:30 AM on May 12th for a dress rehearsal.

Next Meeting

6th August 1998, 10:00 AM at the City of Glendale.

Stantech Consulting, Inc.

Flood Control District of Maricopa County
Middle New River Watercourse Master Plan
Meeting No. 6
Meeting Minutes

6 August 1998, 10:00 a.m.

Attendance:	*Affiliation:*
Doug Williams	Flood Control District of Maricopa County
Dan Carroll	Flood Control District of Maricopa County
Grant Anderson	City of Glendale
Dan Sherwood	City of Glendale
Thomas Sedlmeier	City of Glendale
David Fitzhugh	City of Peoria
Scot Schlund	Stantech Consulting, Inc.
Pat Ellison	Stantech Consulting, Inc.

Minutes for Meeting No. 3

Minutes of the 3rd meeting were handed out. A request for comments or corrections was made. Attendees related that they did not receive e-mail copies of the meeting Minutes.

Report of Progress Meeting No. 4

Scot reported that Stantech met with District staff on 9 June 1998 to report progress on survey and mapping, project schedule and anticipated project cost projections. District reported on rights of entry progress.

Report on Meeting with Pima County Flood Control District

Scot reported on a meeting that Doug and he attended with Dave Smutzer (former floodplain administrator) and Tim Morrison (current floodplain administrator) at Pima County offices on 16 June 1998. Issues discussed at the meeting included erosion setback ordinance, river park experience, maintenance and safety, and sand and gravel operations in the channel.

Report of Progress Meeting No. 5

Scot reported that Stantech met with District staff on 15 July 1998 to report progress on mapping quality check, hydraulic model conversion, spillway inundation study and preliminary watercourse master plan. One copy of the Archeological Report was delivered to the District at this meeting.

Archeological Data

Archeological Data reports were delivered to the FCD, City of Glendale, and the City of Peoria.

Survey and Mapping

Scot reported that the mapping task was completed on schedule.

HEC-2 to HEC-RAS Conversion

Pat reported on the validation procedure that was used by Stantech to develop an updated baseline hydraulic model for New River. The following hydraulic models were developed and comparisons have been completed:

1) COE/FEMA Baseline HEC-2 model

   The COE/FEMA Baseline HEC-2 model is primarily based on:

   - Updated mapping
   - Previous COE/FEMA Mannings "n" values, cross-section alignments and reach lengths.

2) Stantech Baseline HEC-2 model

   The Stantech Baseline HEC-2 model is primarily based on:

   - Updated mapping
   - Additional cross-sections to meet District standards.
   - Cross-section alignments adjusted to be perpendicular to flow.
   - New bridge data.
   - Previous COE/FEMA Mannings "n" values
   - Revised reach lengths (as needed).

3) Validation of COE and Stantech Baseline HEC-2 Models

   A comparison of the two models indicate the following:

   Generally, there is a decrease in 100-year water surface elevations reported in the updated model when compared with the original COE/FEMA model: The difference in water surface elevations is thought to be do to channel improvements that have occurred over time and channel degradation. In some localized areas, an increase in water surface elevations was reported in the updated model. In these areas, it was determined that the increase in water-surface elevations were do to placement of additional cross-sections to meet District standards or realignment of cross-sections. The area adjacent to the west bank of New River and downstream of Union Hills Drive was identified as an area where flow wold break out of the banks and drain to the west.

4) Stantech Baseline HEC-2 model conversion to HEC-RAS

Pat reported that the conversion of the HEC-2 model to the HEC-RAS model is complete. A comparison of the water surface elevations between the two models indicate very minor differences with the exception of the area upstream of the Union Hills Road Bridge. Two cross-sections upstream of the bridge recorded water surface elevations as much as 2 feet higher in the HEC-RAS model compared to the HEC-2 model. The increase in water surface elevation is explained by an improved bridge modeling routine in the HEC-RAS program.

Emergency Spillway Inundation Study

Pat reported that the Mannings "n" value report and HEC-RAS model development is underway for the Inundation Study. Pat reported that using updated Mannings "n" values per District estimation techniques may affect a slight increase in water surface elevations.

Preliminary Watercourse Master Plan

Stantech has met with Cella Barr Associates concerning the City of Peoria's River Trails Master Plan and attended the City of Peoria Rivers Public Meeting. Typical river reach sections presented at the meeting that will be used to guide development of the trails system are consistent with sections that will be addressed in the hydraulic evaluation of proposed alternatives for the Middle New River Watercourse Master Plan.

Other Business

The Cities of Glendale and Peoria requested that the existing COE/FEMA 100-year floodplain limits, the updated 100-year floodplain limits and floodplain limits determined using the COE 221 future peak discharges be delineated so that the differences could be evaluated. It was also recommended that updated Mannings "n" values be used in the COE 221 and updated FEMA models.

Tom S. felt that a meeting with the Church of Joy Architect would be beneficial. Scot agreed to addend the meeting when arranged.

Next Meeting

The next meet is scheduled for 3 September 1998, 10:00 AM at the City of Peoria.

Action Items

- Continue with development of Master Plan and Inundation Study hydraulic models.
- Prepare exhibit for Cities of Glendale and Peoria showing existing FEMA floodplain, updated FEMA floodplain with existing peak discharges, and updated floodplain with COE future peak discharges.
- Stantech to call Shirley Medler (Parks Dept.) to coordinate on the City of Glendale's trails plan.

Stantech Consulting, Inc.

Flood Control District of Maricopa County
Middle New River Watercourse Master Plan
Meeting No. 7
Meeting Minutes

3 September 1998, 10:00 a.m.

Attendance:	*Affiliation:*
Doug Williams	Flood Control District of Maricopa County
Dan Carroll	Flood Control District of Maricopa County
David Moody	City of Peoria
Burton Charron	City of Peoria
Scott Friend	City of Peoria
David Fitzhugh	City of Peoria
Dan Sherwood	City of Glendale
Thomas Sedlmeier	City of Glendale
Shirley Medler	City of Glendale
Renee Hoekstra	RH & Associates
Scot Schlund	Stantech Consulting, Inc.
Pat Ellison	Stantech Consulting, Inc.

Minutes for Meeting No. 7

Minutes of the 7th meeting were handed out. A request for comments or corrections was made.

Comparison of Floodplains from Updated Hydraulic Models

Scot and Pat presented work maps that displayed the following floodplain delineation's :

Existing FEMA floodplain per FIRM.
Updated hydraulic model with existing FEMA 100-year peak discharges.
Updated hydraulic model with Corps of Engineers' future peak discharges (221 Agreement).

The City of Peoria requested copies of the work maps for an area downstream of Union Hills Road.

Emergency Spillway Inundation Study

Scot reported on the progress of the Spillway Inundation Study. Split flow determination at the spillway is near completion and a hydraulic model for the Rock Springs Creek is being developed.

Preliminary Watercourse Master Plan

Scot reported on progress regarding groundwater recharge opportunities research and coordination. Scot to attend meeting with WESTCAPS and City of Glendale's Water Resources Executive Committee.

All of the right of entry agreements for sediment sampling have not been obtained however we anticipate sampling within a few weeks.

Other Business

Church of Joy Status:

No up date.

Terramar Subdivision:

Doug and Scot to attend meeting with City of Peoria and Terramar representatives to explain the Watercourse Master Plan.

Project Schedule:

We are on or just behind schedule and under budget. Right of entry issues have affected sediment sampling for lateral migration and scour analysis.

Open for discussion:

Next public meetings are tentatively scheduled for November.

Doug asked that the cities determine opportunities for a project presentation to each city council . Dave suggested a October 13 opportunity. Tom suggested a joint Peoria/Glendale meeting.

Action Items

- Provide City of Peoria with floodplain workmap south of Union Hills Drive.
- Doug and Scot to coordinate on WESTCAPS meeting.
- Doug and Scot to attend meeting with City of Peoria and Terramar representatives.
- Renee to call Grant on joint Peoria and Glendale meeting.

Next Meeting

The next meeting is scheduled for 8 October 1998, 10:00 AM at the City of Glendale.

Stantech Consulting, Inc.

Flood Control District of Maricopa County
Middle New River Watercourse Master Plan
Meeting No. 8
Meeting Minutes

3 September 1998, 10:00 a.m.

Attendance:	*Affiliation:*
Russ Miracle	Flood Control District of Maricopa County
Dennis Holcomb	Flood Control District of Maricopa County
Grant Anderson	City of Glendale
Dan Sherwood	City of Glendale
Thomas Sedlmeier	City of Glendale
Shirley Medler	City of Glendale
Scott Friend	City of Peoria
David Fitzhugh	City of Peoria
Wayne Skaff	Community of Joy
Scot Schlund	Stantech Consulting, Inc.
Pat Wolf	Stantech Consulting, Inc.
Pat Ellison	Stantech Consulting, Inc.

Minutes for Meeting No. 7

Minutes of the 7th meeting were handed out. A request for comments or corrections was made.

Mannings Roughness Coefficient

First draft of Mannings Roughness Coefficient for emergency spillway inundation study is near completion(need to draft figures)

Emergency Spillway Inundation Study

Scot reported on the progress of the Spillway Inundation Study. Determination of split flow conditions downstream of emergency spillway completed and presented to the District. District is in concurrence with approach. Initial hydraulic models are complete.

Preliminary Watercourse Master Plan

Scot presented updated COE 221 future 100-year peak discharges that have been approved by the District. The following issues were discussed after the presentation:

- The regulatory use of the future condition peak discharges in regards to the FEMA existing 100-year peak discharges which have been used to regulate/guide floodplain

administration with in both communities. It was suggested that an option for planning purposes may be to use FEMA existing peak discharges for design purposes and that the COE 221 future 100-year peak discharges are conveyed with in the limits of calculated freeboard (based on FEMA 100-year peak discharges).

- What are the differences in calculated floodplain width and flow depth between the two set of peak discharges? (Stantech to provide floodplain mapping and flood profiles to the communities for review).

- Channel flow break out areas were discussed. (Glendale requested map displaying break out areas).

Scot reported that sediment sampling and testing required for erosion and lateral setback analysis is complete. Erosion and setback analysis is underway.

Typical channel sections developed for the Initial Master Plan alternative analysis were presented for each river reach. The study area is divided into three reaches. Reach 1- Confluence with Skunk Creek to Beardsley Road, Reach 2 - Beardsley Road to Pinnacle Peak, Reach 3- Pinnacle Peak to New River Dam. The typical channel options are:

1) Structural Type Trapezoidal Section
2) Structural Type Trapezoidal Section with Trails Bench
3) Structural Type Trapezoidal Section with Sacrificial Cover
4) Indian Bend Type Trapezoidal Section

Typical channel sections have been initially evaluated utilizing existing condition average slopes for each reach to check their conveyance capacity. Scot reported that addition information will be presented to the group at the next monthly meeting.

Tom and Dan related that an example of a Structural Type Section with sacrificial cover is located at 59th Avenue or 67th Avenue and the ACDC.

A request was made to provide a typical channel section with a low flow channel.

Other Business

City Council Meetings:

Scot related that he and Doug will be attending the up coming City of Peoria Council working session meeting. They will have 10 minutes to make a presentation on the Watercourse Master Plan.

Church of Joy Status:

Wayne provide progress update.

Project Schedule:

Scot reported that due to the delay in getting rights of entry that sediment sampling was thrown off schedule. This has had an effect of delaying some of the Master Plan channel options by 4 to 6 weeks. This will not effect the finish date of the project.

Public Meetings:

Next public meetings are tentatively scheduled for first week in December.

Bridges - Deer Valley Road and 83rd Ave.:

Request for Proposals for the design of the Deer Valley Road Bridge has been posted by MCDOT.

There have been some discussions that in the future New River may be bridged at 83rd Ave. It should not effect this project.

Action Items

Floodplain mapping and flood profiles of FEMA existing and COE 221 future 100-year peak discharges are to be presented to the Cities of Glendale and Peoria.

City of Glendale to receive map displaying flow break out areas.

Next Meeting

The next meeting is scheduled for 5 November 1998, 10:00 AM at the City of Peoria.

Stantec Consulting, Inc.

Flood Control District of Maricopa County
Middle New River Watercourse Master Plan
Meeting No. 9
Meeting Minutes

5 November 1998, 10:00 a.m.

Attendance:	*Affiliation:*
Doug Williams	Flood Control District of Maricopa County
Grant Anderson	City of Glendale
Thomas Sedlmeier	City of Glendale
David Moody	City of Peoria
Scott Friend	City of Peoria
David Fitzhugh	City of Peoria
Wayne Skaff	Community of Joy
Renee Hoekstra	RH & Associates
Scot Schlund	Stantech Consulting, Inc.
Pat Ellison	Stantech Consulting, Inc.

Minutes for Meeting No. 8

Minutes of the 8th meeting were handed out. A request for comments or corrections was made.

Emergency Spillway Inundation Study

Scot reported that an Initial Study Package for District Review is being prepared. Target delivery is before Christmas.

Preliminary Watercourse Master Plan

a. Scot related that an agreement with the Cities of Glendale and Peoria has been reached to use the existing FEMA 100-Year Peak Discharges for the Master Plan design with channel freeboard to convey COE 221 future 100-Year Peak Discharges.

b. Work Maps displaying the results of the Level 1 Lateral Migration study were presented. The results indicate that without structural bank protection existing development is within the setback zone. This makes the non-structural approach difficult in areas already developed.

c. Initial Master Plan Typical Channel Sections (progress to date) under evaluation were presented. The channel section labeled Indian Bend Type Trapezoidal Section was eliminated as an alternative. The hard trail displayed in the overbank area of the Low Flow Channel Section option was eliminated. Refinement to the remaining options will continue for public workshop meeting.

A question was asked, that if one side of the channel is armored could the other side be left unarmored? Do to the potential of scour to the exposed bank it was stated by Stantec that it is not advisable to leave one side of the channel unprotected.

Initial equilibrium slope analyses indicates that the river system being studied is in a degradation mode. Sediment supplies to New River have been cutoff by the construction of New River Dam and urbanization. Physical indicators of the ongoing degradation process can be observed at several locations within the study area.

Based on the initial equilibrium slope analyses, grade control structures will be an improvement element considered for the river reach. It was requested that recreational trail access be provided around the grade control structures. Maintenance roads for the grade control structures could be used for the recreation trail. Maintenance roads shall not have a longitudinal slope, greater than 10 %.

Grant suggested that a "do nothing" approach be evaluated for existing structures to investigate if grade control structures are necessary. This is critical at existing bridge crossings and for existing bank protection along the study reach. Scot concurred.

Scot related that Stantec is utilizing the General Algebraic Modeling System Compilation (GAMS) optimization program to evaluate channel alternatives for order of magnitude cost comparisons. Using the hydraulic limitations for each channel alternative, the GAMS model is optimizing each channel alternative by reach to solve for the lowest cost. The following initial order of magnitude cost estimates by alternative for the entire study reach were presented:

1)	Structural Type Trapezoidal Section (Soil Cement)	$20.5 Million
2)	Structural Type Trapezoidal Section (Gabion Mattress)	$12.0 Million
3)	Structural Type Trapezoidal Section w/ Sacrificial Cover	$20.0 Million

Cost estimates will continue to be refined.

It was suggested that it be made clear to the public that the alternatives being evaluated are for new construction only.

Other Business

City Council Meetings:

Scot related that he and Doug attended the City of Peoria Council working session meeting to present an overview of the Watercourse Master Plan project.

Church of Joy Status:

Wayne handed out an updated plat for the Church of Joy development.

Public Meetings:

Renee related that she has reserved meeting locations for the 3rd and 8th of December for public meetings. At the City of Peoria's request, it was decided that mid-January would be a better target date for the public meetings.

Action Items

Doug and Scot to meet concerning preparation of public newsletter.

The next meeting was scheduled for 3 December 1998, 10:00 AM at the City of Glendale.

Stantec Consulting, Inc.

Flood Control District of Maricopa County
Middle New River Watercourse Master Plan
Meeting No. 10
Meeting Minutes

3 December 1998, 10:00 a.m.

Attendance:	*Affiliation:*
Doug Williams	Flood Control District of Maricopa County
Dan Carroll	Flood Control District of Maricopa County
Dan Sherwood	City of Glendale
Thomas Sedlmeier	City of Glendale
Burton Charron	City of Peoria
Scott Friend	City of Peoria
Wayne Skaff	Community of Joy
Scot Schlund	Stantech Consulting, Inc.
Pat Ellison	Stantech Consulting, Inc.

Minutes for Meeting No. 9

Minutes of the 9th meeting were handed out. A request for comments or corrections was made.

Preliminary Watercourse Master Plan

a. Scot related that initial Master Plan channel cross-section alternatives and cost estimates for each are being refined. Initial cost on a per mile basis are listed below.

Alternative No.	Decription of Alternatives (Bank Material)	COST PER MILE		
		Reach # 1 ($/mile)	Reach # 2 ($/mile)	Reach # 3 ($/mile)
(1)	(2)	(3)	(4)	(5)
1	*Trapezoidal Channel (Soil Cement Option)*	$ 2,283,727.45	$ 2,773,945.54	$ 2,206,455.97
2	*Trapezoidal Channel (Gabion-Mattress Option)*	$ 1,758,571.09	$ 2,053,840.61	$ 1,645,162.14
3	*Sacrificial Trapezoidal Channel (Gabion-Mattress)*	$ 2,321,188.75	$ 2,876,901.82	$ 2,426,923.61
4	*Benched-Trapezoidal Channel (Soil Cement)*	$ 2,659,226.39	$ 2,696,455.26	$ 2,063,793.19
5	*Low-Flow Channel (Gabion Mattress)*	$ 1,477,134.63	$ 1,831,018.56	$ 1,707,183.67

b. Pat related initial results on the "Do Nothing" approach. Additional "as-built" information is need to finalize analysis. Dan will get "as built" info for Arrowhead Waste Water Treatment Plant. Burton will get Stantec *Bell Park* and *New River Shores* subdivision plans.

Other Business

Public Meetings:

Public Meetings to be held on the 12th and 19th of January.

Newsletter:

Newsletter to be sent out in the first week of January.

Church of Joy Status:

Information delivered to the Church of Joy (floodplain limits and erosion set back limits) was authorized by the District.

Coordination with DEI on potential flow break-out was reported and is ongoing:

A revised Project Schedule was handed out:

Action Items

- Newsletter to be prepared and mailed 1st week of Jan.
- Public Meeting presentation materials to be prepared.

The next meeting was scheduled for 5 January 1999, 10:00 AM at the City of Peoria.

Stantec Consulting, Inc.

Flood Control District of Maricopa County
Middle New River Watercourse Master Plan
Meeting No. 11
Meeting Minutes

5 January 1999, 10:00 a.m.

Attendance:	*Affiliation:*
Doug Williams	Flood Control District of Maricopa County
Dan Carroll	Flood Control District of Maricopa County
Thomas Sedlmeier	City of Glendale
Scott Friend	City of Peoria
Wayne Skaff	Community of Joy
Scot Schlund	Stantech Consulting, Inc.
Pat Ellison	Stantech Consulting, Inc.

Minutes for Meeting No. 10

Minutes of the 10th meeting were handed out. A request for comments or corrections was made.

Preliminary Watercourse Master Plan

Scot opened discussion concerning upcoming Open House.

Open House

- Newsletter with locations and times of open house has been mailed. A public announcement has been printed in the paper.
- The following Display Boards will be used.
  - Two Large Project Area Photographs with Study Reaches and Non-Structural Setback Zone illustrated (Reach 3 only)
  - One Each of Typical Channel Cross-Sections for Five Structural Alternatives and One Non-Structural Alternative (Reach 3 only)
  - One 3-D Drawing of Typical Grade Control Structure
  - One Project Schedule
  - Easels with Large Note Pads to Record Public Input.

- Team Practice for Open house at Flood Control on Monday the 11th.

Other Business

Coordination with DEI on potential flow break-out :

Project Schedule:

Action Items

Meet at Flood Control on January 11th to practice for open house.

The next meeting was scheduled for 4 February 1999, 10:00 AM at the City of Glendale.

Stantec Consulting, Inc.

Flood Control District of Maricopa County
Middle New River Watercourse Master Plan
Meeting No. 12
Meeting Minutes

4 February 1999, 10:00 a.m.

Attendance:	*Affiliation:*
Doug Williams	Flood Control District of Maricopa County
Dan Carroll	Flood Control District of Maricopa County
Thomas Sedlmeier	City of Glendale
Shirley Medler	City of Glendale
Nanette Smejkal	City of Glendale
Scott Friend	City of Peoria
David Fitzhugh	City of Peoria
Wayne Skaff	Community of Joy
Scot Schlund	Stantech Consulting, Inc.
Pat Ellison	Stantech Consulting, Inc.

Minutes for Meeting No. 11

Minutes of the 11th meeting were handed out. A request for comments or corrections was made.

Preliminary Watercourse Master Plan

Scot opened with a discussion concerning the two recent Open House meetings and handed out meeting summaries prepared by Renee.

Open House

- *General Comments*
-
- Residents from two subdivision (Bell Park and Hillcrest) requested another Open house type meeting. Flyers concerning meeting time and location will be mailed and/or hand delivered. The Bell Park meeting will be March 3rd. Hillcrest meeting to be determined.

- Proposed grade control structures depicted on boards will have a 15 foot wide access ramp.

- The lower two reaches of the study will have armored channel side slopes whereas the upper reach (Reach 3) will be non structural.

- For the benefit of City Council members, Tom related that the public meeting summary should include the following:
    - A statement of the number of meetings conducted.
    - Who was invited and how they were contacted.
    - Geographical distribution of public invited.
    - Public response to project.

- Scot led the Steering Committee in a review and discussion of public comments recorded at the public meetings for each of the six channel alternatives.

- The majority of public comments addressed access, property, safety or design concerns for recreational paths and trails depicted on the alternative exhibits shown at the open house. Paths and trails are not an element in the Watercourse Master Plan; however, they are accommodated in the alternatives.

- The Steering Committee discussed the merits of each alternative considering public comments, aesthetics, cost of construction, implementation and existing conditions. The value of existing channel armoring in Reaches 1 and 2 was discussed. Construction cost can be significantly reduced in these reaches by utilizing as much of the existing armoring as possible.

- A motion was made to proceed with Alternative 2 (rock filled gabion) for Reaches 1 and 2 (for new construction) and Alternative 6 (non-structural) for Reach 3. Stantech will try to utilize as much of the existing gabion bank armoring as possible.

- Tom and Scott Friend suggest that all alternatives should be written up in the report as viable options. Limitations/discussion should be included for each alternative.

- The Steering Committee members unanimously agreed the motion to adopt Alternative 2 for Reaches 1 and 2 and Alternative 6 for Reach 3. Stantec will proceed in refining the preferred alternative into the Final Watercourse Master Plan as directed by the Steering Committee.

Other Business

Coordination with DEI on potential flow break-out still ongoing.

Scot reported some concern regarding out come of break-out resolution and its impact on the Project Schedule. Direction received on preferred alternative.

Action Items

Stantec to prepare Alternatives Formulation Report for submittal to Steering Committee at next months meeting.

Stantec to begin preparation of Final Master Plan engineering drawings and reports based of preferred alternative as directed by the Steering Committee.

Additional meetings with public to be scheduled at Bell Park and Hillcrest Subdivisions.

The next meeting was scheduled for 3 March 1999, 10:00 AM at the City of Peoria.

Stantec Consulting, Inc.

Flood Control District of Maricopa County
Middle New River Watercourse Master Plan
Meeting No. 13
Meeting Minutes

4 March 1999, 10:00 a.m.

Attendance:	*Affiliation:*
Doug Williams	Flood Control District of Maricopa County
Dan Carroll	Flood Control District of Maricopa County
Thomas Sedlmeier	City of Glendale
Shirley Medler	City of Glendale
Nanette Smejkal	City of Glendale
Scott Friend	City of Peoria
Clyde Anderson	Arizona State Land
Wayne Skaff	Community of Joy
Scot Schlund	Stantec Consulting, Inc.
Pat Ellison	Stantec Consulting, Inc.
Renee' Hoekstra	RH & Associates

Minutes for Meeting No. 12

Minutes of the 12th meeting were handed out. A request for comments or corrections was made.

Preliminary Watercourse Master Plan

Scot gave an overview of the Alternatives Formulation Report that was delivered to the Steering Committee. Scot requested that written comments be submitted by April 1st.

Other Business

- Coordination with DEI on potential flow break:

  Burton related that DEI has discovered a possible survey bust in data (1'+/-). Further analysis under way.

- Scot reported on the planned Bell Park and Hillcrest subdivision public meetings.
- Design and hydraulic modeling of the preferred alternative is underway.
- Scot related that major changes to the preferred alternative would effect the project schedule whereas minor changes probably could be accommodated.

- Dan opened a discussion on the Desert Peaks Awards. The committee agreed to a joint submittal.

Action Items

Refinement of selected alternative and master plan preparation will continue.

The next meeting was scheduled for 8 April 1999, 10:00 AM at the City of Peoria.

Stantec Consulting, Inc.

Flood Control District of Maricopa County
Middle New River Watercourse Master Plan
Meeting No. 14
Meeting Minutes

8 April 1999, 10:00 a.m.

Attendance:	*Affiliation:*
Doug Williams	Flood Control District of Maricopa County
Dan Carroll	Flood Control District of Maricopa County
Shirley Medler	City of Glendale
Thomas Sedlmeier	City of Glendale
Scott Friend	City of Peoria
Burton Charron	City of Peoria
Wayne Skaff	Community of Joy
Scot Schlund	Stantec Consulting, Inc.
Pat Ellison	Stantec Consulting, Inc.
Renee' Hoekstra	RH & Associates

Minutes for Meeting No. 13

Minutes of the 13th meeting were handed out. A request for comments or corrections was made.

Spillway Inundation Study

Scot reported that the Manning's "n" value report, cross sections and initial modeling of the Spillway Delineation Study was reviewed by the district and is being revised. A final draft of the delineation will be submitted to the District for review by the end of April or the beginning of May. Doug mentioned the importance of completing this study as soon as possible.

Final Watercourse Master Plan

Scot gave a project progress update on the Watercourse Master Plan. He related that very few comments concerning the Alternative Formulation Report have been received. Shirley was the only Steering Committee member to provide formal written review comments by 1 April deadline. Scott Friend provided comments by City of Peoria staff on the Groundwater Recharge Chapter. Work is continuing on development of plan and profile sheets, details, the Master Plan Report and the Technical Documentation Notebook (TDN).

Scot gave an overview of the meeting held on 1 April 1999 with the State Land Department. State Land has no major comments to the Watercourse Master Plan. They would like the Master Plan Report to state that for Reach 3, where the recommended alternative is non-structural, structural alternatives evaluated by the report could be applied.

Renee related that she would e-mail her comments concerning Chapter 6.

Scot gave an overview of information that will be on the plans. Plan and profile sheets will depict existing and proposed channel bank protection, existing and proposed channel bed elevations, and construction notes for new construction. Grade control structure locations will be shown. Trail underpasses will be provided at bridges. Approximate trail ramp locations into the channel will be indicated. Enhancements to the non-structural area will be provided as well as proposed erosion setback lines indicated. Detail drawings with critical design information will be included.

Shirley suggested that the plans have a note referencing the Rivers and Trails Master Plan.

The following discussions took place.

In order to meet ADA requirements, it may be desirable to have an access ramp on the channel side instead of in the middle of the grade control structure. Does access to the river bottom need to meet ADA requirements? Shirley related that Glendale uses grades of 5% or less to meet ADA requirements. Scot related that the plan should meet ADA on the trails and path on the channel bank areas but not in the channel bed itself. (More discussion may be necessary, however, this can be addressed and resolved in the design phase of the bank armoring and trails).

Draft working plans to be provided at the next Steering Committee meeting.

Other Business

Coordination with City of Peoria and DEI on potential flow break:

No update.

Scot and Renee reported that the Bell Park and Hillcrest subdivision public meetings had good attendance and also good input on the alternatives presented.

Wayne presented the Community of Joy's most recent plan for development along New River. The Community's plan as presented would require a modification in the existing floodplain limit's. The plan appeared to be consistent with the intent of the Master Plan.

Pat asked about the availability of existing bank protection plans for an area north and south of Bell Road (Honda car dealer and car wash business). Burton related that the plans are probably not available.

Renee opened a discussion concerning final public meetings and council presentations.

- Renee to check with Grant on presentation to City of Glendale council.
- Final public meetings to be held at the end of May. Newsletters to go out to public within the first week of May (2 weeks before meetings).
- Doug suggested council work sessions in May and final council presentation in June.
- Scott Friend and Burton to coordinate with Dave Moody to determine approach for final presentation to City of Peoria's City Council. Burton will get back to Renee.
- Scot to call Renee concerning newsletter coordination.

Action Items

- Refinement of spillway inundation study and master plan preparation will continue.
- Doug, Scot and Pat to meet with Dave Moody concerning erosion set back approach.
- Renee to coordinate with Grant Anderson on presentation scheduling to Glendale City Council.
- Scott and Burton to coordinate with Dave Moody and get back with Renee.

The next meeting is scheduled for 5 May 1999, 10:00 AM at the City of Peoria.

Stantec Consulting, Inc.

Flood Control District of Maricopa County
Middle New River Watercourse Master Plan
Meeting No. 15
Meeting Minutes

5 May 1999, 10:00 a.m.

Attendance:	*Affiliation:*
Doug Williams	Flood Control District of Maricopa County
Dan Carroll	Flood Control District of Maricopa County
Thomas Sedlmeier	City of Glendale
Scott Friend	City of Peoria
Burton Charron	City of Peoria
Scot Schlund	Stantec Consulting, Inc.
Pat Ellison	Stantec Consulting, Inc.
Renee' Hoekstra	RH & Associates

Minutes for Meeting No. 14

Minutes of the 14th meeting were handed out. A request for comments or corrections was made.

Council Meetings

- City of Peoria
  Shoot for June 15 meeting with council.
  Info for topic sheet to Burton by June 3rd.
  Executive Summary due by June 7th.

- City of Glendale
  Shoot for June 22 meeting with council.
  Grant to review presentation material.
  Renee will check with Grant on getting him presentation material.

Spillway Inundation Study

Scot related that the Spillway Inundation study work maps and hydraulic models are being reviewed by the District. Joe Tram to review in Tim Murphy absence. Draft report to be completed by June 3rd.

Final Watercourse Master Plan

- Scot gave a status report on the Watercourse Master Plan Report and Plan and Profile Sheets (P&P sheets).

- Scot and Doug need to review and comment on Renee write up covering the Bell Park and Hillcrest subdivisions' public meetings.
- No negative comments concerning the Alternatives Formulation Report have been received from the Steering Committee.
- Plan and Profile sheets were presented to the committee for comment. General comments on plans were good.
- Presentation boards with plan and profile information for the entire study reach will be used for the public meetings.
- Doug suggested that using an open space ordinance or stipulation may be the route to go for the non-structural option.
- Scott Friend related that the area from Pinnacle Peak to the north is the most sensitive for the City of Peoria.
- Scott Friend and Burton will talk with Dave Moody, Debra Stark (Community Development Director) and Steve Kemp (City Attorney) concerning the non-structural approach and implementation. Scott Friend and Burton to get back to Scot S. and Doug on meeting date.

Other Business

- Newsletter mailers are being prepared by Chris at RH. Chris to get with Scot for coordination issues.

- Next public meeting schedule for May 25th at Centennial High School, and May 26th at Hillcrest Middle School.

- Coordination on flow break-out. Burton related that DEI is still reviewing survey data.

- Doug to call Wayne Skaff concerning Master Plan status.

Action Items

- Mail newsletters.
- Prepare exhibits for final public meetings.
- Conduct final public meetings.
- Prepare Draft Final Watercourse Master Plan Document and 10% Design Plans
- Coordinate on City Council meeting dates

The final regular Steering Committee meeting is scheduled for 3 June 1999, 10:00 AM at the City of Glendale. A close out meeting will be held on June 17th at Murphys' restaurant across the street from Glendale City Hall.

APPENDIX G

COMPUTER DISKETTES