US 93 Interim Wickenburg By-Pass

Letter of Map Revision

Town of Wickenburg, Arizona
Maricopa County, Arizona

Maps:
04013C0253H
04013C0241H

Case No. 11-09-3216P

Submittal of Additional Data
Required to Support a Letter of Map Revision

SEPTEMBER 2011

Prepared by:

JACOBS™ For ADOT

101 North First Avenue, Suite 3100
Phoenix, Arizona 85003

Federal Emergency Management Agency

Washington, D.C. 20472

December 20, 2011

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

The Honorable Kelly Blunt
Mayor, Town of Wickenburg
155 North Tegner Street, Suite A
Wickenburg, AZ 85390

IN REPLY REFER TO:
Case No.: 11-09-3216P
Follows Conditional
Case No.: 07-09-0858R
Community Name: Town of Wickenburg, AZ
Community No.: 040056
Effective Date of
This Revision: **May 4, 2012**

Dear Mayor Blunt:

The Flood Insurance Study report and Flood Insurance Rate Map for your community have been revised by this Letter of Map Revision (LOMR). Please use the enclosed annotated map panels revised by this LOMR for floodplain management purposes and for all flood insurance policies and renewals issued in your community.

Additional documents are enclosed which provide information regarding this LOMR. Please see the List of Enclosures below to determine which documents are included. Other attachments specific to this request may be included as referenced in the Determination Document. If you have any questions regarding floodplain management regulations for your community or the National Flood Insurance Program (NFIP) in general, please contact the Consultation Coordination Officer for your community. If you have any technical questions regarding this LOMR, please contact the Director, Mitigation Division of the Department of Homeland Security's Federal Emergency Management Agency (FEMA) in Oakland, California, at (510) 627-7175, or the FEMA Map Information eXchange (FMIX) toll free at 1-877-336-2627 (1-877-FEMA MAP). Additional information about the NFIP is available on our website at http://www.fema.gov/nfip.

Sincerely,

Siamak Esfandiary, Ph.D., P.E., CFM, Program Specialist
Engineering Management Branch
Federal Insurance and Mitigation Administration

For: Luis Rodriguez, P.E., Chief
Engineering Management Branch
Federal Insurance and Mitigation Administration

List of Enclosures:

Letter of Map Revision Determination Document
Annotated Flood Insurance Rate Map
Annotated Flood Insurance Study Report

cc: The Honorable Andrew W. Kunasek
Chairman, Maricopa County Board
of Supervisors

Mr. Timothy S. Phillips, P.E.
Chief Engineer and General Manager
Flood Control District of Maricopa County

Mr. Rick DeStefano
Transportation Group Manager
Town of Wickenburg

Mr. Berwyn S. Wilbrink, P.E.
Project Manager
Jacobs Engineering Group, Inc.

 | Issue Date: December 20, 2011 | Effective Date: May 4, 2012 | Case No.: 11-09-3216P | LOMR-APP

Follows Conditional Case No.: 07-09-0858R

Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP REVISION DETERMINATION DOCUMENT

COMMUNITY AND REVISION INFORMATION		PROJECT DESCRIPTION	BASIS OF REQUEST
COMMUNITY	Town of Wickenburg Maricopa County Arizona	BRIDGE LEVEE	HYDRAULIC ANALYSIS LEVEE CERTIFICATION NEW TOPOGRAPHIC DATA
	COMMUNITY NO.: 040056		
IDENTIFIER	U.S. 93 Interim Wickenburg Bypass-Levee Accreditation	APPROXIMATE LATITUDE & LONGITUDE: 33.974, -112.728 SOURCE: USGS QUADRANGLE DATUM: NAD 83	

ANNOTATED MAPPING ENCLOSURES	ANNOTATED STUDY ENCLOSURES
TYPE: FIRM* NO.: 04013C0251H DATE: September 30, 2005 TYPE: FIRM* NO.: 04013C0253H DATE: September 30, 2005	DATE OF EFFECTIVE FLOOD INSURANCE STUDY REPORT: September 30, 2005 PROFILE(S): 207P-208P FLOODWAY DATA TABLE: 5

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

FLOODING SOURCE(S) & REVISED REACH(ES) See Page 2 for Additional Flooding Sources

Hassayampa River - from approximately 1,430 feet downstream of U.S Highway 60 to approximately 9,510 feet upstream

SUMMARY OF REVISIONS

Flooding Source	Effective Flooding	Revised Flooding	Increases	Decreases
Hassayampa River	Zone AE	Zone AE	YES	YES
	Zone AE	Zone AH	YES	YES
	BFEs*	BFEs	YES	YES
	Floodway	Floodway	YES	YES

* BFEs - Base Flood Elevations

DETERMINATION

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

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information eXchange (FMIX) toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 7390 Coca Cola Drive, Suite 204, Hanover, MD 21076. Additional information about the NFIP is available on our website at http://www.fema.gov/business/nfip.

Siamak Esfandiary, Ph.D., P.E., CFM, Program Specialist
Engineering Management Branch
Federal Insurance and Mitigation Administration

122451 PT202.02.BKR.11093216P.H15 102-I-A-C

Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP REVISION
DETERMINATION DOCUMENT (CONTINUED)

OTHER FLOODING SOURCES AFFECTED BY THIS REVISION

FLOODING SOURCE(S) & REVISED REACH(ES)

Powder House Wash - from the mouth to approximately 500 feet upstream of Jack Burden Road

SUMMARY OF REVISIONS

Flooding Source	Effective Flooding	Revised Flooding	Increases	Decreases
Powder House Wash	Zone AE	Zone AE	YES	YES
	Floodway	Floodway	NONE	YES

* BFEs - Base Flood Elevations

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information eXchange (FMIX) toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 7390 Coca Cola Drive, Suite 204, Hanover, MD 21076. Additional Information about the NFIP is available on our website at http://www.fema.gov/business/nfip.

Siamak Esfandiary, Ph.D., P.E., CFM, Program Specialist
Engineering Management Branch
Federal Insurance and Mitigation Administration

Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP REVISION
DETERMINATION DOCUMENT (CONTINUED)

OTHER COMMUNITIES AFFECTED BY THIS REVISION

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

AFFECTED MAP PANELS	AFFECTED PORTIONS OF THE FLOOD INSURANCE STUDY REPORT
TYPE: FIRM* NO.: 04013C0251H DATE: September 30, 2005	DATE OF EFFECTIVE FLOOD INSURANCE STUDY REPORT: September 30, 2005 PROFILE(S): 207P-208P FLOODWAY DATA TABLE: 5

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information eXchange (FMIX) toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 7390 Coca Cola Drive, Suite 204, Hanover, MD 21076. Additional Information about the NFIP is available on our website at http://www.fema.gov/business/nfip.

Siamak Esfandiary, Ph.D., P.E., CFM, Program Specialist
Engineering Management Branch
Federal Insurance and Mitigation Administration

Federal Emergency Management Agency
Washington, D.C. 20472

LETTER OF MAP REVISION
DETERMINATION DOCUMENT (CONTINUED)

COMMUNITY INFORMATION

APPLICABLE NFIP REGULATIONS/COMMUNITY OBLIGATION

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

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

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

COMMUNITY REMINDERS

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

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

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

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information eXchange (FMIX) toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 7390 Coca Cola Drive, Suite 204, Hanover, MD 21076. Additional Information about the NFIP is available on our website at http://www.fema.gov/business/nfip.

Siamak Esfandiary, Ph.D., P.E., CFM, Program Specialist
Engineering Management Branch
Federal Insurance and Mitigation Administration

Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP REVISION
DETERMINATION DOCUMENT (CONTINUED)

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

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

STATUS OF THE COMMUNITY NFIP MAPS

We are processing a revised FIRM and FIS report for Maricopa County in our countywide format; therefore, we will not physically revise and republish the FIRM and FIS report for your community to incorporate the modifications made by this LOMR at this time. Preliminary copies of the countywide FIRM and FIS report, which present information from the effective FIRMs and FIS reports for your community and other incorporated communities in Maricopa County, were submitted to your community for review on December 3, 2010. We will incorporate the modifications made by this LOMR into the countywide FIRM and FIS report before they become effective.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information eXchange (FMIX) toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 7390 Coca Cola Drive, Suite 204, Hanover, MD 21076. Additional information about the NFIP is available on our website at http://www.fema.gov/business/nfip.

Siamak Esfandiary, Ph.D., P.E., CFM, Program Specialist
Engineering Management Branch
Federal Insurance and Mitigation Administration

Federal Emergency Management Agency
Washington, D.C. 20472

LETTER OF MAP REVISION
DETERMINATION DOCUMENT (CONTINUED)

PUBLIC NOTIFICATION OF REVISION

A notice of changes will be published in the *Federal Register*. This information also will be published in your local newspaper on or about the dates listed below and through FEMA's Flood Hazard Mapping website at https://www.floodmaps.fema.gov/fhm/Scripts/bfe_main.asp.

LOCAL NEWSPAPER Name: *Arizona Business Gazette*
Dates: 12/29/2011 1/5/2012

Within 90 days of the second publication in the local newspaper, a citizen may request that we reconsider this determination. Any request for reconsideration must be based on scientific or technical data. Therefore, this letter will be effective only after the 90-day appeal period has elapsed and we have resolved any appeals that we receive during this appeal period. Until this LOMR is effective, the revised flood hazard determination information presented in this LOMR may be changed.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information eXchange (FMIX) toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 7390 Coca Cola Drive, Suite 204, Hanover, MD 21076. Additional Information about the NFIP is available on our website at http://www.fema.gov/business/nfip.

Siamak Esfandiary, Ph.D., P.E., CFM, Program Specialist
Engineering Management Branch
Federal Insurance and Mitigation Administration

Federal Emergency Management Agency

Washington, D.C. 20472

December 20, 2011

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

The Honorable Andrew W. Kunasek
Chairman, Maricopa County Board
of Supervisors
301 West Jefferson Street, 10th Floor
Phoenix, AZ 85003

IN REPLY REFER TO:
Case No.: 11-09-3216P
Follows Conditional
Case No.: 07-09-0858R
Community Name: Maricopa County, AZ
Community No.: 040037
Effective Date of
This Revision: **May 4, 2012**

Dear Mr. Kunasek:

The Flood Insurance Study report and Flood Insurance Rate Map for your community have been revised by this Letter of Map Revision (LOMR). Please use the enclosed annotated map panels revised by this LOMR for floodplain management purposes and for all flood insurance policies and renewals issued in your community.

Additional documents are enclosed which provide information regarding this LOMR. Please see the List of Enclosures below to determine which documents are included. Other attachments specific to this request may be included as referenced in the Determination Document. If you have any questions regarding floodplain management regulations for your community or the National Flood Insurance Program (NFIP) in general, please contact the Consultation Coordination Officer for your community. If you have any technical questions regarding this LOMR, please contact the Director, Mitigation Division of the Department of Homeland Security's Federal Emergency Management Agency (FEMA) in Oakland, California, at (510) 627-7175, or the FEMA Map Information eXchange (FMIX) toll free at 1-877-336-2627 (1-877-FEMA MAP). Additional information about the NFIP is available on our website at http://www.fema.gov/nfip.

Sincerely,

Siamak Esfandiary, Ph.D., P.E., CFM, Program Specialist
Engineering Management Branch
Federal Insurance and Mitigation Administration

For: Luis Rodriguez, P.E., Chief
Engineering Management Branch
Federal Insurance and Mitigation Administration

List of Enclosures:

Letter of Map Revision Determination Document
Annotated Flood Insurance Rate Map
Annotated Flood Insurance Study Report

cc: The Honorable Kelly Blunt
Mayor, Town of Wickenburg

Mr. Timothy S. Phillips, P.E.
Chief Engineer and General Manager
Flood Control District of Maricopa County

Mr. Rick DeStefano
Transportation Group Manager
Town of Wickenburg

Mr. Berwyn S. Wilbrink, P.E.
Project Manager
Jacobs Engineering Group, Inc.

 | Issue Date: December 20, 2011 | Effective Date: May 4, 2012 | Case No.: 11-09-3216P | LOMR-APP

Follows Conditional Case No.: 07-09-0858R

Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP REVISION DETERMINATION DOCUMENT

COMMUNITY AND REVISION INFORMATION		PROJECT DESCRIPTION	BASIS OF REQUEST
COMMUNITY	Maricopa County Arizona (Unincorporated Areas)	BRIDGE LEVEE	HYDRAULIC ANALYSIS LEVEE CERTIFICATION NEW TOPOGRAPHIC DATA
	COMMUNITY NO.: 040037		
IDENTIFIER	U.S. 93 Interim Wickenburg Bypass-Levee Accreditation	APPROXIMATE LATITUDE & LONGITUDE: 33.974, -112.728 SOURCE: USGS QUADRANGLE DATUM: NAD 83	

ANNOTATED MAPPING ENCLOSURES	ANNOTATED STUDY ENCLOSURES
TYPE: FIRM* NO.: 04013C0251H DATE: September 30, 2005	DATE OF EFFECTIVE FLOOD INSURANCE STUDY REPORT: September 30, 2005 PROFILE(S): 207P-208P FLOODWAY DATA TABLE: 5

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

FLOODING SOURCE(S) & REVISED REACH(ES)

Hassayampa River - from approximately 1,430 feet downstream of U.S. Highway 60 to approximately 9,510 feet upstream

SUMMARY OF REVISIONS

Flooding Source	Effective Flooding	Revised Flooding	Increases	Decreases
Hassayampa River	Zone AE	Zone AE	YES	YES
	BFEs*	BFEs	YES	YES

* BFEs - Base Flood Elevations

DETERMINATION

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

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information eXchange (FMIX) toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 7390 Coca Cola Drive, Suite 204, Hanover, MD 21076. Additional Information about the NFIP is available on our website at http://www.fema.gov/business/nfip.

Siamak Esfandiary, Ph.D., P.E., CFM, Program Specialist
Engineering Management Branch
Federal Insurance and Mitigation Administration

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Federal Emergency Management Agency
Washington, D.C. 20472

LETTER OF MAP REVISION
DETERMINATION DOCUMENT (CONTINUED)

OTHER COMMUNITIES AFFECTED BY THIS REVISION

CID Number: 040056 **Name:** Town of Wickenburg, Arizona

AFFECTED MAP PANELS	AFFECTED PORTIONS OF THE FLOOD INSURANCE STUDY REPORT
TYPE: FIRM* NO.: 04013C0251H DATE: September 30, 2005 TYPE: FIRM* NO.: 04013C0253H DATE: September 30, 2005	DATE OF EFFECTIVE FLOOD INSURANCE STUDY REPORT: September 30, 2005 PROFILE(S): 207P-208P FLOODWAY DATA TABLE: 5

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information eXchange (FMIX) toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 7390 Coca Cola Drive, Suite 204, Hanover, MD 21076. Additional Information about the NFIP is available on our website at http://www.fema.gov/business/nfip.

Siamak Esfandiary, Ph.D., P.E., CFM, Program Specialist
Engineering Management Branch
Federal Insurance and Mitigation Administration

Federal Emergency Management Agency
Washington, D.C. 20472

LETTER OF MAP REVISION
DETERMINATION DOCUMENT (CONTINUED)

COMMUNITY INFORMATION

APPLICABLE NFIP REGULATIONS/COMMUNITY OBLIGATION

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

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

MMUNITY REMINDERS

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

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

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

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information eXchange (FMIX) toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 7390 Coca Cola Drive, Suite 204, Hanover, MD 21076. Additional Information about the NFIP is available on our website at http://www.fema.gov/business/nfip.

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Washington, D.C. 20472

LETTER OF MAP REVISION
DETERMINATION DOCUMENT (CONTINUED)

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

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

STATUS OF THE COMMUNITY NFIP MAPS

We are processing a revised FIRM and FIS report for Maricopa County in our countywide format; therefore, we will not physically revise and republish the FIRM and FIS report for your community to incorporate the modifications made by this LOMR at this time. Preliminary copies of the countywide FIRM and FIS report, which present information from the effective FIRMs and FIS reports for your community and incorporated communities in Maricopa County, were submitted to your community for review on December 3, 2010. We will incorporate the modifications made by this LOMR into the countywide FIRM and FIS report before they become effective.

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Engineering Management Branch
Federal Insurance and Mitigation Administration

Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP REVISION
DETERMINATION DOCUMENT (CONTINUED)

PUBLIC NOTIFICATION OF REVISION

A notice of changes will be published in the *Federal Register*. This information also will be published in your local newspaper on or about the dates listed below and through FEMA's Flood Hazard Mapping website at https://www.floodmaps.fema.gov/fhm/Scripts/bfe_main.asp.

LOCAL NEWSPAPER Name: *Arizona Business Gazette*
Dates: 12/29/2011 1/5/2012

Within 90 days of the second publication in the local newspaper, a citizen may request that we reconsider this determination. Any request for reconsideration must be based on scientific or technical data. Therefore, this letter will be effective only after the 90-day appeal period has elapsed and we have resolved any appeals that we receive during this appeal period. Until this LOMR is effective, the revised flood hazard determination information presented in this LOMR may be changed.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information eXchange (FMIX) toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 7390 Coca Cola Drive, Suite 204, Hanover, MD 21076. Additional Information about the NFIP is available on our website at http://www.fema.gov/business/nfip.

Siamak Esfandiary, Ph.D., P.E., CFM, Program Specialist
Engineering Management Branch
Federal Insurance and Mitigation Administration

Changes to FEMA's Appeals Process

FEMA has revised its existing appeal policy to expand the due process procedures currently provided for new or modified Base Flood Elevations (BFEs) to other new or modified flood hazard information shown on a Flood Insurance Rate Map (FIRM), including additions or modifications to any Special Flood Hazard Area (SFHA) boundary (both approximate and detailed floodplains), zone designation, and/or regulatory floodway boundary. This policy is known as the Expanded Appeals Process (EAP). The EAP, which became effective on December 1, 2011, affects Letters of Map Revision (LOMRs) issued on or after that date, and a 90-day appeal period will be required for LOMRs that result in **any change** to flood hazards.

To provide expanded due process rights for changes due to LOMRs, any LOMR that requires an appeal period in a community already compliant with the necessary requirements outlined in 44 CFR Section 60.3 **will become effective 120 days from the second newspaper publication date**, following FEMA's current policy for setting LOMR effective dates. This allows time to collect appeals and provides for newspaper publication schedule conflicts. LOMRs with an appeal period in communities that are not currently compliant with the necessary requirements outlined in 44 CFR Section 60.3, or in communities that require adoption of the LOMR, will become effective following a six-month compliance period.

Evidence of public notice or property owner notification of the changes effected by the LOMR will continue to be requested during the review of the LOMR request. This will help to ensure that the affected population is aware of the flood hazard changes in the affected area and the resultant LOMR. However, FEMA will no longer request evidence of property owner acceptance of the changes effected by a LOMR, as such acceptance will have no influence on the effective date of the LOMR. LOMR requests that are currently in-progress with FEMA when the EAP becomes effective will be reviewed to determine whether the notification already provided is sufficient, and such requests will proceed with processing.

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE [1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
					(FEET NGVD)			
Hassayampa River (Cont'd)								
GA	46.480	540	10,938	5.9	1925.7	1925.7	1925.7	0.0
GB	46.860	505	6,685	9.7	1927.8	1927.8	1928.8	1.0
GC	47.505	443	4,966	13.0	1930.1	1930.1	1931.1	1.0
GD	47.140	502	6,036	10.7	1934.2	1934.2	1935.1	0.9
GE	47.430	670	7,901	8.2	1942.0	1942.0	1942.1	0.1
GF	47.620	728	5,946	10.9	1943.9	1943.9	1944.4	0.5
GG	48.000	622	8,039	8.0	1957.9	1957.9	1957.9	0.0
GH	48.050	623	8,078	8.0	1958.6	1958.6	1958.6	0.0
GI	48.090	666	5,547	12.2	1957.9	1957.9	1957.9	0.0
GJ	48.190	949	9,024	7.5	1961.9	1961.9	1962.4	0.5
GK	48.280	884	7,142	9.5	1963.1	1963.1	1963.5	0.4
GL	48.340	870	8,108	8.3	1964.9	1964.9	1965.4	0.5
GM	48.420	888	6,563	10.3	1966.3	1966.3	1966.4	0.1
GN	45.520	1,002	10,866	6.2	1971.1	1971.1	1971.9	0.8
GO	48.570	1,076	8,416	8.0	1971.2	1971.2	1972.0	0.8
GP	48.850	912	5,737	11.8	1977.4	1977.4	1977.4	0.0
GQ	49.040	1,117	8,958	7.6	1982.6	1982.6	1983.0	0.4
GR	49.270	1,174	6,963	9.7	1985.4	1985.4	1985.7	0.3
GS	49.610	735	5,580	12.1	1996.4	1996.4	1996.4	0.0
GT	49.800	1,002	7,447	9.1	2000.9	2000.9	2001.7	0.8
GU	50.180	770	5,133	13.2	2010.6	2010.6	2010.8	0.2
GV	50.460	1,155	8,911	8.0	2020.3	2020.3	2020.6	0.3
GW	50.560	1,255	8,024	8.8	2021.8	2021.8	2022.3	0.5
GX	50.750	1,310	6,777	10.5	2027.0	2027.0	2027.4	0.4
GY	50.940	1,296	7,800	9.1	2031.8	2031.8	2032.8	1.0
GZ	51.290	526	4,514	15.7	2043.0	2043.0	2043.1	0.1

[1] Miles above confluence with Gila River

REVISED DATA

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ

AND INCORPORATED AREAS

REVISED TO REFLECT ~~LOMR~~ EFFECTIVE: May 4, 2012

FLOODWAY DATA

HASSAYAMPA RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE [1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
					(FEET NGVD)			
Hassayampa River (Cont'd)								
HA	51.338	463	5,435	13.1	2046.5	2046.5	2046.5	0.0
HB	51.398	607	7,897	9.0	2050.4	2050.4	2050.5	0.1
HC	51.734	1,372	9,896	7.2	2053.3	2053.3	2053.6	0.3
HD	51.829	1,200	7,603	9.3	2055.0	2055.0	2055.0	0.0
HE	52.029	1,229	7,539	9.4	2059.2	2059.2	2059.9	0.7
HF	52.284	1,314	8,057	8.8	2066.9	2066.9	2066.9	0.0
HG	52.606	1,641	8,108	8.8	2072.9	2072.9	2073.0	0.1
HH	52.881	1,490	9,371	7.6	2082.7	2082.7	2082.8	0.1
HI	53.063	1,483	8,137	8.7	2085.9	2085.9	2086.8	0.9
HJ	53,250	1,770	8,381	8.5	2091.1	2091.1	2091.5	0.4
HK	53,540	1,095	5,945	11.9	2098.8	2098.8	2099.3	0.5
HL	53,630	980	5,968	11.9	2103.3	2103.3	2103.3	0.0

[1] Miles above confluence with Gila River

REVISED TO REFLECT LOMR EFFECTIVE: May 4, 2012

REVISED DATA

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ

AND INCORPORATED AREAS

FLOODWAY DATA

HASSAYAMPA RIVER

Legend

1% annual chance (100-Year) Floodplain

1% annual chance (100-Year) Floodway

0.2% annual chance (500-Year) Floodplain

MAP SCALE 1" = 500'

250 0 500 FEET

150 0 150 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0253H

FIRM

FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA

AND INCORPORATED AREAS

PANEL 253 OF 4350

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY	040037	0253	H
WICKENBURG, TOWN OF	040056	0253	H

REVISED TO REFLECT LOMR EFFECTIVE: May 4, 2012

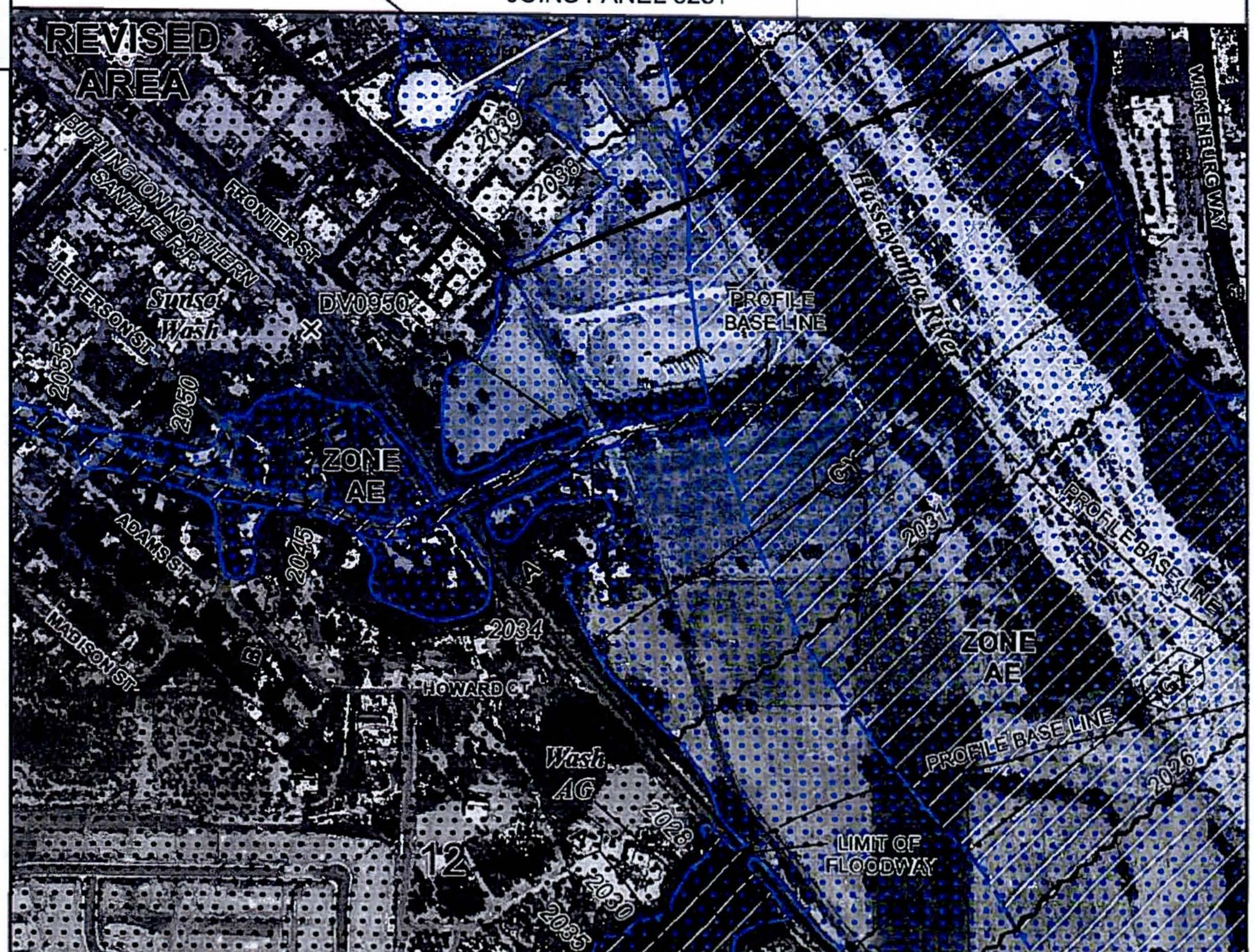
Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER 04013C0253H

EFFECTIVE DATE SEPTEMBER 30, 2005

Federal Emergency Management Agency

ZONE AH
(EL 2040)
455000 FT
JOINS PANEL 0251



NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures.** Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Arizona State Plane central zone (FIPSZONE 0202). The **horizontal datum** was NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of the FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum.** For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov/ or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, MD 20910-3282

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242,** or visit its website at http://www.ngs.noaa.gov/.

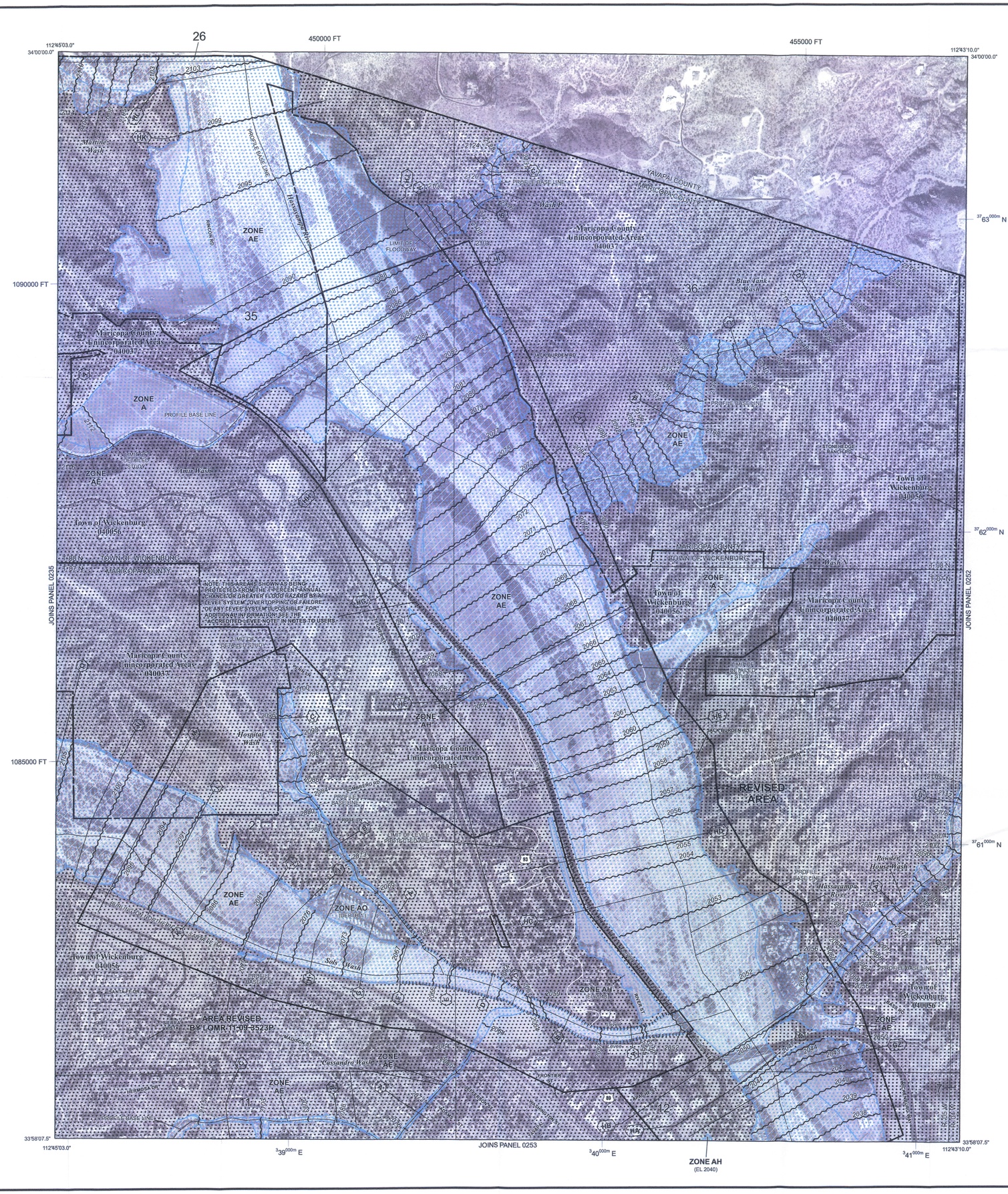
Base map information shown on this FIRM was derived from multiple sources. Base map files were provided in digital format by Maricopa County. Orthophoto images were produced at a scale of 1:6000 using HARN for control. Aerial photography is dated December 2000 to December 2002.

This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables *in the Flood Insurance Study report (which contains authoritative hydraulic data)* may reflect stream channel distances that differ from what is shown on this map.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

For information and questions about this map, available products associated with this FIRM including historic versions of this FIRM, how to order products or the National Flood Insurance Program in general, please call the FEMA Map Information eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the **FEMA Map Service Center** website at http://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website. Users may determine the current map date for each FIRM panel by visiting the **FEMA Map Service Center** website or by calling the FEMA Map Information eXchange.



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- 1% annual chance floodplain boundary
- 0.2% annual chance floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
- 513 — Base Flood Elevation line and value; elevation in feet*
- (EL 987) — Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

- A — A — Cross section line
- 23 — 23 — Transect line
- 97°07'30", 32°22'30" — Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
- 4275000mN — 1000-meter Universal Transverse Mercator grid ticks, zone 12
- 6000000 FT — 5000-foot grid ticks: Arizona State Plane coordinate system, central zone (FIPSZONE 0202), Transverse Mercator
- DX5510 — Bench mark (see explanation in Notes to Users section of this FIRM panel)
- M1.5 — River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
April 15, 1988

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
September 29, 1989 September 4, 1991 July 19, 2001
September 30, 2005 -to change Base Flood Elevations, to add roads and road names, to update corporate limits, to incorporate previously issued Letters of Map Revision, to incorporate previously issued Letters of Map Amendment, to change Special Flood Hazard Areas, to change zone designations, to add Special Flood Hazard Areas, and to add Base Flood Elevations.

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'
250 0 500 1000 FEET
150 0 150 300 METERS

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0251H

FIRM
FLOOD INSURANCE RATE MAP
MARICOPA COUNTY, ARIZONA
AND INCORPORATED AREAS

PANEL 251 OF 4350
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY	040037	0251	H
WICKENBURG, TOWN OF	040056	0251	H

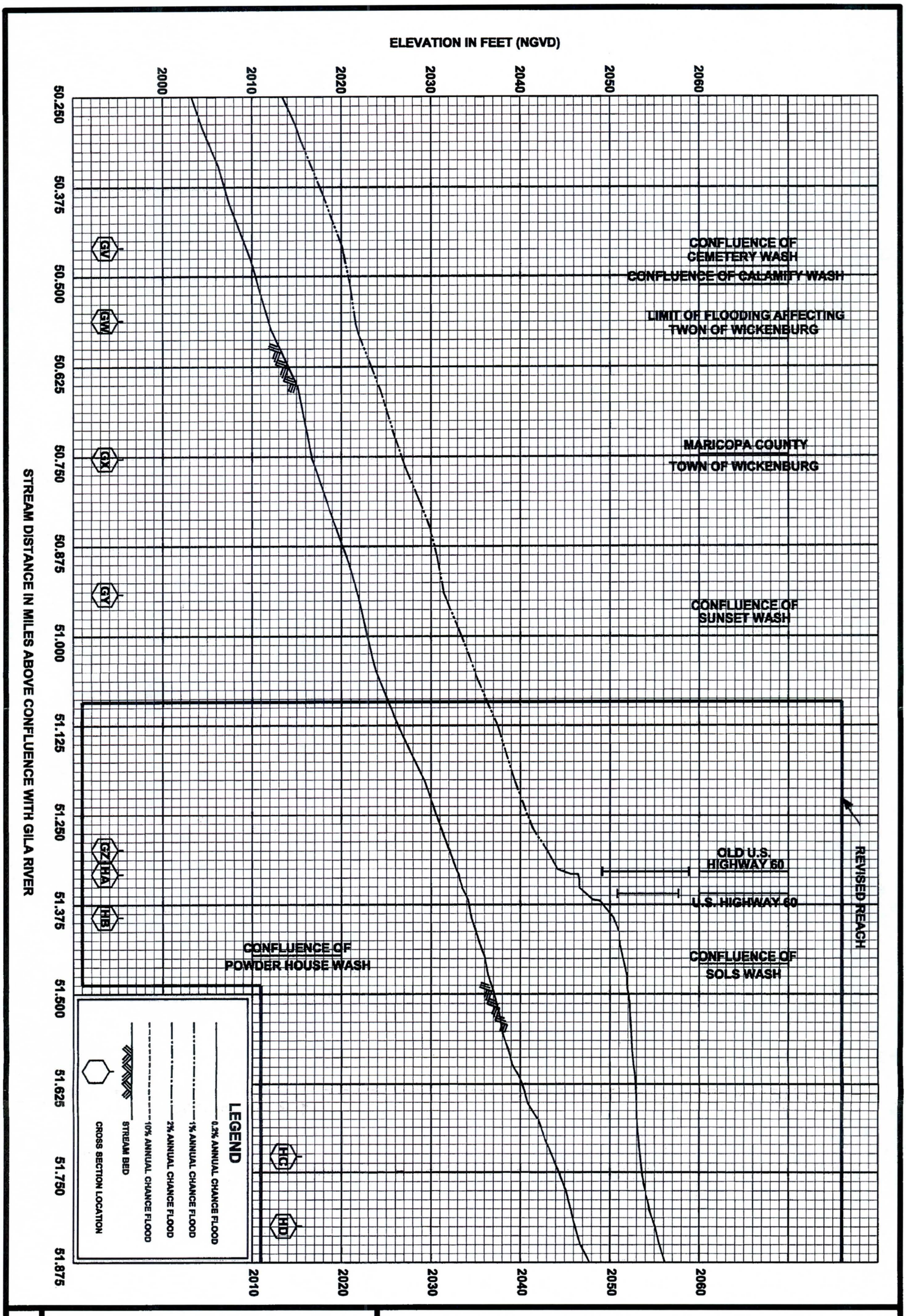
REVISED TO REFLECT LOMR EFFECTIVE: May 4, 2012

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

MAP NUMBER
04013C0251H

EFFECTIVE DATE
SEPTEMBER 30, 2005

Federal Emergency Management Agency



207P

FEDERAL EMERGENCY MANAGEMENT AGENCY

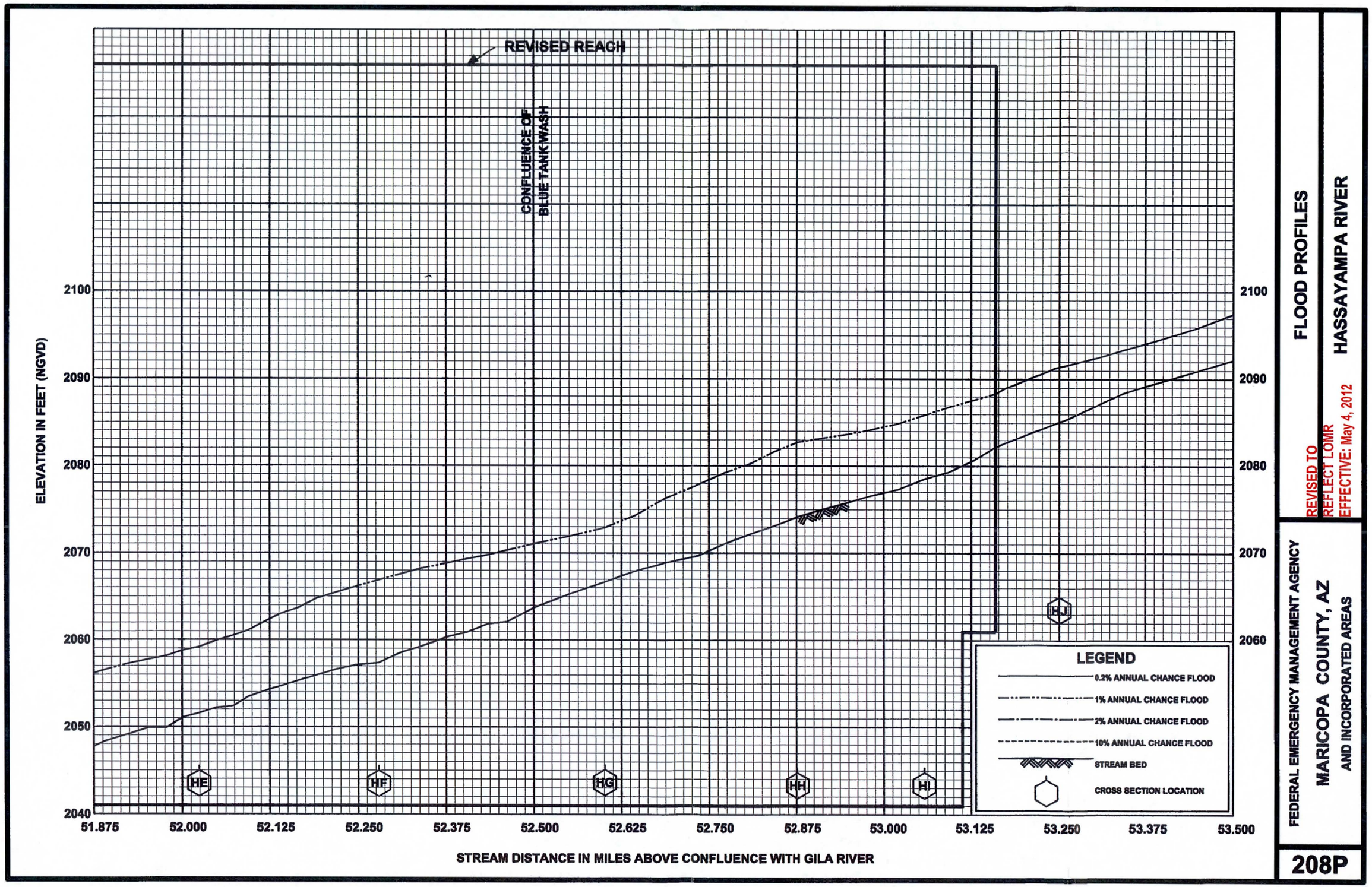
MARICOPA COUNTY, AZ

AND INCORPORATED AREAS

REVISED TO
REFLECT LOMR
EFFECTIVE: May 4, 2012

FLOOD PROFILES

HASSAYAMPA RIVER



FLOOD PROFILES

HASSAYAMPA RIVER

REVISED TO REFLECT LOMR EFFECTIVE: May 4, 2012

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ

AND INCORPORATED AREAS

208P

NATIONAL FLOOD INSURANCE PROGRAM

FEMA PRODUCTION AND TECHNICAL SERVICES CONTRACTOR

July 18, 2011

Mr. Rick DeStefano
Floodplain Administrator
Town of Wickenburg
155 North Tegner Street, Suite A
Wickenburg, AZ 85390

IN REPLY REFER TO:
Case No.: 11-09-3216P
Communities: Town of Wickenburg and
Maricopa County, AZ
Community Nos.: 040037 and 040056

316-AD

Dear Mr. DeStefano:

This is in regard to your request dated June 29, 2011, that the Department of Homeland Security's Federal Emergency Management Agency (FEMA) issue a conditional revision to the Flood Insurance Rate Map (FIRM) for Maricopa County, Arizona and Incorporated Areas. Pertinent information about the request is listed below.

Identifier:	U.S. 93Wickenburg Bypass-Levee Accreditation
Flooding Source:	Hassayampa River
FIRM Panels Affected:	04013C0251H and 0253H

The data required to complete our review, which must be submitted within 90 days of the date of this letter, are listed on the enclosed summary.

If we do not receive the required data within 90 days, we will suspend our processing of your request. Any data submitted after 90 days will be treated as an original submittal and will be subject to all submittal/payment procedures, including the flat review and processing fee for requests of this type established by the current fee schedule. A copy of the notice summarizing the current fee schedule, which was published in the *Federal Register*, is available on the FEMA website at http://www.fema.gov/plan/prevent/fhm/frm_fees.shtm for your information.

FEMA receives a very large volume of requests and cannot maintain inactive requests for an indefinite period of time. Therefore, we are unable to grant extensions for the submission of required data/fees for revision requests. If a requester is informed by letter that additional data are required to complete our review of a request, the data/fee **must** be submitted within 90 days of the date of the letter. Any fees already paid will be forfeited for any request for which the requested data are not received within 90 days.

If you have general questions about your request, FEMA policy, or the National Flood Insurance Program, please call the FEMA Map Information eXchange (FMIX), toll free, at 1-877-FEMA MAP (1-877-336-2627). If you have specific questions concerning your request, please contact your case reviewer, Ms. Lucelle Espine, by e-mail at lespine@mbakercorp.com or by telephone at (571) 357-6037, or the Revisions Coordinator for your request, Mr. Joshua Hunn, CFM, at jhunn@mbakercorp.com or at (571) 357-6088.

Sincerely,

Syed Qayum

Syed Qayum, CFM
LOMR Technical Manager
BakerAECOM

Enclosures

cc: Mr. Berwyn Milbrink, P.E.
Project Manager
Jacobs

NATIONAL FLOOD INSURANCE PROGRAM

FEMA PRODUCTION AND TECHNICAL SERVICES CONTRACTOR

Summary of Additional Data Required to Support a
Letter of Map Revision

Case No.: 11-09-3216P

Requester: Mr. Rick DeStefano

Communities: Town of Wickenburg and
Maricopa County, AZ

Community Nos.: 040037 and 040056

The issues listed below must be addressed before we can continue the review of your request.

1. Our review of your request revealed that the Unincorporated Areas of Maricopa County, Arizona are affected by this revision. Please provide community acknowledgment in the form of a letter stating that county officials have reviewed the revision request and understand the effects of the revision on flooding conditions in the community, and that any existing or proposed structures to be removed from the Special Flood Hazard Area (SFHA), the area subject to inundation by the base (1-percent-annual-chance) flood, are reasonably safe from flooding. Alternatively, please submit MT-2 application/certification Form 1, entitled "Overview & Concurrence Form," signed by an official from Maricopa County.

2. Please submit documentation of the individual legal notices sent to property owners who are affected by any increases in width and/or shifting of the base floodplain and/or increases in the Base Flood Elevations. Legal notice may take the form of certified mailing receipts or certification that all property owners have been notified, with an accompanying mailing list and a copy of the letter sent. Examples of legal notices can be found on Pages 12 through 17 of the instructions for the MT-2 forms, which may be accessed at http://www.fema.gov/pdf/fhm/mt2_inst.pdf.

3. Please submit digital and paper copies of the post-project conditions HEC-RAS hydraulic model. Please ensure that this model reflects the submitted "as-built" grading plans entitled "U.S. 93 Wickenburg Bypass," prepared by Jacobs, dated February 27, 2009.

4. Our review revealed that your submittal did not include all items required under Section 65.10 of the National Flood Insurance Program (NFIP). Please provide evidence that the levee complies with all of the requirements of 44 CFR 65.10, including the following items:

   a. Please submit a topographic work map, certified by a registered professional engineer, that shows the flood delineation exhibiting the without levee or levee failing analysis.
   b. Please provide a profile of the current effective and as-built Base Flood Elevations and levee crest (top of left and right levees) elevation that shows adequate freeboard exists. The submittal should contain information showing that the levee ties into high ground and that the elevation of the levee at the tie-in location is within a tenth of a foot of the levee crest at the upstream and downstream ends.
   c. Please submit interior drainage analysis. The submittal must include joint probability of interior and exterior flooding, describe storage and pumping systems, if applicable, and identify capacities of these facilities to evacuate flood waters. Please submit necessary interior drainage analysis or provide justification if doing so is not necessary.

BakerAECOM, under contract with the FEDERAL EMERGENCY MANAGEMENT AGENCY, is a Production and Technical Services Contractor for the National Flood Insurance Program

d. Please submit all applicable documentation or reports on tests and inspections that are required in accordance with Paragraphs 65.10(c)(1)(iii) and 65.10(c)(2)(iv) of the NFIP regulations.

5. Please submit a revised annotated Flood Insurance Rate Map (FIRM) as necessary, at the scale of the effective FIRM, that shows the revised base floodplain, 0.2-percent-annual-chance floodplain and regulatory floodway boundary delineations shown on the submitted work map and how they tie into the boundary delineations shown on the effective FIRM at the downstream and upstream ends of the revised reach.

6. The topwidths of the base floodplain computed in the post-project conditions HEC-RAS hydraulic model at several cross sections do not match the approximate floodplain topwidths shown on the submitted topographic work map entitled "Arizona Department of Transportation, U.S. 93 Interim Bypass Work Map," prepared by West Consultants, Inc. dated March 3, 2007. Please provide an explanation for these discrepancies, or submit a revised hydraulic analysis and/or work maps as appropriate.

7. Please revise the above-referenced topographic work map as necessary to incorporate all changes as a result of the revised hydraulic conditions analysis requested in Items 4 and 6. Additionally, please submit a revised topographic work map, certified by a registered professional engineer, that shows all applicable items listed in Section C of MT-2 Form 2, entitled "Riverine Hydrology & Hydraulics Form," including the following information:

   a. The post-project conditions base floodplain, 0.2-percent-annual-chance floodplain, and regulatory floodway boundary delineations;
   b. The currently effective base floodplain, 0.2-percent-annual-chance floodplain, and regulatory floodway boundary delineations;
   c. The logical tie-ins between the revised and effective flood hazard boundary delineations;
   d. The topographic contour information used for the base floodplain and 0.2-percent-annual-chance floodplain boundary delineations;
   e. The locations and alignments of all cross sections used in the hydraulic model;
   f. The flow line used in the hydraulic model; and
   g. A reference to a datum, such as the National Geodetic Vertical Datum of 1929.

Please send the required data and/or fee directly to us at the address shown at the bottom of the first page. For identification purposes, please include the case number referenced above on all correspondence.

Letter of Map Revision

Town of Wickenburg, Arizona
Maricopa County, Arizona

Maps:
04013C0253H
04013C0241H

Case No. 11-09-3216P

Submittal of Additional Data
Required to Support a Letter of Map Revision

SEPTEMBER 2011

Prepared by:

JACOBS™

101 North First Avenue, Suite 3100
Phoenix, Arizona 85003

Jacobs

Item 1

Project:	**Wickenburg Interim Bypass**	By:	**JPF**
Subject:	**LOMR**	Date:	**9/20/11**
	Responses to FEMA Review of July 18, 2011	Checked:	**GLC**
	Case No. 11-09-3216P	Project No.:	**W7X73401**

Attached is a signed form MT-2 for unincorporated Maricopa County, executed by Tim Phillips, Manager of the Flood Control District of Maricopa County.

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

OVERVIEW & CONCURRENCE FORM

O.M.B No. 1660-0016
Expires: 12/31/2010

PAPERWORK BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 1 hour per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing, reviewing, and submitting the form. You are not required to respond to this collection of information unless a valid OMB control number appears in the upper right corner of this form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, U.S. Department of Homeland Security, Federal Emergency Management Agency, 500 C Street, SW, Washington DC 20472, Paperwork Reduction Project (1660-0016). Submission of the form is required to obtain or retain benefits under the National Flood Insurance Program. **Please do not send your completed survey to the above address.**

A. REQUESTED RESPONSE FROM DHS-FEMA

This request is for a (check one):

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

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

B. OVERVIEW

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

Community No.	Community Name	State	Map No.	Panel No.	Effective Date
Ex: 480301	City of Katy	TX	480301	0005D	02/08/83
480287	Harris County	TX	48201C	0220G	09/28/90
040037	Maricopa County, Unincorporated Areas	AZ	04013C	0251H	9/30/05
040056	Town of Wickenburg	AZ	04013C	0253H	9/30/05

2. a. Flooding Source: Hassayampa River

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

3. Project Name/Identifier: U.S. 93 Interim Wickenburg Bypass

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

5. Basis for Request and Type of Revision:

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

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

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

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

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

C. REVIEW FEE

Has the review fee for the appropriate request category been included?	☒ Yes	Fee amount: $7,150.00
	☐ No, Attach Explanation	

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

D. SIGNATURE

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

Name: Mr. Rick DeStefano	Company: Town of Wickenburg	
Mailing Address: 155 N Tegner Street, Suite A Wickenburg, AZ 85390	Daytime Telephone No.: 928.668.0513	Fax No.: 602.506.1580
	E-Mail Address: rdestefano@ci.wickenburg.az.us	
Signature of Requester (required):	Date: Sept. 26, 2011	

As the community official responsible for floodplain management, I hereby acknowledge that we have received and reviewed this Letter of Map Revision (LOMR) or conditional LOMR request. Based upon the community's review, we find the completed or proposed project meets or is designed to meet all of the community floodplain management requirements, including the requirement that no fill be placed in the regulatory floodway, and that all necessary Federal, State, and local permits have been, or in the case of a conditional LOMR, will be obtained. In addition, we have determined that the land and any existing or proposed structures to be removed from the SFHA are or will be reasonably safe from flooding as defined in 44CFR 65.2(c), and that we have available upon request by FEMA, all analyses and documentation used to make this determination.

Community Official's Name and Title: Mr. Timothy S. Phillips, P.E. Chief Engineer & General Manager	Community Name: Maricopa County	
Mailing Address: FCD of Maricopa Co 2801 W Durango Street Phoenix, AZ 85009	Daytime Telephone No.: 602.506.1501	Fax No.: 602.372.0989
	E-Mail Address: tsp@ mail.maricopa.gov	
Community Official's Signature (required):	Date: 9/21/11	

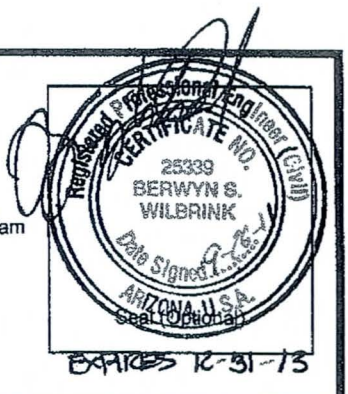
CERTIFICATION BY REGISTERED PROFESSIONAL ENGINEER AND/OR LAND SURVEYOR

This certification is to be signed and sealed by a licensed land surveyor, registered professional engineer, or architect authorized by law to certify elevation information data, hydrologic and hydraulic analysis, and any other supporting data. All documents submitted in support of this request are correct to the best of my knowledge. All analyses have been performed correctly and in accordance with sound engineering practices. All project works are designed in accordance with sound engineering practices to provide protection from the 1% annual chance flood. If "as-built" conditions data/plan provided, then the structure(s) has been built according to the plans being certified, is in place, and is fully functioning. I understand that any false statement may be punishable by fine or imprisonment under Title 18 of the United States Code, Section 1001.

Certifier's Name: Berwyn S. Wilbrink, P.E.	License No.: 25339	Expiration Date: 12/31/2013
Company Name: Jacobs	Telephone No.: 602.650.1661	Fax No.: 602.253.1202
Signature:	Date: 9/26/2011	

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

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



Jacobs

Item 2

Project:	**Wickenburg Interim Bypass**	By:	**JPF**
Subject:	**LOMR**	Date:	**9/21/11**
	Responses to FEMA Review of July 18, 2011	Checked:	**GLC**
	Case No. 11-09-3216P	Project No.:	**W7X73401**

Attached is letter from the Town of Wickenburg Floodplain Manager certifying that the notification letters have been sent to the property owners affected.

Also attached is a copy of the form letter sent and a mailing list of properties, owners and addresses for the property owners affected.

TOWN OF WICKENBURG

Planning & Building Department
155 North Tegner Street, Suite A ▪ Wickenburg, Arizona 85390
(928) 684-5451 ▪ Phoenix Line (602) 506-1622 ▪ FAX (602) 506-1580

September 21, 2011

FEMA National Service Provider
3601 Eisenhower Ave.
Alexandria, Va. 22304-6425

Re: Case No. 07-09-0858R

Dear Sir,

This letter is to certify that the Town of Wickenburg has notified by mail property owners affected by any increases in width and/or shifting of the base floodplain and/or increases in the Base Flood Elevations. Please find attached a mailing list of the property owners and a copy of the letter sent.

If you have any questions regarding this matter or require additional information, please contact Mr. Berwyn Wilbrink, Jacobs Project Manager at 602-530-1661 or email at Berwyn.wilbrink@jacobs.com.

Sincerely,

Rick DeStefano
Floodplain Administrator
Town of Wickenburg

February __, 2011

PROPERTY OWNER
ADDRESS
WICKENBURG, AZ

Maricopa County Assessor's Parcel Number ___-__-___

Dear Property Owner:

The Flood Insurance Rate Map (FIRM) for a community depicts land which has been determined to be subject to a 1% (100-year) or greater chance of flooding in any given year. The FIRM is used to determine flood insurance rates and to help the community with floodplain management.

The Town of Wickenburg, Arizona Department of Transportation and Flood Control District of Maricopa County are applying for a Letter of Map Revision (LOMR) from the Federal Emergency Management Agency (FEMA) to revise FIRM panel 04013C0251H and FIRM panel 04013C0253H for the Town of Wickenburg, Arizona along the Hassayampa River from 1,100 feet downstream of the existing US 60 overpass to a point 9,600 feet upstream of the existing US 60 overpass. The revision will reflect the changes resulting from the recently completed new roadway along the western banks of the Hassayampa River and a new US 60 bridged crossing of the river just north of the existing bridged crossing.

This letter is to inform you of the revision of the 1% annual chance water-surface elevation and 1% annual chance floodplain on your property at _____.

The new roadway and levee project resulted in both increases and decreases in the 1% annual chance water-surface elevations for the Hassayampa River with a maximum increase of 0.7 foot at a point approximately 5,660 feet upstream of the existing US 60 overpass; and , a maximum decrease of 6.5 feet at a point approximately 90 feet upstream of the existing US 60 overpass.

The width of the 1% annual chance of floodplain will increase in some areas and decrease in some areas with a maximum widening of approximately 70 feet at a point approximately 8,330 feet upstream of the existing US 60 overpass and a maximum narrowing of 570 feet at a point approximately 3,410 feet upstream of the existing US 60 overpass.

If you have any questions or concerns about the study or its affect on you property, please contact Rick DeStefano at 928-668-0513 or rdestefano@ci.wickenburg.az.us for additional information.

Sincerely,

_____

#	APN	OwnerName	OwnerAdd1	OwnerA	City	State	Zipcode	SiteAddres	APN
1	50301023J	WEISS RONALD J	PO BOX 887		WICKENBURG	AZ	85358	52440 N 304TH DR	WICKENBURG
2	50301023K	WEISS RONALD J	PO BOX 887		WICKENBURG	AZ	85358	52432 N 304TH DR	WICKENBURG
3	50301002J	MILLER KARL A/CAROL M TR	877 E WICKENBURG WY		WICKENBURG	AZ	85390	891 E WICKENBURG WY	WICKENBURG
4	50552027B	BOWIE ARTHUR J JR/JANET J TR	409 S TEGNER		WICKENBURG	AZ	85390	409 S TEGNER ST	WICKENBURG
5	50507015	DEPARTMENT OF TRANSPORTATION	205 S 17TH AVE		PHOENIX	AZ	85007	1305 N TEGNER ST	WICKENBURG
6	50507012A	ARIZONA STATE OF DEPT OF TRANS	205 S 17TH AVE		PHOENIX	AZ	850073212	1225 N TEGNER ST	WICKENBURG
7	50502008J	MERIDIAN AZ PROPERTIES LLC	16435 N SCOTTSDALE RD NO 300		SCOTTSDALE	AZ	85254	1545 N TEGNER ST	WICKENBURG
8	50502009	WAY BOB L/LEA E	PO BOX 130		MORRISTOWN	AZ	85342	1543 N TEGNER ST	WICKENBURG
9	50502011B	NORTHRIDGE INVESTMENTS LLC	PO BOX 20940		WICKENBURG	AZ	85358	1547 N TEGNER ST	WICKENBURG
10	50502001G	BLAKELEY RICHARD W & CAROL W	PO BOX 912		WICKENBURG	AZ	85358	1409 N TEGNER ST	WICKENBURG
11	50512016	LEAVITT ROGER D/MICHELLE A	4950 W SOUTHERN AVE		LAVEEN	AZ	85339	801 N SOPHIE BURDEN RD	WICKENBURG
12	50513026A	LAZY 3H INVESTMENTS LLC	7156 W 127TH ST UNIT 101		PALOS HEIGHTS	IL	60463	472 E WICKENBURG WY	WICKENBURG
13	50513034	CHUMBLEY JAMES D/BARBARA J TR/ETAL	PO BOX 5847		SUN CITY WEST	AZ	85376	466 W CENTER ST	WICKENBURG
14	50513037	THOMAS JAMES O SR/MAGUERITE/JAMES O JR/LYNNE	PO BOX 1902		WICKENBURG	AZ	85358	601 N JACK BURDEN RD	WICKENBURG
15	50514016	FIRST NATIONAL BANK OF ARIZONA TR	PO BOX 10550		CASA GRANDE	AZ	85230	400 W CENTER ST	WICKENBURG
16	50515019	PLOSS ROXANN	930 CHIA RD		PALM SPRINGS	CA	92262	680 N CHESTNUT ST	WICKENBURG
17	50515023	LECLAIR EVE K	100 SWILLING AVE		WICKENBURG	AZ	85390	100 E SWILLING AVE	WICKENBURG
18	50515025	HERSHKOWITZ MICHAEL L/SHANNON L	PO BOX 172		WICKENBURG	AZ	85358	683 N CHESTNUT ST	WICKENBURG
19	50516035	VILLA BERNICE M/RAYMOND T/BERNICE L	P O BOX 32		WICKENBURG	AZ	853580000	200 E SWILLING AVE	WICKENBURG
20	50516037	SH RENTALS II LLC	13902 E SHANNON		GILBERT	AZ	85296	190 E SWILLING AVE	WICKENBURG
21	50516039	LISAK-STAMM LINDA S	19725 JULIUS HEIL DR		NEW BERLIN	WI	53146	178 E SWILLING AVE	WICKENBURG
22	50550001	ARW VENTURES LLC	110 E GURLEY STE 200		PRESCOTT	AZ	86301	10 W APACHE ST	WICKENBURG
23	50550002	ARW VENTURES LLC	110 E GURLEY STE 200		PRESCOTT	AZ	86301	10 W APACHE ST	WICKENBURG
24	50550007	ARW VENTURES LLC	110 E GURLEY STE 200		PRESCOTT	AZ	86301	204 W CENTER ST	WICKENBURG
25	50550010	ARW VENTURES LLC	110 E GURLEY STE 200		PRESCOTT	AZ	86301	210 W CENTER ST	WICKENBURG
26	50511004E	REMUDA RANCH COMPANY	ONE E APACHE ST		WICKENBURG	AZ	85390	1245 JACK BURDEN RD	WICKENBURG
27	50553015	WILSON CLYDE/ANITA TR/RICHARD/JOCELYN	P O BOX 2716		WINTER HAVEN	FL	338832716	66 KERKES ST	WICKENBURG
28	50501003J	BOVEE MARSHALL CLAUDE	1335 JACK BURDEN RD		WICKENBURG	AZ	85390	55435 N JACK BURDEN RD	WICKENBURG
29	50502001F	PAPIN JOSEPH A/PHYLLIS A	1403 N TEGNER UNIT A		WICKENBURG	AZ	85390	1403 N TEGNER ST	WICKENBURG
30	50502008F	SCHUCK JACQUELYNN J	19920 W VERDE HILLS DR		WICKENBURG	AZ	85390	56651 N JACK BURDEN RD	WICKENBURG
31	50502008H	SCHUCK JACQUELYNN J	19920 W VERDE HILLS DR		WICKENBURG	AZ	85390	56651 N JACK BURDEN RD	WICKENBURG
32	50507013A	ARIZONA STATE OF DEPT OF TRANS	205 S 17TH AVE		PHOENIX	AZ	850073212	1229 N TEGNER ST	WICKENBURG
33	50509052	ARIZONA DEPT OF TRANSPORTATION	205 S 17TH AVE STE 612E		PHOENIX	AZ	850073212	205 N WEAVER ST	WICKENBURG

#	APN	OwnerName	OwnerAdd1	OwnerA	City	State	Zipcode	SiteAddres	APN
34	50509063	CLICHE KEITH R	721 N WEAVER ST		WICKENBURG	AZ	85390	721 N WEAVER ST	WICKENBURG
35	50511004B	LLOYD ALEX/HEATHER	55250 JACK BURDEN RD		WICKENBURG	AZ	85390	55250 N JACK BURDEN RD	WICKENBURG
36	50512001N	JOYCE JOHN S/BILLIE J	P O BOX 386		WICKENBURG	AZ	85358	805 N JACK BURDEN RD	WICKENBURG
37	50512001P	HALLER CHESTER MICHAEL/TWILA	23811 N 23RD ST		PHOENIX	AZ	85024	825 N JACK BURDEN RD	WICKENBURG
38	50512015	POLLAY CLIFFORD C/NANCY M TR	P O BOX 754		WICKENBURG	AZ	85358	800 N JACK BURDEN RD	WICKENBURG
39	50512017	JEPSEN RONALD C/GLORIA	PO BOX 374		WICKENBURG	AZ	853580000	805 N SOPHIE BURDEN RD	WICKENBURG
40	50512020	GREENMYER BARBARA L/EDDIE K	PO BOX 463		WICKENBURG	AZ	85358	765 N JOHN BURDEN LN	WICKENBURG
41	50513031G	NAVARRETE JOSE F/RODRIGUEZ YESENIA	647 CONSTELLATION RD		WICKENBURG	AZ	85390	355 N CONSTELLATION RD	WICKENBURG
42	50513031H	SASS DRAKE NELSONMIDORI LYNN	651 N CONSTELLATION RD		WICKENBURG	AZ	85390	375 CONSTELLATION RD	WICKENBURG
43	50514009	ALASKAN BLUE LLC	610 JACK BURDEN RD SP 1		WICKENBURG	AZ	85390	163 N REMUDA TR	WICKENBURG
44	50514013D	ALASKAN BLUE LLC	610 JACK BURDEN RD SP 1		WICKENBURG	AZ	85390	444 N CONSTELLATION RD	WICKENBURG
45	50514014	ALASKAN BLUE LLC	610 JACK BURDEN RD SP 1		WICKENBURG	AZ	85390	360 CONSTELLATION RD	WICKENBURG
46	50515021	JONES DAVID J/DIANE	970 W SANTA FE DR		WICKENBURG	AZ	85390	373 N CHESTNUT ST	WICKENBURG
47	50515024	BLUNT KENNETH D/BARBARA D	691 CHESTNUT ST		WICKENBURG	AZ	85390	691 CHESTNUT ST	WICKENBURG
48	50515026	REMIJIO ROBERTO G/CRANK JUDY ROSE	644 CHESTNUT		WICKENBURG	AZ	853900000	675 N CHESTNUT ST	WICKENBURG
49	50515029A	BAFFA KERRY L	657 CHESTNUT ST		WICKENBURG	AZ	85390	657 CHESTNUT ST	WICKENBURG
50	50515030	WICKENBURG TOWN OF	155 N TEGNER ST STE A		WICKENBURG	AZ	85390	244 W APACHE ST	WICKENBURG
51	50515031A	STATE OF ARIZONA	205 S 17TH AVE	#612E	PHOENIX	AZ	85007	571 S CHESTNUT ST	WICKENBURG
52	50515034	ARIZONA STATE OF DEPT OF TRANSPORTATION	205 SOUTH 17TH AVE 612E		PHOENIX	AZ	850073212	252 S CHESTNUT ST	WICKENBURG
53	50516012B	ROCHA ROBERTO ZERMENO/MARIA C VARGAS	PO BOX 313		AGUILA	AZ	85320	711 N WEAVER ST	WICKENBURG
54	50526001	SIMPSON JIM	451 W WICKENBURG WAY		WICKENBURG	AZ	85390	451 W SULLIVAN DR	WICKENBURG
55	50510001B	ARIZONA DEPT OF TRANSPORTATION	205 S 17TH AVE STE 612E		PHOENIX	AZ	850073212	747 N WEAVER ST	WICKENBURG
56	50553002B	RANCHO GRANDE WICKENBURG L L C	293 E WICKENBURG WAY		WICKENBURG	AZ	85390	293 E WICKENBURG WY	WICKENBURG
57	50301025	BAILEY DOMINIC/CHERYL FAY	PO BOX 1613		WICKENBURG	AZ	85358	52615 N 305TH AVE	WICKENBURG
58	50502010K	SCHUCK KEVIN/STIRLING SHAWN J	510 N TEGNER ST UNIT 3		WICKENBURG	AZ	853903421	56651 N JACK BURDEN RD	WICKENBURG
59	50507014A	ARIZONA STATE OF DEPT OF TRANS	205 S 17TH AVE		PHOENIX	AZ	850073212	1231 N TEGNER ST	WICKENBURG
60	50515037	ARIZONA STATE OF	205 S 17TH AVE		PHOENIX	AZ	85007	625 W CHESTNUT	WICKENBURG
61	50302023B	PHILLIPS HOWARD LEE/LUCYNDA F	30218 NW US HWY 60/89		WICKENBURG	AZ	85390	30221 W US HWY 60	WICKENBURG
62	50511004F	REMUDA RANCH COMPANY	ONE E APACHE ST		WICKENBURG	AZ	85390	1245 JACK BURDEN RD	WICKENBURG
63	50511007A	REMUDA RANCH COMPANY	ONE E APACHE ST		WICKENBURG	AZ	85390	1245 JACK BURDEN RD	WICKENBURG
64	50511007B	REMUDA RANCH COMPANY	ONE E APACHE ST		WICKENBURG	AZ	85390	1245 JACK BURDEN RD	WICKENBURG
65	50511011	ARIZONA DEPT OF TRANSPORTATION	205 S 17TH AVE STE 612E		PHOENIX	AZ	850073212	747 N WEAVER ST	WICKENBURG
66	50502004C	THOMAS MORTON S III TR	P O BOX 129		WICKENBURG	AZ	85358	56202 N RINCON RD	WICKENBURG

#	APN	OwnerName	OwnerAdd1	OwnerA	City	State	Zipcode	SiteAddres	APN
67	50513001	SUBWAY SOUTHWEST DEVELOPMENT CORP	9634 N 24TH ST		PHOENIX	AZ	85028	412 E WICKENBURG WY	WICKENBURG
68	50513035	BAKER JAMES B/JERRY L TR	7 ALTA VISTA		WICKENBURG	AZ	85390	495 E WICKENBURG WY	WICKENBURG
69	50513036	BAKER JAMES B/JERRY L TR	7 ALTA VISTA		WICKENBURG	AZ	85390	495 E WICKENBURG WY	WICKENBURG
70	50514007A	ALASKAN BLUE LLC	25042 NELLIE GAIL RD		LAGUNA HILLS	CA	926535824	380 CONSTELLATION RD	WICKENBURG
71	50514013E	ALASKAN BLUE LLC	610 JACK BURDEN RD SP 1		WICKENBURG	AZ	85390	610 JACK BURDEN RD	WICKENBURG
72	50514018A	ARIZONA DEPARTMENT OF TRANSPORTATION	205 S 17TH AVE STE 612E		PHOENIX	AZ	85007	340 E WICKENBURG WY	WICKENBURG
73	50514018B	FIRST NATIONAL BANK OF ARIZONA TR	PO BOX 10550		CASA GRANDE	AZ	85230	370 E WICKENBURG WY	WICKENBURG
74	50515018A	FLAVELL JOHN A/JOHNSON VICKI	690 CHESTNUT ST		WICKENBURG	AZ	85390	690 W CHESTNUT ST	WICKENBURG
75	50515020	ADAMS DAWN L	670 N CHESTNUT		WICKENBURG	AZ	853900000	670 W CHESTNUT ST	WICKENBURG
76	50515022	KALEY LEE D/CHERYL A	PO BOX 21538		WICKENBURG	AZ	85353	110 E SWILLING AVE	WICKENBURG
77	50515027A	HERSHKOWITZ ELIZABETH	665 CHESTNUT ST		WICKENBURG	AZ	85390	665 W CHESTNUT ST	WICKENBURG
78	50515031B	STATE OF ARIZONA	205 S 17TH AVE	#612E	PHOENIX	AZ	85007	571 W CHESTNUT ST	WICKENBURG
79	50515042	HANSEN CLESIE R/MARY L	1649 CHESTNUT ST		WICKENBURG	AZ	853580000	649 W CHESTNUT ST	WICKENBURG
80	50515043	RODRIGUEZ MIKE/ONEAL DEBRA M	PO BOX 256		WICKENBURG	AZ	85358	641 W CHESTNUT ST	WICKENBURG
81	50516011A	ZUHLSDORF DAVID/DELORES	156 SWILLING AVE		WICKENBURG	AZ	85390	156 E SWILLING AVE	WICKENBURG
82	50516012C	BARBER RYAN L	132 W SWILLING AVE		WICKENBURG	AZ	85390	132 E SWILLING AVE	WICKENBURG
83	50516043	RIOS ABEL/NADIA R	161 W CAVANESS AVE		WICKENBURG	AZ	85390	161 E CAVANESS AVE	WICKENBURG
84	50526002K	BROMM WICKENBURG LLC	PO DRAWER 1389		WICKENBURG	AZ	85358	555 E WICKENBURG WY	WICKENBURG
85	50526002S	BROMM WICKENBURG LLC	PO DRAWER 1389		WICKENBURG	AZ	85358	555 E WICKENBURG WY	WICKENBURG
86	50526002T	BROMM WICKENBURG LLC	PO DRAWER 1389		WICKENBURG	AZ	85358	555 E WICKENBURG WY	WICKENBURG
87	50526006A	WHIE LLC	2101 N 4TH ST STE 202		FLAGSTAFF	AZ	86004	451 E WICKENBURG WY	WICKENBURG
88	50526007	BROMM WICKENBURG LLC	PO DRAWER 1389		WICKENBURG	AZ	85358	555 E WICKENBURG WY	WICKENBURG
89	50526008	BROMM WICKENBURG LLC	PO DRAWER 1389		WICKENBURG	AZ	85358	555 E WICKENBURG WY	WICKENBURG
90	50301007	DANGIO JAMES D & KATHLENE A	P O BOX 308		WICKENBURG	AZ	85390	855 E WICKENBURG WY	WICKENBURG
91	50301026	DANGIO JAMES D/KATHLENE A	BOX 308		WICKENBURG	AZ	853580000	845 E WICKENBURG WY	WICKENBURG
92	50301037	MILLER KARL A/CAROL M TR	877 E WICKENBURG WY		WICKENBURG	AZ	85390	877 E WICKENBURG WY	WICKENBURG
93	50301039	DANGIO JAMES DAVID/KATHLEEN A	PO BOX 308		WICKENBURG	AZ	85358	867 E WICKENBURG WY	WICKENBURG
94	50301040	DANGIO JAMES DAVID/KATHLEEN A	PO BOX 308		WICKENBURG	AZ	85358	865 E WICKENBURG WY	WICKENBURG
95	50303002	JOHN W AND AIMEE SIMPSON FAMILY TRUST	503 S TEGNER ST		WICKENBURG	AZ	853900000	503 S TEGNER ST	WICKENBURG
96	50303004	JOHN W AND AIMEE SIMPSON FAMILY TRUST	503 S TEGNER ST		WICKENBURG	AZ	853900000	503 S TEGNER ST	WICKENBURG
97	50512001F	ALASKAN BLUE LLC	610 JACK BURDEN RD SP 1		WICKENBURG	AZ	85390	610 N JACK BURDEN RD	WICKENBURG
98	50512019	WICKENBURG SADDLE CLUB INC	BOX 945		WICKENBURG	AZ	85358	325 E SADDLE CLUB TR	WICKENBURG
99	50512018	WICKENBURG SADDLE CLUB INC	BOX 945		WICKENBURG	AZ	85358	305 E SADDLE CLUB TR	WICKENBURG

#	APN	OwnerName	OwnerAdd1	OwnerA City	State	Zipcode	SiteAddres	APN
100	50550005	ARW VENTURES LLC	110 E GURLEY STE 200	PRESCOTT	AZ	86301	274 E WICKENBURG WY	WICKENBURG
101	50550012	ARW VENTURES LLC	110 E GURLEY STE 200	PRESCOTT	AZ	86301	278 E WICKENBURG WY	WICKENBURG
102	50550015	ARIZONA STATE OF DEPT OF TRANSPORTATION	205 SOUTH 17TH AVE 612E	PHOENIX	AZ	850073212	162 E WICKENBURG WY	WICKENBURG
103	50550017	ARW VENTURES LLC	110 E GURLEY STE 200	PRESCOTT	AZ	86301	162 E WICKENBURG WY	WICKENBURG
104	50553025	SCHOOL DIST WICKENBURG HIGH	P O BOX 1418	WICKENBURG	AZ	853580000	251 S TEGNER ST	WICKENBURG
105	50553024A	SCHOOL DISTRICT WICKENBURG HIGH	P O BOX 1418	WICKENBURG	AZ	853580000	251 S TEGNER ST	WICKENBURG
106	50553021A	SCHOOL DISTRICT WICKENBURG HIGH	P O BOX 1418	WICKENBURG	AZ	853580000	251 S TEGNER ST	WICKENBURG
107	50552028	SCHOOL DIST WICKENBURG HIGH SCHOOL	P O BOX 1418	WICKENBURG	AZ	853580000	251 S TEGNER ST	WICKENBURG
108	50553001A	BILLINGSLEY MICHAEL/CATHY/RANCHO GRANDE WICKE	295 E WICKENBURG WAY	WICKENBURG	AZ	85390	295 E WICKENBURG WY	WICKENBURG
109	50553001B	RANCHO GRANDE WICKENBURG L L C	293 E WICKENBURG WAY	WICKENBURG	AZ	85390	293 E WICKENBURG WY	WICKENBURG
110	50553002A	BODIROGA WESLIE TR	PO BOX 53	WICKENBURG	AZ	85358	293 E WICKENBURG WY	WICKENBURG
111	50553003A	ZIMPHER JAMES H/JO ANN TR	220 MONTE CRISTO	WICKENBURG	AZ	85390	247 E WICKENBURG WY	WICKENBURG
112	50553003B	RANCHO GRANDE WICKENBURG L L C	293 E WICKENBURG WAY	WICKENBURG	AZ	85390	293 E WICKENBURG WY	WICKENBURG
113	50553004A	BEDOIAN VICTOR/KRISTY L	515 W WICKENBURG WAY	WICKENBURG	AZ	85390	293 E WICKENBURG WY	WICKENBURG
114	50553004B	RANCHO GRANDE WICKENBURG L L C	293 E WICKENBURG WAY	WICKENBURG	AZ	85390	293 E WICKENBURG WY	WICKENBURG
115	50553006	KARDINAL GLENN R & ROYCE A	PO BOX 1328	WICKENBURG	AZ	85358	293 E WICKENBURG WY	WICKENBURG
116	50553007	RANCHO GRANDE WICKENBURG L L C	293 E WICKENBURG WAY	WICKENBURG	AZ	85390	293 E WICKENBURG WY	WICKENBURG
117	50553008	RANCHO GRANDE WICKENBURG L L C	293 E WICKENBURG WAY	WICKENBURG	AZ	85390	293 E WICKENBURG WY	WICKENBURG
118	50553009	RANCHO GRANDE WICKENBURG L L C	293 E WICKENBURG WAY	WICKENBURG	AZ	85390	293 E WICKENBURG WY	WICKENBURG
119	50553013	RANCHO GRANDE WICKENBURG L L C	293 E WICKENBURG WAY	WICKENBURG	AZ	85390	293 E WICKENBURG WY	WICKENBURG
120	50553026	NATURE CONSERVANCY	1510 E FT LOWELL RD	TUCSON	AZ	85719	225 S KERKES ST	WICKENBURG
121	50507017A	RINGWOOD RICHARD W/JOHNSON BURTEN C ETAL	PO BOX 939	PARK CITY	UT	84060	1325 N TEGNER ST	WICKENBURG
122	50301021N	MCCARDLE JACK L/LESLIE M	30305 US HWY 60-89	WICKENBURG	AZ	853901584	30305 N 60	WICKENBURG
123	50302024	COELER WILLI O/ADELHEID TR	PO BOX 31270	MESA	AZ	852751270	30033 N 89	WICKENBURG
124	50509056B	HANCOCK RUBY TR	781 WEAVER STREET	WICKENBURG	AZ	853900000	781 N WEAVER ST	WICKENBURG
125	50301008	BLUNDELL REBECCA J	PO BOX 866	WICKENBURG	AZ	85358	835 E WICKENBURG WY	WICKENBURG
126	50514015A	CORBET JAMES L	139 N FRONTIER ST	WICKENBURG	AZ	85390	421 W CENTER ST	WICKENBURG
127	50511009A	UNDERDOWN GEORGE D/GLORIA ANN	286 N FRONTIER ST	WICKENBURG	AZ	853901419	1001 N TEGNER ST	WICKENBURG
128	50302017K	SULLIVAN JANICE M/PAUL M	51802 HWY 60	WICKENBURG	AZ	85390	51802 N US HWY 60	WICKENBURG
129	50514006	HILL ANTHONY P & GERTRUDE MAE	P O BOX 2023	WICKENBURG	AZ	85358	605 JACK BURDEN RD	WICKENBURG
130	50526002D	BROMM WICKENBURG LLC	PO DRAWER 1389	WICKENBURG	AZ	85358	555 E WICKENBURG WY	WICKENBURG
131	50509047A	GAGE FINANCIAL II/WICKENBURG PROPERTIES	PO BOX 20700	WICKENBURG	AZ	85358	975 N TEGNER ST	WICKENBURG
132	50301012	NICHOLSON REX GEORGE ODELL	P O BOX 361	MORRISTOWN	AZ	85342	52480 N 304TH DR	WICKENBURG

#	APN	OwnerName	OwnerAdd1	OwnerA City	State	Zipcode	SiteAddres	APN
133	50502013B	GRANTHAM WILLIAM W & SUZANNE L	37450 S KAY EL BAR RD	WICKENBURG	AZ	85390		WICKENBURG
134	50515040B	ARIZONA STATE OF DEPT OF TRANSPORTATION	205 SOUTH 17TH AVE 612E	PHOENIX	AZ	850073212		WICKENBURG
135	50501010	KBJ PROPERTIES LLC	400 E KING ST	MALVERN	PA	19355		WICKENBURG
136	50302017L	SOULES HELENE G	51212 N HWY 60	WICKENBURG	AZ	85390		WICKENBURG
137	50515038	ARIZONA STATE OF	205 S 17TH AVE	PHOENIX	AZ	850073212		WICKENBURG
138	50515039B	ARIZONA STATE OF DEPT OF TRANSPORTATION	205 SOUTH 17TH AVE 612E	PHOENIX	AZ	850073212		WICKENBURG
139	50526003E	NATURE CONSERVANCY	1510 E FORT LOWELL RD	TUSCON	AZ	85719		WICKENBURG
140	50515032	ARIZONA DEPT OF TRANSPORTATION	205 S 17TH AVE STE 612E	PHOENIX	AZ	850073212		WICKENBURG
141	50553019	WICKENBURG TOWN OF	155 N TEGNER ST STE A	WICKENBURG	AZ	85390		WICKENBURG
142	50552027A	SIMPSON CATTLE COMPANY LP	501 S TEGNER ST	WICKENBURG	AZ	85390		WICKENBURG
143	50526004B	SIMPSON CATTLE COMPANY LP	501 S TEGNER ST	WICKENBURG	AZ	85390		WICKENBURG
144	50550011	ARW VENTURES LLC	110 E GURLEY STE 200	PRESCOTT	AZ	86301		WICKENBURG
145	50553020	WICKENBURG TOWN OF	155 N TEGNER ST STE A	WICKENBURG	AZ	85390		WICKENBURG
146	50514003	WICKENBURG TOWN OF	155 N TEGNER ST STE A	WICKENBURG	AZ	85390		WICKENBURG
147	50513002	FEDERAL HOME LOAN MORTGAGE CORPORATION	3476 STATEVIEW BLVD	FORT MILL	SC	29715		WICKENBURG
148	50515029B	ARIZONA STATE OF DEPT OF TRANSPORTATION	205 SOUTH 17TH AVE 612E	PHOENIX	AZ	850073212		WICKENBURG
149	50550014A	WICKENBURG TOWN OF	155 N TEGNER SUITE A	WICKENBURG	AZ	85390		WICKENBURG
150	50302019E	BROOKS ARTHUR LEE/JULIE ANN MACIAS	52420 US HWY 60-89	WICKENBURG	AZ	85390		WICKENBURG
151	50516027B	WICKENBURG TOWN OF	155 N TEGNER ST STE A	WICKENBURG	AZ	85390	175 E SWILLING AVE	WICKENBURG
152	50526005A	WHIE LLC	2101 N 4TH ST STE 202	FLAGSTAFF	AZ	86004		WICKENBURG
153	50502007C	THE MEADOWS OF WICKENBURG INC	1655 N TEGNER ST	WICKENBURG	AZ	85390		WICKENBURG
154	50511006N	SOUTH TOWN TOWER ASSOCIATES II LLC ETAL	PO BOX 939	PARK CITY	UT	84060		WICKENBURG
155	50553017	WILSON CLYDE/ANITA TR/RICHARD/JOCELYN	P O BOX 2716	WINTER HAVEN	FL	338832716		WICKENBURG
156	50550014C	WICKENBURG TOWN OF	155 N TEGNER SUITE A	WICKENBURG	AZ	85390		WICKENBURG
157	50553016	WILSON CLYDE/ANITA TR/RICHARD/JOCELYN	P O BOX 2716	WINTER HAVEN	FL	338832716		WICKENBURG
158	50302007	WICKENBURG TOWN OF	155 N TEGNER ST STE A	WICKENBURG	AZ	85390		WICKENBURG
159	50511012G	WICKENBURG PROPERTIES	PO BOX 20700	WICKENBURG	AZ	85358		WICKENBURG
160	50545003C	SIMPSON CATTLE COMPANY LP	501 S TEGNER ST	WICKENBURG	AZ	85390		WICKENBURG
161	50302015B	SIMPSON CATTLE COMPANY LP	501 S TEGNER ST	WICKENBURG	AZ	85390		WICKENBURG
162	50526004A	SIMPSON JIM	451 W WICKENBURG WAY	WICKENBURG	AZ	85390		WICKENBURG
163	50509057E	ARIZONA PUBLIC SERVICE COMPANY	PO BOX 53999 STA 2178	PHOENIX	AZ	85072		WICKENBURG
164	50502011A	WICKENBURG TOWN OF	155 N TEGNER SUITE A	WICKENBURG	AZ	85390		WICKENBURG
165	50553027	WICKENBURG TOWN OF	155 N TEGNER ST STE A	WICKENBURG	AZ	85390		WICKENBURG

#	APN	OwnerName	OwnerAdd1	OwnerA	City	State	Zipcode	SiteAddres	APN
166	50503006	HASSAYAMPA INVESTMENT & TR CO	22000 S PRICE RD		CHANDLER	AZ	85248		WICKENBURG
167	50514002C	WICKENBURG TOWN OF	155 N TETNER STE A		WICKENBURG	AZ	85390		WICKENBURG
168	50513032	ARIZONA STATE OF	301 W FEFFERSON		PHOENIX	AZ	850030000		WICKENBURG
169	50511006H	ARIZONA STATE OF	1275 W WASHINGTON ST		PHOENIX	AZ	85007		WICKENBURG
170	50553011A	FULLER WILLIAM ROY	221 E APACHE		WICKENBURG	AZ	85390		WICKENBURG
171	50514002B	ARIZONA STATE OF	205 S 17TH AVE		PHOENIX	AZ	85007		WICKENBURG
172	50302019F	SULLIVAN PAUL/JANICE	51802 US HWY 60		WICKENBURG	AZ	85390		WICKENBURG
173	50553005	RANCHO GRANDE WICKENBURG L L C	293 E WICKENBURG WAY		WICKENBURG	AZ	85390		WICKENBURG
174	50301029J	SIMPSON CATTLE COMPANY LP	501 S TEGNER ST		WICKENBURG	AZ	85390		WICKENBURG
175	50301029B	WICKENBURG TOWN OF	155 N TEGNER STE A		WICKENBURG	AZ	853903427		WICKENBURG
176	50301028	SIMPSON CATTLE COMPANY LP	501 S TEGNER ST		WICKENBURG	AZ	85390		WICKENBURG
177	50301034	ARIZONA STATE OF	205 S 17TH AVE RM 370		PHOENIX	AZ	850073212		WICKENBURG
178	50515036Q	ARIZONA DEPARTMENT OF TRANSPORTATION	205 S 17TH AVE MAIL DROP 612E		PHOENIX	AZ	85007		WICKENBURG
179	50301023B	CHAMPLIN BRUCE N/NADINE	PO BOX 1321		WICKENBURG	AZ	85358		WICKENBURG
180	50301023H	WEISS RONALD J	PO BOX 887		WICKENBURG	AZ	85358		WICKENBURG
181	50526003F	NATURE CONSERVANCY	1510 E FT LOWELL RD		TUCSON	AZ	85719		WICKENBURG
182	50515044	WICKENBURG TOWN OF	155 N TEGNER STE A		WICKENBURG	AZ	85390	118 E SWILLING AVE	WICKENBURG
183	50507026B	SOUTH TOWN TOWER ASSOCIATES II LLC ETAL	PO BOX 939		PARK CITY	UT	84060		WICKENBURG
184	50302021	WICKENBURG TOWN OF	155 N TEGNER STE A		WICKENBURG	AZ	85390		WICKENBURG
185	50501004	KBJ PROPERTIES LLC	400 E KING ST		MALVERN	PA	19355		WICKENBURG
186	50502010D	WICKENBURG TOWN OF	155 N TEGNER SUITE A		WICKENBURG	AZ	85390		WICKENBURG
187	50507026A	SOUTH TOWN TOWER ASSOCIATES II LLC ETAL	PO BOX 939		PARK CITY	UT	84060		WICKENBURG
188	50552027C	POUQUETTE FRANK & LENORE L_TR	105 LOMA LINDA		GOODYEAR	AZ	853380000		WICKENBURG
189	50301027	INCARDONA DIANNE ELIZABETH	907 E WICKENBURG WAY		WICKENBURG	AZ	85390		WICKENBURG
190	50302008	SIMPSON CATTLE COMPANY LP	501 S TEGNER ST		WICKENBURG	AZ	85390		WICKENBURG
191	50302030	A T & S F R/R	PO BOX 961089		FORT WORTH	TX	76161		WICKENBURG
192	50502010G	WICKENBURG TOWN OF	155 N TEGNER SUITE A		WICKENBURG	AZ	85390		WICKENBURG
193	50502013C	GRANTHAM WILLIAM W & SUZANNE L	37450 S KAY EL BAR RD		WICKENBURG	AZ	85390		WICKENBURG
194	50552025	NATURE CONSERVANCY	1510 E FT LOWELL RD		TUCSON	AZ	85719		WICKENBURG
195	50301046	PVW LLC/CR INVESTORS LLC	1515 E MISSOURI AVE STE 110		PHOENIX	AZ	85014		WICKENBURG
196	50502004B	THOMAS RONALD GLEN/NANCY ELLEN	PO BOX 41		ANGOLA	IN	467030041		WICKENBURG
197	50511006F	WICKENBURG TOWN OF	155 N TEGNER SUITE A		WICKENBURG	AZ	85390		WICKENBURG
198	50526003C	JONES THOMAS G & GLENN A	BOX 1299		WICKENBURG	AZ	85358		WICKENBURG

#	APN	OwnerName	OwnerAdd1	OwnerA	City	State	Zipcode	SiteAddres	APN
199	50502010M	ECHEVERRIA DAVID W TR	P O BOX 278		WICKENBURG	AZ	85390		WICKENBURG
200	50513031K	SALVATORE GATTO PARTNERS LP	PO BOX 33184		PHOENIX	AZ	85067		WICKENBURG
201	50502010N	INFANGER ELAINE ECHEVERRIA AND JOSEPH JOHN TR	PO BOX 1104		JACKSON	WY	83001		WICKENBURG
202	50301021Z	ROMERO FRANK J/BELL JOSEPH C	4207 N HARRISON		TUCSON	AZ	85749		WICKENBURG
203	50303001	JOHN W AND AIMEE SIMPSON FAMILY TRUST	503 S TEGNER ST		WICKENBURG	AZ	853900000		WICKENBURG
204	50515039C	WICKENBURG TOWN OF	155 N TETNER STE A		WICKENBURG	AZ	85390		WICKENBURG
205	50514017A	FIRST NATIONAL BANK OF ARIZONA TR	PO BOX 10550		CASA GRANDE	AZ	85230		WICKENBURG
206	50545004C	SIMPSON CATTLE COMPANY LP	501 S TEGNER ST		WICKENBURG	AZ	85390		WICKENBURG
207	50515040A	ARIZONA STATE OF DEPT OF TRANSPORTATION	205 SOUTH 17TH AVE 612E		PHOENIX	AZ	850073212		WICKENBURG
208	50507001	RMW WESTERN HILLS RV PARK LLC	525 CONSTELLATION RD		WICKENBURG	AZ	85390		WICKENBURG
209	50514002E	ARIZONA STATE OF DEPT OF TRANSPORTATION	205 SOUTH 17TH AVE 612E		PHOENIX	AZ	850073212		WICKENBURG
210	50514011B	CORBET JAMES L	139 N FRONTIER ST		WICKENBURG	AZ	85390		WICKENBURG
211	50514002D	WICKENBURG TOWN OF	155 N TETNER STE A		WICKENBURG	AZ	85390		WICKENBURG
212	50301021W	BROOKS ARTHUR L/JULIA A	PO BOX 92		WICKENBURG	AZ	85358		WICKENBURG
213	50501003F	WICKENBURG TOWN OF	155 N TEGNER SUITE A		WICKENBURG	AZ	85390		WICKENBURG
214	50515033	ARIZONA DEPARTMENT OF TRANSPORTATION	205 S 17TH AVE		PHOENIX	AZ	85007		WICKENBURG
215	50510001A	ARIZONA DEPT OF TRANSPORTATION	205 S 17TH AVE STE 612E		PHOENIX	AZ	850073212		WICKENBURG
216	50515036P	UNDERDOWN GEORGE DAVID	BOX 12		WICKENBURG	AZ	85358		WICKENBURG
217	50502005B	THOMAS MORTON S III TR	P O BOX 129		WICKENBURG	AZ	85358		WICKENBURG
218	50552029	SIMPSON FAM TRUST/SIMPSON LIV TRUST/SIMPSON L	501 S TEGNER ST		WICKENBURG	AZ	85390		WICKENBURG
219	50511006Q	SOUTH TOWN TOWER ASSOCIATES II LLC ETAL	PO BOX 939		PARK CITY	UT	84060		WICKENBURG
220	50553023A	WICKENBURG TOWN OF	155 N TEGNER STE A		WICKENBURG	AZ	85390		WICKENBURG
221	50502013A	ROBSON JERI CONKLIN	P O BOX 3465		WICKENBURG	AZ	85358		WICKENBURG
222	50553018	WICKENBURG TOWN OF	155 N TEGNER STE A		WICKENBURG	AZ	85390		WICKENBURG
223	50550009	ARW VENTURES LLC	110 E GURLEY STE 200		PRESCOTT	AZ	86301		WICKENBURG
224	50515040C	WICKENBURG TOWN OF	155 N TETNER STE A		WICKENBURG	AZ	85390		WICKENBURG
225	50514021	WICKENBURG TOWN OF	155 N TEGNER STE A		WICKENBURG	AZ	853903427		WICKENBURG
226	50552026A	NATURE CONSERVANCY	1510 E FORT LOWELL RD		TUSCON	AZ	85719		WICKENBURG
227	50526009	SARA ENTERPRISES INC	770 N SADDLEBACK TRL		WICKENBURG	AZ	85390		WICKENBURG
228	50301021X	BROOKS ARTHUR L/JULIA A	PO BOX 92		WICKENBURG	AZ	85358		WICKENBURG
229	50302023C	ROMERO FRANK J/BELL JOSEPH C	4207 N HARRISON		TUCSON	AZ	85749		WICKENBURG
230	50302015C	WICKENBURG TOWN OF	155 N TEGNER STE A		WICKENBURG	AZ	85390		WICKENBURG
231	50502012L	ROBSON JERI C TR	PO BOX 3465		WICKENBURG	AZ	85358		WICKENBURG

#	APN	OwnerName	OwnerAdd1	OwnerA City	State	Zipcode	SiteAddres	APN
232	50501013B	LUDKE JAMES F TR	1415 JACK BURDEN RD	WICKENBURG	AZ	85390		WICKENBURG
233	50553014	WILSON CLYDE/ANITA TR/RICHARD E/JOCELYN M	PO BOX 2716	WINTER HAVEN	FL	33883		WICKENBURG
234	50302020A	SOULES HELENE G	51212 N HWY 60	WICKENBURG	AZ	85390		WICKENBURG
235	50509062A	GAGE FINANCIAL II LLC/WICKENBURG PROP	PO BOX 20700	WICKENBURG	AZ	85358		WICKENBURG
236	50511006B	ARIZONA DEPT OF TRANSPORTATION	205 S 17TH AVE STE 612E	PHOENIX	AZ	850073212		WICKENBURG
237	50301023L	FEDERAL HOME LOAN MORTGAGE CORPORATION	3476 STATEVIEW BLVD MAC X7801-014	FORT MILL	SC	29715		WICKENBURG
238	50502006B	SOUTH TOWN TOWER ASSOCIATES II LLC ETAL	PO BOX 939	PARK CITY	UT	84060		WICKENBURG
239	50526003B	BROMM WICKENBURG LLC	PO DRAWER 1389	WICKENBURG	AZ	85358		WICKENBURG

Jacobs

Item 3

Project:	**Wickenburg Interim Bypass**	By:	**JPF**
Subject:	**LOMR**	Date:	**9/21/11**
	Responses to FEMA Review of July 18, 2011	Checked:	**GLC**
	Case No. 11-09-3216P	Project No.:	**W7X73401**

The HEC-RAS model has been revised to indicate the post-project conditions as documented in the previously submitted As-Built Drawings.

A paper copy of the HEC-RAS model has been attached. A digital copy has also been included on the CD attached to this submittal. The paper copy of the model output has been attached.

HEC-RAS Version 4.1.0 Jan 2010
U.S. Army Corps of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

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

PROJECT DATA
Project Title: Wickenburg Bypass Post-Project Condition
Project File : wickenburg.prj
Run Date and Time: 9/7/2011 9:37:36 AM

Project in English units

Project Description:
INCLUDES GRADING PLANS ENTITLED "U.S. 93 WICKENBURG BYPASS" PREPARED BY JACOBS,
DATED FEBRUARY 27, 2009.

PLAN DATA

Plan Title: Proposed Conditions
Plan File : p:\W7x73400\500COMM\508 Reports\Drainage\Responses to FEMA 8-31-11\RAS\Hassayampa\wickenburg.p01

Geometry Title: Proposed Conditions
Geometry File : p:\W7x73400\500COMM\508 Reports\Drainage\Responses to FEMA 8-31-11\RAS\Hassayampa\wickenburg.g01

Flow Title : Proposed Cond DS FEMA 51.13 Full Flow
Flow File : p:\W7x73400\500COMM\508 Reports\Drainage\Responses to FEMA 8-31-11\RAS\Hassayampa\wickenburg.f01

Plan Summary Information:
Number of: Cross Sections = 71 Multiple Openings = 0
Culverts = 0 Inline Structures = 0
Bridges = 2 Lateral Structures = 0

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

Computation Options
Critical depth computed at all cross sections
Conveyance Calculation Method: At breaks in n values only
Friction Slope Method: Average Conveyance
Computational Flow Regime: Subcritical Flow

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

River = Hassayampa Reach = 1

RS	Profile	Method	Value1	Value2
53.16	100YrEnc	1	2045	3755
53.130	100YrEnc	1	647.16	2301.42
53.097	100YrEnc	1	616.39	2156.07
53.063	100YrEnc	1	589.44	2072.68
53.026	100YrEnc	1	553.27	2019.8
52.986	100YrEnc	1	452	1959.74
52.949	100YrEnc	1	362.18	1881.77
52.916	100YrEnc	1	336.46	1851.26
52.881	100YrEnc	1	308.71	1799.05
52.847	100YrEnc	1	270.87	1666.35
52.813	100YrEnc	1	238.04	1554.19
52.778	100YrEnc	1	202.65	1499.31
52.740	100YrEnc	1	243.36	1508.43
52.693	100YrEnc	1	243.35	1596.25
52.650	100YrEnc	1	232.77	1726
52.606	100YrEnc	1	275.18	1916.56
52.558	100YrEnc	1	266.28	1959.4

52.508	100YrEnc	1	293.03	1953.66
52.467	100YrEnc	1	207.81	1802
52.440	100YrEnc	1	188.99	1759.71
52.410	100YrEnc	1	347.1	1876.08
52.384	100YrEnc	1	322.49	1805.58
52.345	100YrEnc	1	286.05	1700
52.316	100YrEnc	1	336.29	1700
52.284	100YrEnc	1	262.93	1577.18
52.250	100YrEnc	1	269.61	1535.28
52.224	100YrEnc	1	213.08	1451.21
52.196	100YrEnc	1	248.5	1462.78
52.170	100YrEnc	1	230.14	1420
52.147	100YrEnc	1	239.05	1418
52.121	100YrEnc	1	237.92	1425
52.100	100YrEnc	1	225.23	1409.48
52.078	100YrEnc	1	211.47	1423.62
52.054	100YrEnc	1	184.73	1402.18
52.029	100YrEnc	1	132.34	1361
52.006	100YrEnc	1	126.06	1365.1
51.983	100YrEnc	1	142.66	1387.08
51.957	100YrEnc	1	166.36	1400.77
51.932	100YrEnc	1	134.28	1375.25
51.895	100YrEnc	1	154.17	1375
51.854	100YrEnc	1	245.56	1434.85
51.829	100YrEnc	1	108.85	1309.19
51.807	100YrEnc	1	204.36	1420
51.782	100YrEnc	1	215.94	1480
51.757	100YrEnc	1	212.39	1544.55
51.734	100YrEnc	1	188.5	1560.63
51.709	100YrEnc	1	163.18	1521.3
51.682	100YrEnc	1	138.56	1488.81
51.656	100YrEnc	1	449.01	1805.34
51.638	100YrEnc	1	502.24	1839.94
51.618	100YrEnc	1	525.91	1818.34
51.601	100YrEnc	1	563.47	1801.55
51.581	100YrEnc	1	629.25	1783.41
51.558	100YrEnc	1	713.74	1774.22
51.536	100YrEnc	1	741.88	1741.04
51.516	100YrEnc	1	725.51	1691.39
51.497	100YrEnc	1	754.79	1712.95
51.477	100YrEnc	1	745.5	1683.63
51.453	100YrEnc	1	700.26	1577.63
51.436	100YrEnc	1	740	1544.26
51.418	100YrEnc	1	779.64	1516.93
51.398	100YrEnc	1	825.92	1433.36
51.375	100YrEnc	1	828.24	1292.15
51.355	100YrEnc	1	828.24	1292.15
51.345	100YrEnc	1	1086.27	1545.6
51.338	100YrEnc	1	1083	1545.6
51.331	100YrEnc	1	1083	1545.6
51.303	100YrEnc	1	1010	1535.63
51.275	100YrEnc	1	977.92	1517.52
51.208	100YrEnc	1	1875.88	2598.2
51.13	100YrEnc	1	1740	2675

FLOW DATA

Flow Title: Proposed Cond DS FEMA 51.13 Full Flow
Flow File : p:\W7x73400\500COMM\508 Reports\Drainage\Responses to FEMA 8-31-11\RAS\Hassayampa\wickenburg.f01

Flow Data (cfs)

River	Reach	RS	100Yr	100YrEnc
Hassayampa	1	53.16	71000	71000
Hassayampa	1	52.410	71000	71000
Hassayampa	1	51.418	71000	71000
Hassayampa	1	51.398	71000	71000
Hassayampa	1	51.303	71000	71000
Hassayampa	1	51.208	71000	71000
Hassayampa	1	51.13	71000	71000

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
Hassayampa	1	100Yr		Known WS = 2037.45
Hassayampa	1	100YrEnc		Known WS = 2037.62

GEOMETRY DATA

Geometry Title: Proposed Conditions

Geometry File : p:\w7x73400\500COMM\508 Reports\Drainage\Responses to FEMA 8-31-11\RAS\Hassayampa\wickenburg.g01

CROSS SECTION

RIVER: Hassayampa
REACH: 1 RS: 53.16

INPUT
Description: This is cross-section 53.16 from the Cella-Barr (1998) HEC-2 FIS model except the downstream reach lengths have been modified.
Station Elevation Data num= 39

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1168	2132	1169	2131	1170	2130	1210	2120	1303.4	2101.7
1344	2093.5	1471.4	2092.9	1674.2	2087.8	1834.5	2083.9	2108.6	2083.6
2137.6	2089.7	2195	2083.3	2327.1	2083.5	2516.4	2084.2	2545.9	2082.4
2572.3	2082.2	2627.2	2082.6	2672.8	2082.2	2693.1	2082.2	2747.4	2082.6
2920.4	2083.6	3012.2	2082.9	3188.7	2083.9	3210.4	2087.1	3298.4	2084.8
3457.1	2085.3	3709.7	2085.4	3790.3	2085	3894.4	2086.5	4010.2	2086.1
4157.7	2088	4285.1	2089.9	4333	2091.9	4383.1	2092.4	4428.3	2097.9
4477.6	2098	4509.9	2094.6	4545.3	2094.1	4561.8	2096.4		

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
1168	.04	2195	.035	3012.2	.04	3709.7	1

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
2195	3012.2	166.2	174	179.4	.1	.3

CROSS SECTION

RIVER: Hassayampa
REACH: 1 RS: 53.130

INPUT
Description:
Station Elevation Data num= 481

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2131.87	3.6	2130.68	6.62	2129.74	8.51	2129.06	26.79	2122.02
27.05	2121.9	31.17	2120.15	45.42	2114.14	46.44	2113.69	47.72	2113.01
63.6	2105.62	66.1	2104.46	79.16	2099.13	90.09	2094.27	94.92	2092.13
107.17	2088.95	107.81	2088.77	108.31	2088.76	121.96	2088.52	137.65	2088.47
141.01	2088.43	144.04	2088.62	144.85	2088.67	145.46	2088.61	148.48	2088.32
152.77	2088.4	159.44	2088.53	164.74	2088.46	170.28	2088.41	173.83	2088.44
175.34	2088.47	181.58	2088.45	187.67	2088.47	193.77	2088.43	198.73	2088.38
203.54	2088.34	224.14	2088.37	229.24	2088.46	256.15	2088.68	259.88	2088.68
283.71	2088.79	285.81	2088.78	297.03	2088.81	315.16	2088.81	316.98	2088.8
346.16	2088.72	347.64	2088.71	375.9	2088.21	378.44	2088.18	381.25	2088.1
410.48	2087.79	414.48	2087.67	438.57	2087.05	460.2	2086.08	465.78	2086.06
489.9	2085.42	492.03	2085.34	517.94	2084.5	519.71	2084.43	543.16	2084.19
545.28	2084.19	571.22	2083.92	574.36	2083.85	599.65	2083.31	601.51	2083.26
604.29	2083.2	621.86	2082.74	630.18	2082.47	641.21	2082.41	653.5	2082.43
664.79	2082.34	672.19	2082.29	682.41	2082.33	694.57	2082.44	707.71	2082.47
708.53	2082.45	709.01	2082.44	717.22	2082.19	729.19	2082.61	729.88	2082.63
750.54	2082.8	753.09	2082.8	776.03	2082.9	779.58	2082.93	803.04	2082.86
808.06	2082.86	828.11	2082.96	836.51	2083.02	852.96	2083.04	859.09	2083.05
864.48	2084.56	874.53	2087.31	882.13	2087.63	887.16	2087.92	895	2085.74
900.95	2084.14	905.25	2083.96	907.32	2083.89	918.46	2083.58	925.8	2083.33
928.75	2083.28	931.31	2083.3	940.11	2083.28	944.2	2083.26	945.12	2083.27
945.98	2083.33	953.54	2083.64	953.56	2083.64	953.66	2083.64	964.22	2084.01
970.84	2084.2	976.51	2084.29	984.78	2084.48	994.03	2084.72	999.99	2084.71
1014.46	2084.45	1017.57	2084.42	1024.31	2084.39	1025.11	2084.38	1027.75	2084.02
1032.14	2083.46	1034	2083.52	1038.51	2083.73	1040.79	2083.73	1043.06	2083.71
1046.44	2083.68	1051.47	2083.65	1066.21	2083.86	1069.29	2083.97	1071.39	2083.6
1074.96	2082.94	1081.68	2082.91	1087.65	2082.97	1094.48	2083.15	1094.77	2083.16
1099.76	2083.19	1099.82	2083.19	1100.56	2083.19	1109.24	2083.22	1111.22	2083.36
1112.17	2083.31	1115.48	2083.23	1118.51	2083.35	1124.44	2083.58	1127.61	2083.76
1132.18	2083.84	1143.11	2083.87	1144.86	2083.89	1145.99	2083.9	1146.45	2083.92
1160.44	2084.39	1160.8	2084.39	1176.81	2084.33	1180.75	2084.35	1187.34	2084.37
1189.37	2084.38	1191.47	2084.4	1205.47	2084.68	1211.79	2084.62	1219.81	2084.52
1224.67	2084.52	1224.95	2084.51	1231.71	2084.31	1234.76	2084.22	1236	2084.22
1237.92	2084.21	1240.46	2084.19	1244.18	2084.33	1245.68	2084.31	1247.67	2084.25
1250.65	2084.21	1252.02	2084.16	1257.75	2083.96	1261.78	2083.74	1267.35	2083.43
1269.37	2083.33	1271.13	2083.21	1276.94	2083.1	1277.93	2083.07	1283.54	2083.08
1286.31	2083.08	1293.27	2083.1	1302.95	2083	1306.94	2082.71	1308.83	2082.65
1311.67	2082.61	1313.76	2082.6	1316.89	2082.54	1322.59	2082.42	1331	2082.19
1331.18	2082.19	1331.54	2082.19	1332.78	2082.15	1340.39	2082.4	1343.29	2082.57
1345.89	2082.57	1347.66	2082.53	1350.45	2082.47	1354.4	2081.81	1354.89	2081.73
1355.16	2081.71	1359.3	2081.64	1374.83	2081.38	1375.65	2081.36	1375.86	2081.37
1381.51	2081.54	1390.15	2081.53	1393.81	2081.47	1397.15	2081.6	1401.35	2081.2
1407.57	2081.05	1422.36	2080.82	1429.58	2080.84	1445.44	2080.85	1454.61	2080.92
1471.97	2080.91	1476.56	2080.89	1498.67	2080.86	1501.13	2080.93	1510.71	2080.89
1520.66	2080.95	1524.11	2081.06	1528.26	2081.18	1539.18	2081.12	1540.26	2081.11
1542.86	2081.23	1550.21	2081.52	1556.59	2081.68	1560.7	2081.77	1565.77	2081.96
1572	2081.85	1577.7	2081.84	1584.14	2081.71	1589.99	2081.84	1593.42	2081.97
1602.2	2082.06	1606.28	2082.08	1612.89	2082.1	1621.15	2082.17	1625.58	2082.26
1629.1	2082.27	1634.34	2082.34	1637.92	2082.19	1643.38	2082.02	1650	2082.28

1652.88 2082.38 1661.15 2082.43 1670.91 2082.48 1673.68 2082.49 1687.77 2082.55
1704.75 2082.43 1706.73 2082.42 1708.79 2082.42 1726.07 2082.48 1740.66 2082.38
1743.82 2082.35 1758.86 2082.19 1764.66 2082.09 1778.97 2081.37 1781.01 2081.29
1781.37 2081.21 1784.23 2080.54 1788.3 2080.61 1808.4 2080.8 1816.06 2080.83
1819.53 2080.8 1820.69 2080.79 1829.54 2080.88 1834.45 2081.01 1840.24 2082.79
1842.35 2083.49 1847.76 2083.64 1851.29 2083.73 1858.4 2083.83 1861.29 2083.87
1861.55 2083.87 1862.18 2083.87 1886.08 2083.63 1887.35 2083.64 1902.37 2083.17
1908.88 2082.9 1921.13 2082.71 1923.13 2082.65 1930.34 2082.22 1938.46 2082.27
1940.47 2082.36 1941.71 2082.36 1954.97 2082.56 1958.33 2082.65 1969.73 2082.68
1974.87 2082.69 1989.69 2082.76 1991.98 2082.77 1992.26 2082.75 1992.75 2082.73
1999.11 2082.44 2001.45 2082.34 2009 2085.02 2010.24 2085.46 2019.25 2090.21
2020.49 2090.83 2022.36 2090.91 2024.78 2091.01 2029.95 2088.21 2032.7 2086.71
2034.85 2085.99 2042.19 2083.42 2047.01 2083.44 2054.06 2083.46 2066.65 2083.54
2072.61 2083.55 2092.14 2083.76 2106.25 2083.84 2133.3 2083.87 2144.3 2083.91
2173.17 2083.97 2175.69 2083.98 2176.5 2083.98 2200.02 2083.99 2230.56 2083.99
2266.56 2083.94 2275.17 2083.86 2286.27 2083.86 2294.29 2083.8 2295.14 2083.81
2302.95 2083.87 2303.01 2083.88 2303.08 2083.89 2304.55 2084.08 2305.82 2084.24
2305.89 2084.25 2307.03 2084 2307.57 2083.89 2311.76 2083.89 2334.65 2083.87
2338.09 2083.87 2348.95 2083.86 2365.51 2083.85 2370.63 2083.88 2391.23 2083.86
2398.4 2083.82 2402.08 2083.8 2404.06 2084.26 2404.45 2084.35 2405 2084.16
2406.1 2083.79 2411.28 2083.82 2434.36 2083.95 2437.74 2083.95 2446.38 2083.93
2465.32 2083.89 2472.8 2083.89 2490.7 2083.82 2499.47 2083.76 2503.93 2083.73
2505.6 2084.27 2506.11 2084.44 2506.92 2084.16 2507.55 2083.94 2508.12 2083.74
2517.98 2083.74 2523.3 2083.74 2535.17 2083.75 2548.77 2083.76 2567.67 2083.81
2573.42 2083.84 2594.12 2083.82 2598.4 2083.8 2600.35 2084.14 2601.3 2084.3
2602.62 2083.93 2603.26 2083.75 2606.79 2083.77 2614.97 2083.8 2618.33 2083.81
2628.53 2083.83 2643.46 2083.85 2656.57 2083.91 2661.41 2083.94 2665.95 2083.91
2679.36 2083.81 2682.38 2084.22 2686.28 2084.76 2686.62 2084.68 2687.19 2084.55
2691.51 2083.55 2692.44 2084.07 2693.89 2084.9 2698.66 2084.91 2705.59 2084.88
2708.98 2084.81 2718.91 2084.58 2719.62 2084.59 2723.67 2084.67 2744.17 2085.04
2746.7 2085.08 2749.75 2085.17 2757.11 2084.97 2764.61 2084.81 2772.11 2085.6
2776.33 2086.01 2781.91 2086.19 2791.21 2086.5 2792.27 2086.48 2799.57 2086.31
2808.27 2086.2 2814.02 2086.22 2836.71 2086.57 2837.05 2086.58 2837.36 2086.59
2848.33 2086.73 2848.97 2086.74 2849.27 2086.75 2858.1 2087.09 2870 2087.3
2876.7 2087.61 2892.91 2088.34 2894.45 2088.4 2897.03 2088.47 2917.23 2089.06
2926.35 2088.61 2929.78 2088.27 2931.81 2088.4 2933.32 2088.45 2937.27 2088.26
2951.49 2088.56 2956.84 2088.65 2959.3 2088.71 2969.63 2089.05 2982.35 2089.52
2989.74 2089.79 2997.92 2089.97 3004.6 2089.64 3008.08 2089.47 3009.03 2089.41
3013.94 2089.52 3036.66 2089.96 3048.61 2090.4 3064.85 2090.87 3071.86 2091.97
3077.95 2092.91 3079.92 2093.22 3089.94 2094.84 3090.14 2094.88 3090.18 2094.88
3090.26 2094.89 3097.95 2095.49 3108.22 2095.74 3115.6 2095.92 3124.29 2096.13
3140.78 2095.79 3151.49 2095.6 3156.73 2095.1 3161.64 2094.62 3163.32 2094.39
3175.03 2092.85 3178.45 2092.41 3179.12 2092.32 3187.67 2092.7 3188.95 2092.76
3189.01 2092.77 3189.18 2092.79 3195.41 2093.73 3201.27 2094.51 3215.69 2094.34
3216.79 2094.32 3218.6 2094.04 3222.56 2093.36 3226.61 2092.64 3229.32 2092.12
3232.26 2091.64 3239.61 2092.3 3243.27 2092.63 3249.31 2093.9 3250.86 2094.27
3254.14 2095.38 3257.2 2096.33 3265.59 2096.64 3267.06 2096.7 3269.01 2096.72
3270.9 2096.43

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	1043.06	.035	1819.53	.04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
1043.06 1819.53 125.35 176.3 200.6 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
2956.8	3270.9		F

CROSS SECTION

RIVER: Hassayampa
REACH: 1 RS: 53.097

INPUT
Description:
Station Elevation Data num= 463

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2127.32	4.7	2126.13	20.03	2121.62	20.63	2121.41	22.43	2120.58
35.05	2114.92	37.94	2113.57	41.44	2111.58	53.91	2106.19	66.74	2099.5
71.44	2097.21	83.05	2091.49	83.27	2091.38	83.86	2091.19	91.17	2088.87
94.6	2087.91	99.45	2086.51	100.53	2086.26	107.79	2086.27	116.42	2086.29
125.09	2086.48	131.44	2086.62	133.61	2086.69	136.78	2086.8	139.04	2086.5
139.54	2086.45	141.27	2086.44	150.41	2086.46	157.9	2086.35	161.7	2086.33
162.27	2086.36	165.2	2086.74	166.82	2086.68	177.34	2086.15	182.43	2085.8
184.88	2085.62	190.51	2085.57	206.01	2085.35	210.7	2085.22	238.84	2085.38
246.17	2085.34	269.64	2085.11	281.29	2085.02	305.45	2084.43	337.54	2083.98
347.03	2084	378.36	2082.81	386.56	2082.43	392.54	2082.31	403.69	2082.2
422.2	2082.59	439.89	2082.92	453.75	2082.78	469.09	2082.89	481.96	2082.92
497.31	2082.82	511.93	2082.78	525.04	2082.63	537.23	2082.49	553.98	2082.45
566.39	2082.4	579.81	2082.31	592.77	2082.26	609.75	2082.1	621.33	2082
631.17	2082	650.63	2082.02	661.06	2081.79	669.77	2081.58	674.26	2081.32
688.06	2081.22	700.37	2081.29	707.68	2081.23	722.15	2080.98	724.3	2080.94
749	2081.39	750.21	2081.4	760.02	2081.6	770.98	2081.82	771.88	2081.83
795.26	2081.85	797.97	2081.86	818.74	2081.84	824.42	2081.86	831.27	2081.85
853.49	2082	870.67	2082.17	876.69	2082.21	880.79	2083.12	887.08	2084.53
888.72	2084.88	891.57	2085.63	902.23	2089.15	902.75	2089.2	906.45	2089.27

914.34	2089.4	914.89	2089.4	915.55	2089.43	923.3	2086.51	924.17	2086.21
925.42	2085.85	937.01	2082.47	946.24	2082.51	948.58	2082.52	951.12	2082.53
960.69	2082.18	961.18	2082.16	961.22	2082.17	961.4	2082.18	973.79	2083.12
976.45	2083.23	985.78	2083.48	988.93	2083.48	1010.26	2083.45	1010.96	2083.44
1014.12	2083.34	1019.63	2083.17	1019.84	2083.14	1021.11	2083.01	1026.31	2082.5
1034.88	2082.72	1039.33	2082.84	1041.25	2082.89	1042.81	2082.92	1045.99	2082.96
1054.63	2083.06	1060.6	2083.21	1062.74	2083.23	1066.54	2083.08	1079.27	2082.65
1082.36	2082.63	1086.99	2082.61	1101	2082.5	1105.42	2082.46	1111.2	2082.43
1117.64	2082.42	1120.26	2082.59	1127.13	2082.96	1133.83	2083.09	1137.53	2083.17
1141.01	2083.1	1144.27	2082.84	1148.71	2082.94	1159.49	2083.11	1161.53	2083.14
1163.21	2083.18	1168.4	2083.42	1175.83	2083.47	1181.82	2083.55	1186.67	2083.62
1194.93	2083.9	1199.77	2083.92	1204.26	2083.89	1206.55	2083.86	1209.42	2083.83
1213.19	2083.83	1224.46	2083.84	1227.64	2083.82	1233.7	2083.72	1241.03	2083.67
1246.56	2083.59	1256.11	2083.25	1259.08	2083.2	1265.54	2082.82	1271.11	2082.46
1276.2	2082.28	1278.1	2082.19	1278.43	2082.34	1281.98	2082.89	1283.51	2083.2
1287.78	2083.39	1290.3	2083.51	1292.34	2083.44	1296.32	2083.29	1298.43	2083.04
1300.44	2083.03	1303.06	2083.24	1307.98	2083.04	1310.48	2083.09	1312.47	2083.15
1317.79	2083.26	1323.63	2083.43	1327.14	2083.47	1332.79	2083.54	1334.94	2083.52
1336.07	2083.52	1344.8	2083.47	1351.24	2083.25	1363.64	2082.92	1375.12	2082.91
1378.27	2082.93	1385.04	2082.63	1387.23	2082.6	1389.88	2082.21	1391.99	2081.81
1394.15	2081.65	1400.47	2081.3	1408.35	2081.22	1410.55	2081.19	1411.11	2081.15
1414.45	2080.89	1419.52	2080.82	1424.65	2080.74	1429.53	2080.88	1435.19	2081.04
1439.44	2080.94	1445.82	2080.84	1458.52	2080.72	1460.24	2080.68	1461.42	2080.68
1472	2080.48	1480.12	2080.24	1489.69	2079.92	1499.21	2080.29	1500.11	2080.32
1502.46	2080.35	1514.9	2080.47	1522.99	2080.35	1528.01	2080.28	1531.14	2080.12
1533.7	2079.98	1542.46	2079.79	1547.94	2079.68	1549.01	2079.74	1551.45	2079.98
1555.08	2080.04	1562.66	2079.81	1563.65	2079.81	1566.58	2079.84	1585.73	2079.98
1593.09	2080.12	1606.35	2080.04	1606.52	2080.04	1625.06	2079.87	1629.81	2079.82
1644.95	2079.52	1652.77	2079.4	1664.68	2079.34	1666.99	2079.31	1668.89	2080.27
1669.3	2080.67	1669.82	2080.67	1671.52	2080.79	1673.93	2080.67	1676.1	2080.61
1686.35	2080.82	1688.99	2080.85	1690.31	2080.94	1693.14	2081.14	1693.95	2081.15
1705.13	2081.46	1705.77	2081.43	1710.85	2081.01	1711.13	2081.01	1711.42	2081.02
1718.84	2081.2	1733.6	2081.4	1742.65	2081.59	1747.22	2081.58	1755.06	2081.28
1769.86	2080.85	1774.78	2080.74	1778.64	2080.63	1783.66	2080.49	1788.5	2079.76
1789.28	2079.64	1791.04	2079.67	1810.44	2080.03	1819.57	2080.24	1825.2	2080.18
1836.46	2080.08	1839.78	2080.04	1843.8	2081.17	1848.41	2082.37	1856.79	2082.51
1859.59	2082.56	1860.68	2082.55	1875.17	2082.42	1876.63	2082.4	1904.39	2082.63
1907.98	2082.65	1935.5	2082.8	1938.95	2082.81	1960.94	2083.02	1967.14	2083.09
1970.24	2083.12	1984.45	2082.83	1985.12	2082.82	1987.18	2082.6	1993.62	2081.88
1994.56	2081.93	1995.28	2081.96	1998.97	2081.88	2006	2081.7	2010.36	2081.65
2020.37	2081.64	2032.08	2081.68	2040.38	2081.72	2046.1	2081.55	2050.57	2081.42
2050.86	2081.42	2050.98	2081.42	2051.14	2081.42	2064.23	2081.41	2068.46	2081.33
2069.41	2081.25	2073.39	2082.78	2077.02	2084.22	2080	2085.48	2085.48	2087.69
2088.73	2087.88	2089.46	2087.91	2093.38	2085.69	2096.59	2084.59	2101.41	2083.05
2104.38	2082.22	2109.91	2082.31	2126.15	2082.97	2128.64	2083.12	2129.63	2083.15
2136.51	2083.32	2139.59	2083.39	2146.86	2083.62	2151.21	2083.85	2155.26	2084.08
2156.56	2084.2	2158.66	2083.68	2158.85	2083.63	2170.52	2083.58	2180.25	2083.53
2198.3	2083.56	2214.68	2083.48	2221.14	2083.5	2227.53	2083.55	2238.87	2083.64
2240.37	2083.85	2241.46	2084	2243.24	2083.66	2243.81	2083.55	2245.78	2083.55
2254.01	2083.56	2275.16	2083.65	2285.3	2083.69	2312.46	2083.7	2316.16	2083.7
2317.5	2083.7	2342.78	2083.57	2351.7	2083.53	2352.28	2083.66	2353.12	2083.85
2353.8	2084	2354.74	2083.83	2355.84	2083.64	2356.56	2083.5	2357.94	2083.51
2380.37	2083.58	2387.58	2083.61	2400.09	2083.64	2410.44	2083.65	2417.46	2083.66
2438.44	2083.64	2446.35	2083.65	2446.56	2083.69	2446.89	2083.75	2448.42	2084.03
2449.91	2083.66	2450.53	2083.5	2469.86	2083.4	2471.13	2083.4	2471.58	2083.39
2472.54	2083.4	2494.15	2083.65	2509.54	2083.66	2520.55	2083.55	2525.25	2083.54
2535.61	2083.53	2536.03	2083.66	2537.5	2084.1	2537.89	2083.99	2539.42	2083.54
2550.15	2083.53	2556.27	2083.53	2558.94	2083.53	2564.05	2083.5	2585.21	2083.52
2606.41	2083.73	2609.78	2083.71	2611.28	2083.71	2615.4	2083.71	2634.28	2083.67
2635.32	2083.96	2635.58	2084.04	2636.02	2083.91	2637.66	2083.48	2638.68	2083.49
2647.59	2083.57	2650.46	2083.6	2652.25	2083.62	2655.55	2083.63	2686.9	2083.62
2700.41	2083.64	2721.1	2083.64	2726.58	2083.67	2727.43	2083.92	2728.59	2084.23
2729.44	2084.03	2731.24	2083.61	2739.01	2083.6	2749	2083.63	2777.39	2083.74
2789.59	2083.84	2797.79	2083.78	2803.9	2083.74	2819.28	2083.76	2822.93	2084.82
2824.65	2085.27	2829.22	2085.51	2831.38	2085.61	2833.36	2085.65	2837.32	2085.69
2843.01	2086.1	2848.85	2086.54	2852.01	2086.95	2854.04	2087.21	2858.32	2087.56
2871.49	2088.52	2879.97	2089.08	2887.28	2089.56	2889.67	2090.05	2900.94	2092.34
2902.44	2092.51	2916.51	2093.97	2930.21	2094.02	2933.99	2094.04	2941.29	2094.09
2966.12	2093.5	2968.55	2093.44	2975.11	2092.47	2979.07	2091.78	2992.45	2090.09
2996.49	2089.66	3003.75	2089.6	3009.41	2089.58	3012.51	2089.58	3020.13	2089.64
3022.69	2089.54	3031.38	2089.16	3035.93	2089.14	3044.39	2089.04	3049.61	2089.22
3056.03	2089.41	3059.69	2089.85	3064.8	2090.4	3066.87	2091.22	3072.99	2093.66
3077.28	2095.37	3085.08	2095.58	3088.2	2095.65	3095.58	2094.91	3095.92	2094.88
3119.27	2094.94	3129.42	2094.92	3134.3	2094.9				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	1039.33	.035	1825.2	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1039.33	1825.2	105.07	179.02	185.65	.1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
2651.81	3134.3		F

CROSS SECTION

RIVER: Hassayampa
REACH: 1 RS: 53.063

INPUT
Description:
Station Elevation Data num= 463

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2134.07	.67	2134.03	10.32	2133.33	15.29	2131.99	21.55	2130.16
32.48	2125.5	36.04	2124.02	38.62	2122.56	42.12	2120.9	45.87	2119.82
45.97	2119.79	46.01	2119.77	56.68	2113.78	61.75	2110.69	67.1	2108
78.01	2102.57	82.78	2100.03	92.69	2095.16	96.6	2093.49	109.07	2087.7
114.05	2086.22	118.56	2085	125.06	2085.1	130.51	2085.27	134.03	2085.57
135.78	2085.75	138.94	2085.32	139.67	2085.21	140.88	2085.23	149.69	2085.28
156.29	2085.24	159.69	2085.24	161	2085.31	163.61	2085.4	166.7	2085.33
169.09	2085.12	177.4	2084.7	195.68	2084.39	200.98	2084.28	208.17	2084.14
232.34	2083.37	252.08	2083.17	297.78	2081.99	313.48	2081.74	361.14	2081.79
368.63	2081.58	376.9	2081.53	385.78	2081.45	393.8	2081.4	432.52	2081.28
437.08	2081.29	459.67	2081.63	463.99	2081.66	485.66	2081.79	491.82	2081.8
515.06	2081.78	521.95	2081.87	541.09	2081.81	549.31	2081.79	567.05	2081.84
577.22	2081.79	594.5	2081.49	605.74	2081.45	621.35	2081.37	635.07	2081.23
648.23	2081.37	664.93	2081.34	677.52	2081.3	686.08	2081.3	693.35	2081.29
705.25	2080.87	706.01	2080.84	716.71	2080.48	731.08	2080.2	732.75	2080.16
734.77	2080.16	759.86	2080.34	763.9	2080.38	784.75	2080.64	790.66	2080.72
809.21	2080.78	818.6	2080.91	835.67	2081.04	847.68	2081.08	864.24	2081.2
876.97	2081.32	889.48	2081.31	899.32	2081.47	907.1	2083.63	907.86	2083.85
917.63	2086.29	921.37	2087.5	927.65	2089.75	929.21	2089.87	935.68	2090.26
941.59	2090.11	945.1	2089.87	957.3	2086.29	958.17	2086.07	958.51	2085.98
960.4	2085.67	980.62	2082.3	986.36	2082.37	996.71	2082.05	1014.03	2082.3
1021.09	2082.4	1028.54	2082.25	1037.59	2082.09	1039.17	2082.06	1039.18	2082.06
1039.55	2082.06	1045.61	2082.14	1055.76	2082.2	1056.17	2082.21	1067.67	2082.88
1070.08	2082.8	1077.54	2082.46	1078.44	2082.46	1084.6	2082.47	1086.89	2082.49
1099.09	2082.56	1102.63	2082.53	1112.69	2082.48	1118.42	2082.36	1123.74	2082.28
1140.01	2082.24	1147.17	2082.35	1152.13	2082.45	1158.93	2082.33	1166.97	2082.18
1170.55	2082.38	1173.13	2082.52	1181.95	2082.57	1184.01	2082.58	1192.91	2082.65
1197.13	2082.73	1200.51	2082.94	1203.19	2083.04	1204.77	2083.02	1209.49	2082.83
1217.38	2082.99	1218.34	2083.01	1218.88	2083.04	1220.07	2083.04	1243.55	2083.11
1251.04	2083.17	1266.81	2083.1	1278.96	2082.93	1293.46	2082.85	1309.47	2082.75
1317.44	2082.69	1330.59	2082.6	1338.48	2082.39	1342.85	2082.23	1348.92	2082.33
1349.15	2082.33	1358.76	2082.7	1365.09	2082.49	1371.48	2082.24	1375.85	2082.37
1384.85	2082.16	1389.82	2082.26	1394.74	2082.5	1399.43	2082.47	1399.98	2082.46
1400.19	2082.43	1412.96	2080.83	1415.85	2080.81	1418.21	2080.78	1428.14	2080.62
1432.85	2080.51	1435.95	2080.33	1439.07	2080.24	1443.63	2080.18	1446.94	2080.2
1449.22	2080.17	1452.54	2080.08	1462.88	2079.97	1464.91	2079.95	1465.55	2079.99
1470.13	2080.24	1488.57	2080.05	1492.02	2080.03	1494.78	2080	1504.27	2079.98
1507.11	2079.92	1514.33	2079.72	1526.81	2079.7	1527.45	2079.7	1529.41	2079.67
1543.64	2079.53	1547.78	2079.45	1552.18	2078.8	1552.46	2078.75	1552.96	2078.76
1558.22	2078.84	1567.66	2078.99	1568.59	2079	1569.23	2079.05	1574.26	2079.36
1582.38	2078.96	1583.43	2078.91	1583.91	2078.91	1586.78	2078.95	1593.27	2078.89
1598.57	2078.84	1599.94	2079.04	1601.66	2079.31	1605.98	2079.23	1613.15	2079.18
1626.93	2079.16	1632.92	2079.04	1637.46	2078.93	1647.07	2078.75	1647.78	2078.74
1653.1	2078.69	1661.86	2078.61	1662.52	2078.61	1663.19	2078.6	1673.52	2078.57
1690.17	2078.53	1691.8	2078.53	1707.33	2078.6	1712.81	2078.63	1718.25	2078.65
1723.01	2078.76	1744.65	2078.79	1744.7	2078.79	1744.73	2078.79	1744.75	2078.79
1757.4	2079.03	1758.98	2079.07	1761.84	2079.58	1763.36	2079.84	1776.74	2080.6
1778.39	2080.75	1779.24	2080.65	1783.56	2080.38	1793.09	2080.26	1796.83	2080.19
1798.22	2080.06	1802	2079.53	1803.29	2079.52	1815.42	2079.79	1818.05	2079.84
1824.59	2079.4	1827.82	2079.28	1831.55	2079.14	1833.25	2079.25	1850.37	2079.01
1851.76	2079	1853.03	2079.06	1861.24	2079.45	1868.07	2081.56	1868.1	2081.56
1879.59	2081.69	1881.16	2081.75	1884.51	2081.74	1901.74	2081.78	1903.52	2081.78
1918.15	2081.96	1936.88	2082.18	1939.12	2082.22	1969.99	2082.36	1973.95	2082.36
1975.28	2082.34	2005.48	2081.78	2006.25	2081.76	2008.17	2081.8	2019.55	2081.91
2023.13	2081.68	2025.5	2081.38	2030.51	2081.31	2036.96	2081.12	2038.04	2081.14
2041.26	2081.46	2042.17	2081.5	2048.58	2081.8	2053.31	2081.81	2057.96	2081.75
2062.11	2081.33	2065.15	2080.96	2074.74	2080.69	2077.26	2080.63	2083.33	2080.78
2085.05	2080.82	2088.18	2080.79	2102.19	2080.94	2115.2	2081.04	2117.23	2081.07
2122.51	2081	2132.18	2080.83	2135.11	2080.78	2143.93	2083.68	2146.05	2084.48
2152.13	2086.65	2157.01	2088.59	2157.96	2088.58	2161.38	2088.67	2163.73	2087.5
2169.8	2085.16	2171.34	2084.52	2176.93	2082.15	2179.33	2081.12	2188.9	2081.25
2210.6	2081.21	2221.86	2081.14	2232.02	2081.24	2234.89	2081.44	2241.82	2081.84
2255.07	2081.97	2258.78	2082.01	2261.45	2082.04	2263.52	2082.03	2276.32	2082.07
2283.1	2081.99	2285.72	2081.88	2290.11	2081.88	2294.39	2081.61	2297.34	2081.57
2306.13	2082.12	2310.25	2082.27	2316.87	2082.51	2318.41	2082.57	2321.01	2082.65
2328.77	2083.11	2336.21	2083.56	2341.38	2083.87	2348.99	2084.33	2353.71	2084.49
2356.66	2084.63	2365.02	2085.19	2371.12	2085.35	2377.94	2085.52	2381.36	2085.42
2383.46	2085.36	2395.19	2085	2403.21	2085.67	2409.7	2085.9	2416.58	2086.55
2416.65	2086.56	2416.95	2086.59	2423.13	2086.72	2428.9	2086.9	2429.27	2086.9
2429.63	2086.89	2434.02	2086.85	2440.21	2086.76	2442.07	2086.73	2443.16	2086.72
2447.68	2086.05	2451.08	2085.54	2455.44	2084.89	2459.46	2084.34	2461.78	2084.02
2465.37	2083.54	2475.01	2082.8	2484.76	2082.12	2489.11	2081.9	2491.14	2081.79
2510.63	2081.77	2511.42	2081.76	2517.77	2081.69	2525.45	2081.79	2526.04	2081.82
2539.59	2082.03	2541.02	2082.04	2555.35	2082.1	2557.77	2082.07	2564.03	2082.09
2569.88	2082.11	2580.8	2082.18	2585.54	2082.21	2587.39	2082.2	2598.37	2082.28
2610.11	2082.36	2610.33	2082.37	2610.4	2082.37	2619.06	2082.62	2621.46	2083.02
2622.59	2083.1	2624.03	2083.2	2634.26	2084.06	2636.01	2084.21	2640.95	2084.19
2642.16	2084.28	2644.43	2084.82	2651.29	2085.54	2662.76	2086.77	2663.19	2086.82
2663.49	2086.84	2663.67	2086.87	2669.77	2086.88	2675.28	2086.84	2678.17	2086.8
2679.48	2086.76	2681.29	2086.68	2691.55	2086.31	2695.35	2086.17	2705.67	2085.95
2710.33	2085.93	2713.64	2085.9	2715.41	2085.62	2719.15	2084.88	2726.33	2084.78

2727.07	2084.77	2732.95	2085.03	2733.2	2085.04	2734.26	2085.13	2747.07	2086.31
2748.49	2086.47	2749.34	2086.55	2750.25	2086.81	2751.86	2087.43	2763.87	2091.37
2772.87	2093.71	2775.34	2094.21	2776.18	2094.51	2779.31	2094.77	2786.73	2095.39
2796.34	2095.24	2810.1	2095.03	2816.92	2094.7	2833.37	2093.89	2837.41	2093.21
2842.05	2092.48	2851.49	2090.47	2856.89	2089.32	2870.18	2088.78	2872.12	2088.71
2878.83	2088.11	2884.82	2087.64	2893.06	2087.14	2900.09	2086.73	2902.9	2086.94
2908.82	2087.3	2908.93	2087.31	2909.41	2087.34	2918.08	2087.85	2923.54	2089.32
2926.13	2090.03	2927.92	2090.83	2933.05	2093.16	2937.88	2095.42	2943.55	2095.59
2950.47	2095.74	2953.64	2095.25	2956.02	2094.89	2965.77	2094.86	2975.6	2094.83
2981.74	2094.81	3003.46	2094.54	3006.99	2094.5	3009.44	2095.31	3009.58	2095.35
3012.05	2094.8	3012.44	2094.71	3020.26	2094.78	3048.79	2094.98	3052.47	2094.93
3063.9	2094.71	3068.79	2094.63	3072.84	2094.6				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	1039.18	.035	1827.82	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1039.18	1827.82	146.41	198.27	257.57	.1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
2401.4	3072.84		F

CROSS SECTION

RIVER: Hassayampa
REACH: 1 RS: 53.026

INPUT
Description:
Station Elevation Data num= 433

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2091.47	.27	2091.45	4.48	2090.3	4.92	2090.18	6.14	2089.95
9.29	2089.94	12.27	2089.94	14.98	2089.63	20.17	2089.24	21.63	2089.06
23.38	2088.84	27.61	2087.69	27.96	2087.67	28.39	2087.69	35.35	2087.67
39.05	2087.83	41.29	2087.94	45.1	2088.5	48.69	2088.42	56.56	2087.82
59.08	2087.59	61.27	2087.42	67.75	2087.07	72.35	2086.93	75.8	2086.39
77.47	2086.28	80.78	2086.32	83.56	2086.06	85.22	2086.05	87.09	2086.17
94.21	2087.86	97.5	2088.26	104.62	2089.2	105.07	2089.16	114.27	2089.08
119.27	2087.73	122.34	2087.02	126.15	2085.19	129.17	2084.3	129.44	2084.22
132.41	2082.57	134.71	2082.63	142.07	2082.83	149.82	2082.7	151.21	2082.69
152.03	2082.76	155.97	2083.07	162.5	2082.58	165.49	2082.36	169.82	2082.44
179.21	2082.55	181.61	2082.53	192.72	2082.3	210.85	2082.01	221.69	2081.7
233.59	2081.77	276.19	2081.23	283.07	2081.1	297.27	2080.72	316.33	2080.38
330.9	2080.19	356.48	2079.99	372.37	2079.94	398.14	2079.91	406.72	2079.96
414.82	2079.85	429.29	2079.66	430.88	2079.62	433.98	2079.65	457.62	2079.6
460.71	2079.61	482.6	2079.88	486.38	2079.93	512.37	2080.21	515.71	2080.24
539.67	2080.2	542.79	2080.19	567.82	2080.26	570.64	2080.26	595.8	2080.46
600.3	2080.48	628.39	2080.5	631.41	2080.52	660.92	2080.56	662.54	2080.55
691.56	2080.34	693.8	2080.33	700.58	2080.24	708.97	2080.13	716.49	2080.14
724.6	2080.14	736.7	2080.01	740.37	2079.85	749.34	2079.55	762.4	2079.81
768.22	2080.09	784.27	2080.47	789.65	2080.5	812.06	2080.87	821.13	2080.87
837.11	2080.95	848.34	2080.87	866.07	2080.77	874.48	2080.77	892.22	2080.68
902.29	2080.65	910.11	2080.5	919.83	2080.41	922.62	2080.4	938.35	2080.47
954.35	2081.31	955.05	2081.33	955.85	2081.59	961.31	2083.54	968.15	2085.96
971.43	2087.06	973.91	2087.76	977.5	2088.05	987.25	2088.67	993.52	2088.67
995.92	2088.75	1006.61	2088.58	1008.77	2088.6	1011.43	2088.73	1015.87	2087.55
1016.81	2087.3	1022.4	2085.73	1025.98	2084.42	1032.56	2081.76	1035.7	2081.67
1041.54	2081.48	1047.77	2081.32	1049.58	2081.3	1054.34	2080.81	1057.98	2080.47
1058.54	2080.55	1060.68	2080.9	1063.12	2081.02	1066.92	2081.2	1067.49	2081.21
1068.44	2081.23	1085.14	2081.45	1096.3	2081.6	1109.42	2081.64	1113.92	2081.82
1121.47	2082.04	1135.29	2081.94	1136.41	2081.93	1143.39	2081.77	1148.23	2081.66
1149.5	2081.66	1164.01	2081.63	1173.88	2081.37	1176.94	2081.32	1179.56	2081.33
1183.61	2081.34	1190.64	2081.38	1192.7	2081.52	1195.73	2081.8	1199.96	2081.9
1204.74	2082	1220.41	2082.09	1222.06	2082.11	1223.65	2082.09	1240.24	2081.83
1242.12	2081.83	1251.07	2081.89	1259.47	2081.57	1261.57	2081.44	1262.24	2081.43
1270.69	2081.65	1274.57	2081.76	1278.86	2081.79	1287.48	2081.85	1305.75	2081.81
1314.54	2081.75	1332.14	2081.57	1344.16	2081.46	1358.15	2081.43	1375.39	2081.52
1385.24	2081.51	1405.43	2081.38	1409.04	2081.36	1419.82	2081.18	1421.29	2081.16
1421.76	2081.14	1423.99	2081.06	1429.2	2080.88	1430.85	2080.88	1441.26	2080.96
1441.29	2080.96	1444.95	2081.19	1448.83	2081.1	1454.9	2081.05	1457.9	2081.04
1476.46	2080.89	1476.83	2080.88	1478.37	2080.81	1485.2	2080.53	1486.7	2080.17
1489.83	2079.3	1490.41	2079.31	1493.6	2079.45	1494.92	2079.37	1497.11	2079.14
1503.54	2079.01	1509.09	2078.9	1512.52	2079.19	1513.55	2079.27	1514.36	2079.26
1522.77	2079.1	1529.8	2079.07	1541.24	2079.13	1552.27	2079.11	1553.36	2079.11
1555.45	2079.05	1572.43	2078.59	1584.87	2078.67	1586.33	2078.68	1588.85	2078.64
1597.98	2078.51	1601.53	2078.48	1626.62	2078.42	1630.11	2078.39	1639.8	2078.09
1641.28	2078.04	1644.56	2077.97	1646.55	2077.93	1650.45	2077.84	1653.62	2077.77
1664.51	2077.5	1665.42	2077.48	1692.79	2077.54	1696.79	2077.56	1721.75	2077.63
1729	2077.58	1743.95	2077.64	1753.43	2077.67	1757.93	2077.55	1763.08	2077.33
1768.7	2078	1769.89	2078.18	1771.59	2078.21	1774.61	2078.21	1780.83	2077.7
1783.51	2077.7	1785.17	2077.72	1786.96	2077.77	1805.33	2078.08	1816.61	2078.33
1839.42	2078.07	1842.64	2078.05	1843.05	2078.17	1846.8	2079.1	1847.57	2079.11
1849.12	2079.16	1855.12	2079.39	1856.5	2079.4	1859.43	2079.42	1871.13	2079.45
1885.1	2079.59	1889.31	2079.56	1896.68	2079.45	1897.21	2079.46	1898.01	2079.45
1904.4	2079.46	1909.06	2079.5	1909.64	2079.49	1910.39	2079.47	1914.23	2080.27
1916.65	2080.81	1939.69	2080.9	1941.26	2080.91	1941.9	2080.9	1961.76	2080.93

1963.35	2080.72	1966.3	2080.36	1975.32	2079.26	1977.28	2079.31	1978.44	2079.36
1979.87	2079.61	1980.22	2079.67	1980.99	2079.82	1991.99	2080.02	2001.7	2080
2016.7	2078.82	2017.15	2078.8	2020.35	2078.82	2028.82	2078.89	2039.71	2079.57
2044.61	2079.9	2051.03	2080.21	2067.92	2081.01	2076.91	2080.89	2081.39	2080.82
2109.02	2081.18	2111.3	2081.22	2114.02	2081.25	2130.88	2081.21	2133.5	2080.76
2139.49	2080.21	2140.68	2080.39	2142.12	2080.47	2149.16	2080.69	2149.49	2080.66
2149.64	2080.64	2156.78	2079.48	2161.77	2079.42	2175.64	2079.78	2183.09	2079.89
2187.61	2080.01	2200.19	2080.76	2205.7	2081.13	2212.49	2082.17	2215.25	2082.23
2234.2	2082.14	2235.81	2082.15	2246.17	2082.25	2257.33	2082.35	2257.66	2082.36
2259.22	2082.41	2270.65	2082.58	2275.76	2082.65	2278.6	2082.92	2279.77	2082.97
2280.46	2083.04	2284.52	2083.07	2290.27	2083.49	2293.41	2083.71	2295.23	2083.83
2306.26	2084.64	2308.92	2084.85	2322.24	2085.88	2322.35	2085.89	2322.37	2085.89
2322.39	2085.89	2328.39	2086.15	2333.52	2086.38	2346.75	2086.97	2349.07	2087.02
2361.78	2087.17	2362.51	2087.25	2362.86	2087.29	2374.6	2088.69	2376.66	2088.95
2383.16	2089.75	2387.35	2090.29	2393.99	2091.1	2396.09	2091.38	2397.32	2091.52
2401.68	2091.96	2406.69	2092.58	2409.57	2092.9	2413.74	2093.41	2416.95	2093.69
2418.64	2093.83	2426.18	2094.49	2431.97	2094.95	2441.88	2095.16	2446.35	2095.12
2456.39	2094.89	2465.63	2094.83	2471.11	2094.69	2478.37	2094.57	2482.64	2094.59
2490.61	2094.45	2492.86	2094.49	2495.41	2094.48	2498.99	2094.49	2515.61	2094.4
2519.44	2094.47	2525.53	2094.5	2544.52	2094.58	2545.94	2094.57	2555.15	2094.54
2570.66	2094.45	2575.24	2094.45	2594.3	2094.48	2602.05	2094.53	2602.14	2094.53
2602.29	2094.52	2605.82	2094.14	2606.99	2094.02	2609.85	2093.57	2611.71	2093.66
2611.88	2093.62	2613.71	2093.66	2622.6	2093.63	2634.9	2094.05	2636.87	2094.12
2637.12	2094.13	2637.67	2094.17	2642.14	2094.46	2645.51	2094.81	2651.13	2095.18
2655.27	2095.4	2656.01	2095.42	2657.55	2095.45	2669.74	2095.72	2674.81	2096.35
2675.91	2096.48	2682.28	2097.02	2682.64	2097.05	2694.79	2096.95	2703.92	2096.91
2718.42	2096.09	2724.76	2095.71	2728.33	2095.42	2728.94	2095.38	2731.13	2095.2
2733.5	2095	2734.99	2094.88	2740.57	2099.21	2742.65	2101.05	2749.42	2107.75
2752.54	2110.6	2757.49	2113.22	2761.6	2115.33	2763.02	2118.62	2765.65	2124.64
2767.56	2125.97	2767.78	2126.12	2768	2126.24	2772.66	2129.18	2776.46	2129.98
2781	2131.18	2782.29	2131.19	2786.48	2131.02	2789.38	2130.15	2790.49	2129.79
2791.72	2129.58	2793.68	2129.15	2793.87	2129.18				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	1063.12	.035	1856.5	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1063.12	1856.5	228.56	209.75	243.29	.1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
2276.98	2793.87		F

CROSS SECTION

RIVER: Hassayampa
REACH: 1 RS: 52.986

INPUT
Description:
Station Elevation Data num= 408

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2128.09	2.28	2128.17	4.24	2128.19	15.48	2127.91	16.1	2127.91
18.3	2127.73	29.7	2126.39	34.54	2124.74	37.02	2123.65	54.06	2115.99
56.19	2115.04	56.33	2114.97	56.38	2114.93	62.79	2111.87	70.82	2108.02
71.4	2107.72	71.59	2107.64	85.07	2102.19	85.9	2101.88	96.23	2097.75
102.34	2094.8	105.97	2092.62	108.17	2091.13	114.06	2087.7	118.43	2082.93
118.49	2082.89	120.14	2081.63	120.5	2081.44	122.69	2080.15	126.31	2080.18
128.61	2080.2	130.11	2080.22	131.12	2080.19	139.33	2079.96	150.55	2079.49
155.26	2079.3	178.85	2078.73	183.14	2078.63	186.51	2078.58	188.24	2078.52
214.86	2078.25	217.11	2078.24	245.09	2077.97	250.18	2078	257.58	2077.96
278.65	2078.05	290.75	2077.91	294.52	2077.92	309.86	2077.5	314.64	2077.38
316.73	2077.51	321.57	2077.79	330.97	2077.76	331.34	2077.76	352.27	2078.14
353.04	2078.16	354.4	2078.17	355.82	2078.17	383.09	2077.99	384.29	2078
402.78	2078.3	407.36	2078.58	407.65	2078.6	408.09	2078.59	423.11	2078.31
426.87	2078.34	460.81	2078.8	467.1	2078.91	495.24	2079.35	507.22	2079.4
529.67	2079.42	539.96	2079.34	565.9	2079.28	579.17	2079.2	593.77	2079.19
607.84	2079.24	623.6	2079.27	639.55	2079.36	656.98	2079.55	673.98	2079.7
681.17	2079.44	686.34	2079.35	690.51	2078.77	699.09	2077.85	700.59	2077.93
714.42	2078.67	723.25	2078.72	743.31	2078.9	751.72	2079.07	775.26	2079.33
783.72	2079.34	812.81	2079.7	820.99	2079.78	859.15	2079.93	863.25	2079.94
884.38	2080.16	886.34	2080.18	909.6	2080.36	919.23	2080.42	920.03	2080.42
956.77	2080.66	958.5	2080.65	961.16	2080.64	966.68	2080.7	978.8	2080.65
984.01	2080.5	984.12	2080.5	984.29	2080.51	986.83	2080.59	990.5	2080.58
992.51	2080.39	993.1	2080.36	996.53	2080.14	998.53	2080.1	1007.84	2079.9
1012.51	2079.97	1022.05	2080.11	1030.6	2080.1	1033.05	2080.09	1034.73	2080.02
1042.2	2079.69	1047.18	2079.77	1050.2	2079.82	1052.08	2079.85	1073.32	2080.02
1076.89	2080.07	1080.37	2080.07	1089.87	2080.01	1096.37	2079.29	1097	2079.24
1098.57	2079.25	1109.59	2079.51	1112.28	2079.94	1114.51	2080.2	1120.13	2080.17
1133.45	2080.19	1140.96	2080.62	1141.81	2080.67	1151.04	2081.17	1151.27	2081.19
1151.83	2081.17	1153.2	2081.13	1165.6	2080.77	1171.11	2080.81	1178.18	2080.88
1184.32	2080.92	1191.73	2080.98	1194.23	2080.94	1201.87	2080.95	1212.54	2080.93
1219.28	2080.79	1222.4	2080.78	1222.78	2080.78	1225.13	2080.79	1235.58	2080.92
1242.88	2080.95	1243.45	2080.95	1254.01	2081.05	1255.35	2081.04	1258.19	2080.95
1266.34	2080.68	1267.66	2080.7	1280.58	2080.58	1286.06	2080.59	1298.91	2080.75
1300.21	2080.61	1307.38	2079.9	1307.64	2079.9	1314.81	2079.92	1319.03	2080.15
1324.97	2080.51	1334.76	2080.61	1336.83	2080.6	1340.05	2080.57	1362.28	2080.28

1364.8	2080.23	1369.82	2080.13	1374.89	2080.1	1379.37	2080.15	1381.85	2080.38
1382	2080.38	1382.44	2080.37	1383.65	2080.33	1391.46	2080.1	1395.29	2080.01
1398.25	2079.98	1400.92	2079.85	1409.79	2079.41	1409.94	2079.39	1410.15	2079.37
1413.77	2078.94	1415.6	2079.01	1418.05	2079.08	1424.91	2079.77	1426.11	2079.9
1427.08	2079.89	1430.57	2079.9	1439.41	2079.9	1441.5	2079.61	1445.48	2078.76
1445.85	2078.73	1447.63	2078.66	1450.27	2078.76	1458.51	2078.84	1464.41	2078.51
1468.09	2078.3	1472.49	2078.11	1476.04	2077.95	1479.56	2078.39	1480.78	2078.55
1490.02	2078.49	1491.48	2078.48	1493.41	2078.5	1519.64	2078.63	1523.11	2078.6
1531.87	2078.52	1534.09	2078.52	1543.64	2078.42	1568.33	2078.06	1568.93	2078.05
1569.18	2078.05	1583.61	2077.75	1587.37	2077.67	1593.73	2077.42	1602.21	2077.53
1609.36	2077.66	1611.89	2077.61	1615.52	2077.54	1626.23	2077.44	1627.72	2077.42
1628.2	2077.35	1632.31	2076.72	1633.68	2076.71	1642.05	2076.57	1648.67	2076.61
1662.81	2076.73	1672.15	2076.73	1686.19	2076.91	1692.88	2077	1700.56	2077
1716.75	2076.85	1717.31	2076.85	1718.11	2076.84	1718.89	2076.83	1750.33	2076.68
1751.29	2076.68	1753.23	2076.7	1768.24	2076.84	1769.09	2076.85	1769.16	2076.86
1772.49	2077.27	1777.25	2077.07	1779.26	2076.99	1779.59	2076.94	1783.34	2076.92
1792.52	2076.94	1805.03	2076.91	1807.34	2077.5	1808.78	2077.94	1811.72	2077.98
1817.98	2078.31	1832.44	2078.52	1833.23	2078.53	1834.88	2078.53	1841.06	2078.38
1851.38	2078.13	1853.61	2077.85	1858.23	2077.36	1864.38	2077.32	1867.44	2077.29
1867.86	2077.32	1869.89	2076.27	1871.01	2075.77	1871.71	2075.79	1879.85	2076
1880.49	2076.19	1881.76	2076.25	1882.02	2076.25	1884.13	2076.32	1886.54	2076.52
1891.31	2076.42	1891.88	2076.44	1892.5	2076.45	1893.3	2076.69	1903.52	2078.79
1906.33	2078.93	1911.95	2079.2	1921.09	2079.64	1923.16	2079.76	1931.24	2079.03
1933.02	2078.91	1935.73	2078.87	1951.18	2078.84	1955.95	2078.89	1957.48	2079.05
1965.8	2080.1	1969.08	2080.1	1978.69	2079.92	1988.68	2079.8	2013.91	2079.44
2041.64	2079.02	2042.59	2079.01	2042.72	2079.01	2069.56	2078.9	2072.97	2078.85
2097.8	2078.76	2101.27	2078.77	2114.84	2078.85	2116.81	2078.69	2120.42	2078.23
2124.36	2077.73	2128.01	2077.76	2133.27	2077.78	2140.23	2079.35	2141.09	2079.55
2142.15	2079.53	2160.21	2079.15	2175.77	2079.43	2191.03	2079.67	2196.87	2079.64
2213.76	2079.53	2238.77	2079.65	2254.67	2079.74	2263.29	2080.03	2267.71	2080.15
2274.16	2080.01	2276.29	2079.97	2296.4	2080.09	2298.17	2080.1	2310.92	2080.13
2324.88	2080.14	2348.18	2080.14	2352.75	2080.18	2375.4	2080.26	2384.11	2080.24
2390.87	2080.3	2414.94	2080.42	2416.05	2080.43	2416.25	2080.45	2419.67	2080.74
2422.39	2080.77	2435.34	2080.95	2436.43	2081.22	2438.75	2081.62	2447.54	2083.06
2454.33	2084.97	2461.56	2086.94	2467.02	2086.9	2467.75	2086.91	2478.59	2087.33
2479.58	2087.21	2481.31	2087.04	2481.9	2087.1	2484.43	2087.35	2488.18	2087.33
2495.6	2087.52	2498.57	2088.08	2500.23	2088.51	2502.34	2088.92	2506.05	2090.6
2508.98	2091.9	2510.81	2092.53	2515.94	2094.6	2520.56	2096.08	2521.39	2096.53
2522.41	2096.79	2526.97	2097.2	2530.96	2097.54	2533.18	2097.59	2548.5	2097.61
2557.08	2097.5	2564.32	2097.38	2572.71	2097.51	2574.73	2097.53	2578.63	2097.52
2583.02	2097.46	2585.9	2097.4	2594.82	2097.12	2597.31	2097.36	2601.31	2097.73
2602.63	2097.76	2607.37	2097.82	2612.2	2098	2617.26	2098.17	2628.79	2097.61
2629.03	2097.6	2629.98	2097.55	2649.96	2096.52	2654.87	2095.66	2655.03	2095.64
2655.38	2095.56	2657.83	2095.05	2660.37	2094.52	2660.48	2094.5	2664.4	2093.91
2664.58	2093.86	2668.88	2092.79	2670.27	2092.5	2673.84	2091.86	2674.13	2091.8
2674.27	2091.74	2676.42	2090.6	2679.06	2090	2679.9	2089.77	2682.77	2089.85
2683.16	2089.86	2684.08	2089.94	2696.41	2090.44				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	1050.2	.035	1833.23	.04

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

1050.2	1833.23	146.93	196.88	191.96	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
2177.07	2696.41		F

CROSS SECTION

RIVER: Hassayampa
REACH: 1 RS: 52.949

INPUT
Description:
Station Elevation Data num= 379

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2087.6	.82	2087.48	1.7	2087.43	5.68	2087.43	8.77	2087.49
13.69	2087.51	17.43	2087.34	26.15	2087.18	35.23	2086.4	40.29	2086.05
47.27	2085.75	53.8	2086.39	63.87	2087.69	66.6	2087.98	74.97	2090.16
80.69	2091.08	84.95	2091.62	88.97	2091.72	93.05	2090.79	96.8	2089.43
100.79	2088.07	105.82	2085.07	110.71	2081.47	111.8	2080.86	113.57	2080.34
114.8	2079.92	119.66	2080.11	122.9	2080.31	128.58	2080.22	131.94	2080.16
135.87	2079.27	146.13	2077.5	153.69	2077.66	158.89	2077.67	178.31	2077.53
181.86	2077.53	191.14	2077.39	202.51	2077.22	222.69	2077.17	229.62	2077.16
234.91	2077.14	242.27	2077.11	250.8	2076.7	254.11	2076.47	259.64	2076.86
261.05	2077	262.59	2077.02	275.45	2077.11	285.21	2077.22	299.19	2077.19
319.29	2077.22	334.89	2077.33	350.33	2077.44	362.89	2077.53	379.98	2077.71
392.02	2077.72	411.79	2077.66	425.67	2077.88	445.72	2077.93	459.57	2077.97
478.19	2078.04	493.68	2078.03	506.72	2078.14	509.45	2078.15	511.31	2078.16
518.03	2078.18	520.92	2078.28	539.75	2078.42	545.02	2078.5	552.56	2078.54
556.33	2078.57	572.51	2078.65	585.47	2078.8	589.5	2078.7	607.6	2078.2
608.28	2078.18	609.42	2078.17	621.44	2077.96	635.3	2078.15	645.08	2078.25
653.78	2078.23	697.1	2078.58	709.38	2078.84	732.8	2079.23	737.48	2079.32
757.41	2079.52	765.03	2079.59	790.32	2079.82	797.44	2079.9	820.65	2080.02
827.82	2080.01	851.7	2080.08	858.55	2080.13	881.56	2080.27	887.98	2080.28
902.89	2080.32	920.14	2079.98	920.76	2079.97	921.33	2079.94	933.86	2079.36

938.6	2079.37	955.27	2079.36	973.16	2079.38	988	2079.51	997.51	2079.45
1001.2	2079.41	1007.88	2079.43	1013.08	2079.54	1019.06	2079.47	1023.17	2079.41
1024.48	2079.37	1031.2	2079.16	1037.15	2079.3	1043.9	2079.44	1045.91	2079.21
1050.53	2078.73	1055.47	2078.75	1056.56	2078.75	1059.99	2078.7	1063.7	2078.66
1066.43	2078.53	1070.78	2078.38	1073.24	2078.28	1074.37	2078.25	1081.45	2078.93
1083.01	2079.06	1083.11	2079.07	1083.22	2079.07	1090.49	2079.42	1090.76	2079.37
1096.99	2077.62	1099.91	2077.68	1111.37	2077.73	1111.81	2077.77	1118.49	2078.47
1122.11	2078.51	1126.64	2078.57	1127.89	2079	1129.38	2079.5	1133.26	2078.96
1134.68	2078.81	1135.85	2078.82	1138.26	2078.88	1139.77	2078.99	1145.5	2079.5
1148.85	2079.55	1152.77	2079.44	1155.69	2079.52	1161.27	2079.75	1163.3	2079.77
1172.4	2079.59	1178.51	2079.41	1184.1	2079.22	1185.22	2079.2	1186.77	2079.16
1193.48	2079.08	1198.88	2079.68	1199.61	2079.76	1204.67	2079.7	1210.3	2079.58
1237.5	2079.37	1238.2	2079.37	1241.44	2079.3	1262.47	2078.88	1267.8	2078.86
1286.44	2078.97	1296.17	2078.97	1317.83	2079.07	1334.37	2078.86	1348.1	2078.67
1355.03	2078.54	1360.39	2078.51	1363.36	2077.88	1368.46	2076.87	1379.94	2077.01
1381.32	2077.03	1382.05	2077.08	1389.02	2077.65	1393.49	2077.45	1398.11	2077.19
1407.35	2077.15	1408.52	2077.14	1409.12	2077.18	1415.92	2077.56	1425.28	2077.7
1426.6	2077.72	1442.94	2077.69	1446.99	2077.68	1471.79	2077.62	1471.81	2077.62
1471.83	2077.62	1472.33	2077.62	1481.49	2077.61	1482.3	2077.61	1496.13	2077.47
1503.95	2077.4	1504.53	2077.39	1526.11	2077.17	1531.64	2077.09	1533.56	2077.07
1540.6	2077.01	1547.37	2076.71	1547.58	2076.7	1551.4	2075.87	1552.04	2075.73
1559.61	2075.67	1561.98	2075.69	1566.87	2075.7	1586.5	2075.85	1593.17	2075.84
1611.14	2075.88	1626.49	2076.11	1626.51	2076.11	1626.6	2076.11	1642.07	2076.27
1668.95	2076.37	1672.79	2076.37	1676.77	2076.34	1702.36	2076.12	1706.46	2076.11
1732.98	2075.96	1734.64	2075.94	1737.67	2075.93	1749.51	2075.87	1752.05	2075.89
1755.87	2076.01	1759.95	2076.16	1764.23	2076.18	1768.03	2076.2	1771.1	2076.33
1778.78	2076.29	1787.99	2076.65	1790.07	2077.14	1795.99	2077.88	1800.57	2077.98
1814.83	2078.12	1825.46	2078	1838.38	2077.66	1851.77	2077.56	1868.51	2078.03
1874.66	2078.1	1898.96	2078.6	1902.13	2078.66	1902.96	2078.67	1928	2078.92
1935.5	2078.86	1951.33	2077.78	1951.64	2077.77	1951.81	2077.76	1956.78	2077.62
1967	2077.33	1967.94	2077.29	1969.72	2077.59	1975	2078.43	1977.98	2078.39
1990.92	2078.02	2011.49	2078.22	2022.04	2078.2	2026.17	2078.21	2031.33	2077.83
2033.82	2077.67	2047.89	2077.91	2059.77	2077.99	2061.32	2077.91	2073.41	2082.37
2096.67	2090.92	2099.43	2092.69	2101.44	2093.02	2106.26	2094.59	2113.33	2097.3
2113.35	2097.3	2118.67	2097.1	2124.46	2095.86	2129.16	2094.94	2131.09	2094.45
2135.83	2093.03	2149.67	2089.99	2154	2088.31	2162.17	2084.3	2166.61	2083.96
2175.03	2083.2	2183.51	2081.24	2185.99	2080.76	2188.91	2080.8	2201.83	2080.36
2205.06	2080.24	2206.98	2080.2	2227.71	2080.45	2228.66	2080.47	2229.42	2080.48
2251.15	2080.59	2254.73	2080.67	2259.92	2080.66	2270.36	2080.79	2294.95	2080.88
2295.92	2080.89	2311.87	2080.77	2316.05	2080.76	2324.87	2081	2329.97	2081.12
2333.36	2081.39	2336.58	2081.6	2346.31	2081.57	2353.97	2081.61	2359.27	2082.55
2360.75	2082.75	2363.44	2083.23	2368.43	2084.1	2374.09	2085.31	2377.51	2086.08
2379.04	2086.13	2388.87	2086.3	2396.15	2086.45	2411.25	2086.69	2411.55	2086.69
2414.48	2086.81	2419.67	2087.24	2421.74	2087.37	2424.92	2087.81	2429.55	2088.39
2435.37	2089.99	2435.94	2090.14	2436.21	2090.18	2440.98	2090.85	2444.57	2090.75
2445.69	2090.78	2448.01	2090.96	2449.45	2091.07	2452.42	2091.36	2457.01	2091.3
2458.07	2091.31	2460.13	2091.33	2466.68	2091.52	2472.83	2092.38	2476.29	2092.88
2477.44	2092.95	2480.51	2093.34	2481.88	2093.46	2488.46	2094.38	2490.81	2094.87
2496.37	2095.91	2498.22	2096.39	2499.03	2096.51	2506.12	2097.59	2506.23	2097.6
2513.94	2097.98	2517.61	2098.01	2524.64	2098.1	2527.26	2097.87	2528.4	2097.76
2530.63	2098.26	2531.57	2098.49	2535.81	2098.72	2538.75	2098.87	2541.27	2098.83
2548.26	2098.76	2552.17	2098.7	2560.3	2098.46	2570.37	2098.01	2580.82	2097.54
2583.01	2097.25	2584.24	2097.09	2588.27	2096.82	2590.59	2096.68	2596.09	2103.15
2596.69	2103.85	2597.47	2104.53	2603.71	2110.01	2607.97	2113.31	2611.08	2115.7
2617.68	2117.45	2622.69	2118.85	2625.49	2119.61	2631.72	2121.32	2636.14	2121.28
2639.02	2121.29	2642.72	2122.67	2646.77	2124.21	2647.36	2124.31		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	1024.48	.035	1764.23	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1024.48	1764.23	119.28	172.43	182.35	.1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
2058.27	2647.36		F

CROSS SECTION

RIVER: Hassayampa
REACH: 1 RS: 52.916

INPUT
Description:
Station Elevation Data num= 324

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2086.65	1.99	2086.51	7.98	2085.66	14.8	2085.09	25	2084.4
36.03	2082.83	36.75	2082.78	45.73	2082.2	63.54	2081.47	66.13	2081.36
66.91	2081.33	67.98	2081.29	87.59	2080.66	94.81	2080.55	98.9	2080.48
113.18	2079.58	115.22	2079.47	115.68	2079.28	117.85	2078.58	126.88	2078.57
128.51	2078.57	136.21	2078.25	138.76	2078.12	142.97	2078	156.56	2077.65
164.59	2077.62	171.04	2077.64	175.07	2077.52	186.73	2077.08	189.03	2077.05
211.59	2076.56	217.44	2076.54	229.37	2076.42	231.82	2076.4	232.72	2076.34
240.97	2075.72	242.16	2075.87	247.38	2076.46	257.58	2076.34	272.42	2076.36
294.02	2076.4	318.82	2076.68	337.71	2076.89	359.78	2076.92	373.95	2076.84
403.37	2077.16	424.85	2077.49	433.95	2077.46	455.66	2077.42	470.14	2077.52
482.71	2077.51	503.39	2077.55	515.64	2077.8	535.92	2078.17	547.49	2078.18

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   570.6 2078.18  584.35 2078.06  601.01 2077.99  616.74 2078.11  631.22 2078.08
  649.19 2077.97  659.53 2078.12  679.85 2078.69  690.43 2078.82  708.68 2078.69
  720.69  2078.7  737.84 2078.75   747.3 2078.82   767.9 2078.92  776.98 2078.97
  804.28 2079.46  812.67 2079.52  831.28 2079.32  843.03 2079.28  875.16 2079.27
  879.08 2079.26  886.29 2079.28  907.92 2079.75  916.97 2079.72  935.14 2079.64
  938.07 2079.66  941.04  2079.6  954.91 2079.44  961.22 2078.99  964.89 2078.72
  967.79 2078.75  990.98  2078.8  997.45 2078.81 1000.01 2078.76 1014.65 2078.35
 1015.08 2078.36 1020.09 2078.43 1022.49 2078.46 1022.98 2078.48 1028.01 2078.71
 1032.43 2078.74 1038.68 2078.76 1041.86 2078.75 1044.46 2078.82 1049.11 2078.95
 1054.27 2079.06 1057.27 2079.03 1066.13  2078.9 1071.31  2078.9 1095.58 2078.75
 1104.08 2078.74 1108.24 2078.74 1114.37 2078.51 1121.45  2078.3  1127.2 2078.12
 1141.67 2078.41 1142.81 2078.43 1145.48 2078.39 1156.32 2078.23 1159.36 2077.84
 1164.75 2077.24 1167.28 2077.01 1170.51 2076.65 1186.53 2076.23 1192.29 2076.05
 1192.94 2076.25  1196.6 2077.19 1201.32 2077.55 1212.57 2078.14  1217.7 2078.19
 1222.73 2078.14 1242.34 2077.83 1245.62 2077.81 1250.99 2077.74 1267.75 2077.51
 1277.71 2077.45  1295.9 2077.39 1330.83 2077.43 1334.78 2077.42 1336.18 2077.39
 1346.96 2077.12 1349.87 2076.63 1353.34 2075.96 1360.08 2076.26 1364.14 2076.44
 1369.38 2076.42 1384.69 2076.36 1391.82 2076.35 1395.55 2076.37 1402.48 2076.53
 1405.99 2076.62 1414.53  2076.6 1421.07 2076.63 1424.99 2076.57 1439.52 2076.46
 1441.51 2076.44 1442.56 2076.44 1454.88 2076.53 1455.55 2076.53  1455.9 2076.53
 1470.06 2076.33 1470.95 2076.35 1480.95 2076.55 1497.24 2076.52 1500.21 2076.52
 1502.76 2076.53 1523.13 2076.56 1524.52 2076.51 1535.82 2076.16 1540.57  2075.9
    1545 2075.64  1547.3 2075.48 1551.18 2075.19 1563.88 2075.06 1566.89 2075.04
 1592.38 2075.02 1592.78 2075.02 1593.08 2075.02 1605.53 2074.98 1611.09  2075.1
 1616.69 2075.24 1630.77 2075.32 1639.78 2075.45 1651.41  2075.7 1663.88  2075.7
 1677.07 2075.75 1698.28 2075.63 1708.17 2075.53 1733.98 2075.34  1739.9 2075.29
 1757.28 2075.33 1768.89 2075.36 1769.64 2075.36 1770.68 2075.34 1788.18 2074.97
 1792.98 2075.87  1795.6 2076.29 1800.06 2076.45 1812.88 2077.07 1828.18 2077.03
 1837.03 2076.88 1844.46 2076.93 1867.07 2077.33 1888.52 2077.16 1899.12 2077.24
 1928.63 2076.72 1937.18 2076.67 1955.74 2077.04 1963.35 2076.77 1970.49 2076.86
 1972.13 2076.88  1973.7 2077.03 1979.34 2078.48 1984.62 2079.05 1993.51 2080.68
 2004.44 2082.35 2006.01 2082.61 2010.24 2083.34 2016.59  2084.8 2019.64 2084.99
 2029.08 2086.88 2034.76 2087.82 2038.79 2088.47 2044.37 2089.52  2053.3  2091.4
 2063.63 2094.31 2066.32 2095.17 2067.17  2095.3 2079.61 2095.83 2092.87 2096.15
 2102.03 2096.27 2107.95  2096.3 2113.92 2096.32  2114.9 2096.33 2116.07 2096.31
 2123.75 2096.42 2124.61 2096.43 2125.33 2096.52 2129.64 2096.91 2130.95 2097.04
 2131.16 2097.05 2146.72 2097.23  2156.9 2097.37 2169.35 2097.57 2178.42 2097.63
 2181.47 2097.59  2184.1 2097.59 2202.27 2097.28 2209.23 2097.06 2217.99 2096.75
 2234.77 2096.46 2241.72  2096.3 2248.12 2096.17 2268.75 2095.89 2281.83 2095.85
 2282.98 2095.83 2297.29 2096.28 2298.69 2096.33 2300.47  2096.4 2314.67 2096.95
 2315.35 2096.98 2328.14 2097.58 2332.55 2097.75 2339.83 2097.81 2339.96 2097.81
 2343.29 2098.08 2348.79 2098.25 2353.04 2098.38  2372.1 2099.23 2372.46 2099.26
 2373.74 2099.27 2377.15 2099.28 2398.68 2099.46 2406.48 2099.36 2413.28  2099.2
  2427.4  2098.9 2428.94 2098.94 2444.41 2098.79 2448.24 2098.64  2455.8 2098.38
 2461.14 2098.26 2465.56 2098.21  2475.6 2097.96 2479.65 2097.89 2483.07 2097.52
 2484.72 2097.34 2486.07 2097.11 2488.97 2096.64 2491.26 2096.43 2496.72 2095.93
 2506.23 2096.33 2512.28 2096.62 2517.49 2096.93 2521.83 2097.22 2524.19 2097.55
 2526.26 2097.85 2533.95  2098.3 2535.38  2098.4 2536.43 2098.57  2539.9 2099.12
 2543.81 2099.32  2545.4  2099.4 2546.86 2099.42 2554.88 2099.52 2566.43 2099.07
 2566.88 2099.06 2568.66 2098.98 2587.12 2098.25 2589.19 2098.08 2591.91 2097.88
 2596.31 2097.25 2598.02 2097.02 2602.63 2101.17 2603.47  2101.7  2604.6 2103.02
 2606.21 2104.42 2610.99 2108.67 2611.93 2109.38 2617.18 2111.01 2620.15 2111.86
 2625.34 2113.75 2632.05 2115.32 2634.89 2115.96 2640.19 2117.13 2646.99 2118.68
 2652.79 2120.64 2653.48 2120.89 2655.19 2121.01  2655.3 2121.02

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04 1044.46    .035 1757.28     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       1044.46 1757.28           147.23  183.36  188.51             .1       .3

CROSS SECTION


RIVER: Hassayampa
REACH: 1                   RS: 52.881

INPUT
Description:
Station Elevation Data     num=      337
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 2124.82    4.85 2124.32   10.58 2123.51   12.33 2122.79   18.39 2120.55
   30.85 2114.47   34.72 2112.53   43.22 2107.97   52.28  2103.6   56.95 2101.15
   69.83 2095.29   73.92 2093.28   88.74 2086.88   91.43 2085.59    94.3 2083.78
  102.51 2078.87  103.22 2078.48  104.72 2077.88  106.78 2077.88  113.45 2077.93
  119.46 2077.92  122.04  2077.9   125.8 2077.31  133.82 2076.06  139.83 2076.12
  144.61 2076.25  167.46 2076.08   171.7 2076.04  172.95 2076.03  192.59 2075.88
  204.46 2075.81  214.71  2075.8  241.08 2075.99   243.9 2075.98  246.39 2075.97
  258.35 2075.82  269.31 2074.87  271.95 2074.64  274.66 2074.77  275.76 2074.82
  277.48 2075.03  283.39 2075.58  289.65  2075.7  291.19 2075.73  292.06 2075.74
   318.1 2076.08  319.79  2076.1  320.02 2076.11  320.12 2076.11   353.2 2076.46
  355.67 2076.46  383.87 2076.35  388.55 2076.39  395.84 2076.41  435.84 2076.65
  448.35 2076.71  472.24 2076.71  488.78 2076.76  521.12 2077.03  542.99 2076.98
  571.22 2077.03   585.1 2077.08  604.02 2077.07  623.92  2077.1  647.77 2077.44
  664.45 2077.58  689.16 2077.88  705.94 2077.99  736.47 2077.95   748.2 2077.99
   780.9 2078.28   790.5 2078.34  800.99 2078.36  829.38 2078.25  835.75 2078.31
  869.22 2078.52   875.1 2078.55  911.32 2078.82  915.31 2078.82  924.83  2078.9
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937	2079	943.7	2078.83	945.2	2078.78	950.91	2078.46	954.94	2078.72
959.66	2078.95	967.62	2078.98	971.37	2079	974.11	2078.86	978.75	2078.63
985.2	2078.69	998.76	2078.69	1004.77	2078.76	1009.02	2078.35	1010.26	2078.22
1027.26	2077.69	1028.05	2077.66	1028.79	2077.64	1031.2	2077.62	1038.62	2077.65
1042	2077.61	1046.09	2077.63	1055.05	2077.69	1067.48	2077.79	1076.12	2077.75
1093.18	2077.71	1100.44	2077.56	1104.15	2077.51	1116.13	2077.37	1123.64	2077.3
1130.37	2077.21	1156.13	2077.04	1157.13	2077.03	1157.67	2077.03	1157.89	2077.02
1158.52	2077.02	1181.83	2076.74	1183.72	2076.72	1194.75	2076.6	1198.51	2076.51
1200.69	2076.47	1205.17	2076.43	1213.43	2076.44	1217.94	2076.58	1227.56	2076.43
1234.05	2076.37	1241.97	2075.76	1242.76	2075.71	1243.32	2075.72	1249.45	2075.84
1254	2076.73	1254.21	2076.77	1255.16	2076.81	1261.51	2077.15	1263.75	2076.85
1265.84	2076.63	1272.72	2075.61	1278.3	2075.01	1285.44	2074.95	1287.39	2074.93
1300.59	2074.79	1301.73	2074.77	1303.72	2074.93	1310.1	2075.49	1319.88	2075.42
1326.35	2075.43	1331.5	2075.37	1339.96	2075.24	1352.1	2075.24	1352.59	2075.23
1353.03	2075.23	1365.57	2075.2	1365.86	2075.2	1375.82	2075.24	1382.57	2075.38
1389.86	2075.42	1398.91	2075.31	1402.43	2075.24	1408.92	2075.24	1414.02	2075.26
1427.93	2075.2	1434.63	2075.16	1438.08	2075.14	1443.4	2075.04	1452.16	2074.89
1460.39	2074.88	1464.12	2074.87	1466.13	2074.85	1473.28	2075.39	1476.91	2075.68
1483.58	2075.75	1500.21	2075.61	1502.45	2075.54	1511.03	2075.39	1511.9	2075.37
1512.9	2075.23	1518.57	2074.4	1519.52	2074.24	1521.35	2074.25	1530.85	2074.15
1554.35	2074.42	1554.44	2074.42	1569.8	2074.43	1586.33	2074.34	1587.68	2074.34
1588.33	2074.33	1592.68	2074.38	1615.68	2074.6	1618.16	2074.6	1622.01	2074.63
1649.42	2074.7	1662.96	2074.73	1684.42	2074.66	1697.82	2074.73	1718.38	2074.76
1722.69	2074.69	1744.71	2074.36	1748.27	2074.33	1757.92	2074.27	1767.16	2074.21
1768.03	2074.2	1773.98	2074.48	1783.34	2075.04	1801.5	2075.69	1812.07	2076.08
1820.06	2076.25	1830.48	2076.5	1833.32	2076.86	1834.21	2077.1	1835.76	2078.21
1839.91	2082.11	1841.25	2083.52	1841.72	2084.16	1846.14	2088.92	1846.82	2089.26
1848.09	2089.72	1852.09	2090.22	1852.87	2090.38	1856	2091.14	1856.53	2091.22
1857.39	2091.42	1858.36	2091.51	1859.62	2091.63	1860.87	2091.8	1862.62	2091.76
1864.93	2091.7	1867.78	2091.76	1871.87	2092.09	1880.13	2092.65	1880.77	2092.7
1880.98	2092.71	1889.64	2093.52	1890.22	2093.56	1890.91	2093.58	1908.26	2094.16
1916.23	2094.28	1926.78	2094.45	1930.83	2094.51	1933.46	2094.53	1948.76	2094.58
1951.38	2094.58	1951.72	2094.57	1953.85	2094.72	1961.59	2094.82	1967.43	2094.85
1971.98	2094.94	1981.56	2095.14	1986.68	2095.16	1991.77	2095.2	2003.23	2095.23
2020.06	2095.57	2023.76	2095.66	2027	2095.79	2045.37	2096.36	2052.26	2096.86
2065.97	2097.33	2071.67	2097.59	2075.84	2097.76	2086.01	2098.06	2093.06	2098.26
2095.8	2098.3	2108.82	2098.45	2115.61	2098.48	2118.17	2098.5	2125.49	2098.6
2137.84	2098.84	2144.85	2098.85	2155.55	2098.81	2171.15	2098.75	2179.43	2098.77
2197.95	2098.91	2220.61	2099.47	2224.79	2099.45	2245.16	2098.91	2248.39	2098.84
2254.59	2098.78	2256.3	2098.76	2258.2	2098.75	2262.14	2098.74	2280.34	2098.7
2290.33	2098.77	2310.26	2098.8	2318.35	2098.84	2329.47	2098.71	2330.31	2098.72
2331.87	2098.74	2332.99	2098.72	2337.4	2098.68	2341.56	2098.63	2348.85	2098.54
2358.04	2098.31	2359.36	2098.3	2359.96	2098.27	2362.01	2098.27	2368.25	2098.27
2369.43	2098.21	2371.82	2098.06	2373.75	2098.1	2388.2	2098.24	2401.37	2098.52
2424.3	2099.3	2442.25	2099.83	2451.91	2099.92	2459.09	2100.02	2462.37	2100.13
2476.8	2100.76	2487.93	2100.92	2490.47	2100.94	2501.09	2100.79	2514.56	2100.56
2517.33	2100.48	2537.63	2096.84	2538.11	2096.78	2538.62	2096.72	2538.96	2096.78
2544.75	2097.92	2546.89	2098.29	2553.95	2099.73	2574.17	2099.69	2577.76	2099.76
2578.76	2099.74	2580.85	2099.67	2598.32	2099.2	2604.85	2097.71	2605.52	2097.56
2606.35	2097.35	2606.55	2097.31	2606.65	2097.36	2608.74	2098.38	2609.17	2098.33
2609.54	2098.29	2610.7	2099.45	2617.34	2105.75	2626.95	2114.3	2627.5	2114.78
2627.94	2114.94	2630.54	2115.77						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	1046.09	.035	1722.69	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1046.09	1722.69	166.57	181.07	194.6	.1 .3

CROSS SECTION

RIVER: Hassayampa
REACH: 1 RS: 52.847

INPUT
Description:
Station Elevation Data num= 276

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2107.37	4.11	2107.05	4.27	2107.03	4.95	2107.04	24.45	2107.02
26.99	2106.95	38.43	2107.44	40.11	2107.35	41.1	2107.36	45.72	2107.36
51.73	2107.59	52.37	2107.6	53.37	2107.36	59.21	2105.05	62.69	2103.52
68.74	2101.06	75.05	2098.15	76.89	2097.34	82.61	2095.17	85.33	2093.94
88.47	2092.52	97.27	2088.78	100.45	2087.26	104.04	2083.99	105.81	2082.57
106.99	2081.31	108.87	2080.49	109.79	2080.06	113.92	2080.21	116.13	2080.3
117.87	2080.25	123.71	2080.06	125.46	2080.3	128.1	2080.91	136.09	2080.68
143.7	2079.89	153.64	2079.14	156.9	2078.93	163.7	2078.44	168.46	2078.06
188.51	2077.26	196.68	2076.96	215.86	2076.11	226.84	2075.51	242.26	2074.87
245.94	2074.69	247.85	2074.43	251.86	2073.84	254.61	2073.85	256.03	2073.82
264.56	2074.24	271.52	2074.79	281.59	2075.1	287.09	2075.33	292.96	2075.45
320.3	2075.89	329.12	2075.96	391.98	2076.17	394.7	2076.18	396.38	2076.18
405.47	2076.18	441.48	2076.18	455.04	2076.23	481.38	2076.33	502.15	2076.36
515.32	2076.37	536.08	2076.36	558.72	2076.45	574	2076.48	597.25	2076.75
634.91	2077.02	651.5	2077.1	656.51	2077.11	697.13	2077.31	699.14	2077.32
716.35	2077.32	738.2	2077.31	740.36	2077.28	775.02	2077.36	781.96	2077.36
823.77	2077.37	830.91	2077.52	844.6	2077.43	858.54	2077.46	879.13	2077.58
885.66	2077.63	889.7	2077.66	909.49	2077.66	925.33	2077.72	928.86	2077.67

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  932.85 2077.63  935.45 2077.54  941.73 2077.26  952.41 2077.74  958.93 2077.88
  979.89 2077.94  988.76 2077.94   989.3 2077.95  990.73 2078.52 1002.74 2083.41
 1003.91 2083.46 1012.24 2083.76 1015.01 2083.73 1020.02 2083.67 1021.65 2083.66
 1033.95 2079.98  1034.3 2079.87 1034.41 2079.85 1034.46 2079.84 1036.22 2079.59
 1047.582077.986  1054.7 2076.98 1057.03 2076.93 1073.34 2076.64  1081.5 2076.64
 1082.99 2076.81 1087.65 2077.28  1088.4 2077.36 1088.77 2077.38 1090.62 2077.39
 1097.64 2077.42 1111.38 2077.44 1117.72 2077.39 1120.88  2077.4 1125.61 2077.27
 1141.41 2077.15 1148.22 2076.96 1158.75 2076.66  1161.7 2076.45 1174.07 2075.73
 1174.49 2075.74 1174.78 2075.74 1176.54 2075.76  1186.8 2075.88 1190.57 2075.77
 1193.49 2075.46 1196.29  2075.5 1203.31 2075.59 1206.26 2075.93 1208.96  2076.2
 1213.09 2076.18 1217.35 2076.15 1223.28 2076.06 1236.93 2075.76 1238.95 2075.69
 1242.75 2074.97 1245.14 2074.51 1260.96 2074.87  1261.7 2074.88 1261.93 2074.88
 1263.45 2074.84 1276.64 2074.37 1282.19 2074.26 1285.47  2074.1 1288.37 2073.98
 1294.05 2074.08 1300.94 2074.21 1303.67  2074.2 1315.82 2074.16 1322.35 2074.17
 1329.32 2074.19 1338.96 2074.21 1341.73  2074.2 1345.32 2074.21 1351.46 2074.26
 1361.43 2074.17 1368.24 2074.16 1381.69 2074.15 1384.49 2073.92 1387.52 2073.68
 1390.85 2073.71 1405.76 2073.82 1410.88 2073.91 1412.17 2073.92 1418.08 2073.94
 1419.25 2073.93 1424.64 2073.83 1433.12    2074  1436.8 2074.08 1437.99 2074.08
 1446.27 2073.85 1446.53 2073.85  1448.5 2073.81 1461.54 2073.54 1463.27 2073.36
 1468.16 2073.15 1475.51 2073.16 1479.86 2073.17  1482.8  2073.2 1494.78 2073.24
 1503.12 2073.22 1508.59 2073.23 1514.43 2073.46 1518.69 2073.59 1522.43 2073.63
 1540.98 2073.59 1548.95 2073.51 1559.56  2073.4 1566.87 2073.48 1579.47 2073.52
 1585.78 2073.56  1595.1 2073.45 1602.03 2073.38  1617.4 2073.34    1626 2073.31
 1628.28 2073.31 1630.81 2073.31 1646.48 2073.16 1654.62 2073.07 1656.04  2073.7
 1656.872074.262 1660.09 2076.44 1660.17 2076.52 1660.94 2077.15 1666.24 2081.49
 1670.36 2088.31 1671.43 2090.16 1671.58 2090.22 1675.88 2092.49 1682.32 2092.51
 1684.23 2092.51 1686.57 2092.42 1691.87 2092.08  1699.5 2091.52 1704.44 2091.12
 1708.48 2090.74 1719.42 2090.01 1725.69  2089.7 1731.13 2089.48 1737.09 2089.29
 1743.23 2089.19 1751.92 2088.64 1756.56 2088.52 1770.41 2089.26 1778.54 2089.61
 1797.12 2091.06 1808.61 2092.26 1812.74 2092.61 1823.03 2093.08 1835.57 2093.78
 1842.75 2094.17 1853.17 2094.55 1860.22 2094.78 1864.77 2094.87 1872.33 2094.94
 1878.02 2094.93 1883.44 2094.92 1891.94 2095.14 1907.02 2095.63  1914.6 2095.78
 1919.78 2096.02 1922.14 2096.14 1934.25 2098.11 1934.26 2098.11 1934.27 2098.11
 1948.99 2100.03 1952.26 2100.27 1954.13 2100.45 1958.39 2100.84 1961.72 2101.12
 1963.94 2101.08 1970.51 2101.11 1972.95 2101.13 1977.04 2101.02 1983.28 2100.74
 1984.12 2100.78 1986.07 2100.66 2001.02 2099.77 2010.97 2099.13 2012.51 2099.07
 2015.83 2099.02 2044.41  2098.6 2073.33 2097.99 2086.73 2097.76 2109.48 2097.55
  2119.1  2097.5

Manning's n Values         num=       3
      Sta   n Val      Sta   n Val      Sta   n Val
        0     .04 1047.58    .035 1656.87     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       1047.58 1656.87            159.96  176.56  163.61             .1      .3

CROSS SECTION


RIVER: Hassayampa
REACH: 1                   RS: 52.813

INPUT
Description:
Station Elevation Data     num=     259
      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
        0 2085.42     4.19 2085.28    23.53 2084.36      24 2084.34    24.15 2084.34
    39.87 2083.89    42.77 2083.82    46.12 2083.26    47.46 2083.07    49.37 2083.01
    55.69 2082.81    58.65 2082.71    59.07 2082.71    59.35 2082.69    63.62  2082.6
    66.15 2082.47     71.8 2082.31    75.36 2082.15    79.03 2082.03    91.75  2081.6
     94.9 2081.61    96.33 2081.46    96.59 2081.44    97.57 2081.11   100.03 2080.27
   107.56 2080.52   107.77 2080.53   107.79 2080.53   107.84 2080.53   117.94 2080.35
   124.14  2079.9   133.56 2079.22   139.02 2078.48   143.55 2078.06    156.5 2077.54
   168.37 2076.99   189.65 2076.44   199.68 2076.21   220.06 2075.02   225.98 2074.84
   230.99 2074.66   247.13 2074.25   253.82  2074.2   267.34  2074.2   269.63 2074.36
   273.87 2074.75   282.64 2074.74   288.71 2074.82   313.83 2075.02   317.48 2075.04
   350.35 2075.31    357.6 2075.37   358.42 2075.38   389.05 2075.59   394.44 2075.58
   420.88 2075.43   434.79 2075.38   477.38 2075.29   500.22 2075.31   512.24 2075.15
   526.53 2075.19   545.83 2075.06    561.3 2075.29   602.46 2075.96   606.62 2075.99
    644.3 2075.96   645.35 2075.96   650.22 2075.97   685.09  2076.1   691.46 2076.14
   726.86 2076.15    737.5 2076.12   762.44 2076.14   777.46 2076.16   794.56 2076.16
   813.36 2076.08   839.23 2075.98   848.46 2075.96   855.03  2076.1   862.27 2076.36
   870.26 2076.19   872.26  2076.1   877.08 2076.13   885.22 2076.33   891.71 2076.35
   899.93 2076.37   909.89 2076.28   923.68 2076.31   930.92 2076.33   941.23 2076.31
   943.43 2076.31    948.7 2077.83   952.31 2078.88   954.89 2079.75   962.26 2082.89
   965.31 2083.09   966.51 2083.17   971.78 2083.49   977.58 2083.54   981.57 2083.56
   984.03 2082.84   993.95  2079.6 1000.68 2078.37 1008.452076.997  1010.7  2076.6
  1014.74 2076.44 1023.99 2076.03   1028.8 2076.07 1036.14 2076.06 1037.79 2076.01
   1040.9 2075.92 1055.82 2075.52 1077.95 2075.41 1083.63 2075.35 1106.18 2074.77
  1115.35  2074.6 1132.94 2074.66 1145.92 2074.48 1151.93 2074.48 1157.69 2074.05
  1158.66 2074.01 1160.75 2074.04  1168.9 2074.17 1174.02 2073.42 1174.93 2073.27
  1175.48 2073.27 1179.44 2073.22 1187.48 2073.18  1191.7 2073.17 1200.78 2073.33
  1203.22 2073.38 1225.64 2073.43 1232.09 2073.47 1235.49 2073.45 1243.75 2073.26
  1250.03 2072.92 1251.64 2072.83 1252.28 2072.81 1261.64 2072.61  1261.8 2072.61
  1271.76 2072.56 1272.02 2072.58 1278.85 2072.94 1285.78    2073 1288.06    2073
  1290.93 2072.95 1296.92 2072.85 1305.79 2072.82 1316.15 2072.79 1319.72 2072.79
   1333.7 2072.85 1334.82 2072.85 1336.97 2072.85 1349.74 2072.91 1362.87 2072.98
  1365.73 2072.99 1386.68 2073.06 1388.32 2073.06 1398.38 2073.03 1415.37 2072.93
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 1420.18 2072.88 1429.92 2072.72 1434.21 2072.54  1434.7 2072.52 1435.25 2072.53
 1459.67  2072.6 1467.26 2072.62 1474.35 2072.55 1485.15 2072.53 1490.27 2072.52
 1504.68 2072.28 1512.62 2072.22 1520.77 2072.18 1526.76 2072.27 1526.99 2072.27
 1527.52  2072.3 1529.132073.014 1530.52 2073.63  1532.3  2074.4 1537.49 2075.21
 1539.62 2075.51 1541.71  2075.8 1544.06 2075.97 1547.52 2076.55  1554.4 2078.77
  1555.2 2079.12 1555.79 2079.12 1561.55 2079.33 1567.81 2080.09 1568.15 2080.12
 1568.65 2080.18 1574.84  2081.1 1577.31 2081.68 1581.57 2082.54 1585.84  2082.5
 1590.31 2082.55 1596.32 2082.61 1602.09 2082.17  1605.4 2081.92 1606.22 2081.86
  1607.6 2082.01 1616.86 2082.39 1626.04 2083.56 1631.34 2083.87 1639.04  2084.8
 1640.36 2084.94 1644.16  2085.7 1648.41 2086.53 1649.48 2086.82  1650.8    2087
 1658.74 2087.48 1675.47 2088.21 1677.54 2088.31 1679.21 2088.47 1688.68 2089.19
 1694.09 2089.57 1701.93  2090.2 1710.06 2091.16 1712.85 2091.51 1719.64 2092.17
 1725.52 2092.75 1730.15 2093.21 1733.24 2093.61 1733.72 2093.63 1744.25 2093.99
 1750.04 2094.42 1750.51 2094.46 1751.94 2094.51 1753.45 2094.55 1765.13 2094.75
 1776.78 2095.14 1781.33 2095.22 1786.22 2095.29 1796.95 2095.38 1801.01 2095.28
 1815.21 2095.28 1823.13 2095.35 1834.08 2095.39 1851.31 2095.19    1856  2095.2
 1858.74 2095.15  1870.1 2095.09 1888.68 2095.14 1893.23 2095.24 1903.59 2095.61
 1909.07 2095.82 1909.64 2095.83 1911.03 2095.88 1915.89  2095.8 1916.82 2095.84
 1926.38 2096.24 1926.62 2096.45 1928.03 2097.46 1930.75 2098.14 1932.79 2098.59
 1933.49 2098.51 1935.83 2098.05  1936.9 2097.88 1937.09 2097.85

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04 1008.45    .035 1529.13     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       1008.45 1529.13           201.45   189.1   189.3             .1       .3

CROSS SECTION


RIVER: Hassayampa
REACH: 1                  RS: 52.778

INPUT
Description:
Station Elevation Data    num=     331
      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
        0 2124.71     5.04 2124.31     7.59 2124.08     9.36 2123.48    19.06 2119.93
     26.8 2116.91    31.56 2114.96    34.48 2113.89    45.16 2109.71    50.63 2106.99
    56.52 2104.54    64.71 2101.24    68.23 2099.58    70.94  2098.5    77.04 2095.72
    81.58 2093.77    81.62 2093.73    81.67  2093.7    81.97 2093.45    88.35 2088.15
     90.6 2086.27    96.76 2086.61    101.4 2086.84   103.29 2086.88   106.03 2086.94
    114.5 2087.11   116.18 2087.11   117.94 2087.19   120.73 2084.76   124.59 2083.08
   127.61 2080.96   133.32  2077.3   140.16 2075.45   143.68 2074.17   147.52 2073.38
   150.08 2072.67   154.42 2072.66   162.46 2072.75    166.7 2072.68   177.95 2072.65
   182.05 2072.62   189.56 2072.42   196.87 2073.12   198.19 2073.26   199.52 2073.29
   213.37 2073.57   214.49 2073.58   236.09 2073.93   248.29 2073.99   253.58 2073.94
   259.03 2073.94   267.67 2073.74   278.58 2073.75   289.91 2073.84   304.57 2073.67
    320.3 2073.98   331.16    2074   339.19 2074.08   374.18 2074.36   384.94 2074.36
   418.57 2074.31    429.7 2074.23   458.14 2074.34   470.79 2074.41   500.53 2074.48
   540.37 2074.43      549 2074.46   577.51 2074.45   582.53 2074.41   602.79 2074.61
   610.05 2074.71   637.68 2074.72   645.43 2074.69    671.1  2074.6   677.21 2074.57
   705.51 2074.85   710.04 2074.92   731.38 2075.07   732.97 2075.06   767.56 2075.17
    768.5 2075.18   799.97 2075.01   801.03    2075   815.46 2074.73   816.29 2074.68
   829.66 2074.05   830.27 2074.07   830.69 2074.07   843.29 2074.47   844.52  2074.5
   849.09 2075.84   855.04 2077.23   865.05  2080.4   866.03  2080.6   873.48 2080.68
   880.05 2080.75   880.61 2080.76   881.23 2080.75   882.86 2080.39   895.23 2077.64
   897.86 2077.19   918.382075.031   920.67 2074.79   920.89 2074.76   920.98 2074.75
   926.93 2074.24    929.8 2073.99   938.04 2073.69   942.09 2073.65   959.21 2073.58
   973.02 2073.42      987 2073.23   989.26 2073.24   993.93 2073.18 1007.65    2073
 1019.05 2073.06 1025.41 2073.06 1031.65 2073.13   1040.5  2073.2 1047.58 2072.84
 1057.79 2072.38 1062.37 2071.57 1065.06 2071.15 1068.57 2071.84 1070.69  2072.2
 1072.87 2072.27 1074.02 2072.46 1077.72 2071.75 1078.97  2071.4 1079.92 2071.42
  1084.5 2071.63 1089.23 2072.05 1102.18 2072.38 1108.73 2072.55 1113.05 2072.51
 1125.94 2072.36 1129.51 2072.18 1133.52 2072.03 1143.74    2072 1146.18 2071.99
 1148.33 2071.98    1151 2072.41 1152.12 2072.59 1157.24 2072.61  1163.3 2072.62
 1167.97 2071.61  1169.4 2071.32 1171.65 2071.17 1172.18 2071.14 1177.68 2071.12
 1187.12 2071.07 1207.16 2071.28 1213.58  2071.4 1228.75 2071.37 1248.42 2071.42
 1258.18 2071.37 1281.01 2071.28 1308.36 2071.23  1312.9 2071.24 1325.21 2071.18
 1340.69 2071.17 1354.76 2071.21 1358.12 2071.19 1376.95 2071.24 1383.94 2071.36
 1383.97 2071.36 1400.08 2071.81 1401.32 2071.95 1404.62 2072.24 1410.64  2072.4
 1413.55 2072.45 1416.34 2072.52 1421.19 2072.62 1424.13 2072.69 1424.95 2072.97
 1425.042072.997 1426.63 2073.48 1434.45 2074.27 1435.31 2074.39 1436.17 2074.45
 1448.53 2074.73 1451.46 2074.78 1452.21  2074.8 1463.58 2075.02 1467.76 2075.24
 1471.52 2075.32 1473.69  2075.4 1479.17 2075.58 1494.42 2076.15 1506.64 2076.58
 1507.98 2076.62 1516.44 2076.91 1517.77 2076.96 1525.43 2077.62 1533.34 2078.25
  1538.2 2078.58 1542.25 2078.89 1547.21 2079.28 1551.06 2079.36 1552.46 2079.38
 1554.92 2079.53 1565.14 2080.17 1570.01 2080.47 1570.59 2080.51  1571.3 2081.06
 1571.93 2081.62 1572.29 2081.57 1575.86 2080.89 1581.39 2081.05 1586.12 2081.33
 1593.14 2081.79  1600.6 2082.68 1601.57 2082.82 1602.71 2083.01 1618.75 2085.88
 1635.88 2089.68 1640.36 2090.93 1649.07 2092.44 1652.62 2093.09 1655.29 2093.27
 1663.04 2093.77 1681.95 2094.01 1683.04 2094.04 1685.86 2094.11 1694.17 2094.37
 1712.08 2094.34 1713.14 2094.36 1714.97 2094.18 1715.96 2094.16  1728.1 2093.67
  1728.7  2093.7 1737.52 2093.76  1739.4 2093.77 1739.99 2093.77 1755.23 2093.41
 1764.56 2093.35 1769.54 2093.27 1773.13 2093.22 1782.34 2093.32 1793.49 2093.36
 1802.25 2093.46 1820.72 2093.57 1823.22 2093.57  1824.7  2093.6 1826.23 2093.66
 1845.45 2094.52 1856.19    2095 1862.87 2095.24 1868.93  2095.3 1871.45 2095.33
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  1872.2 2095.32 1875.78  2095.5 1878.82  2095.4 1879.68  2095.4 1882.94 2095.35
 1889.03 2095.29 1891.42  2095.5 1892.34 2095.58 1892.74 2095.62 1893.04 2095.61
 1896.78 2095.49 1904.37 2095.37 1920.34 2095.38 1942.06 2095.38 1965.19 2095.62
 1973.61 2095.75 1977.96 2095.74 1979.85 2095.73 1982.97 2095.78 1987.12 2095.84
 1992.16 2095.85 2010.78 2095.69 2037.08 2095.44 2045.02 2095.33 2049.35 2095.19
  2056.2  2095.1 2059.58 2095.15 2069.73 2095.26 2073.33 2095.29 2081.62  2095.4
 2097.41 2095.65 2109.82 2095.92 2113.38 2095.95 2115.72 2095.98  2131.4 2096.14
 2134.88 2096.16 2135.69 2096.18 2146.97 2096.36 2157.84 2096.61 2161.48 2096.64
 2170.74 2096.64 2193.64 2096.71 2198.67  2096.8 2201.15 2096.83 2202.99 2096.86
 2205.76 2096.91 2220.07 2097.16 2238.91 2097.44 2246.39 2097.47 2248.03 2097.62
 2249.54 2097.62 2250.75 2097.59 2253.41 2097.36 2255.31 2097.19 2256.93 2097.16
 2264.09 2096.84 2268.24 2096.54 2270.71 2096.45 2279.87  2096.4 2285.95 2096.37
 2291.27 2096.38 2302.82 2096.29 2319.01  2096.2 2330.06 2096.22 2340.48 2096.27
 2368.32 2096.25 2370.93 2096.25  2376.7 2096.23 2393.41 2096.26 2404.33 2096.49
  2408.5 2096.61 2410.76 2096.67 2411.07 2096.68 2411.78 2096.56 2411.83 2096.55
 2412.09  2096.6 2416.58 2097.34  2421.5 2098.24 2425.58 2098.98 2450.71 2099.54
  2453.1 2099.58

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04  918.38    .035 1425.04     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        918.38 1425.04           230.42  199.13  165.32             .1       .3

CROSS SECTION


RIVER: Hassayampa
REACH: 1                   RS: 52.740

INPUT
Description:
Station Elevation Data     num=     348
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 2102.19    3.89 2101.85    7.33 2101.51    12.1 2100.49   23.89 2098.59
   30.38 2097.82   42.94 2095.98   44.51 2095.77    45.9 2095.51   58.42 2093.96
   62.65 2093.56   68.16  2093.2   74.83 2092.46   76.12 2092.38   77.36  2091.7
   79.88 2090.58   86.13 2090.86   90.17 2091.02    93.7 2091.14   97.39 2091.34
   99.95 2091.47   101.4 2091.79  101.99  2091.9  110.95 2089.01  113.43 2088.27
  116.59 2087.26  120.85 2086.04  123.53 2085.27  138.13 2078.91  143.43 2076.95
  154.37 2075.71  161.78 2075.21  191.63 2073.97  194.84 2073.84  215.95 2073.59
  221.96 2073.48  237.96 2072.97  238.72 2072.93  239.54 2072.88  253.62 2072.09
  259.11 2071.98  274.64 2071.82  295.23 2072.13  297.44 2072.17   298.7 2072.17
  316.52 2072.45  320.26 2072.48  346.64 2072.92  354.46    2073  378.69 2073.12
  389.01 2073.13  412.99 2073.05  423.85 2073.15  445.23 2073.11  461.59 2073.14
  482.31 2073.09  502.19 2072.88  519.53 2072.87   540.4 2072.82   554.3 2072.72
  576.72  2072.6   590.1 2072.55  610.72 2072.65  622.43 2072.62  650.87 2072.86
  685.28 2072.65  693.31 2072.69  699.63 2072.75  735.24 2073.09   738.3 2073.08
  749.27 2073.18  755.07 2073.07  756.13 2073.05  757.89    2073  767.26 2072.71
  774.68 2072.83  784.69 2072.99  788.03 2073.09  806.99 2073.69  815.04 2076.14
  816.14 2076.53  818.66 2077.71   821.3 2078.67  822.91 2078.88   825.5 2078.99
   826.5 2079.01   836.7 2079.17  840.92 2079.24  842.01 2079.04  844.22 2078.47
  846.93 2077.76  849.67 2077.22  851.35 2076.87  852.16 2076.72  863.52 2074.43
   873.8 2073.25  875.892073.003  876.68 2072.91  878.17 2072.77  887.92 2071.78
  894.38 2071.81  899.99 2071.73  903.72 2071.47  908.33 2071.13  912.07 2071.34
  916.98 2071.48  924.84 2071.39  926.69 2071.39  941.37 2071.55  947.35 2071.62
  959.43  2072.1  960.32 2072.14  961.25 2072.13  974.92 2072.11  978.56 2072.13
  986.27 2072.32  998.22 2071.96 1002.59 2071.78 1007.47 2070.75 1008.91 2070.43
 1010.78  2070.4 1020.77 2070.22 1021.95 2070.51 1026.08 2071.59 1037.66  2071.9
 1037.75  2071.9 1037.79  2071.9 1038.78 2071.85 1051.24 2071.18 1051.78 2071.04
 1056.87 2069.72 1059.92 2069.76 1077.09 2069.97 1092.25 2070.18 1098.56 2070.23
  1119.6 2070.41  1131.9 2070.51 1135.65 2070.59 1165.78 2070.93 1179.17 2071.03
 1195.58 2071.19 1219.27  2071.2  1227.5 2071.19 1255.21 2071.01 1255.46 2071.01
  1256.3 2071.01 1275.62 2070.99 1283.94 2070.89 1294.11 2070.86 1301.41 2070.65
 1317.71 2070.52  1322.8 2070.56 1328.64 2070.61 1335.59 2070.61 1335.95 2070.91
 1336.052070.994 1336.53  2071.4 1341.93 2071.63 1344.78 2071.75 1345.46 2071.78
 1346.48 2071.82 1347.29 2071.82 1362.57 2071.83 1367.59 2072.01  1382.1 2072.53
 1388.98 2072.77 1391.29 2072.88 1401.96 2073.29 1406.19 2073.36 1424.51 2073.62
 1433.55 2073.38  1450.1 2073.56 1459.53 2073.61 1467.23 2073.97 1476.91 2074.31
 1482.97 2074.52 1486.62 2074.65 1488.08 2075.06 1492.02 2075.75  1501.4  2077.2
  1505.9 2077.65 1508.46 2077.99  1513.4 2078.29 1515.67 2078.15 1517.24 2078.04
 1520.21 2077.87 1521.08 2077.92 1521.71 2077.97 1526.57 2078.28    1530  2078.5
 1532.56  2078.5 1539.35 2078.46 1541.43 2078.45 1546.95 2078.34 1547.19 2078.32
 1556.02 2078.19  1561.5 2078.14 1571.25 2077.99 1575.05 2078.14 1577.59 2078.12
 1578.06 2078.14  1579.1 2078.21 1580.61 2078.56 1582.88 2078.69 1589.02 2079.22
 1594.12 2079.61 1595.21 2079.68 1603.11 2079.89 1603.72 2079.93 1604.35 2079.95
 1609.36 2080.29 1609.63 2080.31 1614.67 2080.65 1614.95 2080.68 1615.29 2080.71
 1623.73 2081.34  1624.8 2081.44 1625.51 2081.59 1627.87 2082.08 1629.16 2082.38
 1630.89 2082.72 1632.57 2082.97 1633.26 2083.07 1637.85 2083.75 1639.92 2084.02
  1645.2 2084.68 1648.67 2085.01 1653.72 2085.65  1657.5 2085.98 1659.22 2086.12
 1666.23 2086.91 1666.71 2086.96 1666.89 2086.97 1675.46 2087.78 1677.02 2088.16
 1678.93 2088.27 1680.95 2088.45 1682.22 2088.67  1683.6 2088.78  1693.7 2090.11
 1694.22 2090.19 1698.48 2092.02 1700.02 2092.73 1701.79 2092.93 1709.82 2093.17
 1711.61 2093.26 1713.92 2093.37  1731.8 2094.06 1739.59 2094.43 1741.21 2094.54
 1741.93 2094.58 1742.68 2094.61 1743.08 2094.84 1749.59 2095.16 1769.55 2095.89
 1773.63 2095.84 1784.44 2095.77 1793.21  2095.2 1793.22  2095.2 1793.33  2095.2
  1799.5 2095.25 1801.05 2095.25 1821.21 2095.23 1831.47 2095.11 1855.39 2095.26
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1868.95	2095.29	1873	2095.34	1874.82	2095.41	1878.47	2095.33	1880.52	2095.3
1887.68	2095.32	1896.56	2095.33	1897.35	2095.35	1904.65	2095.28	1907.66	2095.19
1912.08	2095.17	1917.67	2095.2	1923.58	2095.15	1924.76	2095.13	1929.56	2094.3
1935.3	2093.67	1944.72	2093.7	1946.24	2093.73	1947.22	2093.74	1958.21	2093.87
1962.95	2093.93	1966.42	2094.02	1974.44	2094.32	1975.57	2094.24	1991.64	2093.9
1992.2	2093.9	1992.64	2093.89	2007.97	2093.68	2022.91	2093.36	2028.8	2093.24
2034.96	2093.11	2037.52	2093.07	2049.81	2092.75	2053.4	2092.65	2058.81	2092.79
2068.58	2092.99	2073	2093.04	2079.62	2092.93	2084.53	2093.02	2092.81	2093.26
2102.59	2093.48	2104.76	2093.67	2111.29	2093.93	2111.52	2093.94	2111.83	2093.95
2120.1	2094.11	2130.31	2094.2	2130.55	2094.2	2146.48	2094.37	2150.66	2094.35
2176.92	2094.49	2190	2094.49	2207.97	2094.71	2219.66	2094.9	2227.51	2094.76
2233.57	2094.71	2236.28	2094.64	2247.94	2094.26	2259.19	2094.15	2269.55	2094.08
2278.42	2093.87	2286.15	2093.89	2291.67	2093.93	2298.51	2093.81	2308.26	2093.73
2323.43	2093.74	2332.01	2093.73	2338.88	2093.85	2352.54	2093.92	2357.1	2093.93
2363.06	2094.1	2363.82	2094.1	2364.24	2094.13	2365.11	2094.15	2366.06	2094.17
2369.01	2094.66	2378.84	2096.29	2382.27	2096.94	2387.85	2097.99	2400.66	2098.38
2423.4	2099.06	2447.66	2099.79	2458.42	2100.11				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	875.89	.035	1336.05	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
875.89	1336.05	215.74	249.5	258.82	.1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
1541.13	2458.42		F

CROSS SECTION

RIVER: Hassayampa
REACH: 1 RS: 52.693

INPUT
Description:
Station Elevation Data num= 315

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2088.94	.47	2088.89	5.17	2088.32	10.08	2087.8	24.08	2086.88
27.11	2086.69	28.54	2086.59	30.87	2086.5	44.06	2086.06	51.56	2085.6
54.04	2085.4	63.62	2084.85	65.23	2084.79	66.02	2084.72	69.44	2084.43
79.66	2083.5	80.54	2083.56	84.3	2083.71	88.63	2083.88	91.32	2084.53
94.28	2085.23	96.91	2086.15	99.61	2087.05	108.17	2087.42	109.44	2087.48
109.77	2087.5	115.38	2087.38	118.45	2087.3	120.84	2087.2	121.35	2087.17
133.34	2080	141.46	2075.6	150.21	2075.64	163.05	2075.05	174.52	2074.41
191.05	2073.61	200.22	2072.86	212.03	2072.39	217.69	2072.34	226.05	2072.07
229.76	2071.95	246.62	2071.76	259.61	2071.75	267.41	2071.5	273.88	2071.47
280.76	2071.63	292.06	2071.8	307.66	2071.99	308.54	2072.01	310.84	2072.02
343.59	2072.06	350.93	2072.07	374.3	2072.22	394.38	2072.13	401.62	2072.12
415.92	2072.18	421.68	2072.18	428.15	2071.88	444.31	2071.19	449.56	2071.12
466.7	2071.37	484.53	2071.5	506.83	2071.33	517.98	2071.3	549.06	2071.4
557.86	2071.45	564.64	2071.48	592.68	2071.41	596.12	2071.44	627.87	2071.89
628.31	2071.89	628.82	2071.89	650.03	2071.83	656.97	2071.7	660.2	2071.66
663.67	2071.72	669.85	2071.85	678.66	2072.04	689.42	2071.91	692.96	2071.9
694.41	2072.29	699.9	2073.86	703.92	2074.97	708.17	2076.08	710.36	2076.24
717.67	2076.76	726.88	2074.88	735.14	2072.59	740.34	2071.72	746.16	2071.32
749.28	2070.94	751.33	2070.7	751.39	2070.69	751.56	2070.69	761.21	2070.46
766.51	2070.32	773.81	2070.13	779.88	2070.24	783.01	2070.29	785.06	2070.45
793.95	2070.72	797.96	2070.56	803.54	2070.4	806.7	2070.58	810.58	2070.79
816.81	2071.06	818.18	2071.09	819.89	2071.07	824.53	2070.98	827.06	2070.65
827.68	2070.56	828.06	2070.52	844.23	2068.91	851.09	2068.97	860.31	2069.05
881.65	2068.94	882.74	2068.94	882.96	2068.94	900.52	2069.1	901.18	2069.1
902.75	2069.14	919.07	2069.45	933.47	2069.55	944.18	2069.67	963.89	2069.77
967.37	2069.78	983.99	2069.76	995.18	2069.76	995.89	2069.76	1005.5	2069.95
1010.3	2070.04	1010.68	2070.05	1031.98	2070.16	1035.03	2070.23	1046.22	2070.43
1052.23	2070.38	1057.75	2070.34	1074.21	2070.31	1086.27	2070.31	1108.49	2070.31
1112.36	2070.31	1127.04	2070.16	1132.71	2070.1	1133.78	2070.09	1134.26	2070.08
1146.69	2069.97	1146.87	2069.95	1151.4	2069.54	1153.8	2069.5	1159.95	2069.5
1176.57	2069.49	1183.93	2069.47	1189.95	2069.45	1192.15	2069.45	1192.92	2069.56
1194.57	2069.79	1198.51	2069.94	1207.94	2070.31	1211.15	2070.29	1224.44	2070.23
1266.75	2072.37	1268.03	2072.43	1268.48	2072.42	1287.92	2072.25	1289.47	2072.3
1301.17	2072.3	1323.6	2072.28	1327.18	2072.08	1333.74	2072.08	1352.01	2072.19
1364.79	2072.21	1374.24	2072.17	1383.7	2072.17	1404.04	2072.03	1435.73	2072.11
1442.96	2072.09	1456.92	2072	1474.33	2071.89	1479.85	2071.85	1519.37	2071.59
1519.39	2071.59	1519.41	2071.59	1519.64	2071.58	1544.5	2071.46	1548.02	2071.4
1557.46	2071.26	1566.61	2071.23	1567.28	2071.25	1569.62	2071.28	1571.81	2071.41
1591.36	2072.14	1613.25	2072.54	1616.91	2072.62	1624.21	2072.77	1634.2	2073.04
1639.82	2073.2	1641.81	2073.23	1642.48	2073.24	1647.91	2073.33	1652.83	2073.32
1661.51	2073.84	1666.78	2074.24	1678.8	2075.06	1683.57	2075.53	1690.33	2076.33
1699.84	2077.89	1703.25	2078.81	1716.61	2081.95	1720.3	2082.68	1726.58	2083.94
1731.25	2085.38	1740.53	2088.3	1740.95	2088.53	1741.2	2088.68	1744	2090.7
1745.61	2091.16	1747.16	2091.77	1748.02	2091.68	1751.12	2091.99	1753.83	2092.32
1755.39	2092.49	1755.78	2092.52	1756.3	2092.59	1760.8	2093.11	1764.1	2093.79
1765.76	2094.14	1766.65	2094.15	1767.65	2094.08	1771.65	2092.81	1772.29	2092.5
1772.61	2092.45	1777.94	2092.88	1782.67	2093.19	1787.06	2093.54	1791.49	2093.78
1793.71	2093.74	1802.63	2093.69	1816.28	2093.92	1818.46	2093.66	1824.56	2093.49
1843.15	2093.12	1847	2093.04	1850.16	2092.68	1852.48	2092.5	1853.29	2092.35
1855.76	2091.87	1858.12	2091.8	1869.61	2091.57	1878.18	2091.28	1880.89	2091.23

1898.38	2091.02	1899.18	2091	1899.33	2091	1899.53	2090.99	1914.62	2090.62
1920.63	2090.47	1928.36	2090.44	1932.4	2090.35	1942.09	2090.33	1944.09	2090.3
1948.67	2090.27	1953.17	2090.12	1954.52	2090.07	1957.93	2089.95	1962.27	2089.8
1965.8	2089.68	1965.84	2089.68	1965.89	2089.68	1971.7	2089.6	1973.62	2089.53
1987.54	2089.61	1988.14	2089.62	1999.23	2090.11	2007.69	2090.49	2008.28	2090.53
2019.9	2091.29	2027.94	2091.81	2036.91	2092.22	2044.17	2092.37	2050.17	2092.5
2064.63	2092.58	2071.01	2092.58	2074.23	2092.62	2079.76	2092.67	2102.78	2092.84
2104.02	2092.91	2114.24	2092.9	2125.46	2092.94	2137.99	2092.83	2141.37	2092.8
2168.17	2092.66	2183.76	2092.42	2201.38	2092.16	2213.33	2091.97	2237.31	2091.32
2250.32	2090.98	2252.9	2090.92	2263.56	2090.84	2270.86	2090.7	2276.44	2090.63
2299.61	2094.44	2305.69	2095.44	2307.1	2095.7	2314.84	2097.14	2317.77	2097.23
2328.61	2097.55	2348.08	2098.14	2353.42	2098.3	2366.5	2098.69	2404.14	2099.83
2407.44	2099.18	2411.24	2098.44	2423.23	2096.67	2426.14	2096.25	2426.43	2096.2

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	749.28	.035	1183.93	.04

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

749.28	1183.93	188.23	226.31	225.72	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
1636.8	2426.43		F

CROSS SECTION

RIVER: Hassayampa
REACH: 1 RS: 52.650

INPUT
Description:
Station Elevation Data num= 334

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2108.24	9.12	2105.75	14.98	2104.22	30.65	2100.54	35.41	2099.36
43.19	2097.67	46.09	2097.18	47.62	2096.8	52.2	2096.16	58.05	2095.34
65.92	2094.44	72.29	2093.97	75.56	2093.74	85.77	2092.86	88.89	2092.83
89.72	2092.88	92.89	2092.39	98.94	2091.48	100.13	2091.5	103.9	2091.57
109.74	2092.13	111.4	2092.27	115.12	2092.39	119.1	2092.53	120.45	2092.51
122.51	2092.5	124.95	2091.76	127.69	2090.98	130.43	2089.66	134.28	2088.08
135.09	2088.14	135.86	2088.17	140.18	2088.01	143.81	2088.06	146.49	2087.8
153.02	2085.38	158.15	2082.84	160.78	2082.24	170.72	2077.57	171.32	2077.42
174.63	2076.26	184.49	2072.48	188.4	2070.9	188.77	2070.78	215.7	2070.6
216.48	2070.59	218.8	2070.59	230.29	2070.62	237.15	2070.57	240.19	2070.4
252.99	2069.72	263.7	2070.25	269.02	2070.73	274.48	2070.86	280.78	2071.01
296.91	2070.93	312.22	2070.86	322.47	2071.03	326.91	2071.13	346.31	2070.65
349.04	2070.54	361	2070.61	361.52	2070.61	386.02	2070.52	388.01	2070.51
408.23	2070.64	410.23	2070.64	431.11	2070.33	436.67	2070.33	445.04	2070.38
450.2	2070.04	455.05	2069.86	464.33	2069.81	473.51	2069.81	485.11	2069.86
494.47	2069.85	505.98	2069.75	509.6	2069.76	514.5	2069.92	522.7	2070.19
541.32	2070.7	541.9	2070.71	551.59	2070.73	563.32	2070.77	563.8	2070.77
564.94	2070.74	578.97	2070.43	585.9	2070.24	592.23	2070.09	595.2	2070.85
596.51	2071.19	596.53	2071.2	605.05	2073.45	610.68	2075.03	614.22	2075.88
618.27	2076.17	619.36	2076.18	624.16	2075.87	628.14	2074.8	630.77	2074.03
633.97	2072.83	636.07	2072.04	644.86	2068.95	648.92	2068.95	653.01	2068.93
654.75	2068.94	658.43	2069.01	660.59	2068.48	663.23	2067.96	667.37	2067.95
674.59	2068	691.65	2068.1	694.67	2068.11	699.73	2068.14	707.9	2068.19
709.68	2068.23	717.36	2068.43	731.34	2068.5	735.04	2068.52	752.61	2068.6
762.47	2068.54	775.06	2068.39	791.69	2068.26	810.17	2068.41	811.7	2068.41
812.77	2068.44	820.4	2068.59	829.59	2068.88	836.92	2069	861.11	2069.2
866.79	2069.24	870.19	2069.29	896.18	2069.67	909.41	2069.63	919.74	2069.61
944.76	2069.67	946.08	2069.68	946.43	2069.68	961.45	2069.54	962.16	2069.52
964.28	2069.5	975.99	2069.35	981.71	2069.27	988.02	2069.13	1002.91	2069.15
1016.3	2069.12	1035.49	2069.08	1043.06	2069.05	1050.2	2069.01	1062.82	2068.94
1064.88	2068.92	1071.06	2068.67	1090.56	2068.26	1098.2	2068.22	1100.95	2068.19
1103.68	2068.2	1108.85	2068.23	1122.09	2068.31	1122.73	2068.31	1122.81	2068.33
1128.48	2069.11	1132.39	2069.39	1138.68	2069.73	1145.74	2070.31	1148.36	2070.48
1153.17	2070.53	1164.9	2070.51	1165.82	2070.51	1169.81	2070.52	1170.19	2070.53
1170.66	2070.61	1178.07	2071.98	1180.41	2072.33	1186.66	2073.12	1189.49	2072.56
1192.82	2071.9	1196.14	2071.54	1207.56	2070.81	1225.4	2069.79	1245.54	2070.1
1267.78	2070.68	1282.34	2071.22	1294.63	2072.01	1296.4	2072.21	1304.73	2072.72
1316.82	2073.07	1332.72	2071.98	1337.23	2071.72	1351.31	2070.74	1358.92	2070.26
1360.72	2070.24	1369.99	2070.24	1376.62	2070	1379.79	2069.97	1382.49	2069.95
1396.9	2070.16	1407.35	2070.11	1439.69	2069.85	1444.86	2069.85	1477.91	2069.74
1478.12	2069.74	1480.82	2069.74	1522.37	2069.71	1525.76	2069.69	1565.79	2069.47
1572.88	2069.47	1602.58	2069.35	1608.61	2069.36	1630.02	2069.43	1638.94	2069.41
1676.87	2069.27	1692.98	2069.2	1721.97	2069.18	1741.89	2069.16	1763.63	2069.08
1770.77	2069.02	1781.25	2068.96	1786.34	2068.92	1791.8	2069.01	1795.38	2069.09
1800.71	2069.21	1808.35	2069.31	1829.37	2069.58	1832.59	2069.62	1840.72	2069.69
1856.42	2069.76	1862.09	2069.78	1866.54	2069.88	1875.83	2070.34	1877.61	2070.39
1879.53	2070.78	1880.45	2070.94	1881.8	2071.4	1888.02	2073.25	1890.73	2074.1
1896.1	2076.54	1898.78	2077.57	1906.68	2081.03	1911.34	2083.14	1914.28	2084.31
1917.07	2085.4	1917.81	2085.6	1923.2	2085.78	1923.79	2085.79	1924.23	2085.78
1927.22	2085.69	1929.27	2085.64	1932.21	2085.6	1939.46	2085.95	1943.25	2086.15
1944.21	2086.24	1944.83	2086.49	1948.71	2087.83	1952.06	2089.54	1952.56	2089.75
1955.71	2091.09	1957.34	2091.9	1958.24	2092.32	1959.54	2092.52	1964.79	2093.34
1965.26	2093.4	1967.49	2093.6	1968.14	2093.64	1968.33	2093.66	1968.55	2093.67
1971.73	2093.68	1972.03	2093.68	1990.6	2093.55	1995.42	2093.6	1997.99	2093.67

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 2003.29 2093.67 2019.96 2093.93 2029.09 2093.92 2033.77 2094.01 2035.43 2094.08
 2041.75 2094.13 2050.89  2094.2 2058.54 2094.14 2083.39 2094.05 2084.86 2094.04
 2085.19 2094.04 2085.69 2094.04 2112.73 2093.97 2121.38 2093.93 2137.76 2093.88
 2149.75 2093.83 2157.34 2093.75 2170.86 2093.61 2175.85 2093.52 2190.13 2093.39
 2193.52 2093.35 2197.65 2093.25 2202.79 2093.13 2204.06 2093.09 2205.01 2092.92
  2205.7 2092.89 2206.67 2092.67 2211.39 2093.44 2218.49 2094.62 2222.71 2095.37
 2227.66 2096.26 2265.04 2097.05 2266.07 2097.07 2266.38 2097.07 2301.36 2096.57
 2315.65 2096.48 2319.85 2095.57  2322.9 2094.92 2352.07 2085.35 2361.36 2083.34
 2370.08  2082.1 2371.41 2082.12 2372.59 2083.17 2373.99 2082.14 2375.62 2082.31
 2381.22 2083.26 2385.89 2083.67 2387.55 2083.98 2393.55 2084.98 2393.93 2085.04
 2394.16 2085.08 2408.85 2088.01 2410.59 2088.32 2414.06 2089.04 2420.37 2090.29
 2423.66 2091.08 2425.17 2091.61 2425.96  2091.8 2429.01 2092.15 2432.12 2092.44
 2434.27 2092.66 2437.69 2093.05 2440.64 2093.83 2443.69 2094.74

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04  633.97    .035 1108.85     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        633.97 1108.85           190.62  232.63  281.78             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
  1730.6 2443.69             F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 2228.88 2307.38 2096.83

CROSS SECTION


RIVER: Hassayampa
REACH: 1                   RS: 52.606

INPUT
Description:
Station Elevation Data    num=     354
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
        0  2119.9    7.83 2117.33   21.73 2113.24   26.75 2111.62    37.2  2108.7
     47.6 2106.18   52.28 2104.93    57.7  2103.3   65.36 2100.84   67.84 2100.21
    73.71 2098.44    77.7 2097.27   80.29 2096.17      82 2095.76      88  2094.7
    89.79 2094.45   90.37 2094.28   91.56 2093.67   93.28 2092.65   97.06 2092.88
    99.45    2093  101.95 2093.15  106.56 2093.44  109.92 2093.36  113.44 2093.26
   115.27 2093.29   117.5 2093.33  121.81 2092.18  123.99 2091.66  125.36 2091.57
   132.14 2090.79  135.81 2090.64  139.28 2090.31  142.29 2089.67  146.14 2089.44
   146.72  2089.4  147.58  2089.4  154.53 2089.49  156.65 2089.51  158.43 2089.35
   159.63 2089.25   169.9 2087.63  170.28 2087.57  180.83  2085.2  181.17 2085.15
   181.53 2085.08  189.68  2083.5  194.69 2081.47   197.3 2080.59  201.69 2078.91
   207.58 2076.29  208.89 2075.95  209.54 2075.66  213.66 2073.98  218.49 2072.75
   220.77 2072.43   225.6 2071.93  225.89 2071.87  231.75 2070.69  240.77 2070.72
   252.39 2070.55  253.96 2070.52  254.14  2070.5  254.84 2070.42  264.04 2069.31
   269.13 2069.18  281.01  2069.1  293.74 2068.88  295.85 2068.84  302.42 2068.64
   308.85 2068.58  313.91 2068.97  316.79  2069.2  328.35  2069.3  329.92 2069.31
    340.1 2069.19  350.04  2069.2  362.27 2068.86  370.08 2068.66  376.66 2068.84
   380.03 2068.96  381.99  2068.9   391.8 2068.85  412.11 2068.92  414.12 2068.94
   415.83 2068.95  432.28 2069.23     441 2068.76  442.14 2068.69  443.43 2068.69
   444.74 2068.82  450.45 2069.11   451.7 2069.12  457.91 2068.52  459.42 2068.51
   470.12 2068.71  470.88 2068.69  477.71 2068.28  486.35 2067.47  487.77  2067.3
   489.06 2067.31  498.36 2067.44  503.73 2068.11  505.93 2068.36  506.83 2068.46
   508.78 2068.47  516.87 2068.66  523.78  2068.7  540.07 2067.74  540.32 2067.74
   540.71  2067.7  541.16 2067.63  548.25 2066.58  556.12 2066.69  560.22 2066.75
   564.73 2066.79  576.47 2066.85  580.18    2067  582.54 2067.11     602  2067.3
   602.44 2067.31  602.58 2067.31  621.42 2067.55  623.17 2067.54  629.35 2067.59
   631.67 2067.61  633.26 2067.64  651.51 2067.73   660.9 2067.56  672.07 2067.53
   674.55 2067.51  679.14 2067.46  687.95 2067.34  711.28 2066.89  713.51 2066.86
   715.66 2066.86  718.66 2066.85  732.13 2066.82  732.74 2067.25  733.52 2067.87
   741.47 2067.87  742.57 2067.88   744.3 2067.89   764.6 2068.06  769.89 2068.03
   785.81 2068.13  792.59 2068.25  796.71 2068.43  804.83 2068.69  814.65 2068.51
   830.18 2068.35  835.37 2068.58  846.82 2068.79  848.69  2068.8  851.76 2068.65
    860.8 2068.55  865.46 2068.47   875.3 2068.66  877.72 2068.69  892.24  2068.7
   895.29 2068.72  900.71 2068.77  918.29 2068.81  921.96  2068.8   925.6 2068.85
   931.02 2068.71  935.22  2068.6  940.84 2068.51  945.98 2068.43  954.59  2068.4
   969.21 2068.33  976.38  2068.3  988.54 2068.24 1001.05 2068.22 1007.98 2068.23
  1021.95 2068.11 1023.52 2068.11 1026.79 2068.13 1034.72 2068.19 1038.78  2067.8
  1042.06 2067.51 1049.09 2067.38 1058.05 2067.17 1063.76 2067.23 1068.12 2067.58
  1069.99 2067.66 1078.12 2067.69 1091.08 2067.79 1109.69 2067.61 1113.33 2067.58
  1116.06 2067.24 1117.84 2067.02 1130.47 2067.06 1132.02 2067.07 1132.32 2067.07
  1132.55 2067.07 1132.82 2067.07 1149.54 2067.06 1149.55 2067.06 1155.58 2067.06
  1157.58 2067.44  1159.7 2067.89 1162.84 2068.04 1170.43 2068.43 1170.44 2068.43
  1170.58 2068.44 1174.33 2068.68 1179.36    2069 1179.98 2068.96 1188.25 2068.95
  1191.46 2069.34 1209.13 2070.41 1211.57 2070.46 1219.89 2070.57  1234.3 2070.41
  1238.38 2070.25 1241.57  2070.3 1243.33 2070.31 1247.27 2070.37 1250.68 2070.35
  1261.87 2070.22    1271  2069.8 1276.11 2069.49 1280.54 2069.29  1294.9 2069.08
  1294.98 2069.08 1295.26 2069.08 1297.65 2069.06  1309.2 2068.96  1326.4 2068.94
  1328.46 2068.94 1332.58  2068.9 1370.73 2068.78 1372.79 2068.77 1404.85 2068.52
  1416.79 2068.37 1443.77 2068.02 1445.79 2067.98 1483.28 2067.59 1487.63  2067.6
  1523.36 2067.41 1532.44 2067.35 1566.93 2067.21 1580.26 2067.06    1607 2067.01
  1621.47 2067.06 1638.25 2066.87 1669.69 2067.27 1672.91 2067.29 1675.05 2067.29
  1724.08 2067.27 1730.22 2067.24  1768.4 2067.14 1779.38 2067.13 1813.52 2066.96
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1827.05	2066.97	1854.48	2067.12	1874.28	2067.08	1901.56	2066.99	1925.2	2066.92
1947.13	2066.86	1974.02	2066.85	1993	2066.79	2019.93	2066.96	2024.69	2066.97
2033.63	2066.82	2035.2	2066.79	2039.16	2066.83	2052.02	2066.97	2055.51	2066.98
2059.48	2067.01	2069.08	2067.08	2082.43	2067.18	2086.26	2067.22	2087.99	2067.55
2093.69	2069.21	2108.27	2072.23	2118.12	2074.34	2119.54	2074.66	2122.36	2075.1
2126.43	2076.18	2129.37	2076.41	2133.26	2076.65	2141.12	2073.81	2142.34	2072.89
2145.58	2078.81	2145.84	2080	2146.4	2075.41	2147.02	2074.97	2147.27	2074.95
2152.51	2077.13	2165.46	2084.36	2170.26	2085.17	2178.97	2091.3	2183.97	2093.5
2186.98	2092.6	2187.54	2092.43	2187.84	2092.43	2188.56	2092.43	2188.96	2092.59
2190.3	2093.14	2203.03	2093.42	2235.13	2094.13	2261.37	2093.68	2267.73	2093.57
2267.99	2093.47	2269.48	2092.88	2270.37	2092.88	2270.49	2092.88	2270.5	2093.02
2280.16	2094.08	2280.68	2094.09	2377.21	2092.43	2395.67	2092.11	2395.9	2092.11
2398.19	2092.07	2398.96	2092.06	2400.81	2092.03	2401.59	2092.02	2401.62	2092.05
2404.59	2093.34	2404.93	2093.46	2406.68	2093.53	2408	2093.58	2410.73	2093.08
2412.82	2092.41	2414.79	2092.07	2420.31	2092.32	2424.56	2092.05	2432.56	2091.2
2446.09	2090.39	2446.89	2090.45	2447.03	2090.46	2453.03	2090.8	2460.5	2091.22
2460.99	2091.24	2464.38	2091.38	2466.57	2091.23	2468.49	2091.13	2471.72	2091.19
2475.22	2091.34	2478.45	2091.5	2481.95	2091.92	2484.15	2092.06	2494.52	2092.68
2495.45	2092.74	2496.02	2092.76	2496.67	2092.75	2502.6	2092.42	2503.71	2092.52
2511.92	2093.33	2513.77	2093.53	2518.8	2094.05	2523.48	2094.59		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	556.12	.035	1149.54	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
556.12	1149.54	270.33	252.66	127	.1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
1916.56	2523.48		F

CROSS SECTION

RIVER: Hassayampa
REACH: 1 RS: 52.558

INPUT
Description:
Station Elevation Data num= 351

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2075.35	3.5	2075.26	5.36	2075.23	7.98	2075.31	11.09	2075.28
19.25	2075.09	25.84	2074.89	32.15	2074.8	45.69	2074.6	53.45	2074.53
53.69	2074.53	62.12	2074.49	68	2074.52	78.58	2074.43	95.76	2074.1
99.78	2074.04	101.49	2074.05	106.85	2074.11	126.15	2074.25	131.86	2074.44
137.65	2074.65	139.61	2073.75	140.53	2073.42	146.5	2073.95	148.08	2074.06
149.17	2074.05	154.07	2073.82	154.73	2073.8	155.02	2073.79	155.8	2074
160.27	2075.21	163.86	2074.41	164.18	2074.39	166.16	2073.94	167.82	2073.52
168	2073.51	171.99	2073.49	182.03	2073.5	186.87	2073.52	190.82	2073.28
197.52	2072.59	199.47	2072.46	201.13	2072.26	206.56	2071.65	209.4	2071.39
211.33	2071.12	214.72	2071	219.68	2070.75	223.23	2070.62	240.4	2070.04
242.47	2070.02	245.16	2069.98	250.63	2070.02	252.54	2070.04	255.01	2069.88
256.09	2069.61	258.12	2069	260.93	2068.2	262.66	2067.79	264.92	2067.75
284.54	2067.47	293.86	2067.38	307.23	2067.3	319.46	2067.19	330.25	2067.14
336.44	2067.01	339.57	2067.14	344.67	2067.09	351.76	2067.18	358.39	2067.05
360.3	2066.82	362.81	2066.25	363.06	2066.25	363.29	2066.24	365.67	2066.16
366.07	2066.02	367.15	2065.68	376.35	2065.72	377.72	2065.72	379.5	2065.75
399.12	2065.82	401.91	2065.79	421.43	2065.53	425.92	2065.48	427.48	2065.46
436.73	2065.4	439.89	2065.39	444.8	2065.47	453.51	2065.63	461.61	2066.03
465.83	2066.31	468.13	2066.1	470.26	2065.94	475.41	2065.96	480.13	2066
484.85	2066.02	490.11	2066.16	494.59	2065.67	497.48	2065.39	507.49	2065.39
520.06	2065.44	533.11	2065.62	536.34	2065.77	545.36	2066.13	552.83	2066.14
555.93	2066.13	561.17	2066.04	565.6	2066.02	571.22	2066.04	582.04	2066.1
588.66	2066.18	595.49	2066.28	605.93	2066.48	616.33	2066.47	619.54	2066.5
620.97	2066.5	625.31	2066.37	632.09	2066.15	636.03	2066.08	637.24	2066.1
643.74	2066.38	658.85	2066.4	668.95	2066.41	674.33	2066.39	677.7	2066.34
684.16	2067.15	685.75	2067.3	687.13	2067.29	695.8	2067.19	700.4	2066.94
704.42	2066.81	710.31	2067.02	713.22	2067.1	723.61	2067.11	731.02	2067.15
739.81	2066.62	740.09	2066.6	740.62	2066.6	750.41	2066.62	759.52	2067.25
759.67	2067.26	759.74	2067.26	762.15	2067.12	768.76	2067.26	777.95	2067.21
784.5	2067.27	795.28	2067.5	813.48	2067.83	813.75	2067.83	813.94	2067.83
814.1	2067.85	814.26	2067.85	821.19	2068.26	823.68	2068.25	835.65	2068.4
842.8	2067.82	843.44	2067.78	844.92	2067.76	856.02	2067.65	861.11	2068.38
862.96	2068.8	866.74	2068.95	872.39	2069.12	880.03	2068.02	881.99	2067.73
884.1	2067.41	888.55	2066.68	890.64	2066.72	891.69	2066.76	895.24	2067.06
895.32	2067.07	895.39	2067.07	895.46	2067.07	905.64	2067.24	911.73	2066.95
912.53	2066.94	913.08	2066.92	920.4	2066.8	930.78	2066.91	946.72	2067.13
953.78	2067.16	962.86	2067.08	966.45	2067.08	970.93	2067.04	974.45	2067.02
976.51	2066.94	980.31	2066.8	981.44	2066.4	982.74	2065.95	992.82	2065.95
998.59	2065.96	999.5	2066.42	1000.53	2067.03	1005.44	2067.01	1017.23	2067.04
1026.89	2067.04	1032.64	2067.05	1037.55	2066.98	1054.06	2066.83	1055.91	2066.48
1058.07	2065.99	1066.98	2065.93	1067.85	2065.93	1068.69	2065.93	1074.36	2065.97
1079.23	2066	1079.55	2066.05	1081.16	2066.35	1084	2066.38	1086.66	2066.43
1087.69	2066.36	1088.97	2066.25	1106.56	2066.3	1108.85	2066.31	1109.14	2066.34
1109.36	2066.3	1112.55	2066.2	1113.98	2066.22	1119.64	2066.63	1123.07	2066.9
1125.23	2066.91	1127.75	2066.92	1127.76	2066.92	1127.92	2066.95	1136.5	2068.71
1137.5	2068.9	1141.86	2068.55	1145.07	2068.25	1145.44	2068.29	1148.82	2068.54
1160.35	2069.46	1169.29	2069.41	1173.92	2069.41	1176.52	2069.4	1196.58	2069.28

```
 1211.32 2069.25 1218.62 2069.32 1223.13 2069.63 1225.98 2069.84 1229.71  2070.1
 1234.35 2069.85 1234.54 2069.84 1234.97 2069.79 1241.58 2068.92 1247.04 2068.73
 1252.72 2068.42 1255.97 2068.38 1263.81 2068.33 1275.43 2068.19 1276.33 2068.18
 1277.39 2068.14  1285.2 2067.79 1288.18 2067.67 1289.78 2067.66 1319.68 2067.84
 1337.49  2067.7 1352.82  2067.7 1376.72 2067.62 1385.49 2067.53 1413.43 2067.24
 1417.95 2067.23 1447.99 2067.23 1454.73 2067.16 1480.74  2066.9 1485.15 2066.86
 1513.28 2066.57 1519.69 2066.53 1546.69 2066.19 1558.72 2066.03 1584.36 2066.12
 1605.27 2066.22 1613.75 2066.35 1626.29 2066.45 1666.33 2066.35 1686.59 2066.38
 1720.92  2066.5 1745.54 2066.17 1772.96 2065.97 1804.08 2065.78 1823.08  2065.7
 1864.25 2065.59 1878.21 2065.58 1923.42 2065.23 1930.29 2065.19 1984.63 2065.22
 1988.08 2065.21 2015.98 2065.17 2035.35 2065.15 2037.81 2065.15 2038.67 2065.15
 2043.14 2065.19 2050.72 2065.24 2057.58 2069.79 2061.07  2072.1 2077.56  2080.2
 2099.23 2090.87  2100.4 2090.88 2102.76 2090.88 2102.76 2090.51 2102.77  2089.8
 2103.11  2089.8 2103.77  2089.8 2104.89 2090.25  2105.5  2090.5 2128.38 2091.01
 2149.93 2091.49 2172.68 2091.09 2182.24 2090.92 2183.52 2090.41 2183.96 2090.23
 2184.43 2090.23 2184.97 2090.23 2188.13 2090.61 2191.73 2091.04 2195.07 2091.44
    2201 2089.49 2221.65 2082.72    2233    2079 2243.62 2075.52 2249.38 2074.22
 2250.86 2073.75  2254.4 2073.59 2255.15 2073.82 2261.26 2076.62 2268.04 2079.05
 2268.65 2079.23 2270.81    2080 2271.41 2080.26  2273.5 2081.01 2281.62 2082.07
  2282.8 2082.33  2292.4 2087.22 2297.25 2089.65 2299.11 2090.44 2300.09 2090.86
 2303.02 2091.34 2304.51 2091.57 2309.58  2091.6 2314.35 2091.58 2321.84 2091.71
 2330.47 2091.86 2335.73 2091.93 2360.66 2092.25 2380.78 2092.27 2395.22  2092.3
  2404.3 2092.37 2429.33 2092.47 2435.53  2092.5 2458.12 2092.59  2464.3 2092.64
 2469.83 2092.59

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04  427.48    .035 1125.23     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        427.48 1125.23           285.06  264.99  210.03             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
 1958.33 2469.83               F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 2112.43 2190.93 2091.47

CROSS SECTION


RIVER: Hassayampa
REACH: 1                  RS: 52.508

INPUT
Description:
Station Elevation Data    num=     337
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 2076.12   21.76 2075.73   22.35 2075.72   24.12 2075.69   30.48 2075.62
   48.14 2075.44   50.11 2075.42   62.47  2075.3   74.86 2075.04   77.57 2074.96
   85.22 2074.72   85.69 2074.68   90.71 2074.19   98.32 2073.65   98.83 2073.59
  102.83 2073.46  112.41 2073.23  121.49 2072.74  125.52 2072.52  127.01 2072.74
  130.78  2073.3   133.9 2073.35  139.94 2073.28  146.88 2073.31   148.5 2073.12
  150.08 2072.86  155.08 2071.97  157.18 2071.61  158.98 2071.52  159.98 2071.57
  162.33 2071.92  163.52 2072.04  165.36 2072.05  176.19 2071.97  180.43 2071.95
  194.58 2071.79  199.35  2071.8  205.64 2071.85  212.97 2071.67  213.84 2071.66
  215.53 2071.79  224.46 2072.56  229.26  2072.6  232.67 2072.59  235.21 2072.58
  242.52 2072.36  243.18 2072.09  253.95  2067.3  255.37 2066.59     256 2066.59
  262.91 2066.51  276.93 2066.53  287.48 2066.47  293.03 2066.43  294.86 2066.42
  311.84 2066.36  318.67  2066.3  323.43 2066.22  325.03 2066.19  328.36 2065.12
  328.72 2065.04  332.23 2064.96  335.75  2064.9  343.86 2064.88  347.16 2064.84
  353.22  2064.9  360.77 2065.05  370.08 2065.15  379.23 2065.07  388.48 2064.97
  389.79 2064.96  391.11 2064.92   393.8 2064.76   394.6 2064.65  397.05 2064.25
  401.84 2064.26  412.08 2064.43   428.4 2064.29  433.14 2064.27  445.28 2064.24
  458.02  2064.2  461.14  2064.2  480.25 2064.08  493.13 2064.04  506.36 2064.02
  525.11 2063.87  530.15 2063.85  540.11 2063.91  554.25 2063.84   555.9 2063.83
  558.89 2063.88  572.15 2064.33  582.28 2064.31  585.67  2064.3   588.8 2064.31
  592.03  2064.3  596.58 2064.28  600.42 2065.31  601.21 2065.57  604.13 2065.63
  615.13 2065.79  620.35 2065.12  620.63  2065.1  621.63 2065.13  626.17 2065.29
  634.01 2065.57  639.13 2065.67  646.09 2065.73  659.87 2065.54  660.26 2065.53
  660.87 2065.47  665.47 2065.05  672.05 2065.05  676.26 2065.04  682.56  2065.1
  685.47 2065.15  687.69 2065.43  696.31 2065.88  702.37    2066  711.99 2066.25
  715.44 2066.31  719.19 2066.46  722.24  2066.5  723.46  2066.5  724.92 2066.49
  732.14 2066.52   735.5 2066.48  747.68  2066.1  760.08 2065.54  764.84 2064.83
  770.58 2064.04   776.2 2064.19  783.38  2064.3  787.09 2064.88  789.94  2065.2
  791.17 2065.16  795.31 2065.18  796.42 2065.18  796.89 2065.19  805.19 2065.12
  817.08 2065.28  820.97 2065.38  824.13 2065.71  825.63  2065.9  828.02 2066.13
  830.59 2066.27  840.48 2066.34   848.2 2066.37  855.41 2066.45  861.12 2066.38
  861.51 2066.43  863.18 2067.05   864.3 2067.36  867.07 2067.35  870.38 2066.23
  870.76 2066.16  871.77 2066.05  872.84 2065.96  873.71 2065.86  877.69 2065.43
  879.43 2065.41  880.72 2065.43  885.51 2065.48   886.6 2065.48  887.86 2065.45
  891.43 2065.36  894.67 2065.37  907.85 2065.22  908.69  2065.2   909.9 2065.21
  911.73 2065.23  914.06 2064.92  916.74 2064.53  918.57 2064.52  920.07 2064.53
   926.6 2064.53  934.15 2064.54  943.26 2064.48  949.12 2064.48  957.91 2064.95
  958.41 2064.99  959.11    2065  960.91 2064.98  971.51 2064.96  980.69 2064.93
  981.26 2065.02  985.47 2065.75  988.47 2065.76  991.42 2065.75  996.01  2065.8
 1007.27 2065.85 1017.64 2065.93 1026.48 2065.96 1033.36 2065.96 1040.63 2065.99
 1049.61 2065.98 1056.43 2065.98 1056.72 2065.95 1062.61 2065.61 1065.17 2065.44
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1068.91 2065.38 1072.42 2065.33 1073.49 2065.24 1075.96 2065.05 1086.53 2065.11
1091.97 2065.14 1094.15 2065.56 1096.05 2065.9 1098.3 2066.41 1098.87 2066.53
1099.17 2066.52 1099.34 2066.51 1102.85 2066.26 1114.35 2066.28 1128 2066.3
1129.78 2066.29 1130.16 2066.29 1131.62 2066.41 1136.76 2066.8 1138.09 2067.09
1144.2 2068.26 1151.31 2068.36 1168.96 2068.52 1193.3 2068.69 1193.75 2068.7
1193.92 2068.75 1195.05 2068.8 1199.81 2069.29 1201.98 2069.34 1206.7 2069.99
1209.16 2070.09 1216.3 2069.37 1221.53 2068.36 1224.17 2067.72 1237.28 2067.54
1244.95 2067.46 1247.23 2067.48 1255.81 2067.5 1260.78 2067.41 1271.88 2067.32
1292.95 2067.36 1314.15 2067.23 1332.18 2067.09 1355.35 2067.09 1365.55 2067.03
1378.28 2067.08 1381.52 2067.01 1404.84 2066.49 1413.87 2066.26 1421.68 2066.17
1452.71 2065.47 1463.82 2065.42 1496.5 2065.51 1501.48 2065.5 1536.44 2065.53
1547.85 2065.55 1549.6 2065.56 1590.02 2065.7 1604.22 2065.61 1632.37 2065.2
1656.42 2065.41 1672.84 2065.65 1691.64 2065.54 1710.34 2065.38 1740.15 2064.98
1758.63 2064.75 1787.27 2064.7 1803.31 2064.62 1833.59 2064.45 1854.72 2064.33
1883.71 2064.33 1907.11 2064.33 1934.59 2064.26 1955.32 2064.05 1987.18 2063.76
1991.45 2063.74 1998.82 2068.62 2002.82 2071.27 2024.26 2080.12 2041.97 2087.65
2043.43 2087.19 2044.63 2086.82 2045.44 2086.8 2045.44 2086.57 2046.24 2086.57
2046.44 2086.57 2046.56 2086.63 2048.13 2087.28 2060.7 2087.57 2086.85 2088.18
2110.45 2087.79 2119.35 2087.65 2120.49 2087.19 2121.09 2086.96 2121.81 2086.96
2122.1 2086.96 2123.99 2087.19 2128.43 2087.72 2132.26 2088.18 2140.48 2085.51
2156.46 2080.32 2205.49 2064.4 2207.68 2064.34 2211.17 2064.54 2214.26 2065.1
2234.34 2071.11 2237.02 2071.84 2237.89 2072.14 2240.37 2073.1 2244.25 2074.62
2247.06 2075.65 2252.35 2078.14 2258.49 2080.76 2259.94 2081.12 2264.53 2082.37
2277.52 2087.85 2285.48 2090.79 2300.55 2091.42 2301.2 2091.46 2312.5 2091.41
2323.42 2091.5 2325.26 2091.64 2326.25 2091.72 2336.33 2092.52 2341.83 2092.95
2343.08 2093.04 2346.55 2093.3 2346.93 2093.33 2348.83 2093.47 2351.45 2093.65
2353.28 2093.72 2357.07 2093.92 2364.96 2094.18 2366.11 2094.24 2366.65 2094.26
2368.23 2094.26 2374.8 2094.2

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	293.03	.035	1114.35	.04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
293.03 1114.35 224.34 215.67 185.1 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
2133.33	2374.8	2088.13	F

Blocked Obstructions num= 1

Sta L	Sta R	Elev
2049.35	2127.85	2088.18

CROSS SECTION

RIVER: Hassayampa
REACH: 1 RS: 52.467

INPUT
Description:
Station Elevation Data num= 327

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2094.52	9.36	2092.17	19.53	2089.58	29.65	2087.3	39.31	2084.95
44.42	2083.93	52.85	2081.86	56.48	2081.08	59.88	2080.13	60.51	2079.98
64.22	2078.95	70.98	2078.79	79.53	2078.41	80.93	2078.35	81.62	2078.31
82.76	2078.46	84.27	2078.72	84.58	2078.65	85.04	2078.61	88	2078.59
89.67	2078.53	90.88	2078.3	97.34	2076.45	100.07	2075.59	103.85	2074.28
104.35	2074.32	107.43	2074.4	109.64	2074.45	112.27	2074.51	115.18	2074.57
121.87	2074.72	123.18	2074.84	124.8	2074.95	130.41	2073.28	130.73	2073.18
142.31	2070.91	145.77	2070.27	150.86	2069.58	151.72	2069.44	156.66	2068.38
159.23	2067.81	162.06	2067.83	171.79	2065.27	175.22	2064.41	175.68	2064.4
178.73	2064.31	180.74	2064.25	200.27	2063.74	201.82	2063.58	206.24	2063.07
207.812	063.094	214.73	2063.2	214.9	2063.2	214.96	2063.2	221.4	2063.39
225.88	2063.44	243.6	2063.62	247.77	2063.67	250.2	2063.64	262.4	2063.52
274.14	2063.55	282.31	2063.6	284	2063.6	294.59	2063.68	302.13	2063.71
324.3	2063.74	328.7	2063.76	331.17	2063.82	333.35	2063.55	337.61	2063.45
344.07	2063.53	348.86	2063.51	361.34	2063.55	365.65	2063.53	367.85	2063.55
369.26	2063.76	371.93	2063.59	373.03	2063.6	374.68	2063.59	380.65	2063.52
380.97	2063.47	385.19	2062.44	386.98	2062.45	391.54	2062.49	391.83	2062.57
393.99	2063.09	395.5	2063.07	404.82	2063.1	408.52	2062.6	408.71	2062.57
409.01	2062.57	409.48	2062.57	437.76	2062.62	459.65	2062.82	464.56	2062.85
466.76	2062.84	475.59	2062.8	477.84	2062.78	479.21	2062.72	490.32	2062.11
491.39	2062.28	497.18	2063.81	499.37	2063.24	502.4	2063.32	505.6	2063.3
507.97	2063.7	509.83	2064.01	511.54	2064.29	513.38	2064.4	514.75	2064.46
517.53	2064.54	520.26	2064.6	523.59	2064.64	527.53	2064.71	528.78	2064.71
529.92	2064.72	537.1	2064.74	537.95	2064.75	544.23	2064.7	544.92	2064.7
549.66	2064.77	551.28	2064.8	558.54	2065.08	565.64	2065.33	567.31	2065.35
569.93	2065.34	576.6	2065.25	580.33	2065.23	584.93	2064.69	587.66	2064.42
597.79	2064.67	609.02	2065.02	609.92	2064.98	616.43	2064.77	625.34	2065.34
626.92	2065.44	628.09	2065.5	630.07	2065.55	641.54	2065.74	650.1	2065.66
653.93	2065.52	655.43	2065.5	663.44	2065.42	665.9	2065.2	673.65	2064.48
674.94	2064.19	677.87	2063.44	680.78	2063.41	687.69	2063.33	690.24	2063.28
691.32	2063.26	695	2063.3	709.18	2063.44	715.1	2064.16	715.69	2064.22
716.43	2064.23	717.96	2064.24	730.8	2064.32	733.56	2064.42	735.24	2064.48
744.92	2064.54	750.74	2064.58	752.9	2064.6	754.74	2064.59	757.25	2064.62
771.43	2064.8	775.81	2064.74	781.06	2064.71	793.94	2064.59	795.83	2064.58
799.04	2064.51	807.36	2064.32	808.71	2064.24	811.66	2063.99	832	2063.85
834.2	2063.84	834.59	2063.91	837.94	2064.48	839.63	2064.46	844.95	2064.41

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  849.24 2064.55  852.32 2064.65  853.49 2064.77  856.44 2065.18  862.97  2065.2
  865.21 2065.21  868.72 2065.17  878.43 2065.07  884.46 2064.96  887.22 2064.96
  890.71 2065.43  891.83 2065.58  892.87 2065.61  903.42 2065.83  910.86 2065.72
   914.3 2065.64  918.45 2065.12  919.39 2064.97  920.16 2064.94  929.54 2064.08
  937.99 2064.18  945.99 2064.29  949.19 2064.33  951.26 2064.58  953.69 2064.76
  960.04 2064.89  965.13 2065.16  974.76 2065.96  979.26 2066.38  982.16 2066.54
  994.77 2067.44 1003.57 2067.62 1023.19 2067.95 1028.87 2068.08 1037.49 2068.94
 1039.63 2069.25 1041.34 2069.01 1048.27 2068.22 1054.48 2067.56 1056.21 2067.37
 1059.11 2067.31 1067.42 2067.15 1076.93 2067.06 1077.86 2067.05 1078.29 2067.04
 1092.85 2066.98 1093.39 2066.98 1094.35 2066.97 1132.64 2066.47 1133.94 2066.46
  1174.8 2066.35 1175.66 2066.34 1224.73 2066.14 1225.39 2066.14 1239.34 2066.04
 1265.28 2065.85 1266.29 2065.85 1309.59 2065.57 1310.58 2065.56 1346.02 2065.33
 1347.72 2065.33 1392.78 2064.75 1394.75 2064.75 1397.08 2064.76 1433.45 2064.96
 1436.01 2064.96 1487.28 2064.57  1492.5 2064.54 1522.15 2064.98 1525.64    2065
 1528.42 2064.95 1565.48 2064.37 1569.84 2064.32 1606.14 2064.07  1612.4 2064.05
 1653.11 2063.49 1659.12 2063.44 1701.55 2063.26 1748.44 2062.94 1750.78 2062.92
  1790.8 2062.85 1799.41 2062.83 1799.82 2062.83  1799.9 2062.84 1800.25 2062.84
 1810.01 2062.99 1818.61 2068.66 1821.47 2070.54 1831.97 2074.67 1855.45 2083.86
 1857.32 2084.59 1857.73 2084.75  1857.8 2084.75 1857.81 2084.75 1857.83 2084.75
 1857.85 2084.75 1857.91 2084.75 1861.32 2084.76 1861.32 2083.95 1861.32 2083.68
 1862.04 2083.68 1862.34 2083.68 1863.54 2084.17 1864.09 2084.39 1882.51 2084.82
 1896.86 2085.16 1926.56  2084.7 1929.63 2084.66 1930.24 2084.42 1931.38 2083.97
 1931.62 2083.97 1932.41 2083.97 1935.77 2084.37 1942.65 2085.19 1953.87 2081.59
 1973.14 2075.39 1997.37  2067.6 2012.34 2062.79 2018.71 2063.11 2022.13 2063.33
 2029.72 2063.66 2038.77 2064.08  2041.6 2064.43 2062.44 2073.14 2065.58 2074.29
 2068.94 2075.87 2076.53 2079.02 2078.12 2079.65 2080.76 2080.77 2084.69 2082.56
 2088.16 2084.17  2096.7 2089.37 2100.51 2091.19 2103.94 2092.35 2104.98  2092.7
 2105.59 2092.84  2107.6 2093.22 2109.76 2093.61 2110.65 2093.73 2114.49 2093.95
 2119.73 2093.94 2123.59  2093.9 2128.88 2093.92 2136.06 2093.85 2143.57 2093.78
 2165.77 2093.81 2170.54  2093.8

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04  180.74    .035  945.99     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        207.81  945.99           139.22  141.66  145.32             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
 1942.42 2170.54 2085.17       F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 1859.36 1937.86 2085.16

CROSS SECTION


RIVER: Hassayampa
REACH: 1                 RS: 52.440

INPUT
Description:
Station Elevation Data    num=     355
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 2085.24   10.55 2082.19   18.19 2080.23   28.26 2077.58   38.06 2075.18
   43.45 2073.98   50.75 2072.22   56.63 2071.34   56.91 2071.33   61.33 2070.99
   63.81 2070.64   65.29 2070.29   66.35 2069.88   68.27 2069.38   72.11 2069.29
   75.58 2069.21   78.15 2069.18   83.64 2069.04   85.72 2069.57   86.96 2069.97
   87.73 2070.01   89.05 2069.79   92.59 2069.99   99.55 2069.24  103.64 2069.05
   111.2 2068.55  113.45 2067.57  118.58 2066.56  135.51 2063.64   137.1 2063.34
   137.5  2063.2  138.74 2063.17  152.39 2062.81  156.59 2062.39  157.85 2062.29
  158.69 2062.26  160.97 2062.17  162.03 2062.13  162.51 2062.19  165.36 2062.56
  166.08 2062.57  172.54 2062.57  178.37 2062.64  185.02 2062.78  188.992062.777
  211.25 2062.76  212.23 2062.76  213.21 2062.76  227.45 2062.74  232.76 2062.68
   241.1 2062.61  248.57 2062.73   253.6 2062.81  258.54 2062.75  267.44 2062.66
  279.27 2062.86  280.84 2062.89  281.69 2062.95  283.15 2062.97  298.43  2063.1
  301.35 2063.11  306.96 2062.96  309.57 2063.88  309.75 2063.94  310.01 2063.94
  319.13 2063.85  324.25 2063.81  330.41 2063.73  332.63 2063.18  335.35  2062.6
  338.46 2062.65  345.03 2062.76   350.9 2063.44     352 2063.41  355.19 2062.89
  356.69 2062.77  359.23 2062.66  359.51 2062.64  361.03 2062.48  363.48 2062.23
  364.04 2062.18  372.41 2062.01   373.1 2061.99  394.75 2061.89  398.57 2061.89
  403.43 2061.91  423.26 2061.88  430.93 2062.02   431.7 2062.05  432.92 2061.92
  433.03  2061.9  433.55 2062.09  435.78 2062.88  437.42 2063.02  437.74 2063.08
  438.24 2063.07  441.79 2063.26  444.11  2063.4  446.79 2063.55  449.75 2063.74
   457.2 2064.45  459.12 2064.62  459.96 2064.66  463.75 2064.88  464.39 2064.92
  464.45 2064.92   465.2 2064.92  470.11 2064.88  477.26 2064.67   479.7  2064.6
  479.87 2064.59  480.26 2064.57   484.4 2064.33  487.98 2064.16   488.7 2064.12
  493.67 2064.28  494.72 2064.32  500.59 2064.33  507.14 2064.28  508.24 2064.41
  511.36 2064.79  512.49 2064.72  514.83 2064.77   516.1  2064.6  520.27 2063.97
  525.42  2063.9  529.84 2063.87  532.43 2064.22  534.05 2064.39  535.27 2064.46
  538.29 2064.52  540.66 2064.41   545.1 2064.33  547.61 2064.24  553.48  2064.6
   555.7 2064.72  558.22 2064.84   566.6  2065.2  567.08 2065.22  568.71  2065.1
   571.3 2065.03  572.23 2064.98  576.58 2064.67     579 2064.54  581.47  2064.7
  582.31  2064.7  584.67  2064.7  588.23 2064.35  588.72 2064.31  588.83 2064.29
  589.09 2064.26  599.64 2063.14  602.02 2062.83  603.15 2062.72  610.39 2062.73
  627.83 2062.76  632.12  2063.2  632.38 2063.22  632.83 2063.22  644.29 2063.22
  644.76 2063.28  645.35 2063.38  649.37 2064.02  651.52 2063.92  654.68 2063.74
  658.85 2063.75  659.59 2063.75  661.42 2063.74  671.11 2063.65  673.26 2063.49
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676.49	2063.09	679.77	2063.07	681.54	2063.02	696.72	2063.54	697.09	2063.55
697.36	2063.56	703.73	2063.53	704.84	2063.51	707.22	2063.6	713.23	2063.4
717.32	2063.3	723.39	2063.45	725.32	2063.49	725.9	2063.47	731.24	2063.31
733.76	2063.38	737.38	2063.45	739.83	2063.48	742.02	2063.45	744.27	2063.32
746.47	2063.14	762.83	2063.24	769.04	2063.26	770.04	2063.25	772.49	2063.23
778.36	2063.17	779.45	2063.32	781.8	2063.65	782.21	2063.61	786.23	2063.43
787.62	2063.51	790.81	2063.89	791.72	2063.96	794.56	2064.05	797.38	2064.15
798.12	2064.18	803.03	2064.29	804.53	2064.41	807.93	2064.66	808.43	2064.6
810.66	2064.41	814.37	2064.05	815.23	2063.95	817.46	2064.01	820.85	2064.05
827.24	2064.24	835.54	2064.06	841.45	2064.07	851.87	2064.13	859.49	2064.19
864.31	2064.08	866.28	2064.02	867.03	2063.91	870.39	2063.34	874.62	2063.34
888.36	2063.46	894.99	2063.62	896.68	2063.66	898.07	2063.8	900.58	2064.05
901.75	2064.15	902.87	2064.16	907.86	2064.19	911.98	2065.65	913.63	2066.14
918.37	2066.45	927.59	2066.88	934.02	2066.9	949.61	2066.9	970.77	2066.75
973.34	2066.78	982.72	2067.1	999.31	2067.66	1001.48	2067.75	1011.66	2067.78
1011.74	2067.77	1019.62	2067.1	1021.7	2066.69	1024.65	2066.09	1028.43	2066.07
1037.03	2066.1	1039.84	2066.1	1047.29	2066.12	1053.08	2066.08	1059.99	2066.01
1073.54	2065.97	1094.31	2065.85	1110.58	2065.77	1135.45	2065.51	1153.09	2065.5
1174.87	2065.65	1192.21	2065.51	1217.07	2065.29	1232.36	2065.1	1261.35	2064.87
1276.92	2064.82	1303.87	2064.63	1317.32	2064.47	1349.8	2064.53	1360.04	2064.54
1387.05	2064.36	1395.58	2064.31	1402.36	2064.34	1431.91	2064.16	1443.24	2064.09
1470.55	2064.13	1480.88	2064.18	1501.94	2064.1	1525.22	2063.68	1537.35	2063.53
1564.05	2063.5	1573.33	2063.43	1604.97	2062.9	1616.62	2062.75	1645.53	2062.64
1656.54	2062.54	1683.51	2062.24	1715.62	2062.04	1730.05	2061.94	1743.14	2061.94
1747.27	2061.94	1756.71	2068.12	1759.45	2069.92	1785.63	2081.08	1787.95	2082.06
1788.03	2082.06	1790.93	2081.17	1791.51	2081	1791.53	2081	1792.55	2081
1794.25	2081.68	1794.3	2081.7	1819.24	2082.28	1827.03	2082.46	1844.9	2082.17
1859.76	2081.94	1860.79	2081.53	1861.51	2081.24	1861.92	2081.25	1862.53	2081.25
1862.53	2081.9	1866.28	2082.38	1872.76	2082.47	1890.24	2077	1896.46	2075.16
1909.85	2071.19	1921.86	2067.6	1922.36	2067.78	1924.88	2068.46	1931.71	2068.72
1935.18	2068.87	1936.65	2068.87	1949.13	2068.97	1959.46	2068.68	1959.53	2068.68
1959.74	2068.68	1975.13	2068.65	1987.38	2068.74	1994.57	2068.78	1996.87	2068.81
2002.6	2068.82	2003.76	2068.83	2010	2069.72	2010.23	2069.75	2010.27	2069.75
2015.84	2070.33	2019.44	2070.89	2029.72	2072.07	2039.38	2073.66	2045.83	2074.66
2049.87	2075.3	2058.14	2077.23	2064.2	2078.52	2066.99	2079.18	2069.6	2080.83
2075.41	2084.05	2078.59	2084.27	2083.13	2084.57	2094.58	2085.34	2098.21	2085.53
2101.22	2085.77	2112.4	2086.63	2118.98	2086.72	2123.53	2086.8	2128.59	2086.89

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	158.69	.035	898.07	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
188.99	898.07	162.7	156.75	139.74	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
1872.73	2128.59	2082.38	F

Blocked Obstructions num= 1

Sta L	Sta R	Elev
1789.53	1868.03	2082.46

CROSS SECTION

RIVER: Hassayampa
REACH: 1 RS: 52.410

INPUT
Description:
Station Elevation Data num= 392

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2113.59	.05	2113.59	15.48	2113.11	24.22	2112.73	30.1	2110.48
34.28	2109.03	35.55	2108.5	38.05	2107.91	40.23	2107.12	41.11	2106.75
51.89	2103.91	55.69	2102.8	70.47	2099.16	71.94	2098.79	79.07	2096.79
86.65	2094.75	88.13	2094.33	100.93	2090.91	102.02	2090.58	114.65	2086.68
116.59	2086.11	126.34	2083.63	128.85	2082.92	136.31	2081.27	141.7	2080.24
151.91	2078.59	155.76	2077.98	166.91	2076.13	168.55	2075.86	170.29	2075.57
170.94	2075.5	174.14	2074.71	174.94	2074.59	176.41	2074.43	185.77	2073.33
189.87	2072.91	196.21	2072.74	198.74	2072.56	203.76	2072.52	208.87	2072.53
212.76	2072.3	214.12	2072.3	215.97	2071.55	217.8	2070.75	222.14	2070.6
225.84	2070.56	230.76	2070.56	234.34	2070.57	236.42	2070.84	237.8	2070.98
239.85	2070.98	245.7	2071.32	253.72	2070.41	256.17	2070.18	262.51	2068.52
280.78	2063.53	286.752	062.001	287.26	2061.87	293.84	2061.87	300.56	2061.96
305.88	2061.93	309.43	2061.92	311	2061.92	321.2	2062.01	321.71	2062.01
322.46	2061.99	328.59	2061.84	330.05	2061.75	332.81	2061.67	333.11	2061.6
334.59	2061.23	338.03	2061.35	346.7	2061.49	347.12	061.485	347.54	2061.48
352.73	2061.41	354.77	2061.34	361.29	2061.25	363.16	2061.22	370.13	2061.62
375.89	2061.96	385.34	2062.03	388.9	2062.05	392.11	2061.72	393.61	2061.56
393.77	2061.56	394.25	2061.57	405.84	2061.66	412.37	2062.09	414.75	2062.36
421.1	2061.91	421.23	2061.91	421.62	2061.91	430.92	2061.99	437.21	2062.05
437.38	2062.05	437.56	2062.09	440.95	2062.85	446.22	2062.83	455.71	2062.68
457.87	2062.61	460.37	2062.53	463.83	2062.44	466.22	2062.37	469.45	2062.52
471.31	2062.62	483.04	2062.76	483.81	2062.77	484.4	2062.77	484.97	2062.76
503.27	2062.44	504.43	2062.35	508.58	2062.3	509.77	2062.28	511.61	2062.18
514.25	2062.02	514.9	2061.95	519.08	2061.39	524.52	2061.35	524.68	2061.34
524.8	2061.34	525.24	2061.34	550.18	2061.26	555.52	2061.26	561.9	2061.28
571.74	2061.14	575.29	2061.09	577.5	2061.06	591.02	2060.92	593.65	2061.82
597.05	2062.84	602.14	2063.04	602.71	2063.05	606.05	2063.12	609.34	2063.19

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  611.19 2063.18  616.89 2063.33  620.21 2063.34  620.93 2063.26  625.48  2063.3
  629.01  2063.3  631.91 2063.28  643.86 2063.52  644.29 2063.52  644.37 2063.52
  644.74 2063.54  648.01 2063.55  655.43 2063.69  656.25 2063.72  658.87 2063.57
  664.34 2063.51   665.2 2063.47  667.56 2063.35  670.02 2063.35   672.7 2063.39
  675.19 2063.24  677.66 2063.09  682.43 2062.33  685.36 2061.88  687.24 2061.75
  689.52 2061.89  690.57  2061.9  691.18 2061.83  693.01 2061.63  706.85 2061.75
  713.22 2061.71  716.73 2062.49  717.75 2062.66  723.19 2062.64  734.41  2062.4
  736.71 2062.35  737.52 2062.31  743.53 2062.18  746.61 2062.13  748.94 2062.11
  754.85 2062.07  757.41 2062.74  757.84  2062.9  764.04  2062.9  764.98  2062.9
  767.07 2062.93  772.86 2063.01   775.3 2063.02  788.82 2063.06  792.75 2062.87
  794.14 2062.79  805.28 2062.74  805.38 2062.74  811.37 2062.91  811.82 2062.92
  814.34 2062.87  826.39 2062.66  828.84 2062.57  830.77 2062.57  836.69 2062.45
  840.82 2062.34  845.19 2062.32  851.13 2062.34  868.73 2062.29  869.59 2062.28
  872.62 2062.28  885.39 2062.25  888.48 2063.01  888.84 2063.04  889.75 2063.21
  891.46 2063.33  894.44 2063.47  899.95 2062.76  901.23  2062.6  902.65 2062.56
  912.31 2062.31  914.19 2062.27  914.34 2062.28  916.42 2062.54  919.85  2063.4
  920.33 2063.52  920.51 2063.52  927.46 2063.77  928.31  2063.8   928.4 2063.79
  932.73 2063.73  933.79 2063.66  935.08 2063.57  938.56  2063.6  941.03 2063.62
  942.22 2063.63  943.52 2063.68  948.33 2063.69  955.76 2063.69  960.89 2063.45
  962.89 2063.29  966.68 2063.16  971.14 2063.03  977.92 2062.84  982.62 2062.74
  985.67 2062.82  988.85 2062.88  992.84 2063.06  993.62  2063.1  994.13  2063.1
  997.25  2063.1  998.92 2063.09  999.38 2063.03 1002.48 2062.57  1008.1  2062.5
 1011.35 2062.47 1013.47 2062.64 1017.07 2062.92 1021.63 2062.94 1028.12 2062.89
 1029.05 2062.84  1033.3 2062.66  1039.8 2062.38 1042.93 2062.27 1045.46 2062.57
  1048.4 2062.88 1050.09 2062.93 1055.42 2063.08 1058.25 2063.19 1060.41 2063.83
 1066.09 2065.43 1076.84 2065.96 1085.45  2066.4 1097.16 2066.21 1103.76 2066.22
 1110.91 2066.22 1133.58 2066.43  1146.6 2067.08 1150.89 2067.24 1154.05 2067.01
 1157.48 2066.68 1163.12 2065.59 1163.42 2065.54 1166.53 2065.49 1176.49 2065.33
 1177.68 2065.32 1178.71 2065.33 1181.58 2065.36 1187.89 2065.44 1189.14 2065.45
 1199.61 2065.44 1202.23 2065.44 1243.28 2065.14 1246.85 2065.13 1287.19 2065.12
 1290.67 2065.11 1323.66 2065.18 1327.59 2065.19 1361.13 2064.84 1364.14 2064.81
 1398.59 2064.46 1401.36 2064.45 1446.89 2064.36 1449.67 2064.34 1492.55 2064.04
 1499.65    2064 1504.81 2063.94 1537.29 2063.79 1546.44 2063.78 1589.65  2063.6
 1597.31 2063.62 1634.87 2063.72 1639.54 2063.65 1689.17 2063.05 1690.05 2063.04
 1703.22 2062.84 1735.65 2062.33 1737.67 2062.32 1781.22 2061.88 1785.58 2061.84
 1830.33 2061.33 1838.37 2061.24 1846.29 2061.25 1857.83 2061.24 1863.12 2061.24
 1864.73 2062.29 1870.46 2066.01 1874.53 2068.66 1875.67  2069.4 1883.67 2072.51
 1903.04    2080 1906.34 2079.02 1906.64 2079.02 1906.64 2078.93 1906.72 2078.93
 1907.67 2078.93 1909.33  2079.6 1909.43 2079.64 1915.22 2079.77 1932.02 2080.16
 1942.34  2080.4 1961.15  2080.1 1975.24 2079.88 1976.24 2079.48    1977 2079.19
 1977.43 2079.19 1978.03 2079.19 1981.91 2079.65 1988.31 2080.41 2006.12  2074.7
 2022.44 2069.47 2048.58  2061.1 2050.36 2061.25 2057.85 2061.87 2064.14 2063.22
 2067.05 2063.82 2077.44 2065.76 2086.57 2067.46 2087.99 2067.52 2095.84 2067.83
 2098.77 2067.83  2104.8 2067.93 2113.59  2067.9  2117.2 2067.96 2126.69 2067.68
 2127.77 2067.67 2129.34  2067.7 2134.74 2067.86  2145.8 2067.89 2146.18 2067.88
 2149.67 2067.98 2152.43 2068.97 2153.07 2069.13 2153.74 2069.46 2154.52 2069.85
 2158.45 2071.73 2161.78 2072.76 2168.11 2074.82 2169.99 2075.27 2174.88 2076.83
 2176.13 2077.04 2177.23  2077.5 2182.57 2079.48 2188.78 2081.06 2193.56 2082.45
 2198.67 2083.51 2199.12 2083.58  2206.9 2084.28 2210.35 2084.45 2215.73 2084.86
 2223.35 2085.36 2226.59 2085.53 2228.62 2085.65 2235.28 2086.01 2237.54 2086.05
  2241.4 2086.11 2249.42 2086.24 2255.13 2086.41 2259.91 2086.46 2265.84 2086.55
 2283.58 2086.72 2294.28 2086.85

Manning's n Values        num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
       0     .04  286.75    .035 1050.09     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         347.1 1050.09           143.77  141.23  134.04             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
 1990.91 2294.28 2080.31       F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 1904.83 1983.33  2080.4

CROSS SECTION


RIVER: Hassayampa
REACH: 1                  RS: 52.384

INPUT
Description:
Station Elevation Data    num=     403
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
       0 2101.07     1.25 2101.11     5.18 2101.63     7.61 2101.88     8.87 2101.83
   13.82 2101.46    16.71 2101.23    17.21  2101.2    29.79 2098.14    30.72 2097.88
   36.75 2096.44    43.95 2094.66    48.15 2093.44     58.5 2090.59    64.09 2089.07
    72.8 2086.59    78.87 2084.99    83.99 2083.51    91.61 2081.88    96.43 2080.84
  102.88 2079.55   107.48 2078.87   117.78 2076.72   121.86 2075.83   123.36 2075.45
  139.59 2073.71   140.85 2073.58   141.78 2073.44   143.66 2073.08    154.6 2070.85
  160.52 2069.54   162.76 2069.03   169.94 2068.86   171.46 2068.79   172.38 2068.74
  183.83  2068.1   191.22 2067.63   194.96 2067.39    199.9 2067.39   203.38 2067.38
  211.04 2067.37   211.86 2067.38   213.72 2067.36   214.49 2067.36   214.51 2067.35
  215.19 2067.26   251.72 2062.36    262.6  2060.8   268.94  2060.7   277.44 2060.58
  278.24  2060.6   282.46 2060.67   286.35 2060.74   290.56 2060.98   292.65 2061.08
  295.12 2061.07   303.72 2060.99   308.55 2060.98   313.92 2060.97   315.45 2060.77
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318.74	2060.49	322.492	060.594	326.29	2060.7	331.1	2060.77	336.32	2060.75
336.88	2060.75	337.16	2060.77	340.61	2061.17	346.5	2061.29	353.95	2061.35
357.32	2061.38	359.87	2061.4	361.42	2061.33	364.93	2061.09	368.82	2061.13
371.3	2061.14	379.62	2061.22	382.67	2061.26	383.2	2061.28	388.36	2061.33
399.06	2061.49	403.06	2061.23	403.53	2061.2	405.93	2061.23	412.65	2061.36
414.04	2061.53	414.82	2061.65	416.33	2061.69	420.23	2061.72	424.28	2061.66
431.83	2061.54	434.72	2061.78	436.29	2061.93	437.87	2061.9	439.14	2061.83
443.72	2061.78	448.81	2061.9	458.67	2062.1	459.29	2062.1	462.13	2062.14
462.56	2062.15	462.7	2062.14	465.61	2061.89	470.96	2061.16	472.2	2060.99
475.19	2061.05	477.37	2061.09	477.69	2061.11	479.09	2061.22	480.32	2061.33
482.84	2061.81	484.11	2061.89	487.33	2062.01	490.92	2061.32	491.37	2061.24
491.67	2061.18	494.82	2060.42	508.01	2060.4	511.23	2060.4	511.81	2060.49
515.22	2061.25	516.77	2061.21	519.34	2061.11	521.18	2060.98	522.15	2060.92
533.41	2060.92	535.38	2060.9	547.66	2060.77	557.02	2060.71	566.63	2060.66
576.83	2060.61	577.86	2060.75	583.88	2061.27	594.13	2061.46	595.75	2061.49
598.09	2061.53	601.14	2061.51	608.73	2061.47	610.76	2061.18	612.06	2061
614.57	2060.97	619.3	2060.94	623.3	2060.91	624.99	2060.92	626.04	2061
628.44	2061.21	637.17	2061.2	638.31	2061.2	639	2061.2	641.26	2061.21
653.4	2061.25	654.8	2061.41	656.24	2061.64	659.22	2061.72	662.34	2061.77
666.06	2061.78	669.9	2061.8	674.31	2061.74	682.45	2061.56	682.68	2061.57
683.88	2061.62	687.45	2061.82	690.81	2062.23	692.3	2062.38	694.72	2062.47
707.12	2062.92	709.94	2062.95	717.17	2063.09	721.8	2063.15	728.72	2063.23
730.8	2063.54	733.12	2064.03	736.24	2064.04	742.84	2064.08	748.54	2064.15
752.72	2064.16	756.33	2064.08	759.35	2063.98	765.24	2063.7	769.56	2063.51
770.89	2063.18	773.87	2062.67	776.36	2062.19	777.66	2061.59	778.32	2061.47
785.38	2061.31	786.51	2061.27	790.1	2061.28	795.35	2061.28	802.16	2061.52
805.61	2061.65	806.5	2061.65	812.19	2061.68	813.54	2061.65	818.6	2061.66
831.39	2061.59	835.9	2061.64	840.23	2061.68	846.6	2061.66	847.99	2061.67
849.72	2061.81	850.76	2061.9	851.67	2062.21	853.42	2062.77	854.52	2062.73
856.09	2062.77	857.46	2062.73	858.96	2062.74	860.45	2062.74	861.96	2062.68
863.56	2063.23	864.58	2063.63	869.15	2063.51	872.8	2063.5	880.07	2063.36
886.45	2063.26	890.58	2063.06	892.1	2062.99	893.78	2062.92	896.31	2062.97
907.12	2062.97	919.07	2062.75	922.61	2062.67	928.2	2062.24	928.48	2062.21
928.71	2062.21	932.21	2062.07	934.01	2061.8	936.75	2061.43	943.25	2061.39
944.39	2061.38	945.7	2061.56	948.44	2062	953.23	2062.13	960.61	2062.33
971.16	2062.52	972.63	2062.55	975.58	2062.49	980.05	2062.37	990.98	2062.26
991.6	2062.26	992.27	2062.22	995.71	2061.97	998.38	2061.77	1000.33	2061.75
1008.84	2061.66	1010.32	2061.8	1015.97	2062.39	1025.16	2062.6	1030.91	2062.72
1034.7	2063.44	1040.12	2064.49	1042.76	2064.98	1044.15	2065.02	1056.4	2065.36
1060.8	2065.49	1101.87	2065.72	1102.63	2065.71	1102.95	2065.74	1107.27	2066.05
1109.84	2066.55	1112.33	2066.87	1116.95	2066.25	1118.46	2065.98	1124.18	2065.84
1124.91	2065.79	1126.23	2065.7	1133.48	2065.08	1140.05	2064.9	1141.54	2064.84
1145.15	2064.81	1154.84	2064.81	1157.17	2064.81	1172.54	2064.72	1196.25	2064.65
1214.94	2064.71	1242.93	2064.6	1258.89	2064.5	1287.09	2064.53	1303.92	2064.51
1336.03	2064.43	1351.19	2064.38	1385.84	2064.17	1398.35	2064.17	1430.5	2064.05
1445.49	2064	1483.84	2063.95	1490.84	2063.91	1516.96	2063.96	1522.88	2063.91
1560.86	2063.67	1565.8	2063.65	1606.98	2063.29	1611.37	2063.22	1649.27	2062.55
1653.04	2062.53	1697.53	2062.19	1697.88	2062.18	1701.55	2062.15	1743.63	2061.75
1756.06	2061.66	1789.91	2061.28	1791.93	2061.27	1793.52	2061.26	1795.95	2062.83
1804.77	2068.55	1805.14	2068.79	1805.24	2068.86	1805.56	2068.97	1831.47	2078.07
1832.71	2078.07	1835.07	2077.35	1835.07	2077	1835.4	2077	1836.11	2077
1837.34	2077.5	1837.87	2077.71	1868.06	2078.4	1869.76	2078.44	1870.86	2078.46
1895.15	2078.07	1903.85	2077.93	1904.47	2077.69	1905.61	2077.24	1906.26	2077.24
1906.64	2077.25	1906.64	2077.65	1912.5	2078.41	1916.95	2078.46	1935.86	2072.42
1970.87	2061.22	1973.53	2060.37	1973.76	2060.37	1975.3	2060.36	1978.03	2060.34
1979.15	2060.38	1986.83	2060.69	1989.36	2061.18	1992.61	2061.82	1995.47	2061.99
2000.26	2062.11	2005.95	2062.19	2012.2	2062.98	2022.19	2063.73	2023.62	2063.79
2025.95	2063.7	2030.35	2063.57	2033.18	2063.73	2036.95	2063.91	2042.55	2064.05
2048.31	2064.23	2052.24	2064.61	2060.63	2065.11	2065.7	2065.4	2066.08	2065.44
2068.98	2065.57	2071.84	2065.57	2082.04	2065.85	2090.36	2066.35	2092.98	2066.46
2098.72	2066.57	2107.29	2066.69	2109.45	2066.6	2110.88	2066.6	2112.04	2066.59
2115.39	2066.57	2119.58	2066.69	2124.97	2066.7	2126.09	2066.71	2127.37	2066.71
2132.81	2066.56	2132.9	2066.56	2133.08	2066.54	2133.51	2066.64	2135.84	2067.05
2136.82	2067.17	2137.31	2067.26	2140.25	2068.21	2141.52	2068.97	2146.85	2071.91
2148.07	2072.82	2154.83	2077.47	2157.96	2079.57	2159.36	2080.29	2162.65	2081.87
2165.06	2082.64	2165.11	2082.65	2165.19	2082.66	2174.17	2083.8	2174.66	2083.85
2175.26	2083.92	2179.03	2084.36	2179.42	2084.43	2189.34	2084.82	2192.62	2084.94
2194.28	2085.03	2198.01	2084.96	2208.95	2084.99	2231.15	2085.13	2231.43	2085.13
2231.67	2085.13	2238.1	2085.13	2250.22	2085.09				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	278.24	.035	1034.7	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
322.49	1034.7	208.74	205.95	197.78	.1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
1921.21	2250.22	2078.37	F

Blocked Obstructions num= 1

Sta L	Sta R	Elev
1833.36	1911.86	2078.46

CROSS SECTION

RIVER: Hassayampa
REACH: 1 RS: 52.345

INPUT
Description:
Station Elevation Data num= 387

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2095.78	9.22	2093.29	13.33	2092.14	22.66	2089.5	24.12	2089.1
37.88	2085.02	38.2	2084.94	41.5	2083.84	51.5	2080.53	52.44	2080.32
57.24	2079.74	58.41	2079.33	61.81	2079.08	66.17	2078.65	68.82	2078.29
76.66	2077.08	80.02	2076.81	80.59	2076.71	81.54	2076.54	86.08	2075.59
93.26	2073.98	94.48	2073.71	95.91	2073.42	109.61	2070.17	113.95	2069.23
115.18	2068.97	121.78	2068.25	121.81	2068.25	131.13	2068.18	132.91	2068.14
139.07	2068.3	141.94	2068.22	147.35	2068.05	147.92	2068.05	149.42	2067.94
151.2	2067.94	153.33	2067.95	162.69	2067.67	163.14	2067.66	163.34	2067.65
174.78	2067.46	177.83	2067.41	178.87	2067.39	179.46	2067.31	190.04	2066.5
194.55	2066.95	198.11	2067.27	207.96	2067.83	216.88	2067.63	222.93	2065.26
223.33	2065.22	223.76	2065.08	232.44	2063.08	239.01	2060.58	243.39	2059.65
244.53	2059.43	251.66	2059.44	254.75	2059.44	257.14	2059.45	258.18	2059.44
258.59	2059.45	264.51	2059.58	271.89	2059.58	273.61	2059.61	277.04	2059.69
283.03	2059.89	288.53	2059.81	292.43	2059.73	297.13	2059.77	304.43	2059.8
308.79	2059.77	309.86	2059.762	312.78	2059.74	315.35	2059.56	317.08	2059.4
319.44	2059.7	321.86	2060	325.7	2060.07	331.04	2060.18	336.81	2060.06
340.21	2060.02	345.31	2059.94	354.61	2059.83	364.03	2059.81	365.89	2059.8
370.41	2059.63	371.15	2059.61	378.17	2059.95	379.27	2059.99	381.67	2059.98
386.5	2060	392.09	2059.95	394.18	2059.92	394.37	2059.98	397.81	2061.19
401.94	2061.37	403.08	2061.4	404.68	2061.32	410.33	2060.99	412.94	2060.25
414.34	2059.92	417.62	2059.82	419.19	2059.78	419.32	2059.78	420.37	2059.66
422.07	2059.45	427.58	2059.49	430.36	2059.51	430.8	2059.51	456.66	2059.26
457.34	2059.26	457.89	2059.26	458.39	2059.26	461.39	2059.32	485.94	2059.75
489.1	2059.73	514.4	2059.48	518.17	2059.52	522.02	2059.64	532.72	2059.88
533.55	2059.83	535	2059.75	536	2060.14	537.41	2060.47	540.16	2060.84
543.21	2061.03	547.89	2061.56	548.22	2061.59	551	2061.88	551.88	2061.91
558.08	2062.29	561.56	2062.41	566.4	2062.24	570.19	2062.14	570.93	2062.15
572.74	2062.13	578.62	2062.1	582	2061.87	587.94	2061.62	596.93	2061.77
603.8	2061.79	609	2061.81	614.16	2061.94	619	2062.08	623.27	2062.14
625.47	2062.17	636.57	2062.37	641	2062.44	642.76	2062.46	648.65	2062.45
655.2	2062.48	657.52	2062.42	661.66	2062.4	666.04	2062.42	673.24	2062.47
675.44	2062.51	677.62	2062.51	679.03	2062.53	680.61	2062.52	696.09	2062.57
706.82	2062.36	707.98	2062.34	709.68	2062.18	716.76	2061.52	720.27	2061.35
722.53	2061.19	727.69	2061.33	730.76	2061.38	735.13	2060.96	737.32	2060.84
740.09	2060.65	743.48	2060.42	745.12	2060.31	747.51	2060.14	750.32	2060.1
754.26	2060.04	762.38	2060.24	776.42	2060.49	790.33	2060.75	798.02	2060.84
801.66	2061.24	801.78	2061.26	811.07	2061.62	811.37	2061.64	811.62	2061.64
819.66	2061.62	823.89	2061.63	825.12	2061.63	829.15	2060.98	830.88	2060.7
830.99	2060.68	832.11	2060.36	833.12	2060.08	834.01	2060.1	840.31	2060.2
841.2	2060.29	844.2	2060.67	850.31	2060.75	851.41	2060.76	852.58	2060.72
858	2060.67	858.34	2060.67	860.73	2060.55	864.86	2060.38	865.33	2060.34
868.4	2060.29	872.1	2060.24	873.32	2060.42	876.67	2060.92	883.47	2061.16
887.11	2061.3	896.84	2061.3	897.94	2061.32	902.68	2061.39	903.11	2061.4
905.81	2061.33	909.6	2061.25	910.31	2061.24	913.09	2061.24	933.49	2061.22
949.22	2061.29	954.46	2061.33	957.31	2061.33	962.28	2061.35	973.92	2061.3
975.41	2061.59	975.83	2061.66	977.32	2061.93	980.62	2063.12	981.14	2063.23
982.9	2062.81	986.42	2061.54	988.99	2061.81	989.08	2061.82	989.71	2062.1
991.65	2063.03	991.96	2063.16	992.41	2063.31	996.18	2064.34	1001.66	2064.58
1006.46	2064.65	1010.55	2064.68	1021.79	2064.81	1042.81	2065.05	1051.58	2065.18
1051.68	2065.197	1057.02	2066.09	1060.16	2066.58	1062.75	2066.29	1068.05	2065.62
1072.41	2065.11	1076.53	2064.76	1083.04	2064.09	1085.35	2064.01	1092.33	2063.72
1098.16	2063.61	1102.48	2063.53	1102.76	2063.53	1102.88	2063.53	1138.24	2063.7
1149.13	2063.66	1173.34	2063.78	1183.93	2063.75	1207.78	2063.75	1214.68	2063.7
1247.6	2063.71	1252.21	2063.73	1284.19	2063.42	1317.47	2063.32	1319.75	2063.32
1355.15	2063.32	1357.3	2063.3	1392.64	2063.19	1393.26	2063.19	1395.42	2063.17
1432.47	2062.77	1459.51	2062.52	1475.11	2062.51	1510.85	2062.39	1529.03	2062.17
1565.07	2061.79	1585.7	2061.55	1617.68	2061.38	1641.09	2061.24	1668.34	2060.84
1693.49	2060.57	1693.58	2060.57	1693.75	2060.68	1694.35	2061.07	1702.76	2066.51
1705.13	2068.04	1712.17	2070.21	1729.59	2075.54	1730.51	2075.26	1733.21	2075.3
1733.21	2074.46	1734.02	2074.47	1734.25	2074.47	1734.62	2074.61	1736.01	2075.17
1755.5	2075.6	1765.68	2075.83	1769.09	2075.91	1790.46	2075.56	1802.17	2075.37
1803.08	2075.01	1803.93	2074.67	1804.44	2074.68	1804.97	2074.68	1804.97	2075.22
1810.74	2075.83	1815.3	2075.89	1828.34	2071.81	1854.32	2063.43	1861.57	2061.11
1865.35	2059.9	1871.77	2059.94	1885.26	2060	1889.94	2060.12	1890.12	2060.12
1896.19	2060.37	1900.16	2060.48	1900.63	2060.54	1902.89	2060.6	1902.96	2060.61
1903.07	2060.66	1905.83	2061.89	1907.19	2061.8	1907.72	2061.6	1912.82	2061.89
1914.55	2062.09	1916.95	2062.46	1919.59	2062.76	1921.6	2062.99	1932.05	2064.73
1937.32	2065.72	1941.57	2066.58	1945.56	2067.24	1954.33	2068.68	1962.06	2069.92
1965.56	2070.53	1970.48	2071.12	1972.8	2071.34	1980.98	2071.92	1982.12	2072.01
1993.49	2072.87	2001.97	2072.84	2007.01	2072.97	2008.09	2072.99	2008.32	2073.17
2008.82	2073.6	2013.34	2077.58	2015.95	2076.51	2017.32	2075.89	2018.51	2075.96
2020.21	2076.07	2025.22	2082.05	2025.3	2082.19	2025.43	2082.19	2030.39	2082.08
2034.52	2082.23	2037.74	2082.26	2046.54	2082.33	2060.98	2082.5	2066.8	2082.59
2074.47	2082.84	2080.47	2083.02	2087.83	2082.79	2090.92	2082.78	2093.93	2082.8
2111.23	2083.3	2115.39	2083.46	2119.78	2083.82	2122.36	2083.92	2128.2	2083.91
2143.41	2084.12	2160.11	2084.2	2176.09	2084.18	2194.23	2084.31	2211.82	2084.32
2232.28	2084.06	2237.98	2084.01	2243.45	2083.92	2247.7	2083.85	2254.1	2083.94
2258.29	2083.83	2260.27	2083.84						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	309.86	.035	1051.68	.04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
309.86 1051.68 154.33 152.06 147.36 .1 .3
Ineffective Flow num= 1
Sta L Sta R Elev Permanent
1733.33 2260.27 2075.77 F
Blocked Obstructions num= 1
Sta L Sta R Elev
1731.59 1810.09 2075.9

CROSS SECTION

RIVER: Hassayampa
REACH: 1 RS: 52.316

INPUT
Description:
Station Elevation Data num= 335

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2097.09	.43	2096.97	6.47	2095.7	9.51	2094.99	16.88	2093.37
25.56	2091.23	29.03	2090.19	36.74	2088.73	36.91	2088.71	37.29	2088.71
45.51	2088.65	46.17	2088.64	50.95	2088.33	53.31	2088.01	59.9	2087.12
63.36	2086.75	68.44	2086.23	72.88	2085.78	78.95	2084.99	85.92	2084.26
88.94	2083.94	94.01	2083.45	97.06	2083.13	102.19	2082.63	105.44	2082.37
109.01	2082.08	115.13	2081.55	118.88	2081.25	123	2080.93	124.68	2080.78
129.66	2080.43	134.64	2080.13	139.57	2079.78	144.91	2079.4	147.51	2079.24
152.99	2078.85	158.35	2078.54	161.34	2078.39	166.82	2078.07	168.11	2078.01
173.74	2077.69	179.55	2077.35	181.45	2077.28	189.29	2076.92	189.67	2076.9
198.07	2076.51	198.51	2076.5	207.62	2076.08	209.59	2076	217.82	2075.63
219.58	2075.56	224.17	2075.23	230.31	2074.65	232.81	2074.45	235.1	2074.49
236.29	2074.51	238.38	2074.55	238.5	2074.55	239.08	2074.54	239.7	2074.52
249.63	2074.09	251.33	2074.03	266.52	2073.42	270.69	2073.52	274.42	2073.27
275.28	2073.2	277.66	2073.1	279.18	2073.01	279.77	2073	286.67	2068.75
299.52	2062.56	305.75	2059.64	309.4	2059.48	310.49	2059.43	312.03	2058.96
312.042	058.956	312.08	2058.94	312.24	2058.92	312.85	2058.91	319.83	2058.79
331.29	2058.6	336.292	058.731	340.47	2058.84	346.17	2058.95	353.74	2059
359.55	2059.02	363.32	2058.66	364.2	2058.57	368.42	2058.65	369.92	2058.68
370.29	2058.69	371.99	2058.77	381.98	2059.26	384.88	2059.38	387.89	2059.4
405.52	2059.48	410.75	2059.41	420.06	2059.29	425.09	2059.24	427.44	2059.21
428.52	2059.06	429.64	2058.91	431.36	2058.93	436.45	2058.97	438.05	2058.97
441.76	2059.04	462.14	2059.35	465.21	2059.33	495.04	2058.9	495.68	2058.89
534.8	2058.71	537.3	2058.73	553.14	2058.82	553.91	2059.09	556.12	2059.89
557.07	2059.93	560.55	2060.06	561.06	2060.05	564	2059.94	566.17	2060.15
568.26	2060.36	571.13	2060.39	598.15	2060.61	605.85	2060.64	613.4	2060.37
613.43	2060.37	613.49	2060.37	623.37	2060.43	626.08	2060.57	626.84	2060.6
628.22	2060.64	636.14	2060.86	645.27	2061.05	650.24	2061.06	660.71	2060.8
662.5	2060.8	665.56	2060.99	669.16	2060.96	673.56	2060.91	683.42	2061.19
696.07	2061.14	702.69	2061.01	709.41	2060.7	710.01	2060.68	715.16	2060.45
715.83	2060.42	716.18	2060.44	721.23	2060.62	726.47	2060.53	728.16	2060.49
729.18	2060.48	734.03	2060.41	738.37	2060.35	740.68	2060.32	741.03	2060.32
745.7	2060.29	756.09	2060.12	757.28	2060.1	761.13	2059.98	772.33	2059.62
777.05	2059.19	778.83	2058.98	782.59	2058.98	786.13	2059.04	788.02	2059.08
791.71	2059.07	796.32	2059.05	796.8	2059.11	800.31	2059.5	802.02	2059.54
808.57	2059.86	810.8	2059.83	825.41	2059.74	826.18	2059.7	828.17	2059.59
828.64	2059.57	833.03	2059.35	834.26	2059.33	836.09	2059.31	840.35	2059.92
840.45	2059.94	840.92	2059.96	843.42	2060.06	843.65	2060.07	843.78	2060.07
843.98	2060.07	851.35	2060.1	853.53	2060.11	862.5	2060.21	871.77	2060.58
871.88	2060.58	872.16	2060.58	883.79	2060.65	886.45	2060.47	891.86	2060.13
897.4	2060.15	902.84	2060.26	906.24	2060.15	911.4	2059.95	912.09	2059.97
918.39	2060.27	918.59	2060.28	918.62	2060.28	933.72	2060.28	933.8	2060.28
933.85	2060.28	941.58	2060.48	951.39	2060.49	956.37	2060.39	960.55	2061.42
960.8	2061.47	961.2	2061.69	963.33	2062.24	963.99	2062.44	965.41	2062.86
965.85	2062.99	970.35	2064.45	971.73	2064.69	975.18	2064.34	979.69	2063.57
982.08	2063.48	983.89	2063.36	987.16	2063.1	987.8	2063.05	987.94	2063.04
992.18	2063.02	992.91	2063.02	1001.96	2063.03	1005.15	2063.18	1016.58	2063.86
1026.02	2063.85	1029.49	2063.79	1031.43	2063.8	1042.03	2063.67	1043	2063.58
1052.74	2062.69	1054.32	2062.74	1060.38	2062.9	1063.91	2063.05	1066.28	2063.15
1071.94	2063.38	1074.07	2063.43	1077	2063.49	1101.78	2064.25	1106.18	2064.42
1108.37	2064.48	1120.15	2064.66	1124.96	2064.26	1132.78	2063.68	1138.5	2063.43
1141.63	2063.28	1149.99	2063.12	1151.72	2063.08	1154.84	2063.07	1169.72	2063.19
1193.6	2063.13	1212.04	2063.11	1229.94	2063.01	1251.54	2062.81	1271.15	2062.69
1292.9	2062.8	1312.43	2062.85	1333.1	2062.69	1351.24	2062.5	1377.24	2062.28
1389.51	2062.17	1421.93	2062.03	1430.04	2062.01	1452.82	2062.09	1462.22	2062.16
1499.57	2062.08	1511.05	2062.08	1519.17	2062.02	1565.29	2061.62	1575.26	2061.48
1626.08	2061.04	1637.75	2060.97	1659.15	2060.78	1690.39	2060.5	1694.61	2060.46
1694.65	2060.46	1701.98	2065.2	1705.42	2067.43	1713.47	2069.7	1728.53	2073.92
1731.36	2073.92	1732.15	2073.7	1732.15	2072.84	1732.36	2072.84	1733.19	2072.84
1734.63	2073.42	1734.95	2073.55	1739.4	2073.65	1752.46	2073.93	1761.74	2074.14
1768.07	2074.27	1776.14	2074.14	1801.18	2073.72	1802.05	2073.38	1802.95	2073.03
1803.5	2073.03	1803.99	2073.03	1803.99	2073.54	1810.13	2074.19	1814.34	2074.24
1832.18	2069.14	1849.63	2064.05	1864.01	2059.86	1864.96	2059.86	1893.35	2060
1894.49	2060.01	1895	2060.01	1897.09	2060.66	1899.38	2061.35	1899.62	2061.41
1900.14	2061.57	1919.92	2066.66	1929.13	2070.44	1937.68	2073.54	1940.68	2075.35
1941.08	2075.63	1943.16	2076.55	1947.63	2078.14	1948.96	2078.17	1953.1	2078.29
1955.96	2078.53	1958.51	2078.75	1965.65	2078.51	1969.73	2078.43	1977.71	2078.41
1982.5	2078.56	1992.07	2079.28	1992.88	2079.31	1993.69	2079.42	1994.56	2079.49

Manning's n Values num= 3

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     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04  312.04    .035  963.99     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        336.29  963.99           173.95  167.58  152.04            .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
 1733.33 1994.56 2074.04       F
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 1730.57 1809.07 2074.26

CROSS SECTION


RIVER: Hassayampa
REACH: 1                 RS: 52.284

INPUT
Description:
Station Elevation Data    num=     339
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 2070.91     1.8 2070.55    5.45 2069.98    9.29 2069.46    9.99  2069.3
   11.37 2069.04   11.74 2068.97    14.9 2068.88   17.24 2068.88   21.23 2068.82
   39.13 2068.59   41.43 2068.56   45.48 2068.51   46.87 2068.49   60.99 2068.49
   62.94 2068.46   66.41 2068.43   69.64 2068.33   71.64 2068.14   73.55 2067.87
   75.57  2067.7   78.01 2067.46   81.73 2067.21   84.17 2066.99   91.27 2066.28
   92.01  2066.2   92.51 2066.17   99.02  2065.7  102.16 2065.53  108.15 2065.32
  110.91 2065.12  114.01 2065.03  117.62 2064.95  127.13 2064.71  130.92 2064.66
  135.05 2064.38  137.02 2064.35  147.91 2064.14  150.81 2064.08  152.62 2064.15
  154.56 2064.26  155.81 2064.28  164.18 2064.03  174.91  2063.7  182.76 2063.68
  186.33 2063.65  193.76 2063.58  195.03 2063.57  195.32  2063.6  195.41 2063.59
   195.6 2063.56  196.49 2063.55  211.42 2063.47  217.57 2063.49  221.75 2063.47
  229.37 2063.21   232.7 2063.11  241.41 2063.15  247.63 2063.11  259.65 2060.55
  262.932059.911  268.68 2058.79  277.27 2058.42  277.41 2058.41  277.54 2058.41
  277.93 2058.41  278.65 2058.41   283.8 2058.42  286.39 2058.58  288.03 2058.71
  293.86 2058.72  300.08 2058.72  300.88 2058.63  304.19 2058.27   312.4 2058.44
   316.1 2058.54  326.62 2058.11  328.57 2058.05   332.3 2058.32  333.41 2058.41
  335.25 2058.39  342.05 2058.27  343.84 2058.33   348.4 2058.33  378.59 2058.59
  387.82  2058.5  412.48 2058.27   421.2 2058.17  432.68 2058.05  439.02 2057.57
  441.82 2057.38  444.88 2057.43  462.18 2057.53  465.84 2057.54  470.15 2058.84
  470.16 2058.85  470.24 2058.85  478.33 2059.33  498.81 2059.87  499.37 2059.89
  499.39 2059.89  499.49 2059.89  501.85 2059.92   502.3 2059.94  505.06 2059.96
  518.55 2060.03  526.81 2060.05  537.07 2059.98  550.35 2059.74  552.44 2059.68
  558.24 2059.72  562.04 2059.69  562.96 2059.75  567.61 2059.73  571.68 2059.64
   576.1 2059.71  582.49 2059.83  584.59 2059.87  586.36 2059.68  589.84 2059.32
  591.59 2059.31  594.55 2059.26  597.07 2059.66   598.7 2059.93  606.01 2059.85
  606.61 2059.84  607.02 2059.84  615.48 2059.64   615.8 2059.63  616.45 2059.68
  620.63 2060.03  627.61 2059.88  631.53 2059.83  633.88 2059.67  637.84 2059.41
  641.18 2058.95  645.91  2058.3  656.23 2058.23  659.86 2058.21   662.4 2058.62
  664.69 2058.98  666.98    2059  671.68 2059.08  676.05 2059.22  679.07 2059.05
  682.72 2058.56  688.16 2058.49  692.09 2058.48   698.1  2058.8  698.32 2058.81
  703.05  2058.9  703.51 2058.91  704.12 2058.92  708.36 2058.97  716.67 2059.02
  721.11 2059.01   727.6 2059.05  736.44 2059.15  738.03 2059.06  739.34 2058.97
  741.88 2058.94  743.59 2058.94  745.69 2059.04  746.95 2059.08  750.35 2059.12
   753.3  2059.1  755.76 2059.08  756.81 2059.03     768 2059.27  770.31 2059.27
  775.09 2059.37  783.13 2059.98  786.99  2060.3  789.94 2061.32  790.59  2061.6
  793.23 2061.91  796.14 2062.36  798.05 2062.65   804.1 2062.92  811.64 2063.29
  821.92 2063.16   833.8  2063.1   840.4 2062.81  845.78 2062.74  847.08 2062.69
  856.24 2062.79  857.71  2062.8  871.35 2062.96  875.33 2063.05  880.79    2063
  891.73 2062.94  901.72 2063.05  910.24 2063.14  936.01 2063.08  936.57 2063.07
  937.37 2063.07  945.49 2063.04  950.06 2062.95  955.51 2062.87  963.76 2062.06
  966.95 2061.74  968.41 2061.77  982.16 2061.46   982.8 2061.45  982.86 2061.45
  988.02 2062.15  989.56 2062.23 1002.44 2063.05 1023.52  2063.5 1027.78 2063.61
 1033.04 2063.48 1049.15 2063.01 1056.81 2062.76 1059.91 2062.49 1070.74 2062.33
 1072.59  2062.3 1074.03 2062.29 1074.38 2062.29 1076.08  2062.3 1092.74 2062.32
 1111.39 2062.26 1138.01 2062.15 1152.42  2062.1 1166.39 2062.08  1195.6 2061.97
    1214 2061.91    1242 2061.78 1261.12 2061.69 1286.67 2061.48    1314 2061.31
 1332.65 2061.06 1362.57 2061.18  1369.1 2061.25 1377.95 2061.22 1399.49  2061.2
 1406.67 2061.25 1410.41 2061.33 1421.42  2061.4 1438.72 2061.47 1451.56  2061.3
 1462.74 2061.28 1474.36 2060.97 1479.78 2060.83 1480.25 2060.82 1480.54 2060.82
 1481.46 2060.81 1494.78 2060.73 1501.94 2060.64  1506.5  2060.6 1516.39 2060.48
 1516.98 2060.47 1520.51 2060.42  1528.4 2060.37 1534.79 2060.32 1562.52 2060.27
 1571.81 2060.21 1575.12  2060.2 1581.74 2064.46  1585.4 2066.81 1596.13 2070.02
 1607.24 2073.38 1607.91 2073.18 1610.88 2073.22 1610.88  2072.3 1611.78  2072.3
 1611.92  2072.3 1612.16 2072.39  1613.7    2073 1624.54 2072.95 1637.49  2072.9
 1646.99 2072.91 1665.32  2072.6 1680.28 2072.35 1681.39 2071.91 1682.06 2071.65
 1682.43 2071.66  1683.1 2071.66 1686.41 2072.04  1693.5 2072.86 1711.07 2068.05
 1715.25 2066.89 1743.43 2059.14 1747.53 2059.19 1764.78 2059.25 1769.22 2059.31
 1773.93 2059.32 1794.87 2059.91 1795.56  2059.9 1808.09 2060.16 1822.71 2060.46
 1829.71  2060.6 1838.63 2060.75 1850.02 2061.06 1858.69 2061.29 1872.28  2061.3
 1877.62 2061.18 1883.62 2061.19 1888.69 2061.15 1900.61 2060.86 1903.15 2060.75
 1904.73 2060.73 1906.52 2060.74 1910.52 2060.78 1919.55 2060.89 1924.72 2060.99
  1930.8 2061.13 1943.88 2061.51 1946.03 2061.57  1949.8 2061.62 1955.76 2061.68
  1959.2 2061.78 1962.79 2061.95 1968.88 2062.18 1968.91 2062.18  1970.2 2062.15
 1972.22  2062.2 1983.87 2062.65  1992.1 2062.93  2004.7 2063.34 2006.39  2063.4
 2007.01 2063.42 2007.44  2063.5 2019.51  2066.9 2019.86    2067 2019.99 2067.05
 2020.08 2067.08 2020.23 2067.13 2030.84 2071.26 2035.46 2073.09 2044.17 2076.76
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2048.63 2077.77 2059.24 2079.29 2064.27 2079.53 2070.44 2079.47 2074.68 2078.87
2082.04 2078.78 2082.35 2078.75 2082.52 2078.74 2086.21 2077.95

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	262.93	.035	796.14	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
262.93	796.14	186.06	180.79	159.06	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
1606.06	2086.21	2073.22	F

Blocked Obstructions num= 1

Sta L	Sta R	Elev
1609.49	1687.99	2072.89

CROSS SECTION

RIVER: Hassayampa
REACH: 1 RS: 52.250

INPUT
Description:
Station Elevation Data num= 403

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2090.62	2.21	2090.62	18.65	2089.28	20.8	2089.07	26.19	2088.57
31.96	2087.99	33.99	2087.75	41.9	2086.93	47.45	2086.22	59.21	2084.38
59.77	2084.29	59.94	2084.27	61.95	2083.96	75.87	2081.82	78.88	2081.43
81.69	2081.06	88.24	2080.21	92.86	2079.52	98.57	2079.29	101.63	2079.28
104.27	2079.23	108.05	2079.19	108.47	2079.16	110.34	2078.94	111.65	2078.83
112.93	2078.72	123.39	2078.59	124.54	2078.58	125.7	2078.58	132.76	2078.14
135.07	2078.02	136.34	2077.9	141.01	2077.43	146.16	2077.02	146.41	2077
146.53	2076.93	151.56	2075.34	153.82	2074.84	155.99	2074.38	158.84	2073.68
164.07	2072.5	165.67	2072.15	168.87	2071.59	170.33	2071.37	177.78	2069.64
179.55	2069.26	190.06	2067.8	191.06	2067.68	193.43	2067.46	196.84	2067.17
199.54	2067.19	201.39	2067.23	204.88	2067.15	210.53	2067.03	214.86	2066.93
217.6	2066.8	226.82	2066.34	228.5	2066.3	228.81	2066.19	231.42	2065.48
233.77	2064.31	237.7	2062.33	240.71	2062.55	240.88	2062.56	245.8	2062.47
247.84	2062.43	250.53	2062.44	256.36	2062.48	260.8	2061.42	261.44	2061.29
269.25	2059.2	271.16	2058.59	273.17	2058.59	277.062	058.735	280.4	2058.86
286.52	2057.52	287.14	2057.38	287.36	2057.36	290.63	2057.2	292.54	2057.43
293.63	2057.58	294.14	2057.59	301.74	2057.67	304.04	2057.69	304.87	2057.71
305.72	2057.71	314.4	2057.6	318.78	2057.54	319.22	2057.5	323.11	2057.09
328.19	2057.11	331.14	2057.12	333.3	2057.44	335.02	2057.69	340.53	2057.85
342.48	2057.91	363.06	2057.76	376.83	2057.82	383.39	2057.8	390.09	2057.73
421.04	2057.47	438.51	2057.41	443.77	2057.4	449.89	2057.44	469.71	2057.56
486.82	2057.46	491.88	2057.39	492.53	2057.63	495.25	2058.45	495.75	2058.6
496.47	2058.62	509.77	2059.07	521.98	2058.96	525.36	2058.91	527.73	2058.63
529.71	2058.19	531.8	2058.15	532.64	2058.14	533.6	2058.39	534.68	2058.68
537.01	2058.58	537.91	2058.54	540.95	2058.68	542.83	2058.66	545.84	2058.59
549.96	2058.51	550.19	2058.51	550.51	2058.5	551.08	2058.5	558.29	2058.41
560.52	2057.65	560.74	2057.58	560.94	2057.57	561.37	2057.57	563.47	2057.56
564.38	2057.68	566.06	2058	567.49	2058.02	569.62	2058.01	569.76	2058.01
569.9	2058.01	572.05	2057.9	573.92	2057.81	574	2057.84	576.16	2058.44
577.33	2058.44	583.27	2058.44	588.25	2058.39	590.36	2058.39	593.84	2058.38
602.34	2058.66	608.44	2058.88	625.48	2058.77	629.99	2058.75	632.76	2058.7
634.51	2058.69	648.21	2058.4	654.21	2058.45	655.1	2058.45	656.1	2058.45
659.1	2058.33	659.34	2058.22	661.34	2058.05	663.42	2057.8	664.29	2057.75
671.26	2057.73	679.93	2057.64	680.35	2057.67	685.89	2057.78	688.36	2057.84
692.88	2057.88	700.23	2057.93	700.38	2058.02	701.16	2058.39	702.91	2059.23
703.1	2059.38	704.41	2060.36	705.42	2060.73	707.67	2061.72	709.5	2061.31
711.78	2060.78	713.02	2060.52	713.68	2060.27	716.8	2058.72	723.81	2058.78
731.71	2058.85	733.33	2059.11	736.53	2059.58	741.64	2059.67	743.42	2059.69
745.04	2059.71	749.73	2059.74	753.83	2060.73	756.41	2061.25	760.71	2061.41
762.42	2061.48	767.44	2061.77	770.44	2061.97	771.79	2061.99	787.09	2062.55
791.03	2062.6	796.17	2062.7	804.62	2062.65	809.28	2062.5	815.42	2062.23
817.78	2062.04	821.24	2061.77	827.53	2061.78	829.45	2061.75	836.75	2061.29
837.54	2061.23	838.73	2061.2	846.87	2061.01	857.64	2061.44	857.85	2061.45
860.85	2061.3	877.44	2061.86	877.85	2061.88	878.44	2061.87	894.91	2061.6
899.86	2061.67	906.8	2061.83	914.31	2062.09	919.75	2062.24	924.57	2062.3
930.82	2062.29	940.13	2062.02	940.27	2062.02	940.42	2062.02	953.5	2061.81
958.18	2061.84	964	2061.85	967.17	2062.05	972.39	2062.34	979.87	2062.32
983.58	2062.31	989.66	2062.16	1005.35	2061.85	1025.29	2061.47	1029.65	2061.41
1035.53	2061.31	1046.91	2061.17	1053.33	2060.99	1057.81	2060.86	1062.65	2060.87
1074.26	2060.85	1087	2060.9	1111.66	2060.84	1130.8	2060.82	1155.04	2060.79
1176.41	2060.66	1198.68	2060.55	1217.35	2060.5	1239.33	2060.29	1255.42	2060.15
1281.85	2060.05	1295.5	2060.01	1321.96	2059.94	1334.11	2059.84	1343.89	2059.83
1350.15	2059.83	1353.15	2059.85	1366.51	2060.07	1379.47	2060.18	1391.03	2060.23
1397.01	2060.2	1402.16	2060.2	1419.08	2060.16	1421.72	2060.18	1431.68	2060.17
1439.9	2060.18	1442.25	2060.23	1453.08	2060.31	1458.43	2060.22	1459.77	2059.67
1461.09	2059.16	1462.47	2059.16	1484.2	2059.56	1515.48	2059.53	1516.39	2059.53
1517.18	2059.52	1518.18	2059.51	1532.54	2059.42	1538.66	2059.38	1548.03	2065.43
1551.18	2067.46	1559.85	2070.27	1567.84	2072.91	1570.65	2072.08	1571.47	2071.84
1572.05	2071.84	1572.51	2071.84	1572.92	2072	1574.28	2072.54	1588.07	2072.18
1599.43	2071.87	1607.55	2071.66	1640.23	2070.79	1640.87	2070.77	1640.98	2070.73
1641.21	2070.64	1642.65	2070.08	1642.99	2070.08	1643.69	2070.08	1647.25	2070.5
1654.1	2071.29	1666.4	2068.28	1669.02	2068.96	1672.06	2067.04	1673.61	2066.94

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 1676.66 2066.03 1683.14 2064.18 1688.24 2061.53 1704.19 2056.94 1705.11 2056.93
 1706.92 2056.94 1723.81 2056.76 1724.04 2056.76 1724.16 2056.76  1736.6 2056.69
 1737.24 2056.67 1743.58 2056.53 1747.85 2056.52 1749.83 2056.55 1750.82 2056.51
  1751.5 2056.52 1757.67 2058.11 1764.49 2059.66 1767.18 2060.43 1768.62 2060.42
 1770.15 2060.91 1773.63 2062.49 1776.16 2063.46 1777.26 2063.73 1779.91 2064.41
 1784.83 2065.76 1786.07 2066.08 1788.32  2066.6 1790.22  2067.9 1792.67 2070.33
 1794.54 2070.91 1798.77 2072.03 1802.53 2073.03 1805.19 2073.92  1809.5 2075.57
 1812.42 2076.33 1817.36 2077.95 1821.38 2078.69 1823.17 2079.31 1825.94 2080.28
 1827.48 2080.81 1828.18 2080.99 1828.62  2081.2 1832.99 2081.47 1834.61 2081.56
 1838.86 2081.92 1839.69 2081.99 1839.84 2081.97 1840.57 2081.86 1841.99 2081.66
 1842.66 2081.57 1850.78 2081.39  1860.2 2081.32 1868.61 2081.26 1875.12 2081.22
 1880.82 2081.15 1899.66  2081.2  1904.4 2081.15 1909.09 2081.11 1913.64 2081.12
 1914.95 2081.34 1924.58  2081.5 1926.93 2082.11 1930.09 2082.67 1931.25 2082.86
 1931.62 2082.86 1935.05  2082.4 1938.53 2082.17 1943.34 2082.36  1943.4 2082.36
 1943.46 2082.36 1943.51 2082.37 1945.15 2082.42 1946.88 2081.45 1949.25 2080.12
  1952.9 2079.84 1955.71 2079.67 1961.71 2079.39 1963.38 2079.27 1966.69    2079
 1971.62 2078.43 1975.75 2078.82 1983.46 2078.17 1984.52 2078.16 1986.63 2078.38
 1991.84 2078.82 1995.11 2078.92 2003.48 2079.26  2006.5 2079.52 2008.63 2079.92
 2010.94 2080.06 2014.69 2080.14 2028.12  2080.5

Manning's n Values         num=       3
      Sta   n Val      Sta   n Val      Sta   n Val
        0     .04   277.06    .035   709.5     .04

Bank Sta: Left   Right     Lengths: Left Channel   Right     Coeff Contr.    Expan.
         277.06   709.5           135.25  137.72  131.51             .1        .3
Ineffective Flow      num=       1
   Sta L    Sta R     Elev  Permanent
 1591.75 2028.12                F
Blocked Obstructions      num=       1
   Sta L    Sta R     Elev
 1570.05 1648.55 2071.63

CROSS SECTION


RIVER: Hassayampa
REACH: 1                   RS: 52.224

INPUT
Description:
Station Elevation Data    num=      346
      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
        0  2081.79     1.33  2081.75     5.84  2081.61      6.8  2081.45     7.41  2081.36
     8.84  2081.32    16.23  2080.94    21.01  2080.78    24.84   2080.6    32.44  2080.46
    33.61  2080.42    44.04  2079.99    52.47  2079.87    52.92  2079.89    53.88  2079.82
    58.97  2079.25    62.05  2079.29     70.1  2079.54    72.45  2079.54    75.75  2079.53
    78.54  2079.43    85.04  2079.25    94.69  2078.84    97.18  2078.74    98.79  2078.65
   103.92  2078.47   108.62  2078.32   109.07  2078.31      110  2078.19   115.55  2076.86
   115.88  2076.78   115.92  2076.77   116.05  2076.74   117.95  2076.25   119.81  2075.66
   125.03     2074   128.99  2072.45   131.31  2071.85   144.59  2067.92   149.96  2067.63
   151.39  2067.54   151.98  2067.55    156.6   2067.6   157.78  2067.61   159.25  2067.47
   166.41   2066.8   169.65  2065.89   171.82  2065.25   175.69  2063.74   176.77  2063.34
   179.99  2062.67   181.49  2062.35   188.08  2062.03   189.61  2061.95   190.26  2062.03
   192.31  2062.39   199.51   2062.4   201.37   2062.4   205.55  2062.19   211.97  2061.85
   213.01  2061.53   216.43   2060.5   218.53  2059.92   224.02  2058.41   225.22  2058.13
   226.282057.905   231.02   2056.9    233.3  2056.87   241.09  2056.73   242.43  2056.71
   243.99   2056.8      249  2057.04   261.99  2057.18   264.68   2057.2   267.36  2057.22
   268.08  2057.23    269.4  2057.08   272.02  2056.78   273.78  2056.64   283.64  2056.62
    283.9  2056.62   284.03  2056.62   286.51  2056.77    299.9     2057   302.24  2057.05
   302.72  2057.06   303.58  2057.05    329.4  2056.96   365.15  2056.76   365.89  2056.75
   367.14  2056.77   390.02  2057.14   405.24  2056.71   407.77  2056.65   411.36  2056.66
   435.45  2056.63   437.62  2056.66   444.84  2056.75   446.55  2057.16   447.99  2057.51
   452.37  2057.65   455.47  2057.78   459.99  2057.83   461.85  2057.84   468.45  2057.84
   471.78  2057.84   473.54  2057.88   484.69  2058.13   491.48  2058.24   505.54  2058.26
    513.1  2058.26   515.31  2058.26   533.52  2058.06   535.07     2058   544.96  2057.54
   548.23  2057.54   556.62  2057.54   572.18   2057.6   577.33  2057.56   587.58  2057.55
   588.72  2057.53   591.94  2057.49   612.03  2057.26   613.34  2057.25    613.8  2057.51
   614.88  2058.07   615.61  2058.46   616.41     2059   616.52  2059.08   618.79  2060.57
    619.8  2061.91   620.87   2061.9   622.96  2062.98   625.32  2061.84    631.8  2058.58
   637.97  2058.37   650.37  2058.12   656.94  2058.13   663.46  2058.19   668.92  2058.38
   672.51  2058.43   677.66  2058.98   680.08  2059.37   683.59  2060.48   685.99  2061.23
   692.51  2061.27    693.3  2061.28   693.99  2061.19   701.22   2060.3   704.04   2060.3
   706.45   2060.3   707.45  2060.32   708.74  2060.33    712.4  2060.41   715.17  2060.53
   715.37  2060.53   719.54   2060.5   726.66  2060.46   730.92  2060.48   736.65  2060.57
   741.06   2060.7   746.34  2060.61   754.14  2060.41   754.81  2060.37    759.1  2060.07
   763.41  2060.08   764.85  2060.05    776.8  2060.19   788.32  2060.65   789.93  2060.73
   790.88  2060.75   817.55  2061.01   818.88  2061.02   824.08   2061.1   852.03  2061.48
   856.28   2061.5   866.72  2061.48    871.6  2061.32   882.19  2060.97   887.37  2060.91
   893.89   2060.9   896.39  2061.12   907.85  2061.65   911.17  2061.82   923.65  2061.66
   928.64  2061.58   929.63  2061.57   945.32  2061.25    964.5   2060.7      969  2060.63
   970.89  2060.67   979.18  2060.21   979.47  2060.18   981.13  2060.17   986.22  2060.19
   988.28  2060.15   991.55  2060.13  1001.27  2060.09  1003.37  2060.07  1020.48   2060.1
  1033.09  2060.15  1039.35  2060.14  1074.94  2060.25  1082.16  2060.22  1122.87  2060.01
  1136.69  2059.97  1168.97  2059.87  1183.46  2059.76   1210.5   2059.5  1229.39  2059.51
  1249.48  2059.55  1251.25  2059.55  1261.54  2059.52  1276.96  2059.57  1288.46  2059.67
  1301.33  2059.64   1311.7  2059.54  1317.44  2059.47  1317.79   2059.4  1319.92  2059.02
  1329.36  2059.12  1329.48  2059.12  1329.59  2059.12  1330.95   2059.1  1361.77   2058.7
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 1389.11 2058.79 1396.14 2058.79 1407.15 2058.81 1438.28 2058.75 1448.47 2058.73
 1451.15 2058.72 1455.98 2061.86 1466.21 2068.51 1478.61 2071.29 1481.42 2071.92
 1484.83 2071.92 1485.01 2071.87 1485.01 2070.84 1485.06 2070.84 1486.04 2070.84
 1487.76 2071.53  1487.8 2071.54 1490.25 2071.48 1509.21 2070.96 1520.76 2070.65
  1549.5 2069.86 1553.74 2069.75 1554.55 2069.43 1555.49 2069.06  1555.5 2069.05
 1555.57 2069.05 1556.53 2069.06 1556.76 2069.09  1558.8 2070.17 1563.74 2070.23
 1576.79 2068.14 1581.57 2067.38 1592.75 2065.59 1601.35 2064.22 1605.71 2063.53
 1609.86 2065.67 1618.48 2069.21 1624.94 2069.35 1635.19 2069.58 1646.98 2069.45
 1647.31 2069.44 1647.98 2069.45 1654.55 2069.66 1660.44 2069.68 1664.74 2069.68
 1670.96 2069.33 1671.87 2069.28 1672.94  2069.3 1674.38 2069.31 1681.26 2069.39
  1684.5 2069.45    1686 2069.49 1693.99  2069.6 1696.72 2069.65 1698.75 2069.65
 1709.56 2069.54 1725.28 2069.89  1726.1 2069.89 1727.74 2070.37 1727.79 2070.38
 1727.93 2070.41 1729.51 2070.81 1731.98  2071.1 1732.66 2071.33 1736.07 2071.89
 1739.26 2072.97 1741.27  2073.6 1741.44 2073.71 1743.56 2074.07 1746.32 2075.55
 1748.27 2076.57 1749.25 2077.02 1751.32 2077.74 1752.81 2078.14 1754.35 2077.77
 1755.22 2077.75 1756.57 2077.66 1758.72 2076.74 1759.21 2076.61  1760.9 2077.14
 1761.06  2077.2 1762.84 2077.89  1765.5  2077.9 1770.15 2077.92 1777.66 2077.85
  1779.3 2077.85    1781 2078.01 1783.64 2078.73 1784.72 2078.86 1785.64 2079.07
 1788.06 2079.49 1790.09  2079.9 1791.32 2080.04 1795.98 2080.58 1808.62 2080.65
 1823.42 2080.75 1837.73 2080.83  1861.5 2080.99 1877.07 2080.95 1901.23 2080.86
 1915.09 2081.08 1920.54 2081.19 1924.07 2081.25 1924.95 2081.21 1928.97 2081.17
 1932.24 2081.13 1935.62 2081.04  1936.6 2081.02 1936.98 2081.01  1938.1 2080.87
 1944.42 2080.06 1956.08 2079.97 1959.86 2079.93 1961.78  2079.9 1975.73 2079.75
  1984.3 2079.79 1994.56 2080.27 2000.08 2080.57 2008.21 2080.67 2026.25 2080.97
 2028.89    2081

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04  226.28    .035  614.88     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        226.28  614.88           153.53  144.14  126.01             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
 1481.82 2028.89 2071.85       F
Right Levee     Station= 1520.76      Elevation= 2070.65
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 1483.26 1561.76 2070.61

CROSS SECTION


RIVER: Hassayampa
REACH: 1                  RS: 52.196

INPUT
Description:
Station Elevation Data    num=     282
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 2070.05     8.8 2069.88   12.49 2069.79   13.84 2069.73   17.98 2069.54
   33.73 2068.84   42.78 2068.44   45.49 2068.31   47.01 2068.26   54.01 2067.96
    66.7  2067.4   69.56 2067.27   70.85 2067.21   77.74 2067.02   98.15 2066.41
  106.22 2066.03  116.33 2065.44  128.06 2064.99   144.4 2064.53   171.8 2063.72
  178.98 2063.45  203.32  2062.5  209.43 2062.33  215.86 2062.23   221.7 2062.14
  225.91 2062.01  228.87 2061.88  232.71 2061.99  234.37 2062.04  235.23 2062.04
  237.73 2062.06   242.6 2062.13  248.32  2062.2  251.07 2062.18  259.87 2062.04
  261.75 2061.32  263.83 2060.52  269.83 2059.06  273.13 2058.25  278.132057.006
  281.65 2056.13  285.77 2056.17  294.56 2056.23   295.5 2056.23  312.32 2056.18
  313.65 2056.18  313.95  2056.2  316.29 2056.35  317.17 2056.38  322.92 2056.46
  343.54 2056.33  350.59 2056.34  357.74 2056.35  365.31 2056.25  386.88 2056.21
  411.25 2056.25  420.23  2056.3  423.46 2056.34  442.04 2056.03  442.05 2056.03
  442.07 2056.03  442.09 2056.03  465.33  2056.2  466.17 2056.17  468.06 2056.08
  470.27 2055.97  471.12 2056.18  473.28 2056.72  474.24 2056.74  484.16 2056.93
  489.53 2056.97  502.51 2057.05  504.95 2057.06  506.22 2057.08  519.19 2057.02
  536.49 2056.97  539.06 2056.95  540.56 2056.94  546.81 2056.94  554.74 2056.86
  559.24 2056.83  562.63 2056.79  565.74 2056.79  566.85 2056.68  572.68 2056.72
  572.79 2056.73  572.91 2056.73  576.16 2056.78  585.48 2056.86  589.46 2056.89
  593.55 2057.26  594.78 2057.41  603.41 2057.39   606.2 2057.37  614.93  2057.6
  616.96 2057.66  619.56  2057.7  630.67 2057.85  634.45 2058.05  639.72 2058.32
  641.94 2058.28  647.87 2058.17  668.02 2057.89  679.08 2057.55  688.48 2057.38
   692.8 2057.27  696.22 2057.79  699.26 2058.17  712.54 2058.25  712.88 2058.25
  713.19  2058.3   718.3 2059.26  718.63 2059.28  721.15 2059.45  728.05 2059.77
  736.62 2059.75  739.68 2059.72  741.86 2059.74  745.23  2059.4  748.23 2059.16
  750.05 2059.16  751.13 2059.19  756.23 2059.19  767.44 2059.05  783.64 2058.87
  784.58 2058.87  785.03 2058.86  790.46 2058.95  795.36 2058.92  797.74 2059.08
  805.95 2059.75  810.35  2060.1  811.75 2060.25  821.17 2060.34  826.18 2060.32
   830.4 2060.29  845.78 2060.75  846.51 2060.77  848.53 2060.79  857.84 2060.84
  866.36 2060.85   869.5 2060.92  890.71 2061.04  899.86 2061.12   906.3 2061.02
   931.6 2060.96   939.7 2060.93  944.16  2060.9  972.99 2060.64  973.53 2060.64
  997.42 2060.68 1000.08 2060.67 1001.97 2060.68  1010.4 2060.71 1013.63 2060.52
 1019.01  2060.2 1024.63 2059.94 1026.09 2059.86 1026.62 2059.83 1028.15 2059.85
 1055.12  2059.8 1061.36 2059.86 1066.28 2059.92 1092.44 2059.66 1098.43 2059.64
 1145.69 2059.53 1147.71 2059.52 1149.15 2059.52 1163.79 2059.48 1192.98 2059.37
 1195.68 2059.36 1232.86  2059.2 1245.68 2059.11 1253.79 2059.13 1267.21 2059.03
 1273.34 2058.95 1276.48 2058.94 1278.48 2058.24 1278.59 2058.21 1283.33 2058.28
 1286.78 2058.31 1294.82 2058.34 1307.34 2058.35    1321 2058.23 1328.74 2058.17
  1371.6 2058.07 1374.49 2058.07 1374.86 2058.06 1416.67    2058 1419.39    2058
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  1432.8 2057.95 1464.78 2057.81  1468.6 2060.31 1479.96 2067.73 1490.39 2070.02
 1495.12 2071.05 1495.99 2070.79 1497.04 2070.48  1498.7 2069.98 1498.95 2069.98
 1499.72 2069.98 1501.03  2070.5 1501.35 2070.63 1501.43 2070.66 1501.47 2070.68
 1502.81 2070.64 1534.22 2069.77 1543.17 2069.52 1558.51  2069.1 1566.99 2068.87
 1568.09 2068.43 1568.75 2068.17 1569.27 2068.17 1569.77 2068.17 1573.51 2068.78
 1574.86    2069 1576.96 2069.34 1598.24 2065.84 1613.41 2063.37 1620.53 2065.58
  1623.6 2066.35 1635.62 2069.82 1637.82 2070.22 1641.23 2070.26 1655.95 2070.53
 1678.02 2071.09 1678.35  2071.1  1678.8 2071.11 1688.76 2071.27 1693.04 2071.28
 1703.96 2071.49 1704.47 2071.48 1708.36 2071.43 1719.48 2071.18 1726.24 2071.09
 1735.28 2071.01 1743.86 2070.88 1749.36 2070.81 1750.17 2070.78 1752.33 2070.67
 1760.21 2070.12 1764.15 2070.16 1774.54 2070.32  1778.5 2070.37 1787.77  2070.4
 1802.41 2071.28 1809.02 2071.69 1817.13    2072 1823.12 2072.31 1831.44 2072.41
 1837.86 2072.58 1843.46 2072.68 1851.65 2077.22 1856.01 2080.02 1860.12  2080.3
 1863.58 2080.55 1874.02 2080.54  1875.3 2080.54 1876.42 2080.53 1878.42 2080.53
 1892.77 2080.59 1913.18 2080.65 1914.47 2080.67 1949.04 2080.79 1950.25 2080.79
 1968.89 2080.74 1984.33 2080.71 1985.88  2080.7 2003.26 2080.68 2003.97 2080.68
 2013.09 2080.74 2014.75 2080.75 2022.87 2080.39 2025.63 2080.24 2029.04 2080.24
 2037.39 2080.23 2040.09 2080.19 2058.13 2080.43 2066.75 2080.58 2067.91  2080.6
 2070.84 2080.65 2077.61 2080.89

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04  278.13    .035  718.63     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        278.13  718.63           146.45  140.71  126.49             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
 1493.94 2077.61 2070.92       F
Right Levee     Station= 1534.22      Elevation= 2069.77
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 1496.72 1575.22 2069.74

CROSS SECTION


RIVER: Hassayampa
REACH: 1                 RS: 52.170

INPUT
Description:
Station Elevation Data    num=     330
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 2069.69   19.64 2068.79   26.94 2068.51    51.1 2067.45   65.95 2066.89
   79.94 2066.39   96.47 2065.53  110.31 2064.99   116.5 2064.63  144.36 2063.71
  152.56 2063.37  181.76 2062.45   185.2 2062.36     188 2062.32  195.11 2062.19
  205.02 2062.04  209.64 2061.89  210.75 2061.87  211.64 2061.86  214.67 2061.86
  215.62 2061.82  218.22 2061.71  223.05  2061.8  228.91 2061.87  233.31 2061.93
  240.76 2062.02  241.35 2061.95  244.49 2061.52  248.75 2060.57  268.33 2056.44
  271.07 2055.86  274.59 2055.81  282.47 2055.64  293.57  2055.6  299.64  2055.6
  302.75 2055.58  313.96 2055.69  328.38 2055.73  345.25 2055.73  355.88 2055.76
  360.72 2055.63   365.5 2055.49  374.26 2055.34  386.08 2055.44   398.6 2055.77
  399.73 2055.74  428.08 2055.53  429.59 2055.52  431.99 2055.52  433.31 2055.51
   443.2 2055.43  452.76 2055.35  453.68  2055.6  455.46 2056.13  457.04 2056.15
  464.71  2056.2  470.58 2056.18  477.37 2056.21   478.4 2056.22  487.39 2056.27
  491.31 2056.07  492.88 2055.97  496.51 2055.92  497.29 2055.91  500.66 2056.47
  500.82  2056.5  501.38 2056.52  507.85 2056.82   510.1 2056.79  515.74 2056.64
  515.81 2056.63  516.51 2056.56  520.02 2056.19  521.11 2056.07   521.5 2056.04
  522.51 2056.12  527.62 2056.57  530.83 2056.58  534.65 2056.55  537.89 2056.53
  539.49 2056.51  543.95 2056.53  548.55 2056.53  558.06 2056.66  565.25 2056.76
  567.69 2056.79  571.59 2056.81  589.81 2056.86  602.66 2057.13  603.21 2057.14
  608.34 2057.27  609.88 2057.33  612.57 2057.36  628.25 2057.32   645.7 2057.12
  649.97 2057.09  652.79 2057.02  664.13  2056.7  665.61 2056.81  670.31 2057.17
  674.59 2057.57  675.16 2057.63  675.88 2057.76  680.77 2058.66  686.69 2059.63
  692.21 2060.57  695.23 2060.42  697.18 2060.24  697.95 2060.13  701.62 2059.57
  703.32 2059.35  704.61 2059.28  708.06 2060.35  709.28  2060.4   712.6 2060.52
  715.41 2060.35  719.47 2060.03  724.87 2059.45  728.53 2058.93  731.11 2058.61
   732.7 2058.29  734.25 2058.15  739.72  2058.1  742.44 2057.96   745.6 2058.23
  756.93 2058.69  766.95 2059.09  771.01 2059.23  777.37 2059.21  789.92 2059.16
   791.8 2059.19   799.5 2059.26  816.18 2059.29  819.19  2059.3  820.06 2059.32
  820.79 2059.33  827.36 2059.66  829.42 2059.66   832.3 2059.74   832.7 2059.76
  833.05 2059.82  834.66 2060.19  835.51 2060.43  838.33  2061.9    840 2062.55
  842.21 2063.65  843.28  2063.9     844 2064.12  845.03 2064.35  845.36  2064.8
  847.68 2065.02  851.82 2065.16  853.35 2064.94  853.98  2064.8  860.23 2064.17
   861.7 2064.18  862.48 2063.99  867.94 2064.68   872.2 2063.83  873.02 2063.78
  874.79 2063.64  884.46 2059.66  885.11 2059.67  898.76 2059.63  907.96  2059.6
  924.12  2059.7  927.33  2059.7   953.9 2059.61  959.07 2059.56  969.59 2059.41
  974.04 2059.34   975.2 2059.36  981.09 2059.45  984.85 2059.32  987.44 2059.24
  992.49 2059.17  999.61 2059.06 1008.77 2058.97 1023.13 2059.07 1037.06 2059.06
 1043.37 2059.02 1060.43 2058.82 1072.61 2058.68 1076.64 2058.67  1101.4 2058.59
 1114.22 2058.51    1139  2058.5 1160.48 2058.53 1176.55 2058.53 1181.22 2058.52
 1181.67 2058.51 1186.95 2058.47 1190.47  2058.4 1202.18 2058.26 1205.87 2058.25
 1208.81 2058.25 1216.78 2058.18 1219.97 2058.31 1220.05 2058.31 1220.67 2058.31
 1223.81 2057.63 1226.26 2057.25 1227.01 2057.26 1227.15 2057.26 1232.04 2057.28
 1233.04 2057.28 1236.83  2057.3 1240.14 2057.32 1241.66 2057.34 1254.47 2057.28
 1254.64 2057.28 1254.72 2057.28 1254.83 2057.29 1278.15  2057.7 1282.66 2057.53
 1289.75 2057.26 1307.72 2057.25 1319.99 2057.39 1349.81 2057.37 1359.74 2057.35
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  1394.8  2057.8 1400.13 2057.82 1406.91 2057.82 1413.59 2057.82 1431.97 2057.82
  1442.2 2064.58 1445.65 2066.85 1458.53 2069.69 1460.64 2070.16 1461.28 2069.96
 1461.78 2069.81 1464.18 2069.08 1464.53 2069.08 1465.19 2069.08  1466.7 2069.69
 1466.84 2069.75 1466.92 2069.78 1468.41 2069.74 1499.27 2068.85 1515.93 2068.38
 1531.63 2067.93 1532.39 2067.62 1533.36 2067.23 1534.06 2067.23 1534.37 2067.23
 1540.28  2068.2 1540.89  2068.3 1541.45 2068.39 1546.88  2067.5 1578.48 2062.34
 1580.34 2057.78    1582  2054.6 1584.15 2056.59  1585.1 2057.48 1592.84  2060.8
 1593.29 2060.99 1593.33 2061.01 1593.59 2061.09 1602.34 2063.92 1617.43 2068.23
 1622.01 2069.54 1623.17 2069.68 1639.28 2069.83 1639.89 2069.83 1640.02 2069.85
 1647.14 2070.59 1659.06 2070.78 1669.22    2071  1682.5 2071.11 1693.32  2071.2
 1701.73 2071.05 1715.25 2070.98  1732.1 2070.78 1737.67 2070.75 1748.17 2070.39
 1751.52  2070.3 1756.53  2070.1 1757.95 2070.06 1775.06  2069.9 1777.22 2069.87
 1781.72 2070.04 1783.05  2070.1 1792.43 2070.64 1792.46 2070.64 1802.36 2070.92
 1802.68 2071.08 1810.09 2073.44 1812.11 2073.39 1821.65 2073.63 1826.39 2073.58
 1827.56 2073.55 1827.95 2073.54 1830.79 2073.77 1841.01 2074.51  1844.3 2074.89
 1849.05 2075.53  1853.5 2075.96 1855.15 2076.11 1857.77 2076.34 1858.61 2076.49
 1859.67 2076.97 1865.73  2079.6 1865.78 2079.63  1865.9 2079.65 1869.52 2080.19
 1869.98 2080.18 1874.56 2080.25 1879.37 2080.31  1882.9 2080.22 1897.39  2079.9
 1899.38 2079.88  1909.3  2079.8  1911.9 2079.81  1914.5 2079.77 1927.86 2079.85
 1928.61 2079.91  1931.8 2080.02 1940.47 2080.45 1943.97  2080.4 1954.09  2080.3
 1981.76 2080.21 1988.35 2080.19 2015.97 2079.96 2031.73 2079.86 2033.85 2079.85
 2037.58 2079.81 2041.39  2079.8 2072.61 2079.58  2084.2 2079.39  2085.1 2079.39

Manning's n Values         num=       3
      Sta   n Val      Sta   n Val      Sta   n Val
        0     .04  268.33    .035  697.95     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.    Expan.
        268.33  697.95           124.29  122.05  120.84             .1        .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
 1460.61  2085.1 2070.06       F
Right Levee     Station= 1499.27      Elevation= 2068.85
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 1461.77 1540.27 2068.81

CROSS SECTION


RIVER: Hassayampa
REACH: 1                  RS: 52.147

INPUT
Description:
Station Elevation Data    num=     273
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 2068.78     4.5 2068.71   13.47 2068.74   14.42 2068.76   17.94 2068.72
   20.41 2068.65   26.95 2068.48   34.69 2068.22   42.04 2068.21   43.59 2068.21
   55.01 2067.71   69.33 2066.76   74.44 2066.52    78.4 2066.33    84.2 2066.14
  101.25 2065.54  102.94 2065.47  106.57  2065.4  114.46  2065.3  118.48 2065.27
   123.3 2065.04  132.73 2064.58  133.88 2064.54  135.61  2064.5  145.31 2064.21
   163.2 2063.61  177.76 2063.38  197.47 2062.74  201.69 2062.59  204.61 2062.28
  211.11 2061.55  212.27 2061.57  214.91 2061.62  223.13 2061.67  224.25 2061.68
  224.41 2061.68  234.73 2061.08  235.33 2061.05  240.36 2061.27  240.66 2061.27
   243.2 2060.48  256.81  2056.1  259.22 2055.33  262.19 2055.22  265.96 2054.97
  268.12 2054.96  272.59 2054.91  272.64 2054.91   274.9 2054.99  277.61 2055.08
  277.65 2055.08  277.71 2055.08  294.04 2054.95  298.29 2055.02  305.06 2055.08
  331.17 2055.23  342.65 2055.25  363.85 2055.34  374.33 2055.33  402.29  2055.3
   407.6 2055.31  413.49 2055.31  428.08 2055.29  436.89 2055.28  439.75 2055.14
  447.13 2054.76  460.55 2054.89  461.75 2054.89  463.69  2054.9  477.11 2054.95
  479.89 2055.46  480.78 2055.62  481.16 2055.65  489.36 2055.92  496.57 2056.02
  517.73 2056.13  528.82 2056.14  532.03 2056.16  536.21 2056.17  559.03 2056.19
  566.45 2056.09  572.89 2056.01  583.27 2056.02  597.38 2056.14   605.5 2056.16
  608.42 2056.18  612.53 2056.55  612.79 2056.58  613.66 2056.59  620.16 2056.52
  648.18 2056.29  662.74 2055.76  664.16 2055.72  664.76 2055.81  666.51 2056.09
   670.2 2056.68   672.2 2056.81  674.44 2056.94  676.29 2057.05  678.07  2057.2
  680.05 2057.42  680.63  2057.5  681.93 2057.82  685.44 2058.71  687.65 2058.88
  691.57 2059.14   694.6 2058.91  697.31  2058.7  699.99 2058.43  705.18  2057.8
  705.66 2057.74  707.34 2057.61  712.28 2057.25  714.56 2057.38  725.23 2057.49
  727.16 2057.72  728.74 2057.97  730.37 2057.99  741.14 2058.05  748.39 2058.09
  754.93 2058.01  773.07    2058     780 2057.99  800.22 2058.11  802.03 2058.13
  805.13 2058.15  828.31  2058.4  838.76 2058.22   839.2 2058.21  840.08 2058.21
  852.79 2058.25   862.3  2058.3  875.19 2058.48  889.44 2058.84  890.17 2058.83
  891.61 2058.78  902.76 2058.42   904.5  2058.5  905.67 2058.58   911.8 2058.51
  921.48 2058.55  954.35 2058.56  967.91 2058.54 1002.16 2058.35  1009.8 2058.31
 1050.16  2058.1 1078.92 2058.07 1085.93 2058.07 1100.14 2058.08 1103.82 2058.04
 1144.09 2057.75    1157 2057.68 1163.56 2057.74 1181.24 2057.66 1198.68 2057.87
 1212.81 2057.87 1233.29 2057.98 1243.82 2057.98 1245.23 2057.44 1247.12 2056.84
 1276.17 2057.24 1277.76 2057.26 1279.76 2057.16 1280.38 2057.09 1282.61 2057.13
  1291.9 2057.31 1302.25 2057.31 1323.69 2057.36 1334.33 2057.36 1367.85 2057.42
 1372.31 2057.41  1405.9 2057.31 1406.71 2057.31 1407.37  2057.3 1414.85 2057.27
 1434.38 2057.18 1436.66 2058.69 1447.94 2066.14  1455.7 2067.86 1462.92 2069.47
 1465.07 2068.81 1466.46 2068.39 1467.16 2068.39 1467.47 2068.39 1467.78 2068.52
 1468.53 2068.82 1469.19 2069.09 1472.13 2069.01 1501.55 2068.16 1522.67 2067.56
  1533.9 2067.23 1535.58 2066.56 1535.63 2066.54 1535.82 2066.54 1536.64 2066.54
 1540.74 2067.21 1541.92 2067.41 1543.71  2067.7 1549.51 2066.75 1562.14 2064.68
 1579.99 2061.76 1581.03 2057.04 1581.58 2055.08 1583.25 2055.42  1583.9 2055.54
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 1585.31 2054.48 1585.36 2054.44 1586.02 2054.42 1594.94 2054.16 1598.33 2057.47
 1598.35 2057.49 1598.36  2057.5 1602.14 2059.67 1604.53 2060.46 1609.04 2061.96
 1617.88 2064.58 1634.09 2069.08 1636.93 2069.13 1647.91 2069.31 1652.14  2069.4
 1658.66 2069.98 1659.35 2070.04 1677.64  2070.6 1677.72  2070.6 1678.09  2070.6
 1705.49 2070.84 1717.27 2070.75 1717.72 2070.73 1721.09 2070.85 1723.87 2071.45
 1725.55 2071.85 1726.95 2071.63  1727.8 2071.67 1728.78    2071 1729.71 2070.68
 1730.54 2070.31 1745.25 2070.18 1747.47 2070.16 1749.97  2070.2 1752.42 2070.16
 1760.27 2070.06 1763.77 2070.02 1765.66 2069.99 1767.41 2069.96  1774.5 2069.88
  1780.2 2069.91 1793.93 2070.04 1806.04 2070.33 1810.75 2070.43 1823.76 2070.89
 1830.91 2071.19 1833.66 2071.34 1843.07 2072.29 1845.48 2072.53 1857.96 2073.44
 1868.56 2074.29 1877.04 2074.75 1877.33 2074.77 1877.46 2074.78 1877.58 2074.89
 1881.87 2078.57 1884.13 2079.23 1885.34 2079.55 1892.14  2079.6 1902.07 2079.72
 1930.92 2079.59 1934.16  2079.6 1956.15  2079.7 1973.89 2079.79 1976.21 2079.79
 2018.27  2079.7 2029.76 2079.57 2039.81 2079.58

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04  256.81    .035   694.6     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        256.81   694.6            150.15  134.98  101.58             .1      .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
 1466.67 2039.81 2069.38       F
Right Levee     Station= 1501.55      Elevation= 2068.16
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 1464.05 1542.55 2068.12

CROSS SECTION


RIVER: Hassayampa
REACH: 1                  RS: 52.121

INPUT
Description:
Station Elevation Data    num=     301
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 2065.68    9.93 2065.67   17.28 2065.71   28.97 2065.28   36.48 2065.02
   37.91 2065.05   39.05 2065.05   47.88 2064.92   60.63 2065.01   61.46 2065.02
   62.47 2065.01   71.14 2064.93   75.68 2064.94   82.97 2064.87   94.08 2064.84
   95.28 2064.82    96.7 2064.76  108.59 2064.22  110.91  2064.2  111.35  2064.2
  114.27 2063.84   118.4  2063.5  120.42  2063.3  121.43  2063.2  123.05  2063.1
  123.95 2063.02  131.37 2062.92  137.41 2062.81  148.56 2062.82  149.91  2062.8
  151.93 2062.77  157.24    2063  159.06 2063.06  160.02 2063.07  166.34 2062.98
  178.05 2063.02  179.16 2062.99   180.5 2062.91  188.29 2062.41  192.81 2062.03
  194.95  2061.8  198.77 2061.58   200.1 2061.35  201.99 2060.78  203.41 2060.79
  205.06  2060.8  212.61 2061.09  213.64 2061.13  213.99 2061.15  214.73 2061.11
  225.62 2060.53  227.33 2060.44  229.34 2060.33  231.94 2059.58  241.33 2056.61
  246.61 2054.94  256.55  2055.1  257.06 2055.11  257.65 2055.09  263.77 2054.84
  272.69 2054.78  273.09 2054.78  273.34 2054.78  280.19 2054.66  288.15 2054.53
  288.51 2054.52  294.78 2054.29  298.87 2054.25  313.56 2054.43  321.34 2054.48
  325.88  2054.5  330.99 2054.58  357.48 2054.89   359.4 2054.89  377.07 2054.91
  397.82 2054.88  400.96 2054.87  430.79 2054.81  434.07 2054.73  447.08 2054.46
  447.34 2054.46   452.9 2054.35  466.76 2054.29  483.61 2054.16  494.92 2054.09
  496.95 2054.85  497.82 2055.07  508.77 2055.23  514.46  2055.3  517.94 2055.26
  524.36 2055.22  545.99 2055.04  554.89 2055.01  557.64 2055.04  564.26 2055.14
  580.33 2055.26  582.68 2055.19   585.9 2055.05  593.58 2055.14  594.82 2055.14
  595.64 2055.19  601.14 2055.42   604.1 2055.38  607.03 2055.48  608.31 2055.38
  619.34 2055.54  621.59 2055.58  622.24 2055.59   627.7 2055.72  634.36 2055.78
  642.66 2055.82  649.98 2055.82  662.07 2055.45   662.5 2055.43  663.03 2055.41
  666.59 2055.19  674.85 2055.55  677.94 2055.83  682.31 2055.97  682.69 2055.91
  683.82 2056.05  687.76 2056.45  688.98 2056.47   696.6 2056.61  701.52 2056.62
  703.42  2056.6  708.03 2058.44  708.94  2058.8  709.38 2058.94  710.31 2058.97
  712.71 2059.03  713.69 2059.05  714.02    2059  717.34 2058.52  720.52 2058.24
   722.2 2058.11  724.53 2058.23  727.83 2058.42  735.32 2058.18  739.12 2058.05
  746.02 2058.02  750.96 2058.01   753.6 2057.84  760.88  2057.4     768 2057.43
  773.96 2057.41  780.56 2057.39  791.02 2057.22  818.01 2057.48  822.23 2057.51
  823.84 2057.52  843.81 2057.59  857.33 2057.74  866.84 2057.77  874.82 2057.59
   876.4 2057.55  877.31 2057.52  883.86  2057.3   886.2 2057.46  887.75 2057.52
  891.26 2057.55  903.85 2057.65  925.75 2057.55  941.61 2057.51  976.18 2057.35
  979.18 2057.34   996.3 2057.33 1017.05 2057.34 1020.81 2057.33 1060.47 2057.36
 1080.28 2057.34 1106.52 2057.25 1133.26 2057.36 1153.63 2057.45 1166.29 2057.36
 1201.02 2056.89 1210.18 2056.94 1236.49 2057.09 1245.85 2057.42 1248.73 2057.54
 1266.87 2057.84 1268.46 2057.85 1288.47  2057.7 1295.42 2057.83 1297.21 2057.86
 1297.87 2057.73 1300.11 2057.27 1302.99 2057.35  1314.9 2057.36 1324.21 2057.43
 1327.37 2057.44 1346.38 2057.46 1370.72 2057.46 1375.19 2057.45 1382.04 2057.44
 1424.54 2057.25 1436.91 2057.14 1445.04 2057.06 1445.34 2057.06 1447.69 2058.62
 1457.94 2065.43 1465.05 2067.06 1472.83 2068.84 1474.95 2068.18 1476.34 2067.76
 1476.75 2067.76 1477.35 2067.76 1478.05 2068.04 1479.07 2068.46 1496.08 2067.96
 1511.21 2067.51 1535.39 2066.81 1543.36 2066.57  1543.9 2066.35 1545.07 2065.88
  1545.4 2065.88 1546.08 2065.88 1546.08  2066.6 1546.08 2066.96 1548.58 2066.99
 1553.11 2067.03 1562.43 2065.49 1588.02 2061.26 1590.52 2059.61 1593.41 2057.55
 1597.04 2054.98 1598.37 2055.26 1598.71 2055.32 1599.54 2054.05 1599.68 2053.84
 1600.59 2053.85 1609.43 2053.96 1611.21 2055.94 1612.14 2056.98 1613.25 2057.51
 1617.15 2059.36 1617.74 2059.52 1621.12 2060.71 1625.14 2062.08 1633.47  2064.5
 1645.77  2067.6 1647.95 2068.31 1656.44 2068.45 1664.79 2068.56 1667.06 2068.83
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1672.48 2069.46 1688.43 2069.99 1690.23 2070.05 1692.3 2070.06 1716.38 2070.18
1731.29 2070.15 1732.81 2070.19 1733.57 2070.56 1737.47 2071.21 1737.94 2071.26
1744.43 2071.82 1745.67 2071.82 1752.18 2071.88 1753.79 2071.88 1759.59 2071.74
1761.84 2071.62 1762.85 2071.72 1765.66 2070.69 1765.78 2070.66 1767.16 2070.11
1773.31 2070.04 1774.54 2070.01 1776.65 2070 1786.76 2069.91 1796.7 2070.19
1800.64 2070.28 1801.93 2070.47 1802.27 2070.55 1809.08 2070.69 1816.88 2070.88
1819.97 2070.86 1831.91 2070.78 1834.76 2070.62 1837.53 2070.4 1841.77 2070.72
1845.56 2071 1852.61 2071.19 1856.15 2071.3 1860.99 2071.6 1868.06 2072.16
1876.93 2072.82 1880.8 2073.04 1884.41 2073.2 1892.53 2073.21 1897.75 2075.81
1903.99 2078.86 1908.24 2078.98 1909.3 2079.02 1919.37 2078.94 1922.87 2078.95
1929.41 2078.99 1958.35 2079.18 1979.24 2079.41 2009.65 2079.52 2023.78 2079.45
2027.3 2079.43

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
0 .04 241.33 .035 708.03 .04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
241.33 708.03 111.23 112.85 118.91 .1 .3
Ineffective Flow num= 1
Sta L Sta R Elev Permanent
1472.73 2027.3 2068.75 F
Right Levee Station= 1511.21 Elevation= 2067.51
Blocked Obstructions num= 1
Sta L Sta R Elev
1473.71 1552.21 2067.47

CROSS SECTION

RIVER: Hassayampa
REACH: 1 RS: 52.100

INPUT
Description:
Station Elevation Data num= 307
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
0 2076.72 1.11 2076.4 4.93 2075.62 18.64 2073.67 31.43 2073.01
41.4 2072.62 47.3 2071.11 47.81 2070.98 49.11 2070.81 59.78 2069.7
74.52 2069.28 76.63 2069.42 77.8 2069.65 81.54 2070.22 90.37 2071.24
108.35 2073.5 113.38 2074.16 116.53 2074.78 122.47 2075.68 122.56 2075.68
128.69 2076.31 130.21 2076.45 135.94 2076.48 138.62 2076.49 151.8 2074.75
152.84 2074.62 158.68 2072.63 160.4 2072.19 162.33 2071.41 167.17 2069.31
169.24 2068.47 172.2 2066.8 175.18 2064.73 176.6 2063.7 178.39 2062.4
182.94 2060.57 183.04 2060.53 183.07 2060.52 183.17 2060.52 195.25 2060.45
200.26 2060.58 201.96 2060.61 205.11 2060.51 210.27 2060.35 212.2 2060.09
214.8 2059.71 215.84 2059.5 222.04 2057.95 223.9 2057.63 225.32 2057.18
230.01 2056.17 232.39 2055.42 233.23 2055.22 235.29 2055.03 235.78 2055.02
237.92 2054.99 246.25 2054.88 251.76 2054.91 253.35 2054.94 260.38 2054.79
261 2054.78 261.81 2054.75 268.07 2054.53 273.96 2054.03 274.44 2053.99
280.45 2054.02 295.26 2054.16 314.62 2054.34 319.9 2054.44 338.77 2054.56
355.46 2054.58 356.68 2054.58 358.33 2054.58 380.52 2054.23 383.84 2054.18
387.66 2053.88 390.45 2053.56 394.93 2053.57 409.74 2053.56 429.09 2053.75
449.38 2053.93 469.39 2053.9 475.96 2053.86 480.07 2053.6 480.22 2053.6
481.71 2053.61 519.64 2053.96 526.02 2054.01 529.05 2054.26 532.04 2054.41
538.71 2054.42 551.57 2054.42 562.04 2054.51 575 2054.61 578.16 2054.65
590.35 2054.73 605.82 2054.84 608.82 2054.87 618.53 2054.72 620.52 2054.68
623.07 2054.61 629.03 2054.45 632.27 2053.93 635.18 2053.48 645.73 2053.7
652.61 2053.81 659 2054.97 659.08 2054.98 663.18 2055 668.45 2055.03
668.68 2055.02 673.45 2054.77 677.13 2054.91 683.38 2055.2 697.54 2055.52
697.77 2055.52 697.94 2055.52 710.06 2055.49 710.39 2055.53 711.99 2055.77
714.56 2056.16 716.04 2056.11 719.25 2056.01 721.05 2056.44 723.33 2056.95
724.17 2057.06 725.35 2057.17 730.72 2057.59 731.56 2057.7 732.06 2057.76
732.71 2057.77 736.43 2057.95 741.21 2058.03 743.73 2058.27 745 2058.39
745.16 2058.42 745.44 2058.45 749.31 2059.02 750.73 2059.07 754.63 2058.56
756.52 2058.34 765.02 2057.43 767.68 2057.11 771.51 2056.93 771.94 2056.9
772.21 2056.9 777.39 2056.91 791.47 2056.75 796.52 2056.76 809.27 2056.72
821.68 2056.64 828.98 2056.76 835.43 2056.79 841.29 2056.88 865.48 2056.93
867.98 2056.83 872.35 2056.75 881.66 2056.45 889.27 2056.67 891.87 2056.78
902.91 2056.93 907.96 2057.01 908.87 2056.94 914.77 2056.5 915.46 2056.51
925.49 2056.62 926.47 2056.86 927.64 2057.12 936.74 2057.18 952.47 2057.22
960.99 2057.27 985.45 2057.18 988.08 2057.17 1005.82 2056.87 1027.09 2056.52
1063.87 2056.2 1068.82 2056.17 1071.4 2056.1 1089.47 2056.25 1116.75 2056.37
1123.16 2056.39 1157.94 2056.51 1172.87 2056.54 1186.53 2056.43 1210.43 2056.32
1220.11 2056.29 1254.11 2056.03 1255.59 2056.02 1288.03 2056.61 1308.07 2057.1
1319.27 2057.36 1326.17 2057.54 1331.49 2057.66 1334.85 2057.69 1343.18 2057.77
1346.02 2057.18 1348.91 2056.86 1373.96 2056.84 1384.13 2056.83 1394.23 2056.86
1428.02 2056.99 1455.78 2056.65 1461.99 2056.62 1470.69 2062.41 1474.05 2064.65
1486.46 2067.61 1488.87 2068.19 1489.75 2067.91 1490 2067.84 1490.03 2067.89
1490.03 2067.83 1491.1 2067.55 1492.37 2067.59 1492.37 2067.16 1492.97 2067.11
1493.37 2067.11 1494.11 2067.41 1494.61 2067.61 1494.85 2067.71 1495.08 2067.8
1515.24 2067.21 1525.7 2066.9 1527.13 2066.85 1528.81 2066.8 1559.19 2065.91
1559.86 2065.63 1560.55 2065.35 1560.9 2065.21 1561.85 2065.21 1561.9 2065.21
1565.79 2065.85 1567.3 2066.1 1568.91 2066.36 1597.15 2061.67 1603.49 2060.62
1606.43 2058.23 1610.47 2054.73 1610.97 2054.68 1612.29 2054.54 1612.74 2053.05
1612.86 2052.65 1614.05 2052.69 1621.41 2052.94 1622.16 2052.96 1622.64 2053.51
1625.45 2056.78 1628.62 2058.16 1631 2059.18 1631.38 2059.32 1632.73 2059.79
1656.07 2066.36 1662.14 2067.76 1662.97 2067.96 1669.87 2067.99 1678.57 2068.04

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  1681.5 2068.29 1685.16 2068.71 1685.39 2068.84 1687.57 2069.73 1689.12 2069.78
 1693.16 2070.07 1701.59 2070.32 1709.94 2070.48 1731.94 2070.71 1735.69  2070.7
 1750.99 2070.53 1755.39 2070.45 1755.87 2070.47  1756.6 2070.45 1757.33 2070.44
 1759.82 2070.41 1762.33 2069.38 1762.51 2069.34 1762.69 2069.24 1765.01 2069.29
 1782.49 2069.67 1788.11 2069.63  1797.4 2069.51  1807.4 2069.44 1812.78 2069.42
 1818.68  2069.6 1826.72 2069.79 1833.55    2070 1834.96  2070.1 1840.51 2070.52
 1843.73 2070.73 1855.46 2071.23 1861.04 2071.44 1868.12 2071.77 1875.59 2071.99
    1887 2072.76 1892.23 2073.08 1900.78  2074.3 1901.02 2074.36 1901.36 2074.46
 1904.91 2075.61 1907.04  2076.6 1909.63 2077.83 1911.31 2078.07 1913.95  2078.5
 1923.41 2078.47 1936.07 2078.44    1964 2078.85 1988.16 2078.92 2004.64 2079.03
 2037.08 2079.22 2042.83  2079.2

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04  235.78    .035  743.73     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        235.78  743.73           108.92  112.14  109.32             .1      .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
 1487.88 2042.83 2068.12         F
Right Levee     Station= 1527.13      Elevation= 2066.85
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 1489.63 1568.13 2066.81

CROSS SECTION


RIVER: Hassayampa
REACH: 1                   RS: 52.078

INPUT
Description:
Station Elevation Data    num=     317
      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
        0 2093.49    11.31 2092.12    11.44 2092.08    11.94 2091.56    17.43 2090.36
    22.12 2082.68    27.41 2078.94    31.35 2076.42    33.32 2074.55    42.43  2073.6
    42.89 2073.55    51.09 2073.12    53.11 2073.01    56.51 2074.64    58.27 2075.46
    61.34 2076.81    62.18 2077.16    63.72 2077.91    64.49 2078.36    73.29 2083.14
    74.36 2083.39    79.06 2085.24    80.46 2085.39    85.56 2086.17    88.25 2086.28
    90.75 2086.38    93.94 2086.35   106.03 2086.04   108.26 2085.79   111.38 2085.56
   113.66 2084.85   115.71 2084.24   123.31 2081.83   127.04 2080.53   129.97 2078.79
    138.7 2074.96    139.1 2074.86   145.92 2073.29   149.51 2072.28   152.79 2071.24
   158.21 2069.57   160.03 2068.74    161.4 2068.22   167.63 2065.64   172.23 2063.78
   181.78 2060.19   183.49 2059.61   185.71 2059.43   188.33 2059.22   189.34 2059.25
   197.79 2059.53   198.89 2059.49   208.26 2059.15   208.75 2059.13   216.04 2058.78
   221.18 2056.71   224.63 2055.46   226.02 2055.27   233.34 2054.92   233.87 2054.88
   239.75 2054.43   239.99 2054.43   240.26 2054.43   248.81 2054.55   251.08 2054.69
    253.4 2054.79   266.97 2054.72   280.85 2054.52   295.44 2054.17   296.32 2054.02
   298.54 2053.68   306.19 2053.77   316.99 2053.92   331.46 2054.01   351.63 2054.01
   366.98 2053.84   378.93 2053.83   392.05 2053.65   392.47 2053.65   393.07 2053.65
    402.8 2053.69   409.89  2053.8   430.38 2053.77   432.71 2053.77   432.87 2053.74
    435.2 2053.08    459.4 2053.26   463.38 2053.29   463.53 2053.29   463.74 2053.29
   465.07 2053.29    501.3 2053.27      509 2053.34   535.43 2053.32   548.66 2053.32
   568.07 2053.41   575.11 2053.31   586.97 2053.66   589.48 2053.73   592.35 2053.77
   596.63 2053.76   611.15 2053.86   620.87 2053.91   636.91 2053.97   639.17 2053.99
    640.9 2053.97   660.83 2053.89   672.74 2053.67   682.48  2053.4   692.22 2053.13
   698.26 2052.76   702.15 2052.62   706.86 2052.45    707.6 2052.41   708.88 2053.39
   710.77 2054.94   714.04 2054.79   714.82 2054.75   715.38 2054.68   716.46 2054.54
   720.09 2054.03   721.58 2054.05   724.72 2054.17    728.1 2054.62   728.89 2054.73
   729.85 2054.85   742.83 2055.02   747.56 2055.13   750.02 2055.14   751.65 2055.13
   754.25  2055.2    762.3 2055.45   764.12 2055.67   766.81 2055.82   773.51 2056.01
    774.3 2056.06   775.28 2056.06   783.23 2056.19   788.67 2057.26   792.76 2058.07
    794.4 2058.39    794.9 2058.45   796.21 2058.56   801.27 2058.99   805.38  2058.3
   808.65 2057.74   808.76 2057.73    808.9 2057.71   809.33 2057.64   819.84 2056.11
   820.51 2056.09   824.48 2055.95   825.23 2055.92   830.86 2055.95   833.96 2055.98
   851.27 2055.96   852.03 2055.95   876.76 2055.78   879.78 2055.79   901.98 2055.82
   913.89 2055.78   920.21 2055.82   935.96 2055.94   963.63 2056.19    966.3 2056.25
   967.27 2056.23      969 2056.22   973.12 2056.18   978.54     2056  982.45 2055.92
   983.55 2056.03      985 2056.16   988.53 2056.23   997.31 2056.35 1001.56 2056.37
  1026.76 2056.45 1039.03 2056.47 1045.21 2056.38 1063.82 2056.09 1077.88 2056.05
  1093.06 2056.04 1100.07 2055.89 1116.94 2055.66 1128.58 2055.41 1141.91 2055.25
  1175.82 2055.46 1176.28 2055.46 1181.28 2055.47 1215.79 2055.59 1228.98 2055.62
  1243.37 2055.76 1246.41 2055.84 1262.79 2055.65  1296.2 2055.46 1296.68 2055.46
  1297.98 2055.45  1322.8 2055.33 1329.56 2055.48 1333.21 2055.56 1343.02 2055.99
  1349.08 2056.16 1355.16 2056.33 1358.48 2056.02 1362.16 2055.64 1367.92 2055.79
  1374.74 2055.88 1394.19 2055.94 1408.63 2056.02 1431.85 2056.13 1458.09 2056.28
   1484.8 2056.25  1494.4 2056.18 1504.45 2062.88 1505.98  2063.9 1509.62 2064.81
  1520.81 2067.61 1522.36 2067.14 1524.31 2066.53 1525.12 2066.53 1525.31 2066.53
  1526.12 2066.86 1527.02 2067.23 1538.83 2066.88 1559.02 2066.27 1586.04 2065.46
  1591.02 2065.31 1591.81 2064.99 1592.73 2064.61 1593.09 2064.61 1593.72 2064.61
  1595.64 2064.93 1600.72 2065.76 1616.73  2063.1 1633.39 2060.32  1633.6 2060.29
  1633.69 2059.81  1634.8 2053.76 1635.15 2053.59 1636.63 2052.85 1640.19 2052.81
   1645.7 2052.75 1649.39 2056.32 1649.66 2056.58 1653.97 2058.36 1655.05 2058.81
  1656.58  2059.3 1665.17 2062.07 1667.03 2062.63  1676.6  2065.5 1679.73 2066.73
  1681.64 2067.54 1684.02 2066.98  1684.9 2066.78 1685.45 2066.85 1693.37 2067.08
  1695.42 2067.15 1701.81 2067.25 1705.26  2067.3 1708.26 2067.28 1715.62 2067.18
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 1722.27 2068.11 1722.29 2068.11    1727 2068.39 1732.08 2068.49 1736.47 2068.56
  1749.9  2068.8 1759.98 2068.88 1771.21 2068.97 1772.99 2068.95 1776.52 2068.84
  1783.4 2068.68 1792.21 2068.64 1796.14 2068.54 1799.24  2067.8 1799.76 2067.74
 1800.01 2067.74 1801.03 2067.68 1807.14 2067.44 1807.92  2067.5 1809.03 2067.47
 1814.21 2067.34 1818.32 2067.39 1818.96  2067.4 1821.75 2067.55 1828.19 2067.35
 1831.55 2067.34 1832.21 2067.37 1834.97 2067.48 1848.17 2067.92 1855.59 2068.18
 1867.15 2068.49 1868.55 2068.52 1870.76 2068.57 1881.87 2069.22 1884.44 2069.36
    1885 2069.41 1885.25  2069.4  1886.4 2069.47 1890.67 2069.71 1892.42 2069.95
 1894.11 2070.41 1895.17 2071.02 1899.36 2073.96 1900.48 2074.73 1901.06 2075.35
 1905.42 2073.72  1905.9  2073.5 1906.28 2073.64  1910.1 2075.19 1911.13 2075.37
 1914.49 2075.91 1921.79 2076.28 1926.89 2076.52  1943.3 2076.64 1956.38 2076.74
 1961.82 2076.73 1974.09 2076.67

Manning's n Values         num=        3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04  239.99    .035  788.67     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        239.99  788.67           121.78  129.96  142.45             .1       .3
Ineffective Flow      num=        1
   Sta L   Sta R    Elev  Permanent
    1520 1974.09  2067.5         F
Right Levee     Station= 1559.02       Elevation= 2066.27
Blocked Obstructions      num=        1
   Sta L   Sta R    Elev
 1521.52 1600.02 2066.22

CROSS SECTION


RIVER: Hassayampa
REACH: 1                   RS: 52.054

INPUT
Description:
Station Elevation Data     num=      316
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
       0 2109.07     3.35 2107.59     8.33 2105.93    11.13 2104.75    19.57 2101.85
   24.72 2099.57    31.81 2096.75    38.75  2094.4    46.07 2091.61    54.51  2088.8
   58.13 2087.33    71.07 2083.12    71.27 2083.05    71.33 2083.04    71.38 2083.02
    81.6 2079.83    86.66 2078.65    90.49 2077.78    95.13  2075.1   103.66 2070.47
  116.48 2063.81   118.16 2062.86   119.65 2062.63      124 2061.95   128.27 2061.68
  135.57 2061.21   140.55 2061.06   144.84 2060.81   153.73 2059.93   154.27 2059.85
  154.42 2059.81   155.35 2059.75   161.88 2059.34   170.07 2059.22   170.69 2059.21
   171.3 2059.19   177.43 2058.94   180.48  2058.8   180.67  2058.8   180.93 2058.78
     187 2058.24   193.03 2056.24   195.48 2055.47   200.45 2054.95   206.58 2054.31
  210.44 2053.93   214.48 2053.51    216.9 2053.46   219.78 2053.39   221.25 2053.38
  222.33 2053.48   229.34 2054.02   231.84 2054.15    255.7 2054.34   259.57 2054.38
  261.39 2054.39    262.8 2054.39   273.81 2054.39   290.24  2054.4   291.99 2054.39
  294.26 2054.38   303.33 2054.35   313.72 2054.32    317.6 2054.31    325.7 2054.16
  326.85 2054.14   327.64 2054.15   330.36 2054.14   331.41 2053.72      333  2053.1
  335.71 2053.12   347.81 2053.24   369.42 2053.29   387.75 2053.19   400.22 2053.12
  408.69 2052.93   417.29 2052.92   428.66 2052.82   430.03 2052.79   430.74 2052.73
  433.37 2052.54   433.68 2052.52   433.83 2052.52   454.19 2052.38   476.48  2052.5
  484.32 2052.57   508.32 2052.94   512.26 2052.94   540.95  2052.8   544.47 2052.78
  544.92 2052.78    575.5 2052.85   578.22 2052.84   606.09 2052.84   617.35 2052.82
  638.83 2052.77   645.72 2052.75   656.72 2052.73   658.43 2052.81   666.98 2053.04
  670.97 2053.05   681.73 2053.18   694.23 2053.28   694.52 2053.28   694.78 2053.28
  695.66 2053.27   705.83 2053.15    709.6 2052.42    710.8 2052.19   712.19 2052.19
  715.63 2052.24   718.59 2053.72   718.69 2053.77   719.06 2053.78   727.47  2054.1
  733.17 2053.87   734.22 2053.82   735.44  2053.8   740.56 2053.66   745.71 2053.81
  752.37 2054.03   754.71 2054.25   759.42 2054.67   764.84 2054.73   777.72 2055.01
   778.3 2054.99   785.78 2054.72   786.14 2054.73    789.8 2054.82   796.27 2054.64
  797.32 2054.62   800.01 2055.05   800.07 2055.06    800.2 2055.08   804.59 2055.71
  807.22 2055.69   807.93 2055.68   808.63 2055.79   810.28 2055.97   812.73 2056.23
  814.17 2056.28   819.97 2056.06   821.33 2056.16   831.85 2056.86   832.84 2056.92
  833.33 2056.95   840.79 2057.24   843.42 2057.14   847.97 2057.14   856.63 2056.06
  860.18 2055.66   861.21 2055.53   871.98 2055.67   883.57 2055.33   898.32 2055.11
  899.37 2055.09   923.33 2054.97   924.08 2054.97   924.63 2054.97   934.83 2055.04
  948.82  2055.1   952.91 2055.07   967.72 2054.86   972.36 2054.84   977.05 2054.93
   982.5 2055.02   987.72 2055.11   992.98 2055.34   997.39 2055.39 1001.89 2055.37
 1004.94 2055.38 1009.13 2055.39 1010.59 2055.43   1013.3 2055.39 1036.86 2055.29
 1045.16 2055.23 1064.79 2055.26 1088.69 2055.28 1097.97  2055.2 1122.78 2055.04
 1142.26  2054.7 1162.01 2054.35 1171.04 2054.33 1188.98 2054.21 1212.39 2053.99
 1222.27 2053.69 1222.95 2053.67 1228.52  2053.6 1231.37 2053.62 1232.76 2053.63
 1246.96 2054.07 1249.45 2054.07 1257.42 2053.91 1268.49 2053.77 1268.75 2053.76
 1269.19 2053.78 1291.09  2054.8 1298.24  2054.8 1303.63 2054.85 1309.11  2054.8
 1318.49 2054.75 1333.88 2054.68 1343.95  2054.7 1344.91 2054.69 1346.41 2054.57
 1352.14 2054.12 1354.62 2054.14 1362.69 2054.19 1378.16 2054.39 1391.08 2054.61
 1406.55 2054.71 1434.47 2054.97  1443.3 2055.07 1476.24 2055.54 1479.82 2055.58
 1481.07 2055.58 1482.28 2055.59  1503.4 2055.62 1520.32 2055.65 1530.45  2062.4
 1531.44 2063.06 1534.03 2063.64 1546.14 2066.41 1547.53 2065.98 1549.64 2065.98
 1549.64 2065.32 1550.05 2065.32 1550.65 2065.32 1551.68 2065.74 1552.36 2066.02
 1576.03 2065.72 1584.38  2065.6 1591.32 2065.46  1616.4 2064.95 1616.86 2064.76
 1617.32 2064.57 1618.11 2064.25 1618.22 2064.25 1618.29 2064.25 1618.75 2064.25
 1619.11 2064.25 1619.11  2065.2 1619.11 2065.33 1619.36 2065.34 1620.79 2065.35
 1621.72 2065.36 1621.95 2065.36 1622.15 2065.36 1622.46 2065.37 1622.99 2065.37
 1624.34 2065.39 1624.53 2065.39 1624.61 2065.39 1625.27  2065.4 1626.11  2065.4
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1630.04 2064.75 1630.41 2064.6 1630.84 2064.61 1637.99 2062.98 1644.3 2062.37
1667.29 2058.54 1667.32 2058.52 1668.53 2056.7 1669.17 2057.52 1670.37 2056.86
1672.35 2056.6 1675.11 2056.53 1676.44 2056.5 1681.44 2056.42 1685.46 2056.46
1691.28 2056.6 1694.13 2056.71 1698.21 2056.87 1702.84 2057.2 1710.83 2057.5
1722.99 2057.04 1739.19 2056.61 1745.64 2056.42 1749.91 2056.3 1766.56 2055.93
1775.62 2055.83 1777.43 2055.81 1787.89 2055.7 1812.02 2055.4 1822.22 2055.28
1844.53 2055.04 1862.52 2054.94 1865.61 2054.95 1871.91 2055.08 1879.45 2055.35
1895.07 2057 1899.68 2057.54 1902.54 2057.92 1904.7 2059.38 1904.92 2059.52
1907.49 2061.71 1908.89 2062.81 1911.8 2065.23 1919.12 2071.2 1920.97 2072.72
1921.18 2072.82 1924.05 2074.25 1929.47 2074.34 1936.68 2074.32 1969.6 2074.11
1971.76 2074.1 1973.14 2074.1 1987.79 2074.12 2002.43 2074.12 2005.85 2074.03
2017.98 2073.83 2027.35 2073.93 2035.63 2074.18 2037.28 2074.19 2037.7 2074.26
2046.77 2074.31

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	216.9	.035	821.33	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
216.9	821.33	117.5	129.55	131.93	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
1545.45	2046.77	2066.04	F

Right Levee Station= 1584.38 Elevation= 2065.6

Blocked Obstructions num= 1

Sta L	Sta R	Elev
1546.88	1625.38	2065.54

CROSS SECTION

RIVER: Hassayampa
REACH: 1 RS: 52.029

INPUT
Description:
Station Elevation Data num= 312

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2112.66	5.06	2110.3	16.89	2104.42	21.06	2102.44	31.39	2097.67
39.02	2094.48	48.68	2090.36	50.3	2089.97	60.44	2085.7	61.32	2085.36
61.85	2085.15	75	2080.3	75.6	2080.11	83.88	2077.29	86.38	2075.84
91.57	2072.49	97.64	2067.32	101.48	2065.53	105.97	2063.62	110.31	2061.38
115.53	2059.72	120.28	2057.81	121.59	2057.62	123.23	2057.56	127.89	2057.36
135.18	2057.47	136.98	2057.5	139.15	2057.42	145.47	2057.21	147.58	2057.07
151.92	2056.82	154.65	2056.12	157.41	2055.38	161.27	2054.99	163.81	2054.66
166.95	2054.32	170.67	2054.01	175.78	2053.72	176.85	2053.66	178.23	2053.57
180.15	2053.24	184.03	2052.53	188.17	2052.44	190.32	2052.44	190.78	2052.39
194.19	2052.69	196.04	2052.95	205.57	2053.24	216.2	2053.61	223.21	2053.61
237.61	2053.7	241.02	2053.73	244.33	2053.7	244.4	2053.7	254.03	2053.59
254.87	2053.6	266.33	2053.64	274.38	2053.67	274.45	2053.67	274.49	2053.67
274.62	2053.67	303.72	2053.65	318.08	2053.71	323.75	2053.74	328.29	2053.51
329.38	2053.41	335.88	2053.53	338.53	2053.69	347.93	2053.76	350.87	2053.76
358.9	2053.73	378.75	2053.7	396.57	2053.59	410.12	2053.49	425.6	2053.29
439.09	2053.15	457.66	2053.11	461.07	2053.12	462.19	2052.32	463.09	2051.58
466.82	2051.68	470.38	2051.61	473.06	2051.67	495.82	2051.66	499.14	2051.68
506.61	2051.68	528.1	2051.86	535.49	2051.89	544	2051.89	557.07	2051.84
559.01	2051.89	561.01	2052.04	577.18	2052.05	586.52	2052.06	595.9	2052.09
625.6	2052.02	650.46	2051.91	652.39	2051.9	654.02	2051.9	657.36	2052.03
659.57	2052.12	664.93	2052.15	684.52	2051.95	690.21	2051.9	694.45	2051.87
696.82	2051.87	720.49	2051.83	725.91	2051.8	727.74	2052.32	728.65	2052.56
731.08	2052.8	731.71	2052.79	731.84	2052.85	732.65	2052.98	733.98	2053.25
734.33	2053.25	737.73	2053.31	739.05	2053.42	740.28	2053.27	745.64	2053.47
746.96	2053.52	751.54	2053.5	754.23	2053.49	754.73	2053.46	757.97	2053.18
758.62	2053.19	760.89	2053.23	762.89	2053.26	765.82	2053.4	767.97	2054.02
769.71	2054.54	776.82	2055.26	778.34	2055.36	779.08	2055.35	779.9	2055.33
784.09	2055.2	790.25	2055.7	790.57	2055.72	791.01	2055.79	792.25	2056.01
794.84	2056.09	800.11	2056.32	803.54	2057.44	804.95	2057.8	805.65	2057.98
812.24	2059.35	814.13	2059.89	815.41	2059.53	818.99	2058.39	828.08	2055.86
829.05	2056.12	829.93	2056.3	831.53	2056.65	835.03	2056.94	835.04	2056.95
838.41	2056.72	838.6	2056.72	838.81	2056.67	844.27	2055.42	846.38	2054.94
848.27	2054.62	851.51	2053.9	856.28	2054.23	857.43	2054.25	858.21	2054.55
861.7	2055.87	861.91	2055.98	864.23	2056.45	867.41	2057.02	871.7	2056.96
875.53	2056.84	882.72	2055.77	884.73	2055.49	887.59	2055.15	905.83	2054.88
923.6	2054.78	940.06	2054.91	940.3	2054.91	940.76	2054.91	953.71	2054.9
958.9	2054.64	960.99	2054.5	967.42	2054.61	976.59	2054.67	981.35	2054.79
990.56	2054.79	994.41	2054.76	1009.23	2054.74	1010.29	2054.74	1010.57	2054.74
1012.77	2054.73	1034.32	2054.72	1042.09	2054.66	1048.67	2054.62	1053.35	2054.58
1079.51	2054.56	1080.39	2054.58	1092.22	2054.67	1095.62	2054.67	1101.51	2054.65
1104.66	2054.61	1109.05	2054.65	1125.05	2054.64	1127.27	2054.61	1128.49	2054.6
1161.52	2054.12	1166.14	2054.06	1181.65	2054.05	1188.72	2054.04	1190.58	2054.02
1203.66	2053.73	1216.45	2053.57	1226.1	2053.48	1228.11	2053.42	1235.31	2053.11
1241.63	2052.91	1243.14	2052.92	1267.43	2052.93	1274.1	2052.97	1290.61	2052.97
1293.66	2052.98	1299.64	2053.01	1310.88	2052.73	1320.36	2052.76	1326.76	2052.62
1343.56	2052.92	1343.62	2052.92	1343.64	2052.93	1343.94	2052.95	1353.27	2053.67
1356.27	2053.81	1364.52	2053.81	1370.83	2053.65	1371.39	2053.62	1377.27	2053.49
1379.61	2053.36	1383.99	2053.12	1386.83	2053.04	1387.71	2053.03	1411.39	2053.39
1414.74	2053.48	1428.9	2054	1450.46	2054.49	1454.16	2054.55	1456.76	2054.58
1459.37	2054.74	1464.91	2054.9	1472.58	2055.12	1477.33	2055.14	1496.99	2055.25

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 1517.72 2055.44 1530.99 2055.51 1534.67 2055.54 1541.56 2060.12 1545.01 2062.42
 1549.68 2063.18 1559.47 2064.77 1562.68 2064.03 1562.97  2063.9 1562.97 2063.68
  1563.7 2063.68 1563.97 2063.68 1564.16 2063.76 1565.68 2064.38 1578.19 2064.63
 1597.72 2065.01 1628.83 2064.39 1629.76 2064.37 1629.83 2064.34 1630.06 2064.25
 1631.47 2063.67 1631.96 2063.67 1632.47 2063.67 1633.72 2063.87 1639.48 2064.82
 1671.81 2058.48 1702.57 2052.55 1710.39 2055.11  1710.4 2055.15 1711.62 2055.55
 1724.55 2055.45  1728.7 2055.42 1733.16 2055.41 1745.62 2055.44 1769.14 2055.39
 1775.76 2055.38 1818.13 2055.01 1821.36 2054.99 1822.48 2054.98 1841.15 2054.98
 1855.34 2054.94 1874.99 2054.92 1889.59 2054.96  1890.9    2055 1899.31 2055.02
 1908.01 2055.04 1909.56 2055.57 1918.67  2060.6 1926.95 2065.05 1936.93 2071.51
 1937.15 2071.64 1937.64 2071.69 1946.36 2072.52 1950.69 2072.87 1953.71 2073.11
 1957.26 2073.24 1959.05 2073.31 1973.35 2073.44 1986.24 2073.59 1988.82 2073.62
 1993.55 2073.67 2000.25 2073.75

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04  175.78    .035  779.08     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        175.78  779.08           136.55  125.33  100.96             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
 1560.61 2000.25 2064.81       F
Right Levee     Station= 1597.72      Elevation= 2065.01
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 1560.22 1638.72 2064.96

CROSS SECTION


RIVER: Hassayampa
REACH: 1                  RS: 52.006

INPUT
Description:
Station Elevation Data    num=     313
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 2110.04    6.94 2107.48    8.21 2107.05   10.62 2106.19   25.24 2101.32
   31.21 2098.86   40.64 2095.43   51.06 2091.87   54.26 2090.63   55.66 2090.27
    57.6 2089.04   58.98 2087.99   65.08 2084.27   66.51 2083.33   67.18 2082.99
   69.85 2081.93   74.57 2078.04   83.61 2071.78   87.47 2069.63   96.24 2064.59
  108.04 2058.83  110.05 2057.67  110.53 2057.62  111.68 2057.53  113.77  2057.4
  121.24 2057.45  121.53 2057.45  121.76 2057.44  129.79 2057.16  135.57 2056.21
  137.19 2055.96  140.07 2055.46  142.63 2054.98  144.47 2054.59  149.68 2053.49
  152.88 2053.58  154.75 2053.66  158.88 2053.38  159.43 2053.34  159.74 2053.32
  162.17 2053.38  162.75 2053.38  164.93 2053.26   166.6 2053.15  169.59 2053.37
  170.79 2053.46   171.7 2053.55   172.7 2053.63  175.72 2053.58  183.02 2053.58
  185.49 2053.59  187.16  2053.6  192.15 2053.39  192.24 2053.38   197.6 2052.41
  200.28 2051.92  202.65 2051.95  206.98    2052  214.33 2052.19  216.91 2052.25
  219.05 2052.32   222.2 2052.46  224.26 2052.53  225.36  2052.6  226.67 2052.56
  235.89 2052.73  241.55 2052.79  256.74 2052.71   259.6 2052.68  261.33 2052.67
  263.85 2052.65  267.43 2052.63  272.91 2052.52     273 2052.52  273.02 2052.52
  273.06 2052.52  294.65  2052.7  317.45 2052.87   322.4  2052.9  331.86 2052.86
  340.23 2052.86  342.79 2052.84  355.99 2052.84  358.81 2052.83  362.42 2052.85
   375.4 2052.99  408.94 2052.88  414.67 2052.87   415.9 2052.86  418.27 2052.87
  456.45 2052.85  474.63 2052.85  486.72 2052.84  495.22 2052.72  522.25 2052.35
  524.88 2052.29  525.58 2052.27  531.14 2052.19  537.99 2052.09  538.85 2052.08
  538.95 2052.04  541.92 2051.12  544.98 2051.08  557.36 2051.42  576.27 2051.29
  586.19 2051.12  604.56 2051.26  615.02 2051.22  622.23 2051.31  622.65 2051.32
  626.63  2051.5  627.99 2051.52  632.47 2051.48  650.35 2051.54  660.46 2051.67
  684.47 2051.49  689.52 2051.46  700.27 2051.48  707.45 2051.49  711.94 2051.53
  712.29 2051.53  715.43 2051.51  729.16 2051.42  732.48  2051.4  733.28 2051.39
   748.6 2051.37  766.32 2051.23  771.81 2051.16  772.95 2051.27  781.36 2052.22
  782.32 2052.33  783.16 2052.45  791.27 2052.91  791.33 2052.92  791.39 2052.92
   792.4 2052.98  798.27 2053.34  799.31 2053.41  803.82  2053.5  806.39 2053.57
  807.73 2053.71  810.28 2053.79  812.47 2053.85  814.88 2053.84  824.42  2054.1
  825.85 2054.16  830.26 2054.34  845.17 2055.01  850.02 2055.25  850.92 2055.29
  864.31 2055.67  867.47 2055.73  878.12 2056.02  884.13 2056.11  889.93 2056.13
  901.45 2056.25  903.69 2056.14  905.31 2056.05  908.15 2055.78  915.07 2055.21
  918.16 2055.12  919.43 2054.96  928.61 2054.28  928.97 2054.26  930.35 2054.24
   938.9 2054.27  953.62 2054.33  960.04 2054.32  983.32 2054.02 1000.02 2053.99
 1024.11 2053.89 1048.97 2053.88 1063.54 2053.88 1100.19 2053.85 1105.89 2053.85
 1131.32  2053.8 1144.53 2053.76 1148.19 2053.75 1181.14 2053.66 1190.61 2053.65
 1194.48 2053.69 1213.99 2053.58  1227.5  2053.5  1234.7  2053.5 1251.26 2053.91
 1261.93 2053.98 1272.82 2053.85 1276.02 2053.82 1287.28 2053.72 1290.43 2053.65
 1290.58 2053.64  1290.8 2053.63 1295.91 2053.05 1315.78 2052.84 1318.04 2052.82
 1320.73 2052.78 1328.74 2052.73 1354.58  2052.5 1361.62  2052.3 1372.57 2051.77
  1390.8 2051.61  1403.9  2051.4 1405.69 2051.36 1408.09  2051.4 1411.66  2051.6
 1414.98 2051.65 1423.58  2051.9  1433.6 2052.04 1434.81 2052.06 1436.44 2051.99
 1446.63 2051.71 1453.26 2051.84 1460.67 2052.07  1470.2 2052.65 1477.14 2052.92
 1493.73 2053.12 1507.06 2053.29 1524.44 2053.32 1528.72 2053.36 1533.89 2053.72
 1543.86  2054.4 1556.19  2054.4 1559.49 2054.43 1564.34 2054.56 1564.99 2054.58
 1575.51 2061.59  1576.1 2061.98 1590.15 2064.36 1590.36 2064.39 1590.51 2064.35
 1593.86 2064.32 1593.86 2063.31 1594.79 2063.31 1594.86 2063.31 1596.46 2063.96
 1596.51 2063.98 1596.57 2064.01 1625.95 2064.59 1628.58 2064.64 1631.57 2064.58
 1660.59    2064 1662.04 2063.41  1662.3  2063.3 1662.46  2063.3  1663.3  2063.3
  1663.3 2063.47  1663.3 2064.38 1669.13 2064.44 1670.31 2064.45 1726.67 2054.07
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 1736.06 2052.37 1744.26  2055.1 1745.81 2055.62 1776.16  2055.8 1777.42  2055.8
 1793.67  2055.6 1807.09 2055.44 1807.78 2055.43 1812.48 2055.38 1852.09    2055
 1859.31 2054.99 1871.14 2054.94  1889.7 2054.94 1898.21 2054.87 1910.59 2054.66
 1913.68  2054.6 1916.85  2054.6 1945.88 2055.49  1945.9 2055.49 1945.99 2055.51
 1946.42 2055.55    1951 2056.03 1951.49 2056.11 1960.85 2058.13 1968.82 2059.62
 1973.74 2060.24 1975.38 2060.32 1984.92 2062.81  1985.7 2062.97 1987.67 2063.02
 1998.96 2065.13 2009.96  2063.4 2016.31 2062.87 2031.91 2060.82 2037.01 2060.37
 2042.47 2059.55 2048.19 2058.41 2050.11 2057.89 2054.55  2056.8 2057.53 2056.37
  2063.1 2056.29 2067.58 2056.23 2076.56 2056.06  2085.2    2056 2101.17 2056.03
 2105.92 2056.02 2113.61 2056.06 2135.21 2056.31 2140.95 2056.41 2149.08 2056.41
 2183.36 2056.77 2185.04 2056.77  2186.2 2056.77 2189.78 2056.77 2204.61 2056.77
  2205.4 2057.64  2206.7 2059.33 2209.35 2060.61 2215.85 2063.53  2217.8 2064.41
 2218.65 2064.74 2219.48 2065.04  2228.4 2067.87

Manning's n Values         num=        3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04  158.88    .035  715.43     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        158.88  715.43           108.96  117.33  104.77             .1      .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
 1593.94  2228.4  2064.4        F
Right Levee     Station= 1628.58      Elevation= 2064.64
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 1591.08 1669.58 2064.58

CROSS SECTION


RIVER: Hassayampa
REACH: 1                  RS: 51.983

INPUT
Description:
Station Elevation Data    num=     389
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 2081.49    3.88 2081.96    7.05 2081.93   11.57 2081.99   15.26 2082.15
   16.54 2081.88   21.25 2081.91   23.19 2082.07   27.27  2082.1    30.1 2082.12
   33.91 2082.95   35.08 2083.22   35.26 2083.24   39.37  2083.3   44.04  2082.3
      46 2081.89   48.28 2080.84   57.06 2074.61   58.86 2073.82   62.61 2072.73
   66.05 2071.57   72.36 2069.18   74.14 2068.97   75.39 2068.57   76.45  2068.4
   80.71  2067.3   83.78 2067.21   84.27 2067.28   89.63  2068.1   95.41  2067.6
   97.75 2067.34  105.51 2066.27  105.94 2066.25  106.19 2066.24   106.3 2066.16
  114.09 2060.05  114.62 2059.44  115.73 2059.27  117.31 2059.02  118.71 2058.99
  124.62 2058.83  129.65  2058.4  132.74 2058.18  135.42 2057.54  138.44 2056.96
  139.51  2056.6  141.66 2055.58   145.7 2054.19   146.9 2053.73  147.41  2053.6
  148.27 2053.38   151.5 2053.27   154.7 2053.16  156.27 2053.12  157.01 2053.07
  160.04 2052.83  163.36 2052.77  165.91 2052.69  167.74 2053.09  168.75  2053.3
  170.11 2053.39   173.7 2053.63  174.01 2053.65  174.23 2053.66  176.32 2053.57
  177.05 2053.55  178.17  2053.5  178.34 2053.54  182.58 2054.12     184 2054.17
   188.5 2054.16  188.83 2054.15   189.2 2054.13  192.88 2053.99  195.59 2053.82
  197.22 2053.67  198.14 2053.74  203.09 2053.98  205.69 2053.95  210.99 2053.93
  225.15 2053.78  225.61 2053.78  225.89 2053.77  235.19 2053.84     239 2053.49
  244.34 2052.98  244.75  2052.9     251 2051.44  258.05  2051.5  259.38 2051.52
  259.86  2051.5  267.14 2051.16  268.06 2051.22   269.6  2051.3   272.1 2051.44
  272.71 2051.49  277.03 2051.74  279.69 2051.75  288.42 2051.95  294.58 2052.01
  318.67 2052.24  319.95 2052.25  321.03 2052.25  338.32 2052.31  349.09 2052.34
  349.69 2052.34  355.67 2052.23  358.05 2052.22  364.39 2052.19  370.73 2052.11
  376.74 2052.09  382.98  2052.2  387.33 2052.13  391.93 2052.11  395.47 2052.16
  415.68 2052.35  430.65 2052.33  457.69 2052.25  463.63 2052.26  480.27 2052.36
  494.25 2052.43  499.81 2052.43  524.97  2052.3  535.97 2052.21  552.29    2052
  568.22 2051.97  576.19 2051.78  582.16 2051.64  585.64 2050.74  585.72 2050.72
  585.85 2050.72  602.14    2051  615.25 2050.97  633.23 2050.85  654.38 2050.84
  669.84  2050.8  684.77 2050.88  693.68 2050.92   701.5 2050.82  718.11 2050.64
  733.74 2050.53  739.29 2050.57  739.88 2050.57  741.02 2050.45   746.2 2049.93
  747.77 2050.03  748.31 2050.06  750.62  2050.2  753.74 2051.25  754.65 2051.59
  758.19 2051.81  762.81 2052.16  768.78 2052.37  774.72 2052.52  774.75 2052.51
  774.78 2052.52  774.99 2052.51  780.46 2052.22  782.72 2052.11  783.33  2052.1
  794.22 2051.87  795.78 2051.87  798.95 2051.79  802.51 2051.69  806.06 2051.82
  807.82 2051.87  820.55 2052.06  821.24 2052.08  821.28 2052.08  821.32 2052.08
  826.54 2052.25  832.02 2052.29  834.74 2052.57  837.57 2052.98  838.89 2053.18
  841.44 2053.38  846.16 2053.46  848.69 2053.52  855.39 2053.39  861.04 2053.06
  873.74 2053.67  875.87 2053.82  881.59 2054.26  885.27 2054.31  891.58  2054.9
  894.99 2055.11  897.23 2055.19  901.49 2055.42  902.49 2055.46  903.88 2055.52
  906.52 2055.64  909.28  2055.5  913.71 2055.25  919.72 2055.43  922.75 2055.53
  924.43 2055.48  928.96 2055.23  931.65 2055.07  937.72 2055.07  942.53 2055.07
  943.73 2055.03  945.52 2054.98  958.43 2054.55  961.78 2054.32  963.95    2054
  972.98 2053.95  973.59 2053.94  973.73 2053.93  977.42 2053.62  982.76 2053.64
  991.63 2053.62 1006.45 2053.79 1017.53 2053.96 1024.62 2053.98 1036.11 2054.01
 1068.86 2053.91 1074.99 2053.89 1111.59 2053.62 1111.64 2053.62 1147.67  2053.5
 1157.49 2053.45 1184.45 2053.35 1197.61 2053.41 1217.57  2053.3 1237.98 2053.25
 1247.61 2053.21 1271.39  2053.2 1281.28  2053.2 1285.39 2053.29 1293.58 2053.64
 1293.79 2053.64 1294.02 2053.65 1307.98 2053.79 1312.36  2053.8    1318 2053.21
 1319.94 2053.04 1320.77 2053.03 1323.48 2053.04  1343.5 2053.07 1365.61 2052.76
 1385.31 2052.59 1402.25 2052.56 1443.41 2051.92 1446.34 2051.89 1447.78 2051.81
 1454.26 2051.23 1460.45 2050.75 1467.13 2050.82 1474.48 2050.97 1476.01 2050.97
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1478.59	2050.98	1479.71	2050.99	1481.25	2051.09	1482.79	2051.14	1488.59	2051.22
1497.64	2051.17	1501.61	2051.14	1504.83	2051.25	1523.06	2051.72	1533	2052.45
1536.01	2052.64	1537.53	2052.67	1540.71	2052.8	1543.93	2052.92	1556.88	2053.24
1577.26	2053.48	1582.83	2053.51	1586.59	2053.63	1589.95	2053.7	1606.62	2054.09
1609.67	2056.12	1617.75	2061.51	1628.35	2063.37	1631.81	2063.98	1634.2	2063.24
1635.31	2063.24	1635.32	2062.9	1635.63	2062.9	1636.32	2062.9	1637.05	2063.2
1637.49	2063.38	1638.03	2063.6	1662.7	2064.09	1670.03	2064.24	1680.59	2064.02
1702.03	2063.59	1703.01	2063.2	1703.74	2062.9	1704.19	2062.9	1704.74	2062.9
1707.77	2063.39	1709.69	2063.71	1711.75	2064.05	1767.62	2054.38	1780.54	2052.18
1788.16	2054.72	1790.04	2055.35	1806.04	2055.37	1809.56	2055.37	1816.3	2055.4
1845.17	2055.41	1852.4	2055.44	1853.87	2055.44	1856.03	2055.47	1889.41	2055.7
1895.25	2055.64	1899.65	2055.67	1924.66	2055.51	1936.25	2055.49	1948.59	2055.23
1951.09	2055.27	1954.8	2055.25	1960.39	2055.37	1966.23	2055.57	1979.75	2055.59
1980.62	2055.6	1981.39	2055.59	1985.21	2055.61	1997.88	2055.69	2000.41	2055.7
2012.74	2055.73	2019.4	2055.81	2028.06	2055.84	2033.34	2055.94	2042.11	2056.06
2050.57	2056.14	2050.93	2056.15	2052.93	2056.17	2060.85	2056.18	2062.28	2056.19
2070.74	2056.21	2075.06	2056.25	2081.35	2056.28	2084.54	2056.31	2086.96	2056.33
2090.82	2056.37	2098.42	2056.41	2100.34	2056.42	2105.08	2056.44	2109.05	2056.43
2110.18	2056.44	2115.2	2056.44	2119.25	2056.43	2124.22	2056.48	2128.29	2056.49
2130.52	2056.49	2131.49	2056.5	2133.35	2056.5	2134.28	2056.47	2136.39	2056.4
2154.19	2056.75	2154.52	2056.76	2155.74	2056.79	2156.91	2056.81	2173.03	2057.23
2173.2	2057.25	2177.81	2057.28	2188.44	2057.44	2189.6	2057.45	2191.06	2057.29
2194.24	2057	2195.57	2056.75	2197.65	2056.46	2198.83	2056.36	2201.39	2056.81
2202.6	2056.96	2204.3	2057.21	2205.33	2057.3	2207.8	2057.47	2209.62	2057.59
2223.66	2058.05	2227.97	2058.21	2228.61	2058.4	2230.79	2058.85	2236.95	2060.71
2241.42	2062.32	2244.31	2063.55	2250.72	2066.12	2252.98	2067.01	2254.4	2067.58
2255.66	2068.08	2258.71	2069.32	2260.38	2069.56	2264.87	2069.99	2274.74	2070.63
2275.8	2070.68	2276.45	2070.7	2277.8	2070.76	2283.68	2070.93		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	177.05	.035	747.77	.04

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

177.05	747.77	157.78	136.93	115.42	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
1636.36	2283.68	2064	F

Right Levee Station= 1670.03 Elevation= 2064.24

Blocked Obstructions num= 1

Sta L	Sta R	Elev
1632.53	1711.03	2064.17

CROSS SECTION

RIVER: Hassayampa
REACH: 1 RS: 51.957

INPUT
Description:
Station Elevation Data num= 346

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2108.31	2.18	2107.63	4.39	2106.94	16.07	2103.45	17.75	2102.88
18.33	2102.77	22.02	2101.99	32.15	2099.82	33.34	2099.5	44.59	2097.18
45.95	2096.83	48.63	2096.33	57.78	2094.53	61.55	2093.61	68.93	2091.72
77.8	2089.45	82.68	2088.21	86.01	2087.26	100.18	2082.9	106.22	2080.93
107.67	2080.12	112.88	2077.24	115.1	2076.2	118.09	2075.08	121.54	2069.07
125.16	2064.16	126.13	2063.58	128.39	2062.3	130.85	2061.89	131.2	2061.84
131.31	2061.82	137.41	2061.94	138.61	2061.97	140.05	2061.9	148.38	2061.57
153.34	2061.69	156.89	2061.78	165.39	2055.69	170.48	2052.24	173.44	2052.41
177.73	2052.64	184.37	2052.53	185.72	2052.5	187.26	2052.43	189.49	2052.3
190.24	2052.26	191.44	2052.39	194.52	2052.68	200.13	2052.96	208.15	2053.38
213.9	2053.32	219.5	2053.28	237.18	2053.46	238.25	2053.48	238.93	2053.41
245.75	2052.83	245.84	2052.81	247.14	2052.62	250.09	2052.18	250.35	2052.13
250.62	2052.06	253.69	2051.37	257.68	2051.21	258.53	2051.18	258.67	2051.18
258.95	2051.17	271.01	2051.3	274.07	2051.26	280.04	2051	291.62	2050.91
295.46	2050.88	319.77	2050.74	319.83	2050.74	319.87	2050.74	320.12	2050.74
334.7	2050.73	335.52	2050.75	340.06	2050.73	343.36	2050.73	344.85	2050.75
351.66	2050.85	364.38	2051.02	372.07	2051.12	375.48	2051.13	387.59	2051.12
390.43	2051.09	391.38	2051.08	396.42	2050.94	398.71	2050.88	410.62	2051.18
420.55	2051.45	430.15	2051.55	452.63	2051.57	462.79	2051.51	493.09	2051.48
495.51	2051.47	505.34	2051.46	525.46	2051.38	530.05	2051.37	554.79	2051.25
565.53	2051.19	573.81	2051.06	600.65	2050.84	606.29	2050.79	607.73	2050.78
608.73	2050.52	610.57	2050.12	619.17	2050.1	624.85	2050.09	629.99	2050.06
653.75	2050.22	654.27	2050.23	654.57	2050.23	655.31	2050.22	661.31	2050.19
671.29	2050.14	674.13	2050.13	700.28	2050.09	704.56	2050.03	709.85	2050.02
737.95	2050	744.44	2050.06	749.1	2050.07	755.53	2049.98	758.2	2049.9
759.02	2049.91	767.6	2050	770.76	2050.03	771.44	2050.28	774.22	2051.4
778.71	2051.45	780.33	2051.54	784.74	2051.83	786.27	2052.07	788.42	2052.39
803.74	2052.89	807.99	2053.03	809.83	2053.12	815.94	2053.38	822.97	2053.65
824.62	2053.7	826.28	2053.62	828.03	2053.6	831.28	2053.41	834.18	2053.16
838.66	2052.69	843.14	2051.34	845.07	2050.78	849.22	2050.84	850.28	2050.86
854.8	2050.86	859.1	2050.81	859.95	2050.79	860.75	2050.8	874	2050.75
883.19	2050.65	886.26	2050.56	889.87	2051.01	889.89	2051.01	890.01	2051.01
896.93	2051.03	906.7	2051.13	906.96	2051.13	907.09	2051.12	908.34	2051.05
914.35	2050.71	914.96	2050.68	918.13	2050.54	921.09	2050.46	923.14	2050.4
926.6	2051.08	933.13	2051.9	935.11	2051.91	936.11	2051.91	940.42	2051.93

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  943.18 2051.93  945.83 2051.94  947.06 2051.91  948.16 2051.89  952.22 2051.94
   955.9 2051.98  957.59 2051.99  958.32 2051.99  961.79 2051.98  963.96 2051.94
  964.61 2051.97  965.56 2052.01  968.68 2052.15  968.81 2052.15  968.84 2052.15
  969.72    2052  971.93 2051.61  972.08 2051.59  972.27 2051.59  978.71 2051.48
  986.12 2051.72  993.05 2052.11  995.78 2052.34 1001.55 2052.54 1005.18  2052.7
 1008.17 2052.56 1008.45 2052.55 1008.85 2052.57 1021.84 2053.13 1037.35 2053.39
 1047.42 2053.54 1052.57 2053.61 1063.85 2053.63 1088.47 2053.44 1104.08 2053.43
 1129.45 2053.21 1142.51 2053.09 1174.91 2052.87 1180.76 2052.87 1215.68 2052.87
 1219.84 2052.88 1220.55 2052.87 1245.94 2052.81 1251.34 2052.87 1266.26 2052.85
 1278.02 2052.88 1281.49 2052.83 1306.95 2052.76 1348.66 2052.75 1370.46 2052.56
 1399.59 2052.16 1412.55 2051.96 1418.68 2051.96 1430.53 2051.93  1444.9  2051.8
 1445.39 2051.76 1450.45 2051.54 1452.94 2051.43 1453.25 2051.42 1453.53 2051.42
 1466.44  2051.4 1480.12  2051.3 1491.34 2051.16  1510.8 2050.84 1516.69 2050.77
 1528.07 2050.58 1537.24 2050.46 1542.02 2050.67 1543.74 2050.77 1544.81 2050.79
 1568.09 2051.18 1570.91 2051.59 1575.67 2052.31 1578.07 2052.34 1580.49 2052.48
 1598.95 2052.89 1599.48 2052.89 1599.92  2052.9 1601.53  2052.9  1628.2 2053.04
 1630.08 2054.29 1640.16 2061.02 1642.74 2061.49 1654.02 2063.56 1655.95 2062.96
 1657.52 2062.48 1658.19 2062.48 1658.52 2062.48 1659.14 2062.74 1660.23 2063.18
 1674.14 2063.46 1692.23 2063.82 1713.89 2063.39 1724.23 2063.18 1725.12 2062.82
 1725.94 2062.48 1726.47 2062.48 1726.94 2062.48 1729.87 2062.97 1733.95 2063.64
  1790.1  2054.5 1805.76 2051.99  1812.8 2054.34 1814.54 2054.92 1820.68  2054.9
 1851.97 2054.91 1872.27 2055.04 1900.71 2055.22 1908.36 2055.23  1939.2 2055.14
 1946.49 2055.11 1948.04  2055.1 1953.24 2055.09 1968.94 2055.07 1973.49 2055.25
 1974.95 2055.31 1979.56 2055.31 1982.47 2055.23 1988.28 2055.24 1993.04 2055.24
 1998.88 2055.21 2014.03 2055.28  2018.4 2055.34  2024.5 2055.38 2037.72  2055.4
 2060.12 2055.41 2061.34 2055.41 2062.19 2055.41 2064.56 2055.43 2087.94 2055.57
 2095.57 2055.65 2109.08 2055.84 2129.29 2056.09 2147.75 2056.24  2174.2 2056.49
 2185.34 2056.69 2192.57  2056.9 2199.94 2057.13 2216.15 2057.67 2225.38 2057.76
 2230.56 2057.73 2238.76  2057.7 2240.25 2057.68 2257.33 2058.03 2265.22 2058.11
 2273.97 2058.46 2293.11 2058.74 2296.99 2058.77 2300.11 2058.85 2303.19 2059.04
 2305.73 2059.91 2312.37 2062.08 2315.27 2062.96 2318.06 2063.85 2318.88 2064.11
  2320.7 2064.22 2321.33 2064.26 2321.86 2064.31 2323.93 2064.23 2324.86  2064.2
 2325.03 2064.13 2329.36 2062.41 2331.44  2061.8 2335.62 2060.68 2337.62 2060.13
 2339.81 2059.63 2340.15 2059.58 2341.03 2059.41 2343.11  2059.1 2344.15 2059.12
 2346.92 2059.15

Manning's n Values          num=        3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04  189.49    .035  759.02     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.    Expan.
        189.49  759.02             156.4  136.66  111.77             .1       .3
Ineffective Flow     num=        1
   Sta L   Sta R    Elev  Permanent
 1657.58 2346.92  2063.5       F
Right Levee     Station= 1692.23      Elevation= 2063.82
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 1654.73 1733.23 2063.76

CROSS SECTION


RIVER: Hassayampa
REACH: 1                    RS: 51.932

INPUT
Description:
Station Elevation Data    num=      307
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
       0 2065.61     5.87 2065.32     8.08 2065.15    21.72 2064.49       22 2064.47
    22.6 2064.44    32.57  2062.4    34.23 2062.17    40.98 2061.93    42.26 2061.87
   43.19 2061.82    52.22  2061.5    55.88 2061.38    57.36 2061.19    60.12 2060.39
   64.51 2060.25    67.83 2060.17    74.85    2060    79.39 2060.06    84.21 2059.97
   85.63 2059.55    87.47 2059.05    89.96 2058.85    91.53 2058.74    97.73 2058.86
   99.23 2058.89   100.26 2058.83   104.12 2058.62   108.59 2058.37   111.45 2058.26
  115.79 2058.13   123.02 2053.19   123.23 2053.06   127.46 2052.92   139.98 2052.53
  140.95 2052.49   143.48 2052.46   154.99 2052.34   156.22 2052.29   158.02 2052.28
   159.9 2052.25   163.11 2052.14   171.96 2051.91   175.77 2051.62   177.45 2051.45
  180.82 2051.64   182.51 2051.75   184.25 2051.76   188.95 2051.81   196.07 2051.92
  199.67 2051.94   204.31 2051.26   207.13 2050.96   209.59 2051.16    214.6 2051.51
  219.27 2051.53    223.8 2051.61   224.75 2051.52   226.13 2051.36   228.81  2050.9
  230.63 2050.77   234.61 2050.56   235.99  2050.3   237.58 2050.09    243.8 2050.09
  244.07 2050.09   244.21 2050.09   244.54 2050.09   259.05 2050.11   267.17 2050.26
  273.98  2050.4   283.26 2050.38   284.23 2050.38   285.05 2050.34   289.53 2050.18
  298.32 2049.98    299.5 2049.95   299.83 2049.94   307.34 2049.85   321.22 2049.89
  326.21 2049.82   329.74 2049.91    334.3    2050   336.88 2049.91   337.76 2049.88
  338.29 2049.85   354.52 2050.24   357.73 2050.34      361 2050.35   397.34 2050.52
  400.27 2050.48   403.61 2050.52   434.86 2050.58   437.65 2050.57   463.68 2050.37
   464.8 2050.37   475.16 2050.38   496.18  2050.4   498.21  2050.4   528.02 2050.02
  528.55 2050.01   530.22 2050.02   541.94 2050.06   542.42 2050.04   550.03 2049.68
  557.74 2049.77   563.91 2049.67   577.85 2049.53   584.73 2049.52   593.89 2049.92
  595.06 2049.97   595.83 2049.98   619.18 2050.01   623.58 2050.05   633.54 2049.79
  636.23 2049.73   639.15 2049.76   645.66 2049.83   650.93 2049.83   672.53 2049.64
  675.66 2049.61   679.31 2049.58   693.41 2049.64    696.5 2049.65   698.23 2049.59
  708.47 2049.23    709.7 2049.81   711.42 2050.51  714.662050.679   714.67 2050.68
  715.89 2050.75   721.37 2051.08   727.53 2051.33   729.16 2051.33   730.82 2051.29
  733.51 2051.19   735.47  2051.4   737.76 2051.62   741.78 2052.26    743.6  2052.6
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  747.62 2053.08   749.1 2053.27  749.78 2053.25  757.32 2053.09  771.08 2053.03
  771.54 2053.03  771.77 2053.01  779.47 2052.59  783.53 2051.26  786.02 2050.37
  787.82  2050.3   805.7 2050.43  809.25 2050.42  812.61 2050.45  830.87  2050.6
  833.42 2050.62  833.81 2050.62  851.08 2050.32  852.23 2050.28   860.9 2049.95
  868.94 2049.59  872.29 2049.57  878.98 2049.57  886.83 2049.75  887.55 2049.78
  888.64 2049.78  899.46 2049.87  906.51 2049.98  908.18    2050  912.45 2050.16
  922.06 2050.55  931.65  2050.8   936.7 2050.92  939.24 2050.94  942.25 2050.77
  944.44 2050.63  945.93 2050.59  950.17 2050.53  952.49 2051.06  953.36 2051.22
  955.03 2051.95  957.63 2053.06  961.21 2053.24   963.8 2053.37  965.41  2053.1
  967.14 2052.82  974.55 2052.88  979.37 2052.94  999.51  2052.9 1006.01 2052.93
  1009.7 2052.89 1020.53 2052.82 1036.57 2052.81  1050.7 2052.78 1076.29 2052.71
 1087.37 2052.72 1099.46 2052.64 1129.44 2052.38 1136.54 2052.33 1167.14 2052.18
 1169.72 2052.19 1204.52 2052.41 1224.08 2052.36 1244.69 2052.35 1253.94 2052.26
 1280.79 2052.05 1303.27 2052.05 1317.49 2052.11 1346.21 2051.59 1350.56 2051.53
 1353.45 2051.52 1389.33 2051.42 1398.16 2051.43 1399.83 2051.43 1419.58  2051.1
 1419.84 2051.09 1420.24 2051.05 1424.16 2050.69 1436.12 2050.49  1445.4 2050.35
 1470.09  2050.4 1490.26 2050.62 1501.81 2050.97 1502.58 2051.01 1505.96 2051.03
 1509.64 2050.92 1522.39 2051.31 1526.69 2051.43 1529.33 2051.67 1533.17 2051.97
 1535.62 2052.04 1538.29 2052.22 1541.85 2052.47 1545.67 2052.66 1552.21  2052.6
 1554.98 2052.44 1557.36 2052.38 1561.89 2052.42 1572.82 2052.59 1576.34 2052.61
 1581.51  2052.6 1581.57 2052.61 1585.39 2055.16 1593.42 2060.51 1598.95 2061.57
 1607.08 2063.13 1609.76  2062.3 1610.58  2062.3 1610.58 2062.05 1610.81 2062.05
 1611.58 2062.05 1611.97 2062.21 1613.29 2062.75 1620.13 2062.88  1645.3 2063.39
 1673.94 2062.82 1677.31 2062.75 1678.85 2062.12 1679.02 2062.05 1679.11 2062.05
 1680.02 2062.05 1680.02 2062.54 1680.66 2062.65 1687.02 2063.21 1724.23 2057.51
 1762.06 2051.79 1766.87 2053.39    1771 2054.77 1774.35 2054.77 1783.15 2054.79
  1826.1 2054.83 1829.78 2054.85 1838.21 2054.85 1873.35 2054.88 1890.42 2054.93
 1910.43  2054.9 1941.04 2054.98 1944.45 2054.98 1947.77    2055 1967.52 2054.97
 1984.28 2055.25 1998.79 2055.37 2009.63 2055.56 2027.31 2055.59 2038.75 2055.72
 2055.48 2056.14 2055.89 2056.15 2065.47  2057.1 2065.85 2057.14 2071.54 2058.18
 2075.64 2059.24 2077.62 2059.35 2087.31 2059.04 2093.75 2059.42 2095.93 2059.46
 2098.32  2059.7 2108.89 2061.85 2121.53 2063.08 2127.29 2064.08 2136.22 2062.65
 2136.73 2062.67 2137.07 2062.72 2142.88 2063.08 2161.02 2064.37 2162.24 2064.35
 2162.63 2064.46 2163.75 2064.56

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04  143.48    .035  714.66     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        143.48  714.66           249.76  194.96  186.74            .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
 1612.12 2163.75  2063.2       F
Right Levee     Station=  1645.3      Elevation= 2063.39
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
  1607.8  1686.3 2063.32

CROSS SECTION


RIVER: Hassayampa
REACH: 1                  RS: 51.895

INPUT
Description:
Station Elevation Data    num=     348
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 2064.49    2.23 2064.34     4.3  2064.2    7.31 2064.08   22.85 2062.89
   28.21 2062.55   36.46 2062.27   42.34 2061.99   47.97 2061.79   52.67  2061.7
   59.36 2061.29   61.39 2061.23      63 2061.18   68.34 2061.17   70.15 2061.15
   70.88 2061.16   81.29 2061.38   88.55 2061.16   93.04 2061.09   94.43 2060.94
   98.58 2060.51  101.57 2057.48  109.65 2052.28  113.31  2051.9  120.59  2051.5
  123.91 2051.55  126.16 2051.44  136.94 2051.14  137.87 2051.13  143.62 2051.04
  148.53 2050.84  152.75 2051.01  154.172050.997  161.48 2050.93  164.74 2050.82
  170.64 2049.82  178.44 2048.89  180.18 2048.87  183.41 2048.97  184.19 2049.08
  187.66 2049.57  189.24 2049.74  189.67 2049.83  192.54 2049.81  195.91 2049.84
   196.4  2049.8  199.28 2049.72  200.13 2049.69   200.2 2049.69  200.51 2049.66
  209.02  2048.7  211.26 2048.47  211.97 2048.44  213.86 2048.74   214.8 2048.84
  219.87 2048.78  227.51 2048.69  231.71  2048.7   235.4 2048.69  237.21  2048.8
  239.55 2048.87  243.52 2048.82  245.46  2048.8  247.77 2048.76  250.72 2048.67
  255.91 2048.69  268.34 2048.57  272.43 2048.52  276.96 2048.72  278.27 2048.79
  280.31 2048.88  289.32 2049.29  297.18 2049.34  313.79 2049.22  330.16 2049.12
  336.42 2049.07  345.39 2049.06  351.99 2048.99  355.85 2048.63  358.98 2048.31
  362.93 2048.33  382.17 2048.68  388.31 2048.68  393.02 2048.66  405.37 2048.59
  408.25 2048.83  408.58 2048.84  431.64    2049  444.18 2049.01  447.22 2049.03
  448.28 2049.01  458.69 2048.95  466.58 2048.99  473.19 2048.97  478.31 2048.94
  481.89 2048.94  488.91 2048.93  491.06 2048.95  498.46 2049.17  499.81  2049.2
  503.89 2049.06   511.6 2048.84  525.39 2049.22  530.29 2049.18  541.74 2049.04
  551.17 2048.95   556.4 2048.88  558.09  2048.8  559.67 2048.74  564.36 2048.72
  578.86 2048.65  586.09 2048.65  612.83 2048.77  614.21 2048.77  614.87 2048.76
   617.9 2048.71  635.02 2048.49  636.67 2049.36  637.59 2049.81  638.85 2049.81
  646.24 2049.89   655.8 2049.98  664.01 2049.78  664.74 2049.76  665.12  2049.8
   669.4  2050.2  669.88 2050.21  673.33 2050.25   679.4 2050.34  689.65 2052.11
  691.29 2052.36  693.51 2052.53  697.36 2052.74  701.33 2052.66   713.2 2052.51
  721.24 2052.34  724.16 2052.28  728.08 2051.88  731.73  2051.5  739.97 2050.65
   740.9 2050.54   746.3 2050.35  755.77 2050.02  764.35 2049.79  764.96 2049.78
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  766.24 2049.76  782.62 2049.52  788.98 2049.59  794.92 2049.68  801.92 2049.56
  803.59 2049.54  806.87 2049.31  810.33 2049.06  814.37 2048.95   817.7 2048.84
   819.8 2048.76  822.93 2048.82   825.5  2048.9  827.98 2049.11   832.6 2049.53
  835.22 2049.66  838.68  2049.9  843.09    2050  846.16 2050.07  850.24    2050
  852.88 2049.97  858.35 2050.06  862.63 2050.12  864.23 2050.29  869.41 2050.81
  869.74 2050.83  873.36 2051.03  873.46 2051.03   874.3 2051.14  876.07 2051.33
  876.33 2051.38  876.82  2051.4  882.02 2051.75  887.12 2052.08  890.12 2052.24
   892.9 2052.15   894.8 2052.09  897.65 2051.98  902.61 2052.02  904.89 2052.06
  911.47 2052.19  920.06 2052.14  920.29 2052.14  920.39 2052.14     928 2051.89
  935.64 2051.93  950.84 2051.87  960.23  2051.9  963.77 2051.89  968.25 2051.84
  971.43 2051.91 1002.94 2051.79 1013.58 2051.79 1022.54 2051.72 1024.83 2051.72
  1033.7 2051.76 1041.96  2051.7 1066.63 2051.58 1068.12 2051.57 1068.85 2051.57
 1089.74 2051.77 1091.03 2051.89 1099.64 2052.04 1102.78 2052.08 1105.67 2052.06
 1119.87 2051.88 1127.53 2051.83 1130.97 2051.81 1132.63  2051.8  1135.5 2051.74
  1150.9 2051.74 1158.62  2051.8  1165.6 2051.79 1182.54 2051.57 1186.12 2051.58
 1188.54 2051.59 1191.21 2051.61 1202.29 2051.77 1215.18 2051.83 1226.16 2051.77
 1234.45 2051.79 1244.33 2051.66 1258.17 2051.56 1264.45 2051.55 1280.99 2051.58
 1281.23 2051.58 1281.28 2051.58 1281.45 2051.58 1306.29 2051.46  1312.3 2051.51
 1318.14 2051.51 1324.51 2051.61 1330.57  2051.5 1337.12 2051.41  1340.4 2051.35
 1342.44 2051.33 1359.73 2051.39 1373.65 2051.13 1384.75  2051.1 1394.54 2051.35
 1397.02 2051.36 1398.23 2051.38 1398.76 2051.38 1401.29 2051.32 1416.15 2050.91
 1421.94  2049.9 1422.78 2049.75 1423.64 2049.74  1428.2 2049.66 1441.32 2049.62
 1471.76 2049.88 1475.45 2049.91 1495.73 2050.05 1502.31 2050.11 1503.55 2050.15
 1503.97 2050.16 1514.64 2050.44 1523.22 2050.67 1523.95 2051.16 1536.68 2059.64
 1536.87 2059.68 1537.95  2059.9  1548.8 2062.13 1550.11  2062.4 1550.65 2062.23
 1552.36  2061.7 1553.61 2061.68 1553.61 2061.31 1553.94 2061.31 1554.61 2061.31
 1555.67 2061.74 1556.05  2061.9 1556.32 2062.01 1582.84 2062.54 1588.34 2062.66
 1593.52 2062.55 1620.36 2062.02 1621.72 2061.46 1622.07 2061.32 1623.06 2061.32
 1623.07 2061.32 1623.07 2061.33 1623.14 2061.33 1627.24 2062.01 1628.29 2062.18
 1630.07 2062.48 1653.79 2059.24 1688.03 2054.49 1697.65 2053.19 1703.62 2052.38
 1710.62 2051.44 1715.98 2053.23 1721.44 2055.05 1721.63 2055.15 1722.64 2055.14
 1726.01 2055.45 1727.88 2055.44 1735.07 2055.37 1736.48 2055.37 1736.84 2055.37
 1743.37  2055.3 1744.84 2055.26 1745.08 2055.25 1751.38 2054.94 1764.04 2054.53
 1766.52 2054.59 1773.37 2054.69 1784.61 2054.93 1785.81 2054.91 1789.35 2054.94
 1806.25 2055.01 1813.66    2055 1825.61 2055.11 1843.22 2055.54 1853.35 2055.75
 1857.94 2055.84 1863.82 2055.88  1865.4 2055.91 1876.83 2056.29 1887.72 2056.61
 1890.29 2057.36 1893.99 2058.18 1900.56 2060.46  1901.9 2060.88 1903.58 2061.61
 1912.63 2065.92 1924.07 2068.23 1931.22 2069.46 1942.67 2070.33 1947.84 2070.62
    1956 2070.83 1960.45 2070.94 1968.71 2071.13 1971.35 2071.09 1981.16 2070.98
 1989.34 2071.04 1998.48 2070.93 1999.55 2070.71 2001.73 2070.11 2009.77  2068.7
 2017.86 2067.85 2019.92 2067.73 2021.86 2067.78

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04  137.87    .035  669.88     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        154.17  669.88           238.24  215.28  189.69             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
 1554.55 2021.86 2062.42       F
Right Levee     Station= 1588.34      Elevation= 2062.66
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 1550.84 1629.34 2062.59

CROSS SECTION


RIVER: Hassayampa
REACH: 1                 RS: 51.854

INPUT
Description:
Station Elevation Data    num=     355
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 2066.97    7.46 2066.75   12.79 2066.16   19.76  2065.7   25.37 2065.08
   33.33 2064.54   39.44 2064.49   47.43 2064.29   54.23 2064.02    62.9 2063.72
   63.27 2063.74   64.01 2063.75   69.77 2064.59   71.86 2064.92   74.37 2065.29
   77.21 2065.75   83.94 2066.42   85.85 2066.43   86.22 2066.34   93.41 2064.52
   95.23 2064.12   97.59  2063.8   99.66 2063.51  101.56 2063.32  104.26 2062.85
  108.88 2061.99  109.79 2061.78  111.13 2061.65  114.98 2062.86  115.52 2062.88
  117.41 2063.05  119.73 2063.05  120.91 2063.01  122.35 2062.78  125.45 2062.04
   126.8    2062  127.76 2061.76  131.55    2063  135.58 2062.72  139.65  2062.7
  144.83 2062.36  156.88 2061.58  158.04 2061.56  168.81  2061.4  176.51 2060.99
  179.94 2060.81  181.48 2060.54  184.13 2060.17  189.99 2057.91  196.74 2054.71
  212.41 2053.53  214.33  2053.4  215.33 2053.37  215.78 2053.33  217.74 2053.09
  226.12 2052.13  230.41 2051.63  241.08  2048.7 245.562047.393  247.01 2046.97
  254.92 2047.01  256.77 2047.01  261.25 2047.06  287.39  2047.5  296.36 2047.45
  310.51 2047.36  324.37 2047.11  327.55 2047.09  329.61 2047.03  346.75 2046.98
  354.78    2047  363.61 2046.96  366.38 2046.94  369.79 2046.84  371.31 2046.83
  373.27 2046.96  377.61 2047.22  378.89 2047.28  381.72 2047.46  391.56 2047.61
  396.53 2047.66  396.95 2047.66   397.9 2047.67  401.25 2047.62  409.63 2047.51
  411.34 2047.51  413.09 2047.57  415.44 2047.62  416.55  2047.7  419.88  2047.5
  424.03 2047.11  425.68 2046.98  426.89 2046.84  432.19 2046.81  440.19 2046.71
  440.86 2046.71   441.6 2046.71  444.03 2046.91  448.92  2047.2  449.43 2047.27
  452.79 2047.43     456 2047.49  458.39 2047.32  461.09 2047.16   462.7 2047.06
  467.63 2047.31  473.24 2047.73  477.37 2047.81  478.66 2047.83  484.28 2047.92
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489.04	2047.92	489.48	2047.93	489.78	2047.92	493.7	2047.91	496.42	2047.88
502.77	2047.84	509.69	2047.94	517.92	2048.04	526.3	2048.21	530.02	2048.27
532.4	2048.33	535.52	2048.32	541	2048.33	543.13	2048.38	545.04	2048.41
547.65	2048.45	550.2	2048.44	557.39	2048.38	574.32	2048.3	581.69	2048.26
584.91	2048.13	586.34	2048.07	602.88	2047.99	604.64	2047.98	605.23	2048.04
609.12	2048.46	614.29	2048.5	622.86	2048.58	633.93	2048.63	637.33	2048.64
641.72	2048.55	643.62	2048.5	644.3	2048.58	647.24	2048.97	657.98	2049.1
668.97	2049.25	674.35	2049.28	695.56	2050.09	698.41	2050.12	701.65	2050.49
706.62	2050.98	706.64	2050.99	710.54	2051.38	716.99	2052.07	721.4	2052.25
725.25	2052.4	736.53	2052.71	736.65	2052.72	736.73	2052.71	748.58	2052.15
752.47	2051.6	754.9	2051.27	758.17	2050.71	765.76	2049.56	765.83	2049.57
766.12	2049.63	768.42	2050.09	769.04	2049.91	771.32	2049.21	784.86	2048.99
786.96	2048.95	787.58	2048.94	788.21	2048.93	788.91	2048.92	810.37	2048.67
824.47	2048.71	827.61	2048.71	838.65	2048.61	867.81	2048.36	874.26	2048.23
883.55	2047.57	884.7	2047.51	893.87	2047.64	896.31	2047.68	908.05	2047.81
908.15	2047.81	909.02	2047.85	912.15	2048	912.56	2048.11	913.31	2048.21
921.93	2049.84	923.28	2050.01	930.5	2050.53	931.67	2050.55	932.29	2050.54
936.16	2050.45	937.78	2050.5	943.71	2050.67	944.23	2050.74	951.64	2051.49
952.8	2051.51	953.5	2051.56	954.47	2051.82	955.59	2052.13	958.83	2052.81
960.21	2053.2	961.68	2053.52	962.96	2053.4	964.65	2053.24	966.11	2052.6
966.81	2052.44	969.16	2051.56	971.11	2050.96	974.23	2050.93	993.03	2050.83
995.42	2051.04	999.29	2051.34	1001.94	2051	1002.76	2050.9	1016.85	2050.85
1027.69	2050.84	1029.8	2050.96	1031.9	2051.08	1033.26	2050.95	1036.45	2050.69
1039.53	2050.69	1050.77	2050.66	1070.17	2050.87	1086.78	2050.9	1117.82	2050.72
1129.32	2050.67	1169.3	2050.57	1171.05	2050.56	1177.85	2050.55	1211.17	2050.49
1219.98	2050.49	1254.68	2050.66	1273.84	2050.54	1275.72	2050.53	1279.44	2050.56
1288.09	2050.66	1293.92	2050.4	1296.81	2050.27	1311.51	2050.19	1324.23	2050.1
1326.56	2050.1	1328.73	2050.15	1359.77	2050.14	1373.69	2050	1400.74	2049.91
1420.22	2049.9	1429.52	2049.9	1430.7	2050.11	1432.08	2050.35	1434.85	2050.59
1435.11	2050.62	1439.89	2050.62	1453.26	2050.62	1458.59	2050.6	1459.98	2050.79
1462.12	2051.07	1464.3	2050.97	1464.69	2050.94	1478.33	2050.64	1483.35	2050.53
1483.56	2050.49	1485.59	2050.13	1487.92	2049.7	1488.05	2049.68	1499.54	2049.65
1503.9	2049.64	1514.39	2049.64	1538.46	2049.72	1540.9	2049.74	1548.91	2055.06
1554.52	2058.8	1561.94	2060.39	1568.06	2061.7	1569.89	2061.56	1569.98	2061.56
1570.15	2061.56	1571.57	2061.56	1571.57	2061.47	1571.57	2060.62	1572.46	2060.62
1572.58	2060.62	1573.35	2060.93	1574.29	2061.32	1593.7	2061.71	1606.38	2061.97
1620.81	2061.69	1638.46	2061.34	1639.56	2060.89	1640.18	2060.64	1641.08	2060.64
1641.18	2060.64	1641.51	2060.7	1643.95	2061.1	1648.2	2061.8	1657.48	2059.91
1662.66	2058.86	1714.99	2048.24	1719.76	2047.28	1726.7	2045.87	1730.72	2045.91
1736.73	2045.97	1746.23	2048.35	1764.09	2052.81	1772.5	2053.39	1773.59	2053.47
1779.49	2053.92	1782.72	2054.15	1796.02	2054.34	1825.34	2054.88	1850.57	2055.29
1856.14	2055.41	1856.89	2055.43	1861.04	2055.41	1897.61	2055.63	1941.79	2055.81
1953.18	2055.84	1966.97	2055.88	1975.72	2056.01	1977.97	2056.02	1981.81	2056.02
1986.7	2056	1991.68	2055.93	2004.11	2055.96	2029.03	2056.06	2035.14	2056.05
2055.71	2056.22	2074.06	2056.29	2074.87	2056.3	2080.83	2056.34	2082.12	2056.33
2114.72	2056.34	2117.06	2056.36	2140.46	2056.41	2147.42	2056.38	2162.92	2056.44
2204.59	2056.89	2209.12	2056.95	2215.95	2057.07	2217.04	2057.07	2219.03	2057.07
2223.26	2057.12	2230.14	2057.17	2267.83	2057.56	2270.12	2057.57	2287.28	2057.74
2291.88	2057.74	2295.33	2057.76	2319.37	2057.89	2324.55	2057.89	2352.74	2058.2

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	226.12	.035	706.62	.04

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

245.56	706.62		134.24	130.05	127.67	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
1572.73	2352.74	2061.78	F

Right Levee Station= 1606.38 Elevation= 2061.97

Blocked Obstructions num= 1

Sta L	Sta R	Elev
1568.88	1647.38	2061.9

CROSS SECTION

RIVER: Hassayampa
REACH: 1 RS: 51.829

INPUT
Description:
Station Elevation Data num= 274

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2069.03	13.31	2065.81	14.25	2065.58	16.76	2065.28	29.43	2063.42
35.74	2062.3	36.09	2062.28	38.6	2061.77	40.46	2061.83	42.37	2061.85
48.08	2061.99	50.21	2062.04	53.52	2062.15	64.56	2062.26	65.37	2062.27
67.24	2062.05	73.11	2061.32	76.4	2058.22	80.31	2054.73	87.6	2048.91
93.95	2046.22	96.98	2046.24	98.97	2046.26	103.63	2046.3	108.852	046.343
141.16	2046.61	167.73	2046.1	167.94	2046.09	168.11	2046.1	177.67	2046.27
179.41	2046.33	187.47	2046.71	201.93	2046.66	205.15	2046.67	216.43	2046.93
220.96	2047.01	245.17	2047.25	246.77	2047.26	254.27	2047.13	264.48	2047.17
268.55	2046.93	273.7	2046.44	273.82	2046.44	279.48	2046.6	280.71	2046.62
285.34	2046.71	289.22	2046.79	291.35	2046.82	296.37	2046.88	303.19	2046.94
304.2	2047.01	311.07	2047.43	312.45	2047.45	313.97	2047.43	314.81	2047.47
328.72	2047.63	334.94	2047.81	343.09	2047.66	348.73	2047.6	359.77	2047.75
367.92	2047.89	374.27	2047.85	401.67	2047.78	406.22	2047.77	408.65	2047.73
429.13	2047.45	430.89	2047.33	435.56	2047.08	443.33	2046.96	454.13	2046.8

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  459.39 2046.89  463.58 2046.93  466.45 2047.61  466.78  2047.7   473.7 2047.55
  475.22 2047.51  475.85 2047.62  478.38 2048.09  496.28 2048.39  512.07 2048.51
  519.49 2048.55  532.65 2048.67  545.35 2049.96  547.25  2050.1  554.86 2050.27
  561.17 2050.43  562.96 2050.36   564.9  2050.3  579.86 2049.82  586.31 2049.57
  587.52  2049.5  589.74  2049.3  597.09  2048.2  597.69 2048.25  600.96 2048.31
  603.87 2048.59   604.6  2048.6  607.79 2048.49  608.45 2048.47  608.67 2048.47
   610.6 2048.25  612.41 2048.23  614.88  2048.2  630.73 2048.31  639.34 2048.15
   654.8  2048.1  663.99 2048.12  676.42 2048.08  678.26 2048.06  697.21 2047.92
  708.91 2047.89  719.71 2047.74  737.75 2047.45  750.74 2047.22  756.11  2047.1
  764.25 2046.89   765.7 2046.86  770.98 2046.82  771.63 2046.82  771.83 2046.86
  775.25 2047.59  776.28 2047.59  782.65 2047.62  786.65  2048.3  790.65 2049.08
  801.34 2049.85   805.5 2050.14  809.36 2050.26  823.35 2050.67  828.04 2050.59
  829.62 2050.57  834.45 2050.49  844.97 2050.32  846.43 2050.45  849.52 2050.71
  851.62 2050.52  852.68 2050.43  869.72 2050.27  878.56 2050.19  880.67 2050.22
  882.15 2050.27   884.7 2049.91  884.75  2049.9  884.83 2049.89  884.95 2049.89
  885.54 2049.88  901.02 2049.78  912.51 2049.64  920.27 2049.74  947.02 2050.05
  976.53 2050.18  985.68 2050.23  986.65 2050.23  1017.2 2050.19 1027.17 2050.22
 1055.89 2050.18 1069.62 2050.17 1096.37 2050.27 1110.87  2050.3 1128.28 2050.18
 1133.45 2050.11 1142.42 2050.01 1145.18  2050.1 1155.02 2049.77 1159.37 2049.69
 1171.59 2049.68 1196.23 2049.63 1207.77 2049.65 1237.93 2049.92 1268.01  2049.8
 1283.73 2049.59 1290.61 2049.59 1299.77 2049.62 1308.15 2049.65  1309.1 2049.75
 1311.12 2050.04 1312.23 2050.07 1314.47 2050.08 1329.94 2049.89 1338.14 2049.79
  1339.9 2050.25  1340.8 2050.49 1342.25 2050.46 1342.94 2050.44 1345.18 2050.39
 1361.27 2050.01 1366.56 2049.41 1367.28 2049.34 1370.52 2049.31  1384.5  2049.2
 1394.31 2055.72 1398.03 2058.19 1405.99 2059.96 1411.64 2061.21 1413.29  2060.7
 1415.15 2060.69 1415.15 2060.13 1415.66 2060.13 1416.16 2060.13 1416.98 2060.47
 1417.87 2060.83  1432.9 2061.13 1449.98 2061.48 1476.01 2061.72 1482.08 2061.79
 1482.58 2061.58 1483.07 2061.39  1483.8 2061.09 1484.72 2061.09  1484.8 2061.09
  1484.8 2061.13  1484.8  2061.7 1485.69 2061.71 1491.82 2062.24 1539.91 2051.89
 1570.37 2045.26 1573.18 2045.29  1580.4 2045.36 1585.17 2046.55 1601.52 2050.64
 1605.58  2050.8 1616.06 2051.22 1617.74 2051.49 1621.41 2052.03 1624.12 2052.91
 1627.02 2053.88 1628.76 2054.28 1629.43 2054.38 1630.32  2054.4  1648.7 2054.75
 1652.92 2054.86 1668.58 2055.29 1672.63 2055.34 1681.19 2055.43 1704.68  2055.5
  1709.1 2055.51 1735.28 2055.58 1745.34 2055.61 1778.61 2055.63 1778.99 2055.64
 1780.01 2055.65 1789.17 2055.69 1791.81 2055.94 1797.81    2056 1803.53 2056.09
 1809.72 2055.86  1813.8  2055.7 1830.06 2055.34 1830.25 2055.34 1830.33 2055.34
  1830.9 2055.34 1836.83 2055.32 1837.03 2055.32 1838.09 2055.33 1875.81 2055.64
 1876.61 2055.65 1881.94 2055.63 1887.33 2055.68  1918.3 2055.81  1920.5 2055.82
 1937.83 2056.05  1942.4 2056.05 1968.03 2056.28    1995 2056.64 1998.24 2056.65
 2014.83 2056.82 2018.11 2056.82    2021 2056.82 2053.21 2057.02 2059.21 2057.07
 2068.95 2057.15  2069.9 2057.15 2075.06 2057.15 2137.17 2057.71

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04   98.97    .035   564.9     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        108.85   564.9           113.05  116.86  124.16             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
 1490.91 2137.17 2062.07        F
Right Levee     Station= 1449.98      Elevation= 2061.48
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 1412.48 1490.98 2061.41

CROSS SECTION


RIVER: Hassayampa
REACH: 1                  RS: 51.807

INPUT
Description:
Station Elevation Data    num=     386
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 2080.92   10.44 2081.42   16.59 2081.78   19.64 2081.62   23.65 2081.42
   25.72 2080.91   29.26 2079.87   31.01 2079.77    36.2 2079.12   44.53 2078.45
   50.03 2078.15   52.28 2077.98   55.94 2078.04   67.08 2077.75   67.14 2077.75
   67.22 2077.74   73.55 2077.74   79.42 2078.06   79.51 2078.07   79.55 2078.07
   84.93 2078.01   88.22 2077.26   96.12 2075.65   96.43 2075.51  101.32 2074.01
  101.87  2073.8  102.12 2073.67  109.85 2071.15  112.54 2070.67  118.23 2069.22
  118.41 2069.17  118.56 2069.15  125.34  2068.5   129.1 2067.81   130.4 2067.37
   131.3 2067.22  135.02 2067.29   137.1 2067.04  138.49 2066.97  139.64 2066.75
  143.81 2066.36  144.49 2066.31  144.74 2066.24  151.05 2064.63  154.16 2063.97
  155.26 2063.73  156.14 2063.51  158.01 2062.84  160.99 2063.07  161.51 2063.12
  169.99  2064.1  171.52 2064.29  173.35 2064.41  178.06 2064.69  183.97 2065.03
  189.02 2065.04  189.11 2065.03  189.21 2065.06  191.73  2065.6  191.79 2065.56
  195.14 2063.67  196.42 2062.92  198.08 2061.95  208.51 2049.57  211.63 2045.83
  213.26 2045.82  233.61 2045.67  251.83 2045.76  257.05 2045.82  264.95 2046.09
   265.8 2046.12  276.83 2046.13  277.63 2046.13  277.66 2046.13  284.62 2046.03
  285.83 2046.07     292 2046.16  298.27 2046.05  303.13 2045.96  310.88 2046.16
  320.04  2046.4   324.5 2046.41  332.57 2046.44  338.05 2046.58  347.19 2046.74
  370.01 2046.95  372.02 2046.96  377.63 2047.02  396.22 2047.21  403.48 2047.22
  409.44  2047.2  414.02 2047.05  417.26 2046.96  425.01 2046.84  430.63 2046.75
  436.55 2046.82  469.92 2047.03  473.58 2047.03  485.06 2047.11  501.52  2047.2
  515.64 2047.32  521.41 2047.32  527.21 2047.05  530.03 2046.94   539.7 2046.81
  548.71 2046.66  553.92 2046.67  553.94 2046.67  553.98 2046.67  554.06 2046.67
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  562.42 2046.47   563.7 2046.82  565.46 2047.36  587.61  2047.6  587.69  2047.6
  587.73  2047.6  587.76  2047.6  587.83  2047.6  608.24 2047.39   626.1 2047.42
  626.74 2047.42  627.21 2047.48  639.32  2048.8  645.39    2049  661.63  2049.5
   674.3  2049.8  674.45  2049.8  678.28 2049.84  689.97 2049.07  691.22 2048.99
  691.93 2048.93  701.71 2048.24   702.9 2048.12  710.01 2047.33  713.44 2047.37
  750.62  2047.7  752.29 2047.73  753.56 2047.71  774.82 2047.26  777.53 2047.12
  787.83 2046.83  802.63 2046.35   804.9 2046.37  807.68 2046.01  809.18 2045.81
  813.88  2045.7   819.9 2045.56  821.24 2045.84  823.54 2046.46   824.8 2046.77
  826.69  2046.9  831.94 2047.24  833.13 2047.28  837.64 2047.41  849.41 2047.32
   851.6 2047.27  853.09 2047.48  856.77  2047.9  857.04 2047.91  859.38 2047.97
  863.24 2048.08  863.82 2048.09  866.75 2048.18  873.96 2048.37  876.65 2047.91
  878.81 2047.54  879.47 2047.43  894.75 2047.46  899.09 2047.44  901.65 2047.89
  904.42  2048.7  905.29 2048.91  907.07 2049.04  911.18 2049.36  912.83 2049.49
  915.95 2049.48  924.25 2049.52  931.22 2049.78  934.63 2049.94  941.24 2050.03
  944.84 2050.02  951.38 2049.88  959.53  2049.7   973.7  2049.4  977.52 2049.87
  978.88 2050.04  980.61 2049.95  982.65  2049.8  990.43 2049.71 1008.62 2049.49
 1009.49 2049.51 1012.15 2049.58 1013.61 2049.41  1015.1 2049.24 1019.65 2049.28
 1025.26 2049.33 1033.53 2049.35 1038.24 2049.35 1058.11 2049.32 1058.58  2049.4
 1060.42 2049.68 1065.54 2049.63 1068.01 2049.61 1068.63  2049.6 1069.53  2049.6
 1102.96 2049.81 1108.67 2049.84    1117 2049.83 1149.84  2049.8 1168.77 2049.82
  1191.8 2049.75 1217.53 2049.78 1229.74 2049.83 1234.51 2049.86 1242.82 2049.85
 1246.35 2049.76 1253.89 2049.61  1276.5 2049.24 1277.56 2049.22 1278.72  2049.2
 1284.21 2049.18 1318.35 2049.01 1328.04 2048.96 1354.98 2049.06 1372.04 2049.02
 1394.41 2048.96 1421.49  2049.2 1432.27 2049.21 1440.46 2049.21 1441.42 2049.32
    1443 2049.53 1445.17 2049.41 1446.02 2049.38 1452.12 2049.35 1469.59  2049.3
 1471.62 2049.73 1472.22 2049.85 1473.42    2050 1473.83 2050.05 1476.84 2049.97
 1480.06 2049.88  1487.5 2054.82 1491.93 2057.76 1500.24 2059.35  1505.6 2060.38
 1506.32 2060.16 1509.11 2060.13 1509.12  2059.3 1509.36  2059.3 1510.12  2059.3
 1511.38 2059.81 1511.84    2060 1531.35 2060.59    1544 2060.97 1560.42 2061.47
 1576.16 2061.94 1577.02 2061.59 1577.87 2061.24 1578.59 2061.25 1578.88 2061.25
 1580.93 2061.58 1585.92  2062.4 1632.17 2052.01 1665.19 2044.62 1672.64 2044.69
 1675.23 2044.72  1689.8 2048.36 1693.37 2049.25  1697.4 2049.27 1716.83 2049.35
 1721.76 2049.33 1739.48 2049.45  1740.7 2049.51 1752.73 2050.01 1752.85 2050.04
 1756.08 2051.12 1756.28  2051.2 1764.75 2054.12  1766.1 2054.17 1782.36 2054.95
  1787.6 2054.94 1795.48 2055.07 1803.41 2055.22 1822.27 2055.36 1830.17  2055.4
 1834.012055.435 1835.65 2055.45 1846.68 2055.54 1860.66 2055.65 1869.77  2055.7
  1871.3 2055.75 1880.74 2055.86 1882.45 2055.88 1883.09 2055.89 1883.74 2055.86
 1894.71 2055.52 1904.73 2054.25 1908.91 2053.82 1910.22 2053.79 1917.64 2053.48
 1921.99 2053.36 1934.54 2052.05 1938.47 2051.89 1945.53 2051.68 1962.34 2051.99
 1969.19 2051.99 1986.57 2052.32 2001.14 2052.52 2014.54 2053.97 2028.79 2055.23
 2033.36 2055.55 2037.45  2055.8  2046.5 2055.86 2057.52    2056  2063.5 2056.07
 2083.29 2056.28 2086.44 2056.33 2104.97 2056.52 2108.16 2056.55  2108.3 2056.55
 2114.752056.584 2121.54 2056.62 2127.42 2056.74 2140.07 2056.62 2150.17 2056.64
 2154.93 2056.52 2155.08 2056.52  2156.1 2056.52 2160.82 2056.55 2162.11 2056.55
 2162.51 2056.56 2175.06 2056.76 2207.23 2057.33 2208.75 2057.33 2209.02 2057.33
 2209.11 2057.33 2209.15 2057.33 2209.17 2057.33 2209.19 2057.33  2209.2 2057.33
 2209.34 2057.33 2209.36 2057.33  2209.4 2057.33 2209.46 2057.33 2209.63 2057.33
 2209.68 2057.33  2209.7 2057.33 2209.72 2057.33 2209.74 2057.33 2209.76 2057.33
 2209.78 2057.33  2209.8 2057.33 2209.81 2057.33 2209.83 2057.33 2209.85 2057.33
 2209.86 2057.33 2209.88 2057.33  2209.9 2057.33 2209.91 2057.33 2209.93 2057.33
 2209.94 2057.33 2209.96 2057.33 2209.97 2057.33 2209.98 2057.33    2210 2057.33
 2210.01 2057.33 2210.02 2057.33 2210.03 2057.33 2210.05 2057.33 2210.06 2057.33
 2210.07 2057.33 2210.08 2057.33 2210.09 2057.33  2210.1 2057.33 2211.88 2057.33
  2212.9 2057.32 2214.67 2057.35 2272.59 2058.03 2273.46 2058.03 2274.34 2058.03
 2279.05 2058.03 2279.44 2058.03 2279.51 2058.03  2279.7 2058.03 2295.78 2058.25
 2308.96 2058.43

Manning's n Values          num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04  196.42    .035  674.45     .04 1834.01     .13 2114.75     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        196.42  674.45           127.25  131.67  139.19             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
 1587.88 2308.96 2062.15       F
Right Levee     Station=    1544      Elevation= 2060.97
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
  1506.5    1585  2060.9

CROSS SECTION


RIVER: Hassayampa
REACH: 1                  RS: 51.782

INPUT
Description:
Station Elevation Data    num=     310
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 2081.71    1.83  2081.3      11 2079.68   12.63 2079.27   13.55 2079.26
   17.42  2079.6   20.19 2079.83   23.63 2079.57   29.39    2080   30.67 2079.97
   36.15 2079.04   36.92 2078.91   37.99 2078.39   43.72 2074.78    44.4 2074.52
   44.47  2074.5   52.52 2072.04   66.15 2071.15   70.71 2070.94   73.31 2070.97
   74.97 2071.01   77.11 2070.99   79.29 2070.96    87.5 2070.84    89.7 2070.79
   94.75 2070.66   94.94 2070.65   95.11 2070.66  100.26 2070.77   101.9 2070.88
  114.11 2071.41  117.25 2071.59  118.78  2071.7  123.81 2072.07   124.2 2071.91
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124.74	2071.71	127.19	2070.75	127.74	2070.59	139.07	2063.64	145.87	2059.56
150.48	2058.93	155.03	2058.26	160.01	2057.44	163.22	2056.43	163.31	2056.4
163.53	2056.41	171.58	2056.61	178.46	2056.71	182.53	2056.75	184.9	2056.69
194.22	2056.41	196.43	2056.35	196.67	2056.32	198.28	2056.18	201.21	2055.92
201.79	2055.97	203.32	2056.15	204.21	2056.25	212.08	2053.56	212.34	2053.48
212.43	2052.79	213.34	2046.49	214.42	2046.5	220.79	2046.47	223.65	2046.09
226.19	2045.77	226.95	2045.67	245.58	2045.55	252.28	2045.51	265.14	2045.42
272.93	2045.32	286.33	2045.16	291.43	2045.22	296.84	2045.3	300.13	2045.34
307.84	2045.53	314.73	2045.68	323.74	2045.79	329.62	2045.86	335.2	2045.86
348.4	2045.8	352.52	2045.97	358.16	2046.16	365.34	2046.23	378.52	2046.35
385.8	2046.34	399.6	2046.35	412.82	2046.27	417.42	2046.25	420.13	2046.11
427.84	2045.83	441.54	2045.81	443.23	2045.9	447.11	2046.26	457.82	2046.08
461.65	2046.01	465.52	2046.03	466.52	2046.04	470.14	2046.09	497.04	2046.42
506.01	2046.51	513.95	2046.53	525.15	2046.52	544.41	2046.46	552.46	2046.35
554.86	2046.09	560.36	2045.54	562.6	2045.57	570.01	2045.67	574.05	2045.72
580.04	2046.11	587.62	2046.8	598	2046.81	605.14	2046.76	615.49	2046.57
621.4	2046.9	622.27	2046.93	630.88	2047.19	631.05	2047.19	641.55	2046.99
644.17	2046.94	660.44	2047.21	676.65	2047.57	681.39	2047.57	683.65	2047.55
693.98	2047.5	694.19	2047.49	700.8	2047.15	701.62	2047.11	701.64	2047.11
717.79	2047.2	725.26	2047.24	725.47	2047.25	725.88	2047.24	726	2047.22
727.71	2047.12	739	2046.29	742.63	2046.37	768.4	2046.8	771.03	2046.75
784.72	2046.68	792.03	2046.62	792.88	2046.55	801.06	2045.72	801.49	2045.71
817.76	2045.72	821.55	2045.72	821.71	2045.74	829	2046.3	835.04	2046.2
836.31	2046.16	836.56	2046.17	843.62	2046.21	848.68	2046.58	849.27	2046.61
849.69	2046.62	861.34	2046.71	876.6	2046.53	882.91	2046.48	891.5	2046.45
900.51	2046.44	904.2	2046.41	911.06	2046.6	912.74	2046.63	915	2046.71
918.48	2047.13	923.83	2047.49	923.87	2047.49	923.9	2047.5	930.89	2047.69
935.84	2047.83	943.28	2047.92	944.99	2047.95	948.42	2047.92	951.93	2047.83
952.78	2047.84	954.01	2047.87	955.11	2047.9	968.7	2047.76	974.84	2047.74
975.87	2047.89	977.46	2048.02	981.75	2048.31	984.06	2048.53	986.05	2048.53
987.71	2048.52	988.09	2048.52	990.7	2048.59	1009.76	2049.12	1014.8	2049.16
1020.76	2049.13	1047.25	2048.68	1052.45	2048.57	1053.82	2048.72	1056.98	2049.08
1060.27	2049.28	1061.01	2049.33	1078.98	2049.16	1088.01	2049.09	1089.43	2049.18
1091.13	2049.28	1093.15	2049.14	1095.29	2048.89	1099.53	2048.82	1116.08	2048.91
1117.36	2048.92	1119.03	2049.06	1120.63	2049.19	1120.87	2049.19	1122.69	2049.2
1156.95	2049.4	1177.23	2049.51	1191.81	2049.48	1222.79	2049.49	1231.23	2049.52
1271.68	2049.52	1272.55	2049.53	1273.18	2049.52	1273.56	2049.52	1296.62	2049.37
1304.13	2049.18	1309.7	2049.03	1325.4	2048.66	1330.98	2048.55	1354.42	2048.52
1370.54	2048.57	1384.13	2048.57	1410.88	2048.44	1413.51	2048.43	1419.41	2048.44
1452.06	2048.39	1465.95	2048.33	1493.78	2048.28	1505.6	2048.34	1506.92	2048.34
1516.42	2054.59	1520.77	2057.45	1527.69	2058.62	1534.54	2059.79	1537.57	2058.87
1538.09	2058.71	1538.47	2058.71	1539.11	2058.71	1539.67	2058.94	1540.84	2059.41
1550.16	2059.7	1573.28	2060.4	1599.74	2061.2	1605.73	2061.38	1606.6	2061.02
1607.46	2060.68	1608.28	2060.68	1608.47	2060.68	1612.16	2061.28	1615.57	2061.84
1650.76	2054.09	1697.02	2043.89	1699.97	2043.92	1707.13	2044	1714.28	2045.77
1726.27	2048.75	1742.84	2048.86	1750.12	2048.88	1760.41	2049.108	1764.12	2049.19
1768.82	2049.29	1770.21	2049.55	1780.02	2051.62	1785.63	2054.06	1788.09	2055.09
1798.09	2055.25	1808.52	2055.33	1822.37	2055.24	1826.34	2055.26	1843.63	2055.33
1845.88	2055.34	1851.67	2055.38	1889.25	2055.87	1894.91	2056.02	1902.53	2056.42
1911.14	2056.47	1915.21	2056.46	1916.46	2056.23	1917.76	2056.25	1929.87	2055.66
1944.58	2055.86	1972.98	2056.17	1977.12	2056.19	1979	2056.17	2002.96	2056.21
2009.92	2056.2	2014.89	2056.24	2019.65	2056.25	2025.89	2056.27	2048.41	2056.48
2054.1	2056.49	2076.81	2056.74	2092.32	2056.93	2096.92	2056.99	2098.16	2057.01
2098.4	2057.01	2104.05	2057.04	2110.02	2057	2148.09	2057.48	2148.12	2057.48
2151.97	2057.41	2159.18	2057.46	2176.16	2057.25	2181.37	2057.25	2230	2057.62

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.04	226.19	.035	717.79	.04	1760.41	.13

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
226.19	717.79	137.47	130.57	132.67	.1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
1615.15	2230	2061.55	F

Right Levee Station= 1573.28 Elevation= 2060.4

Blocked Obstructions num= 1

Sta L	Sta R	Elev
1535.78	1614.28	2060.32

CROSS SECTION

RIVER: Hassayampa
REACH: 1 RS: 51.757

INPUT
Description:
Station Elevation Data num= 401

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2060.42	.08	2060.43	5.38	2061.17	10.42	2062.32	15.23	2062.16
21.39	2062.27	26.4	2062.31	28.1	2061.89	34.41	2060.76	39.99	2060.07
41.38	2059.88	46.54	2059.75	52.81	2060.34	57.82	2059.44	60.73	2059.45
61.57	2059.32	70.3	2059.1	74.06	2059.2	75.1	2059.15	76.53	2059.38
83.02	2060.26	84.07	2060.39	84.34	2060.49	89.9	2061.05	91.68	2061.24
91.87	2061.3	92.69	2061.43	97	2062.15	97.68	2062.19	100.46	2061.96
104.04	2062.35	110.58	2062.14	113.93	2061.98	115.08	2061.95	115.35	2061.93
122.28	2061.75	122.74	2061.74	123.09	2061.71	128.81	2061.27	131.14	2061.25

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  134.49  2061.3  141.66 2060.39  141.97 2060.36  142.42 2060.31  145.23 2059.95
  147.92 2059.72  150.94 2059.57   158.3 2058.23   161.4 2057.08  163.89  2056.2
  167.97 2054.65   173.4 2054.89  174.86 2054.96  175.27 2054.98  176.16 2055.01
  186.47 2055.28  193.97 2055.13  199.78 2055.01  202.59 2054.98  206.43 2054.89
  207.43 2054.85  209.19 2054.67  211.72 2053.98  214.04 2053.35  216.44  2052.2
  223.15 2048.08  226.21 2047.32  228.55  2046.6  230.32  2046.5  237.44 2046.11
  239.39 2046.03  242.74 2045.94  245.93 2045.86  247.09 2045.75  250.38 2045.43
  255.72 2045.31  262.12 2045.17  265.87 2045.11  286.68 2045.08  295.38 2045.06
  297.26 2045.06   325.8 2044.92  332.98 2044.84  346.64 2044.74  372.08 2044.45
  376.04 2044.41  376.69 2044.42  384.75 2044.88  389.04 2045.08  392.36 2045.24
  396.05 2044.91  396.83 2044.85  397.12 2044.94  402.43  2045.6  408.66 2045.58
  410.28 2045.54  412.92 2045.53  414.68 2045.53  452.94 2045.71  468.87 2045.77
  484.83 2045.78  487.57 2045.64  491.36 2045.42  500.57 2045.51  504.23 2045.54
  507.97 2045.79  509.52 2045.88  545.29 2045.92  548.36 2045.92  548.77 2045.92
  548.94 2045.92   567.6 2045.94  568.74 2045.93  572.69 2045.91  589.36  2045.8
  594.15 2044.76  594.36 2044.71   594.8 2044.72  596.44 2044.75  606.12 2044.95
   608.5 2045.41  609.78 2045.67  621.08  2045.6  635.76 2045.53  640.54 2046.26
  641.35 2046.33  647.73 2046.41  654.52 2046.74  660.65 2046.97  663.14    2047
  676.25 2046.82  677.23  2046.8  677.47 2046.81  691.35 2047.01  698.41 2046.99
  713.07 2046.85  716.55 2046.83     718 2046.81  728.43 2046.37  730.86 2046.28
  733.39 2046.21  755.38 2046.02  756.75 2046.01  759.65 2046.06  766.14 2045.46
  768.57 2045.21  770.32 2045.26  791.54 2045.87  800.16 2045.97  811.23 2046.12
  819.44 2045.66   825.4  2045.3  829.29 2045.28  833.66 2045.19  849.72 2045.48
   859.5 2045.67  865.28 2045.73  873.72 2045.84  879.28 2045.88  888.21 2046.01
  896.41  2045.9  897.61 2045.88  898.76 2045.95  900.77 2046.12  903.07 2046.31
  906.07 2046.45   906.9 2046.49  907.41  2046.5  910.54 2046.52  918.29 2046.56
  919.79 2046.55  930.15 2046.69  934.69 2046.72   937.6 2046.51  943.49 2046.23
  952.68 2046.71  955.21 2046.77  958.21 2046.89  960.65 2046.95  966.86 2047.12
  967.95 2047.28  970.43 2047.71  977.61 2047.66  979.35 2047.64  983.39 2047.79
  984.18 2047.75  987.21 2047.59  990.95 2047.53 1001.97 2047.81 1015.64 2047.92
 1030.95 2048.09 1055.62 2048.33 1061.88 2048.38 1075.11 2048.48 1091.29 2048.61
 1094.36 2048.69 1097.05 2048.78  1135.7 2048.27 1142.14 2048.19 1145.72 2048.94
 1146.21 2049.04  1146.3 2049.05 1149.52 2049.54 1154.74 2049.49  1165.3 2049.47
 1190.55 2049.35 1198.64 2049.33 1200.31 2049.32 1204.63 2049.31 1209.07  2049.3
  1209.3 2049.29 1214.06 2048.86 1217.04 2048.63 1236.88 2048.71 1238.15 2048.71
 1238.45 2048.72 1241.04 2048.73 1269.79 2048.84 1273.68 2048.85 1275.88 2048.89
 1280.52 2048.86 1310.24 2048.85 1320.81  2048.8 1345.05 2048.74 1360.16 2048.71
 1366.09 2048.71 1374.01 2048.69 1378.62 2048.67 1381.79 2048.59 1395.19 2048.41
 1419.08 2048.35 1425.55 2048.35 1439.12 2048.21 1456.77 2048.01 1460.51 2047.99
 1464.81 2047.98  1470.5 2047.97 1493.69 2048.01 1500.48 2047.98 1508.86 2047.94
 1513.48 2048.27 1518.17 2048.29 1520.52 2048.66 1521.56  2048.8 1524.82 2048.67
 1526.42 2048.59 1536.11 2048.57 1541.34  2048.6 1545.27 2051.15 1554.55 2057.16
 1556.25 2057.41 1557.36 2057.58  1568.5 2059.24 1572.07 2058.18 1572.11 2058.16
 1572.22 2058.16 1572.96 2058.16 1573.13 2058.17 1573.26 2058.21 1574.89 2058.86
 1595.08 2059.47 1607.79 2059.86 1623.08 2060.32 1640.63 2060.84 1641.37 2060.55
 1642.38 2060.15 1643.17 2060.15 1643.41 2060.15 1644.09 2060.26 1650.59 2061.31
 1674.23 2056.12 1709.18  2048.5 1723.34 2045.39 1726.092044.788  1733.3 2043.21
 1740.88  2043.3 1743.54 2043.32 1780.04 2052.28 1785.05 2053.51 1785.69 2053.19
 1786.68 2053.55 1787.04 2053.58 1788.56  2053.7  1789.1 2053.73 1792.79 2054.01
 1795.11 2054.18 1802.09 2054.64 1802.85  2054.7  1803.9 2054.76 1812.28 2054.84
 1821.45 2054.96 1835.16 2055.14 1842.83 2055.23 1849.92 2055.28 1876.82  2055.5
  1877.2  2055.5 1877.26  2055.5 1877.42  2055.5 1927.52 2055.93 1931.12  2056.1
 1935.13 2056.23 1941.87 2056.46 1945.54 2056.45 1953.91 2056.45 1955.42 2056.23
 1963.57 2055.24 1966.58 2055.22 2005.93 2055.91 2023.93 2056.17 2031.61 2056.28
  2037.3 2056.29 2045.75 2056.35 2048.59 2056.38 2073.18 2056.77 2078.25 2056.77
 2079.35 2056.77 2106.81 2056.91 2115.89 2056.94 2118.86 2056.96 2120.43 2056.96
 2120.48 2056.96 2120.51 2056.96 2120.53 2056.96 2120.55 2056.96 2120.57 2056.96
 2120.59 2056.96  2120.6 2056.96 2120.62 2056.96 2120.63 2056.96 2120.64 2056.96
 2120.65 2056.96 2121.07 2056.96 2121.08 2056.96 2121.09 2056.96 2121.11 2056.96
 2121.12 2056.96 2121.14 2056.96 2121.15 2056.96 2121.18 2056.96  2121.2 2056.96
 2121.23 2056.96 2121.26 2056.96 2121.27 2056.96 2121.29 2056.96 2121.31 2056.96
 2121.33 2056.96 2121.34 2056.96 2121.36 2056.96 2121.38 2056.96 2121.39 2056.96
 2121.41 2056.96 2121.42 2056.96 2121.44 2056.96 2121.45 2056.96 2121.46 2056.96
 2121.48 2056.96 2121.49 2056.96  2121.5 2056.96 2121.51 2056.96 2121.53 2056.96
 2121.54 2056.96 2121.55 2056.96 2121.56 2056.96 2121.57 2056.96 2123.44 2056.96
 2124.65 2056.96 2125.71 2056.97 2155.66 2056.97 2160.73 2056.93 2161.26 2056.93
 2162.25 2056.93 2167.15 2057.02  2172.7 2057.07 2196.26 2057.61 2218.14 2057.74
 2231.92 2057.76  2235.7 2057.76  2244.9 2057.82 2249.46 2057.86 2252.48 2057.88
  2271.1 2058.02 2276.18  2058.1  2282.3 2058.15 2293.96 2058.21  2294.7 2058.22
 2305.63 2058.27 2307.56 2058.29 2307.86 2058.29 2308.16  2058.3 2308.55  2058.3
 2317.06 2058.45  2318.7 2058.48 2320.98 2058.52 2330.98 2058.69    2336 2058.77
 2339.56 2058.83 2340.19 2058.84 2344.26 2058.91 2344.28 2058.91 2349.35 2058.89
 2354.25 2058.84

Manning's n Values          num=       4
     Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val
       0     .04   230.32    .035   755.38     .04  1726.09     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        230.32  755.38           131.25  125.65   136.9             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
 1572.73 2354.25 2059.59       F
Right Levee     Station= 1607.79      Elevation= 2059.86
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 1570.29 1648.79 2059.78
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CROSS SECTION

RIVER: Hassayampa
REACH: 1 RS: 51.734

INPUT
Description:
Station Elevation Data num= 349

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2071.04	2.97	2070.13	9.89	2067.05	14.47	2065.31	28.55	2060.28
31.99	2058.92	36.3	2057.46	47.72	2055.01	55.03	2053.57	58.51	2052.84
60.84	2052.28	67.79	2052.1	83.48	2051.67	87.67	2051.56	88.98	2051.53
91.41	2051.49	114.33	2051.08	132.33	2050.72	135.88	2050.65	136.37	2050.66
138.02	2050.64	139.24	2050.72	146.09	2050.64	156.5	2050.48	162.2	2050.22
162.53	2050.21	162.74	2050.2	163.1	2050.2	173.98	2050.35	182.19	2049.97
184.78	2049.82	187.16	2049.99	189.32	2050.14	191.71	2050.72	194.04	2051.35
197.18	2051.17	198.67	2051.09	199.73	2050.94	204.57	2050.2	205.34	2050.08
205.46	2050.06	208.47	2049.77	212.4	2049.39	212.7	2049.38	219.34	2049.13
220.51	2048.62	225.37	2046.45	225.67	2046.39	227.36	2046.03	229	2045.69
229.66	2045.54	230.47	2045.58	239.19	2045.85	245.73	2045.77	254.65	2045.59
259.19	2045.51	264.4	2045.36	271.79	2045.29	288.72	2045.12	314.07	2044.72
323.42	2044.64	348.03	2044.51	357.21	2044.51	363.05	2044.47	383.35	2044.46
398.73	2044.37	406.73	2044.26	415.56	2044.03	415.91	2044.02	425.06	2043.6
425.59	2043.59	428.06	2043.59	436.48	2043.78	441.98	2043.9	446.63	2044.51
447.24	2044.59	459.11	2044.67	468.3	2044.75	477.05	2044.75	497.66	2044.77
512.5	2044.76	526.44	2044.86	527.18	2044.81	532.49	2044.49	543.27	2044.69
543.92	2044.71	549.23	2045.05	549.76	2045.08	550.79	2045.07	555.39	2045.06
581.98	2045.02	586.8	2045.01	589.89	2044.96	598.17	2044.97	620.39	2045.07
625.05	2044.26	626.87	2044.01	631.38	2043.92	637.84	2043.76	640	2044.55
641.42	2045	642.89	2045.04	647.89	2045.18	651.19	2045.15	654.57	2045.04
657.84	2044.84	662.19	2044.62	663.07	2044.73	666.39	2045.12	671.71	2045.23
673.91	2045.28	676.1	2045.54	678.38	2045.82	682.54	2045.93	684.58	2045.97
688.8	2045.86	694.91	2045.7	696.67	2045.6	703.23	2045.26	704.55	2045.24
708.95	2045.3	712.64	2045.28	722.17	2045.21	730.85	2044.81	731.32	2044.77
731.68	2044.77	740.98	2044.83	754.85	2044.99	765.51	2045.33	766.94	2045.36
781.94	2045.28	790.11	2045.24	793.77	2045.22	795.08	2045.22	799.47	2045.25
815.8	2045.3	818.94	2045.11	823.26	2044.95	826	2044.96	831.41	2044.8
833.01	2044.74	836.85	2044.69	840.46	2044.69	847.04	2044.58	851.18	2044.87
855.58	2045.15	855.99	2045.21	857.03	2045.42	858.47	2045.71	862.9	2045.89
866.13	2045.94	866.68	2046.18	871.53	2046.48	878.36	2046.59	878.85	2046.55
879.21	2046.51	880.03	2046.59	881.12	2046.58	885.93	2046.53	886.39	2046.53
889.81	2046.68	892.48	2046.76	900.2	2046.85	905.16	2046.98	911.07	2046.94
925.62	2046.72	928.15	2046.68	929.7	2046.66	938.61	2046.55	954.71	2046.42
964.12	2046.38	969.29	2046.35	971.98	2046.31	976.8	2046.28	978.55	2045.98
982.17	2045.42	987.01	2045.35	992.31	2045.23	996.15	2045.24	997.13	2045.2
997.99	2045.24	998.31	2045.24	1004	2045.39	1007.88	2046.53	1009.03	2046.72
1010.44	2046.78	1024.75	2047.23	1026.74	2047.28	1035.96	2046.78	1036.2	2046.78
1036.3	2046.76	1036.35	2046.77	1036.51	2046.78	1041.95	2047.34	1049.35	2047.44
1054.17	2047.51	1061.98	2047.31	1062.95	2047.29	1084.08	2047.41	1084.45	2047.41
1084.96	2047.42	1110.01	2047.78	1132.88	2047.85	1140.02	2047.88	1146.23	2047.92
1176.28	2048.11	1203.87	2047.97	1220.86	2047.85	1221.91	2048.02	1223.93	2048.35
1226.27	2048.6	1226.39	2048.61	1226.52	2048.61	1227.91	2048.6	1228.86	2048.61
1258.55	2048.56	1260.15	2048.55	1261.41	2048.55	1261.71	2048.55	1264.89	2048.48
1265.53	2048.42	1270.54	2047.95	1281.5	2048	1285.82	2048.01	1294.14	2048.1
1309.28	2048.11	1324.31	2048.3	1334.51	2048.36	1349.41	2048.2	1370.25	2048.03
1402.72	2048.18	1403.32	2048.19	1403.39	2048.19	1403.52	2048.19	1403.61	2048.19
1442.84	2048.09	1449.27	2047.98	1455.16	2047.83	1466.59	2047.52	1467.17	2047.54
1467.81	2047.53	1471.43	2047.88	1473.75	2047.77	1477.27	2047.62	1482.36	2047.42
1488.29	2047.27	1489.48	2047.33	1500.55	2047.27	1501.44	2047.26	1509.8	2047.57
1514.17	2047.66	1520.96	2047.93	1523.03	2047.52	1523.66	2047.37	1526.12	2047.34
1538.67	2047.08	1543.28	2047.12	1548.19	2047.11	1549.89	2047.03	1550.32	2047.01
1554.7	2049.8	1565.76	2056.85	1570.07	2057.39	1579.98	2058.66	1581	2058.36
1583.13	2057.73	1583.65	2057.83	1583.65	2057.58	1583.94	2057.58	1584.69	2057.58
1586.2	2058.17	1586.37	2058.23	1586.49	2058.28	1588.03	2058.33	1605.77	2058.86
1619.89	2059.28	1644.89	2060.03	1653.29	2060.28	1654.72	2059.72	1655.08	2059.58
1655.36	2059.58	1656.12	2059.58	1659.89	2060.18	1661.42	2060.43	1663.43	2060.75
1669.16	2059.49	1675.74	2058.05	1712.62	2049.97	1743.482	043.217	1746.3	2042.6
1748.71	2042.62	1756.74	2042.7	1761.34	2043.81	1771.69	2046.29	1779.64	2048.21
1780.18	2048.18	1800.45	2048.46	1807.86	2048.63	1809.8	2049.5	1815.48	2053.33
1825.99	2054.06	1826.82	2054.08	1829.58	2054.11	1856.61	2054.3	1867.27	2054.35
1882.3	2054.53	1891.19	2054.57	1895.63	2054.64	1906.36	2054.78	1924.94	2055.02
1956.88	2055.34	1959.6	2055.3	1967.71	2055.58	1970.44	2055.68	1975.87	2055.51
1980.37	2055.38	1981.72	2055.33	1994.26	2054.84	2003.52	2054.98	2006.93	2055.03
2011.37	2055.06	2038.95	2055.51	2047.72	2055.63	2048.3	2055.64	2061.71	2055.82
2074.91	2055.93	2082.37	2055.97	2093.85	2056.02	2108.9	2056.08	2126.73	2056.06
2142.44	2056.05	2155.07	2056.09	2157.64	2056.12	2168.49	2056.24	2172.21	2056.27
2182.95	2056.39	2188.46	2056.44	2198.28	2056.54	2201.12	2056.58	2209.71	2056.67
2217.09	2056.77	2224.4	2056.85	2233.84	2056.98	2239.93	2057.05	2247.66	2057.16
2251.61	2057.21	2260.38	2057.33	2262.94	2057.36	2277.63	2057.57		

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.04	225.67	.035	790.11	.04	1743.48	.13

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
225.67 790.11 119.87 130.34 159.33 .1 .3
Ineffective Flow num= 1

```
   Sta L   Sta R    Elev  Permanent
 1584.85 2277.63 2058.98       F
Right Levee     Station= 1619.89      Elevation= 2059.28
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 1582.39 1660.89  2059.2

CROSS SECTION


RIVER: Hassayampa
REACH: 1                 RS: 51.709

INPUT
Description:
Station Elevation Data    num=     351
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 2087.92    3.53 2087.74   13.64 2087.48   19.56 2087.69      25  2087.1
   30.71 2086.35   37.34 2085.43   38.38 2085.28   44.36 2083.95    51.2 2083.01
   52.39 2082.76   53.27 2082.53   60.75 2079.86   74.05 2075.84   74.88 2075.66
   76.35 2075.13   88.71 2069.75   93.16 2067.12  100.16 2062.52  106.39 2058.91
  114.39 2054.96  121.31 2051.07  121.85 2050.97  124.46 2050.19  126.44 2050.04
   129.9 2049.82  130.33 2049.75  134.04 2049.66  142.58 2049.48  147.93 2049.26
  154.85 2049.03  159.82 2049.06   163.1 2049.05  169.13 2049.71  169.78 2049.81
  170.97  2049.8  173.34 2049.81  174.06 2049.77  178.83 2049.31  179.26 2049.26
  180.46 2049.02  183.33 2048.44  185.45 2048.28  187.63 2048.12  188.31 2048.05
  189.81 2047.91   193.3 2047.46   195.8 2047.14  197.04 2046.63  202.77  2044.9
  207.98 2045.11  213.41 2045.24     221 2045.16  227.16  2045.1  230.97 2045.04
  236.72 2044.99  242.09  2045.1  253.42 2044.99  266.13 2044.98  279.01 2044.96
  292.46  2044.9  316.23 2044.86   321.4 2044.81  325.87 2044.82  330.55 2044.84
  345.23 2044.79  364.27 2044.71  369.49  2044.6  381.68  2044.4  397.59 2044.18
  403.54 2044.06   410.7 2043.95  423.59 2043.84  430.94 2043.92  442.09 2044.01
  442.55 2044.01  444.02 2044.01  462.68 2044.08  471.76 2043.94  481.74 2043.65
  486.07 2043.52  487.87 2043.45  490.69 2043.32  494.32 2043.32  512.43 2043.24
  516.23 2043.58  521.85    2044  523.29    2044  526.31 2044.05  530.01 2044.07
   535.7 2044.03  542.14  2043.9   545.3 2043.64  546.61 2043.54  550.18 2043.66
  562.45 2044.04  563.76 2044.12  565.91 2044.23  571.21 2044.22  583.37 2044.23
  597.63 2044.11  605.87 2044.07  619.35 2044.23  622.42 2044.27  633.04 2044.09
  642.89 2043.95  643.96 2043.74  647.77  2043.1  651.99 2042.99  661.43  2042.7
  664.94 2043.56  667.39 2044.13  673.24 2044.45  675.11 2044.55  688.27 2044.94
  688.59 2044.94  688.82 2044.94  703.23 2044.54  705.42 2044.51   707.2 2044.53
  713.44  2044.5  717.02  2044.4  717.49 2044.38  717.96 2044.41  720.27  2044.5
  733.58 2044.72  734.32 2044.73  734.47 2044.73  745.19 2044.71  752.84 2044.65
  759.68  2044.6  771.17 2044.73  773.69 2044.74   775.2 2044.75  789.39 2044.78
  795.48 2044.64  803.49 2044.47  816.82 2044.16  820.47 2044.76   823.7 2045.36
  827.83 2045.39  829.23  2045.5  835.87 2045.52  837.94 2045.51  838.16 2045.52
  838.72 2045.56  842.77 2045.86  850.03 2045.72  850.57 2045.71  850.77  2045.7
  859.19  2045.6  862.25 2045.64  868.37 2045.65  869.39 2045.66  884.44  2045.7
   886.7  2045.7  887.87  2045.7  896.72 2045.57  902.93 2045.65  908.34 2045.82
  909.45 2045.86  910.84 2045.88  920.95 2045.93  924.01 2045.89   928.6 2045.65
  935.44 2046.19  935.83 2046.19  936.28  2046.2  943.15 2045.73  945.84 2045.83
  947.18 2045.95  948.21 2046.19  948.45 2046.19  955.24 2046.04  963.34 2046.02
  964.65 2046.04  966.15 2046.02  980.58 2046.05  992.56 2046.17 1010.79 2046.11
 1015.67  2046.1  1016.6 2046.12 1018.69 2045.97 1019.67 2045.92 1021.79 2045.77
 1024.14 2045.62 1024.79 2045.54 1029.57 2045.53 1041.75 2045.49 1051.08 2045.83
 1063.34 2046.49 1065.97  2046.6 1069.85 2046.72 1072.93 2046.67 1093.28 2046.94
 1107.12 2046.94 1121.57 2047.06 1133.87 2047.11 1139.18 2047.06 1168.11 2046.82
 1173.63 2046.86 1183.21 2046.93 1211.02 2047.22 1228.65 2047.34 1254.45 2047.66
 1256.69 2047.67 1257.91 2047.66 1270.38 2047.65 1278.22 2047.59 1280.47 2047.58
 1286.96 2047.68 1289.38 2047.57 1310.19  2047.3  1316.2 2047.23 1327.52 2047.01
 1335.43 2046.92 1338.85 2046.87 1350.27  2046.8 1383.52 2046.82 1411.11 2046.84
 1435.37 2046.95 1440.36 2046.83 1479.35  2046.4 1498.52  2046.2 1499.41  2046.2
 1501.77 2046.19 1509.77 2046.16  1517.6 2051.06  1526.2 2056.45 1533.21 2057.16
 1540.63 2057.91 1542.12 2057.48 1542.99 2057.23 1544.36 2056.83 1544.84 2056.83
 1545.42 2056.83 1547.12 2057.49 1547.19 2057.51 1547.22 2057.52 1547.24 2057.53
 1547.36 2057.54 1581.26 2058.54 1582.78 2058.58 1584.32 2058.63 1615.14 2059.54
 1616.68 2058.95 1616.95 2058.85 1617.88 2058.85 1618.01 2058.85 1618.01 2059.81
 1618.01 2059.93 1618.74 2059.94 1625.42 2060.01  1643.5 2055.99 1662.24 2051.87
 1683.84 2047.07 1705.93 2042.21 1710.37 2042.26 1716.56 2042.32 1719.81 2043.09
 1727.17 2044.83 1729.26 2044.87 1737.79 2045.03 1738.042045.091 1738.28 2045.15
 1743.58  2046.4 1749.06 2046.42  1759.1 2046.44 1759.91 2046.44 1761.26 2046.45
 1807.14 2046.52 1807.53 2046.52 1808.51 2046.52  1814.8 2046.49 1816.36 2046.46
 1818.03 2046.43 1820.64 2047.01 1821.86 2047.34 1824.86 2047.54 1827.07 2047.67
 1830.24 2048.04  1830.7 2048.09  1831.2 2048.11 1844.03 2048.66 1852.16  2049.3
 1858.27 2049.64 1867.27 2051.52 1873.22 2052.64 1876.66 2053.22 1891.19 2053.61
 1897.56 2053.68 1929.56 2054.02 1930.75 2054.03 1931.88 2054.05 1934.58 2054.03
 1948.51 2054.11 1952.32 2053.73 1953.48  2053.6 1955.92 2053.57 1968.05 2053.41
 1969.54 2053.67 1971.19 2053.91 1975.09 2053.94 1985.73 2054.04 2005.46 2054.19
 2007.54  2054.2 2024.09  2054.4 2054.33 2054.62 2068.97 2054.81 2070.17 2054.81
 2096.55 2055.16  2102.8 2055.23 2130.35  2055.6 2130.89 2055.61 2141.83 2055.71
 2144.87 2055.71 2146.82 2055.73 2180.03 2056.03 2208.93 2056.29 2209.26  2056.3
 2240.79 2056.68 2242.06  2056.7 2242.75  2056.7 2244.55 2056.72 2260.45 2056.91
 2260.72 2056.91 2276.84  2057.1 2287.88 2057.24 2288.58 2057.25 2299.43 2057.38
  2311.6 2057.52 2315.94 2057.56  2316.1 2057.56  2316.3 2057.56 2331.64 2057.71
 2332.61 2057.71 2334.33 2057.72 2339.53 2057.76 2340.33 2057.76  2341.4 2057.78
 2350.02 2057.84 2351.51 2057.87 2353.19  2057.9 2355.45 2057.92  2361.4 2057.94
 2364.34 2057.98 2365.21 2057.98 2368.65 2057.99 2371.73 2058.01 2373.92 2058.03
 2375.86 2058.03
```

```
Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04   193.3    .035  838.16     .04 1738.04     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        193.3  838.16           128.01  144.74  160.32             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
 1624.24 2375.86  2060.1       F
Right Levee     Station= 1581.26      Elevation= 2058.54
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 1543.76 1622.26 2058.46

CROSS SECTION


RIVER: Hassayampa
REACH: 1                  RS: 51.682

INPUT
Description:
Station Elevation Data    num=     397
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0  2080.5     .22 2080.42   10.71 2075.18   15.13 2072.94   22.51  2069.8
   26.55 2067.86   28.27 2067.02   40.04 2060.54    43.2 2059.22   48.46 2056.93
   55.09 2053.88   57.98  2053.2   72.67 2049.51   75.56 2048.98   77.34  2048.7
   80.38 2048.67   84.96 2048.77   92.52 2048.56   95.38  2048.5   97.17 2048.46
  103.56 2048.31  105.57 2048.32  117.09 2048.44  120.81 2048.24  130.42 2047.79
  130.82 2047.78  132.63 2047.72  137.99 2047.49  140.98 2047.44  143.05 2047.14
  145.91 2047.16  146.31 2047.15  147.62 2047.16  156.79  2047.1  160.53  2047.2
  165.81 2046.74  171.79 2045.42  173.75 2045.29  175.69 2045.16  180.36 2044.85
  187.48 2044.35  187.53 2044.35  187.56 2044.35  187.69 2044.34  191.92  2044.6
  193.59 2044.64  194.63 2044.71  196.94 2044.87  197.82 2044.76  198.82 2044.56
  200.44 2044.41  201.83 2044.28  205.22 2044.27  208.04 2044.23  215.69 2044.11
  219.85 2044.13  224.24 2044.21  231.26 2044.34   238.9 2044.42  255.66 2044.38
  259.14 2044.39  266.03 2044.38   286.1 2044.49  295.61 2044.56  307.51 2044.53
  311.73 2044.56  315.74 2044.56  341.68 2044.55  343.44 2044.55  345.96 2044.53
  373.44 2044.31  384.58 2044.17  386.62 2044.13  387.16 2044.13  392.34 2044.08
  396.03 2044.04  396.97 2044.14  401.08 2044.57  407.85 2044.39  416.41 2044.15
  420.29 2044.14  429.37 2044.13  430.84 2044.13  432.14 2044.18  435.66 2044.34
  440.66 2044.41  444.74 2044.47  445.76 2044.49  446.96  2044.5  457.83 2044.42
  466.76  2044.3   471.3 2044.16  479.85 2043.81  480.36 2043.81  493.19 2043.82
  496.08 2043.74   500.2 2043.64  502.67 2043.48  509.13  2043.1  511.48 2043.31
  515.57 2043.72  516.98 2043.63  520.85 2043.44  523.36 2043.46  527.42  2043.3
  531.44 2043.23  536.27 2043.15  544.53 2042.97  547.96 2042.89  549.15 2042.88
  552.45 2042.91  562.52 2043.03  570.08 2043.13  582.44 2043.23  584.61 2043.19
  588.98 2043.16  607.48 2042.96   614.4 2042.22  615.07 2042.16  617.62 2042.12
  628.37 2042.01  630.32 2042.35  635.29 2043.29  641.11 2043.45  643.57 2043.53
  646.19  2043.6  666.53 2043.65  669.04 2043.65  685.92 2043.46  692.61 2043.37
  695.48 2043.32  696.97 2042.82  698.43 2042.38  700.48 2042.36  709.06 2042.38
   711.6 2042.31  716.98 2042.05  721.43 2042.05  739.33 2042.01  741.75 2042.44
  745.93 2043.06   747.4 2043.13  751.83 2043.34  754.33 2043.46  768.25  2043.5
  773.97 2043.55  779.35 2043.18  780.45 2043.12  785.79 2043.62  787.66 2043.75
  790.31 2043.77  799.55 2043.72  801.85 2043.71  802.69 2043.72  804.17 2043.69
   811.8 2043.64   813.1  2043.8     817 2044.21  819.92 2044.29  821.72 2044.46
  825.01 2044.58  827.89 2044.72   835.7 2044.68  838.53 2044.69  839.28 2044.65
  847.65 2044.38  852.51 2044.36  860.09 2044.48   865.6 2044.23  869.14  2044.2
  874.39 2044.29  880.87 2044.44  884.64 2044.43  891.01 2044.43  906.35 2044.45
   909.5 2044.45  910.46 2044.46  914.93 2044.64  923.37 2044.94  926.16 2045.03
  933.08 2045.21  933.96 2045.23  935.57 2045.26  942.27 2045.39  954.96 2045.65
  956.85 2045.67   970.7  2045.7  982.88 2045.64   984.9 2045.63  990.87 2045.51
  996.25 2045.39     997  2045.3 1002.18 2044.67 1003.17 2044.81 1006.64 2045.33
 1010.19 2046.12 1012.16 2046.89 1016.23 2047.13 1016.97 2047.13 1017.87 2046.93
 1023.16 2045.33 1030.68  2045.3 1032.69 2045.27 1037.74  2045.3 1052.29 2045.22
 1066.96  2045.2 1067.99 2045.21 1068.87 2045.22 1081.52 2045.41 1083.47 2045.44
 1102.18 2045.77 1106.14 2045.85 1111.38 2045.87 1128.09 2046.07 1131.09 2046.12
 1139.68 2046.25 1141.43 2046.27 1150.43 2046.33 1168.69  2046.2 1172.55 2046.18
 1202.42 2046.16 1217.18 2046.19  1237.7 2046.17  1267.2 2046.14  1275.2 2046.17
 1296.34  2046.1 1320.38 2046.04 1342.78 2046.15 1350.69 2046.22 1354.73 2046.28
  1364.1 2046.37 1381.53 2046.25 1385.28 2046.22 1401.73 2046.35  1430.2 2046.63
 1447.79 2046.61 1456.62  2046.6 1465.68 2046.58 1478.16 2046.55 1481.24 2048.48
 1487.02  2052.1 1491.31 2054.78 1493.57  2056.2 1504.39 2057.21 1507.47  2057.5
 1509.24 2056.99  1511.2 2056.86  1511.2 2056.42 1511.48 2056.42 1512.27 2056.42
 1512.73  2056.6 1514.09 2057.12 1525.28 2057.34 1548.23 2057.81 1562.59 2057.87
 1572.92 2057.97 1582.37 2058.06 1584.12  2057.4  1584.2 2057.37 1584.31 2057.37
 1584.72 2057.37 1585.26 2057.38  1585.8 2057.46 1588.06 2057.82  1589.9 2058.11
 1592.73 2058.56 1619.82 2052.89 1644.67 2047.52 1657.23 2044.84 1670.92 2041.84
  1675.5 2041.89 1681.59 2041.95  1686.1 2043.01 1692.25 2044.45  1697.8 2044.56
 1702.92 2044.66 1704.45 2045.02 1708.61    2046 1710.18 2046.05 1715.73 2046.01
    1721 2045.97 1733.65 2045.89 1734.52 2045.89 1735.37 2045.88 1735.76 2045.89
  1742.8 2045.52 1746.48 2045.43 1752.93 2045.46 1755.21 2045.47 1759.79  2045.5
 1760.82045.506 1768.61 2045.55  1774.3 2045.63 1782.68 2045.76 1782.69 2045.76
 1782.72 2045.76 1788.99 2045.94 1792.79 2045.97 1795.53 2046.02 1800.26 2046.02
 1801.68 2045.97 1802.38 2045.94 1803.65  2045.9 1811.01 2045.63 1814.03 2045.51
  1816.4  2045.4 1817.63 2045.42 1817.84 2045.42 1820.87 2045.45 1822.08 2045.47
 1827.12 2045.54  1829.3 2045.57 1832.19 2045.74 1836.46 2046.12 1840.67 2046.34
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 1843.22 2046.56 1847.48  2046.6 1854.51 2046.76 1857.45  2046.8 1868.37 2047.05
 1870.83 2047.06  1875.7 2047.09 1882.35  2047.3 1883.91 2047.33 1893.76 2047.62
 1898.86 2047.66 1900.86 2047.68 1916.17 2048.03 1921.24 2048.17 1924.12  2048.3
 1934.14 2049.58  1944.7 2050.26 1955.84 2050.93 1967.27 2051.01 1972.58 2051.09
 1983.14 2050.55 1989.38 2050.44 1990.34 2050.49 2004.48 2050.65 2019.26 2050.74
 2024.45 2050.59 2027.88 2050.64 2037.42 2051.05  2048.3 2051.28  2060.5  2051.9
 2066.01 2052.16 2072.91 2052.45 2079.59 2053.18 2081.98 2053.41 2096.53 2053.46
 2102.99 2053.51  2103.7 2053.51  2105.2 2053.51 2107.92 2053.55  2110.9 2053.57
 2145.71 2054.37 2148.23 2054.41  2149.6 2054.41 2152.49 2054.41 2153.92 2054.41
 2155.16 2054.42 2181.86 2054.86  2185.2 2054.88 2190.35 2054.87 2203.15 2055.02
 2212.51  2055.1 2213.94 2055.03 2218.28 2054.76 2232.11 2055.22 2233.53 2055.26
 2237.69 2055.26 2250.07 2055.23 2250.51 2055.23 2251.44 2055.23 2255.48 2055.29
 2260.69 2055.36  2285.8 2055.56 2288.15 2055.46 2288.79 2055.46 2290.14 2055.46
  2293.8 2055.57 2299.09 2055.66 2308.67 2055.91 2330.95 2056.49 2337.66 2056.59
 2354.79 2056.66 2364.33 2056.62 2392.92 2056.74 2393.62 2056.75 2395.15 2056.77
 2412.59 2057.08  2417.6 2057.15    2428  2057.3  2452.4 2057.48 2473.14 2057.64
 2484.52 2057.73 2486.83 2057.75

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04  200.44    .035  884.64     .04  1760.8     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.    Expan.
        200.44  884.64           124.77  132.24  135.47             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
 1593.94 2486.83 2058.65       F
Right Levee     Station= 1548.23      Elevation= 2057.81
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 1510.73 1589.23 2057.72

CROSS SECTION


RIVER: Hassayampa
REACH: 1                  RS: 51.656

INPUT
Description:
Station Elevation Data    num=     490
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 2057.33     .19  2057.3    4.16 2056.79   14.03 2056.24   15.01 2056.18
   16.06 2056.11   22.64 2055.76   26.44 2055.77   28.04 2055.75   36.77  2055.5
   40.48 2055.39   46.07 2055.31   46.58 2055.31   62.76 2055.13   65.57 2055.14
   69.01 2055.16   81.02 2055.24   81.95 2055.12   84.08 2055.08   98.07  2055.2
  100.46 2055.13  107.47 2055.16  109.76 2055.12  117.43 2055.14  120.65 2055.08
  124.44 2055.01   129.6    2055  139.02 2054.81  145.26 2054.43  153.24 2053.67
  158.66 2053.41  163.18 2053.06  166.36 2052.97  172.61 2052.71  175.63 2052.64
  185.88 2052.28  197.18 2051.71     200 2051.61  203.58 2051.61  205.75 2051.66
  208.19 2051.59  223.36 2050.89  231.62 2050.54  232.73 2050.54  237.92 2050.65
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 1024.13 2041.76 1031.46 2041.47 1037.16 2041.21 1038.88 2041.13 1041.39 2041.03
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 1511.34 2044.62  1516.4 2044.59 1532.26 2044.58 1545.61 2044.64 1547.43 2044.64
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 1803.07  2051.7 1810.02 2056.07 1814.73 2056.37 1823.06 2056.91 1826.19    2056
 1826.78 2055.83 1827.84 2055.83  1828.3 2056.01 1829.66 2056.53  1835.6 2056.66
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 2139.17 2048.87 2139.72 2048.89 2143.95 2049.28 2143.97 2049.28 2157.08  2050.2
 2158.78 2050.29 2159.61 2050.33 2179.76  2051.7 2182.52 2052.16 2186.64 2052.32
 2198.64 2052.35 2200.29 2052.36 2200.96 2052.37 2231.25 2052.26 2232.12 2052.25
 2233.57 2052.25 2234.97 2052.26 2244.92 2052.39 2308.01 2052.92 2313.58 2052.95
 2319.33 2053.01 2327.06 2053.21 2333.62 2053.27 2342.38 2053.39 2356.52 2053.42
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 2419.76 2053.76 2437.65 2053.74 2439.75 2053.76 2441.48 2053.76 2470.11    2054
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 2751.93 2056.83 2752.11 2056.82 2754.63 2056.83 2762.41 2056.95 2762.74 2057.06
 2763.85 2057.08 2764.93 2056.78 2770.22 2056.92 2772.79 2056.97  2773.6 2057.24
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 2794.52 2057.25 2797.08 2057.22 2799.24 2057.27 2800.14 2057.29  2804.9 2057.42
 2805.27 2057.43 2808.81 2057.52 2809.76  2057.5 2810.52 2057.48  2813.1 2057.42
 2816.48 2057.32 2816.54 2057.32 2816.68 2057.32    2821 2057.47 2825.33 2057.63
 2826.27 2057.64 2830.88  2057.8  2835.3 2057.95 2838.43 2058.09 2839.49 2058.14

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04  547.61    .035 1259.74     .04 2098.29     .13  2743.6     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        547.61 1259.74             85.49   97.94  105.44             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0  280.12             F
 1825.45 2839.49 2056.97       F
Right Levee     Station= 1863.66      Elevation= 2057.22
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 1826.16 1904.66 2057.13

CROSS SECTION


RIVER: Hassayampa
REACH: 1                  RS: 51.638

INPUT
Description:
Station Elevation Data    num=     490
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 2060.43   14.13 2061.03   32.18 2061.78    33.1 2061.82    33.8 2061.72
   35.53 2061.43   41.82 2060.34   46.21 2059.03   49.26 2058.23   60.55 2055.69
   61.14 2055.56   66.12 2055.46   80.57 2055.18   88.27 2055.09   93.62 2055.01
    99.5 2054.98  115.64 2054.55  131.83 2054.09  135.24 2054.09  137.81  2054.1
  160.04 2053.83  170.04 2053.72  171.16 2053.72  176.05 2053.74  176.63 2053.74
  208.59 2053.08  214.76 2052.77  222.62 2052.71   228.6 2052.66  240.07 2052.48
  245.32 2052.27  259.15 2051.49  266.93 2050.66  284.03 2049.41  293.74 2049.24
  296.76 2049.18  299.04 2049.18  299.09 2049.18  299.14 2049.18  299.19 2049.18
  299.25 2049.18   299.3 2049.18  299.35 2049.18   299.4 2049.18  299.45 2049.18
   299.5 2049.18  299.55 2049.18   299.6 2049.18  299.65 2049.18   299.7 2049.18
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299.75	2049.18	299.79	2049.18	299.84	2049.18	299.89	2049.18	299.93	2049.18
299.97	2049.18	300.02	2049.18	300.06	2049.18	300.1	2049.18	300.14	2049.18
300.18	2049.18	300.22	2049.18	300.26	2049.18	300.29	2049.18	300.33	2049.18
300.37	2049.18	300.4	2049.18	300.44	2049.18	300.47	2049.18	300.5	2049.18
300.53	2049.18	300.56	2049.18	300.6	2049.18	300.63	2049.18	300.65	2049.18
300.68	2049.18	300.71	2049.18	300.74	2049.18	300.77	2049.18	300.79	2049.18
300.82	2049.18	300.84	2049.18	300.86	2049.18	300.89	2049.18	300.91	2049.18
300.93	2049.18	300.95	2049.18	300.98	2049.18	301	2049.18	301.02	2049.18
301.04	2049.18	301.06	2049.18	301.07	2049.18	301.09	2049.18	301.11	2049.18
301.13	2049.18	301.14	2049.18	301.16	2049.18	301.18	2049.18	301.19	2049.18
301.21	2049.18	301.22	2049.18	301.24	2049.18	301.25	2049.18	301.26	2049.18
301.28	2049.18	301.29	2049.18	301.3	2049.18	301.32	2049.18	301.33	2049.18
301.34	2049.18	301.35	2049.18	301.36	2049.18	301.37	2049.18	301.38	2049.18
301.39	2049.18	302.28	2049.18	303.16	2049.17	330.74	2048.4	369.66	2047.81
376.96	2047.78	407.19	2047.48	410.4	2047.45	411.34	2047.44	442.79	2046.96
452.3	2046.85	467.75	2046.77	470.39	2046.72	473.45	2046.67	486.25	2046.42
491.34	2046.58	497.31	2046.81	505.55	2046.58	509.29	2046.46	511.78	2046.15
511.83	2046.14	513.93	2046.68	514.86	2046.91	522.3	2047.33	527.76	2047.59
529.49	2047.7	530.6	2047.74	531.79	2047.76	536.31	2047.9	543.77	2048.04
547.19	2048.02	556.68	2047.26	558.18	2047.08	561.79	2046.81	567.51	2046.38
570.3	2046.07	570.61	2046.03	574.6	2045.65	576.88	2045.57	582.05	2045.38
586.6	2044.94	590.51	2044.65	597.09	2044.04	598.05	2043.95	601.38	2043.64
602.6	2043.35	606.84	2042.31	609.91	2042.33	616.35	2042.36	617	2042.37
617.41	2042.39	627.99	2042.84	631.41	2042.89	641.48	2043.07	645.52	2043.1
660.52	2043.22	667.56	2043.3	677.37	2043.32	682.41	2043.34	687.98	2043.38
692.63	2043.42	695.3	2043.37	697.07	2043.39	702.96	2043.35	709.01	2043.45
712.17	2043.45	713.4	2043.48	738.68	2043.06	740.1	2043.05	741.03	2043.05
762.36	2043.27	764.32	2043.3	765.81	2043.28	784.68	2043.1	788.01	2043.11
801.83	2043.1	802.63	2043.1	814.18	2043.34	817.77	2043.33	837.36	2043.19
845.13	2042.58	846.22	2042.5	847.17	2042.51	852.02	2042.55	855.53	2042.96
857.51	2043.18	861.77	2043.2	864.31	2043.22	868.98	2043.18	870.12	2043.18
871.83	2043.19	888.11	2043.43	893.71	2043.32	899.15	2043.27	904.26	2042.92
904.61	2042.9	905.03	2042.92	912.38	2043.31	924.44	2043.19	932.31	2043.15
942.74	2043.18	960.72	2043.22	967.2	2043.2	972.78	2043.24	977.46	2043.14
986.57	2042.98	991.24	2042.94	1000.24	2042.93	1010.65	2042.96	1016.54	2043
1020.49	2042.9	1027.2	2042.74	1033.91	2042.57	1035.54	2042.32	1036.69	2042.15
1037.28	2041.97	1053.44	2041.84	1066.86	2041.66	1067.75	2041.84	1069.9	2042.18
1076.83	2042.23	1083.78	2042.35	1085.24	2042.51	1089.81	2042.97	1094.86	2042.86
1096.86	2042.79	1099.57	2042.78	1103.89	2042.36	1107.06	2042.08	1110.62	2042.6
1112.15	2042.82	1112.61	2042.9	1119.54	2042.76	1125.72	2042.74	1127.09	2042.72
1128.86	2042.69	1144.83	2042.3	1152.16	2042.09	1153.76	2042.06	1158.89	2041.96
1160.25	2041.93	1162.08	2041.93	1166.82	2041.83	1167.89	2041.81	1170	2041.78
1171.03	2041.77	1172.38	2041.75	1176.31	2041.49	1179.44	2041.28	1180.62	2040.96
1182.05	2040.42	1199.21	2040.67	1199.97	2040.68	1200	2040.68	1200.25	2040.68
1202.25	2040.67	1227.99	2040.46	1228.76	2040.87	1232.34	2042.97	1232.55	2043.09
1232.62	2043.1	1236.63	2043.62	1245.89	2043.7	1250.63	2043.72	1259.68	2043.62
1261.51	2043.6	1272.2	2043.39	1276.22	2043.34	1285.81	2043.27	1295.72	2043.22
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1313.912	043.186	1324.48	2043.1	1339.99	2043.31	1340.91	2043.32	1347.31	2043.32
1363.54	2043.3	1377.13	2043.22	1385.04	2043.15	1390.75	2043.94	1392.55	2044.19
1408.56	2044.58	1408.81	2044.58	1408.86	2044.58	1409.21	2044.59	1418.38	2044.79
1420.12	2044.8	1425.69	2044.72	1430.72	2044.49	1432.42	2044.47	1439.37	2044.4
1445.94	2044.48	1452.27	2044.56	1459	2044.22	1462.93	2044.07	1467.24	2044.13
1481.74	2044.17	1487.3	2044.05	1489.9	2044.06	1491.91	2043.98	1494.63	2043.77
1497.51	2043.8	1497.64	2043.81	1498.21	2043.82	1502.16	2043.82	1503.53	2043.94
1505.71	2043.98	1509.51	2044.14	1510.73	2044.3	1512.21	2044.5	1512.85	2044.54
1515.01	2044.57	1518.96	2044.15	1519.08	2044.14	1519.25	2044.14	1519.6	2044.14
1547.72	2043.97	1555.89	2043.94	1560.04	2044.56	1560.19	2044.58	1561.63	2044.7
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1584.67	2043.94	1584.86	2043.94	1586.49	2043.94	1597.72	2043.94	1599.54	2043.94
1618.16	2044.16	1622.8	2044.19	1625.44	2044.21	1632.37	2044.12	1633.78	2044.14
1636.93	2044.09	1647.83	2044.08	1653	2044.06	1657.36	2044.05	1681.88	2044.07
1686.99	2044.05	1692.67	2044.11	1728.53	2044.47	1736.57	2044.6	1743	2044.72
1753.71	2044.94	1769.37	2045.26	1780.05	2045.45	1796.32	2045.77	1810.35	2045.7
1816.97	2045.74	1821.12	2045.76	1828.56	2045.84	1833.68	2049.08	1843.82	2055.49
1844.32	2055.81	1844.57	2055.97	1854.49	2056.35	1856.87	2056.44	1858.71	2055.91
1860.57	2055.36	1860.84	2055.36	1861.62	2055.37	1862.18	2055.58	1863.43	2056.07
1890.46	2056.61	1894.08	2056.69	1897.2	2056.75	1912.93	2056.47	1930.97	2056.15
1932.25	2055.66	1932.77	2055.46	1933.41	2055.46	1933.82	2055.46	1934.8	2055.61
1941.21	2056.62	1954.9	2053.92	1968.76	2051.18	1993.81	2046.22	2018.55	2041.3
2026.3	2041.38	2029.1	2041.41	2031.23	2041.92	2039.65	2043.92	2041.22	2043.95
2047.06	2044.06	2050.21	2044.12	2051.7	2044.48	2057.47	2045.84	2061.19	2046.12
2062.21	2046.19	2062.65	2046.15	2063.89	2046.38	2068.5	2046.8	2068.87	2046.83
2075.41	2046.74	2075.7	2046.73	2076.13	2046.72	2085.39	2046.19	2091.81	2046.12
2096.22	2046.1	2096.93	2046.1	2098.27	2046.08	2104.55	2045.83	2107.6	2045.67
2109.21	2045.67	2128.09	2045.98	2128.87	2045.99	2129.3	2046.81	2133.54	2051.11
2139.52	2051.18	2142.4	2051.17	2163.57	2051.35	2173.14	2051.36	2176.32	2051.4
2194.34	2051.56	2213.31	2051.68	2238.85	2051.82	2244.08	2052	2251.16	2051.92
2258.94	2051.6	2264.67	2051.52	2275.63	2052.06	2286.9	2051.91	2291.62	2051.72
2293.26	2052.1	2293.4	2052.13	2293.62	2052.13	2300.66	2052.18	2302.37	2052.17
2316.2	2052.17	2336.56	2052.12	2338.19	2052.15	2342.78	2052.25	2349.11	2052.33
2370.78	2052.58	2377.88	2052.69	2384.72	2052.61	2389.57	2052.72	2394.41	2052.82
2396.12	2052.84	2402.47	2052.99	2404.04	2053.03	2409.68	2053.42	2411.94	2053.64
2423.35	2053.54	2424.94	2053.54	2425.01	2053.54	2425.18	2053.54	2425.53	2053.55
2439.66	2053.73	2444.33	2054.73	2447.15	2055.28	2448.52	2055.285	2453.03	2055.3
2457.25	2055.31	2460.68	2055.29	2494.11	2055.13	2502.01	2055.04	2518.66	2055.21
2522.46	2055.21	2546.73	2055.21	2574.36	2055.46	2575.46	2055.46	2596.97	2055.62
2622.34	2055.74	2649.76	2055.73	2658.5	2055.69	2666.85	2055.72	2694.21	2055.66

```
Manning's n Values          num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04  598.05    .035 1313.91     .04 2050.21     .13  2448.5     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        598.05 1313.91            96.43  104.43  108.32             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0   305.6               F
 1861.82 2694.21 2056.59       F
Right Levee     Station=  1897.2       Elevation= 2056.75
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
  1859.7  1938.2 2056.66

CROSS SECTION


RIVER: Hassayampa
REACH: 1                    RS: 51.618

INPUT
Description:
Station Elevation Data    num=     490
      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
        0 2057.52     6.95 2057.49     9.66 2057.52    15.68 2057.13    20.45 2057.04
    28.48 2056.91    43.65 2057.26    50.79 2058.49    50.94 2058.53    51.57  2058.5
    65.11 2057.81    69.58 2057.52    72.02 2057.34     77.1 2056.11    79.22 2055.57
    86.62 2055.58    99.65 2055.61   107.11 2055.28   112.32 2054.85    114.2 2054.86
   117.79 2054.81    133.2 2054.75   150.94 2054.29   154.04 2054.28    171.2 2053.81
   174.92 2053.78   186.95 2053.46   191.09 2053.44   210.14 2052.89   215.05 2052.77
   222.01 2052.81   227.41 2052.81   239.25 2052.86   248.67 2052.81   253.46 2052.83
   257.14 2052.05   262.62 2050.73   270.13  2049.8   272.36 2049.39   277.32  2049.2
    282.7 2048.89   298.59 2048.35   305.88 2048.22   319.35 2047.68   321.04 2047.69
   325.23 2047.68   354.42 2047.21   360.66 2047.09   372.41 2047.01   384.85 2046.93
   387.95  2046.9    423.6 2046.55   433.77 2046.53   460.04 2046.38   472.45  2046.4
   487.08 2046.47    494.5 2046.13   501.58 2045.93    510.9 2045.59   511.58 2045.58
   513.03 2045.51   522.79 2045.19   525.41 2045.14   530.28 2045.09   536.41 2045.16
    538.1 2045.17   540.57 2045.17    555.6 2045.26   555.69 2045.26    566.1 2045.54
   567.45 2045.54   568.84 2045.49   571.94 2045.63   572.96 2045.68   573.98  2045.5
   577.86 2044.82    582.4 2044.14   584.89 2043.99   587.44 2044.14      591 2044.01
   593.85 2043.92    596.5 2043.95   599.05 2043.97   601.32 2044.25      603 2044.42
   605.43 2044.82   609.59 2044.76   614.18 2044.82    617.6 2044.45  617.932044.419
   618.23 2044.39   619.33 2044.12   623.71 2043.12   626.94 2042.33   627.23 2042.28
   629.82 2041.87   630.08 2041.83   631.69 2041.55   639.99 2041.89   644.18 2042.02
   647.62 2042.09   659.67 2042.33   671.48 2042.56   677.37  2042.6   693.96    2043
   696.38 2043.05   708.29 2042.89   717.95 2042.82   740.43 2042.94   745.18 2042.92
   756.07 2042.78   765.99 2042.68   768.59 2042.64   769.17 2042.65   772.99 2042.67
   777.69 2042.67   789.29  2042.7    794.3  2042.7   796.67 2042.71   807.45 2042.55
   808.82 2042.53   808.94 2042.53   824.58 2042.37   827.61 2042.35    847.3 2042.59
   856.52 2042.59   864.72 2042.48   878.49 2042.59   879.42  2042.6   884.17 2041.57
   885.94 2041.62   889.32 2041.79   890.14 2042.02   891.72 2042.41   893.98 2042.54
   904.59 2043.02   907.47 2042.88   910.25 2042.74   927.93 2042.65   928.86 2042.64
   930.65 2042.64   937.09 2042.46   942.51 2042.33   943.22 2042.25   944.46 2042.15
    950.9 2041.62   952.43 2041.84   955.23  2042.3   958.61 2042.44   963.55 2042.45
   966.03 2042.45   969.77 2042.25   971.95 2042.18    976.2 2041.93   980.67 2041.99
   983.99 2041.97  1011.91 2042.09  1017.33 2042.11   1019.1 2042.12  1020.18 2042.08
  1023.64 2042.07   1026.3 2042.06   1027.5  2042.1  1034.51 2042.37  1040.98 2042.61
  1057.37 2042.42  1064.94 2042.44  1080.44 2042.05  1081.56 2041.89  1089.35 2041.18
  1097.55  2041.1  1105.81 2041.05  1125.57 2040.86  1125.63 2040.88  1129.63  2041.6
  1131.23 2041.91  1133.29 2042.25  1135.71 2042.31  1144.48 2042.51  1152.97 2042.45
  1162.71  2042.6  1168.98 2042.66  1175.79 2041.98  1176.92 2041.87  1188.51 2041.96
  1191.65 2041.89  1193.88 2041.73   1205.1 2041.51  1213.87 2041.36  1215.41 2040.55
  1216.51 2039.97   1224.9 2039.95   1242.3 2039.88  1246.93  2039.9  1255.53 2039.83
  1255.99 2039.82   1256.1 2039.89  1258.22 2040.86  1260.77 2041.62  1263.26 2042.38
  1266.99 2042.45  1268.01 2042.47  1268.55 2042.48  1272.61 2042.52  1279.07 2042.59
  1279.87  2042.6  1281.89 2042.57  1286.02  2042.5  1287.28 2042.54  1291.23 2042.66
  1295.18 2042.61  1299.21 2042.56  1309.79 2042.61  1317.63 2042.61  1323.76 2042.64
  1323.78 2042.64  1326.96  2042.7  1333.74 2042.61  1349.51 2042.48  1349.78 2042.48
  1376.73 2042.53  1381.17 2042.56  1385.87 2042.54     1400  2042.5  1405.91  2043.3
  1409.78 2043.73  1410.63  2043.8  1411.86 2043.82  1417.51 2043.81  1422.81 2043.74
  1423.56 2043.72  1424.09 2043.72  1430.26 2044.01  1434.92 2044.07  1437.33  2044.1
  1439.17 2044.04  1448.14 2044.68  1456.01 2044.84  1457.55 2044.82  1459.72 2044.72
  1466.75 2044.29  1469.69 2044.29   1472.7 2044.24  1476.55 2043.63  1478.06 2043.45
  1479.06 2043.52  1486.39 2043.81  1490.14 2043.31  1494.38 2043.06  1503.97 2043.14
  1517.35 2043.19   1527.1 2043.18  1534.11  2043.2   1540.7  2043.2  1542.73 2043.18
  1558.23 2043.12  1559.97 2043.12  1562.81 2043.05   1563.7 2043.06  1570.33 2043.11
  1579.99 2043.11  1581.64 2043.23   1582.5 2043.29  1583.34 2043.49  1587.71 2043.93
  1588.02 2043.96  1593.53 2044.17  1596.64 2044.15  1598.02 2043.77  1598.53  2043.7
  1603.75 2043.63  1607.23  2043.6  1611.06 2043.49  1616.92 2043.25  1625.93 2043.07
  1626.72 2043.04  1629.95 2043.07  1645.64 2043.18  1653.81 2043.33  1667.34 2043.59
  1678.31 2043.81  1680.51 2043.89  1683.63 2043.99  1685.33 2044.13  1693.44 2044.23
  1700.28 2044.27  1708.78 2044.26  1717.03 2044.09  1719.01 2044.04  1725.08 2044.01
  1737.23 2043.99  1740.39 2043.72  1744.81  2043.4  1751.33 2042.93  1757.76 2042.46
  1761.62 2042.51  1763.23 2042.53  1767.81  2042.6  1774.87 2042.69  1780.64 2042.79
  1784.42 2043.44  1789.48 2044.31     1796  2045.3  1797.62 2045.57  1799.89 2046.18
   1804.1 2046.42  1806.03 2047.06  1807.69 2047.73  1809.79 2047.66  1809.88 2047.62
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 1809.89  2047.6 1810.06 2047.71  1822.9 2055.87 1830.25 2055.95 1834.52    2056
 1835.47 2055.72 1836.39 2055.75  1836.5 2055.76 1836.68 2055.77 1836.82 2055.77
 1836.92 2055.78 1837.03 2055.78 1837.13 2055.79 1837.23 2055.79 1837.35  2055.8
 1837.49  2055.8 1837.63 2055.81 1837.75 2055.81 1838.12 2055.83  1838.2 2055.83
  1838.2  2055.4 1838.25 2054.92 1838.26 2055.79 1838.36 2054.92 1839.25 2054.92
 1840.63 2055.46 1840.87 2055.55 1841.04 2055.62 1842.06 2055.64  1859.9    2056
 1874.68 2056.29 1901.28 2055.82 1908.31 2055.69  1909.7 2055.15 1910.11    2055
 1911.16    2055 1911.16  2055.4 1915.59  2055.7  1917.4 2055.98 1918.52 2056.16
 1920.83 2055.71 1923.27 2055.23 1960.36 2047.98 1995.55 2041.07 1996.57 2041.08
 2004.47 2041.16 2006.06 2041.17 2015.18 2043.35 2016.57 2043.68 2024.49 2043.83
 2027.08 2043.89 2027.44 2043.97  2029.2 2044.39 2046.72 2044.47 2049.74 2044.46
 2055.92 2044.49 2062.25 2045.53 2062.57 2045.58 2062.75 2045.64 2065.01 2046.44
 2067.88 2047.45 2068.13 2047.54 2068.25 2047.52 2080.87 2047.95 2081.27 2047.96
 2086.56  2048.2 2092.12  2048.4 2099.53 2048.67 2105.04 2048.78  2112.1 2049.02
 2118.04 2049.39 2122.81 2049.54 2130.28 2050.14 2140.68 2050.45 2148.76 2050.49
 2160.53 2050.77  2168.8 2050.87 2188.74 2051.06  2217.5 2051.12 2218.77 2051.12
 2220.95 2051.14 2237.58 2051.29 2279.21 2051.67 2279.54 2051.67 2281.28 2051.68
 2298.42 2051.77 2301.08 2051.76 2305.27 2051.73 2306.36  2051.8 2315.33 2051.81
  2322.7 2051.83 2323.09 2051.73  2323.6 2051.59 2325.79 2051.64 2336.75 2051.91
 2345.94 2051.82 2351.66 2051.77 2352.25 2051.76  2353.1 2052.11 2353.85 2052.13
 2359.39 2052.21 2369.48 2052.28 2379.19 2052.16 2383.43 2052.14 2385.11 2052.16
 2412.28 2052.28    2436  2052.3 2437.21 2052.29 2441.71 2052.31 2461.422052.763
 2482.21 2053.24 2490.07 2053.43 2491.23 2053.46 2493.74 2053.51 2500.73 2053.67
 2502.88 2053.73 2508.73 2055.22 2509.96 2055.58 2510.45 2055.63 2513.71 2055.61
 2528.11 2055.57 2533.39 2055.55 2548.39 2055.26 2553.25 2055.28 2562.75 2055.26
 2585.87 2055.33 2601.34 2055.25 2626.99  2055.4 2671.48 2055.38 2674.07 2055.37
 2678.44 2055.39 2710.82  2055.6 2725.97 2055.63 2752.17 2055.61 2780.56 2055.65
 2789.66 2055.65 2805.21 2055.69 2834.23 2055.79 2839.27 2055.83 2857.98 2055.96
 2878.47 2056.25 2897.97 2056.75  2898.1 2056.75 2908.36 2056.85 2913.59 2056.93
 2918.52    2057 2920.83 2056.08 2925.25 2055.31 2927.65 2054.37  2930.4 2050.87
 2930.98 2050.23 2931.79 2050.22 2938.48 2050.14 2944.39 2050.08 2973.23  2050.9
 2984.89 2051.17 2997.68 2051.48 3041.02    2051 3053.94 2050.75 3069.85 2051.29
 3072.45 2051.44 3073.32 2052.08 3073.76 2052.34 3076.56 2053.71 3078.48 2054.56
 3080.47 2055.44 3083.27 2055.92 3085.34  2055.4 3089.44 2054.71 3094.71 2053.18
 3096.33 2053.26  3101.2 2053.47 3104.13 2053.59 3104.82 2053.61 3110.95 2053.83
 3111.13 2053.84    3119 2055.54 3121.35 2056.05 3125.51  2056.9  3127.1 2057.02

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .04  617.93    .035 1323.76     .04 2004.47     .13 2461.42     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        617.93 1323.76            85.37   90.41   92.11             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0  267.37              F
 1841.21  3127.1 2056.06       F
Right Levee     Station= 1874.68      Elevation= 2056.29
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 1837.18 1915.68  2056.2

CROSS SECTION


RIVER: Hassayampa
REACH: 1                  RS: 51.601

INPUT
Description:
Station Elevation Data    num=     477
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 2054.15    3.76    2054    8.96 2053.94   23.46 2053.68   34.69 2053.66
   41.46 2053.53    46.2 2053.63   75.97 2053.45   77.35 2053.43   79.79 2053.42
   84.39 2053.76   90.82 2054.16   98.39 2054.98  101.52 2055.47  103.35  2055.6
  112.38 2055.67  123.73 2055.74  127.95 2055.61  134.47 2055.35  153.46 2054.88
  172.58 2054.46  175.11 2054.47  184.91 2054.22  201.99  2054.2  203.85 2054.23
  207.98 2054.14  218.44 2054.15  224.12 2053.92  225.98 2053.78   232.1 2053.35
  234.07 2052.81  239.81 2050.85  243.35 2050.19   253.9 2048.39  259.97 2048.01
  261.87 2048.08   284.6  2047.7  290.39  2047.6  296.16  2047.5   301.7 2047.42
  318.96 2047.11   329.9 2046.76  339.45 2046.78  344.05 2047.38  346.97 2047.74
  355.17 2048.79   361.8 2049.57  366.53 2049.49   370.4 2049.45  372.422049.476
   375.1 2049.51  381.81 2049.45  383.65 2049.44  390.54  2048.3  396.04 2047.24
  399.04 2046.71  402.74 2046.03  410.82 2045.96  417.62 2045.85  420.23 2045.82
  421.59  2045.8  436.47 2046.08  445.11 2046.12  450.42 2046.14  463.95 2046.39
  496.98 2046.11  500.57 2046.08  504.98 2046.15  513.67 2046.26  524.29  2046.2
  524.44  2046.2  534.17 2046.56  534.48 2046.57  534.99 2046.56  545.25 2046.18
  551.81 2046.68  557.56 2047.15  565.69 2047.81  572.72 2048.48  579.24 2048.49
  610.06 2048.32  611.01 2048.32  611.44 2048.25   611.8 2048.22  616.31 2047.69
  616.49 2047.64  620.46 2046.48  623.12  2046.9  625.04 2047.08  628.11 2048.51
  628.45 2048.67  630.14 2048.58  632.34 2048.69 633.792048.655  636.87 2048.58
  638.97 2048.77  639.68 2049.05  643.21 2048.61  646.18 2048.31  649.15 2047.69
  650.96 2046.99  651.67 2046.88  653.93 2046.52  654.68 2046.56  656.89 2046.25
  659.46 2045.77  659.83 2045.72  660.19  2045.6  660.57 2045.28  666.23 2041.07
  671.75 2041.24  676.34 2041.34  677.29 2041.47  682.03 2041.99  698.71 2042.03
  703.63 2042.04  704.34 2042.04  704.68 2042.05  710.47  2042.1  729.21 2042.31
  732.18 2042.33  737.43 2041.77  739.69 2041.54  740.71 2041.57  751.52 2042.23
  756.77 2042.34  764.41 2042.43  770.75 2042.33   774.7 2042.28  778.28 2042.26
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  780.87 2042.31  790.34  2042.3  794.63 2042.28   797.4 2042.31  801.89 2042.34
  810.49 2042.38  815.25 2042.29  816.34 2042.27   833.6 2042.28  838.67 2042.28
  839.24 2042.28  839.53 2042.28  839.81 2042.28  845.08 2042.34  863.93 2042.54
  866.03 2042.57  875.76  2042.2  878.32 2042.02  891.56 2042.01  900.61 2042.01
  903.74 2042.14  907.83 2042.37  912.27 2042.29  912.97 2042.28   913.9 2042.26
  920.63 2042.24  921.28 2042.23  922.67 2041.89  926.29 2041.02  928.43 2041.05
  930.98  2041.1   932.3 2041.68  932.82 2041.92  934.89 2041.96  942.79 2042.13
  950.21 2042.33  953.94 2042.33  969.56 2042.28  970.54 2042.28  971.36 2042.25
  978.88 2042.04  980.62 2041.74  984.69 2041.17  992.42 2041.44  996.76  2041.6
  999.81 2041.55 1009.24 2041.36  1016.5  2041.2 1019.46 2041.01 1022.11 2040.83
 1024.99 2040.97 1026.21 2041.03 1026.65 2041.12 1029.89 2041.63 1041.96  2041.9
 1046.18 2041.99 1053.08 2042.02  1068.6 2042.15 1080.09 2042.17 1094.74 2042.04
 1099.26 2041.94 1111.69 2041.85  1113.7 2041.84 1117.81  2041.9 1125.66 2042.04
 1131.36 2041.84 1144.27 2041.55 1161.02 2041.01  1165.1 2040.92 1167.08 2040.56
 1169.02 2040.16  1175.5 2040.21 1183.71 2040.23  1184.2 2040.77 1185.35 2041.87
 1185.51 2041.87 1198.26 2041.83 1199.83 2041.81 1201.01  2041.8 1202.49 2041.78
 1206.78  2041.7 1217.76 2041.54 1224.27 2041.51  1227.6 2040.32 1228.93 2039.76
 1236.29 2039.59 1245.88 2039.48 1254.94 2039.33 1273.47 2039.15  1281.1 2039.07
 1282.64 2039.62 1287.65 2041.36 1289.12 2041.88 1294.31 2042.04 1299.24 2041.97
 1331.14 2042.11 1340.82 2042.16 1342.42 2042.16 1347.25  2042.1  1357.2 2042.02
 1374.32 2041.88 1380.93 2042.06 1385.13 2042.08 1391.24 2042.56 1394.72 2042.89
 1397.14 2042.86    1401  2042.6  1401.7 2042.59 1404.01 2042.55  1406.4 2042.58
 1407.92 2042.61 1418.81  2043.1 1429.86 2043.41 1437.56 2043.42  1453.5 2044.04
 1457.29 2044.27  1468.7 2044.46 1472.57 2044.43 1482.59 2044.72  1485.9 2044.77
 1487.93 2044.38 1495.39 2042.94  1495.7 2042.89 1495.76 2042.88 1512.28 2042.64
 1513.47 2042.58 1522.86 2042.72 1545.86 2043.04 1547.29 2043.03 1549.49 2043.03
 1557.43    2043 1561.54 2043.02 1564.92 2042.94 1570.29 2042.63 1577.33 2042.47
 1584.52 2041.25 1585.53 2041.06  1586.8 2041.04 1593.14 2040.95 1595.89 2041.25
 1600.88  2041.7 1601.01  2041.7 1601.34 2041.72 1607.96 2042.07 1612.45 2042.32
 1613.52 2042.36 1616.43 2042.48 1621.99 2042.71  1623.9 2042.81 1628.73 2043.02
 1635.03 2043.25 1636.32  2043.3 1639.89 2043.43 1646.95 2043.53 1655.45 2043.71
  1660.1 2043.88 1665.29 2044.11 1671.36 2044.25 1673.08 2044.39 1674.51 2044.59
 1679.58 2045.51 1681.87 2045.95 1682.44 2045.98  1684.5 2046.04 1685.85 2045.78
 1686.79 2045.66 1694.98 2045.67 1704.16 2045.56  1716.2 2045.43 1743.45 2045.16
 1772.02 2044.94 1786.37  2044.9 1789.14 2044.89 1799.07 2051.22 1806.23 2055.78
 1812.57 2055.73 1817.29  2055.7 1817.64 2055.59 1818.03  2055.7 1820.96 2055.18
 1820.96 2054.65 1820.96 2054.61 1821.39 2054.62 1822.01 2054.62 1822.95 2054.98
 1823.34 2055.14  1823.8 2055.32 1839.78 2055.63 1857.36 2055.98  1878.2  2055.6
 1890.92 2055.37 1892.08 2054.92 1892.71 2054.68 1893.28 2054.68 1893.76 2054.68
 1901.03 2055.82 1901.05 2055.83 1901.09 2055.83 1940.98 2048.08 1977.96 2040.87
 1984.07 2040.93 1988.44 2040.97 1989.08 2041.13 1998.93 2043.48 2006.57 2043.63
 2009.42 2043.69 2028.54 2048.26 2029.76 2048.59 2029.94 2048.59 2035.95 2048.65
 2036.85 2048.65  2047.8 2048.83 2071.89  2049.2 2083.83 2049.44 2101.91 2049.85
 2103.55 2049.91  2103.8 2049.91  2104.3 2049.92 2111.44    2050 2145.13 2050.43
  2148.6 2050.46 2167.26 2050.63  2200.2 2050.97 2208.82 2050.93  2244.7 2050.95
 2252.01 2051.03  2266.2  2051.1    2268 2051.11 2270.19 2051.12 2277.13 2051.13
 2294.31 2051.15 2301.05  2051.2 2307.01 2051.26 2311.64 2051.27 2320.34  2051.3
 2320.39  2051.3 2320.48  2051.3 2320.52  2051.3 2322.46 2050.89  2327.8    2051
 2332.77  2051.1 2336.62 2051.18 2346.97  2051.4 2349.17 2051.43 2350.85 2051.46
 2353.21  2051.5 2358.75 2051.66  2367.6 2051.52 2369.98 2051.46 2375.57  2051.3
 2380.36 2051.16 2384.45 2051.05 2385.42 2051.47 2385.47  2051.5 2385.67 2051.52
 2387.37 2051.78 2388.04 2051.88 2389.48 2052.06  2407.3 2052.42 2408.19  2052.4
 2410.42 2052.49 2415.39 2053.73 2420.57 2055.02 2425.15 2055.26 2428.57 2055.39
 2433.07 2055.38  2435.2 2055.38 2445.51 2055.59 2452.48 2055.74 2454.01 2055.74
  2459.4 2055.74 2469.89 2055.74 2473.76 2055.74    2481 2055.74 2494.81 2055.74
 2530.79 2055.67 2541.19 2055.66 2546.27 2055.58 2553.04 2055.49  2554.2 2055.48
 2561.12  2055.4 2565.77 2055.34 2578.67  2055.2 2581.17 2055.18 2582.49 2055.21
 2596.01 2055.22  2621.8 2055.27 2639.69 2055.33 2658.17 2055.38 2671.56 2055.37
 2693.43 2055.42 2730.94 2055.73 2737.28 2055.78  2738.8  2055.8 2741.96 2055.81
 2761.73  2055.8 2780.62 2055.77 2792.48 2055.97 2801.45 2056.21 2811.15 2056.34
 2820.49 2056.47 2822.22 2056.53 2830.76 2056.91 2833.53 2056.66 2846.19 2055.44
  2856.3    2054 2873.04 2050.41  2878.2 2050.31 2916.94 2049.69 2917.34 2049.69
 2918.49 2049.72 2932.67 2050.12 2948.42 2050.26 2970.43  2050.2 2975.91  2050.2
 2983.07  2050.2 3000.43  2050.2 3004.56 2049.89 3008.28  2049.6  3018.3 2049.74
 3031.57 2049.93 3036.84    2050 3040.63 2050.05 3046.72 2050.32  3048.5  2050.4
 3049.39 2050.68 3050.31 2050.63 3051.41 2051.56 3051.94    2052 3052.28 2052.11
 3056.08    2053 3057.19 2052.84 3060.32 2051.85 3062.13 2051.63  3066.2 2051.93
 3075.71 2053.21 3079.53 2054.34 3084.81 2054.89 3089.86 2055.61 3093.26 2055.71
 3096.28 2055.64 3106.13 2056.13 3110.45 2056.45 3120.56 2057.48 3123.21 2057.75
 3128.38 2058.44 3131.67 2058.52

Manning's n Values         num=        5
      Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val
        0     .04   372.42     .13   633.79     .04   651.67    .035   1357.2     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       651.67  1357.2           107.81  107.75  110.76             .1       .3
Ineffective Flow     num=        2
   Sta L   Sta R    Elev  Permanent
       0  234.15               F
 1824.24 3131.67 2055.71        F
Right Levee     Station= 1857.36       Elevation= 2055.98
Blocked Obstructions     num=        1
   Sta L   Sta R    Elev
 1819.86 1898.36 2055.89

CROSS SECTION
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RIVER: Hassayampa
REACH: 1 RS: 51.581

INPUT
Description:
Station Elevation Data num= 490

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2059.44	6.76	2059.03	8.53	2058.94	16.31	2058.23	22.43	2057.56
25.17	2057.15	40.43	2056.07	50.99	2055.3	59.91	2054.72	74.13	2053.41
76.24	2053.29	92.3	2053.03	94.04	2053.06	98.89	2052.81	111.39	2052.55
122.43	2052.24	123.31	2052.25	131.19	2052	135.29	2052.21	136.89	2052.36
140.21	2052.68	144.5	2053.01	147.96	2053.26	153.49	2053.93	158.29	2054.5
165.34	2054.25	171.09	2054.14	176.74	2053.98	182.34	2053.92	190.2	2053.7
197.32	2053.6	199.42	2053.55	200.64	2053.55	213.94	2056.33	216.73	2056.79
217.07	2056.73	220.21	2056.22	220.722	056.197	222.39	2056.12	224.23	2056.03
230.08	2055.76	238.68	2055.35	239.07	2055.19	240.21	2054.65	243.82	2053
244.54	2052.71	252.86	2050.59	258.46	2049.45	260.2	2048.77	264.42	2047.58
267.84	2046.99	268.41	2046.87	270.58	2046.9	280.71	2047.02	292.99	2046.86
301.03	2046.2	304.93	2045.63	305.89	2045.54	321.66	2045.66	323.52	2045.55
328.43	2045.42	349.88	2045.04	353.69	2045.02	363.94	2045.21	374.51	2045.47
386.04	2045.46	390.75	2045.49	403.28	2045.63	406.36	2045.71	419.43	2045.78
443.45	2045.81	448.71	2045.9	473.97	2046.14	476.28	2046.16	477.7	2046.17
482.81	2046.21	489.08	2046.24	499.41	2046.17	502.61	2046.13	517.97	2045.98
541.11	2046.27	548.65	2046.34	558.38	2046.41	560.73	2046.44	568.19	2046.3
573.2	2046.26	578.29	2046.36	583.75	2046.46	590.84	2046.29	595.3	2046.11
609.34	2046.27	619.96	2046.48	627.4	2046.15	629.91	2046.04	635.21	2045.87
651.89	2045.47	663.39	2045.18	666.08	2045.16	672.36	2045.19	690.32	2045.47
696.43	2044.27	696.8	2044.2	697.27	2044.19	702.43	2044.27	705.35	2044.31
710.45	2044.39	711.25	2044.4	713.9	2044.24	722.27	2043.73	724.59	2042.92
730.77	2040.48	731.43	2040.5	738.89	2040.77	742.73	2040.89	753.25	2041.14
755.39	2041.19	760.61	2041.04	762.3	2041.12	765.77	2041.29	766.64	2041.36
777.76	2041.57	787.57	2041.72	805.34	2041.73	814.43	2041.77	819.2	2041.71
822.61	2041.69	826.54	2041.39	827.56	2041.32	829.64	2041.43	833.26	2041.61
836.69	2041.64	840.48	2041.65	844.11	2041.7	849.13	2041.79	854.76	2041.89
860.92	2041.95	864.27	2042	875.01	2042.04	884.06	2042.06	897.15	2042
898.66	2041.99	899.41	2041.99	917.49	2041.93	935.07	2041.8	940.09	2041.76
941.48	2041.65	943.2	2041.51	949.17	2041	953.5	2040.91	958.28	2040.57
959.63	2040.48	962.47	2040.48	964.62	2040.46	965.77	2040.88	968.06	2041.56
973.5	2041.59	982.35	2041.63	986.2	2041.49	990.43	2041.43	993.2	2041.38
995.21	2040.97	997.1	2040.69	1001.7	2040.76	1006.09	2040.81	1014.34	2040.95
1023.49	2040.95	1028.7	2040.96	1032.33	2040.7	1036.96	2040.4	1040.4	2040.73
1041.46	2040.83	1051.04	2041.12	1062.38	2041.46	1063.9	2041.48	1080.7	2041.47
1089.85	2041.62	1108.87	2041.72	1120.93	2041.66	1132.28	2041.6	1146.49	2041.55
1149.16	2041.54	1150.01	2041.56	1160.28	2041.77	1163.12	2041.73	1168.25	2041.62
1175.89	2041.73	1177.3	2041.74	1178.18	2041.76	1188.71	2041.56	1207.7	2041.28
1217.64	2040.95	1230.91	2040.51	1231.47	2040.49	1237.68	2039.29	1243.35	2039.34
1245.28	2039.37	1247.08	2039.89	1249.59	2040.7	1252.32	2040.81	1259.48	2041.11
1263.94	2040.95	1267.2	2040.84	1270.31	2039.96	1274.77	2038.76	1280.28	2038.67
1300.26	2038.66	1307.13	2038.77	1313.51	2040	1315.12	2040.47	1318.76	2041.26
1320.01	2041.35	1327.61	2041.4	1331.16	2041.39	1335.52	2041.7	1336.99	2041.84
1339.26	2041.85	1364.36	2041.9	1368.15	2041.9	1376.61	2041.88	1387.96	2041.85
1404.46	2042.02	1406.27	2042.1	1412.64	2042.27	1415.41	2042.36	1416.17	2042.41
1420.07	2042.77	1423.84	2042.79	1429.14	2042.83	1430.93	2042.83	1434.06	2042.88
1448.01	2042.9	1450.86	2042.79	1467.56	2042.4	1469.44	2042.41	1476.63	2042.39
1477.6	2042.44	1488.51	2042.71	1489.06	2042.71	1495.17	2043.12	1496.83	2043.14
1503.93	2043.15	1504.86	2043.11	1505.7	2043.05	1507.43	2043.01	1511.03	2043.58
1512.66	2043.78	1513.36	2043.7	1513.92	2043.63	1517.18	2043.04	1517.62	2042.9
1518.01	2042.93	1520.64	2042.95	1522.68	2042.94	1525.13	2043.01	1527.68	2042.99
1530.88	2042.82	1533.59	2042.73	1535.65	2042.56	1544.19	2042.22	1547.22	2041.95
1550.13	2041.94	1551.79	2041.93	1553.05	2041.93	1554.97	2041.9	1560.61	2041.83
1569.83	2041.74	1577.58	2041.67	1582.07	2041.77	1584.53	2041.8	1585.9	2041.82
1587.81	2041.78	1594.08	2041.81	1605.74	2042.05	1620.5	2042.03	1622.84	2042.02
1634.24	2042.01	1640.06	2042.09	1646.69	2042.14	1655.54	2042.42	1660.23	2042.5
1665.34	2042.54	1672.54	2042.47	1673.89	2042.49	1678.21	2042.81	1688.17	2043.47
1693.49	2043.85	1697.17	2044.11	1698.91	2044.35	1700.05	2044.51	1707.58	2044.61
1714.77	2044.68	1738.98	2044.65	1750.44	2044.65	1757.74	2044.61	1764.87	2044.58
1770.75	2044.55	1777.93	2049.14	1788.15	2055.68	1789.67	2055.64	1798.54	2055.44
1801.02	2054.71	1802.2	2054.36	1803.24	2054.36	1803.89	2054.61	1805.03	2055.06
1810.54	2055.17	1838.48	2055.72	1846.16	2055.31	1850.23	2055.5	1860.57	2055.3
1871.92	2055.09	1873.65	2054.42	1873.71	2054.4	1874.76	2054.4	1875.5	2054.51
1879.49	2055.15	1882.07	2055.55	1893.7	2053.29	1895.56	2052.93	1899.09	2052.24
1946.48	2043.01	1952.93	2041.75	1958.68	2040.63	1966.67	2040.71	1969.13	2040.73
1972.27	2041.49	1979.58	2043.24	1982.382	043.294	1989.92	2043.44	1990.17	2043.48
1997.79	2045.31	2007.91	2045.62	2013.93	2045.85	2014.82	2045.88	2015.3	2045.87
2015.68	2045.91	2028.99	2046.59	2029.11	2046.62	2031.43	2048.5	2034.39	2048.54
2039.92	2048.54	2041.26	2048.52	2052.21	2048.31	2052.36	2048.32	2062.11	2048.51
2067.08	2048.64	2072.17	2048.72	2075.92	2048.78	2088.49	2049.03	2091.56	2049.08
2092.49	2049.1	2098.52	2049.19	2115.89	2049.07	2118.03	2049.05	2121.43	2049.04
2124.14	2049.02	2127.53	2049.01	2133.66	2049	2140.29	2048.95	2143.19	2048.9
2144.04	2049.28	2144.44	2049.48	2145.75	2049.5	2146.6	2049.51	2150.26	2049.58
2153.17	2049.64	2157.47	2049.73	2171.63	2049.89	2174.4	2049.93	2176.08	2049.96
2180.11	2049.99	2192.35	2050.05	2202.74	2050.13	2219.49	2050.22	2236.18	2050.32
2248.54	2050.41	2261.59	2050.53	2282.46	2050.8	2286.18	2050.84	2325.63	2051.48
2338.7	2051.79	2368.73	2052.24	2382.72	2052.37	2411.33	2052.72	2433.71	2052.98
2438.45	2053.36	2439.22	2053.42	2440.58	2053.62	2444.7	2054.27	2448.51	2054.75
2450.99	2054.98	2452.58	2055.01	2454.32	2055.1	2457.54	2055.22	2466.47	2055.26
2478.57	2055.31	2479.22	2055.36	2481.75	2055.38	2494.59	2055.38	2497.31	2055.15

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 2500.81 2054.95  2505.5 2054.62  2508.6 2054.46 2514.56 2054.48 2521.79 2054.48
 2529.24 2054.41 2536.51  2054.3 2538.76 2054.28 2541.08 2054.24 2553.45 2054.22
 2557.54 2054.24 2562.79  2054.3 2566.15 2054.36 2584.25 2054.82 2590.45 2054.87
  2616.1 2054.81 2623.52  2054.9 2630.62 2055.08 2648.45 2055.24 2662.56 2055.56
  2664.1 2055.59 2678.57 2055.79 2679.65 2055.79 2693.63  2055.7 2694.05 2055.68
 2704.89 2054.94 2709.02 2053.38 2719.01  2050.9 2719.69  2050.9 2738.32 2050.88
 2763.78 2051.22 2779.28 2050.78 2792.25 2050.07 2794.53 2049.55 2798.95  2049.1
 2802.99 2048.68 2809.58 2048.38 2813.96 2048.41 2816.83 2048.41 2820.22 2048.43
  2823.3 2048.44 2826.23 2048.51 2836.97 2048.61    2839  2048.6 2844.07 2048.47
 2844.93 2048.46 2853.62 2048.44 2876.78 2048.58 2886.25 2048.67 2896.19 2048.64
 2905.99 2048.65 2912.28 2048.52 2915.66 2048.47 2916.79 2048.57 2924.42 2049.11
 2925.24 2049.28 2926.55 2049.53 2931.58 2050.54 2933.26 2050.85 2936.07  2050.9
 2938.53 2050.98 2940.89 2051.06  2942.8 2055.66 2943.27 2056.75 2943.87 2056.81
 2947.95 2057.19 2949.86 2057.22 2953.77 2059.53 2957.39 2061.96 2962.68 2063.64
 2962.78 2063.65 2968.64 2063.72 2969.25 2063.29  2991.2 2063.71 2997.81 2063.84
 3007.56 2064.01 3013.22    2064 3014.61    2064 3017.55 2063.98 3024.55 2063.95
 3041.49 2063.84 3041.77 2064.14 3042.05 2064.39 3046.17 2064.49 3049.08 2064.52
 3052.01 2064.27 3052.54 2064.23 3053.11 2063.95 3065.38 2057.45 3068.98 2057.48

Manning's n Values         num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0    .045  220.72     .13  702.43    .035 1368.15    .045 1982.38     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        702.43 1368.15           119.99  121.87  129.74             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0  198.04               F
 1803.03 3068.98 2055.42        F
Right Levee     Station= 1838.48      Elevation= 2055.71
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 1800.98 1879.48 2055.62

CROSS SECTION


RIVER: Hassayampa
REACH: 1                  RS: 51.558

INPUT
Description:
Station Elevation Data    num=     490
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 2076.38    7.54 2078.82   10.61 2079.84   13.72 2080.23   35.52 2082.23
   42.12 2083.69   50.612084.845   55.43  2085.5   58.85 2085.16   63.07 2085.92
   70.55 2088.24   72.93 2088.63   77.53 2088.25   80.96 2087.84   89.06 2085.64
   96.03 2084.71  104.79 2082.33  117.22  2075.8  122.92  2075.2  123.72 2074.98
  124.19 2075.08  134.44 2076.34  141.58 2077.62  147.24 2079.67  147.61 2079.61
  148.88  2079.3  151.84 2078.62  152.44 2078.42  159.42 2078.15   164.1 2077.98
   168.2 2077.75   175.8 2076.09  182.59 2072.62  185.28 2070.92   191.3 2066.65
  198.24 2062.29  201.05 2060.72  210.97 2055.77  215.32 2053.57   216.6 2052.79
  218.37 2051.93  221.08 2050.74  222.21 2050.06  223.35 2048.29  223.76 2047.66
   224.1 2047.21   225.6 2047.17  244.63 2046.72  249.09 2046.69  265.45 2046.46
  265.85 2046.46  266.71 2046.44  267.92 2046.38  285.12 2045.35  293.34 2045.03
  315.45 2044.42  317.04 2044.41  321.03 2044.45  354.72 2044.46  359.53 2044.45
  366.57 2044.42  392.33 2044.41  395.25  2044.4  426.46 2044.86  428.43 2044.88
  432.05 2044.94  435.57 2044.97  439.97 2044.93  455.38 2044.75  460.37 2044.92
  472.22  2045.1  483.41 2045.06  495.52 2045.13  505.32 2045.03  516.25 2044.97
  523.36 2045.03  533.22 2045.29  538.07 2045.42  545.78 2045.64  561.89 2045.86
  578.27 2045.86  587.18 2045.84  595.26 2045.84  598.03 2045.89  625.87 2046.14
  628.74 2046.04  631.53 2046.01  653.44 2045.61  654.15 2045.59  655.61 2045.59
   664.6 2045.52  671.88 2045.51  677.03 2045.49  682.53 2045.45  686.53 2045.49
  690.45 2045.38   694.2 2045.26   703.6 2045.06  707.97 2044.96  724.29 2044.91
  724.842044.904  731.992044.823  738.45 2044.75  753.53 2044.87  756.69 2044.92
  760.11 2044.56  783.61 2042.84  785.73 2042.69  786.77 2042.26  790.89  2040.3
  803.53 2040.26  819.07 2040.23  820.89 2040.36  823.44 2040.57  829.37 2040.62
  837.81 2040.76  854.71    2041  863.84 2041.05  877.39 2041.16  877.88 2041.16
  878.31 2041.15  885.38 2040.93  887.66 2041.15  889.55 2041.31  893.45 2041.28
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 1038.09 2040.58 1048.12  2040.8 1053.29 2040.74 1059.17 2040.67 1061.42 2040.45
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 1127.12 2040.82 1140.32 2040.88 1146.05 2040.98 1147.34 2041.01 1154.59 2041.12
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 1329.79 2038.24 1340.02 2040.94 1340.15 2040.98 1343.39 2041.48 1347.96 2041.55
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 1531.87 2042.02 1535.19 2042.33 1542.65 2042.85 1544.92 2042.89 1547.71 2042.89
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 1617.06 2041.15 1618.07 2041.14 1627.48 2040.88  1630.9 2040.84 1632.32 2040.79
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 1668.16 2042.07 1671.03  2042.2 1673.26 2042.49 1676.41 2042.42 1678.16 2042.23
 1680.89 2042.35 1684.02 2042.49 1685.52 2042.48 1690.96 2042.71 1694.02  2042.8
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 1748.86 2043.46 1753.51  2043.4 1754.69 2043.39 1759.64 2043.32 1759.93 2043.31
 1767.29 2048.04 1778.99 2055.55 1780.35 2055.51    1789 2055.28 1792.14 2054.34
 1792.63  2054.2 1793.67  2054.2 1793.76 2054.23 1795.44  2054.9 1818.29 2055.34
 1824.35 2055.46 1828.65 2055.54 1851.79 2054.06 1852.71    2054 1854.37 2054.17
 1861.86 2054.43 1863.44 2054.19 1863.63 2054.21 1864.67 2054.21  1865.1 2054.28
 1869.76 2055.02 1869.76 2055.25 1871.93 2055.36  1872.8 2055.19 1873.78    2055
  1876.9 2054.38 1878.84    2054 1879.64 2053.84 1883.89    2053 1884.21 2052.94
 1886.78 2052.43 1888.66 2052.06 1888.95    2052 1893.01  2051.2 1894.01    2051
  1897.3 2050.35 1899.07    2050 1904.13    2049 1905.74 2048.68 1909.19    2048
 1909.87 2047.86 1912.66 2047.31 1913.95 2047.06 1914.25    2047 1918.09 2046.24
 1919.31    2046 1922.29 2045.41 1924.38    2045 1926.55 2044.57 1934.51    2043
 1935.21 2042.86 1939.58    2042 1939.61 2041.99 1939.84 2041.95 1944.18 2041.09
 1944.64    2041 1945.33 2040.86 1947.98 2040.34 1957.42 2040.52 1964.62 2040.66
 1981.85    2041 1992.78 2041.21 1996.13 2041.28 1999.27 2041.33 1999.71 2041.45
  2001.7    2042 2005.38 2042.97 2005.49    2043 2008.76 2043.84 2011.14 2043.89
 2015.69    2044 2016.47 2044.01 2018.26 2044.04 2020.16 2044.55  2021.3 2044.85
 2023.48  2044.8 2028.87 2044.71 2033.04 2044.79 2034.89 2044.83 2035.88 2044.66
  2036.3 2044.59 2038.06 2044.64 2052.58 2045.09 2067.29 2044.62 2070.93 2044.51
 2071.42 2044.93 2071.86  2045.3 2073.35 2045.57 2078.67 2046.53  2086.1 2047.41
 2088.56 2047.71 2098.93 2048.67 2100.16 2048.76 2102.94 2048.87 2116.77 2049.39
 2119.55 2049.39 2142.77 2049.59 2165.01 2050.04 2176.36 2050.12 2177.07 2049.93
 2179.53 2049.45  2186.3 2049.56 2190.42 2049.65 2204.04 2049.72 2214.07 2049.79
 2217.52 2049.82 2220.25 2049.85 2224.31  2049.9  2227.9 2049.92  2229.9 2050.45
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 2359.34  2052.9 2365.032052.866 2366.11 2052.86 2368.45 2052.86 2396.99 2052.94
 2425.69 2053.04  2429.5 2053.04 2455.34 2052.89 2475.16 2052.98 2476.88 2052.95
 2509.81 2052.62 2513.75 2052.65 2518.25 2052.68 2536.86 2052.88 2562.79 2052.98
 2568.23    2053 2569.38 2053.02 2571.87 2053.02 2623.83 2053.45 2629.42 2053.51
 2630.86 2053.55 2635.67 2053.67 2639.49  2053.7 2644.18 2053.67 2653.92 2053.65
 2660.81 2053.69 2664.64 2053.62 2677.64 2053.62 2683.49  2053.6 2684.79 2053.58
 2685.79 2053.18 2697.72 2049.36 2699.26 2048.86 2699.54 2048.81  2711.3 2047.43
 2712.97 2047.41 2720.73 2047.18 2724.72 2047.17 2729.02 2047.12 2736.12 2046.97
 2737.81 2046.93 2741.82 2046.93  2756.2 2046.95 2765.93 2046.91 2780.56 2046.83
  2807.9 2046.76 2817.68 2046.67 2818.65 2046.66 2818.84 2047.18 2820.37 2052.41

Manning's n Values         num=       6
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0    .045   50.61     .13  731.99    .035 1340.02    .045 1708.52     .13
 2365.03    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        731.99 1340.02           101.24  114.65  119.66             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0  241.58             F
 1785.45 2820.37 2055.15       F
Right Levee     Station= 1828.65      Elevation= 2055.54
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 1791.15 1869.65 2055.45

CROSS SECTION


RIVER: Hassayampa
REACH: 1                  RS: 51.536

INPUT
Description:
Station Elevation Data    num=     490
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 2090.73     .81 2090.71    3.96 2090.56   13.73 2090.22   19.59 2090.23
   26.22 2090.24   39.09 2090.04   42.95 2090.01   49.03 2089.96   54.12 2089.99
   66.35 2090.02   77.92 2090.12   79.65 2090.12   88.81  2090.1  108.81    2090
  113.28 2089.95  114.02    2090  114.74 2089.97  115.55 2089.95  125.05 2090.09
  147.04 2090.07  174.74  2090.2   176.4  2090.2   177.8 2089.55  179.76 2088.74
  193.54 2080.04  199.03  2076.5  205.99 2072.74  214.89 2067.57  217.81 2065.67
  228.15 2060.54  228.68  2060.3  234.34 2057.54  234.98 2057.21  240.73 2055.46
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243.78	2053.42	247.43	2051.09	247.7	2050.8	248	2050.55	252.33	2046.49		
261.23	2046.42	277.83	2046.12	281.37	2046.13	284.43	2046.13	284.44	2046.13		
284.46	2046.13	284.48	2046.13	284.49	2046.13	284.51	2046.13	284.52	2046.13		
284.54	2046.13	284.55	2046.13	284.56	2046.13	284.58	2046.13	286.48	2046.13		
287.2	2046.13	288.29	2046.12	309.76	2046.13	322.95	2045.78	334.7	2045.29		
351.09	2045.02	353.33	2045.01	355.02	2044.96	373.76	2044.71	377.42	2044.76		
390.01	2044.42	407.53	2044.14	411.33	2044.1	434.4	2044.51	453.27	2044.56		
467.75	2044.31	474.62	2044.37	477.48	2044.3	495.07	2044.13	498.06	2044.1		
500.18	2044.08	503.31	2044.1	517.37	2044.18	536.35	2044.51	550.94	2044.69		
561.96	2044.8	586.05	2045.15	590.73	2045.19	600.02	2045.3	610.94	2045.2		
611.49	2045.19	612.73	2045.17	631.41	2044.9	634.15	2044.96	638.61	2044.89		
644.74	2044.88	664.02	2044.88	672.56	2044.89	680.34	2044.9	686.05	2044.72		
687.52	2044.68	688.29	2044.7	696.73	2044.84	700.71	2044.89	708.03	2045		
718.55	2045.13	719.02	2045.13	719.36	2045.1	721.152	044.924	724.04	2044.64		
728.68	2044.58	742.26	2044.48	748.41	2044.45	751.282	044.401	751.94	2044.39		
755.4	2044.44	763.64	2044.32	765.89	2044.31	780.73	2044.03	782.99	2044		
790.72	2044.19	803.41	2044.51	814.82	2042.62	815.56	2042.5	816.45	2042.34		
817.79	2041.32	819.02	2040.39	819.48	2040.42	825.47	2040.44	831.4	2039.79		
833.08	2039.64	845.41	2039.64	849.93	2039.64	854.76	2039.86	857.25	2040.12		
877.37	2040.65	881.51	2040.7	888.83	2040.51	889.85	2040.48	891.52	2040.48		
903.76	2040.46	910.7	2040.45	914.39	2040.46	921.83	2040.49	941.93	2040.61		
943.56	2040.62	950.32	2040.5	953.15	2040.45	961.69	2040.35	963.51	2040.32		
970.62	2040.48	974.91	2040.55	977.07	2040.47	984.73	2040.09	995.48	2040.05		
1010.24	2040.04	1015.56	2039.8	1020.9	2039.52	1025.33	2039.39	1028.3	2039.31		
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1037.24	2039.9	1038.16	2039.83	1040.84	2039.56	1042.35	2039.46	1044.55	2039.33		
1047.23	2039.85	1048.33	2040.1	1051.33	2040.24	1057.25	2040.22	1064.58	2040.41		
1076.19	2040.12	1076.2	2040.12	1078.58	2039.99	1082.97	2040.01	1089.47	2040.08		
1101.58	2040.17	1106.12	2040.26	1110.66	2040.53	1111.32	2040.51	1119.07	2040.13		
1124.35	2040.12	1134.74	2040.24	1136.36	2040.26	1150.86	2039.96	1157.09	2039.83		
1160.24	2039.95	1162.21	2040.22	1171.55	2040.25	1174.53	2040.24	1180.81	2040.33		
1187.67	2040.44	1189.52	2040.4	1195.8	2040.27	1201.94	2040.06	1209.5	2039.84		
1224.14	2039.78	1229.16	2039.75	1243.06	2039.64	1246.58	2039.6	1247.43	2039.6		
1248.9	2039.56	1258.49	2039.25	1263.59	2038.54	1266.26	2038.15	1267.33	2038.01		
1268.65	2037.76	1288.54	2037.74	1293.022	037.756	1299.43	2037.78	1304.06	2037.74		
1307.86	2039.49	1309.47	2040.37	1314.04	2040.58	1318.95	2040.79	1326.5	2040.85		
1327.09	2040.85	1327.75	2040.86	1336.84	2040.92	1336.92	2040.92	1342.33	2041.01		
1343.66	2041.08	1346.5	2041.05	1352.04	2040.98	1358.14	2041.08	1364.28	2041.22		
1370.01	2041.26	1386.56	2040.97	1387.64	2040.97	1402.38	2040.78	1409.47	2040.69		
1416.88	2040.77	1423.75	2040.51	1425.18	2040.52	1425.78	2040.51	1431.27	2040.64		
1436.4	2040.69	1453.36	2040.82	1456.79	2040.85	1463.81	2041.08	1465.6	2041.12		
1466.02	2041.09	1470.01	2040.68	1475.63	2040.6	1482.49	2040.49	1498.58	2040.31		
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1522.65	2040.19	1537.68	2040.54	1537.97	2040.54	1538.05	2040.54	1538.11	2040.54		
1538.33	2040.54	1551.83	2040.29	1557.72	2040.2	1571.28	2040.16	1578.32	2040.31		
1587.49	2040.63	1591.22	2040.67	1596.3	2041.02	1605.07	2041.41	1607.01	2041.47		
1607.39	2041.48	1608.14	2041.53	1616.8	2041.53	1617.74	2041.57	1620.53	2041.63		
1629.52	2041.95	1632.32	2042.03	1640.97	2041.89	1645.51	2041.74	1665.672	041.687		
1668.27	2041.68	1669.03	2041.68	1691.93	2041.83	1694.58	2041.85	1717.63	2042.04		
1721.82	2042.04	1725.09	2042.04	1741.77	2052.83	1745.79	2055.44	1753.99	2055.31		
1756.09	2055.27	1759.18	2054.35	1759.7	2054.36	1759.7	2054.19	1759.86	2054.19		
1760.73	2054.19	1762.14	2054.75	1762.49	2054.89	1780.85	2055.24	1795.44	2055.53		
1798.84	2055.3	1804.01	2054.95	1818.16	2054	1824.08	2054	1828.4	2054.27		
1829.18	2054.08	1830.16	2054.18	1830.26	2054.18	1831.19	2054.18	1831.19	2054.35		
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1849.95	2053	1854.77	2052.02	1854.9	2052	1859.64	2051.04	1859.84	2051		
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1874.67	2048	1878.91	2047.14	1879.62	2047	1883.64	2046.19	1884.56	2046		
1888.3	2045.24	1889.5	2045	1892.85	2044.32	1894.45	2044	1897.21	2043.44		
1899.39	2043	1901.18	2042.64	1904.14	2042.04	1904.31	2042.01	1904.34	2042		
1908.42	2041.18	1908.642	041.134	1909.29	2041	1912.26	2040.4	1913.24	2040.2		
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2001.54	2041	2005.06	2041.04	2007.98	2041.07	2009.64	2041.51	2011.51	2042		
2014.96	2042.91	2015.31	2043	2015.48	2043.05	2017.49	2043.57	2019.76	2043.62		
2027	2043.78	2027.51	2043.91	2027.84	2044	2029.69	2044.49	2030.82	2044.79		
2031.77	2044.72	2033.58	2044.61	2038.11	2044.58	2044.07	2044.57	2044.77	2044.38		
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2080.03	2044.79	2084.67	2045.42	2087.12	2045.94	2093.22	2047.27	2098.7	2048.14		
2103.42	2048.82	2115.46	2049.31	2120.2	2049.46	2133.84	2049.49	2138.94	2049.5		
2142.92	2049.49	2178.43	2049.86	2182.8	2049.91	2183.36	2049.92	2184.15	2049.92		
2231.49	2049.96	2239.16	2049.99	2275.83	2050.44	2284.74	2050.55	2315.24	2050.92		
2318.86	2050.99	2322.59	2051.05	2338.02	2050.93	2349.37	2050.81	2375.2	2051.05		
2376.97	2051.05	2388.45	2051.29	2388.91	2051.3	2390.01	2051.32	2401.01	2051.42		
2421.47	2051.27	2421.55	2051.27	2421.8	2051.27	2438.93	2051.27	2447.25	2051.26		
2461.47	2051.18	2469.59	2051.19	2475.74	2051.18	2481.52	2050.98	2490.22	2049.81		
2497.14	2048.98	2503.8	2048.52	2506.26	2048.47	2514.27	2048.65	2515.84	2048.81		
2519.03	2049.14	2520	2049.21	2520.85	2049.25	2524.6	2049.59	2527.45	2049.62		
2529.8	2049.7	2531.7	2049.72	2533.13	2049.6	2535.13	2049.37	2537.91	2049.03		
2543.96	2048.31	2547.38	2047.81	2548.62	2047.69	2559.46	2046.5	2561.55	2046.2		
2562.76	2046.03	2572.5	2044.66	2573.66	2044.67	2574.02	2044.68	2584.38	2044.84		
2584.66	2044.84	2596.52	2044.79	2607.62	2044.83	2619.02	2044.88	2623.56	2044.9		
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2685.59	2048.45	2686.32	2050.18	2688.13	2050.81	2694.08	2052.9	2697.05	2053.6		

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 2698.02 2053.79 2700.54 2054.31 2706.51 2055.53 2707.31 2057.02 2707.76 2057.86
 2710.52 2057.93  2718.2  2058.1 2724.26 2058.28 2739.12 2058.74 2743.93 2058.89
 2749.62 2059.06 2764.74 2059.49 2764.87  2059.5 2765.27  2059.5 2766.42 2059.52

Manning's n Values        num=       6
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13  721.15    .045  751.28    .035 1309.47    .045 1665.67     .13
 1908.64    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        751.28 1309.47            95.78  106.17  111.28             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0  310.17             F
 1756.36 2766.42 2055.04       F
Right Levee     Station= 1795.44      Elevation= 2055.53
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 1757.94 1836.44 2055.44

CROSS SECTION


RIVER: Hassayampa
REACH: 1                  RS: 51.516

INPUT
Description:
Station Elevation Data    num=     490
      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
        0 2082.73     7.73  2084.9    13.08 2086.14    16.19 2087.41    25.67 2090.45
    29.69 2090.49       36 2090.62    39.44 2090.69    49.15 2090.63    51.86 2090.54
    52.44 2090.54    57.88 2090.58    60.31 2090.57    72.78 2090.55    78.67 2090.53
    86.75 2090.69    92.73 2090.73    97.55 2090.68   116.23 2090.98   123.06    2091
   124.44 2091.02   128.26 2091.05   134.98 2091.07    162.5 2091.53   162.69 2091.53
   168.05 2091.56   175.63 2091.55   179.69 2091.52   180.58 2091.31   184.96 2089.11
   193.22 2085.63   203.67 2080.84    213.3 2076.55   218.19 2074.43   222.31 2073.02
    223.1 2072.86   224.21 2072.65   233.58 2070.79   240.25 2069.49   241.28 2069.33
   249.82 2068.23   257.57 2066.66   262.21 2065.17   272.97 2059.29   274.52 2058.52
   274.97 2058.15   276.58 2056.88    278.9 2055.06   279.56 2053.13    280.4 2050.88
   282.22 2048.85   282.45 2048.59   282.49 2048.53   286.28 2047.96    296.4 2047.62
   300.22 2047.71   309.12  2047.5   332.28 2047.42   336.48  2047.4   342.63 2047.37
   345.99 2047.43   361.67 2047.66   362.85 2047.65   363.32 2047.74   365.91  2047.8
   368.68 2047.63   378.59 2047.06   393.78 2046.15   394.76 2046.16   397.09 2046.01
   403.31 2044.81   408.51 2044.63   416.27 2044.46   424.59 2044.03   432.47 2044.06
    434.4 2044.04   435.35 2044.03   448.65 2043.88   466.97 2043.71   472.08 2043.67
   476.08  2043.7   497.08 2043.79   507.97 2043.71      525 2043.48   533.64 2043.43
   539.41 2043.45    543.4 2043.46   558.63 2043.68   574.77 2043.66   585.17 2043.63
   593.43 2043.42   597.01 2043.37   614.34 2043.36   635.74  2043.6    644.2 2043.48
   647.52 2043.52   649.71 2044.65   649.92 2044.76   659.09 2044.87   660.07 2044.88
   663.24 2044.74   666.71 2044.59   667.72  2044.6   675.49 2044.69   680.61 2044.63
   684.72 2044.58   690.96 2044.64   695.52 2044.72  700.262044.596   705.48 2044.46
   706.18 2044.44   709.32 2044.39   730.71 2044.04   734.53 2043.97   745.55 2044.01
   746.19 2044.01  746.432044.003   746.51    2044   754.67 2043.69   759.07 2043.62
   771.41 2043.47   781.78 2043.73   789.79 2043.62   797.14 2042.25   797.79 2042.16
   797.98  2042.1   806.63 2040.37   816.49 2040.21      820 2040.15   829.44 2039.95
   839.64 2039.21   840.78 2039.11   841.97 2039.13   850.65 2039.24   854.33 2039.28
   854.64 2039.29   854.87  2039.3   855.63 2039.34   859.72 2039.57   863.05 2039.65
   867.55  2039.8   870.49 2039.82   875.77 2040.02   879.05 2040.09   882.36 2040.04
   888.63 2040.15   889.22 2040.16   890.12 2040.17   905.87 2040.15   909.61 2040.53
   911.72 2040.68   915.29 2040.66   917.62 2040.63   920.77  2040.6   926.08 2040.29
   927.27 2040.21   930.24 2040.04   932.22  2039.9   936.79 2039.81   938.73 2039.65
   940.44 2039.51    941.1 2039.44   948.66 2039.45   953.04 2039.42   957.82  2039.4
    962.7  2039.4   964.84 2039.29   977.41 2038.95   979.02 2038.95   980.94 2039.03
   984.52 2039.02    991.1 2039.01   992.48 2039.51   993.03 2039.68   995.88 2039.68
   999.36 2039.73 1001.39 2039.75 1013.45 2039.82 1019.76  2039.9 1030.25 2039.85
  1044.18 2039.84 1061.07 2039.73 1066.07 2039.69 1068.51 2038.85 1070.17 2038.05
  1071.52 2038.54 1073.33 2039.27 1081.18  2039.3 1086.32 2039.31 1088.12 2039.27
   1089.9 2039.24 1090.59 2039.15 1091.76 2039.05 1094.36  2039.1 1107.84 2039.55
  1117.03 2039.87 1120.87 2039.71 1121.63 2039.64 1132.25 2039.85 1132.65 2039.86
  1133.01 2039.85 1139.24 2039.67 1144.18 2039.75 1150.47 2039.85 1167.58 2039.69
  1174.12 2039.63 1184.03 2039.44 1187.91 2039.35 1193.03 2039.31 1199.15 2039.25
  1200.76 2039.13 1211.39 2037.97 1216.81 2037.55 1223.29 2037.55 1240.44 2037.31
  1252.05  2037.5 1258.27 2037.52 1261.36  2038.3 1261.51 2038.33 1262.06 2038.35
  1269.662038.771 1272.16 2038.91 1279.61 2038.97 1286.87 2039.01 1290.94 2039.63
  1293.29 2039.94 1298.56 2040.03 1300.56 2040.07 1304.28 2040.15 1313.87 2040.09
   1317.4 2040.04 1325.48 2040.09 1330.58 2040.24 1342.66 2040.22 1346.88 2040.19
  1362.91 2040.19 1373.28 2040.25 1381.39  2040.3 1385.82 2040.34 1387.27 2040.38
  1388.83 2040.33 1390.72 2040.27 1393.97 2040.21 1397.61  2040.3 1406.09 2040.25
  1408.33 2040.34 1417.45 2040.17 1422.41 2040.14 1424.12 2040.07 1426.16 2040.11
  1432.93 2040.52 1436.31 2040.55 1445.27 2040.59    1449 2040.61 1459.55 2040.57
  1462.02  2040.6 1465.47  2040.4 1468.27 2040.27 1473.78 2040.18 1474.39 2040.16
  1475.31 2040.35 1476.12 2040.52 1476.77 2040.51 1481.49 2040.53 1482.04 2040.54
  1483.96 2040.52 1484.21  2040.5 1484.95 2040.52 1498.89 2040.39 1501.01 2040.43
  1504.08 2040.31 1509.42 2040.51  1511.1 2040.62 1513.03 2040.53 1515.96 2040.44
  1518.53 2039.74 1519.33 2039.52 1523.56 2039.58  1524.2 2039.61 1528.37 2040.59
  1529.32 2040.76 1534.89  2040.9 1545.61 2041.02 1558.46  2040.8 1562.92 2040.73
   1566.8 2040.81 1599.54 2041.34 1599.57 2041.34 1604.72 2041.56 1616.93 2041.83
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1625.96	2041.77	1634.79	2041.84	1635.47	2042.1	1638.58	2042.47	1639.36	2042.53
1639.85	2042.47	1643.74	2041.5	1647.63	2041.56	1652.36	2041.63	1656.37	2041.78
1658.8	2041.86	1663.85	2042.07	1667.41	2042.21	1674.67	2042.03	1675.64	2042
1678.15	2043.64	1696.12	2055.33	1703.54	2055.38	1706.69	2055.39	1708.38	2055.39
1710.27	2055.26	1710.27	2054.3	1711.3	2054.3	1712.53	2054.79	1713.05	2055
1723.68	2055.21	1737.82	2055.48	1745.82	2055.63	1757.91	2054.91	1773.47	2054
1778.6	2054	1779.98	2054.22	1780.35	2054.28	1780.89	2054.28	1781.37	2054.28
1783.45	2054.61	1785.68	2054.97	1788.54	2055.43	1790.56	2055.02	1790.65	2055
1794.51	2054.2	1795.51	2054	1796.98	2053.7	1800.36	2053	1803.8	2052.29
1805.22	2052	1806.42	2051.75	1810.08	2051	1813.52	2050.29	1814.94	2050
1819.06	2049.15	1820.17	2048.92	1826.75	2047.51	1832.3	2046.33	1837.05	2045.32
1839.412	044.815	1841.16	2044.44	1851.38	2044.66	1857.1	2043.86	1882.44	2041.2
1887.68	2041.25	1893.9	2041.25	1897.51	2041.15	1973.94	2040.64	1996.76	2040.83
1996.98	2040.88	1997.42	2041	1998.54	2041.73	1999.11	2042	2000.78	2042.78
2001.32	2043	2004.7	2043.23	2006.29	2043.33	2008.13	2043.79	2013.38	2044.89
2014.74	2043.99	2015.83	2043.54	2016.67	2043.76	2017.59	2044	2019.2	2044.42
2020.37	2044.73	2024.34	2044.62	2031.94	2044.4	2032.48	2044.08	2032.81	2043.92
2043.04	2044.51	2045.93	2044.67	2047.22	2044.74	2048.49	2044.7	2049.55	2044.67
2060.01	2044.4	2067.62	2044.2	2067.68	2044.25	2067.88	2044.4	2068.75	2044.64
2070.42	2045.09	2074.62	2045.55	2080.96	2045.98	2083.84	2046.11	2088.19	2046.18
2095.41	2046.12	2097.77	2046.16	2098.53	2046.17	2100.01	2046.02	2105.24	2045.93
2110.15	2046.04	2113.47	2046.22	2118.85	2046.42	2124.93	2046.66	2127.49	2046.76
2133.46	2046.97	2139.34	2047.2	2143.71	2047.32	2148.37	2047.5	2157.25	2047.74
2160.5	2047.84	2168.5	2048.01	2186.45	2048.46	2188.45	2048.47	2190.99	2048.39
2196.39	2048.45	2203.83	2048.78	2207.96	2048.86	2213.4	2049.03	2222.86	2048.28
2228.34	2047.92	2237.46	2047.53	2247.21	2046.81	2251.11	2047.03	2266.21	2045.42
2267.11	2045.3	2268.34	2045.2	2282.6	2045.23	2299.18	2045.15	2300.9	2045.11
2301.74	2045.11	2308.1	2044.97	2317.8	2045.1	2319.46	2045.1	2320.75	2045.11
2330.8	2044.23	2340.45	2043.56	2340.49	2043.56	2354.48	2043.04	2355.88	2043.04
2357.14	2042.99	2361.12	2042.94	2380.06	2043.13	2400.62	2043.04	2409	2042.99
2413.37	2042.96	2421.75	2043.03	2445.3	2043.56	2449.47	2043.6	2455.44	2043.6
2465.22	2043.58	2473.47	2043.68	2475.21	2047.06	2475.99	2048.6	2483.56	2050.74
2485.4	2051.22	2486.66	2051.54	2492.08	2052.78	2494.33	2053.22	2497.59	2053.86
2498.47	2054.11	2499.95	2054.75	2508.61	2055.24	2511.46	2055.4	2513.35	2055.51
2516.45	2055.66	2524.04	2055.99	2527.12	2056.14	2547.02	2057.43	2558.42	2057.75
2559	2057.93	2559.79	2058.21	2563.83	2058.27	2569.4	2058.28	2571.19	2058.26
2575.9	2058.34	2581.41	2057.96	2584.34	2057.79	2589.14	2057.77	2598.76	2057.7
2626.12	2057.7	2632.08	2057.81	2634.53	2057.77	2642.59	2057.61	2647.21	2057.61
2655.42	2059.18	2662.55	2060.66	2663.15	2060.78	2663.6	2060.88	2673.54	2061.32
2676.06	2061.4	2682.51	2061.59	2686.36	2061.73	2691.06	2061.85	2691.22	2061.85

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.13	700.26	.045	746.43	.035	1269.66	.045	1788.54	.13
1839.41	.045								

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
746.43	1269.66	91.71	96.38	102.14	.3 .5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	360.35		F
1698.18	2691.22	2055.17	F

Right Levee Station= 1745.82 Elevation= 2055.63

Blocked Obstructions num= 1

Sta L	Sta R	Elev
1708.32	1786.82	2055.55

CROSS SECTION

RIVER: Hassayampa
REACH: 1 RS: 51.497

INPUT
Description:
Station Elevation Data num= 483

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2058.44	.66	2058.42	4.78	2058.38	29.3	2057.8	32	2057.71
32.78	2057.71	35.15	2057.71	38.47	2057.69	56.02	2057.12	64.25	2056.85
65.8	2057.17	74.97	2057.68	82.27	2059.09	92.66	2060.1	111.08	2063.68
131.53	2065.99	144.71	2067.47	151.39	2067.13	160.88	2066.72	161.32	2066.69
182.14	2066.82	184.97	2066.86	186.24	2067	208.42	2068.27	217.27	2068.8
218.58	2068.83	219.07	2068.83	219.66	2068.76	244.37	2065.94	246.76	2065.65
262.87	2064.52	263.47	2064.54	264.87	2064.74	273.43	2062.5	281.84	2066.47
282.76	2066.61	283.67	2066.11	285.99	2066.8	295.99	2062.89	299.24	2060.79
303.68	2060.2	305.68	2058.69	308.22	2055.91	309.14	2055.43	311.09	2052.75
313.11	2051.5	314.26	2050.95	315.07	2051.09	316.22	2051.3	333.25	2051.19
341.05	2050.95	342.64	2050.95	350.38	2050.82	354.09	2050.73	355.56	2050.73
355.63	2050.73	355.65	2050.73	355.67	2050.73	355.69	2050.73	355.71	2050.73
355.72	2050.73	355.73	2050.73	355.75	2050.73	355.76	2050.73	355.77	2050.73
355.78	2050.73	356.26	2050.73	356.27	2050.73	356.28	2050.73	356.29	2050.73
356.31	2050.73	356.32	2050.73	356.34	2050.73	356.36	2050.73	356.38	2050.73
356.4	2050.73	356.42	2050.73	356.44	2050.73	356.45	2050.73	357.11	2050.73
357.16	2050.73	357.2	2050.73	357.25	2050.73	357.29	2050.73	357.33	2050.73
357.35	2050.73	357.4	2050.73	357.43	2050.73	357.46	2050.73	357.5	2050.73
357.53	2050.73	357.55	2050.73	357.58	2050.73	357.61	2050.73	357.63	2050.73
357.66	2050.73	357.68	2050.73	357.7	2050.73	357.72	2050.73	357.74	2050.73
357.76	2050.73	357.78	2050.73	357.79	2050.73	357.81	2050.73	357.83	2050.73

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  357.84 2050.73  357.86 2050.73  357.87 2050.73  357.88 2050.73   357.9 2050.73
  359.45 2050.73  360.46  2050.7  373.02 2050.17  379.59 2049.86  388.94 2050.14
  390.39 2050.18  391.67 2050.22  392.93 2050.18  408.45 2049.64   414.2 2049.39
  422.25 2048.92   429.2 2049.06  431.08 2048.98  438.83 2048.76   442.7 2047.97
  444.44 2045.56  444.99 2044.76  448.39 2044.66     469 2044.04  471.13 2044.03
  474.44 2043.93  475.22 2043.94  488.75 2043.89  495.68 2043.87  508.53 2043.74
  513.43  2043.7  520.71 2043.83  529.75 2043.86  545.24 2043.72  552.95 2043.57
  558.95 2043.15  576.58 2042.93  602.58  2043.4  609.25 2043.36  619.08 2043.46
  622.33  2043.5  633.61 2043.54  648.98 2043.62  650.54 2043.57  664.53 2043.28
  665.05 2043.27  667.73 2043.24   681.1 2043.08  683.08 2043.59  686.33 2044.44
  689.79 2044.39  693.15 2044.32  698.92 2044.51  702.65 2044.62  706.55  2044.5
  711.51 2044.28  717.32 2044.03  719.43 2043.95  721.88 2043.63  721.95 2043.64
  731.69 2043.41   735.9 2043.42  736.35 2043.47  738.61 2044.39  742.08 2045.68
  742.79 2045.68  744.29 2045.68  745.23 2045.67  750.79 2045.61  757.142045.512
  758.54 2045.49  770.26 2045.43  786.66 2045.43  803.83 2045.46  806.14 2045.47
  806.62 2045.45  810.03 2045.31  820.62 2044.91  823.88 2044.66     832 2044.33
  834.11 2043.65  838.66  2041.7  846.17 2040.74  850.47 2040.26   854.7 2039.76
  863.96 2039.74  867.96 2039.73  877.98 2039.71  886.58  2039.1  890.31 2038.84
  898.95 2038.84   904.1 2038.94  909.42 2039.32  912.86 2039.52   927.6 2039.41
  935.51 2039.14  949.11 2039.06  960.96 2038.79  964.26 2038.64  966.67  2038.4
  970.62 2038.09  979.81 2038.35  980.29 2038.36   980.4 2038.38  983.61 2038.82
  988.22 2039.02  997.36 2039.38 1004.94  2039.4 1006.15  2039.4 1015.51 2039.26
 1017.36 2039.19 1026.94 2038.87 1028.77 2038.81 1030.44 2038.72 1034.22 2039.18
 1035.49 2039.31 1035.69 2039.31 1045.76 2039.12 1047.61 2039.11    1064 2038.92
 1065.84 2038.68 1071.89 2037.92 1074.21  2038.1 1075.59 2038.18 1077.86 2038.27
 1086.96 2038.56 1090.29 2038.82 1096.64 2039.31 1101.05 2039.39 1105.84 2039.49
 1109.81 2039.57 1117.91 2039.56 1123.19 2039.58 1130.23 2039.78 1137.82 2039.97
  1143.4 2039.62 1144.86 2039.54 1150.81 2039.34  1150.9 2039.33 1151.57 2039.34
 1162.47  2039.5 1165.11 2039.45 1175.32 2039.23 1184.09    2039 1191.05 2038.98
 1192.54 2039.06 1203.67 2038.53 1210.11  2038.3 1213.96 2038.18 1218.07 2038.17
 1224.43 2037.35 1226.62 2036.96 1239.57 2037.01 1246.77 2037.01  1261.6  2036.9
 1266.99 2036.94 1275.06 2038.03 1275.88 2038.17 1277.24 2038.19 1292.29 2038.44
 1295.52 2038.48 1302.18 2038.62 1307.37 2038.73 1316.79    2039 1320.92  2039.7
 1323.57 2040.28 1331.67 2040.44 1338.16 2040.62 1345.86 2040.86 1347.32 2040.92
 1350.712041.003 1356.73 2041.15  1361.6 2041.07 1381.95  2041.2 1385.47 2041.32
 1428.76 2041.82  1429.9 2041.83 1441.92 2041.87 1445.97  2041.9 1447.24 2041.91
 1452.71 2041.94 1462.87 2041.99 1471.38 2042.06 1474.67 2042.06 1478.77 2042.03
 1503.19 2041.84 1520.58 2041.82 1545.27 2041.68 1545.41 2041.68 1548.86 2041.91
 1549.09  2041.9 1550.89 2041.93 1570.01 2042.16 1580.74 2042.12 1596.31 2042.08
  1604.4 2042.16 1623.47 2042.27 1626.78  2042.3 1629.66 2042.32  1647.2 2042.23
 1649.66 2042.22 1651.33 2042.27 1655.12 2042.42  1656.7 2042.39 1658.34 2042.34
 1670.97 2041.98 1676.37 2041.68 1676.39 2041.68 1676.44 2041.68 1676.49 2041.68
  1681.3 2041.76 1682.84 2041.54 1684.67 2041.08 1687.69 2041.17 1691.75 2041.23
 1692.17 2041.24 1692.51 2041.26 1694.69 2041.37 1697.19 2041.43 1698.68 2041.46
 1699.69 2041.49 1704.27  2041.9 1709.15 2042.33 1711.56 2042.63 1712.66 2042.84
 1713.81 2042.98 1722.93  2043.6 1723.99 2043.63 1728.52 2043.71 1729.17 2043.67
 1729.82 2043.79 1737.18 2044.58 1740.28 2044.84 1745.81 2045.11 1748.44 2044.76
 1751.22 2043.93 1751.78 2043.78  1753.1 2043.66 1756.41 2042.94 1758.01 2042.93
 1760.95 2042.91 1773.31 2042.82 1775.55 2042.81 1779.39  2042.8 1779.66  2042.8
  1780.5  2042.8 1791.78 2042.26 1795.97 2042.14 1800.51    2042 1807.19 2041.77
 1808.66 2041.72 1812.75 2041.59  1818.2 2041.32 1820.99 2041.18 1824.05 2041.02
 1829.81 2040.96 1833.28 2040.87 1841.05 2040.81 1842.35 2040.79 1854.98 2041.06
 1857.55 2041.25 1859.81 2041.66  1862.7 2042.19 1867.12 2042.44 1867.78  2042.5
 1868.26 2042.53 1871.22  2042.5  1872.9 2042.54 1873.99  2042.4 1876.09 2042.25
 1877.61 2041.93 1877.76  2041.9 1878.97 2041.67 1882.69 2041.54 1886.63 2041.42
 1886.86 2041.41 1886.92 2041.42 1887.28 2041.41 1891.32 2042.09 1892.81 2041.96
 1892.93 2041.96  1893.1 2041.98 1893.23 2042.03  1897.4 2043.73 1897.79 2043.89
 1899.56 2043.99 1901.61 2044.17 1905.17 2044.29 1913.78 2043.97 1914.26 2043.94
 1916.99 2043.75 1920.11 2043.48 1922.37 2043.28 1924.53 2043.31 1929.82 2042.92
 1934.75 2042.67 1939.35 2042.55 1946.84 2042.07 1946.92 2042.06 1947.24 2042.03
 1960.57 2041.22  1970.1 2040.86 1973.18 2040.82 1973.92 2040.82 1984.73 2040.72
 1987.95 2040.73 1999.78 2040.79 2007.04  2040.8  2012.7 2040.71 2014.81 2040.68
 2024.54 2040.74 2033.77 2040.79 2037.98 2040.81 2046.07 2040.78 2053.85 2040.97
 2063.21 2041.08    2067 2041.08 2075.26 2041.19 2081.07 2041.29 2089.23 2041.35
 2098.26 2041.47 2108.62 2041.54  2112.8 2041.52 2127.49 2041.64 2136.15 2041.71
 2141.59 2041.91 2144.59 2042.01 2147.77 2042.11 2164.81 2042.47 2171.63 2043.27
 2173.65 2043.37 2184.59 2043.96 2184.74 2043.97 2184.85 2043.99  2192.5  2045.8
 2196.14 2046.44 2197.87 2046.81 2200.58 2047.22 2203.75 2047.85 2204.36 2047.86
 2209.45 2048.74 2211.94 2048.39 2213.94 2048.53 2233.03 2050.17 2244.83 2053.07
 2250.32 2053.76  2260.9 2055.66 2261.52 2055.74 2261.84 2055.78 2263.22 2056.02
 2283.81 2056.19 2292.13 2056.42 2301.34 2056.63 2310.48 2056.92 2328.39 2057.26
 2329.03 2057.27 2329.75  2057.3 2330.11 2057.31 2344.66 2058.07 2385.21    2059
 2430.26 2058.93 2449.51 2058.85 2476.84 2058.25 2512.56 2058.19 2526.49 2057.87
 2546.83 2058.17 2573.81 2057.88 2578.53  2057.9 2593.24 2057.77 2600.43 2057.63
 2608.05  2057.7 2620.81 2057.76 2639.57 2058.15  2650.9 2058.39 2666.65 2058.69
 2692.94 2059.27 2710.09 2059.65 2722.17 2060.08

Manning's n Values          num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13  757.14    .045  867.96    .035 1350.71    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        867.96 1350.71           101.01  106.04     114             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0  462.52               F
 1716.36 2722.17 2055.53       F
Right Levee     Station= 1712.95      Elevation= 2055.75
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Blocked Obstructions num= 1

Sta L	Sta R	Elev
1712.95	1791.45	2055.75

CROSS SECTION

RIVER: Hassayampa
REACH: 1 RS: 51.477

INPUT
Description:
Station Elevation Data num= 381

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2058.84	2.43	2058.74	5.53	2058.47	8.92	2058.22	10	2058.22
12.97	2058.22	14.3	2058.23	14.74	2058.22	14.93	2058.22	17.1	2058.17
44.6	2057.66	47.61	2057.65	70.3	2057.16	73.87	2057.08	74.42	2057.07
79.61	2057.09	81.44	2056.98	89.04	2056.79	95.91	2056.59	104.6	2056.27
107.72	2056.13	113.75	2055.99	122.62	2055.27	132.65	2054.98	144.37	2054.68
151.64	2054.44	156.83	2054.25	161.41	2054.18	167.26	2054.11	175.53	2053.83
178.95	2053.81	181.34	2053.82	197.08	2053.55	216.22	2053.04	219.43	2053.01
222.08	2053.04	240.72	2052.61	279.53	2051.25	290.71	2050.85	293.25	2050.83
299.26	2050.71	304.35	2050.67	322.3	2050.32	329.08	2050.3	347.77	2050.08
348.72	2050.06	363.25	2049.68	378.78	2049.38	380.64	2049.36	383.35	2049.3
391.97	2049.29	395.45	2049.27	411.61	2049.39	420.79	2049.36	423.55	2049.17
427.62	2048.83	439.94	2048.06	440.71	2047.98	445.61	2047.98	446.62	2047.98
462.73	2047.2	469.08	2047.09	472.26	2046.73	477.7	2045.94	488.89	2044.33
503.05	2044.05	505.83	2043.95	507.32	2043.94	513.58	2043.9	518.02	2043.82
533.95	2043.73	543.97	2043.62	546.2	2043.57	556.63	2043.53	565.24	2043.47
582.09	2043.37	601.27	2043.5	611.36	2043.44	620.16	2043.44	639.69	2043.43
643.59	2043.48	660.94	2043.19	670.65	2042.97	675.65	2042.97	678.31	2043.63
680.11	2044.09	685.02	2043.98	686.99	2043.95	688.79	2044	696.97	2044.26
706	2043.7	706.28	2043.69	707.75	2043.65	713.41	2043.5	713.86	2043.49
716.07	2043.41	716.81	2043.38	721.24	2043.2	722.13	2043.29	729.28	2043.92
736.32	2044.04	742.94	2044.2	749.56	2044.29	771.57	2044.36	777.26	2044.42
786.38	2044.31	796.91	2044.3	798.57	2044.26	800.67	2044.24	818.35	2044.21
819.82	2044.18	822.79	2044.13	830.82	2044.14	832.89	2044.16	847.17	2044.28
859.89	2044.2	861.07	2044.2	861.45	2044.2	862.37	2044.15	873.5	2043.91
877.96	2042.37	880.58	2041.58	881.23	2041.23	882.54	2040.6	887.15	2038.53
890.15	2038.57	891.42	2038.58	899.47	2038.89	903.28	2039.03	905.59	2039.11
910.85	2039.53	912.63	2039.68	914.94	2039.79	923.26	2040.15	929.09	2039.7
930.04	2039.61	932.19	2039.72	935.52	2039.91	939.6	2039.69	942.81	2039.51
943.55	2039.36	948.03	2038.56	949.16	2038.42	954.11	2037.87	962.09	2037.7
967.05	2037.58	969.7	2038.05	971.8	2038.37	975.62	2037.83	977.15	2037.61
980.75	2037.67	989.11	2037.78	994.33	2037.81	995.93	2037.8	999.33	2037.93
1002.99	2037.81	1003.8	2037.84	1010.32	2037.87	1016.29	2037.85	1020.73	2038.02
1021.01	2038.03	1021.24	2038.04	1030.31	2038.38	1030.43	2038.38	1031.63	2038.34
1033.65	2038.26	1034.48	2038.32	1041.12	2038.8	1045.5	2039.01	1046.97	2039.09
1049.24	2039.14	1055.95	2039.25	1061.6	2039.34	1066.74	2039.22	1075.55	2039.01
1084.12	2039.02	1090.09	2038.96	1112.14	2039.17	1112.89	2039.17	1113.19	2039.17
1115.02	2039.17	1129.38	2039.03	1134.5	2039.15	1142.77	2039	1145.32	2038.97
1157.5	2039.06	1157.66	2039.06	1158.03	2039.05	1169.95	2038.61	1174.33	2038.13
1178.3	2037.72	1180.78	2037.65	1184.47	2037.55	1187.34	2037.27	1191.99	2036.85
1197.54	2036.73	1204.45	2036.63	1206.24	2036.63	1206.97	2036.63	1209.89	2036.62
1210.95	2036.59	1215.38	2036.41	1218.21	2036.39	1233.53	2036.47	1239.32	2036.45
1243.93	2037.45	1244.09	2037.47	1244.58	2037.59	1246.59	2037.66	1260.42	2038.11
1267.74	2038.3	1270.99	2038.35	1280.63	2038.48	1280.84	2038.49	1281.37	2038.47
1287.94	2038.17	1295.34	2038.17	1301.05	2038.12	1305.57	2039.1	1309.01	2039.89
1313.082	2040.005	1313.25	2040.01	1314.47	2040.05	1315.75	2040.07	1320.94	2040.2
1322.49	2040.24	1323.12	2040.23	1335.76	2039.9	1346.67	2039.77	1351.11	2039.62
1355.58	2039.56	1374.1	2039.09	1385.07	2039.33	1395.32	2039.59	1405.08	2039.58
1408.95	2039.17	1414.09	2038.83	1414.93	2038.79	1423.27	2038.53	1426.36	2038.43
1426.73	2038.42	1448.77	2038.68	1451.61	2038.72	1453.71	2038.71	1458.11	2038.71
1464.92	2038.7	1481.37	2038.75	1491.35	2038.77	1504.12	2038.8	1514.91	2038.81
1528.93	2038.81	1530.03	2038.81	1531.23	2038.81	1542.56	2038.82	1554.41	2038.83
1568.77	2038.84	1574.47	2038.86	1576.43	2038.87	1593.89	2038.94	1606.27	2038.96
1614.02	2038.99	1625.78	2038.9	1630.05	2038.9	1632.11	2038.94	1638.77	2039.07
1645.02	2039.15	1648.83	2039.26	1658.57	2039.38	1662.79	2039.47	1667.55	2039.55
1677.06	2039.79	1684.16	2039.93	1693.17	2040.13	1693.48	2040.13	1694.55	2040.16
1699.36	2040.3	1704.11	2040.36	1712.06	2040.62	1721.3	2040.81	1727.96	2040.58
1749.26	2040.87	1750.96	2040.9	1751.43	2040.91	1771.83	2041.29	1777.68	2041.42
1791.45	2041.73	1802.27	2041.96	1807.23	2042.07	1818.96	2042.47	1828.75	2043.4
1837.66	2044.31	1848.3	2045.35	1859.62	2046.61	1871.6	2046.78	1903.91	2046.84
1905.09	2046.84	1905.24	2046.84	1905.57	2046.84	1923.14	2046.91	1947.92	2047.13
1949.98	2047.15	1952.85	2047.16	1973.15	2047.19	1978.51	2047.21	1984.09	2047.11
1999.18	2046.63	2016.61	2046.32	2019.7	2045.79	2021.87	2045.85	2023.98	2045.68
2024.58	2045.65	2025.3	2045.64	2038.56	2046	2039.63	2046.02	2039.96	2046.02
2040.16	2046.02	2040.91	2046.04	2044.43	2046.03	2047.59	2046.12	2061.95	2046.01
2061.97	2046.01	2061.99	2046.01	2062.03	2046.02	2064.14	2046.4	2064.35	2046.38
2065.16	2046.42	2073.3	2046.9	2074.82	2047.042	2075.52	2047.11	2079.23	2047.2
2087.87	2047.39	2092.02	2047.87	2099.27	2048.35	2100.05	2048.37	2102.36	2048.4
2111.34	2048.54	2115.74	2048.61	2122.14	2048.68	2122.57	2048.72	2129.94	2048.91
2136.04	2048.81	2152.41	2048.9	2154.16	2048.93	2173.4	2048.93	2174.54	2048.94
2174.62	2049	2195.89	2050.24	2199	2050.31	2203.03	2053.61	2203.14	2053.69
2212.9	2053.71	2219.22	2053.73	2235.04	2053.61	2239.1	2053.58	2241.18	2053.26
2241.54	2053.18	2242.28	2053.19	2248.63	2053.35	2252.02	2053.43	2252.63	2053.45
2258.21	2053.75	2259.26	2053.77	2260.75	2055.59	2261.06	2055.99	2261.26	2055.99
2267.962	2055.947	2273.74	2055.91	2280.58	2055.76	2299.82	2056.14	2358.37	2056.97

2371.85 2057.33 2434.1 2059.24 2461.03 2060.09 2465.77 2060.11 2471.64 2060.27
2488.83 2059.4 2494.62 2059.22 2513.27 2059.23 2530.3 2059.19 2552.74 2059.06
2563.13 2058.99

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.13	716.81	.045	890.15	.035	1313.08	.045	2074.8	.13
2267.96	.045								

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
890.15 1313.08 109.17 128.13 147.6 .3 .5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	540.9		F
1687.27	2563.13	2055.88	F

Right Levee Station= 1683.63 Elevation= 2056.09

Blocked Obstructions num= 1

Sta L	Sta R	Elev
1683.63	1762.13	2056.09

CROSS SECTION

RIVER: Hassayampa
REACH: 1 RS: 51.453

INPUT
Description:
Station Elevation Data num= 385

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2058.32	6.75	2058.14	11.8	2058.03	26.91	2057.78	27.72	2057.7
31.85	2057.64	43.19	2057.41	51.37	2057.48	54.95	2057.49	65.17	2057.35
70.38	2057.32	83.22	2057.1	84.76	2057.05	85.29	2057.03	98.09	2056
101.09	2055.94	108.33	2055.94	116.44	2055.55	118.06	2055.26	128.29	2054.73
137.37	2054.4	142.36	2054.36	157.56	2054.03	183.3	2053.29	184.67	2053.27
188.48	2053.08	200.16	2052.8	207.52	2052.67	209.55	2052.63	213.15	2052.57
229.65	2052.28	233.67	2052.2	238.49	2052.1	256.43	2051.49	264.94	2051.12
270.54	2050.83	272.82	2050.67	280.27	2050.38	282.94	2050.46	289.29	2050.25
313.62	2049.32	317.8	2049.17	320.11	2048.99	321.51	2048.99	321.72	2048.99
321.73	2048.99	321.75	2048.99	321.76	2048.99	321.77	2048.99	321.78	2048.99
322.35	2048.99	322.36	2048.99	322.38	2048.99	322.39	2048.99	322.59	2048.99
322.82	2048.99	323.02	2048.99	323.15	2048.99	323.19	2048.99	323.34	2048.99
323.47	2048.99	323.59	2048.99	323.69	2048.99	323.79	2048.99	323.87	2048.99
323.95	2048.99	324.02	2048.99	324.08	2048.99	324.14	2048.99	324.19	2048.99
324.24	2048.99	324.29	2048.99	324.33	2048.99	324.37	2048.99	324.4	2048.99
324.44	2048.99	324.47	2048.99	324.5	2048.99	324.52	2048.99	324.55	2048.99
324.57	2048.99	324.59	2048.99	324.61	2048.99	325.79	2048.99	325.99	2048.99
326.19	2048.98	348.38	2048.72	355.12	2048.47	377.01	2047.66	380.23	2047.63
391.68	2047.35	394.77	2047.41	403.26	2047.29	424.62	2046.93	430.6	2046.82
433.32	2046.81	443.28	2046.67	450.78	2046.6	457.81	2046.46	459.86	2043.97
460.17	2043.55	471.39	2043.99	471.41	2043.99	471.43	2043.99	471.47	2043.99
492.7	2043.49	498.11	2043.63	529.67	2043.59	570.95	2043.45	577.96	2043.52
594.5	2043.69	599.91	2043.51	609.37	2043.28	621.77	2043.22	626.76	2043.24
628.63	2043.53	631.42	2044.05	634.23	2043.96	637.64	2043.86	643.02	2044.07
647.03	2044.23	653.12	2043.96	656.86	2043.79	659.76	2043.68	664.92	2043.49
668.07	2043.31	668.85	2043.27	669.92	2043.35	678.54	2044.03	688.53	2044.36
691.45	2044.44	693.94	2044.46	721.6	2044.21	722.56	2044.21	746.58	2044.34
764.6	2044.16	769.49	2044.08	774.61	2044.04	778.42	2044.16	792.82	2044
797.11	2044.12	798.78	2044.22	804.92	2044.21	820.45	2044.02	826.71	2043.84
836.38	2043.34	853.85	2043.57	858.37	2043.64	860.94	2043.68	873.16	2043.79
883.06	2044.01	883.73	2044.06	887.24	2044.29	890.51	2044.51	891.03	2044.64
892.28	2044.63	894.812	042.818	895.17	2042.56	899.97	2040.14	902.35	2039.17
905.62	2037.6	910.77	2037.35	911.45	2037.28	912.76	2037.26	918.93	2037.21
924.49	2037.06	937.4	2036.9	949.36	2037.1	955.55	2037.27	956.56	2037.41
958.48	2037.67	960.15	2037.71	976.1	2038.09	984.92	2038.16	992.79	2038.25
994.78	2038.1	997.17	2037.91	1000.03	2037.99	1004.66	2038.12	1012.15	2038.39
1016.39	2038.47	1020.07	2038.51	1048.32	2038.6	1062.88	2038.55	1068.28	2038.53
1069.2	2038.39	1073.08	2037.83	1075.01	2037.58	1079.26	2036.98	1079.45	2036.94
1082.96	2036.46	1084.47	2036.5	1091.82	2036.76	1096.48	2036.55	1097.05	2036.55
1097.28	2036.56	1109.58	2036.67	1118.32	2036.73	1127.43	2036.9	1132.25	2036.68
1134.13	2036.63	1139.04	2036.51	1146.44	2036.33	1152.28	2036.26	1166.79	2036.01
1178.22	2036.04	1191.25	2036.15	1192.29	2036.17	1194.95	2036.2	1196.46	2036.67
1198.06	2037	1213.36	2037.17	1219.27	2037.24	1220.97	2037.28	1222.51	2037.29
1223.17	2037.29	1245.83	2037.4	1260.17	2037.41	1267.13	2037.3	1285.1	2036.95
1288.67	2036.88	1289.62	2036.86	1295.23	2037.21	1299.02	2037.45	1300.46	2037.47
1310.62	2037.61	1319.69	2037.74	1321.65	2037.78	1324.68	2037.79	1331.49	2037.86
1335.28	2037.84	1342.56	2038.56	1348.7	2039.18	1355.41	2039.31	1358.58	2039.4
1366.88	2039.5	1372.82	2039.62	1382.82	2039.82	1384.33	2039.84	1387.53	2039.91
1398.07	2040.5	1403.96	2040.73	1404.92	2040.75	1415.51	2040.7	1419.44	2040.7
1425.29	2040.7	1437.87	2040.7	1438.24	2040.7	1442.83	2040.66	1451.59	2040.62
1455.78	2040.41	1465.1	2040.06	1478.02	2039.07	1479.66	2038.92	1487.59	2039.03
1491.54	2039.09	1492.54	2039.47	1495.26	2040.55	1497.13	2041.55	1500.72	2042.93
1502.96	2044.78	1504.85	2046.64	1505.85	2047.52	1508.17	2047.64	1512.61	2047.87
1517.43	2048.17	1530.34	2047.96	1533.18	2047.96	1546.46	2047.62	1546.58	2047.61
1546.99	2047.59	1562.28	2046.46	1571.59	2046.2	1572.19	2046.19	1572.82	2046.79
1575.35	2049.23	1580.16	2053.86	1581.34	2055	1592.97	2055.75	1604.85	2056.51
1605.34	2056.36	1605.87	2056.2	1607.41	2055.73	1608.38	2055.43	1608.64	2055.43
1609.39	2055.43	1609.93	2055.65	1611.11	2056.12	1624.23	2056.38	1643.32	2056.75

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 1653.65 2056.76 1675.54 2056.68 1675.96 2056.51 1676.35 2056.36 1677.26 2055.98
 1677.97 2055.98 1678.27 2055.98 1678.27 2056.22 1680.72 2056.37 1682.28 2056.61
  1683.3 2056.77 1683.78 2056.14 1688.08 2050.38 1691.87 2045.93 1736.99 2045.91
1742.642045.929 1742.89 2045.93  1749.8 2045.97 1772.63 2046.11 1789.39 2046.39
 1794.94 2046.55 1796.93 2046.66 1804.33 2046.89 1807.18 2046.96 1817.54 2047.53
 1822.38 2047.73 1827.18 2047.96 1830.47 2048.14  1840.6 2048.52 1850.07 2048.74
 1862.14 2049.02 1878.49 2049.05 1901.65 2049.29 1910.25 2049.31 1931.75 2049.22
 1935.99 2049.19  1937.5 2049.19 1963.03 2049.18  1975.9 2049.04 1980.18 2048.86
 1986.92  2048.4 1988.82 2048.35  1992.6  2048.2 1997.02 2048.21 2005.79 2048.25
 2009.23 2048.28 2014.25  2048.3 2042.26 2048.62 2045.35 2048.67 2046.02  2048.8
 2046.31 2048.85 2047.44 2048.84 2060.54 2048.92 2061.17 2048.94 2061.33 2048.94
 2061.65 2048.95 2070.35 2049.12 2070.55 2049.13 2070.57 2049.13  2071.4 2048.95
 2076.24 2049.09  2090.4 2049.49 2094.76  2049.4 2096.45 2049.38 2100.11 2049.32
  2114.4  2049.1 2114.79 2049.26 2115.25 2049.48 2118.03 2049.59 2122.19 2049.86
 2127.71 2050.11 2129.57 2050.26 2132.69  2050.5 2139.46 2050.68 2153.79  2051.3
 2160.09 2051.46 2163.16 2051.15 2171.77 2051.18 2176.77 2051.27 2179.06  2051.3
 2205.81 2052.17 2217.62 2052.55 2219.36 2052.58  2220.3  2052.6 2223.82 2052.75
 2232.48 2053.05 2251.99 2053.87 2256.52 2054.04 2259.04 2054.16 2260.48 2054.23
 2261.48 2054.28 2265.09 2054.45    2286 2054.65 2295.59 2055.26 2313.73 2055.31

Manning's n Values         num=       5
     Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val
       0     .13  609.37    .045  894.81    .035 1425.29    .045 1742.64     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        894.81 1425.29           95.07   91.48   88.59             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0  581.72             F
 1684.85 2313.73 2057.21       F
Right Levee     Station= 1684.85      Elevation= 2057.21
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 1605.82 1684.32  2056.7

CROSS SECTION


RIVER: Hassayampa
REACH: 1                  RS: 51.436

INPUT
Description:
Station Elevation Data    num=     353
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
       0 2057.12     3.01 2057.14     9.58 2056.96    17.78 2057.54    22.91  2057.7
   24.05 2057.71    34.92 2057.76    42.48  2057.9    45.31 2057.82    54.34  2057.7
   82.77 2057.24    85.48 2055.82    85.61 2055.75    85.84 2055.74      102 2055.11
  105.36 2055.13   121.83 2054.75   126.08  2054.7   159.29 2053.98   160.62 2053.97
  166.95 2053.77   191.29 2052.48   194.26 2052.37   198.15 2052.11   198.83 2052.11
  200.64 2052.11   207.62 2052.11   216.25 2052.08   226.49 2051.46   227.41  2051.4
  233.44 2051.33   234.13 2051.34   270.57 2050.56   277.58 2050.42   285.02 2050.22
   290.2 2050.15   306.44 2049.63   308.98  2049.6   310.92 2048.85   312.05 2048.42
   331.4 2048.46   336.05 2048.49   336.93 2048.49   339.28 2048.49   341.51  2048.5
  361.74 2048.04   374.84 2047.74   385.01 2047.22   392.55 2047.04    398.1 2046.99
  403.99 2046.76   407.31 2046.63   412.09  2046.6   415.77 2046.63   438.78 2046.53
  443.44 2046.51   444.59 2046.52   448.96 2046.55   461.85 2046.45   462.47 2046.02
   464.2 2044.18   467.04 2044.23   468.33 2044.29   469.79  2044.4   475.38 2044.36
  491.53 2044.35   495.26 2044.42   501.04 2044.39   523.02 2044.07   549.29 2043.97
  559.92 2043.93   570.38 2043.74      590  2043.8   593.61 2043.79   600.35 2043.64
 609.972043.578   620.67 2043.51   625.52 2043.56   629.01 2044.11   629.97 2044.24
  633.44 2044.14   637.36 2044.01   646.98 2044.18   646.99 2044.18   656.53 2043.93
  660.25 2043.71   663.96 2043.55   667.74 2043.64   668.66 2043.66   669.98  2043.7
  680.89 2044.28    695.3 2044.34   697.87 2044.34   699.82 2044.33   722.94 2044.09
   723.7 2044.09   745.49 2044.08   757.59 2043.89    774.9 2043.89   783.59 2043.95
  794.81 2043.71   807.18  2043.4   817.09 2043.33   823.77 2043.27   827.09 2043.27
  838.32 2043.11   842.54 2043.04   848.03 2042.91   855.36    2043   857.68 2043.02
  863.43 2043.03   866.32 2043.02   874.51 2043.55   874.62 2043.56   889.93 2043.76
  889.94 2043.76   889.96 2043.76   890.02 2043.76   906.21 2044.24   907.79  2044.4
  911.16 2044.32   913.98 2044.48   915.36 2044.48   917.062043.504   918.13 2042.89
  919.36    2042   921.01 2041.41   929.51 2038.36   932.78 2037.27   933.74 2036.82
  934.33 2036.81   948.64 2036.58   963.99 2036.48   967.27 2036.47   968.62 2036.62
  972.12 2036.99   982.71 2037.34   987.05 2037.54    989.2  2037.6 1003.06 2037.95
 1008.07 2038.08 1010.82 2037.82 1014.57 2037.46 1024.56  2037.9 1025.85 2037.77
 1027.21 2037.66 1029.43 2037.42 1031.87 2037.36 1032.66 2037.19 1039.15 2036.73
 1040.85 2036.52 1047.02 2036.54 1059.38 2036.59 1070.68 2036.76  1074.7 2036.78
  1077.9 2036.48 1082.84 2036.03 1092.15 2036.26 1092.57 2036.27 1103.06  2036.5
 1111.43 2036.56 1127.23 2036.58 1132.53 2036.33 1136.52 2036.18 1139.66 2036.02
  1145.6 2035.64 1152.19  2035.5 1183.42 2035.68 1185.37 2035.71 1186.77 2035.72
 1187.84 2035.79    1194 2035.98 1205.97 2036.42 1209.41 2036.56 1210.75 2036.58
 1214.11 2036.63 1221.91 2036.71 1225.63 2036.76 1227.85 2036.84 1230.31 2036.94
 1234.27 2036.94 1235.64 2036.93 1237.23 2036.95  1238.8 2037.17 1243.95 2037.72
 1254.03  2038.1 1273.55 2038.75 1289.07  2039.4 1289.52 2039.42 1289.92 2039.43
 1310.61 2039.91 1316.44 2040.05 1316.55 2040.05 1335.03 2040.43 1337.17 2040.51
 1343.35 2040.46 1372.87 2040.29 1384.56 2039.72  1385.3 2039.69 1386.57 2039.78
 1388.55 2039.98 1392.65 2040.03 1395.43 2040.05 1397.36 2040.01 1399.29 2039.96
  1402.7 2039.94 1417.98 2039.84 1423.46 2039.86  1430.8 2039.92 1432.772039.886
  1441.8 2039.73 1444.49  2039.7 1451.04 2039.68 1451.51 2039.68 1453.62 2039.65
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 1456.01 2039.57 1463.64 2039.35 1468.97 2038.57 1473.15 2037.97 1477.71  2038.1
 1486.06 2038.14 1487.07 2038.25 1488.54 2038.51  1491.4 2040.55 1492.13 2040.99
 1495.85 2043.23 1496.97 2043.78 1501.07 2045.14 1502.66 2045.53 1507.28  2046.5
 1507.36 2046.53 1508.99 2046.64 1511.85 2046.82 1512.66 2046.87 1517.46 2046.35
 1517.99 2046.31 1518.92 2046.28 1530.73 2045.96 1537.32 2045.62 1538.42 2045.58
 1546.15 2052.99 1548.24    2055 1578.37 2056.28  1582.1 2056.44 1586.16 2056.64
 1587.21 2056.53 1587.28 2056.52 1587.35 2056.52 1588.41 2056.52 1589.69 2056.51
 1589.69 2056.16 1589.69 2055.56 1590.01 2055.56  1590.7 2055.56 1591.34 2055.82
 1592.42 2056.26 1610.43 2056.77 1624.68 2057.11 1652.54 2057.76 1656.93 2057.88
 1657.32 2057.72 1658.56 2057.22 1658.65 2057.18 1659.44 2057.18 1659.66 2057.18
 1664.48 2057.93  1664.7 2057.97 1664.91 2057.78 1672.14 2051.26 1678.94 2045.27
 1715.34 2045.42 1733.49 2045.47 1733.88 2045.36  1738.8 2045.38 1745.02 2045.41
 1760.96 2045.55    1765 2045.59 1769.12 2045.66 1789.89 2046.02 1792.98 2046.13
 1795.19 2046.23 1802.15 2046.77 1806.17 2047.08 1809.54 2047.47 1818.38 2048.43
 1821.32 2048.54 1832.86 2048.91 1853.79 2049.06 1877.46 2049.14  1901.9 2049.21
 1910.86 2049.26 1942.72 2049.23 1955.85 2049.32 1969.35 2049.42  1975.8 2049.45
  1990.2 2049.56 1996.18 2049.58  1997.5 2049.55 2005.56 2049.17 2006.93 2049.13
 2012.86 2048.94 2015.53 2048.91 2019.17 2048.93 2028.08 2048.72 2043.08 2048.58
 2055.18 2049.14 2056.53  2049.2 2066.22 2049.21 2069.32 2049.21 2070.05  2048.9
 2070.25 2048.81 2070.68 2048.81 2072.33 2048.83 2077.83 2049.14 2078.63 2049.22
 2080.62 2049.32 2089.71 2049.81 2091.08 2049.78 2092.62 2049.86 2096.78  2049.9
 2099.96 2049.96 2100.51 2049.96 2105.79 2050.02 2127.77 2050.74 2129.01 2050.77
 2129.53 2050.78 2129.86 2050.78 2129.99 2050.79 2131.38 2050.84 2159.49 2051.15
 2162.59 2051.18 2163.54 2051.19 2168.49 2051.24 2168.78 2051.24 2169.09 2051.39
 2169.91 2051.77 2170.67 2051.78 2173.47 2051.85  2179.2    2052 2179.26    2052
 2179.29    2052 2179.37    2052 2185.53 2052.44 2194.28 2052.96 2201.34 2053.02
  2207.7 2053.08 2215.48 2053.17 2234.27 2053.35 2247.45 2053.49 2262.29 2053.49
 2278.22 2053.79 2289.41 2054.07 2294.79 2054.24

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13  609.97    .045  917.06    .035 1432.77    .045 1586.16     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        917.06 1432.77             89.11   93.82   99.63              .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0  681.48              F
 1666.67 2294.79 2058.08        F
Right Levee     Station= 1666.67      Elevation= 2058.08
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 1587.18 1665.68  2057.7

CROSS SECTION


RIVER: Hassayampa
REACH: 1                  RS: 51.418

INPUT
Description:
Station Elevation Data    num=     372
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 2055.19    3.08 2055.04    7.95 2054.79    11.6 2054.61   21.61 2054.53
    32.1 2054.44   41.05 2054.32    46.9 2054.25   50.99  2054.2   61.18 2054.07
   64.63 2054.02   74.38 2053.87   91.63 2053.61    92.9 2053.61   94.38  2053.6
   95.86 2053.58    97.6 2053.55  110.63 2053.37  114.64 2053.29  120.26 2053.19
  126.41 2053.07  135.89 2052.88   141.9 2052.77  146.23 2052.71  151.23 2052.65
  153.55 2052.62  155.89 2052.85  157.89    2053  161.04 2052.88  163.04 2052.79
  167.62  2052.6  176.15  2052.2  176.22  2052.2  176.26  2052.2  176.43 2052.19
  182.87 2052.08  186.19 2052.12  194.82 2052.14  203.91 2052.28  207.08  2052.3
  208.39 2052.31  212.03 2052.28  220.36 2052.13  230.42 2051.88  239.31 2051.68
  243.25 2051.59  249.52 2051.46  254.15 2051.35  274.79 2050.89  281.87 2050.67
  289.02 2050.21  291.91 2049.98  293.04 2049.85  299.55 2049.64   334.5 2049.04
  336.84 2048.98   340.9 2048.87  341.95 2048.87  344.69 2048.87  348.55 2048.88
  351.07  2048.9  363.42  2048.9   366.5 2048.74  367.52 2048.81  373.08 2048.72
  377.17 2048.29  383.91 2047.72  391.96 2046.98  394.17 2046.89   403.7 2046.56
  413.42 2046.58  418.36 2046.48  423.91 2046.31  427.99 2046.26  431.19 2046.21
  433.69 2046.16  437.66 2046.17  442.77  2046.2  443.58  2046.2  446.91 2046.13
  448.58 2046.03  451.52 2045.87  456.23 2045.67  457.27 2045.61  458.78 2045.54
  467.78 2045.34  473.93  2045.3  482.37 2045.16  483.34 2045.15  483.49 2045.17
  484.68 2045.32  484.75 2045.35  492.46 2045.34   511.4 2045.39   520.8  2045.4
   536.5 2045.32  546.96  2045.3  554.41 2045.25  560.23  2045.2  563.28 2045.21
  569.42 2045.26  583.94 2045.26  598.53 2045.23  609.52 2045.11  617.43 2045.04
  625.94  2044.9  634.72 2044.69  635.53 2044.61  639.37 2044.59  645.05 2044.56
  652.79 2044.43  655.53 2044.38  656.48 2044.37  658.512044.368  664.82 2044.36
  668.22 2044.36  668.54 2044.36  687.42  2044.6  689.05 2044.64  689.42  2044.7
  690.35 2044.97  694.14 2045.63  697.05  2046.1  697.11  2046.1  697.15 2046.09
  700.95  2044.8  702.97 2044.77  706.12 2044.87  708.88 2044.85  715.14 2044.84
  719.14 2044.76  732.44 2044.69  733.35  2044.7  736.55 2044.71  739.13 2044.71
  743.43 2044.63  743.75  2044.6  744.18  2044.6   747.7 2044.58  747.72 2044.58
  747.86 2044.58  751.54 2044.75  754.43 2044.52  754.54 2044.51  754.81 2044.49
  757.08 2044.51  758.72 2044.56  758.94 2044.57  763.31 2044.35  765.95 2044.32
  767.29 2044.29  769.99 2044.24  787.07 2044.01  790.63 2043.96  791.25 2043.95
  791.57 2043.92  797.34 2043.36  808.95 2043.19  810.13 2043.17  810.52 2043.18
   811.3 2043.18  820.81 2043.21  826.38 2043.25  828.05 2043.24  830.77 2042.26
  836.03 2040.46  837.24 2040.44  839.59 2040.39  846.03 2040.41   855.4 2040.12
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859.13	2040.09	864.37	2040.14	879.59	2039.95	887.92	2039.83	893.05	2039.74
905.85	2039.55	917.96	2039.31	922.82	2039.1	927.72	2039.05	929.16	2038.89
932.62	2037.88	936.91	2036.6	938.852	2036.583	961.05	2036.39	962.24	2036.38
966.16	2036.34	973.71	2036.15	984.4	2035.87	986.6	2035.8	986.99	2035.9
990.12	2036.64	992.13	2036.64	996.76	2036.65	1000.78	2036.65	1001.86	2036.65
1002.69	2036.5	1006.69	2035.83	1016.54	2036.2	1017.01	2036.22	1029.73	2036.05
1030.89	2036.02	1031.63	2036.03	1039.33	2036.13	1049	2036.3	1061.41	2036.54
1066.2	2036.46	1087.66	2036.46	1089.99	2036.46	1091.45	2036.04	1094.39	2035.26
1096.44	2035.34	1106.77	2035.75	1114.6	2035.86	1130.39	2035.68	1139.42	2035.48
1141.77	2035.4	1153.21	2035.12	1157.3	2035.06	1166.19	2035.11	1196.18	2035.21
1203.08	2035.23	1205.46	2036.03	1205.97	2036.22	1208.78	2036.36	1210.58	2036.45
1213.22	2037.03	1214.71	2037.32	1218.09	2037.64	1221.82	2037.98	1232.48	2038.21
1241.04	2038.33	1247.2	2038.46	1259.48	2038.89	1264.53	2039.11	1288.43	2039.48
1296.71	2039.51	1299.44	2039.41	1305.58	2038.93	1319.2	2039.28	1323.02	2039.3
1326.57	2039.38	1335.53	2039.51	1339.83	2039.49	1352.09	2039.43	1356.11	2039.34
1363.21	2039.34	1380.41	2039.37	1390.94	2039.15	1397.95	2039.12	1406.63	2038.99
1428.94	2038.75	1431.99	2038.7	1438.78	2038.68	1447.88	2038.63	1460.35	2038.71
1466.83	2038.57	1474.57	2038.41	1475.68	2038.39	1478.792	2038.309	1481.08	2038.25
1491.05	2037.91	1496.38	2037.31	1497.08	2037.23	1498.76	2037.18	1502.38	2037.08
1508.46	2042.94	1520.96	2055	1530.65	2055.35	1542.83	2055.79	1561.16	2056.39
1564.59	2055.42	1564.97	2055.31	1565.45	2055.31	1566.06	2055.31	1566.81	2055.59
1567.31	2055.78	1567.92	2056.01	1594.78	2056.99	1600.06	2057.19	1605.68	2057.4
1638.9	2058.65	1641.31	2058.75	1641.74	2058.57	1642.26	2058.37	1643.08	2058.04
1643.64	2058.04	1644.12	2058.04	1645.74	2058.29	1649.3	2058.84	1651	2049.77
1651.83	2044.47	1653.29	2044.42	1654.02	2044.45	1675.02	2044.53	1677.4	2044.53
1679.83	2044.56	1694.5	2044.6	1729.91	2044.69	1740.7	2044.74	1768.84	2044.94
1796.88	2045.71	1806.36	2045.95	1818.04	2046.29	1833.4	2046.5	1835.73	2046.58
1838.67	2046.56	1849.75	2046.7	1863.71	2046.83	1870.72	2046.92	1875.65	2046.99
1882.1	2047.07	1904.2	2047.34	1911.37	2047.43	1914.55	2047.47	1928.91	2047.65
1932.57	2047.72	1933.91	2047.71	1944.93	2048.05	1968.53	2048.46	1969.87	2048.5
1969.99	2048.5	1970.16	2048.5	1970.37	2048.5	1970.67	2048.51	1971.14	2048.52
1971.97	2048.53	1999.03	2049.03	2002.4	2049.06	2006.74	2049.09	2008.92	2049.11
2009.22	2049.18	2010.27	2049.39	2015.6	2049.29	2019.51	2049.12	2019.65	2049.2
2019.96	2049.68	2020.47	2050.48	2022.11	2050.67	2025.03	2051.18	2025.55	2051.01
2025.81	2050.92	2031.98	2051.12	2040.5	2051.36	2042.6	2051.43	2043.41	2051.45
2043.93	2051.47	2045.07	2051.5	2050.81	2051.41	2067.9	2051.19	2069.59	2051.2
2082.53	2050.73	2090.81	2050.45	2091.21	2050.65	2091.29	2050.7	2091.63	2050.7
2096.58	2050.83	2111.58	2051.39	2135.43	2052.18	2156.04	2052.78	2159.38	2052.96
2191.57	2053.1	2194.2	2053.13	2254.39	2053.61	2257.72	2053.63	2260.8	2053.6
2265.95	2053.51	2268.94	2053.53	2280.45	2053.78	2296.62	2053.95	2298.57	2053.96
2303.79	2053.89	2307.16	2053.84						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.13	658.51	.045	938.85	.035	1478.79	.045	1911.37	.13

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

938.85	1478.79	100.22	106.21	113.28	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	779.64		F
1651.52	2307.16	2058.94	F

Right Levee Station= 1651.52 Elevation= 2058.94

Blocked Obstructions num= 1

Sta L	Sta R	Elev
1568.18	1646.68	2057.37

CROSS SECTION

RIVER: Hassayampa
REACH: 1 RS: 51.398

INPUT
Description:
Station Elevation Data num= 417

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2056.5	.34	2056.5	.94	2056.48	4.85	2056.47	37.99	2056.38
42.54	2056.37	74.43	2056.26	85.41	2056.07	135.47	2055.74	139.71	2055.64
141.8	2055.62	142.62	2055.6	151.63	2055.39	165.29	2055.15	167.53	2054.92
168.78	2054.7	172.26	2054.19	191.54	2053.96	198.98	2053.86	214.25	2053.73
216.11	2053.67	228.63	2052.24	240.31	2051.23	242.1	2051.15	243.75	2051.11
252.74	2050.77	262.9	2049.92	263.24	2049.87	263.74	2049.86	280.97	2049.6
283.72	2049.56	283.79	2049.55	283.83	2049.56	283.88	2049.55	291.68	2049.36
292.86	2049.34	294.44	2049.3	298.77	2049.2	300.85	2049.16	302.91	2049.12
305.55	2049.07	306.62	2049.05	308.7	2049.01	309.11	2049	310.23	2048.83
311.8	2048.6	313.49	2048.58	317.51	2048.53	320.39	2048.49	326.38	2048.42
331.45	2048.36	334.61	2048.32	337.46	2048.28	340.03	2048.25	344.34	2048.18
346.78	2048.15	350.96	2048.1	354.41	2048.05	378.92	2047.63	380.04	2047.61
380.9	2047.59	381.27	2047.59	381.6	2047.58	381.9	2047.58	382.17	2047.57
386.87	2047.49	407.27	2047.12	408.85	2047.08	410.66	2047.04	412.85	2046.99
414.97	2046.94	416.7	2046.9	417.54	2046.88	420.71	2046.8	432.2	2046.55
435.41	2046.47	442.34	2046.26	443.47	2046.24	447.24	2046.12	450.5	2046.02
451.01	2046.06	453.26	2046.27	455.14	2046.24	458.21	2046.19	460.16	2046.15
470.16	2045.98	470.59	2045.97	470.8	2045.96	470.92	2045.96	472.54	2045.94
479.74	2045.94	480.28	2045.95	494.74	2046.43	502.19	2046.61	506.06	2046.64
510.7	2046.49	517.1	2046.32	518.82	2046.41	523.27	2046.14	529.02	2045.44
530.17	2045.28	533.88	2045.09	537.02	2044.85	538.82	2044.84	541.69	2044.84

```
  542.75 2044.73  546.28 2044.83  552.63 2044.91  564.53  2044.8  564.86  2044.8
     565  2044.8  568.78 2044.82  575.23 2044.86   577.1 2044.82  577.43 2044.83
  578.72 2045.48  579.33 2045.65  580.58 2045.85  584.25 2046.37  586.36 2046.41
  591.77 2046.37   596.2 2046.37  599.37  2046.4  609.84 2046.31  611.34 2046.31
  613.16 2046.31  626.77 2045.95  636.82 2045.69  639.61 2045.61   649.2 2045.36
  653.05 2045.25  663.94 2045.27  668.91  2045.2  675.41  2045.2  682.35 2045.09
  688.25 2044.99  691.33 2044.98  699.83 2044.81  700.03 2044.81  700.54 2044.81
  708.12 2044.53  713.09 2044.31  713.58 2044.28  725.78 2043.73  726.32 2043.72
  734.09  2043.4  735.33 2043.38  742.91 2043.06  744.29 2043.04  744.862043.072
  749.71 2043.34  755.65  2043.2  759.05 2043.38  764.06 2043.24  769.35 2043.02
  769.83 2043.03   770.2 2043.01  772.06 2042.67  776.36 2041.73  777.53 2041.68
  778.82 2041.62  780.58 2041.54  780.84 2041.53  782.34 2041.52  798.88 2041.38
  803.55 2041.25  808.07 2041.19  816.82 2041.14  822.84    2041  833.94 2041.59
  839.47 2041.49  842.03 2041.39  847.06 2041.17  856.49 2040.79  858.77 2040.65
  871.11 2040.48  871.76 2040.46   871.9 2040.46  872.17 2040.44  880.95 2039.96
  891.56 2039.64  893.56 2039.46   895.1 2039.33  912.05 2037.81  919.36 2037.39
  932.15 2036.33  932.31 2036.31  935.812035.999     943 2035.36  950.42 2035.38
  958.99 2035.47  976.17 2035.34  990.46 2035.28  1005.1 2035.17  1005.2 2035.17
 1005.23 2035.17 1005.48 2035.17 1038.89    2035  1047.6 2035.09 1053.16 2035.18
 1055.69 2035.12 1070.41 2035.04 1075.34  2034.7 1089.74 2034.59 1099.44 2034.52
 1104.17 2034.49 1108.32 2034.51 1112.88 2034.51 1131.89 2034.49 1134.17 2034.96
  1135.1 2035.18 1135.96 2035.79 1137.04  2036.5 1141.91 2037.03 1143.72  2037.2
 1145.15 2037.23 1151.38 2037.32 1157.83 2038.04 1159.48 2038.21  1166.1 2038.21
  1172.4 2038.17 1177.19 2038.17 1187.38 2038.24 1202.31 2038.23 1215.53  2038.2
 1216.95  2038.2 1217.85  2038.2 1219.56  2038.2 1244.57 2038.16 1252.92 2037.94
 1255.26 2037.91 1266.69 2038.02 1276.26 2038.07 1298.83 2038.53 1299.01 2038.53
 1299.27 2038.53 1312.41 2038.19 1326.06 2037.75 1327.92 2037.67 1329.22 2037.62
 1331.66 2037.67 1343.79 2037.89 1356.71    2038 1362.23 2038.04  1368.3 2037.98
 1378.49 2037.88 1382.42 2037.84 1386.84 2037.78    1392  2037.7 1393.45 2037.64
 1394.95  2037.6 1401.73 2037.52  1406.1 2037.52 1409.692037.475 1411.69 2037.45
 1417.41 2037.37 1417.63 2037.37 1417.71 2037.44 1428.87  2048.6 1428.98 2048.64
  1432.3 2050.02 1448.56 2056.79 1471.35 2057.49 1476.15 2057.64 1478.23  2057.7
 1483.79 2057.88 1505.35 2058.57 1519.24 2059.01 1519.72 2058.86 1520.13 2058.72
 1521.37 2058.32 1521.69 2058.32 1522.48 2058.32 1522.61 2058.32 1522.61 2058.94
 1523.19 2058.39 1524.04 2058.51 1527.04 2058.92 1528.45 2059.11 1528.45 2059.28
 1528.45 2059.45 1528.89 2059.45 1530.78 2059.46 1548.25 2054.47 1566.03 2049.39
 1577.25 2046.18 1581.19    2045  1588.9 2042.71 1599.82 2042.98 1604.14    2043
  1626.9 2042.94 1637.52 2043.11  1653.6  2043.2 1658.67  2043.2 1659.58 2043.18
 1660.91 2043.16 1663.44 2043.13 1664.92 2043.11 1682.83  2043.1 1688.76 2043.11
 1693.76 2043.08 1697.09 2043.06 1698.26 2042.79 1698.69  2042.7 1702.39  2042.8
  1706.3  2042.9 1709.49 2042.98  1713.4 2043.09 1728.61 2043.47  1731.9 2043.56
 1734.38 2043.61 1736.31 2043.66 1739.47 2043.89 1752.09 2044.22 1759.74 2044.38
 1760.43 2044.41 1761.21 2044.45 1762.12  2044.5  1763.2 2044.56  1764.8 2044.65
 1788.37 2045.95 1791.66 2046.15 1794.42 2046.33 1797.56 2046.53 1802.93 2046.88
 1809.61 2047.31 1816.36 2047.74  1822.7 2048.14 1829.87 2048.59 1830.18 2048.69
 1831.26 2048.89 1832.31 2049.12 1833.32 2049.27 1835.19 2049.39 1835.61 2049.42
 1837.94 2049.46 1840.09 2049.49 1842.92  2049.6 1844.07 2049.67 1846.85 2049.78
 1850.46 2049.96 1854.48 2050.18 1857.98 2050.35 1861.37 2050.52 1864.41  2050.7
 1866.98 2051.01 1868.12 2051.08 1871.76 2051.28 1872.88 2051.35 1874.92 2051.48
 1876.76 2051.59 1885.47 2052.07 1887.11 2052.17 1888.39 2052.19 1890.19 2052.23
 1905.66 2052.82 1906.14 2052.83 1906.59 2052.84 1906.85 2052.85 1907.08 2052.86
 1912.49 2053.08 1921.97 2053.45  1922.2 2053.45 1922.41 2053.45 1922.64 2053.45
  1932.1 2053.52 1933.19 2053.54 1933.63 2053.54 1935.19 2053.55 1938.97 2053.58
 1942.69 2053.62 1943.06 2053.58 1944.09 2053.45 1945.13 2053.44 1947.54 2053.47
 1952.64 2053.41 1958.71 2053.29 1960.34 2053.36 1960.84 2053.37 1962.87 2053.43
 1970.69 2053.43 1974.36 2053.39  1976.6 2053.38 1979.94 2053.18 1981.72 2053.09
 1982.99 2053.25 1984.17 2053.25 1984.46 2053.11 1985.05 2052.92 1986.33 2052.85
 1987.73 2052.77 1992.97 2052.87 1993.942052.881 2004.72    2053 2024.88 2052.01
 2025.54 2051.99 2026.19 2051.96 2027.58 2051.88 2028.29 2052.22 2028.31 2052.22
 2028.45 2052.23 2032.97 2052.46 2035.13 2052.51 2054.19 2052.69 2073.92 2052.86
 2087.53 2052.94 2088.66  2052.9 2091.65 2052.81  2095.4  2052.7  2095.6 2052.68
 2096.16 2052.62 2097.83 2052.66 2105.48 2052.77 2121.35 2053.11 2121.63 2053.26
 2121.87 2053.38 2122.05 2053.38

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .13  744.86    .045  935.81    .035 1409.69    .045 1993.94     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        935.81 1409.69           165.24  123.39   26.09             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0  825.92             F
  1530.3 2122.05 2059.35       F
Right Levee     Station=  1530.3      Elevation= 2059.35
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 1433.85 1512.35 2057.47

CROSS SECTION


RIVER: Hassayampa
REACH: 1                 RS: 51.375

INPUT
Description:
Station Elevation Data    num=     315
```

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
734.968	2051.95	740.581	2052.09	742.274	2052.58	744.034	2052.8	746.377	2053.02
748.854	2052.81	750.967	2052.34	754.792	2052.08	755.213	2052.03	756.705	2051.99
765.962	2051.69	769.232	2051.82	774.626	2051.86	785.643	2051.69	787.833	2051.8
789.535	2051.89	792.356	2051.76	796.697	2052.01	799.662	2052	801.632	2052.18
801.795	2052.17	801.927	2052	802.005	2052	802.311	2052.19	809.12	2052.16
816.885	2051.78	819.964	2051.34	821.392	2051.168	821.39	2039	841.567	2036.01
845.756	2035.33	848.816	2034.88	856.868	2034.68	864.174	2034.53	865.494	2034.48
884.63	2034.46	890.482	2034.4	916.895	2034.2	939.721	2034.27	948.999	2034.25
979.132	2034.15	981.006	2034.19	985.099	2034.25	993.706	2034.37	998.373	2035.8
1001.117	2036.71	1017.298	2037.06	1017.719	2037.07	1018.809	2037.08	1046.322	2037.41
1054.881	2037.51	1067.292	2037.5	1078.788	2037.31	1080.567	2037.26	1084.488	2037.2
1086.668	2037.14	1093.286	2037.15	1096.25	2037.23	1109.046	2037.26	1120.76	2037.34
1124.318	2037.37	1127.11	2037.35	1133.403	2037.39	1151.496	2037.78	1155.379	2037.81
1160.667	2037.92	1176.953	2037.99	1181.964	2038.01	1185.617	2037.86	1193.583	2037.54
1196.232	2037.44	1207.861	2037.05	1211.696	2037.24	1217.204	2037.53	1228.756	2037.62
1233.614	2037.67	1237.084	2037.65	1245.472	2037.63	1248.408	2037.59	1255.102	2037.49
1257.015	2037.47	1261.098	2037.45	1261.194	2037.45	1261.242	2037.45	1261.471	2037.43
1264.426	2037.14	1265.459	2037.25	1267.046	2037.4	1273.53	2037.21	1275.376	2037.17
1277.135	2037.15	1280.358	2038.76	1283.151	2039.84	1292.15	2039.84	1292.152	2050.916
1292.369	2052.91	1292.387	2053.12	1292.398	2050.05	1292.417	2047.12	1292.436	2046.01
1292.503	2042.12	1292.58	2052.11	1292.589	2054.12	1292.647	2046.13	1292.647	2046.16
1292.666	2051.12	1292.714	2056.2	1292.723	2057.12	1292.733	2056.81	1292.8	2054.71
1292.867	2052.43	1292.876	2052.12	1292.886	2051.93	1292.962	2050.12	1293.048	2056.1
1293.048	2056.08	1293.192	2045.12	1293.297	2041.75	1293.307	2041.12	1293.316	2041.32
1293.402	2044.12	1293.632	2042.9	1294.139	2040.12	1294.387	2050.56	1294.483	2055.12
1294.932	2055.3	1295.678	2055.4	1298.777	2056.13	1300.278	2056.48	1306.963	2057.04
1307.144	2057.07	1307.938	2057.12	1310.319	2057.22	1311.132	2057.27	1312.997	2057.39
1317.205	2057.39	1318.658	2057.43	1320.494	2057.49	1322.694	2057.56	1325.333	2057.64
1329.004	2057.76	1331.348	2057.84	1336.885	2058.01	1337.765	2058.04	1340.395	2058.12
1344.077	2058.11	1346.515	2058.1	1352.091	2058.07	1355.151	2058.06	1365.573	2058.01
1366.272	2058.01	1366.76	2058.01	1368.721	2058	1369.36	2058.2	1371.953	2059
1375.807	2059	1381.832	2059	1381.994	2059	1384.806	2058.22	1385.561	2058
1387.617	2057.43	1389.119	2057	1390.391	2056.64	1392.667	2056	1393.135	2055.87
1394.656	2055.44	1395.727	2055.13	1396.167	2055	1398.223	2054.41	1399.619	2054
1400.786	2053.66	1403.042	2053	1403.406	2052.91	1404.678	2052.52	1405.988	2052.13
1406.418	2052	1408.627	2051.34	1409.765	2051	1411.401	2050.51	1413.103	2050
1414.279	2049.65	1416.45	2049	1417.224	2048.77	1419.787	2048	1420.227	2047.87
1423.135	2047	1423.286	2046.96	1425.018	2046.44	1426.328	2046.05	1426.482	2046
1429.331	2045.15	1429.819	2045	1432.353	2044.24	1433.166	2044	1435.404	2043.33
1436.513	2043	1441.132	2042.98	1452.579	2042.85	1456.223	2042.85	1468.521	2042.87
1483.554	2042.82	1486.815	2042.88	1491.73	2042.91	1511.889	2042.91	1515.523	2042.84
1520.821	2042.75	1528.108	2042.66	1528.49	2042.58	1529.342	2042.43	1532.976	2042.51
1538.388	2042.6	1551.346	2042.96	1555.181	2043.04	1556.568	2043.08	1557.648	2043.11
1558.509	2043.14	1559.207	2043.16	1560.068	2043.18	1568.072	2043.39	1583.268	2043.6
1584.798	2043.6	1588.814	2043.62	1590.995	2043.64	1593.548	2043.67	1604.22	2043.89
1607.711	2044.08	1611.727	2044.3	1616.404	2044.55	1621.922	2044.85	1629.964	2045.35
1630.031	2045.37	1630.069	2045.38	1630.308	2045.45	1631.982	2045.92	1634.755	2046.12
1635.855	2046.22	1638.265	2046.4	1639.795	2046.5	1641.306	2046.61	1642.444	2046.69
1644.825	2046.83	1645.533	2046.88	1646.068	2046.92	1649.387	2047.1	1652.657	2047.94
1658.28	2049.17	1658.414	2049.21	1658.443	2049.21	1658.519	2049.23	1664.573	2050.04
1666.772	2050.09	1668.618	2050.22	1675.972	2050.33	1677.368	2050.4	1680.935	2050.47
1682.569	2050.49	1682.934	2050.49	1683.163	2050.5	1688.633	2050.55	1690.106	2050.59
1705.149	2050.77	1706.926	2050.87	1707.836	2050.92	1708.563	2050.97	1712.254	2051.41
1723.357	2052.54	1726.712	2052.74	1730.577	2052.91	1755.871	2053.39	1757.382	2053.49
1758.644	2053.57	1760.356	2053.38	1760.959	2053.31	1763.541	2053.32	1765.731	2053.33
1767.05	2053.33	1772.213	2053.35	1780.964	2053.34	1784.971	2053.34	1787.946	2053.35
1792.746	2053.33	1794.544	2053.32	1806.42	2053.22	1814.386	2053.14	1817.276	2053.11
1819.695	2053.12	1824.934	2053.02	1825.634	2053.01	1825.748	2052.96	1826.446	2052.58
1842.139	2053	1842.675	2053.02	1842.694	2053.02	1842.723	2053.02	1842.75	2053.02
1842.818	2053.02	1842.838	2053.01	1842.981	2053.01	1863.102	2051.91	1863.771	2052.22
1863.972	2052.33	1866.868	2052.4	1869.126	2052.46	1870.436	2052.49	1872.703	2052.51
1917.19	2052.93	1922.22	2052.96	1927.536	2052.77	1928.991	2052.71	1929.439	2052.63
1929.919	2052.55	1935.695	2052.69	1937.339	2052.71	1938.143	2052.73	1953.549	2053.13

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
734.968	.045	821.39	.035	1292.15	.045	1937.339	.13

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

	821.39	1292.15		103.98	104.18	99.67	.3 .5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
734.968	821.39		F
1292.15	1953.549		F

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
734.968	821.39		1292.15	1953.549	

Skew Angle = 17

BRIDGE

RIVER: Hassayampa
REACH: 1 RS: 51.37

INPUT
Description:

```
Distance from Upstream XS =     6.7
Deck/Roadway Width        =   90.59
Weir Coefficient          =     2.6
Bridge Deck/Roadway Skew  =      17
Upstream  Deck/Roadway Coordinates
    num=       11
      Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord
   801.39 2056.23    2000   821.39 2056.23    2000   821.39 2056.23  2049.3
   915.54 2057.14 2050.25 1009.69 2057.91 2051.07 1103.84 2058.51 2051.71
  1197.99 2058.92 2052.18 1197.99 2058.92 2049.68 1292.15 2059.04  2049.4
  1292.15 2059.04    2000 1312.15 2059.04    2000

Upstream Bridge Cross Section Data
Station Elevation Data    num=     315
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  734.968 2051.95 740.581 2052.09 742.274 2052.58 744.034  2052.8 746.377 2053.02
  748.854 2052.81 750.967 2052.34 754.792 2052.08 755.213 2052.03 756.705 2051.99
  765.962 2051.69 769.232 2051.82 774.626 2051.86 785.643 2051.69 787.833  2051.8
  789.535 2051.89 792.356 2051.76 796.697 2052.01 799.662    2052 801.632 2052.18
  801.795 2052.17 801.927    2052 802.005    2052 802.311 2052.19  809.12 2052.16
  816.885 2051.78 819.964 2051.34  821.392051.168  821.39    2039 841.567 2036.01
  845.756 2035.33 848.816 2034.88 856.868 2034.68 864.174 2034.53 865.494 2034.48
   884.63 2034.46 890.482  2034.4 916.895  2034.2 939.721 2034.27 948.999 2034.25
  979.132 2034.15 981.006 2034.19 985.099 2034.25 993.706 2034.37 998.373  2035.8
 1001.117 2036.711017.298 2037.061017.719 2037.071018.809 2037.081046.322 2037.41
 1054.881 2037.511067.292  2037.51078.788 2037.311080.567 2037.261084.488  2037.2
 1086.668 2037.141093.286 2037.15 1096.25 2037.231109.046 2037.26 1120.76 2037.34
 1124.318 2037.37 1127.11 2037.351133.403 2037.391151.496 2037.781155.379 2037.81
 1160.667 2037.921176.953 2037.991181.964 2038.011185.617 2037.861193.583 2037.54
 1196.232 2037.441207.861 2037.051211.696 2037.241217.204 2037.531228.756 2037.62
 1233.614 2037.671237.084 2037.651245.472 2037.631248.408 2037.591255.102 2037.49
 1257.015 2037.471261.098 2037.451261.194 2037.451261.242 2037.451261.471 2037.43
 1264.426 2037.141265.459 2037.251267.046  2037.4 1273.53 2037.211275.376 2037.17
 1277.135 2037.151280.358 2038.761283.151 2039.84 1292.15 2039.84 1292.152050.916
 1292.369 2052.911292.387 2053.121292.398 2050.051292.417 2047.121292.436 2046.01
 1292.503 2042.12 1292.58 2052.111292.589 2054.121292.647 2046.131292.647 2046.16
 1292.666 2051.121292.714  2056.21292.723 2057.121292.733 2056.81  1292.8 2054.71
 1292.867 2052.431292.876 2052.121292.886 2051.931292.962 2050.121293.048  2056.1
 1293.048 2056.081293.192 2045.121293.297 2041.751293.307 2041.121293.316 2041.32
 1293.402 2044.121293.632  2042.91294.139 2040.121294.387 2050.561294.483 2055.12
 1294.932  2055.31295.678  2055.41298.777 2056.131300.278 2056.481306.963 2057.04
 1307.144 2057.071307.938 2057.121310.319 2057.221311.132 2057.271312.997 2057.39
 1317.205 2057.391318.658 2057.431320.494 2057.491322.694 2057.561325.333 2057.64
 1329.004 2057.761331.348 2057.841336.885 2058.011337.765 2058.041340.395 2058.12
 1344.077 2058.111346.515  2058.11352.091 2058.071355.151 2058.061365.573 2058.01
 1366.272 2058.01 1366.76 2058.011368.721    2058 1369.36  2058.21371.953    2059
 1375.807    20591381.832    20591381.994    20591384.806 2058.221385.561    2058
 1387.617 2057.431389.119    20571390.391 2056.641392.667    20561393.135 2055.87
 1394.656 2055.441395.727 2055.131396.167    20551398.223 2054.411399.619    2054
 1400.786 2053.661403.042    20531403.406  2052.91404.678 2052.521405.988 2052.13
 1406.418    20521408.627 2051.341409.765    20511411.401 2050.511413.103    2050
 1414.279 2049.65 1416.45    20491417.224 2048.771419.787    20481420.227 2047.87
 1423.135    20471423.286 2046.961425.018 2046.441426.328 2046.051426.482    2046
 1429.331 2045.151429.819    20451432.353 2044.241433.166    20441435.404 2043.33
 1436.513    20431441.132 2042.981452.579 2042.851456.223 2042.851468.521 2042.87
 1483.554 2042.821486.815 2042.88 1491.73 2042.911511.889 2042.911515.523 2042.84
 1520.821 2042.751528.108 2042.66 1528.49 2042.581529.342 2042.431532.976 2042.51
 1538.388  2042.61551.346 2042.961555.181 2043.041556.568 2043.081557.648 2043.11
 1558.509 2043.141559.207 2043.161560.068 2043.181568.072 2043.391583.268  2043.6
 1584.798  2043.61588.814 2043.621590.995 2043.641593.548 2043.67 1604.22 2043.89
 1607.711 2044.081611.727  2044.31616.404 2044.551621.922 2044.851629.964 2045.35
 1630.031 2045.371630.069 2045.381630.308 2045.451631.982 2045.921634.755 2046.12
 1635.855 2046.221638.265  2046.41639.795  2046.51641.306 2046.611642.444 2046.69
 1644.825 2046.831645.533 2046.881646.068 2046.921649.387  2047.11652.657 2047.94
  1658.28 2049.171658.414 2049.211658.443 2049.211658.519 2049.231664.573 2050.04
 1666.772 2050.091668.618 2050.221675.972 2050.331677.368  2050.41680.935 2050.47
 1682.569 2050.491682.934 2050.491683.163  2050.51688.633 2050.551690.106 2050.59
 1705.149 2050.771706.926 2050.871707.836 2050.921708.563 2050.971712.254 2051.41
 1723.357 2052.541726.712 2052.741730.577 2052.911755.871 2053.391757.382 2053.49
 1758.644 2053.571760.356 2053.381760.959 2053.311763.541 2053.321765.731 2053.33
  1767.05 2053.331772.213 2053.351780.964 2053.341784.971 2053.341787.946 2053.35
 1792.746 2053.331794.544 2053.32 1806.42 2053.221814.386 2053.141817.276 2053.11
 1819.695 2053.121824.934 2053.021825.634 2053.011825.748 2052.961826.446 2052.58
 1842.139    20531842.675 2053.021842.694 2053.021842.723 2053.02 1842.75 2053.02
 1842.818 2053.021842.838 2053.011842.981 2053.011863.102  2051.91863.771 2052.22
 1863.972 2052.331866.868  2052.41869.126 2052.461870.436 2052.491872.703 2052.51
  1917.19 2052.93 1922.22 2052.961927.536 2052.771928.991 2052.711929.439 2052.63
 1929.919 2052.551935.695 2052.691937.3392052.7171938.143 2052.731953.549 2053.13

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
  734.968    .045  821.39    .035 1292.15    .0451937.339     .13

Bank Sta: Left   Right    Coeff Contr.   Expan.
       821.39 1292.15            .3         .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 734.968  821.39               F
```

```
 1292.151953.549              F
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 734.968  821.39          1292.151953.549
Skew Angle = 17

Downstream  Deck/Roadway Coordinates
    num=      11
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
  801.39 2056.23    2000  821.39 2056.23    2000  821.39 2056.23  2049.3
  915.54 2057.14 2050.25 1009.69 2057.91 2051.07 1103.84 2058.51 2051.71
 1197.99 2058.92 2052.18 1197.99 2058.92 2049.68 1292.15 2059.04  2049.4
 1292.15 2059.04    2000 1312.15 2059.04    2000

Downstream Bridge Cross Section Data
Station Elevation Data    num=     293
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
 755.049 2052.18 756.456 2052.19  761.84  2052.1 762.634 2052.11 767.186    2052
 768.812 2052.16 770.179  2052.3 773.192  2052.6 777.103    2053 777.763 2053.09
 778.499 2053.19 780.641 2053.48 784.438    2054 786.178 2053.96 786.656 2053.97
 787.871 2053.95 793.312 2053.88 794.469 2053.86 796.812 2053.69 799.892 2053.61
 806.643 2053.08 808.967 2052.98 809.129 2052.89 810.908 2051.99 814.705 2052.02
 817.449 2052.02 818.147 2052.02 821.217 2052.04  821.392051.997  821.39 2039.09
 829.537 2039.09 835.858 2039.07 841.013 2038.74 851.895 2038.43 861.334 2037.96
 864.786 2037.85 867.694 2037.68 874.321 2037.48  883.53 2034.79 883.672 2034.74
 883.721 2034.74 900.026 2034.21 908.708 2033.98 916.331 2033.56 938.508 2033.52
 944.513 2033.56 958.695  2033.5     975 2033.47 987.633 2033.68 997.961 2033.84
1002.179 2034.211004.874 2034.45 1006.53 2034.551012.574 2034.821015.682 2035.33
1022.146 2036.091026.278 2036.231031.641 2036.511035.381 2036.491048.579 2036.52
1057.004 2036.481069.283 2036.57  1071.1 2036.571072.563 2036.581076.818  2036.6
1086.219 2036.641092.502 2036.671095.237 2036.361099.712 2035.921104.752 2035.96
1104.827 2035.961104.905 2035.961110.719 2036.331119.374 2036.481125.121 2036.57
1127.281 2036.511136.119 2036.311138.796 2036.241140.585 2036.211142.469  2036.3
1149.823 2036.671157.043 2036.481158.506 2036.441159.806 2036.521167.245 2036.94
1173.547 2037.191177.699 2037.191185.062 2037.011187.855    20371191.183 2036.99
 1193.86 2037.16 1195.41 2037.211196.165 2037.211210.003 2037.171211.303 2037.13
1213.818 2037.111227.895 2036.82 1233.92 2036.071235.374 2035.891238.529 2035.83
1241.838 2035.981244.765 2035.781245.166 2035.781246.046 2035.771248.972 2035.74
 1252.49 2035.751256.508 2036.421258.229 2036.67 1259.74 2036.611266.186 2036.33
1267.926 2036.251276.619 2036.111276.858  2036.11278.818 2036.011287.253 2035.66
1287.387 2035.651288.085 2035.61 1292.15 2040.27 1292.152042.1461294.129 2043.84
1303.864 2059.121310.319  2059.31318.563 2059.541320.112 2059.57 1336.34 2059.85
1337.679 2059.871340.299 2059.86 1342.04 2059.851343.905 2059.841350.063 2060.12
1354.921 2060.121356.853 2060.121357.035 2060.121357.637 2060.121359.808 2060.12
1362.428 2060.121364.282 2060.121366.062 2060.121366.625 2060.121366.856 2060.12
1367.984 2060.111373.474    20601374.239    20601375.319    20601376.065 2059.75
1378.236    20591378.332 2058.971381.162    20581382.071 2057.691384.079    2057
1384.527 2056.851386.613 2056.131386.919 2056.031386.996    20561389.186 2055.25
1389.903    20551391.423 2054.481392.799    20541393.623 2053.721395.688    2053
1395.784 2052.971396.071 2052.87 1397.84 2052.251398.538    20521399.915 2051.52
1401.379    20511402.019 2050.77 1403.97 2050.081404.142 2050.02  1404.2    2050
1406.265 2049.261406.992    20491408.484 2048.471409.784    20481410.768 2047.65
1412.577    20471413.112 2046.811415.369    20461415.513 2045.951416.507 2045.59
1417.884  2045.11418.162    20451420.237 2044.261420.954    20441422.609 2043.41
1423.747    2043 1424.99 2042.561426.539    2042 1427.39 2041.691429.331    2041
1431.081    20411434.906    20411435.375    20411437.737    20411441.132    2041
1445.483    20411448.027    20411452.503    20411458.642    20411458.862    2041
 1458.91    20411458.986    20411459.292    20411460.698    20411461.779    2041
1462.563    20411468.817 2041.391472.078  2041.61473.302 2041.671473.656 2041.69
1473.972 2041.721480.628 2042.111490.688 2041.991498.329 2041.871498.721  2042.1
1499.121 2042.321502.039 2042.651503.598 2042.84 1503.99 2042.891504.248 2042.92
1504.497 2042.971509.489  2044.11515.533 2044.611522.418 2045.111527.812 2045.39
1535.883 2045.751541.726 2045.971565.241  2046.21570.204 2046.261572.289  2046.3
1573.073  2046.31582.933 2046.431606.229 2046.771611.479 2046.821619.512 2047.05
 1627.64  2047.21628.377 2047.261644.863 2047.421649.788 2047.47 1651.28 2047.56
 1655.65 2047.831660.048 2047.931662.058    20481672.921 2048.311677.387  2048.5
1686.816 2048.841698.369 2049.38 1699.87 2049.461702.968 2048.041703.542 2047.72
1716.739 2047.68  1729.2 2047.621737.845 2047.621745.686 2047.651758.472 2047.65
1758.845 2047.651759.209 2047.651759.314 2047.941761.139  2052.61765.874 2052.59
1790.126 2052.391792.259 2052.341797.193 2052.231811.978 2051.96 1819.55  2051.9
1825.136 2051.771825.509 2051.76 1825.93 2051.761828.818  2051.81830.501 2051.82
1830.606 2051.771831.314 2051.471839.031 2051.771848.489 2052.221860.319 2051.79
1869.021 2051.541869.098 2051.581869.633 2051.911872.263 2052.021875.151 2052.14
1891.676 2052.181907.0822052.2881912.992 2052.33 1919.17 2052.411926.849 2052.48
1933.342 2052.411935.092 2052.481935.714 2052.261935.829 2052.211937.655 2052.25
1942.915 2052.391949.781 2052.511953.549 2052.52

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
 755.049    .045  821.39    .035 1292.15    .0451907.082     .13

Bank Sta: Left   Right    Coeff Contr.   Expan.
        821.39 1292.15            .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 755.049  821.39              F
 1292.151953.549             F
Blocked Obstructions     num=       2
```

```
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 755.049  821.39         1292.151953.549
Skew Angle = 17

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

Number of Abutments =  2

Abutment Data
Upstream     num=       3
     Sta    Elev     Sta    Elev     Sta    Elev
     805    2041  833.39    2041  883.39  1990.8
Downstream     num=       3
     Sta    Elev     Sta    Elev     Sta    Elev
  821.38  2039.3  843.39  2039.3  893.39    1989

Abutment Data
Upstream     num=       3
     Sta    Elev     Sta    Elev     Sta    Elev
 1240.15  1998.6 1290.15  2048.6    1300  2048.6
Downstream     num=       3
     Sta    Elev     Sta    Elev     Sta    Elev
 1240.15  1998.6 1290.15  2048.6    1300  2048.6

Number of Piers =  4

Pier Data
Pier Station     Upstream=  915.54    Downstream=  915.54
Upstream     num=       2
    Width   Elev    Width   Elev
      4.5    2000     4.5    2055
Downstream     num=       2
    Width   Elev    Width   Elev
      4.5    2000     4.5    2055

Pier Data
Pier Station     Upstream= 1009.69    Downstream= 1009.69
Upstream     num=       2
    Width   Elev    Width   Elev
      4.5    2000     4.5    2055
Downstream     num=       2
    Width   Elev    Width   Elev
      4.5    2000     4.5    2055

Pier Data
Pier Station     Upstream= 1103.84    Downstream= 1103.84
Upstream     num=       2
    Width   Elev    Width   Elev
      4.5    2000     4.5    2055
Downstream     num=       2
    Width   Elev    Width   Elev
      4.5    2000     4.5    2055

Pier Data
Pier Station     Upstream= 1197.99    Downstream= 1197.99
Upstream     num=       2
    Width   Elev    Width   Elev
      4.5    2000     4.5    2055
Downstream     num=       2
    Width   Elev    Width   Elev
      4.5    2000     4.5    2055

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
       Momentum               Cd   =     1.2
       Yarnell                KVal =      .9
Selected Low Flow Methods = Highest Energy Answer

High Flow Method
       Energy Only

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: Hassayampa
REACH: 1                    RS: 51.355

INPUT
Description:
Station Elevation Data    num=     293
      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
  755.049 2052.18 756.456 2052.19  761.84  2052.1 762.634 2052.11 767.186    2052
  768.812 2052.16 770.179  2052.3 773.192  2052.6 777.103    2053 777.763 2053.09
  778.499 2053.19 780.641 2053.48 784.438    2054 786.178 2053.96 786.656 2053.97
  787.871 2053.95 793.312 2053.88 794.469 2053.86 796.812 2053.69 799.892 2053.61
  806.643 2053.08 808.967 2052.98 809.129 2052.89 810.908 2051.99 814.705 2052.02
  817.449 2052.02 818.147 2052.02 821.217 2052.04  821.392051.997  821.39 2039.09
  829.537 2039.09 835.858 2039.07 841.013 2038.74 851.895 2038.43 861.334 2037.96
  864.786 2037.85 867.694 2037.68 874.321 2037.48  883.53 2034.79 883.672 2034.74
  883.721 2034.74 900.026 2034.21 908.708 2033.98 916.331 2033.56 938.508 2033.52
  944.513 2033.56 958.695  2033.5     975 2033.47 987.633 2033.68 997.961 2033.84
1002.179 2034.211004.874 2034.45 1006.53 2034.551012.574 2034.821015.682 2035.33
1022.146 2036.091026.278 2036.231031.641 2036.511035.381 2036.491048.579 2036.52
1057.004 2036.481069.283 2036.57  1071.1 2036.571072.563 2036.581076.818  2036.6
1086.219 2036.641092.502 2036.671095.237 2036.361099.712 2035.921104.752 2035.96
1104.827 2035.961104.905 2035.961110.719 2036.331119.374 2036.481125.121 2036.57
1127.281 2036.511136.119 2036.311138.796 2036.241140.585 2036.211142.469  2036.3
1149.823 2036.671157.043 2036.481158.506 2036.441159.806 2036.521167.245 2036.94
1173.547 2037.191177.699 2037.191185.062 2037.011187.855    20371191.183 2036.99
 1193.86 2037.16 1195.41 2037.211196.165 2037.211210.003 2037.171211.303 2037.13
1213.818 2037.111227.895 2036.82 1233.92 2036.071235.374 2035.891238.529 2035.83
1241.838 2035.981244.765 2035.781245.166 2035.781246.046 2035.771248.972 2035.74
 1252.49 2035.751256.508 2036.421258.229 2036.67 1259.74 2036.611266.186 2036.33
1267.926 2036.251276.619 2036.111276.858  2036.11278.818 2036.011287.253 2035.66
1287.387 2035.651288.085 2035.61 1292.15 2040.27 1292.152042.1461294.129 2043.84
1303.864 2059.121310.319  2059.31318.563 2059.541320.112 2059.57 1336.34 2059.85
1337.679 2059.871340.299 2059.86 1342.04 2059.851343.905 2059.841350.063 2060.12
1354.921 2060.121356.853 2060.121357.035 2060.121357.637 2060.121359.808 2060.12
1362.428 2060.121364.282 2060.121366.062 2060.121366.625 2060.121366.856 2060.12
1367.984 2060.111373.474    20601374.239    20601375.319    20601376.065 2059.75
1378.236    20591378.332 2058.971381.162    20581382.071 2057.691384.079    2057
1384.527 2056.851386.613 2056.131386.919 2056.031386.996    20561389.186 2055.25
1389.903    20551391.423 2054.481392.799    20541393.623 2053.721395.688    2053
1395.784 2052.971396.071 2052.87 1397.84 2052.251398.538    20521399.915 2051.52
1401.379    20511402.019 2050.77 1403.97 2050.081404.142 2050.02  1404.2    2050
1406.265 2049.261406.992    20491408.484 2048.471409.784    20481410.768 2047.65
1412.577    20471413.112 2046.811415.369    20461415.513 2045.951416.507 2045.59
1417.884  2045.11418.162    20451420.237 2044.261420.954    20441422.609 2043.41
1423.747    2043 1424.99 2042.561426.539    2042 1427.39 2041.691429.331    2041
1431.081    20411434.906    20411435.375    20411437.737    20411441.132    2041
1445.483    20411448.027    20411452.503    20411458.642    20411458.862    2041
 1458.91    20411458.986    20411459.292    20411460.698    20411461.779    2041
1462.563    20411468.817 2041.391472.078  2041.61473.302 2041.671473.656 2041.69
1473.972 2041.721480.628 2042.111490.688 2041.991498.329 2041.871498.721  2042.1
1499.121 2042.321502.039 2042.651503.598 2042.84 1503.99 2042.891504.248 2042.92
1504.497 2042.971509.489  2044.11515.533 2044.611522.418 2045.111527.812 2045.39
1535.883 2045.751541.726 2045.971565.241  2046.21570.204 2046.261572.289  2046.3
1573.073  2046.31582.933 2046.431606.229 2046.771611.479 2046.821619.512 2047.05
 1627.64  2047.21628.377 2047.261644.863 2047.421649.788 2047.47 1651.28 2047.56
 1655.65 2047.831660.048 2047.931662.058    20481672.921 2048.311677.387  2048.5
1686.816 2048.841698.369 2049.38 1699.87 2049.461702.968 2048.041703.542 2047.72
1716.739 2047.68  1729.2 2047.621737.845 2047.621745.686 2047.651758.472 2047.65
1758.845 2047.651759.209 2047.651759.314 2047.941761.139  2052.61765.874 2052.59
1790.126 2052.391792.259 2052.341797.193 2052.231811.978 2051.96 1819.55  2051.9
1825.136 2051.771825.509 2051.76 1825.93 2051.761828.818  2051.81830.501 2051.82
1830.606 2051.771831.314 2051.471839.031 2051.771848.489 2052.221860.319 2051.79
1869.021 2051.541869.098 2051.581869.633 2051.911872.263 2052.021875.151 2052.14
1891.676 2052.181907.0822052.2881912.992 2052.33 1919.17 2052.411926.849 2052.48
1933.342 2052.411935.092 2052.481935.714 2052.261935.829 2052.211937.655 2052.25
1942.915 2052.391949.781 2052.511953.549 2052.52

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
  755.049    .045  821.39    .035 1292.15    .0451907.082     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        821.39 1292.15              .44   53.32  183.12             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
 755.049  821.39               F
 1292.151953.549               F
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 755.049  821.39         1292.151953.549
Skew Angle = 17

CROSS SECTION


RIVER: Hassayampa
REACH: 1                    RS: 51.345
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INPUT
Description:
Station Elevation Data    num=     274
      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
  1009.13 2052.97   1009.7 2052.88 1010.13 2052.83 1013.26 2052.39 1016.72     2052
   1017.7 2052.12 1022.36 2052.66 1024.63 2052.93 1025.27     2053 1031.59     2054
  1032.94 2053.95 1033.38 2053.95  1039.1 2053.79 1041.65 2053.82 1049.26 2053.71
  1049.77 2053.71 1050.56 2053.65 1053.77 2053.49  1054.7 2053.46 1063.11 2052.85
  1064.65 2052.83  1066.8  2051.5 1067.952051.176 1070.96 2050.33 1071.92 2050.32
  1075.43 2049.07 1075.84     2049 1080.51 2048.24 1081.94     2048 1084.18 2047.63
  1085.18 2047.47 1086.16     2047 1088.12 2039.69 1088.27 2039.18 1089.96 2038.74
  1102.47 2038.34 1106.24 2038.11 1115.74 2037.69 1132.68  2037.1 1136.622036.723
  1138.84 2036.51 1150.76 2033.48 1151.06 2033.39 1152.41 2033.39 1163.26  2033.4
  1164.71 2033.36 1166.32 2033.35 1190.51 2033.35 1199.11 2033.39 1254.07 2033.21
  1256.24 2033.24 1261.29 2033.32 1286.57 2033.77 1287.17 2033.76 1288.19 2033.76
   1320.1 2034.27 1327.47 2035.23 1336.03 2035.78 1338.59 2035.88 1339.64 2035.98
  1359.52 2035.74 1375.34 2035.59 1382.57  2035.5 1385.12 2035.48 1414.53 2035.24
  1418.08 2035.21 1419.25 2035.19 1423.71 2035.16  1430.7 2035.11 1461.08 2034.77
  1467.47 2034.62 1475.59 2034.51 1478.33 2034.44 1479.92 2034.45  1481.5 2034.45
  1490.02 2034.41 1516.22 2034.06 1518.98 2034.27 1519.03 2034.28 1527.83  2033.7
   1529.9 2033.56 1530.57  2033.9 1532.41 2035.24 1534.66 2036.46 1543.25  2037.5
  1545.62037.858 1547.45 2038.14 1548.74  2039.1 1555.37 2045.53 1560.16 2050.45
  1562.23 2052.46 1568.19 2052.96 1571.86 2053.28 1579.25  2053.8 1583.66 2053.78
  1590.84 2053.69 1599.89 2053.48 1604.75 2053.41 1610.23 2053.32 1618.77 2053.19
  1619.33 2053.07 1620.22 2052.81  1631.2 2052.87 1635.75 2052.92 1636.84     2053
   1644.2 2053.77 1647.83 2054.16 1650.06 2054.41 1653.18 2054.77 1655.88 2055.07
  1658.86 2055.38 1660.69 2055.58 1664.69     2056  1665.8 2056.12 1666.23 2056.16
  1669.64 2056.51 1672.92 2056.83 1674.64     2057 1679.45 2055.13 1679.93 2054.66
  1684.12 2052.12 1684.38 2052.43 1685.96 2054.48 1687.83 2058.12 1688.45 2058.12
  1689.22 2057.97 1690.24 2057.68 1692.26 2057.12  1700.7 2057.12 1710.64 2056.63
  1713.62 2056.57 1715.68 2056.54 1723.41 2056.36 1725.09 2056.32 1733.51 2056.12
  1737.93 2056.03 1740.28 2055.98 1741.54 2055.94 1743.24 2055.88 1744.43 2055.83
  1748.36 2055.65 1758.45 2055.12 1761.952054.951 1762.38 2054.93 1770.11 2054.53
  1775.55 2054.26 1778.19 2054.12 1783.72 2054.12 1792.93 2053.69 1796.88 2053.77
  1797.96  2053.6  1798.9  2053.7 1800.12 2053.81 1801.26 2053.88 1801.88 2053.83
   1802.5 2053.83 1803.68 2051.88 1805.44 2051.57 1807.05 2051.63 1807.11  2051.7
  1808.66 2051.17  1808.8 2051.14 1809.55 2050.87 1810.07 2051.01 1811.21 2051.33
  1812.76 2051.75 1812.81 2051.74 1813.54 2051.93  1813.8  2051.8  1814.5 2051.96
  1817.39 2051.23 1817.96 2051.25 1819.14 2051.34 1820.88 2051.42 1822.42 2051.55
  1823.57  2051.6  1826.2 2051.84 1826.79     2052 1827.95     2052 1830.16 2051.82
  1831.37 2051.71 1834.48 2051.45 1837.19 2051.22 1838.21 2051.14  1840.2     2051
  1843.65 2050.99  1849.8 2050.99 1856.92 2050.94 1860.16 2050.93  1862.4 2050.92
  1864.68 2050.92 1873.58 2050.57  1876.6 2050.53 1885.77 2050.53 1888.62 2050.47
  1899.04 2050.22 1902.31 2050.22 1910.62 2049.94 1925.75 2049.97 1932.11  2049.9
  1940.95 2049.81 1943.33 2049.74     1949 2049.56 1952.65 2049.42 1956.13 2049.34
  1961.54 2049.28 1968.89 2049.09 1978.86 2049.06 1983.58 2048.99 2002.35 2048.94
  2007.18 2048.94 2026.87 2048.88 2029.46  2048.9 2072.69 2048.76 2074.41 2048.76
  2094.74 2048.69 2107.06 2048.66 2109.48 2048.66 2110.28 2048.62 2117.49 2048.48
   2118.9 2048.21 2125.21 2048.15 2133.75 2048.09 2141.42 2048.19  2146.4 2048.06
  2151.34 2048.06 2153.32 2048.08 2161.58 2048.09 2165.36 2048.11     2167 2048.14
  2167.68 2048.51 2168.05 2048.61 2171.83 2048.67 2174.31 2048.69 2177.06 2048.72
  2178.69 2048.69 2180.78 2048.72 2188.37  2048.8 2190.67 2048.83  2193.2 2048.86
  2196.57 2048.89 2199.27 2048.93 2202.36 2048.96 2206.31 2048.99 2208.41 2049.01
  2212.84 2049.02 2214.99 2049.03 2216.82 2049.05 2218.79 2049.05 2220.66 2049.07
  2223.45 2049.09  2228.1 2049.12 2231.66 2049.13 2235.42 2049.13 2240.87 2049.15
  2248.43 2049.15 2258.82 2049.17 2261.53 2049.17 2271.63 2049.15 2279.82 2049.14
  2287.73 2048.96  2290.8 2048.91 2292.39 2048.88 2293.58 2048.85 2298.98 2048.78
  2299.62 2048.74 2303.27 2048.72 2308.86 2048.74 2318.06 2048.76 2332.62 2048.97
  2333.29 2048.97 2341.95 2049.47  2353.8  2049.1 2361.17 2048.97

Manning's n Values        num=       4
     Sta   n Val      Sta   n Val      Sta   n Val      Sta   n Val
 1009.13    .045 1136.62    .035  1545.6    .045 1761.95     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       1067.95  1545.6            32.36   37.54   38.08             .3       .5
Blocked Obstructions      num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 1009.13    1083          1545.6 2361.17

CROSS SECTION


RIVER: Hassayampa
REACH: 1                  RS: 51.338

INPUT
Description:
Station Elevation Data    num=     245
      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
  1015.12 2053.04 1016.54 2053.06     1018 2053.07 1022.09 2053.05 1023.28 2053.06
  1024.82 2053.08 1029.59 2053.05   1030.1 2053.05 1030.62 2053.06 1034.43 2053.15
   1036.2 2053.16 1038.02 2053.18 1041.51 2053.25 1043.17 2053.26 1046.02 2053.32
  1047.36 2053.33 1048.73 2053.34     1050 2053.36  1052.4  2053.4 1054.59 2053.43
   1057.2 2053.52 1065.54 2053.58 1066.05  2053.5 1067.952053.506 1067.95  2038.7
   1088.2  2038.7 1088.65 2038.68 1143.75 2036.77 1143.832036.742 1152.01 2033.85
  1153.49 2033.41 1167.13 2033.43 1171.03 2033.44  1171.7 2033.43 1203.35  2033.1
```

```
 1207.97 2033.48 1241.24  2033.4 1250.93 2033.36 1260.56 2033.29 1277.94  2033.6
 1288.02 2033.52 1305.12 2033.44 1322.01 2033.72 1325.91 2034.22 1332.39 2034.64
 1335.65 2035.37  1340.6 2035.62  1345.2 2035.71 1352.09 2035.46 1375.92 2035.19
  1380.5 2035.11 1389.94 2035.37 1409.78 2035.21 1415.25 2035.55 1425.82 2035.52
 1452.94 2035.21 1464.47 2035.14 1466.73 2034.35 1473.86 2034.26 1484.63 2034.18
 1522.53 2034.11 1525.33  2034.1 1527.45 2033.96 1530.34 2033.76  1535.5 2033.42
  1545.6 2033.42  1545.62054.228 1545.89 2054.23 1546.14 2054.23 1547.11 2054.28
 1548.73 2054.27 1555.24 2054.31 1555.86  2054.3 1557.83  2054.3 1561.68 2054.29
 1561.86 2054.28 1564.14 2054.28 1566.11 2054.27 1566.24 2054.27 1567.28 2054.25
 1567.41 2054.25 1570.83  2054.2 1570.98  2054.2 1574.39 2054.14 1574.74 2054.14
 1578.07 2054.09 1578.46 2054.09 1583.34 2054.01 1584.22    2054 1589.27 2053.93
 1589.63 2053.93 1589.99 2053.92 1592.67 2053.91 1593.28 2053.91 1595.96 2053.89
 1598.45 2053.88 1599.06 2053.88 1599.59 2053.87 1605.99 2053.84  1606.5 2053.84
 1610.11 2053.82 1610.82 2053.82 1615.23  2053.8 1616.23 2053.79 1621.35 2053.77
  1621.6 2053.76 1623.65 2053.76 1625.79 2053.75 1626.11 2053.75  1628.7 2053.74
 1629.15 2053.74  1635.7 2053.72 1637.03 2053.72 1637.51  2053.7 1637.76 2053.69
 1645.83 2053.43 1646.14 2053.14 1646.36 2052.93 1646.59 2052.97 1648.94 2053.04
  1649.7 2053.06  1650.8 2053.06  1670.8 2052.88 1671.96 2052.89 1672.93 2052.89
 1673.12  2052.9 1674.45  2052.9 1678.59 2052.92 1690.18 2052.84 1694.54    2053
 1695.98 2053.12 1697.07 2053.21 1701.54 2053.58 1704.87 2053.84 1705.42 2053.89
 1706.85    2054 1708.79 2054.15 1709.87 2054.23 1713.13 2054.47 1715.37 2054.63
 1716.99 2054.74 1718.79 2054.86 1719.38 2054.89 1721.09    2055 1722.12 2052.97
 1722.27 2052.37  1722.3 2052.25 1723.12 2052.66 1723.53 2052.86 1724.86 2056.12
 1724.86  2053.5    1727 2056.12 1729.89 2056.12 1731.85  2055.8 1733.16 2055.66
 1734.01 2055.57 1735.14 2055.43 1735.62 2055.38 1735.86 2055.35 1737.89 2055.12
 1740.27 2055.12 1744.36 2054.71 1751.82 2054.39 1755.98 2054.17 1756.25 2054.16
 1757.87 2054.12 1763.63 2054.12    1766 2054.12 1771.24 2053.83 1772.76 2053.79
  1776.9 2053.69  1780.6 2053.61 1783.34 2053.54 1788.18 2053.42 1794.87 2053.25
 1795.65 2053.22 1799.35 2053.12 1802.47 2053.05 1803.06 2053.03 1803.98 2053.01
 1810.13 2052.82 1813.57 2052.74 1831.52 2052.12 1833.44 2052.12 1835.13 2052.07
 1836.02 2052.04 1842.52 2051.84 1850.64 2051.61 1851.53 2051.58 1865.48 2051.12
 1877.34 2051.12 1882.76 2050.79 1884.72 2050.76 1888.36 2050.71  1909.9 2050.12
 1932.25 2050.12  1933.4 2050.11 1933.42 2050.11 1934.09 2050.09 1936.52 2050.03
 1937.66 2050.02 1939.84 2049.98 1939.94 2049.98 1947.07  2049.9 1948.34 2049.89
  1950.8 2049.88 1989.35 2049.63    1992 2049.57 1993.76 2049.55 1994.83 2049.53
 1995.88 2049.52 1997.27  2049.5 1998.63 2049.49 2039.19 2049.19  2041.6 2049.19
 2042.38  2049.2 2044.84  2049.2  2092.9 2049.06 2094.93 2049.06 2095.14 2049.05
 2132.93 2049.11 2147.54  2049.1 2148.74  2049.1 2194.37 2049.03  2196.2 2049.05
 2210.36 2049.03 2211.08 2049.04 2211.82 2049.04 2212.57 2049.05 2213.34 2049.05
 2214.79 2049.06 2262.88 2049.17 2265.14 2049.18 2266.77 2049.18 2268.45 2049.19
 2270.17 2049.19 2271.93  2049.2 2275.41 2049.19 2316.78 2049.29 2321.12 2049.27
 2322.66 2049.26 2324.23 2049.25 2336.38 2049.24 2339.76 2049.22 2362.28 2048.64

Manning's n Values         num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
 1015.12    .045 1143.83    .035  1545.6    .045 1763.63     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       1067.95  1545.6              36.5   36.54   37.07             .3       .5
Blocked Obstructions      num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 1015.12    1083          1545.6 2362.28

BRIDGE


RIVER: Hassayampa
REACH: 1                  RS: 51.335

INPUT
Description:
Distance from Upstream XS =       .2
Deck/Roadway Width        =      36
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=       5
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
 1057.95 2058.35 2048.74 1067.95 2058.35 2048.74 1306.78 2059.15 2049.42
  1545.6 2058.59 2048.74  1555.6 2058.59 2048.74

Upstream Bridge Cross Section Data
Station Elevation Data    num=     245
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
 1015.12 2053.04 1016.54 2053.06    1018 2053.07 1022.09 2053.05 1023.28 2053.06
 1024.82 2053.08 1029.59 2053.05  1030.1 2053.05 1030.62 2053.06 1034.43 2053.15
  1036.2 2053.16 1038.02 2053.18 1041.51 2053.25 1043.17 2053.26 1046.02 2053.32
 1047.36 2053.33 1048.73 2053.34    1050 2053.36  1052.4  2053.4 1054.59 2053.43
  1057.2 2053.52 1065.54 2053.58 1066.05  2053.5 1067.952053.506 1067.95  2038.7
  1088.2  2038.7 1088.65 2038.68 1143.75 2036.77 1143.832036.742 1152.01 2033.85
 1153.49 2033.41 1167.13 2033.43 1171.03 2033.44  1171.7 2033.43 1203.35  2033.1
 1207.97 2033.48 1241.24  2033.4 1250.93 2033.36 1260.56 2033.29 1277.94  2033.6
 1288.02 2033.52 1305.12 2033.44 1322.01 2033.72 1325.91 2034.22 1332.39 2034.64
 1335.65 2035.37  1340.6 2035.62  1345.2 2035.71 1352.09 2035.46 1375.92 2035.19
  1380.5 2035.11 1389.94 2035.37 1409.78 2035.21 1415.25 2035.55 1425.82 2035.52
 1452.94 2035.21 1464.47 2035.14 1466.73 2034.35 1473.86 2034.26 1484.63 2034.18
 1522.53 2034.11 1525.33  2034.1 1527.45 2033.96 1530.34 2033.76  1535.5 2033.42
  1545.6 2033.42  1545.62054.228 1545.89 2054.23 1546.14 2054.23 1547.11 2054.28
 1548.73 2054.27 1555.24 2054.31 1555.86  2054.3 1557.83  2054.3 1561.68 2054.29
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1561.86	2054.28	1564.14	2054.28	1566.11	2054.27	1566.24	2054.27	1567.28	2054.25
1567.41	2054.25	1570.83	2054.2	1570.98	2054.2	1574.39	2054.14	1574.74	2054.14
1578.07	2054.09	1578.46	2054.09	1583.34	2054.01	1584.22	2054	1589.27	2053.93
1589.63	2053.93	1589.99	2053.92	1592.67	2053.91	1593.28	2053.91	1595.96	2053.89
1598.45	2053.88	1599.06	2053.88	1599.59	2053.87	1605.99	2053.84	1606.5	2053.84
1610.11	2053.82	1610.82	2053.82	1615.23	2053.8	1616.23	2053.79	1621.35	2053.77
1621.6	2053.76	1623.65	2053.76	1625.79	2053.75	1626.11	2053.75	1628.7	2053.74
1629.15	2053.74	1635.7	2053.72	1637.03	2053.72	1637.51	2053.7	1637.76	2053.69
1645.83	2053.43	1646.14	2053.14	1646.36	2052.93	1646.59	2052.97	1648.94	2053.04
1649.7	2053.06	1650.8	2053.06	1670.8	2052.88	1671.96	2052.89	1672.93	2052.89
1673.12	2052.9	1674.45	2052.9	1678.59	2052.92	1690.18	2052.84	1694.54	2053
1695.98	2053.12	1697.07	2053.21	1701.54	2053.58	1704.87	2053.84	1705.42	2053.89
1706.85	2054	1708.79	2054.15	1709.87	2054.23	1713.13	2054.47	1715.37	2054.63
1716.99	2054.74	1718.79	2054.86	1719.38	2054.89	1721.09	2055	1722.12	2052.97
1722.27	2052.37	1722.3	2052.25	1723.12	2052.66	1723.53	2052.86	1724.86	2056.12
1724.86	2053.5	1727	2056.12	1729.89	2056.12	1731.85	2055.8	1733.16	2055.66
1734.01	2055.57	1735.14	2055.43	1735.62	2055.38	1735.86	2055.35	1737.89	2055.12
1740.27	2055.12	1744.36	2054.71	1751.82	2054.39	1755.98	2054.17	1756.25	2054.16
1757.87	2054.12	1763.63	2054.12	1766	2054.12	1771.24	2053.83	1772.76	2053.79
1776.9	2053.69	1780.6	2053.61	1783.34	2053.54	1788.18	2053.42	1794.87	2053.25
1795.65	2053.22	1799.35	2053.12	1802.47	2053.05	1803.06	2053.03	1803.98	2053.01
1810.13	2052.82	1813.57	2052.74	1831.52	2052.12	1833.44	2052.12	1835.13	2052.07
1836.02	2052.04	1842.52	2051.84	1850.64	2051.61	1851.53	2051.58	1865.48	2051.12
1877.34	2051.12	1882.76	2050.79	1884.72	2050.76	1888.36	2050.71	1909.9	2050.12
1932.25	2050.12	1933.4	2050.11	1933.42	2050.11	1934.09	2050.09	1936.52	2050.03
1937.66	2050.02	1939.84	2049.98	1939.94	2049.98	1947.07	2049.9	1948.34	2049.89
1950.8	2049.88	1989.35	2049.63	1992	2049.57	1993.76	2049.55	1994.83	2049.53
1995.88	2049.52	1997.27	2049.5	1998.63	2049.49	2039.19	2049.19	2041.6	2049.19
2042.38	2049.2	2044.84	2049.2	2092.9	2049.06	2094.93	2049.06	2095.14	2049.05
2132.93	2049.11	2147.54	2049.1	2148.74	2049.1	2194.37	2049.03	2196.2	2049.05
2210.36	2049.03	2211.08	2049.04	2211.82	2049.04	2212.57	2049.05	2213.34	2049.05
2214.79	2049.06	2262.88	2049.17	2265.14	2049.18	2266.77	2049.18	2268.45	2049.19
2270.17	2049.19	2271.93	2049.2	2275.41	2049.19	2316.78	2049.29	2321.12	2049.27
2322.66	2049.26	2324.23	2049.25	2336.38	2049.24	2339.76	2049.22	2362.28	2048.64

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
1015.12	.045	1143.83	.035	1545.6	.045	1763.63	.13

Bank Sta: Left Right Coeff Contr. Expan.

1067.95	1545.6	.3	.5

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
1015.12	1083		1545.6	2362.28	

Downstream Deck/Roadway Coordinates

num= 5

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
1057.95	2058.35	2048.74	1067.95	2058.35	2048.74	1306.78	2059.15	2049.42
1545.6	2058.59	2048.74	1555.6	2058.59	2048.74			

Downstream Bridge Cross Section Data

Station Elevation Data num= 258

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1028.29	2052.91	1033.78	2052.94	1038.06	2052.98	1038.94	2052.98	1045.25	2053.03
1052.76	2053.08	1058.9	2053.13	1065.11	2053.17	1067.952053.189		1067.95	2041.42
1087.07	2038.23	1087.43	2038.11	1089.01	2038.19	1095.6	2038.1	1147.432037.031	
1147.46	2037.03	1151.55	2035.27	1154.78	2033.44	1161.8	2033.45	1177.5	2033.48
1178.5	2033.57	1202.02	2032.99	1207.71	2032.88	1212.49	2032.83	1222	2033.6
1227.13	2033.59	1246.42	2033.52	1265.58	2033.38	1268.47	2033.43	1287.76	2033.29
1320.52	2033.14	1322.8	2033.17	1323.32	2033.24	1324.19	2033.3	1330.73	2034.76
1340.63	2035.27	1349.85	2035.44	1363.64	2034.94	1367.64	2034.9	1377.14	2034.75
1396.74	2035.28	1399.92	2035.25	1411.22	2035.97	1433.04	2035.9	1437.15	2035.85
1461.08	2035.69	1465.78	2034.07	1466.74	2034.06	1489.11	2033.89	1495.28	2033.88
1500.74	2033.89	1527.9	2033.66	1530.4	2033.93	1533.09	2033.74	1539.89	2033.28
1540.23	2037.19	1540.33	2038.59	1545.6	2038.59	1545.62050.051		1546.18	2051.77
1546.8	2053.55	1549.06	2053.54	1550.64	2053.53	1553.05	2053.52	1555.02	2053.56
1557.41	2053.55	1557.69	2053.56	1560.07	2053.55	1561.83	2053.58	1564.18	2053.57
1565.11	2053.59	1572.07	2053.56	1574.57	2053.61	1575.49	2053.61	1580.27	2053.56
1581.18	2053.56	1583.57	2053.53	1588.37	2053.49	1591.18	2053.48	1593.58	2053.45
1598.41	2053.4	1601.04	2053.38	1603.81	2053.36	1606.47	2053.34	1611.74	2053.28
1616.97	2053.23	1621.02	2053.15	1626.24	2053.09	1628.56	2053.07	1630.92	2053.04
1633.38	2053	1635.7	2052.97	1638.05	2052.95	1642.84	2052.9	1645.09	2052.85
1649.9	2052.8	1651.61	2052.54	1656.49	2052.37	1657.81	2052.35	1660.16	2052.26
1662.7	2052.16	1665.35	2052.13	1667.6	2052.11	1670.17	2052.08	1674.2	2051.99
1675	2051.98	1676.55	2051.94	1682.15	2051.88	1682.47	2051.88	1691.38	2051.81
1699.93	2051.74	1700.27	2051.74	1700.91	2051.77	1709.38	2051.71	1709.85	2051.72
1711.25	2051.65	1719.26	2051.58	1720.65	2051.59	1733.92	2051.5	1735.08	2051.52
1736.06	2051.53	1742.13	2051.56	1744.4	2051.59	1747.98	2051.55	1752.22	2051.61
1756.14	2051.65	1764.34	2051.72	1766.51	2051.75	1767.45	2051.76	1769.62	2051.78
1771.192051.797		1773.34	2051.82	1775.66	2051.79	1780.94	2051.84	1782.6	2051.82
1787.27	2051.89	1787.83	2051.88	1791.91	2051.95	1795.19	2052	1795.46	2051.99
1799.49	2051.81	1799.72	2051.77	1800.68	2051.62	1802.73	2051.5	1803.22	2051.23
1804.95	2051.34	1806.39	2053.12	1806.98	2053.12	1808.68	2052.31	1810.31	2053.12
1819.38	2053.12	1822.75	2052.97	1822.87	2052.96	1825.01	2052.86	1825.38	2052.84
1827.37	2052.75	1827.54	2052.73	1829.51	2052.66	1829.72	2052.63	1832.21	2051.72
1833.01	2051.72	1837.53	2051.89	1838.75	2051.89	1844.44	2052.12	1846.8	2052.05
1846.99	2052	1851.86	2051.77	1852.3	2051.6	1853.45	2051.51	1855.21	2051.4

```
 1858.45 2051.26 1858.77  2051.2 1859.01 2051.12 1888.85 2051.12 1904.03 2050.31
 1904.93 2050.31  1906.3 2050.12 1929.26 2050.12 1929.58 2050.13 1937.88 2050.13
  1941.4 2050.26 1955.03  2050.2 1955.26  2050.2 1962.51  2050.1 1962.75  2050.1
 1968.58 2050.05 1970.52 2050.05    1976 2050.01 1982.06 2050.01 1984.26 2049.99
 1984.42 2049.99 1986.96 2050.24 1993.63 2050.18 1996.45 2050.16 1999.15 2050.13
 2002.38 2050.11 2005.44 2050.08  2010.5 2050.01 2016.73 2049.96 2022.08 2049.91
  2024.9 2049.84    2028 2049.77 2033.22 2049.65 2046.63 2049.49 2050.56 2049.41
 2052.61 2049.36 2054.55 2049.32 2058.12 2049.25 2071.58 2049.11 2074.77 2049.09
 2077.49 2049.07 2079.45 2049.06 2082.18 2049.05    2098 2048.87 2100.28 2048.86
  2102.4 2048.84 2117.85 2048.66 2119.47 2048.65 2120.25 2048.64 2121.79 2048.61
 2126.22 2048.54 2127.24 2048.35 2127.81 2048.08 2128.14 2048.09 2137.82 2048.06
 2148.55 2048.12  2149.9 2048.08  2157.2 2048.02 2166.17 2047.86 2171.54 2047.84
 2173.77 2047.82 2174.27 2047.84 2175.37 2048.03 2175.43 2048.05 2180.19 2048.35
 2181.49  2048.5 2182.37 2048.54 2182.98 2048.56 2190.83 2048.66 2201.69 2048.82
 2223.74 2048.89 2231.57 2048.91  2232.2 2048.92 2253.74 2048.99  2256.2 2048.98
 2263.41 2049.03 2274.79 2049.06 2280.44 2049.12 2292.77 2049.32 2308.82 2049.39
 2310.88 2049.46 2313.88 2049.47 2318.69 2049.41 2322.98 2049.42 2330.61 2049.43
 2340.23 2049.47 2349.84 2049.28 2362.27 2049.18

Manning's n Values         num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
 1028.29    .045 1147.43    .035  1545.6    .045 1771.19     .13

Bank Sta: Left   Right    Coeff Contr.   Expan.
       1067.95  1545.6            .3       .5
Ineffective Flow     num=       1
   Sta L   Sta R    Elev  Permanent
  1530.6  1545.6    2040       T
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev    Sta L   Sta R    Elev
 1028.29    1083          1545.6 2362.27

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

Number of Abutments =  1

Abutment Data
Upstream     num=       3
     Sta    Elev     Sta    Elev     Sta    Elev
 1067.95    2039 1101.45    2039 1105.45    2038
Downstream     num=       3
     Sta    Elev     Sta    Elev     Sta    Elev
 1067.95    2039 1090.55    2039 1094.55    2038

Number of Piers =  5

Pier Data
Pier Station     Upstream= 1146.78    Downstream= 1146.78
Upstream     num=       4
    Width   Elev    Width   Elev    Width   Elev    Width   Elev
        5 2022.47       3 2046.47       3 2046.97       3    2050
Downstream     num=       4
    Width   Elev    Width   Elev    Width   Elev    Width   Elev
        5 2022.97       3 2046.47       3 2046.97       3    2050

Pier Data
Pier Station     Upstream= 1226.78    Downstream= 1226.78
Upstream     num=       4
    Width   Elev    Width   Elev    Width   Elev    Width   Elev
        5  2022.7       3  2046.7       3  2047.2       3    2050
Downstream     num=       4
    Width   Elev    Width   Elev    Width   Elev    Width   Elev
        5  2022.7       3  2046.7       3  2047.2       3    2050

Pier Data
Pier Station     Upstream= 1306.78    Downstream= 1306.78
Upstream     num=       4
    Width   Elev    Width   Elev    Width   Elev    Width   Elev
        5 2022.92       3 2046.92       3 2047.42       3    2050
Downstream     num=       4
    Width   Elev    Width   Elev    Width   Elev    Width   Elev
        5 2022.92       3 2046.92       3 2047.42       3    2050

Pier Data
Pier Station     Upstream= 1386.78    Downstream= 1386.78
Upstream     num=       4
    Width   Elev    Width   Elev    Width   Elev    Width   Elev
        5 2022.47       3 2046.47       3 2046.97       3    2050
Downstream     num=       4
    Width   Elev    Width   Elev    Width   Elev    Width   Elev
        5 2022.97       3 2046.47       3 2046.97       3    2050
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Pier Data
Pier Station     Upstream= 1466.78    Downstream= 1466.78
Upstream     num=       4
    Width   Elev    Width   Elev    Width   Elev    Width   Elev
        5 2022.47       3 2046.47       3 2046.97       3    2050
Downstream     num=       4
    Width   Elev    Width   Elev    Width   Elev    Width   Elev
        5 2022.97       3 2046.47       3 2046.97       3    2050

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
       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 =      .8
           Max Low Cord                =

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: Hassayampa
REACH: 1                  RS: 51.331

INPUT
Description:
Station Elevation Data    num=     258
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
 1028.29 2052.91 1033.78 2052.94 1038.06 2052.98 1038.94 2052.98 1045.25 2053.03
 1052.76 2053.08  1058.9 2053.13 1065.11 2053.17 1067.952053.189 1067.95 2041.42
 1087.07 2038.23 1087.43 2038.11 1089.01 2038.19  1095.6  2038.1 1147.432037.031
 1147.46 2037.03 1151.55 2035.27 1154.78 2033.44  1161.8 2033.45  1177.5 2033.48
  1178.5 2033.57 1202.02 2032.99 1207.71 2032.88 1212.49 2032.83    1222  2033.6
 1227.13 2033.59 1246.42 2033.52 1265.58 2033.38 1268.47 2033.43 1287.76 2033.29
 1320.52 2033.14  1322.8 2033.17 1323.32 2033.24 1324.19  2033.3 1330.73 2034.76
 1340.63 2035.27 1349.85 2035.44 1363.64 2034.94 1367.64  2034.9 1377.14 2034.75
 1396.74 2035.28 1399.92 2035.25 1411.22 2035.97 1433.04  2035.9 1437.15 2035.85
 1461.08 2035.69 1465.78 2034.07 1466.74 2034.06 1489.11 2033.89 1495.28 2033.88
 1500.74 2033.89  1527.9 2033.66  1530.4 2033.93 1533.09 2033.74 1539.89 2033.28
 1540.23 2037.19 1540.33 2038.59  1545.6 2038.59  1545.622050.051 1546.18 2051.77
  1546.8 2053.55 1549.06 2053.54 1550.64 2053.53 1553.05 2053.52 1555.02 2053.56
 1557.41 2053.55 1557.69 2053.56 1560.07 2053.55 1561.83 2053.58 1564.18 2053.57
 1565.11 2053.59 1572.07 2053.56 1574.57 2053.61 1575.49 2053.61 1580.27 2053.56
 1581.18 2053.56 1583.57 2053.53 1588.37 2053.49 1591.18 2053.48 1593.58 2053.45
 1598.41  2053.4 1601.04 2053.38 1603.81 2053.36 1606.47 2053.34 1611.74 2053.28
 1616.97 2053.23 1621.02 2053.15 1626.24 2053.09 1628.56 2053.07 1630.92 2053.04
 1633.38    2053  1635.7 2052.97 1638.05 2052.95 1642.84  2052.9 1645.09 2052.85
  1649.9  2052.8 1651.61 2052.54 1656.49 2052.37 1657.81 2052.35 1660.16 2052.26
  1662.7 2052.16 1665.35 2052.13  1667.6 2052.11 1670.17 2052.08  1674.2 2051.99
    1675 2051.98 1676.55 2051.94 1682.15 2051.88 1682.47 2051.88 1691.38 2051.81
 1699.93 2051.74 1700.27 2051.74 1700.91 2051.77 1709.38 2051.71 1709.85 2051.72
 1711.25 2051.65 1719.26 2051.58 1720.65 2051.59 1733.92  2051.5 1735.08 2051.52
 1736.06 2051.53 1742.13 2051.56  1744.4 2051.59 1747.98 2051.55 1752.22 2051.61
 1756.14 2051.65 1764.34 2051.72 1766.51 2051.75 1767.45 2051.76 1769.62 2051.78
 1771.192051.797 1773.34 2051.82 1775.66 2051.79 1780.94 2051.84  1782.6 2051.82
 1787.27 2051.89 1787.83 2051.88 1791.91 2051.95 1795.19    2052 1795.46 2051.99
 1799.49 2051.81 1799.72 2051.77 1800.68 2051.62 1802.73  2051.5 1803.22 2051.23
 1804.95 2051.34 1806.39 2053.12 1806.98 2053.12 1808.68 2052.31 1810.31 2053.12
 1819.38 2053.12 1822.75 2052.97 1822.87 2052.96 1825.01 2052.86 1825.38 2052.84
 1827.37 2052.75 1827.54 2052.73 1829.51 2052.66 1829.72 2052.63 1832.21 2051.72
 1833.01 2051.72 1837.53 2051.89 1838.75 2051.89 1844.44 2052.12  1846.8 2052.05
 1846.99    2052 1851.86 2051.77  1852.3  2051.6 1853.45 2051.51 1855.21  2051.4
 1858.45 2051.26 1858.77  2051.2 1859.01 2051.12 1888.85 2051.12 1904.03 2050.31
 1904.93 2050.31  1906.3 2050.12 1929.26 2050.12 1929.58 2050.13 1937.88 2050.13
  1941.4 2050.26 1955.03  2050.2 1955.26  2050.2 1962.51  2050.1 1962.75  2050.1
 1968.58 2050.05 1970.52 2050.05    1976 2050.01 1982.06 2050.01 1984.26 2049.99
 1984.42 2049.99 1986.96 2050.24 1993.63 2050.18 1996.45 2050.16 1999.15 2050.13
 2002.38 2050.11 2005.44 2050.08  2010.5 2050.01 2016.73 2049.96 2022.08 2049.91
  2024.9 2049.84    2028 2049.77 2033.22 2049.65 2046.63 2049.49 2050.56 2049.41
 2052.61 2049.36 2054.55 2049.32 2058.12 2049.25 2071.58 2049.11 2074.77 2049.09
 2077.49 2049.07 2079.45 2049.06 2082.18 2049.05    2098 2048.87 2100.28 2048.86
  2102.4 2048.84 2117.85 2048.66 2119.47 2048.65 2120.25 2048.64 2121.79 2048.61
 2126.22 2048.54 2127.24 2048.35 2127.81 2048.08 2128.14 2048.09 2137.82 2048.06
 2148.55 2048.12  2149.9 2048.08  2157.2 2048.02 2166.17 2047.86 2171.54 2047.84
 2173.77 2047.82 2174.27 2047.84 2175.37 2048.03 2175.43 2048.05 2180.19 2048.35
 2181.49  2048.5 2182.37 2048.54 2182.98 2048.56 2190.83 2048.66 2201.69 2048.82
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2223.74 2048.89 2231.57 2048.91 2232.2 2048.92 2253.74 2048.99 2256.2 2048.98
2263.41 2049.03 2274.79 2049.06 2280.44 2049.12 2292.77 2049.32 2308.82 2049.39
2310.88 2049.46 2313.88 2049.47 2318.69 2049.41 2322.98 2049.42 2330.61 2049.43
2340.23 2049.47 2349.84 2049.28 2362.27 2049.18

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
1028.29	.045	1147.43	.035	1545.6	.045	1771.19	.13

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
1067.95 1545.6 170 143.98 107.97 .3 .5

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
1530.6	1545.6	2040	T

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
1028.29	1083		1545.6	2362.27	

CROSS SECTION

RIVER: Hassayampa
REACH: 1 RS: 51.303

INPUT
Description:
Station Elevation Data num= 335

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2056.49	1.19	2056.48	18.53	2056.37	19.6	2056.3	25.11	2056.26
59.25	2055.21	60.6	2055.18	60.88	2055.17	63.03	2055.11	96.98	2053.66
99.1	2053.84	100.83	2053.75	102.23	2053.72	107.14	2053.79	107.36	2053.78
108.04	2053.74	110.58	2053.62	111.75	2053.51	113.82	2053.44	118.76	2053.37
119.54	2053.17	119.7	2053.12	119.77	2053.1	125.77	2053.02	130.57	2052.95
147.31	2052.65	154.52	2052.53	157.37	2052.47	159.19	2052.44	167.09	2052.28
184.83	2051.66	187.35	2051.53	190.98	2051.42	196.14	2051.25	213.98	2050.68
214.57	2050.78	215.16	2050.88	217.21	2050.91	219.3	2050.94	223.34	2050.99
224.63	2050.63	226.79	2049.97	228.78	2049.24	232.48	2048.06	232.68	2048
232.91	2047.93	240.09	2045.87	249.18	2043.23	249.3	2043.22	249.58	2043.21
254.16	2043.09	255.79	2043.02	264.53	2042.84	289.51	2042.57	293.57	2042.53
295.64	2042.55	296.23	2042.54	302.95	2042.79	305.35	2042.36	309.04	2041.7
311.08	2042.01	313.75	2042.44	314.07	2042.5	319.64	2042.6	324.32	2042.74
333.52	2042.97	335.67	2043.12	337.09	2042.98	340.36	2042.49	342.53	2042.22
343.47	2042.13	352.28	2041.17	354.53	2040.65	357.76	2039.84	359.47	2039.74
365.88	2039.66	377.29	2039.42	389.6	2039.22	394.9	2039.2	396.47	2039.26
407.53	2039.63	418.39	2039.69	419.59	2039.73	420.47	2039.71	441.14	2039.47
450.78	2039.4	461.29	2039.39	463.18	2039.36	490.21	2039.35	500.45	2039.38
506.97	2039.24	534.32	2038.85	560.62	2038.63	566.28	2038.43	571.85	2038.19
584.87	2037.88	585.83	2037.86	588.31	2037.83	606.1	2037.67	623.47	2037.38
635.11	2037.2	638.36	2037.14	661.31	2037.12	665.24	2037.15	668.46	2037.13
684.36	2037	695.43	2036.79	722.38	2036.98	733	2037.04	750.18	2037.11
769.78	2037.14	778.01	2037.13	800.92	2037.01	838.2	2036.99	846.4	2036.98
849.74	2036.98	850.65	2036.97	861.4	2036.76	862.45	2036.76	877.84	2036.61
879.08	2036.61	890.33	2036.6	914.34	2036.61	921.49	2036.63	927.86	2036.67
956.13	2036.83	960.23	2036.9	964.61	2036.91	968.98	2037	973.26	2037.06
979.1	2036.99	984.54	2036.99	987.91	2037.1	992.97	2037.22	1003.15	2037.27
1004.46	2037.28	1005.65	2037.28	1033.74	2037.36	1048.83	2037.4	1055.56	2037.37
1059.4	2037.3	1065.74	2037.18	1070.76	2037.13	1076.14	2037.12	1088.11	2037.08
1092.5	2037.08	1100.58	2037.04	1110.24	2037.02	1113.92	2037.02	1114.74	2037.02
1118.2	2037.02	1120.34	2036.86	1122.71	2036.68	1124.12	2036.13	1129.07	2034.34
1136.14	2033.2	1139.46	2032.68	1144.57	2032.69	1149.81	2032.58	1156.57	2032.55
1156.62	2032.549	1169.41	2032.22	1172.95	2032.12	1192.3	2032.57	1196.46	2032.63
1203.63	2032.64	1207.76	2032.66	1213.44	2032.79	1213.61	2032.79	1213.78	2032.79
1232.27	2032.75	1237.98	2032.95	1244.69	2033.18	1255.15	2033.08	1279.2	2032.85
1284.06	2032.8	1286.07	2032.79	1306.89	2032.67	1307.17	2032.67	1307.55	2032.66
1324.06	2032.33	1326.56	2032.16	1328.67	2032.04	1338.32	2032.1	1339.77	2032.11
1340.48	2032.31	1350.21	2034.78	1352.44	2034.85	1359.12	2035	1364.54	2035.11
1368.36	2035.1	1375.49	2035.07	1380.462	2034.876	1380.87	2034.86	1387.67	2034.54
1390.08	2034.43	1392.37	2034.34	1396.82	2034.33	1401.52	2034.32	1404.22	2034.19
1414.42	2034	1417.76	2033.97	1421.69	2033.94	1430.64	2033.89	1432.95	2034.08
1435.86	2034.21	1443.01	2034.08	1443.67	2034.06	1444.95	2033.92	1449.19	2033.53
1449.45	2033.45	1455.02	2032.35	1459.37	2032.44	1462.79	2032.51	1470.83	2032.67
1480.32	2032.85	1486.71	2032.93	1490.98	2033	1496.86	2034.74	1505.042	2037.037
1515.66	2040.02	1524.37	2040.58	1525.77	2040.7	1527.54	2040.8	1529.21	2040.9
1536.97	2041.35	1540.87	2042.02	1549.38	2042.88	1550.61	2043.11	1556.97	2044.23
1563.19	2045.47	1565.25	2045.95	1570.05	2046.66	1574.1	2047.22	1581.4	2047.84
1584.64	2048.12	1587.29	2048.29	1594.4	2048.75	1607.31	2048.83	1614.83	2049.03
1624.06	2049.26	1641.38	2049.8	1649.32	2049.93	1655.91	2050.01	1663.75	2050.07
1684.72	2050.2	1695.18	2050.31	1712.47	2050.41	1720.272	2050.608	1724.3	2050.71
1730.8	2050.86	1734.78	2050.91	1735.32	2050.92	1735.91	2050.51	1736.06	2050.41
1736.08	2050.4	1736.34	2050.41	1752.87	2051.18	1767.5	2050.66	1770.57	2050.56
1771.24	2050.91	1771.56	2051.08	1773.4	2051.22	1775.39	2051.37	1781.8	2051.58
1783.16	2051.62	1784.57	2051.81	1799.84	2051.78	1801.21	2051.79	1803.53	2051.8
1838.33	2051.75	1841.13	2051.73	1847.42	2051.69	1857.15	2051.58	1887.47	2051.6
1893.7	2051.6	1901.08	2051.61	1904.82	2051.57	1906.24	2051.58	1927.71	2050.84
1940.01	2050.46	1960.21	2050.21	1966.25	2050.15	1990.57	2049.78	1995.69	2049.67
2005.25	2049.46	2009.88	2049.34	2018.84	2049.03	2032.35	2048.47	2044.77	2048.14
2070.71	2047.18	2077.62	2046.83	2086.96	2046.64	2090.52	2046.59	2093.84	2046.5
2104.91	2046.11	2107.79	2045.87	2112.19	2045.48	2112.84	2045.3	2113.13	2045.21

```
 2116.92 2045.33 2124.27 2045.55 2133.13 2045.82 2140.11 2045.62  2146.5 2045.47
 2152.85 2045.32 2153.47 2045.74  2153.6 2045.83 2155.13 2045.84  2162.6 2045.88
 2168.01 2046.11 2171.41 2046.27  2173.9 2046.37 2176.22 2046.46  2185.4 2046.71
  2201.1  2047.1 2211.55 2047.06  2231.3 2047.21 2236.56 2047.36  2243.8 2047.76
 2244.51 2047.61 2254.23 2047.89 2261.84 2048.21 2264.13 2048.48 2265.62 2048.55
 2268.24 2048.74 2268.73 2048.77 2277.46  2049.2  2279.1 2049.29 2286.41 2049.73
 2299.49 2050.12 2302.38 2050.21 2304.58 2050.25 2327.06 2050.68 2332.71 2050.59

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0    .045  1156.6    .035 1380.46    .045 1720.27     .13

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       1113.92 1505.04           145.69  151.69  140.05             .3      .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev  Permanent
       0  983.07 2056.36        F
 1562.22 2332.71 2056.36        F

CROSS SECTION


RIVER: Hassayampa
REACH: 1                  RS: 51.275

INPUT
Description:
Station Elevation Data    num=     334
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0 2059.07   15.95 2058.58   21.34  2058.4   30.44  2058.1   34.51 2057.97
   35.22 2058.44    35.3 2058.45   38.69 2058.37   41.33 2058.63   47.31 2058.56
   47.86 2058.56   48.01 2058.56    48.8 2058.55   51.96 2058.48   54.57 2058.41
   57.03 2058.34   63.36 2058.24   66.08 2058.18   74.46 2057.97   79.09 2057.89
   87.83 2057.61   89.73 2057.46  101.04 2057.29  103.05  2057.3  107.37 2057.27
  123.33 2057.04  138.22 2056.85  152.44 2056.73  174.32 2056.37  195.84 2055.72
   210.9 2055.26  220.85    2055  233.48 2054.72  235.42 2054.57  243.42 2054.24
  265.06  2041.3  265.52 2041.03  266.16 2041.01  275.09 2040.92  279.62 2040.98
  294.28 2041.23  306.12 2041.24   307.2 2041.25   308.9 2041.23  329.39 2041.16
  334.08 2041.11  354.64 2040.62  355.42  2040.6  359.43 2040.54  361.97 2040.44
  368.22 2040.31  371.03 2040.23  372.91 2040.39  374.28 2040.58  378.25 2041.13
  378.63 2041.14  379.43 2041.13  384.02 2041.09  386.39    2041   390.9 2040.04
  392.14 2039.78  393.99 2039.38  397.52 2039.47   399.4 2039.49  403.44 2039.55
  405.22 2039.58  407.66 2039.34   410.4 2039.22  411.73 2039.02  421.39 2039.07
  431.84 2039.06  433.47 2039.07  434.52 2039.06  448.68 2039.04  461.87 2039.03
  461.99 2039.03  462.42 2039.03  483.01 2038.87  497.64 2038.91  510.44 2038.81
  541.58 2038.27  560.03 2037.67  574.36 2037.14  575.23 2037.11  576.07  2037.1
  584.35    2037  595.81 2036.96  625.71 2036.66  628.75 2036.72  633.91 2036.64
  667.81 2036.76  668.31 2036.77  668.53 2036.77  694.17 2036.45  694.35 2036.45
  694.57 2036.45  695.81 2036.45  714.26 2036.49  722.56 2036.48  751.25 2036.45
  753.88 2036.45  754.21 2036.45   754.6 2036.44  755.62 2036.44  782.44 2036.35
  789.67 2036.28  794.14 2036.24  802.61 2036.21  807.23 2036.17   818.2 2036.32
  823.54 2036.31  826.46 2036.36  830.67 2036.43  831.89 2036.43  833.37 2036.47
  836.59 2036.43  839.23 2036.35  842.43 2037.21  844.22 2037.65  848.59 2037.42
  860.12 2037.09  863.43 2037.05  865.81 2037.04  883.08 2036.89  908.55 2036.79
   911.6 2036.77  913.05 2036.76  928.74 2036.55  931.96 2036.29  933.31 2036.12
   956.1 2036.03  962.78 2036.02  966.27 2035.97  972.43    2036  993.32  2036.1
  1005.8 2036.04 1021.67 2035.93  1022.4 2035.91 1022.75 2035.89 1029.18 2035.37
 1037.81 2035.37 1039.99 2035.37 1046.54 2035.37 1048.93 2035.38 1054.74 2035.38
 1068.53 2035.39  1073.8 2035.73 1076.81 2035.95  1080.1 2036.12 1085.54 2036.33
 1087.32 2036.02 1087.432036.004 1088.47 2035.85 1092.77 2033.33 1093.49  2032.9
 1096.19 2032.31 1100.36  2031.4  1102.4 2031.43 1118.11 2031.59 1130.06 2031.27
 1133.56 2031.18 1137.91 2031.48 1141.65 2031.69 1149.89 2031.65 1159.76 2031.64
  1174.5 2031.54 1175.81 2031.53 1176.13 2031.59 1180.36 2032.29 1194.86 2032.29
  1197.2  2032.3 1200.51 2032.29 1202.25 2032.26 1216.38    2032 1217.91 2031.93
 1222.13  2031.8 1226.55 2031.67  1235.6 2031.37 1237.14 2031.53 1240.13 2031.87
 1246.43 2031.97 1250.46 2031.99 1265.38 2031.86 1275.01 2031.86 1292.51  2031.9
 1302.06 2031.93 1309.69 2031.65 1314.13 2031.51 1317.86 2031.19  1318.7 2031.15
  1321.3 2031.22 1332.46 2031.54 1333.05 2031.52 1336.96 2031.39 1337.98 2031.41
 1340.62 2031.46 1342.66  2031.5 1349.55 2032.29 1352.51 2032.62  1355.4 2032.87
 1356.33 2032.96 1371.87 2033.41 1375.45 2033.68 1381.022034.001 1384.46  2034.2
 1385.31 2034.24  1385.8 2034.28 1389.94 2034.38 1403.46  2034.1 1414.62 2033.94
 1419.37 2033.73 1427.25 2033.61 1431.79 2033.47 1436.32  2032.5 1438.47 2032.06
 1443.86 2031.89 1445.74 2031.84 1447.22 2031.86 1455.35  2031.9 1458.29 2031.95
 1469.73 2032.18 1474.35 2032.15 1494.522035.482 1504.68 2037.16 1506.85 2037.64
 1509.39 2039.08 1509.92 2039.24 1514.66 2040.74 1520.78 2043.39 1521.51 2043.71
 1521.62 2043.74 1521.85 2043.88 1532.21 2048.74 1537.96 2049.13 1548.52 2049.75
 1551.852049.964 1553.65 2050.08 1554.82 2050.16 1560.37  2050.2 1574.95 2050.46
 1596.67 2050.59 1610.48 2050.59 1627.69 2050.58 1652.49 2050.59 1663.12 2050.52
 1695.61 2050.47 1711.24 2050.39 1718.64 2050.14 1721.29 2050.06  1723.4    2050
 1723.77 2049.66 1723.91 2049.54 1725.69 2049.61 1740.36 2050.22 1757.14 2049.76
 1758.94 2049.72 1759.21 2049.82 1759.95 2050.11 1761.15 2050.25 1764.28 2050.59
 1767.33 2050.67 1772.57 2050.69 1795.07 2050.62 1804.16  2050.7  1813.5  2050.6
 1826.22 2050.71 1840.69 2050.46 1851.94 2050.02  1878.6 2049.68  1906.6 2050.03
 1930.35 2049.89 1956.57 2049.37 1969.19 2049.06 1981.93 2049.08 2015.05 2048.98
 2025.08 2049.06 2030.36 2049.11 2032.22 2049.11 2045.23 2049.05 2045.62 2049.05
 2045.82 2048.17 2046.47 2045.29 2046.81 2045.17 2059.36 2045.14 2059.86 2045.04
 2060.21 2044.96 2088.05 2040.27 2091.28 2039.94 2092.38 2039.77 2097.25 2039.56
  2099.8 2039.47 2100.63 2039.12 2100.68 2039.11 2113.74 2039.62 2117.29 2039.76
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2123.08 2040 2126.47 2039.99 2129.38 2039.99 2140.45 2039.98 2141.41 2040.19
2141.66 2040.24 2145.62 2040.06 2146.18 2040.03 2156.18 2039.93 2158.93 2039.91
2161.31 2039.89 2166.11 2039.92 2183.61 2040.21 2194.75 2040.5 2203.98 2040.61
2208.21 2041.43 2209.03 2041.56 2210.77 2042.08 2213.18 2042.68 2218.5 2042.7
2220.6 2042.69 2222.55 2042.9 2230.05 2043.76 2234.01 2043.19 2234.51 2043.12
2234.99 2043 2239.45 2041.75 2241.4 2041.81 2251.28 2042.1 2254.14 2043.65
2255.55 2044.42 2259.29 2044.5 2266.62 2044.66 2279.76 2044.74 2294.59 2044.79
2299.33 2044.89 2301.48 2044.88 2303.19 2045.9 2303.94 2046.38

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.045	1087.43	.035	1381.02	.045	1551.85	.13

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
1087.43 1494.52 346.85 354.52 332.4 .3 .5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	881.9	2059.05	F
1615.66	2303.94	2059.05	F

CROSS SECTION

RIVER: Hassayampa
REACH: 1 RS: 51.208

INPUT
Description:
Station Elevation Data num= 439

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1130	2062.58	1134.02	2062.58	1134.87	2062.58	1144.08	2062.54	1160.4	2062.5
1165.46	2062.5	1165.66	2062.5	1171.2	2062.56	1187.03	2062.84	1195.62	2062.94
1199.17	2062.96	1201.97	2062.95	1230.49	2063.29	1232.93	2063.3	1233.92	2063.3
1247.44	2066.61	1248.18	2066.86	1251.65	2065.89	1258.33	2064.73	1259.78	2065.24
1261.98	2065.39	1264.45	2064.38	1266.91	2063.3	1268.89	2063.2	1273.33	2063.2
1274.95	2063.17	1285.89	2063.9	1288.54	2063.68	1289.12	2064.07	1296.5	2064
1300.03	2064.14	1302.88	2064.47	1305.46	2063.6	1309.38	2062.46	1323.22	2055.3
1328.92	2052.26	1336.33	2050.32	1338.36	2049.95	1340.36	2049.61	1343.1	2048.56
1345.1	2047.87	1354.9	2041.68	1359.89	2038.33	1362.17	2038.24	1366.29	2038.01
1371.92	2037.83	1383.36	2037.51	1391.95	2037.28	1395.17	2037.19	1400.58	2037.12
1403.71	2037.09	1422.51	2036.77	1423.77	2036.77	1431.06	2036.66	1436.87	2036.6
1438.19	2036.6	1503.56	2035.61	1531.97	2035.38	1535.16	2035.37	1550.3	2035.27
1554.36	2035.27	1567.34	2035.25	1571.21	2035.25	1573.36	2035.25	1609.86	2035.39
1616.14	2035.33	1621.46	2035.31	1622.3	2035.32	1629.42	2035.34	1656.94	2035.18
1672.71	2035.08	1674.16	2035.08	1676.9	2035.08	1678.98	2035.09	1724.48	2034.62
1725.45	2034.62	1731.41	2034.54	1736.23	2034.56	1737.83	2034.56	17502034.526	
1766.14	2034.48	1771.02	2034.46	1780.47	2034.39	1782	2034.39	1786.09	2034.4
1800.07	2034.29	1838.98	2033.96	1839.82	2033.95	1844.45	2033.97	1851.6	2033.94
1887.6	2033.79	1892.8	2033.78	1893.33	2033.78	1894.87	2033.78	1899.78	2033.78
1905.65	2033.78	1910.3	2033.78	1951.37	2033.8	1952.54	2033.8	1962.77	2033.81
1969.65	2033.82	2001.84	2033.72	2003.83	2033.72	2023.79	2033.73	2029.19	2033.75
2053.06	2033.87	2060.04	2033.85	2072.31	2033.81	2072.88	2033.81	2073.98	2033.8
2076.79	2033.83	2085.8	2033.94	2091.14	2033.83	21002033.761		2100.18	2033.76
2109.13	2032.69	2111.01	2032.5	2118.32	2031.82	2120.73	2031.56	2124.56	2030.72
2128.4	2029.84	2132.49	2029.86	2153.6	2029.88	2178.72	2029.35	2180.47	2029.31
2181.23	2029.38	2182.31	2029.37	2185.31	2029.7	2185.86	2029.76	2186.48	2029.76
2195.32	2029.72	2203.57	2029.68	2217.65	2029.7	2244.6	2029.7	2247.25	2030.11
2250.35	2030.61	2274.17	2030.89	2275.45	2030.9	2276.36	2030.91	2279.77	2030.91
2286.68	2030.88	2304.12	2030.34	2307.38	2030.31	2312.62	2029.97	2319.21	2030.05
2321.25	2030.07	2323.7	2029.98	2333.49	2029.74	2342.57	2029.7	2352.99	2029.57
2368.28	2029.57	2371.36	2029.57	2376.27	2030.89	2376.41	2030.92	2380.73	2031.13
2390.22	2031.6	2392.33	2031.61	2402.91	2031.8	2407.67	2030.76	2410.87	2030.07
2422.96	2030.06	2427.48	2030.06	2432.26	2030.05	2440.9	2030.05	2450	2030.05
2457.17	2030.05	2464.15	2031.57	2465.74	2031.97	2470.61	2032.17	2492.4	2032.82
2524.43	2033.5	2525.36	2033.52	2533.26	2033.55	2553.7	2034.74	2581.72	2036.38
2584.3	2036.45	2598.28	2037.4	2609.61	2037.41	2628.12037.314		2628.93	2037.31
2641.38	2037.1	2645.81	2036.99	2647.6	2036.99	2651.45	2036.99	2680.92	2037.36
2684.17	2037.41	2684.85	2037.41	2686.79	2037.41	2692.93	2037.36	2696.46	2037.3
2710.15	2037.04	2715.03	2037.05	2729.63	2037.05	2733.7	2037.05	2737.37	2037.05
2739.26	2037.09	2745.83	2037.13	2752.85	2037.53	2753.82	2037.59	2755.64	2037.56
2765.39	2037.47	2776.4	2036.54	2778.98	2036.38	2780.36	2036.23	2787.06	2036.09
2802.51	2036.19	2806.89	2036.15	2809.12	2036.09	2814.2	2035.99	2820.71	2035.84
2821.51	2035.83	2822.89	2035.79	2831.11	2035.81	2835.41	2035.83	2837.49	2035.66
2842.42	2035.73	2843.54	2035.56	2844.75	2035.69	2846.19	2035.57	2849.83	2035.54
2855.46	2035.33	2858.07	2035.33	2862.53	2035.37	2865.38	2035.4	2867.04	2035.42
2872.69	2035.42	2878.63	2035.42	2880	2035.41	2882.35	2035.41	2887.31	2035.4
2890.21	2035.39	2894.62	2035.35	2901.8	2035.32	2901.93	2035.32	2902.17	2035.32
2909.24	2035.27	2913.38	2035.25	2916.56	2035.22	2921.99	2035.19	2923.87	2035.17
2924.97	2035.17	2931.18	2035.12	2936.55	2035.11	2938.49	2035.1	2941.8	2035.1
2945.8	2035.09	2948.14	2035.09	2953.11	2035.09	2959.72	2035.1	2960.42	2035.1
2961.62	2035.1	2967.73	2035.1	2971.31	2035.1	2975.05	2035.1	2981.44	2035.1
2982.36	2035.1	2982.89	2035.1	2989.67	2035.1	2994.47	2035.1	2996.98	2035.1
3001.26	2035.11	3004.29	2035.12	3006.06	2035.14	3011.6	2035.17	3017.64	2035.24
3018.91	2035.25	3021.08	2035.29	3026.22	2035.37	3029.23	2035.46	3033.53	2035.55
3040.81	2035.75	3040.85	2035.75	3040.9	2035.75	3053.03	2036.32	3065.83	2036.87
3066.29	2036.89	3066.39	2036.9	3066.5	2036.9	3066.77	2036.9	3082.8	2038.75
3087.18	2039.72	3094.5	2040.53	3102.69	2040.86	3107.46	2040.72	3115.39	2039.84
3123.36	2039.39	3130.77	2038.86	3132.89	2038.53	3135.22	2038.53	3141.05	2038.99

3145.72	2039.46	3154.95	2040.07	3156.8	2040.22	3158.62	2040.24	3163.72	2040.13
3171.68	2040.08	3174.6	2040.01	3179.15	2039.65	3188.72	2039.3	3200.86	2038.87
3202.31	2038.76	3207.97	2038.52	3214.58	2038.35	3216.31	2038.34	3219.28	2038.28
3223.62	2038.25	3226.16	2038.16	3230.94	2038.14	3237.75	2038.14	3238.25	2038.15
3239.1	2038.15	3245.56	2038.19	3249.33	2038.19	3252.87	2038.22	3258.92	2038.25
3260.18	2038.27	3260.92	2038.27	3267.49	2038.31	3272.5	2038.33	3274.8	2038.35
3278.74	2038.37	3282.11	2038.4	3284.09	2038.4	3289.43	2038.43	3295.67	2038.45
3296.74	2038.46	3298.56	2038.46	3303.93	2038.67	3307.25	2038.93	3316.25	2039.42
3318.84	2039.57	3340.6	2039.83	3341.15	2039.88	3342.01	2039.89	3347.91	2040.24
3353.59	2040.43	3355.23	2040.49	3358.02	2040.57	3362.54	2040.75	3365.18	2040.83
3369.85	2041.06	3376.76	2041.47	3377.16	2041.5	3379.75	2041.52	3393.92	2041.58
3395.68	2044.31	3396.53	2045.57	3399.18	2045.44	3408.58	2045.56	3422.05	2045.31
3428.34	2045.1	3435.63	2045.09	3445.67	2044.97	3457.79	2045.25	3469.44	2045.35
3472.2	2045.35	3476.94	2045.3	3481.02	2045.27	3486.83	2045.23	3492.61	2045.14
3494.14	2045.12	3496.76	2045.09	3501.45	2045.08	3504.19	2045.05	3508.76	2045.05
3515.78	2045.03	3516.07	2045.03	3516.58	2045.04	3523.38	2045.14	3527.36	2045.19
3530.69	2045.27	3536.4	2045.39	3538	2045.44	3538.94	2045.45	3545.32	2045.64
3550.53	2045.8	3552.63	2045.86	3556.22	2045.98	3559.94	2046.09	3562.11	2046.16
3567.25	2046.31	3573.7	2046.53	3576.04	2046.59	3581.87	2046.71	3585.28	2046.84
3595.85	2046.99	3596.49	2047.01	3596.96	2046.98	3597.46	2046.97	3612.23	2046.31
3618.17	2046.25	3632.64	2046.36	3636.9	2046.35	3640.13	2046.34	3662.3	2046.59
3666.23	2046.7	3668.41	2046.73	3685.1	2047.25	3696.05	2047.78	3712.98	2048.59
3718.12	2049.24	3723.88	2050.23	3729.69	2051.22	3733.21	2051.83	3738.21	2052.26
3740.27	2052.33	3748.23	2052.89	3754.46	2052.9	3766.39	2053.5	3770.73	2053.33
3774.74	2052.56	3777.98	2052.6	3799.97	2052.75	3806.27	2052.83	3808.52	2052.88
3814.46	2053.05	3824.03	2053.24	3840	2057.51	3845.07	2058.88	3851.73	2059.56
3852.39	2059.63	3854.69	2059.73	3868.17	2060.31	3875.47	2061.55	3880.47	2062.37
3883.81	2062.84	3886.42	2063.34	3890.63	2063.4	3892.25	2063.42	3892.82	2063.38
3898.25	2062.88	3912.83	2064.08	3916.14	2064.36	3918.08	2064.44	3932.81	2065.2
3940.12	2065.3	3944.71	2065.15	3949.42	2065	3952.06	2064.92		

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
1130	.045	2100	.035	2450	.045	2609.61	.13

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
2100	2450	395.45	409.26	408.42	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
1130	1681		F
2667	3952.06	2067.69	F

CROSS SECTION

RIVER: Hassayampa
REACH: 1 RS: 51.13

INPUT
Description: This is cross-section 51.13 from the Cella-Barr (1988) HEC-2 FIS model

Station Elevation Data num= 29

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	2068.9	1079.5	2064.8	1146.3	2063.6	1430.1	2037	1443.3	2037
1467	2034.7	1564.7	2031.6	1822.3	2032.6	1983.4	2031.2	2000.6	2030.3
2319.1	2030.3	2330	2026.4	2352.7	2026.3	2372.6	2026.3	2397.7	2029.1
2481.7	2032.4	2820	2034.7	2955.7	2036	3254.9	2040.7	3458.4	2044.4
3705.5	2051.4	3732.1	2050.1	3757.9	2056.2	3791.4	2051.2	3818.4	2055.1
3870.7	2055.1	3924.1	2045.8	4033.8	2047	4176.7	2047.2		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
1000	1	1467	.045	2000.6	.035	2352.7	.045	2820	1

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
2000.6	2352.7	143.97	44.5	69.01	.1	.3

SUMMARY OF MANNING'S N VALUES

River:Hassayampa

Reach	River Sta.	n1	n2	n3	n4	n5	n6
1	53.16	.04	.035	.04	1		
1	53.130	.04	.035	.04			
1	53.097	.04	.035	.04			
1	53.063	.04	.035	.04			
1	53.026	.04	.035	.04			
1	52.986	.04	.035	.04			
1	52.949	.04	.035	.04			
1	52.916	.04	.035	.04			
1	52.881	.04	.035	.04			
1	52.847	.04	.035	.04			
1	52.813	.04	.035	.04			
1	52.778	.04	.035	.04			
1	52.740	.04	.035	.04			

1	52.693	.04	.035	.04			
1	52.650	.04	.035	.04			
1	52.606	.04	.035	.04			
1	52.558	.04	.035	.04			
1	52.508	.04	.035	.04			
1	52.467	.04	.035	.04			
1	52.440	.04	.035	.04			
1	52.410	.04	.035	.04			
1	52.384	.04	.035	.04			
1	52.345	.04	.035	.04			
1	52.316	.04	.035	.04			
1	52.284	.04	.035	.04			
1	52.250	.04	.035	.04			
1	52.224	.04	.035	.04			
1	52.196	.04	.035	.04			
1	52.170	.04	.035	.04			
1	52.147	.04	.035	.04			
1	52.121	.04	.035	.04			
1	52.100	.04	.035	.04			
1	52.078	.04	.035	.04			
1	52.054	.04	.035	.04			
1	52.029	.04	.035	.04			
1	52.006	.04	.035	.04			
1	51.983	.04	.035	.04			
1	51.957	.04	.035	.04			
1	51.932	.04	.035	.04			
1	51.895	.04	.035	.04			
1	51.854	.04	.035	.04			
1	51.829	.04	.035	.04			
1	51.807	.04	.035	.04	.13	.04	
1	51.782	.04	.035	.04	.13		
1	51.757	.04	.035	.04	.13		
1	51.734	.04	.035	.04	.13		
1	51.709	.04	.035	.04	.13		
1	51.682	.04	.035	.04	.13		
1	51.656	.04	.035	.04	.13	.04	
1	51.638	.04	.035	.04	.13	.04	
1	51.618	.04	.035	.04	.13	.04	
1	51.601	.04	.13	.04	.035	.04	
1	51.581	.045	.13	.035	.045	.13	
1	51.558	.045	.13	.035	.045	.13	.045
1	51.536	.13	.045	.035	.045	.13	.045
1	51.516	.13	.045	.035	.045	.13	.045
1	51.497	.13	.045	.035	.045		
1	51.477	.13	.045	.035	.045	.13	.045
1	51.453	.13	.045	.035	.045	.13	
1	51.436	.13	.045	.035	.045	.13	
1	51.418	.13	.045	.035	.045	.13	
1	51.398	.13	.045	.035	.045	.13	
1	51.375	.045	.035	.045	.13		
1	51.37	Bridge					
1	51.355	.045	.035	.045	.13		
1	51.345	.045	.035	.045	.13		
1	51.338	.045	.035	.045	.13		
1	51.335	Bridge					
1	51.331	.045	.035	.045	.13		
1	51.303	.045	.035	.045	.13		
1	51.275	.045	.035	.045	.13		
1	51.208	.045	.035	.045	.13		
1	51.13	1	.045	.035	.045	1	

SUMMARY OF REACH LENGTHS

River: Hassayampa

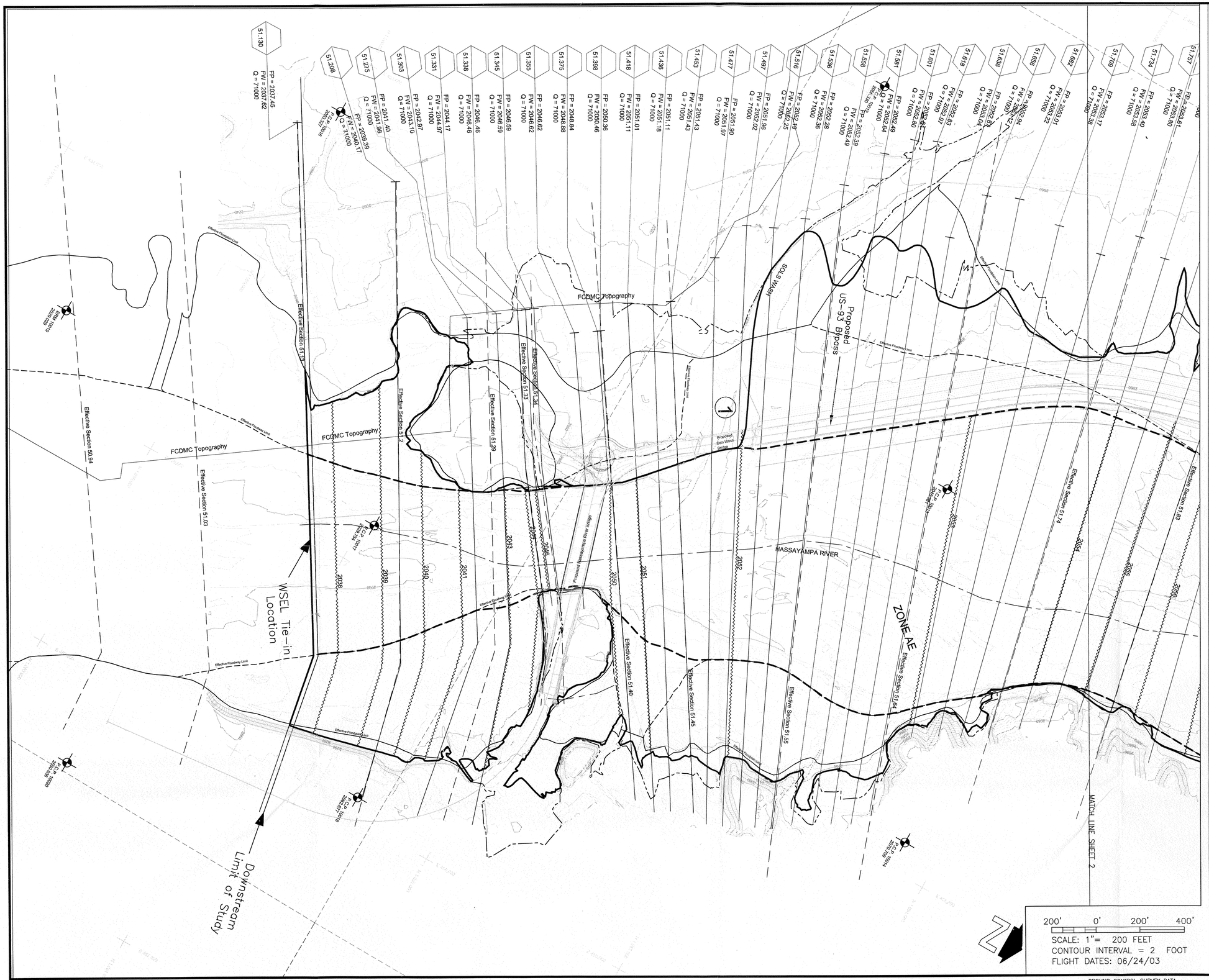
Reach	River Sta.	Left	Channel	Right
1	53.16	166.2	174	179.4
1	53.130	125.35	176.3	200.6
1	53.097	105.07	179.02	185.65
1	53.063	146.41	198.27	257.57
1	53.026	228.56	209.75	243.29
1	52.986	146.93	196.88	191.96
1	52.949	119.28	172.43	182.35
1	52.916	147.23	183.36	188.51
1	52.881	166.57	181.07	194.6
1	52.847	159.96	176.56	163.61
1	52.813	201.45	189.1	189.3
1	52.778	230.42	199.13	165.32
1	52.740	215.74	249.5	258.82
1	52.693	188.23	226.31	225.72
1	52.650	190.62	232.63	281.78
1	52.606	270.33	252.66	127
1	52.558	285.06	264.99	210.03
1	52.508	224.34	215.67	185.1

1	52.467	139.22	141.66	145.32
1	52.440	162.7	156.75	139.74
1	52.410	143.77	141.23	134.04
1	52.384	208.74	205.95	197.78
1	52.345	154.33	152.06	147.36
1	52.316	173.95	167.58	152.04
1	52.284	186.06	180.79	159.06
1	52.250	135.25	137.72	131.51
1	52.224	153.53	144.14	126.01
1	52.196	146.45	140.71	126.49
1	52.170	124.29	122.05	120.84
1	52.147	150.15	134.98	101.58
1	52.121	111.23	112.85	118.91
1	52.100	108.92	112.14	109.32
1	52.078	121.78	129.96	142.45
1	52.054	117.5	129.55	131.93
1	52.029	136.55	125.33	100.96
1	52.006	108.96	117.33	104.77
1	51.983	157.78	136.93	115.42
1	51.957	156.4	136.66	111.77
1	51.932	249.76	194.96	186.74
1	51.895	238.24	215.28	189.69
1	51.854	134.24	130.05	127.67
1	51.829	113.05	116.86	124.16
1	51.807	127.25	131.67	139.19
1	51.782	137.47	130.57	132.67
1	51.757	131.25	125.65	136.9
1	51.734	119.87	130.34	159.33
1	51.709	128.01	144.74	160.32
1	51.682	124.77	132.24	135.47
1	51.656	85.49	97.94	105.44
1	51.638	96.43	104.43	108.32
1	51.618	85.37	90.41	92.11
1	51.601	107.81	107.75	110.76
1	51.581	119.99	121.87	129.74
1	51.558	101.24	114.65	119.66
1	51.536	95.78	106.17	111.28
1	51.516	91.71	96.38	102.14
1	51.497	101.01	106.04	114
1	51.477	109.17	128.13	147.6
1	51.453	95.07	91.48	88.59
1	51.436	89.11	93.82	99.63
1	51.418	100.22	106.21	113.28
1	51.398	165.24	123.39	26.09
1	51.375	103.98	104.18	99.67
1	51.37	Bridge		
1	51.355	.44	53.32	183.12
1	51.345	32.36	37.54	38.08
1	51.338	36.5	36.54	37.07
1	51.335	Bridge		
1	51.331	170	143.98	107.97
1	51.303	145.69	151.69	140.05
1	51.275	346.85	354.52	332.4
1	51.208	395.45	409.26	408.42
1	51.13	143.97	44.5	69.01

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: Hassayampa

Reach	River Sta.	Contr.	Expan.
1	53.16	.1	.3
1	53.130	.1	.3
1	53.097	.1	.3
1	53.063	.1	.3
1	53.026	.1	.3
1	52.986	.1	.3
1	52.949	.1	.3
1	52.916	.1	.3
1	52.881	.1	.3
1	52.847	.1	.3
1	52.813	.1	.3
1	52.778	.1	.3
1	52.740	.1	.3
1	52.693	.1	.3
1	52.650	.1	.3
1	52.606	.1	.3
1	52.558	.1	.3
1	52.508	.1	.3
1	52.467	.1	.3
1	52.440	.1	.3
1	52.410	.1	.3
1	52.384	.1	.3
1	52.345	.1	.3

1		52.316	.1	.3
1		52.284	.1	.3
1		52.250	.1	.3
1		52.224	.1	.3
1		52.196	.1	.3
1		52.170	.1	.3
1		52.147	.1	.3
1		52.121	.1	.3
1		52.100	.1	.3
1		52.078	.1	.3
1		52.054	.1	.3
1		52.029	.1	.3
1		52.006	.1	.3
1		51.983	.1	.3
1		51.957	.1	.3
1		51.932	.1	.3
1		51.895	.1	.3
1		51.854	.1	.3
1		51.829	.1	.3
1		51.807	.1	.3
1		51.782	.1	.3
1		51.757	.1	.3
1		51.734	.1	.3
1		51.709	.1	.3
1		51.682	.1	.3
1		51.656	.1	.3
1		51.638	.1	.3
1		51.618	.1	.3
1		51.601	.1	.3
1		51.581	.1	.3
1		51.558	.3	.5
1		51.536	.3	.5
1		51.516	.3	.5
1		51.497	.3	.5
1		51.477	.3	.5
1		51.453	.3	.5
1		51.436	.3	.5
1		51.418	.3	.5
1		51.398	.3	.5
1		51.375	.3	.5
1		51.37	Bridge	
1		51.355	.3	.5
1		51.345	.3	.5
1		51.338	.3	.5
1		51.335	Bridge	
1		51.331	.3	.5
1		51.303	.3	.5
1		51.275	.3	.5
1		51.208	.3	.5
1		51.13	.1	.3



LEGEND

- POST CONSTRUCTION 100-YR FLOODPLAIN BOUNDARY
- POST CONSTRUCTION FLOODWAY
- EXISTING CONDITIONS FLOODPLAIN
- HYDRAULIC BASE LINE
- EFFECTIVE STUDY CROSS-SECTIONS — Effective Section 51.29
- EFFECTIVE FLOODPLAIN LIMITS
- EFFECTIVE FLOODWAY LIMITS
- CROSS SECTION — FP= 2037.45, FW= 2037.62, Q = 71000, 51.130
- PHOTOGRAMMETRIC CONTROL POINT — P.C.P. 10017
- BASE FLOOD ELEVATIONS — 2039
- ZONE DESIGNATIONS — ZONE AE
- CORPORATE LIMITS — Town of Wickenburg / Maricopa County

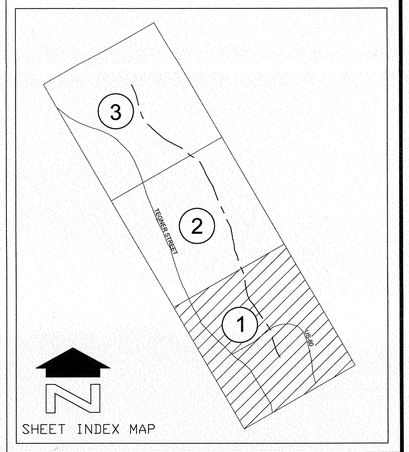
PHOTOGRAMMETRIC CONTROL POINTS

NOTE: ALL ELEVATIONS ARE NGVD 1929

I.D. NUMBER	ELEVATION (FT)
10012	2058.330
10013	2045.381
10014	2070.709
10016	2053.327
10017	2029.754
10018	2062.677
10019	2029.029
10020	2050.636

NOTES

1. FLOODPLAIN ON INTERIOR SIDE OF EMBANKMENT DELINEATED IN SOLS WASH PROJECT
2. ALL MAPPING BY AERIAL MAPPING COMPANY, INC. EXCEPT AREAS LABELED FCDMC TOPOGRAPHY WHERE MAPPING WAS DONE BY STEWART GEO TECHNOLOGIES AND CONTROL POINTS WERE PROVIDED BY A-TEAM



NO.	REVISION	BY	DATE
2			
1			

ARIZONA DEPARTMENT OF TRANSPORTATION

U.S. 93 INTERIM WICKENBURG BYPASS POST CONSTRUCTION WITHOUT LEVEE

200' 0' 200' 400'

SCALE: 1"= 200 FEET
CONTOUR INTERVAL = 2 FOOT
FLIGHT DATES: 06/24/03

18509 JOHN PATRICK FYIE — REGISTERED PROFESSIONAL ENGINEER — ARIZONA, U.S.A.
Expires 12/31/2011

JACOBS
101 NORTH 1st AVENUE, SUITE 3100
PHOENIX, ARIZONA 85003
PHONE: 1.602.253.1200 FAX: 1.602.253.1202

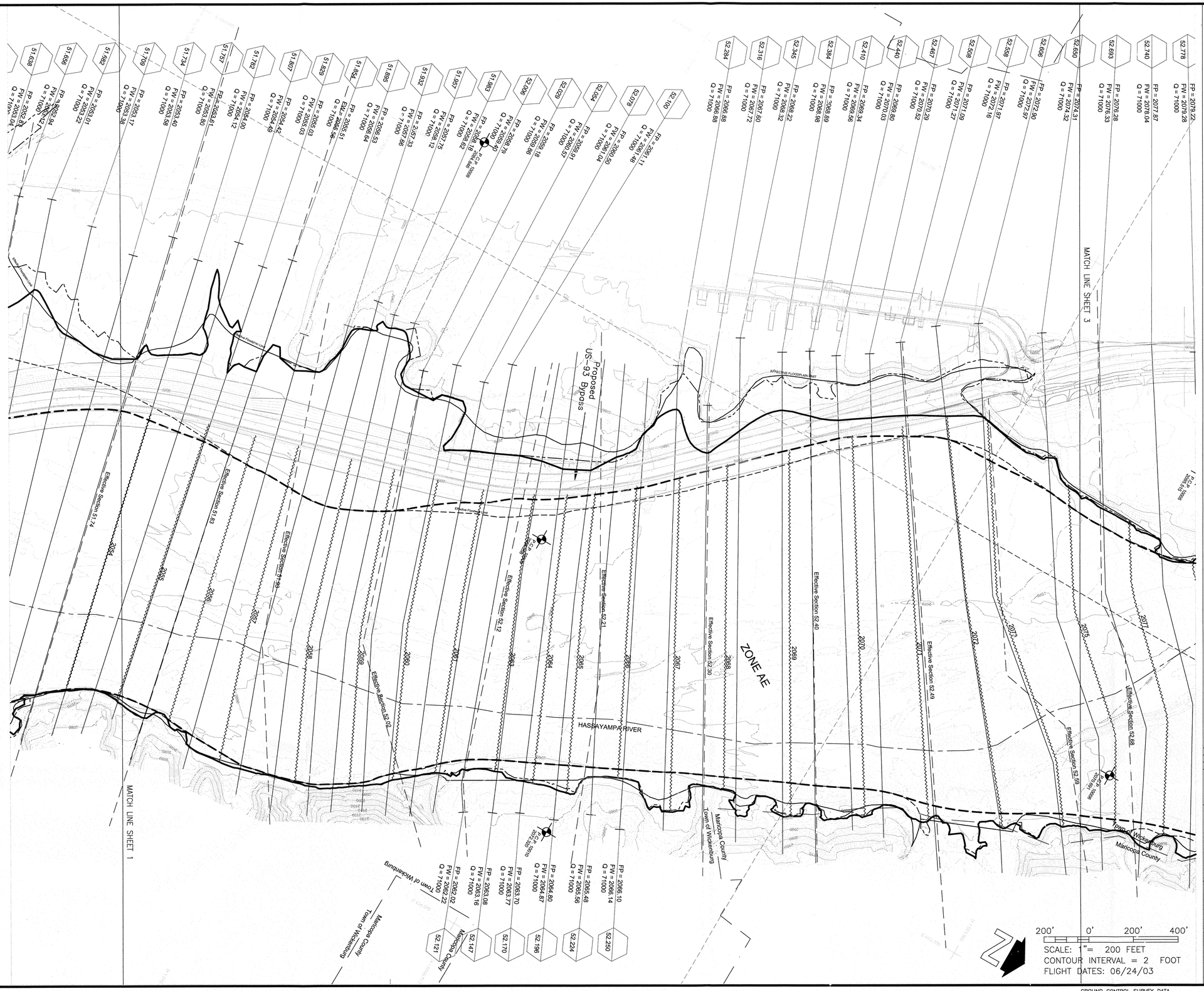
	BY	DATE
DESIGN	–	–
DESIGN CHK.	–	–
PLANS	SR	9/2011
PLANS CHK.	JPF	9/2011

SHEET 1 OF 3

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2 'CONTOUR INTERVALS.

Aerial Mapping By: Aerial Mapping Co., Inc., Phoenix, AZ (see note 2)

GROUND CONTROL SURVEY DATA PROVIDED BY WILSON AND COMPANY (see note 2)



LEGEND

POST CONSTRUCTION 100-YR FLOODPLAIN BOUNDARY	
POST CONSTRUCTION FLOODWAY	
EXISTING CONDITIONS FLOODPLAIN	
HYDRAULIC BASE LINE	
EFFECTIVE STUDY CROSS-SECTIONS	Effective Section 51.29
EFFECTIVE FLOODPLAIN LIMITS	
EFFECTIVE FLOODWAY LIMITS	
CROSS SECTION	FP= 2037.45 / FW= 2037.62 / Q = 71000 / 51.130
PHOTOGRAMMETRIC CONTROL POINT	P.C.P. 10017
BASE FLOOD ELEVATIONS	2039
ZONE DESIGNATIONS	ZONE AE
CORPORATE LIMITS	Town of Wickenburg / Maricopa County

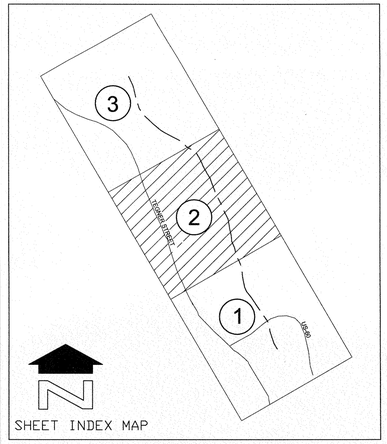
PHOTOGRAMMETRIC CONTROL POINTS

NOTE: ALL ELEVATIONS ARE NGVD 1929

I.D. NUMBER	ELEVATION (FT)
10008	2084.846
10009	2058.258
10010	2072.320

NOTES

1. FLOODPLAIN ON INTERIOR SIDE OF EMBANKMENT DELINEATED IN SOLS WASH PROJECT
2. ALL MAPPING BY AERIAL MAPPING COMPANY, INC. EXCEPT AREAS LABELED FCDMC TOPOGRAPHY WHERE MAPPING WAS DONE BY STEWART GEO TECHNOLOGIES AND CONTROL POINTS WERE PROVIDED BY A-TEAM



NO.	REVISION	BY	DATE
2			
1			

ARIZONA DEPARTMENT OF TRANSPORTATION

U.S. 93 INTERIM WICKENBURG BYPASS POST CONSTRUCTION WITHOUT LEVEE

200' 0' 200' 400'

SCALE: 1"= 200 FEET
CONTOUR INTERVAL = 2 FOOT
FLIGHT DATES: 06/24/03

JACOBS
101 NORTH 1st AVENUE, SUITE 3100
PHONE: 1.602.253.1200 FAX: 1.602.253.1202

18509 JOHN PATRICK FYIE — 29SEP11 — ARIZONA, U.S.A.
Expires 12/31/2011

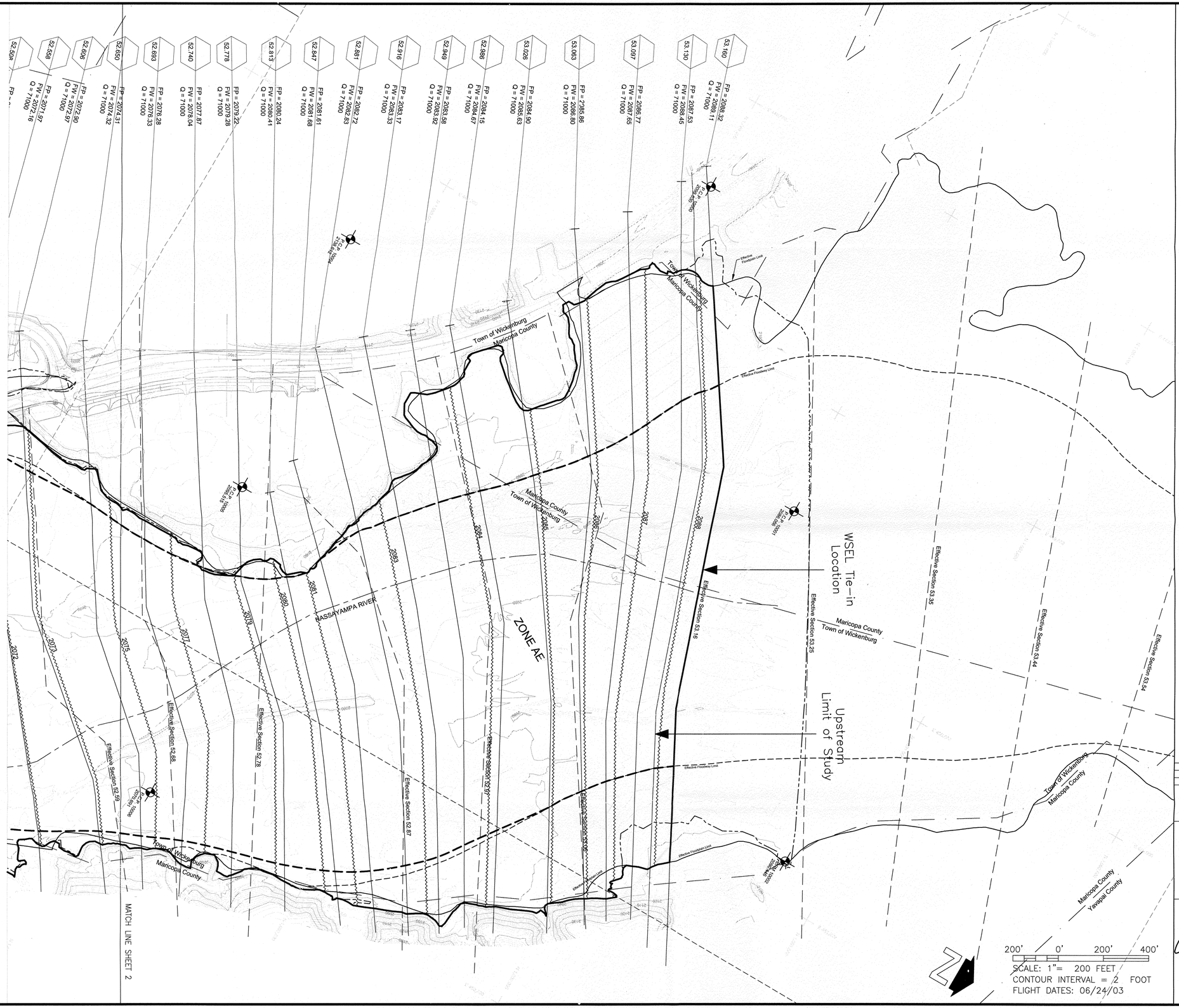
	BY	DATE
DESIGN	–	–
DESIGN CHK.	–	–
PLANS	SR	9/2011
PLANS CHK.	JPF	9/2011

SHEET 2 OF 3

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS.

Aerial Mapping By: Aerial Mapping Co., Inc., Phoenix, AZ

GROUND CONTROL SURVEY DATA PROVIDED BY WILSON AND COMPANY



LEGEND

- POST CONSTRUCTION 100-YR FLOODPLAIN BOUNDARY
- POST CONSTRUCTION FLOODWAY
- EXISTING CONDITIONS FLOODPLAIN
- HYDRAULIC BASE LINE
- EFFECTIVE STUDY CROSS-SECTIONS — Effective Section 51.29
- EFFECTIVE FLOODPLAIN LIMITS
- EFFECTIVE FLOODWAY LIMITS
- CROSS SECTION — FP= 2037.45, FW= 2037.62, Q = 71000, 51.130
- PHOTOGRAMMETRIC CONTROL POINT — P.C.P. 10017
- BASE FLOOD ELEVATIONS — 2039
- ZONE DESIGNATIONS — ZONE AE
- CORPORATE LIMITS — Town of Wickenburg / Maricopa County

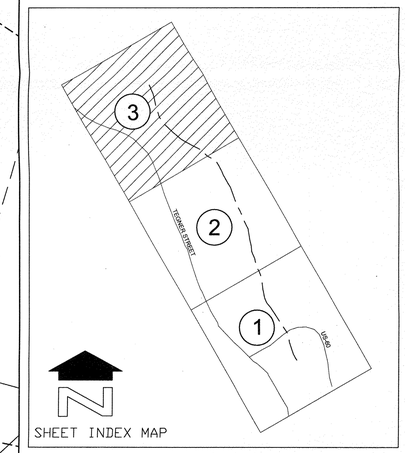
PHOTOGRAMMETRIC CONTROL POINTS

NOTE: ALL ELEVATIONS ARE NGVD 1929

I.D. NUMBER	ELEVATION (FT)
10000	2098.530
10001	2086.056
10002	2090.446
10004	2138.612
10005	2095.515
10006	2070.691

NOTES

1. FLOODPLAIN ON INTERIOR SIDE OF EMBANKMENT DELINEATED IN SOLS WASH PROJECT
2. ALL MAPPING BY AERIAL MAPPING COMPANY, INC. EXCEPT AREAS LABELED FCDMC TOPOGRAPHY WHERE MAPPING WAS DONE BY STEWART GEO TECHNOLOGIES AND CONTROL POINTS WERE PROVIDED BY A-TEAM



NO.	REVISION	BY	DATE
2			
1			

ARIZONA DEPARTMENT OF TRANSPORTATION

U.S. 93 INTERIM WICKENBURG BYPASS POST CONSTRUCTION WITHOUT LEVEE

JACOBS
101 NORTH 1st AVENUE, SUITE 3100
PHOENIX, ARIZONA 85003
PHONE: 1.602.253.1200 FAX: 1.602.253.1202

18509 JOHN PATRICK FYIE — State of ARIZONA, U.S.A. — Expires 12/31/2011

	BY	DATE
DESIGN	–	–
DESIGN CHK.	–	–
PLANS	SR	9/2011
PLANS CHK.	JPF	9/2011

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 1' CONTOUR INTERVALS.

Aerial Mapping By: Aerial Mapping Co., Inc., Phoenix, AZ

GROUND CONTROL SURVEY DATA PROVIDED BY WILSON AND COMPANY

Post Const Conditions w/ Levee

HEC-RAS Plan: Prop Cond River: Hassayampa Reach: 1

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
1	53.16	100Yr	71000.00	2082.20	2088.32	2087.70	2089.46	0.006306	10.05	9369.86	2506.06	0.78
1	53.16	100YrEnc	71000.00	2082.20	2089.11	2088.06	2090.30	0.004848	9.70	8567.51	1701.96	0.70
1	53.130	100Yr	71000.00	2080.54	2087.53	2086.50	2088.42	0.004907	8.84	9852.04	2428.95	0.69
1	53.130	100YrEnc	71000.00	2080.54	2088.45	2086.94	2089.48	0.004036	8.96	8961.02	1640.68	0.64
1	53.097	100Yr	71000.00	2079.31	2086.77	2085.74	2087.59	0.004555	8.49	10202.65	2714.88	0.66
1	53.097	100YrEnc	71000.00	2079.31	2087.65	2086.15	2088.77	0.004281	9.16	8525.84	1512.54	0.66
1	53.063	100Yr	71000.00	2078.53	2085.86	2084.81	2086.81	0.005198	8.88	9409.26	2465.54	0.70
1	53.063	100YrEnc	71000.00	2078.53	2086.80	2085.44	2088.02	0.004712	9.49	8136.91	1446.91	0.69
1	53.026	100Yr	71000.00	2077.33	2084.90	2083.77	2085.82	0.004956	8.61	9374.07	2122.84	0.69
1	53.026	100YrEnc	71000.00	2077.33	2085.63	2084.56	2087.01	0.005637	10.07	7635.48	1411.07	0.75
1	52.986	100Yr	71000.00	2076.57	2084.15	2082.38	2084.86	0.003342	7.34	10550.87	2334.09	0.57
1	52.986	100YrEnc	71000.00	2076.57	2084.67	2083.31	2085.83	0.004668	9.24	8326.92	1507.74	0.68
1	52.949	100Yr	71000.00	2075.67	2083.58	2081.70	2084.30	0.003034	7.58	10574.26	2163.38	0.55
1	52.949	100YrEnc	71000.00	2075.67	2083.92	2082.45	2085.02	0.004129	9.18	8642.61	1519.59	0.65
1	52.916	100Yr	71000.00	2074.98	2083.17	2081.11	2083.86	0.002647	7.55	11001.13	1975.56	0.52
1	52.916	100YrEnc	71000.00	2074.98	2083.33	2081.78	2084.40	0.003733	9.12	8856.44	1514.80	0.63
1	52.881	100Yr	71000.00	2074.15	2082.72	2080.36	2083.43	0.002341	7.59	10843.02	1744.42	0.50
1	52.881	100YrEnc	71000.00	2074.15	2082.83	2080.90	2083.79	0.003018	8.70	9371.07	1490.34	0.57
1	52.847	100Yr	71000.00	2073.07	2081.61	2080.36	2082.84	0.004274	10.08	8451.90	1529.41	0.67
1	52.847	100YrEnc	71000.00	2073.07	2081.68	2080.59	2083.09	0.004692	10.63	7850.19	1365.69	0.71
1	52.813	100Yr	71000.00	2072.18	2080.24	2079.65	2081.92	0.006305	11.92	7274.47	1413.58	0.81
1	52.813	100YrEnc	71000.00	2072.18	2080.41	2079.74	2082.14	0.006138	11.96	7083.99	1281.11	0.81
1	52.778	100Yr	71000.00	2071.07	2079.22	2078.36	2080.76	0.005277	11.40	7605.16	1389.29	0.75
1	52.778	100YrEnc	71000.00	2071.07	2079.28	2078.53	2080.99	0.005694	11.91	7189.11	1270.32	0.78
1	52.740	100Yr	71000.00	2069.72	2077.87	2077.17	2079.55	0.006232	12.02	7210.65	1339.17	0.81
1	52.740	100YrEnc	71000.00	2069.72	2078.04	2077.25	2079.77	0.006060	12.05	7061.75	1238.78	0.80
1	52.693	100Yr	71000.00	2068.91	2076.28	2075.83	2077.95	0.007075	12.27	7264.36	1540.66	0.86
1	52.693	100YrEnc	71000.00	2068.91	2076.33	2075.87	2078.15	0.007404	12.62	6906.18	1344.78	0.88
1	52.650	100Yr	71000.00	2067.95	2074.30	2074.14	2076.16	0.009513	12.72	6767.19	1689.71	0.97
1	52.650	100YrEnc	71000.00	2067.95	2074.32	2074.20	2076.28	0.009954	13.03	6583.04	1471.57	0.99
1	52.606	100Yr	71000.00	2066.69	2072.90	2071.96	2074.12	0.006141	9.76	8121.92	1893.48	0.77
1	52.606	100YrEnc	71000.00	2066.69	2072.97	2071.96	2074.19	0.005972	9.71	8106.38	1641.38	0.76
1	52.558	100Yr	71000.00	2065.39	2071.97	2070.65	2072.99	0.004766	8.88	8856.57	1857.13	0.68
1	52.558	100YrEnc	71000.00	2065.39	2072.16	2070.63	2073.13	0.004233	8.56	9063.55	1693.12	0.65
1	52.508	100Yr	71000.00	2063.83	2071.09	2069.33	2071.97	0.003484	8.18	9655.14	1806.54	0.59
1	52.508	100YrEnc	71000.00	2063.83	2071.27	2069.49	2072.18	0.003491	8.32	9439.14	1660.63	0.59
1	52.467	100Yr	71000.00	2062.11	2070.29	2068.64	2071.24	0.003642	8.63	9309.25	1742.00	0.61
1	52.467	100YrEnc	71000.00	2062.11	2070.52	2068.75	2071.47	0.003485	8.59	9296.21	1594.19	0.60
1	52.440	100Yr	71000.00	2061.88	2069.80	2068.09	2070.72	0.003437	8.55	9459.34	1781.11	0.60
1	52.440	100YrEnc	71000.00	2061.88	2070.03	2068.25	2070.98	0.003370	8.61	9324.37	1570.72	0.59
1	52.410	100Yr	71000.00	2060.92	2069.34	2067.46	2070.23	0.002980	8.36	9680.93	1746.84	0.56
1	52.410	100YrEnc	71000.00	2060.92	2069.56	2067.65	2070.49	0.003046	8.57	9464.60	1528.98	0.57
1	52.384	100Yr	71000.00	2060.40	2068.89	2067.09	2069.81	0.003045	8.58	9589.86	1830.99	0.57
1	52.384	100YrEnc	71000.00	2060.40	2068.98	2067.34	2070.03	0.003425	9.10	8961.70	1483.09	0.60
1	52.345	100Yr	71000.00	2059.26	2068.22	2066.24	2069.18	0.003125	8.67	9405.80	1686.29	0.58
1	52.345	100YrEnc	71000.00	2059.26	2068.32	2066.42	2069.35	0.003220	8.88	8986.86	1413.95	0.59
1	52.316	100Yr	71000.00	2058.57	2067.60	2065.88	2068.69	0.003145	9.30	8940.66	1501.76	0.59
1	52.316	100YrEnc	71000.00	2058.57	2067.72	2066.01	2068.85	0.003262	9.48	8759.82	1363.71	0.60
1	52.284	100Yr	71000.00	2057.38	2066.88	2065.64	2068.12	0.003737	10.26	8604.73	1804.42	0.64
1	52.284	100YrEnc	71000.00	2057.38	2066.87	2065.64	2068.24	0.004076	10.62	8056.88	1314.25	0.67

HEC-RAS Plan: Prop Cond River: Hassayampa Reach: 1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
1	52.250	100Yr	71000.00	2057.09	2066.10	2064.80	2067.44	0.004067	10.84	8139.36	1429.62	0.67
1	52.250	100YrEnc	71000.00	2057.09	2066.14	2064.85	2067.53	0.004144	10.98	7983.70	1265.67	0.68
1	52.224	100Yr	71000.00	2056.62	2065.48	2064.24	2066.88	0.004205	11.19	7996.63	1290.52	0.69
1	52.224	100YrEnc	71000.00	2056.62	2065.56	2064.25	2066.97	0.004147	11.18	7936.70	1238.13	0.68
1	52.196	100Yr	71000.00	2055.97	2064.80	2063.69	2066.28	0.004495	11.29	7816.00	1340.59	0.71
1	52.196	100YrEnc	71000.00	2055.97	2064.87	2063.67	2066.37	0.004459	11.31	7659.58	1214.28	0.71
1	52.170	100Yr	71000.00	2055.34	2063.70	2063.05	2065.54	0.006147	12.52	6962.25	1264.52	0.82
1	52.170	100YrEnc	71000.00	2055.34	2063.77	2063.05	2065.64	0.006108	12.56	6842.58	1159.39	0.81
1	52.147	100Yr	71000.00	2054.76	2063.08	2062.26	2064.78	0.005635	12.02	7187.49	1256.32	0.78
1	52.147	100YrEnc	71000.00	2054.76	2063.16	2062.28	2064.88	0.005568	12.04	7105.29	1178.95	0.78
1	52.121	100Yr	71000.00	2054.09	2062.02	2061.63	2064.00	0.006939	12.89	6718.90	1259.90	0.86
1	52.121	100YrEnc	71000.00	2054.09	2062.22	2061.67	2064.14	0.006433	12.65	6773.19	1187.08	0.83
1	52.100	100Yr	71000.00	2053.48	2061.11	2060.86	2063.15	0.007553	12.98	6602.32	1287.15	0.89
1	52.100	100YrEnc	71000.00	2053.48	2061.48	2060.91	2063.39	0.006506	12.48	6741.98	1184.25	0.83
1	52.078	100Yr	71000.00	2052.41	2060.50	2059.99	2062.30	0.006626	12.10	6973.20	1319.92	0.83
1	52.078	100YrEnc	71000.00	2052.41	2061.04	2060.02	2062.65	0.005248	11.36	7279.28	1212.15	0.75
1	52.054	100Yr	71000.00	2052.19	2059.91	2058.92	2061.39	0.005462	10.88	7553.46	1372.83	0.75
1	52.054	100YrEnc	71000.00	2052.19	2060.57	2059.09	2061.95	0.004304	10.31	7776.45	1217.45	0.68
1	52.029	100Yr	71000.00	2051.58	2059.18	2058.32	2060.67	0.005667	10.97	7560.16	1418.13	0.77
1	52.029	100YrEnc	71000.00	2051.58	2059.86	2058.62	2061.35	0.004737	10.74	7538.55	1228.47	0.71
1	52.006	100Yr	71000.00	2051.08	2058.79	2057.44	2060.00	0.004548	9.92	8284.17	1463.21	0.69
1	52.006	100YrEnc	71000.00	2051.08	2059.40	2058.00	2060.78	0.004470	10.44	7770.86	1239.04	0.69
1	51.983	100Yr	71000.00	2049.93	2058.18	2057.05	2059.46	0.005077	10.24	8059.13	1480.02	0.72
1	51.983	100YrEnc	71000.00	2049.93	2058.62	2057.61	2060.20	0.005529	11.18	7286.88	1244.42	0.76
1	51.957	100Yr	71000.00	2049.90	2057.75	2056.14	2058.84	0.003931	9.41	8703.97	1472.74	0.64
1	51.957	100YrEnc	71000.00	2049.90	2058.12	2056.68	2059.50	0.004482	10.42	7754.56	1234.41	0.69
1	51.932	100Yr	71000.00	2049.23	2057.33	2055.56	2058.36	0.003490	9.16	8997.86	1471.69	0.61
1	51.932	100YrEnc	71000.00	2049.23	2057.66	2056.02	2058.94	0.003930	10.02	8079.37	1240.97	0.65
1	51.895	100Yr	71000.00	2048.31	2056.53	2054.98	2057.66	0.003654	9.82	8702.58	1428.95	0.63
1	51.895	100YrEnc	71000.00	2048.31	2056.64	2055.41	2058.11	0.004522	10.95	7645.16	1220.83	0.70
1	51.854	100Yr	71000.00	2046.71	2055.51	2054.25	2056.84	0.004256	10.71	8100.13	1354.53	0.68
1	51.854	100YrEnc	71000.00	2046.71	2055.56	2054.47	2057.14	0.004928	11.44	7405.42	1189.29	0.73
1	51.829	100Yr	71000.00	2046.09	2055.03	2053.54	2056.29	0.003988	10.34	8232.44	1313.29	0.66
1	51.829	100YrEnc	71000.00	2046.09	2055.02	2053.74	2056.49	0.004647	11.02	7609.71	1200.34	0.71
1	51.807	100Yr	71000.00	2045.67	2054.42	2053.09	2055.77	0.004425	10.64	7917.08	1282.47	0.69
1	51.807	100YrEnc	71000.00	2045.67	2054.49	2053.17	2055.92	0.004550	10.86	7688.53	1215.64	0.70
1	51.782	100Yr	71000.00	2045.16	2054.00	2052.25	2055.18	0.003581	9.92	8486.75	1304.75	0.63
1	51.782	100YrEnc	71000.00	2045.16	2054.12	2052.32	2055.31	0.003524	9.94	8430.57	1264.06	0.63
1	51.757	100Yr	71000.00	2044.41	2053.61	2051.73	2054.72	0.003227	9.58	8788.67	1335.97	0.60
1	51.757	100YrEnc	71000.00	2044.41	2053.80	2051.77	2054.85	0.002943	9.29	9037.31	1332.16	0.58
1	51.734	100Yr	71000.00	2043.59	2053.40	2051.06	2054.29	0.002371	8.62	9925.81	1504.49	0.52
1	51.734	100YrEnc	71000.00	2043.59	2053.58	2051.07	2054.46	0.002248	8.51	9860.82	1372.13	0.51
1	51.709	100Yr	71000.00	2042.70	2053.17	2050.33	2053.96	0.001925	7.91	10379.89	1403.39	0.47
1	51.709	100YrEnc	71000.00	2042.70	2053.38	2050.31	2054.14	0.001794	7.75	10505.68	1358.12	0.46
1	51.682	100Yr	71000.00	2042.01	2053.01	2049.57	2053.67	0.001476	7.18	11343.61	1429.76	0.42
1	51.682	100YrEnc	71000.00	2042.01	2053.22	2049.51	2053.87	0.001410	7.12	11288.92	1350.25	0.41
1	51.656	100Yr	71000.00	2040.83	2052.94	2048.77	2053.46	0.001075	6.37	12777.22	1638.03	0.36
1	51.656	100YrEnc	71000.00	2040.83	2053.12	2048.73	2053.68	0.001091	6.50	12217.70	1356.32	0.36
1	51.638	100Yr	71000.00	2040.42	2052.87	2048.36	2053.35	0.000945	6.08	13329.45	1626.99	0.34
1	51.638	100YrEnc	71000.00	2040.42	2053.04	2048.30	2053.57	0.000994	6.30	12499.27	1337.70	0.35

HEC-RAS Plan: Prop Cond River: Hassayampa Reach: 1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
1	51.618	100Yr	71000.00	2039.82	2052.83	2047.68	2053.24	0.000765	5.67	14302.15	1592.42	0.31
1	51.618	100YrEnc	71000.00	2039.82	2052.97	2047.62	2053.46	0.000845	6.01	12991.08	1292.43	0.32
1	51.601	100Yr	71000.00	2039.07	2052.64	2047.66	2053.16	0.000917	6.29	13794.87	1566.73	0.34
1	51.601	100YrEnc	71000.00	2039.07	2052.80	2047.59	2053.37	0.000957	6.48	12211.10	1238.08	0.34
1	51.581	100Yr	71000.00	2038.66	2052.49	2047.32	2053.05	0.000976	6.61	14321.26	1562.61	0.35
1	51.581	100YrEnc	71000.00	2038.66	2052.64	2047.27	2053.26	0.001014	6.80	12080.98	1154.16	0.36
1	51.558	100Yr	71000.00	2038.03	2052.39	2046.92	2052.93	0.000950	6.65	14931.55	1556.63	0.35
1	51.558	100YrEnc	71000.00	2038.03	2052.49	2046.83	2053.13	0.001049	7.03	11668.38	1060.48	0.36
1	51.536	100Yr	71000.00	2037.74	2052.28	2046.44	2052.81	0.000917	6.68	14731.54	1495.36	0.34
1	51.536	100YrEnc	71000.00	2037.74	2052.36	2046.35	2053.00	0.001033	7.12	11553.54	999.16	0.36
1	51.516	100Yr	71000.00	2037.31	2052.19	2046.08	2052.72	0.000857	6.63	14302.86	1411.37	0.33
1	51.516	100YrEnc	71000.00	2037.31	2052.25	2046.04	2052.89	0.000958	7.04	11472.43	965.88	0.35
1	51.497	100Yr	71000.00	2036.90	2051.96	2046.58	2052.60	0.000979	7.36	13278.92	1400.58	0.36
1	51.497	100YrEnc	71000.00	2036.90	2052.02	2046.60	2052.76	0.001065	7.70	10937.68	958.16	0.37
1	51.477	100Yr	71000.00	2036.39	2051.90	2045.40	2052.46	0.000827	6.92	13333.52	1422.60	0.33
1	51.477	100YrEnc	71000.00	2036.39	2051.97	2045.33	2052.60	0.000887	7.19	11689.75	938.13	0.34
1	51.453	100Yr	71000.00	2036.01	2051.43	2046.01	2052.26	0.001070	7.91	10736.42	1319.79	0.38
1	51.453	100YrEnc	71000.00	2036.01	2051.43	2045.99	2052.38	0.001179	8.30	9826.90	877.37	0.40
1	51.436	100Yr	71000.00	2035.50	2051.11	2046.10	2052.10	0.001293	8.54	9553.47	1299.36	0.41
1	51.436	100YrEnc	71000.00	2035.50	2051.18	2046.04	2052.23	0.001340	8.72	9203.09	804.26	0.42
1	51.418	100Yr	71000.00	2035.06	2051.01	2045.12	2051.97	0.001162	8.24	9365.76	1248.24	0.39
1	51.418	100YrEnc	71000.00	2035.06	2051.11	2045.11	2052.06	0.001140	8.20	9438.62	737.29	0.39
1	51.398	100Yr	71000.00	2034.49	2050.36	2045.11	2051.71	0.001598	9.67	7834.61	1175.46	0.46
1	51.398	100YrEnc	71000.00	2034.49	2050.46	2045.12	2051.80	0.001575	9.65	7896.74	607.44	0.46
1	51.375	100Yr	71000.00	2034.15	2048.84	2045.42	2051.15	0.003057	12.20	5818.70	470.76	0.61
1	51.375	100YrEnc	71000.00	2034.15	2048.88	2045.46	2051.23	0.003105	12.32	5763.67	463.91	0.62
1	51.37		Bridge									
1	51.355	100Yr	71000.00	2033.47	2046.61	2044.89	2049.74	0.005008	14.19	5004.06	470.76	0.77
1	51.355	100YrEnc	71000.00	2033.47	2046.57	2044.93	2049.79	0.005150	14.39	4934.02	463.91	0.78
1	51.345	100Yr	71000.00	2033.21	2046.59	2043.92	2049.28	0.004041	13.16	5395.08	459.33	0.68
1	51.345	100YrEnc	71000.00	2033.21	2046.59	2043.92	2049.28	0.004039	13.16	5395.97	459.33	0.68
1	51.338	100Yr	71000.00	2033.10	2046.46	2043.67	2049.11	0.004102	13.07	5433.61	462.60	0.67
1	51.338	100YrEnc	71000.00	2033.10	2046.46	2043.67	2049.11	0.004099	13.06	5434.74	462.60	0.67
1	51.335		Bridge									
1	51.331	100Yr	71000.00	2032.83	2044.17	2043.91	2048.41	0.008899	16.51	4299.78	462.60	0.95
1	51.331	100YrEnc	71000.00	2032.83	2044.97	2043.91	2048.56	0.006814	15.22	4665.64	462.60	0.84
1	51.303	100Yr	71000.00	2032.04	2042.97	2042.97	2046.99	0.009158	16.73	4610.62	1288.10	0.95
1	51.303	100YrEnc	71000.00	2032.04	2043.10	2043.04	2047.26	0.009175	16.90	4513.50	525.63	0.95
1	51.275	100Yr	71000.00	2031.15	2041.40	2041.40	2045.10	0.008675	16.30	4864.84	1378.00	0.95
1	51.275	100YrEnc	71000.00	2031.15	2041.98	2041.64	2045.80	0.007956	16.25	4697.66	539.60	0.92
1	51.208	100Yr	71000.00	2029.31	2039.39	2038.95	2041.85	0.006212	14.56	6392.45	1878.20	0.85
1	51.208	100YrEnc	71000.00	2029.31	2040.17	2039.32	2042.90	0.005703	14.74	5833.64	722.32	0.83
1	51.13	100Yr	71000.00	2026.30	2037.45	2036.61	2038.94	0.005774	12.31	8181.59	1622.71	0.79
1	51.13	100YrEnc	71000.00	2026.30	2037.62	2037.14	2040.05	0.007838	14.55	6087.58	935.00	0.93

Jacobs

Item 4

Project:	**Wickenburg Interim Bypass**	By:	**JPF**
Subject:	**LOMR**	Date:	**9/21/11**
	Responses to FEMA Review of July 18, 2011	Checked:	**GLC**
	Case No. 11-09-3216P	Project No.:	**W7X73401**

The levee complies with all of the requirements of 44 CFR 65.10 (attached) and specifically the following items.

4a Attached is the topographic work map showing the floodplain delineation for Post Construction Without Levee conditions. Also included on the CD is a digital copy of the revised HEC-RAS model and a paper copy of the model output.

4b Attached is a paper copy of the As-Built Base Flood Elevations and the levee crest elevations. The resulting freeboard has been shown and documents the levee meets the requirements of NFIP.

4b Attached are the profiles of the As-Built Base Flood Elevations and the levee crest elevations. The resulting freeboard has been shown and documents the levee meets the requirements of NFIP. The profiles have been submitted in paper and digital forms.

4b Copies of the sheets from the As-Built drawings show the ties to high ground at the ends of the levee. At the downstream end, the levee ties to the levee constructed in the Sols Wash project. At the upstream end, the levee ties to high ground as shown.

4c As indicated in the CLOMR, the interior drainage system was designed and constructed with the Sols Wash project.

4d Testing, reporting, inspection and maintenance of the levee will be provided by the Town of Wickenburg. This was stated in the Intergovernmental Agreement between the Town of Wickenburg and Arizona Department of Transportation. This agreement has been attached. The Town will implement the requirements of the Operation & Maintenance Manual which has also been attached.

occurred in the flood plain since the existing floodway was developed. If the original hydraulic computer model is not available, an alternate hydraulic computer model may be used provided the alternate model has been calibrated so as to reproduce the original water surface profile of the original hydraulic computer model. The alternate model must be then modified to include all encroachments that have occurred since the existing floodway was developed.

(ii) The floodway analysis must be performed with the modified computer model using the desired floodway limits.

(iii) The floodway limits must be set so that combined effects of the past encroachments and the new floodway limits do not increase the effective base flood elevations by more than the amount specified in §60.3(d)(2). Copies of the input and output data from the original and modified computer models must be submitted.

(3) Delineation of the revised floodway on a copy of the effective NFIP map and a suitable topographic map.

(d) *Certification requirements.* All analyses submitted shall be certified by a registered professional engineer. All topographic data shall be certified by a registered professional engineer or licensed land surveyor. Certifications are subject to the definition given at §65.2 of this subchapter.

(e) *Submission procedures.* All requests that involve changes to floodways shall be submitted to the appropriate FEMA Regional Office servicing the community's geographic area.

[51 FR 30315, Aug. 25, 1986]

§ 65.8 Review of proposed projects.

A community, or an individual through the community, may request FEMA's comments on whether a proposed project, if built as proposed, would justify a map revision. FEMA's comments will be issued in the form of a letter, termed a Conditional Letter of Map Revision, in accordance with 44 CFR part 72. The data required to support such requests are the same as those required for final revisions under §§65.5, 65.6, and 65.7, except as-built certification is not required. All such requests shall be submitted to the FEMA Headquarters Office in Washington, DC, and shall be accompanied by the appropriate payment, in accordance with 44 CFR part 72.

[62 FR 5736, Feb. 6, 1997]

§ 65.9 Review and response by the Administrator.

If any questions or problems arise during review, FEMA will consult the Chief Executive Officer of the community (CEO), the community official designated by the CEO, and/or the requester for resolution. Upon receipt of a revision request, the Administrator shall mail an acknowledgment of receipt of such request to the CEO. Within 90 days of receiving the request with all necessary information, the Administrator shall notify the CEO of one or more of the following:

(a) The effective map(s) shall not be modified;

(b) The base flood elevations on the effective FIRM shall be modified and new base flood elevations shall be established under the provisions of part 67 of this subchapter;

(c) The changes requested are approved and the map(s) amended by Letter of Map Revision (LOMR);

(d) The changes requested are approved and a revised map(s) will be printed and distributed;

(e) The changes requested are not of such a significant nature as to warrant a reissuance or revision of the flood insurance study or maps and will be deferred until such time as a significant change occurs;

(f) An additional 90 days is required to evaluate the scientific or technical data submitted; or

(g) Additional data are required to support the revision request.

(h) The required payment has not been submitted in accordance with 44 CFR part 72, no review will be conducted and no determination will be issued until payment is received.

[51 FR 30315, Aug. 25, 1986; 61 FR 46331, Aug. 30, 1996, as amended at 62 FR 5736, Feb. 6, 1997]

§ 65.10 Mapping of areas protected by levee systems.

(a) *General.* For purposes of the NFIP, FEMA will only recognize in its flood

hazard and risk mapping effort those levee systems that meet, and continue to meet, minimum design, operation, and maintenance standards that are consistent with the level of protection sought through the comprehensive flood plain management criteria established by § 60.3 of this subchapter. Accordingly, this section describes the types of information FEMA needs to recognize, on NFIP maps, that a levee system provides protection from the base flood. This information must be supplied to FEMA by the community or other party seeking recognition of such a levee system at the time a flood risk study or restudy is conducted, when a map revision under the provisions of part 65 of this subchapter is sought based on a levee system, and upon request by the Administrator during the review of previously recognized structures. The FEMA review will be for the sole purpose of establishing appropriate risk zone determinations for NFIP maps and shall not constitute a determination by FEMA as to how a structure or system will perform in a flood event.

(b) *Design criteria.* For levees to be recognized by FEMA, evidence that adequate design and operation and maintenance systems are in place to provide reasonable assurance that protection from the base flood exists must be provided. The following requirements must be met:

(1) *Freeboard.* (i) Riverine levees must provide a minimum freeboard of three feet above the water-surface level of the base flood. An additional one foot above the minimum is required within 100 feet in either side of structures (such as bridges) riverward of the levee or wherever the flow is constricted. An additional one-half foot above the minimum at the upstream end of the levee, tapering to not less than the minimum at the downstream end of the levee, is also required.

(ii) Occasionally, exceptions to the minimum riverine freeboard requirement described in paragraph (b)(1)(i) of this section, may be approved. Appropriate engineering analyses demonstrating adequate protection with a lesser freeboard must be submitted to support a request for such an exception. The material presented must evaluate the uncertainty in the estimated base flood elevation profile and include, but not necessarily be limited to an assessment of statistical confidence limits of the 100-year discharge; changes in stage-discharge relationships; and the sources, potential, and magnitude of debris, sediment, and ice accumulation. It must be also shown that the levee will remain structurally stable during the base flood when such additional loading considerations are imposed. Under no circumstances will freeboard of less than two feet be accepted.

(iii) For coastal levees, the freeboard must be established at one foot above the height of the one percent wave or the maximum wave runup (whichever is greater) associated with the 100-year stillwater surge elevation at the site.

(iv) Occasionally, exceptions to the minimum coastal levee freeboard requirement described in paragraph (b)(1)(iii) of this section, may be approved. Appropriate engineering analyses demonstrating adequate protection with a lesser freeboard must be submitted to support a request for such an exception. The material presented must evaluate the uncertainty in the estimated base flood loading conditions. Particular emphasis must be placed on the effects of wave attack and overtopping on the stability of the levee. Under no circumstances, however, will a freeboard of less than two feet above the 100-year stillwater surge elevation be accepted.

(2) *Closures.* All openings must be provided with closure devices that are structural parts of the system during operation and design according to sound engineering practice.

(3) *Embankment protection.* Engineering analyses must be submitted that demonstrate that no appreciable erosion of the levee embankment can be expected during the base flood, as a result of either currents or waves, and that anticipated erosion will not result in failure of the levee embankment or foundation directly or indirectly through reduction of the seepage path and subsequent instability. The factors to be addressed in such analyses include, but are not limited to: Expected flow velocities (especially in constricted areas); expected wind and wave

action; ice loading; impact of debris; slope protection techniques; duration of flooding at various stages and velocities; embankment and foundation materials; levee alignment, bends, and transitions; and levee side slopes.

(4) *Embankment and foundation stability.* Engineering analyses that evaluate levee embankment stability must be submitted. The analyses provided shall evaluate expected seepage during loading conditions associated with the base flood and shall demonstrate that seepage into or through the levee foundation and embankment will not jeopardize embankment or foundation stability. An alternative analysis demonstrating that the levee is designed and constructed for stability against loading conditions for Case IV as defined in the U.S. Army Corps of Engineers (COE) manual, "Design and Construction of Levees" (EM 1110-2-1913, Chapter 6, Section II), may be used. The factors that shall be addressed in the analyses include: Depth of flooding, duration of flooding, embankment geometry and length of seepage path at critical locations, embankment and foundation materials, embankment compaction, penetrations, other design factors affecting seepage (such as drainage layers), and other design factors affecting embankment and foundation stability (such as berms).

(5) *Settlement.* Engineering analyses must be submitted that assess the potential and magnitude of future losses of freeboard as a result of levee settlement and demonstrate that freeboard will be maintained within the minimum standards set forth in paragraph (b)(1) of this section. This analysis must address embankment loads, compressibility of embankment soils, compressibility of foundation soils, age of the levee system, and construction compaction methods. In addition, detailed settlement analysis using procedures such as those described in the COE manual, "Soil Mechanics Design—Settlement Analysis" (EM 1100-2-1904) must be submitted.

(6) *Interior drainage.* An analysis must be submitted that identifies the source(s) of such flooding, the extent of the flooded area, and, if the average depth is greater than one foot, the water-surface elevation(s) of the base flood. This analysis must be based on the joint probability of interior and exterior flooding and the capacity of facilities (such as drainage lines and pumps) for evacuating interior floodwaters.

(7) *Other design criteria.* In unique situations, such as those where the levee system has relatively high vulnerability, FEMA may require that other design criteria and analyses be submitted to show that the levees provide adequate protection. In such situations, sound engineering practice will be the standard on which FEMA will base its determinations. FEMA will also provide the rationale for requiring this additional information.

(c) *Operation plans and criteria.* For a levee system to be recognized, the operational criteria must be as described below. All closure devices or mechanical systems for internal drainage, whether manual or automatic, must be operated in accordance with an officially adopted operation manual, a copy of which must be provided to FEMA by the operator when levee or drainage system recognition is being sought or when the manual for a previously recognized system is revised in any manner. All operations must be under the jurisdiction of a Federal or State agency, an agency created by Federal or State law, or an agency of a community participating in the NFIP.

(1) *Closures.* Operation plans for closures must include the following:

(i) Documentation of the flood warning system, under the jurisdiction of Federal, State, or community officials, that will be used to trigger emergency operation activities and demonstration that sufficient flood warning time exists for the completed operation of all closure structures, including necessary sealing, before floodwaters reach the base of the closure.

(ii) A formal plan of operation including specific actions and assignments of responsibility by individual name or title.

(iii) Provisions for periodic operation, at not less than one-year intervals, of the closure structure for testing and training purposes.

(2) *Interior drainage systems.* Interior drainage systems associated with levee systems usually include storage areas,

gravity outlets, pumping stations, or a combination thereof. These drainage systems will be recognized by FEMA on NFIP maps for flood protection purposes only if the following minimum criteria are included in the operation plan:

(i) Documentation of the flood warning system, under the jurisdiction of Federal, State, or community officials, that will be used to trigger emergency operation activities and demonstration that sufficient flood warning time exists to permit activation of mechanized portions of the drainage system.

(ii) A formal plan of operation including specific actions and assignments of responsibility by individual name or title.

(iii) Provision for manual backup for the activation of automatic systems.

(iv) Provisions for periodic inspection of interior drainage systems and periodic operation of any mechanized portions for testing and training purposes. No more than one year shall elapse between either the inspections or the operations.

(3) *Other operation plans and criteria.* Other operating plans and criteria may be required by FEMA to ensure that adequate protection is provided in specific situations. In such cases, sound emergency management practice will be the standard upon which FEMA determinations will be based.

(d) *Maintenance plans and criteria.* For levee systems to be recognized as providing protection from the base flood, the maintenance criteria must be as described herein. Levee systems must be maintained in accordance with an officially adopted maintenance plan, and a copy of this plan must be provided to FEMA by the owner of the levee system when recognition is being sought or when the plan for a previously recognized system is revised in any manner. All maintenance activities must be under the jurisdiction of a Federal or State agency, an agency created by Federal or State law, or an agency of a community participating in the NFIP that must assume ultimate responsibility for maintenance. This plan must document the formal procedure that ensures that the stability, height, and overall integrity of the levee and its associated structures and systems are maintained. At a minimum, maintenance plans shall specify the maintenance activities to be performed, the frequency of their performance, and the person by name or title responsible for their performance.

(e) *Certification requirements.* Data submitted to support that a given levee system complies with the structural requirements set forth in paragraphs (b)(1) through (7) of this section must be certified by a registered professional engineer. Also, certified as-built plans of the levee must be submitted. Certifications are subject to the definition given at §65.2 of this subchapter. In lieu of these structural requirements, a Federal agency with responsibility for levee design may certify that the levee has been adequately designed and constructed to provide protection against the base flood.

[51 FR 30316, Aug. 25, 1986]

§ 65.11 Evaluation of sand dunes in mapping coastal flood hazard areas.

(a) *General conditions.* For purposes of the NFIP, FEMA will consider storm-induced dune erosion potential in its determination of coastal flood hazards and risk mapping efforts. The criterion to be used in the evaluation of dune erosion will apply to primary frontal dunes as defined in §59.1, but does not apply to artificially designed and constructed dunes that are not well-established with long-standing vegetative cover, such as the placement of sand materials in a dune-like formation.

(b) *Evaluation criterion.* Primary frontal dunes will not be considered as effective barriers to base flood storm surges and associated wave action where the cross-sectional area of the primary frontal dune, as measured perpendicular to the shoreline and above the 100-year stillwater flood elevation and seaward of the dune crest, is equal to, or less than, 540 square feet.

(c) *Exceptions.* Exceptions to the evaluation criterion may be granted where it can be demonstrated through authoritative historical documentation that the primary frontal dunes at a specific site withstood previous base flood storm surges and associated wave action.

[53 FR 16279, May 6, 1988]

Post Const Conditions w/o Levee

HEC-RAS Plan: Prop Cond River: Hassayampa Reach: 1

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
1	53.16	100Yr	71000.00	2082.20	2088.28	2087.70	2089.45	0.006487	10.15	9276.34	2501.56	0.79
1	53.16	100YrEnc	71000.00	2082.20	2089.11	2088.06	2090.30	0.004848	9.70	8567.51	1701.96	0.70
1	53.130	100Yr	71000.00	2080.54	2087.40	2086.57	2088.35	0.005410	9.13	9541.47	2417.21	0.72
1	53.130	100YrEnc	71000.00	2080.54	2088.45	2086.95	2089.48	0.004036	8.96	8961.02	1640.68	0.64
1	53.097	100Yr	71000.00	2079.31	2086.67	2085.65	2087.46	0.004507	8.35	10501.97	2707.23	0.66
1	53.097	100YrEnc	71000.00	2079.31	2087.65	2086.15	2088.77	0.004281	9.16	8525.84	1512.54	0.66
1	53.063	100Yr	71000.00	2078.53	2085.95	2084.71	2086.74	0.004403	8.26	10288.00	2478.23	0.65
1	53.063	100YrEnc	71000.00	2078.53	2086.80	2085.44	2088.02	0.004712	9.49	8136.91	1446.91	0.69
1	53.026	100Yr	71000.00	2077.33	2084.90	2083.80	2085.82	0.004966	8.62	9421.95	2122.95	0.69
1	53.026	100YrEnc	71000.00	2077.33	2085.63	2084.56	2087.01	0.005637	10.07	7635.48	1411.07	0.75
1	52.986	100Yr	71000.00	2076.57	2084.15	2082.38	2084.86	0.003342	7.34	10550.87	2334.09	0.57
1	52.986	100YrEnc	71000.00	2076.57	2084.67	2083.31	2085.83	0.004668	9.24	8326.92	1507.74	0.68
1	52.949	100Yr	71000.00	2075.67	2083.58	2081.70	2084.30	0.003034	7.58	10574.26	2163.38	0.55
1	52.949	100YrEnc	71000.00	2075.67	2083.92	2082.45	2085.02	0.004129	9.18	8642.61	1519.59	0.65
1	52.916	100Yr	71000.00	2074.98	2083.17	2081.11	2083.86	0.002647	7.55	11001.13	1975.56	0.52
1	52.916	100YrEnc	71000.00	2074.98	2083.33	2081.78	2084.40	0.003733	9.12	8856.44	1514.80	0.63
1	52.881	100Yr	71000.00	2074.15	2082.72	2080.36	2083.43	0.002341	7.59	10843.02	1744.42	0.50
1	52.881	100YrEnc	71000.00	2074.15	2082.83	2080.90	2083.79	0.003018	8.70	9371.07	1490.34	0.57
1	52.847	100Yr	71000.00	2073.07	2081.61	2080.36	2082.84	0.004274	10.08	8451.90	1529.41	0.67
1	52.847	100YrEnc	71000.00	2073.07	2081.68	2080.59	2083.09	0.004692	10.63	7850.19	1365.69	0.71
1	52.813	100Yr	71000.00	2072.18	2080.24	2079.65	2081.92	0.006305	11.92	7274.47	1413.58	0.81
1	52.813	100YrEnc	71000.00	2072.18	2080.41	2079.74	2082.14	0.006138	11.96	7083.99	1281.11	0.81
1	52.778	100Yr	71000.00	2071.07	2079.22	2078.36	2080.76	0.005277	11.40	7605.16	1389.29	0.75
1	52.778	100YrEnc	71000.00	2071.07	2079.28	2078.53	2080.99	0.005694	11.91	7189.11	1270.32	0.78
1	52.740	100Yr	71000.00	2069.72	2077.87	2077.17	2079.55	0.006228	12.01	7212.29	1339.19	0.81
1	52.740	100YrEnc	71000.00	2069.72	2078.04	2077.25	2079.77	0.006060	12.05	7061.75	1238.78	0.80
1	52.693	100Yr	71000.00	2068.91	2076.28	2075.83	2077.95	0.007100	12.29	7256.37	1540.50	0.86
1	52.693	100YrEnc	71000.00	2068.91	2076.33	2075.87	2078.15	0.007404	12.62	6906.18	1344.78	0.88
1	52.650	100Yr	71000.00	2067.95	2074.31	2074.14	2076.16	0.009454	12.70	6780.26	1689.81	0.96
1	52.650	100YrEnc	71000.00	2067.95	2074.32	2074.20	2076.28	0.009954	13.03	6583.04	1471.57	0.99
1	52.606	100Yr	71000.00	2066.69	2072.81	2071.96	2074.08	0.006534	9.94	7970.56	1892.70	0.79
1	52.606	100YrEnc	71000.00	2066.69	2072.97	2071.96	2074.19	0.005977	9.72	8104.38	1641.38	0.76
1	52.558	100Yr	71000.00	2065.39	2071.65	2070.65	2072.82	0.005906	9.48	8298.43	1853.82	0.75
1	52.558	100YrEnc	71000.00	2065.39	2072.15	2070.62	2073.13	0.004241	8.57	9058.18	1693.12	0.65
1	52.508	100Yr	71000.00	2063.83	2070.89	2069.02	2071.67	0.003260	7.73	10178.32	1987.71	0.57
1	52.508	100YrEnc	71000.00	2063.83	2071.26	2069.49	2072.18	0.003504	8.33	9428.60	1660.63	0.60
1	52.467	100Yr	71000.00	2062.11	2070.27	2068.26	2071.04	0.002971	7.78	10237.05	1909.76	0.55
1	52.467	100YrEnc	71000.00	2062.11	2070.51	2068.75	2071.46	0.003509	8.61	9276.80	1594.19	0.60
1	52.440	100Yr	71000.00	2061.88	2069.55	2068.21	2070.53	0.003970	8.94	9259.15	1930.04	0.64
1	52.440	100YrEnc	71000.00	2061.88	2070.02	2068.24	2070.97	0.003395	8.63	9307.18	1570.72	0.59
1	52.410	100Yr	71000.00	2060.92	2069.24	2067.03	2069.98	0.002563	7.67	10485.77	1893.51	0.52
1	52.410	100YrEnc	71000.00	2060.92	2069.56	2067.60	2070.48	0.003015	8.52	9513.58	1528.98	0.56
1	52.384	100Yr	71000.00	2060.40	2068.87	2066.64	2069.63	0.002537	7.82	10493.30	1971.89	0.52
1	52.384	100YrEnc	71000.00	2060.40	2068.98	2067.30	2070.03	0.003378	9.04	9017.48	1483.09	0.60
1	52.345	100Yr	71000.00	2059.26	2068.10	2066.12	2069.04	0.003141	8.59	9466.64	1805.07	0.58
1	52.345	100YrEnc	71000.00	2059.26	2068.32	2066.41	2069.35	0.003206	8.87	9005.67	1413.95	0.59
1	52.316	100Yr	71000.00	2058.57	2067.46	2065.79	2068.55	0.003232	9.31	8944.58	1632.52	0.60
1	52.316	100YrEnc	71000.00	2058.57	2067.72	2066.03	2068.85	0.003268	9.48	8758.40	1363.71	0.60
1	52.284	100Yr	71000.00	2057.38	2066.63	2065.56	2067.94	0.004086	10.51	8412.69	1930.83	0.67
1	52.284	100YrEnc	71000.00	2057.38	2066.87	2065.62	2068.24	0.004078	10.62	8057.02	1314.25	0.67

HEC-RAS Plan: Prop Cond River: Hassayampa Reach: 1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
1	52.250	100Yr	71000.00	2057.09	2065.95	2064.63	2067.24	0.004018	10.64	8291.34	1555.88	0.67
1	52.250	100YrEnc	71000.00	2057.09	2066.14	2064.85	2067.53	0.004141	10.98	7985.73	1265.67	0.68
1	52.224	100Yr	71000.00	2056.62	2065.48	2064.11	2066.69	0.003776	10.60	8630.53	1438.43	0.65
1	52.224	100YrEnc	71000.00	2056.62	2065.56	2064.24	2066.97	0.004147	11.18	7936.71	1238.13	0.68
1	52.196	100Yr	71000.00	2055.97	2063.77	2063.75	2065.88	0.007899	13.64	6729.90	1444.66	0.92
1	52.196	100YrEnc	71000.00	2055.97	2064.87	2063.60	2066.37	0.004459	11.31	7659.58	1214.28	0.71
1	52.170	100Yr	71000.00	2055.34	2063.30	2062.40	2064.82	0.005564	11.48	7572.71	1411.66	0.77
1	52.170	100YrEnc	71000.00	2055.34	2063.77	2063.06	2065.64	0.006108	12.56	6842.58	1159.39	0.81
1	52.147	100Yr	71000.00	2054.76	2062.52	2061.82	2064.11	0.006077	11.83	7415.27	1408.53	0.80
1	52.147	100YrEnc	71000.00	2054.76	2063.16	2062.28	2064.88	0.005568	12.04	7105.29	1178.95	0.78
1	52.121	100Yr	71000.00	2054.09	2061.72	2061.10	2063.37	0.006331	11.96	7329.55	1427.77	0.82
1	52.121	100YrEnc	71000.00	2054.09	2062.22	2061.68	2064.14	0.006433	12.65	6773.19	1187.08	0.83
1	52.100	100Yr	71000.00	2053.48	2060.77	2060.36	2062.56	0.007352	12.36	7038.40	1453.79	0.87
1	52.100	100YrEnc	71000.00	2053.48	2061.48	2060.91	2063.39	0.006506	12.48	6741.98	1184.25	0.83
1	52.078	100Yr	71000.00	2052.41	2060.05	2059.53	2061.74	0.007045	11.91	7196.59	1476.70	0.85
1	52.078	100YrEnc	71000.00	2052.41	2061.04	2060.04	2062.65	0.005248	11.36	7279.28	1212.15	0.75
1	52.054	100Yr	71000.00	2052.19	2059.46	2058.73	2060.77	0.005707	10.60	8205.42	1744.83	0.76
1	52.054	100YrEnc	71000.00	2052.19	2060.57	2059.11	2061.95	0.004304	10.31	7776.45	1217.45	0.68
1	52.029	100Yr	71000.00	2051.58	2058.70	2058.01	2060.01	0.005910	10.64	8201.83	1788.25	0.77
1	52.029	100YrEnc	71000.00	2051.58	2059.86	2058.62	2061.35	0.004737	10.74	7538.55	1228.47	0.71
1	52.006	100Yr	71000.00	2051.08	2058.55	2056.98	2059.36	0.003443	8.41	10204.26	2013.18	0.59
1	52.006	100YrEnc	71000.00	2051.08	2059.40	2058.00	2060.78	0.004470	10.44	7770.86	1239.04	0.69
1	51.983	100Yr	71000.00	2049.93	2057.84	2056.92	2058.88	0.004978	9.77	9249.82	2083.20	0.71
1	51.983	100YrEnc	71000.00	2049.93	2058.62	2057.58	2060.20	0.005529	11.18	7286.88	1244.42	0.76
1	51.957	100Yr	71000.00	2049.90	2057.45	2055.96	2058.29	0.003637	8.78	10137.09	2046.45	0.61
1	51.957	100YrEnc	71000.00	2049.90	2058.12	2056.72	2059.50	0.004481	10.42	7755.46	1234.41	0.69
1	51.932	100Yr	71000.00	2049.23	2056.98	2055.47	2057.85	0.003497	8.85	10020.85	1946.74	0.61
1	51.932	100YrEnc	71000.00	2049.23	2057.66	2056.02	2058.94	0.003929	10.02	8080.28	1240.97	0.65
1	51.895	100Yr	71000.00	2048.31	2055.79	2054.74	2057.03	0.004860	10.57	8595.83	1751.23	0.72
1	51.895	100YrEnc	71000.00	2048.31	2056.64	2055.41	2058.11	0.004516	10.95	7648.44	1220.83	0.70
1	51.854	100Yr	71000.00	2046.71	2054.89	2053.68	2056.07	0.004447	10.34	8643.73	1629.47	0.69
1	51.854	100YrEnc	71000.00	2046.71	2055.56	2054.45	2057.13	0.004938	11.45	7400.78	1189.29	0.73
1	51.829	100Yr	71000.00	2046.09	2054.50	2052.82	2055.50	0.003582	9.34	9176.52	1555.00	0.62
1	51.829	100YrEnc	71000.00	2046.09	2055.02	2053.74	2056.48	0.004661	11.03	7602.68	1200.34	0.71
1	51.807	100Yr	71000.00	2045.67	2054.15	2052.32	2055.06	0.003289	8.95	9622.23	1671.66	0.59
1	51.807	100YrEnc	71000.00	2045.67	2054.49	2053.17	2055.92	0.004568	10.88	7679.03	1215.63	0.70
1	51.782	100Yr	71000.00	2045.16	2053.83	2051.53	2054.63	0.002591	8.31	10194.86	1573.79	0.53
1	51.782	100YrEnc	71000.00	2045.16	2054.11	2052.34	2055.31	0.003541	9.96	8417.91	1264.06	0.63
1	51.757	100Yr	71000.00	2044.41	2053.48	2051.20	2054.29	0.002559	8.44	10298.75	1572.69	0.53
1	51.757	100YrEnc	71000.00	2044.41	2053.80	2051.74	2054.84	0.002922	9.26	9066.10	1332.16	0.57
1	51.734	100Yr	71000.00	2043.59	2053.33	2050.43	2053.96	0.001776	7.42	11855.20	1759.29	0.45
1	51.734	100YrEnc	71000.00	2043.59	2053.58	2051.05	2054.46	0.002234	8.48	9895.61	1372.13	0.51
1	51.709	100Yr	71000.00	2042.70	2053.21	2049.55	2053.70	0.001282	6.47	13239.11	1759.08	0.38
1	51.709	100YrEnc	71000.00	2042.70	2053.38	2050.29	2054.14	0.001779	7.72	10551.94	1358.12	0.45
1	51.682	100Yr	71000.00	2042.01	2053.10	2049.08	2053.50	0.000999	5.94	15059.48	2020.51	0.34
1	51.682	100YrEnc	71000.00	2042.01	2053.22	2049.52	2053.87	0.001401	7.10	11328.61	1350.25	0.41
1	51.656	100Yr	71000.00	2040.83	2053.04	2048.07	2053.37	0.000705	5.20	16379.79	2156.82	0.29
1	51.656	100YrEnc	71000.00	2040.83	2053.13	2048.68	2053.68	0.001082	6.48	12267.94	1356.33	0.36
1	51.638	100Yr	71000.00	2040.42	2052.98	2047.79	2053.30	0.000682	5.20	16580.91	2191.25	0.29
1	51.638	100YrEnc	71000.00	2040.42	2053.04	2048.28	2053.57	0.000987	6.28	12546.68	1337.70	0.35

HEC-RAS Plan: Prop Cond River: Hassayampa Reach: 1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
1	51.618	100Yr	71000.00	2039.82	2052.96	2046.92	2053.22	0.000529	4.75	18369.16	2408.15	0.26
1	51.618	100YrEnc	71000.00	2039.82	2052.99	2047.49	2053.46	0.000817	5.92	13169.58	1292.43	0.32
1	51.601	100Yr	71000.00	2039.07	2052.82	2047.11	2053.15	0.000664	5.41	17716.80	2386.82	0.29
1	51.601	100YrEnc	71000.00	2039.07	2052.80	2047.59	2053.37	0.000949	6.46	12267.26	1238.08	0.34
1	51.581	100Yr	71000.00	2038.66	2052.72	2047.02	2053.08	0.000695	5.66	18599.66	2434.87	0.30
1	51.581	100YrEnc	71000.00	2038.66	2052.65	2047.26	2053.26	0.001006	6.78	12139.96	1154.16	0.35
1	51.558	100Yr	71000.00	2038.03	2052.61	2046.67	2052.99	0.000747	5.98	19711.66	2257.61	0.31
1	51.558	100YrEnc	71000.00	2038.03	2052.49	2046.82	2053.13	0.001044	7.02	11740.89	1060.48	0.36
1	51.536	100Yr	71000.00	2037.74	2052.58	2045.96	2052.87	0.000576	5.38	21399.67	2448.09	0.27
1	51.536	100YrEnc	71000.00	2037.74	2052.37	2046.29	2053.01	0.001026	7.10	11645.10	999.16	0.36
1	51.516	100Yr	71000.00	2037.31	2052.56	2045.50	2052.78	0.000403	4.64	22228.28	2211.36	0.23
1	51.516	100YrEnc	71000.00	2037.31	2052.27	2046.01	2052.90	0.000944	6.99	11565.49	965.88	0.35
1	51.497	100Yr	71000.00	2036.90	2051.96	2046.58	2052.60	0.000979	7.36	13278.92	1400.58	0.36
1	51.497	100YrEnc	71000.00	2036.90	2052.02	2046.60	2052.76	0.001065	7.70	10937.68	958.16	0.37
1	51.477	100Yr	71000.00	2036.39	2051.90	2045.40	2052.46	0.000827	6.92	13333.52	1422.60	0.33
1	51.477	100YrEnc	71000.00	2036.39	2051.97	2045.33	2052.60	0.000887	7.19	11689.75	938.13	0.34
1	51.453	100Yr	71000.00	2036.01	2051.43	2046.01	2052.26	0.001070	7.91	10736.42	1319.79	0.38
1	51.453	100YrEnc	71000.00	2036.01	2051.43	2045.99	2052.38	0.001179	8.30	9826.90	877.37	0.40
1	51.436	100Yr	71000.00	2035.50	2051.11	2046.10	2052.10	0.001293	8.54	9553.47	1299.36	0.41
1	51.436	100YrEnc	71000.00	2035.50	2051.18	2046.04	2052.23	0.001340	8.72	9203.09	804.26	0.42
1	51.418	100Yr	71000.00	2035.06	2051.01	2045.12	2051.97	0.001162	8.24	9365.76	1248.24	0.39
1	51.418	100YrEnc	71000.00	2035.06	2051.11	2045.11	2052.06	0.001140	8.20	9438.62	737.29	0.39
1	51.398	100Yr	71000.00	2034.49	2050.36	2045.11	2051.71	0.001598	9.67	7834.61	1175.46	0.46
1	51.398	100YrEnc	71000.00	2034.49	2050.46	2045.12	2051.80	0.001575	9.65	7896.74	607.44	0.46
1	51.375	100Yr	71000.00	2034.15	2048.84	2045.42	2051.15	0.003057	12.20	5818.70	470.76	0.61
1	51.375	100YrEnc	71000.00	2034.15	2048.88	2045.46	2051.23	0.003105	12.32	5763.67	463.91	0.62
1	51.37		Bridge									
1	51.355	100Yr	71000.00	2033.47	2046.61	2044.89	2049.74	0.005008	14.19	5004.06	470.76	0.77
1	51.355	100YrEnc	71000.00	2033.47	2046.57	2044.93	2049.79	0.005150	14.39	4934.02	463.91	0.78
1	51.345	100Yr	71000.00	2033.21	2046.59	2043.92	2049.28	0.004041	13.16	5395.08	459.33	0.68
1	51.345	100YrEnc	71000.00	2033.21	2046.59	2043.92	2049.28	0.004039	13.16	5395.97	459.33	0.68
1	51.338	100Yr	71000.00	2033.10	2046.46	2043.67	2049.11	0.004102	13.07	5433.61	462.60	0.67
1	51.338	100YrEnc	71000.00	2033.10	2046.46	2043.67	2049.11	0.004099	13.06	5434.74	462.60	0.67
1	51.335		Bridge									
1	51.331	100Yr	71000.00	2032.83	2044.17	2043.91	2048.41	0.008899	16.51	4299.78	462.60	0.95
1	51.331	100YrEnc	71000.00	2032.83	2044.97	2043.91	2048.56	0.006814	15.22	4665.64	462.60	0.84
1	51.303	100Yr	71000.00	2032.04	2042.97	2042.97	2046.99	0.009158	16.73	4610.62	1288.10	0.95
1	51.303	100YrEnc	71000.00	2032.04	2043.10	2043.04	2047.26	0.009175	16.90	4513.50	525.63	0.95
1	51.275	100Yr	71000.00	2031.15	2041.40	2041.40	2045.10	0.008675	16.30	4864.84	1378.00	0.95
1	51.275	100YrEnc	71000.00	2031.15	2041.98	2041.64	2045.80	0.007956	16.25	4697.66	539.60	0.92
1	51.208	100Yr	71000.00	2029.31	2039.39	2038.95	2041.85	0.006212	14.56	6392.45	1878.20	0.85
1	51.208	100YrEnc	71000.00	2029.31	2040.17	2039.32	2042.90	0.005703	14.74	5833.64	722.32	0.83
1	51.13	100Yr	71000.00	2026.30	2037.45	2036.61	2038.94	0.005774	12.31	8181.59	1622.71	0.79
1	51.13	100YrEnc	71000.00	2026.30	2037.62	2037.14	2040.05	0.007838	14.55	6087.58	935.00	0.93

Jacobs

Hydraulics

Project:	**U.S. 93 Interim Bypass**	By:	**JPF**
Subject:	**Levee Freeboard Calculations**	Date:	**9/7/2011**
	River Sta 51.398 to River Sta 52.224	Checked:	
	Hassayampa River	Jacobs Project No.:	**W7X73400**

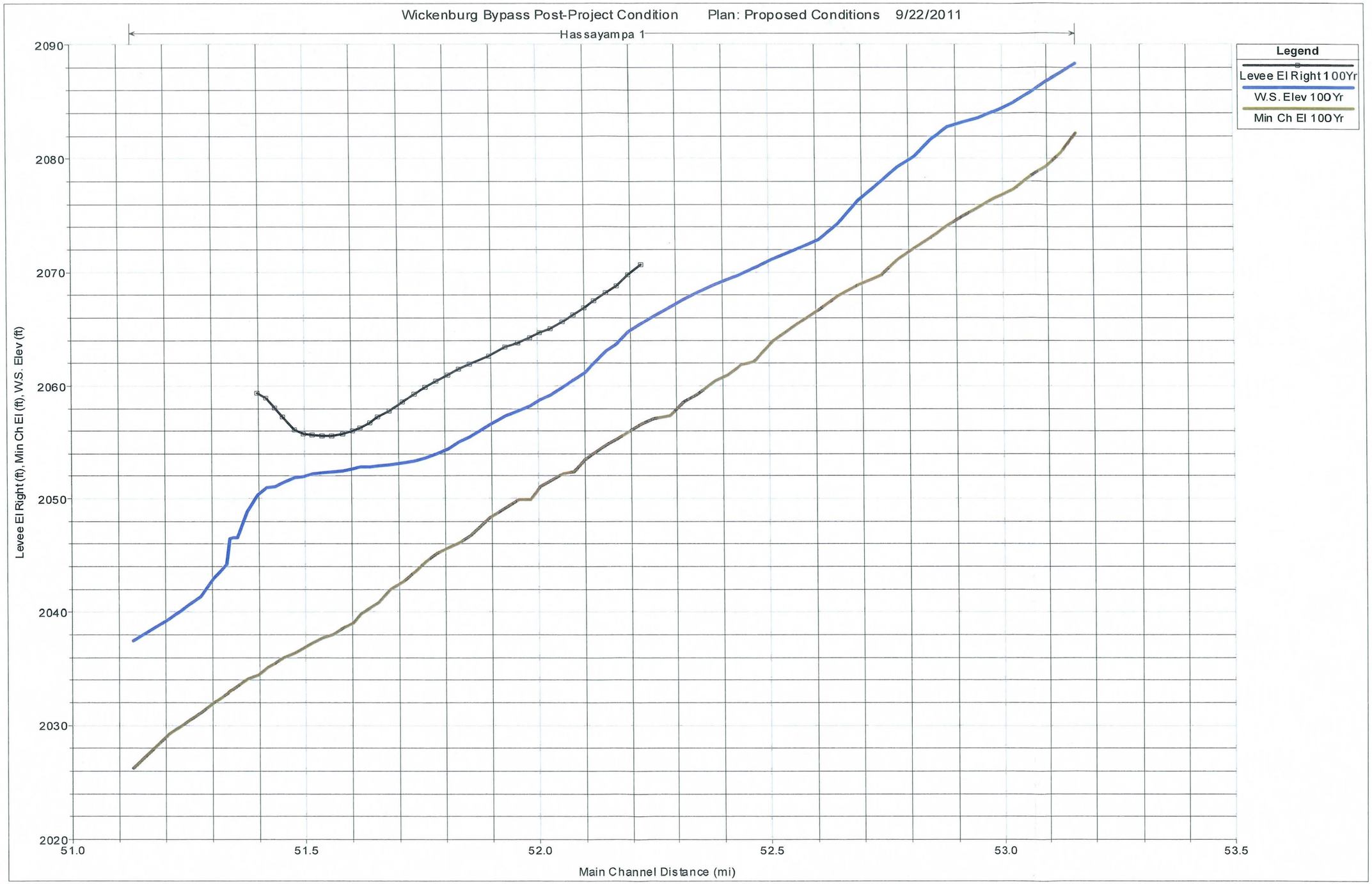
Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Levee El Right (ft)	Levee Freeboard (ft)	Crit W.S. (ft)	E.G. Elev (ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)
1	53.160	100Yr	71000	2082.20	2088.32			2087.70	2089.46	10.05	9369.86	2506.06
1	53.160	100YrEnc	71000	2082.20	2089.11			2088.06	2090.30	9.70	8567.51	1701.96
1	53.130	100Yr	71000	2080.54	2087.53			2086.50	2088.42	8.84	9852.04	2428.95
1	53.130	100YrEnc	71000	2080.54	2088.45			2086.94	2089.48	8.96	8961.02	1640.68
1	53.097	100Yr	71000	2079.31	2086.77			2085.74	2087.59	8.49	10202.65	2714.88
1	53.097	100YrEnc	71000	2079.31	2087.65			2086.15	2088.77	9.16	8525.84	1512.54
1	53.063	100Yr	71000	2078.53	2085.86			2084.81	2086.81	8.88	9409.26	2465.54
1	53.063	100YrEnc	71000	2078.53	2086.80			2085.44	2088.02	9.49	8136.91	1446.91
1	53.026	100Yr	71000	2077.33	2084.90			2083.77	2085.82	8.61	9374.07	2122.84
1	53.026	100YrEnc	71000	2077.33	2085.63			2084.56	2087.01	10.07	7635.48	1411.07
1	52.986	100Yr	71000	2076.57	2084.15			2082.38	2084.86	7.34	10550.87	2334.09
1	52.986	100YrEnc	71000	2076.57	2084.67			2083.31	2085.83	9.24	8326.92	1507.74
1	52.949	100Yr	71000	2075.67	2083.58			2081.70	2084.30	7.58	10574.26	2163.38
1	52.949	100YrEnc	71000	2075.67	2083.92			2082.45	2085.02	9.18	8642.61	1519.59
1	52.916	100Yr	71000	2074.98	2083.17			2081.11	2083.86	7.55	11001.13	1975.56
1	52.916	100YrEnc	71000	2074.98	2083.33			2081.78	2084.40	9.12	8856.44	1514.80
1	52.881	100Yr	71000	2074.15	2082.72			2080.36	2083.43	7.59	10843.02	1744.42
1	52.881	100YrEnc	71000	2074.15	2082.83			2080.90	2083.79	8.70	9371.07	1490.34
1	52.847	100Yr	71000	2073.07	2081.61			2080.36	2082.84	10.08	8451.90	1529.41
1	52.847	100YrEnc	71000	2073.07	2081.68			2080.59	2083.09	10.63	7850.19	1365.69
1	52.813	100Yr	71000	2072.18	2080.24			2079.65	2081.92	11.92	7274.47	1413.58
1	52.813	100YrEnc	71000	2072.18	2080.41			2079.74	2082.14	11.96	7083.99	1281.11
1	52.778	100Yr	71000	2071.07	2079.22			2078.36	2080.76	11.40	7605.16	1389.29
1	52.778	100YrEnc	71000	2071.07	2079.28			2078.53	2080.99	11.91	7189.11	1270.32
1	52.740	100Yr	71000	2069.72	2077.87			2077.17	2079.55	12.02	7210.65	1339.17
1	52.740	100YrEnc	71000	2069.72	2078.04			2077.25	2079.77	12.05	7061.75	1238.78
1	52.693	100Yr	71000	2068.91	2076.28			2075.83	2077.95	12.27	7264.36	1540.66

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Levee El Right	Levee Freeboard	Crit W.S.	E.G. Elev	Vel Chnl	Flow Area	Top Width
1	52.693	100YrEnc	71000	2068.91	2076.33			2075.87	2078.15	12.62	6906.18	1344.78
1	52.650	100Yr	71000	2067.95	2074.30			2074.14	2076.16	12.72	6767.19	1689.71
1	52.650	100YrEnc	71000	2067.95	2074.32			2074.20	2076.28	13.03	6583.04	1471.57
1	52.606	100Yr	71000	2066.69	2072.90			2071.96	2074.12	9.76	8121.92	1893.48
1	52.606	100YrEnc	71000	2066.69	2072.97			2071.96	2074.19	9.71	8106.38	1641.38
1	52.558	100Yr	71000	2065.39	2071.97			2070.65	2072.99	8.88	8856.57	1857.13
1	52.558	100YrEnc	71000	2065.39	2072.16			2070.63	2073.13	8.56	9063.55	1693.12
1	52.508	100Yr	71000	2063.83	2071.09			2069.33	2071.97	8.18	9655.14	1757.13
1	52.508	100YrEnc	71000	2063.83	2071.27			2069.49	2072.18	8.32	9439.14	1660.63
1	52.467	100Yr	71000	2062.11	2070.29			2068.63	2071.24	8.63	9309.25	1675.40
1	52.467	100YrEnc	71000	2062.11	2070.52			2068.75	2071.47	8.59	9296.21	1594.19
1	52.440	100Yr	71000	2061.88	2069.80			2068.09	2070.72	8.55	9459.34	1684.88
1	52.440	100YrEnc	71000	2061.88	2070.03			2068.25	2070.98	8.61	9324.37	1570.72
1	52.410	100Yr	71000	2060.92	2069.34			2067.46	2070.23	8.36	9680.93	1616.19
1	52.410	100YrEnc	71000	2060.92	2069.56			2067.65	2070.49	8.57	9464.60	1528.98
1	52.384	100Yr	71000	2060.40	2068.89			2067.09	2069.81	8.58	9589.86	1636.51
1	52.384	100YrEnc	71000	2060.40	2068.98			2067.34	2070.03	9.10	8961.70	1483.09
1	52.345	100Yr	71000	2059.26	2068.22			2066.24	2069.18	8.67	9405.80	1574.22
1	52.345	100YrEnc	71000	2059.26	2068.32			2066.42	2069.35	8.88	8986.86	1413.95
1	52.316	100Yr	71000	2058.57	2067.60			2065.88	2068.69	9.30	8940.66	1416.99
1	52.316	100YrEnc	71000	2058.57	2067.72			2066.01	2068.85	9.48	8759.82	1363.71
1	52.284	100Yr	71000	2057.38	2066.88			2065.63	2068.12	10.26	8604.73	1500.30
1	52.284	100YrEnc	71000	2057.38	2066.87			2065.63	2068.24	10.62	8056.88	1314.25
1	52.250	100Yr	71000	2057.09	2066.10			2064.80	2067.44	10.84	8139.36	1319.91
1	52.250	100YrEnc	71000	2057.09	2066.14			2064.85	2067.53	10.98	7983.70	1265.67
1	52.224	100Yr	71000	2056.62	2065.48	2070.65	5.17	2064.24	2066.88	11.19	7996.63	1290.52
1	52.224	100YrEnc	71000	2056.62	2065.56	2070.65		2064.25	2066.97	11.18	7936.70	1238.13
1	52.196	100Yr	71000	2055.97	2064.80	2069.77	4.97	2063.69	2066.28	11.29	7816.00	1340.59
1	52.196	100YrEnc	71000	2055.97	2064.87	2069.77		2063.67	2066.37	11.31	7659.58	1214.28
1	52.170	100Yr	71000	2055.34	2063.70	2068.85	5.15	2063.05	2065.54	12.52	6962.25	1264.52
1	52.170	100YrEnc	71000	2055.34	2063.77	2068.85		2063.05	2065.64	12.56	6842.58	1159.39
1	52.147	100Yr	71000	2054.76	2063.08	2068.16	5.08	2062.26	2064.78	12.02	7187.49	1256.32
1	52.147	100YrEnc	71000	2054.76	2063.16	2068.16		2062.28	2064.88	12.04	7105.29	1178.95
1	52.121	100Yr	71000	2054.09	2062.02	2067.51	5.49	2061.63	2064.00	12.89	6718.90	1259.90
1	52.121	100YrEnc	71000	2054.09	2062.22	2067.51		2061.67	2064.14	12.65	6773.19	1187.08

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Levee El Right	Levee Freeboard	Crit W.S.	E.G. Elev	Vel Chnl	Flow Area	Top Width
1	52.100	100Yr	71000	2053.48	2061.11	2066.85	5.74	2060.86	2063.15	12.98	6602.32	1287.15
1	52.100	100YrEnc	71000	2053.48	2061.48	2066.85		2060.91	2063.39	12.48	6741.98	1184.25
1	52.078	100Yr	71000	2052.41	2060.50	2066.27	5.77	2059.99	2062.30	12.10	6973.20	1319.92
1	52.078	100YrEnc	71000	2052.41	2061.04	2066.27		2060.02	2062.65	11.36	7279.28	1212.15
1	52.054	100Yr	71000	2052.19	2059.91	2065.60	5.69	2058.92	2061.39	10.88	7553.46	1372.83
1	52.054	100YrEnc	71000	2052.19	2060.57	2065.60		2059.09	2061.95	10.31	7776.45	1217.45
1	52.029	100Yr	71000	2051.58	2059.18	2065.01	5.83	2058.32	2060.67	10.97	7560.16	1418.13
1	52.029	100YrEnc	71000	2051.58	2059.86	2065.01		2058.62	2061.35	10.74	7538.55	1228.47
1	52.006	100Yr	71000	2051.08	2058.79	2064.64	5.85	2057.44	2060.00	9.92	8284.17	1463.21
1	52.006	100YrEnc	71000	2051.08	2059.40	2064.64		2058.00	2060.78	10.44	7770.86	1239.04
1	51.983	100Yr	71000	2049.93	2058.18	2064.24	6.06	2057.05	2059.46	10.24	8059.13	1480.02
1	51.983	100YrEnc	71000	2049.93	2058.62	2064.24		2057.61	2060.20	11.18	7286.88	1244.42
1	51.957	100Yr	71000	2049.90	2057.75	2063.82	6.07	2056.14	2058.84	9.41	8703.97	1472.74
1	51.957	100YrEnc	71000	2049.90	2058.12	2063.82		2056.68	2059.50	10.42	7754.56	1234.41
1	51.932	100Yr	71000	2049.23	2057.33	2063.39	6.06	2055.56	2058.36	9.16	8997.86	1471.69
1	51.932	100YrEnc	71000	2049.23	2057.66	2063.39		2056.02	2058.94	10.02	8079.37	1240.97
1	51.895	100Yr	71000	2048.31	2056.53	2062.66	6.13	2054.98	2057.66	9.82	8702.58	1428.95
1	51.895	100YrEnc	71000	2048.31	2056.64	2062.66		2055.41	2058.11	10.95	7645.16	1220.83
1	51.854	100Yr	71000	2046.71	2055.51	2061.97	6.46	2054.25	2056.84	10.71	8100.13	1354.53
1	51.854	100YrEnc	71000	2046.71	2055.56	2061.97		2054.47	2057.14	11.44	7405.42	1189.29
1	51.829	100Yr	71000	2046.09	2055.03	2061.48	6.45	2053.54	2056.29	10.34	8232.44	1313.29
1	51.829	100YrEnc	71000	2046.09	2055.02	2061.48		2053.74	2056.49	11.02	7609.71	1200.34
1	51.807	100Yr	71000	2045.67	2054.42	2060.97	6.55	2053.09	2055.77	10.64	7917.08	1282.47
1	51.807	100YrEnc	71000	2045.67	2054.49	2060.97		2053.17	2055.92	10.86	7688.53	1215.64
1	51.782	100Yr	71000	2045.16	2054.00	2060.40	6.40	2052.25	2055.18	9.92	8486.75	1304.75
1	51.782	100YrEnc	71000	2045.16	2054.12	2060.40		2052.32	2055.31	9.94	8430.57	1264.06
1	51.757	100Yr	71000	2044.41	2053.61	2059.86	6.25	2051.73	2054.72	9.58	8788.67	1335.97
1	51.757	100YrEnc	71000	2044.41	2053.80	2059.86		2051.77	2054.85	9.29	9037.31	1332.16
1	51.734	100Yr	71000	2043.59	2053.40	2059.28	5.88	2051.06	2054.29	8.62	9925.81	1504.49
1	51.734	100YrEnc	71000	2043.59	2053.58	2059.28		2051.07	2054.46	8.51	9860.82	1372.13
1	51.709	100Yr	71000	2042.70	2053.17	2058.54	5.37	2050.33	2053.96	7.91	10379.89	1403.39
1	51.709	100YrEnc	71000	2042.70	2053.38	2058.54		2050.31	2054.14	7.75	10505.68	1358.12
1	51.682	100Yr	71000	2042.01	2053.01	2057.81	4.80	2049.57	2053.67	7.18	11343.61	1429.76
1	51.682	100YrEnc	71000	2042.01	2053.22	2057.81		2049.51	2053.87	7.12	11288.92	1350.25
1	51.656	100Yr	71000	2040.83	2052.94	2057.22	4.28	2048.77	2053.46	6.37	12777.22	1638.03
1	51.656	100YrEnc	71000	2040.83	2053.12	2057.22		2048.73	2053.68	6.50	12217.70	1356.32

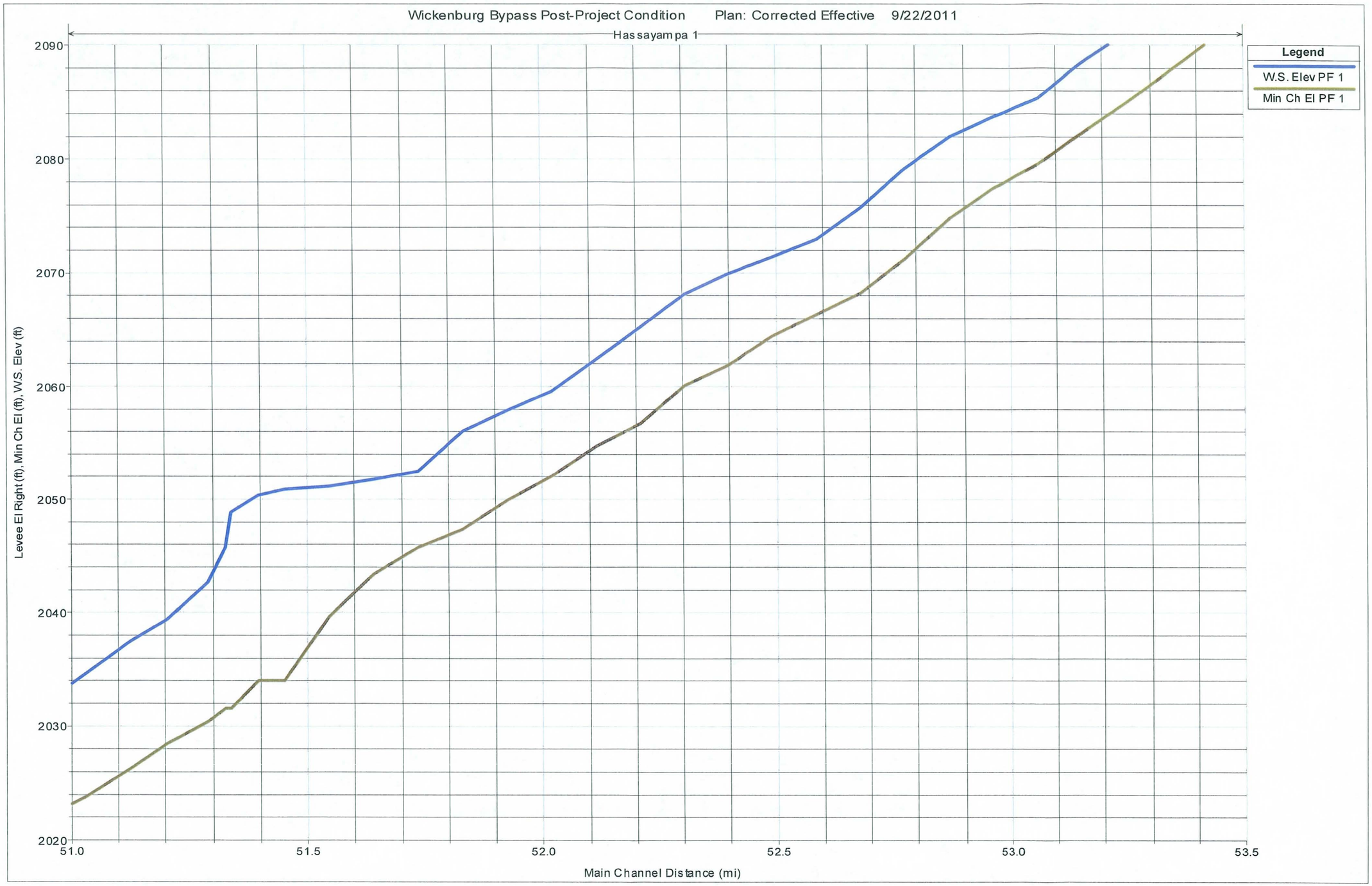
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Levee El Right	Levee Freeboard	Crit W.S.	E.G. Elev	Vel Chnl	Flow Area	Top Width
1	51.638	100Yr	71000	2040.42	2052.87	2056.75	3.88	2048.36	2053.35	6.08	13329.45	1626.99
1	51.638	100YrEnc	71000	2040.42	2053.04	2056.75		2048.30	2053.57	6.30	12499.27	1337.70
1	51.618	100Yr	71000	2039.82	2052.83	2056.29	3.46	2047.68	2053.24	5.67	14302.15	1592.42
1	51.618	100YrEnc	71000	2039.82	2052.97	2056.29		2047.62	2053.46	6.01	12991.08	1292.43
1	51.601	100Yr	71000	2039.07	2052.64	2055.98	3.34	2047.66	2053.16	6.29	13794.87	1566.73
1	51.601	100YrEnc	71000	2039.07	2052.80	2055.98		2047.59	2053.37	6.48	12211.10	1238.08
1	51.581	100Yr	71000	2038.66	2052.49	2055.71	3.22	2047.32	2053.05	6.61	14321.26	1562.61
1	51.581	100YrEnc	71000	2038.66	2052.64	2055.71		2047.27	2053.26	6.80	12080.98	1154.16
1	51.558	100Yr	71000	2038.03	2052.39	2055.54	3.15	2046.92	2052.93	6.65	14931.55	1556.63
1	51.558	100YrEnc	71000	2038.03	2052.49	2055.54		2046.83	2053.13	7.03	11668.38	1060.48
1	51.536	100Yr	71000	2037.74	2052.28	2055.53	3.25	2046.44	2052.81	6.68	14731.54	1495.36
1	51.536	100YrEnc	71000	2037.74	2052.36	2055.53		2046.35	2053.00	7.12	11553.54	999.16
1	51.516	100Yr	71000	2037.31	2052.19	2055.63	3.44	2046.08	2052.72	6.63	14302.86	1411.37
1	51.516	100YrEnc	71000	2037.31	2052.25	2055.63		2046.04	2052.89	7.04	11472.43	965.88
1	51.497	100Yr	71000	2036.90	2051.96	2055.75	3.79	2046.58	2052.60	7.36	13278.92	1400.58
1	51.497	100YrEnc	71000	2036.90	2052.02	2055.75		2046.60	2052.76	7.70	10937.68	958.16
1	51.477	100Yr	71000	2036.39	2051.90	2056.09	4.19	2045.40	2052.46	6.92	13333.52	1422.60
1	51.477	100YrEnc	71000	2036.39	2051.97	2056.09		2045.33	2052.60	7.19	11689.75	938.13
1	51.453	100Yr	71000	2036.01	2051.43	2057.21	5.78	2046.01	2052.26	7.91	10736.42	1319.79
1	51.453	100YrEnc	71000	2036.01	2051.43	2057.21		2045.99	2052.38	8.30	9826.90	877.37
1	51.436	100Yr	71000	2035.50	2051.11	2058.08	6.97	2046.10	2052.10	8.54	9553.47	1299.36
1	51.436	100YrEnc	71000	2035.50	2051.18	2058.08		2046.04	2052.23	8.72	9203.09	804.26
1	51.418	100Yr	71000	2035.06	2051.01	2058.94	7.93	2045.12	2051.97	8.24	9365.76	1248.24
1	51.418	100YrEnc	71000	2035.06	2051.11	2058.94		2045.11	2052.06	8.20	9438.62	737.29
1	51.398	100Yr	71000	2034.49	2050.36	2059.35	8.99	2045.11	2051.71	9.67	7834.61	1175.46
1	51.398	100YrEnc	71000	2034.49	2050.46	2059.35		2045.12	2051.80	9.65	7896.74	607.44
1	51.375	100Yr	71000	2034.15	2048.84			2045.42	2051.15	12.20	5818.70	470.76
1	51.375	100YrEnc	71000	2034.15	2048.88			2045.46	2051.23	12.32	5763.67	463.91
1	51.370		Bridge									
1	51.355	100Yr	71000	2033.47	2046.61			2044.89	2049.74	14.19	5004.06	470.76
1	51.355	100YrEnc	71000	2033.47	2046.57			2044.93	2049.79	14.39	4934.02	463.91
1	51.345	100Yr	71000	2033.21	2046.59			2043.92	2049.28	13.16	5395.08	459.33
1	51.345	100YrEnc	71000	2033.21	2046.59			2043.92	2049.28	13.16	5395.97	459.33
1	51.338	100Yr	71000	2033.10	2046.46			2043.67	2049.11	13.07	5433.61	462.60
1	51.338	100YrEnc	71000	2033.10	2046.46			2043.67	2049.11	13.06	5434.74	462.60

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Levee El Right	Levee Freeboard	Crit W.S.	E.G. Elev	Vel Chnl	Flow Area	Top Width
1	51.335		Bridge									
1	51.331	100Yr	71000	2032.83	2044.17			2043.91	2048.41	16.51	4299.78	462.60
1	51.331	100YrEnc	71000	2032.83	2044.97			2043.91	2048.56	15.22	4665.64	462.60
1	51.303	100Yr	71000	2032.04	2042.97			2042.97	2046.99	16.73	4610.62	1288.10
1	51.303	100YrEnc	71000	2032.04	2043.10			2043.04	2047.26	16.90	4513.50	525.63
1	51.275	100Yr	71000	2031.15	2041.40			2041.40	2045.10	16.30	4864.84	1378.00
1	51.275	100YrEnc	71000	2031.15	2041.98			2041.64	2045.80	16.25	4697.66	539.60
1	51.208	100Yr	71000	2029.31	2039.39			2038.95	2041.85	14.56	6392.45	1878.20
1	51.208	100YrEnc	71000	2029.31	2040.17			2039.32	2042.90	14.74	5833.64	722.32
1	51.130	100Yr	71000	2026.30	2037.45			2036.61	2038.94	12.31	8181.59	1622.71
1	51.130	100YrEnc	71000	2026.30	2037.62			2037.14	2040.05	14.55	6087.58	935.00



Post-Construction Conditions
Base Flood Elevations and Levee Crest Elevations

JACOBS™


Wickenburg Bypass Post-Project Condition Plan: Corrected Effective 9/22/2011
Hassayampa 1
Legend
W.S. Elev PF 1
Min Ch El PF 1
Levee El Right (ft), Min Ch El (ft), W.S. Elev (ft)
2090
2080
2070
2060
2050
2040
2030
2020
51.0
51.5
52.0
52.5
53.0
53.5
Main Channel Distance (mi)

TO ACCOMPANY ADDENDUM NO. 2 - RFI 069

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	NH-093-B(008)B	96	380	03/07/11

93 MA 198

142 Lin Ft New Single Curb Type A, h=6" Std C-05.10

Wickenburg Way Construction ℄

New Sewer See UT Sheets

South Roundabout

New R/W

New TCE

Riprap

New Sidewalk Detail F

New Safety Rail Detail G

New Retaining Wall Detail F

New Sewer See UT Sheets

Sols Wash Improvements (By Others)

New Sols Wash Bridge Sta 114+22.00 to Sta 116+72.00

US 93 Construction ℄

N 38°54'00" W

34'

34'

New TCE

ASPH. PARKING

Kerkes St Construction ℄

New Gateway Plan See Dwg GP03 See Dwg GW1.1 For Hardscape Plan

Exst R/W

New R/W

Exst R/W

Exst WB Hassayampa River Bridge Remove (Abutments to Remain)

HASSAYAMPA RIVER

US 60 Construction ℄

New Soil Cement Bank Lining Type A Detail M

Bank Lining Toe Down Limit

431 Lin Ft New Single Curb Type A, h=6" Std C-05.10

496 Lin Ft New Single Curb Type A, h=6" Std C-05.10

446 Lin Ft New Single Curb Type A, h=6" Std C-05.10

Levee

New Soil Cement Cutoff Wall Type A Detail M

New R/W

New Soil Cement Bank Lining Type B Detail M

See Dwg MG01 & MG02 for Median Geometrics
See Dwg RG01 for Roundabout Geometrics
See Dwg ST01 for Roundabout Staking
See Dwg RM01 for Removals
See UT sheets for Utility Relocations

REV NO.	LOCATION	DATE	BY
1	REVISED ROUNDABOUTS	10/3/07	BSW
2	REVISED CATCH BASIN 47	1/21/09	BSW
3	REMOVED SPLITTER ISLAND	1/22/09	BSW
4	REVISED CURB TYPE	2/02/09	BSW

NOTE: AS INDICATED THE SOUTH END OF THE LEVEE TIES TO THE SOLS WASH LEVEE

See Dwg ST01 for Roundabout Staking

Profile Grade & Axis of Rotation

-2.0% Lt & Rt Edge

Sta 113+00.00

SUPERELEVATION DIAGRAM

1000.00' VC

US 93 Finished Grade

0.4127%

Sols Wash Super CBC

Q_{10} = 1.6 CFS
HW_{10} = 2051.61

Q_{100} = 15,045 CFS
HW_{100} = 2048.9
Q_{50} = 12,453 CFS
HW_{50} = 2046.2

Q_{10} = 1.0 CFS
HW_{10} = 2052.11

Existing Ground Line

5%
0%
-5%
2080
2060
2040
2020
2000

110+00

115+00

US 93 PROFILE

	NAME	DATE
DESIGN	BWR/PJB	06-07
DRAWN	ASJ/SR	06-07
CHECKED	BSW	06-07

JACOBS

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION

PLAN & PROFILE SHEET
US 93
STA 110+54.80 TO STA 118+00.00

ROUTE	LOCATION
US 93	WICKENBURG BYPASS

TRACS NO. H 5825 01C | NH-093-B(008)B

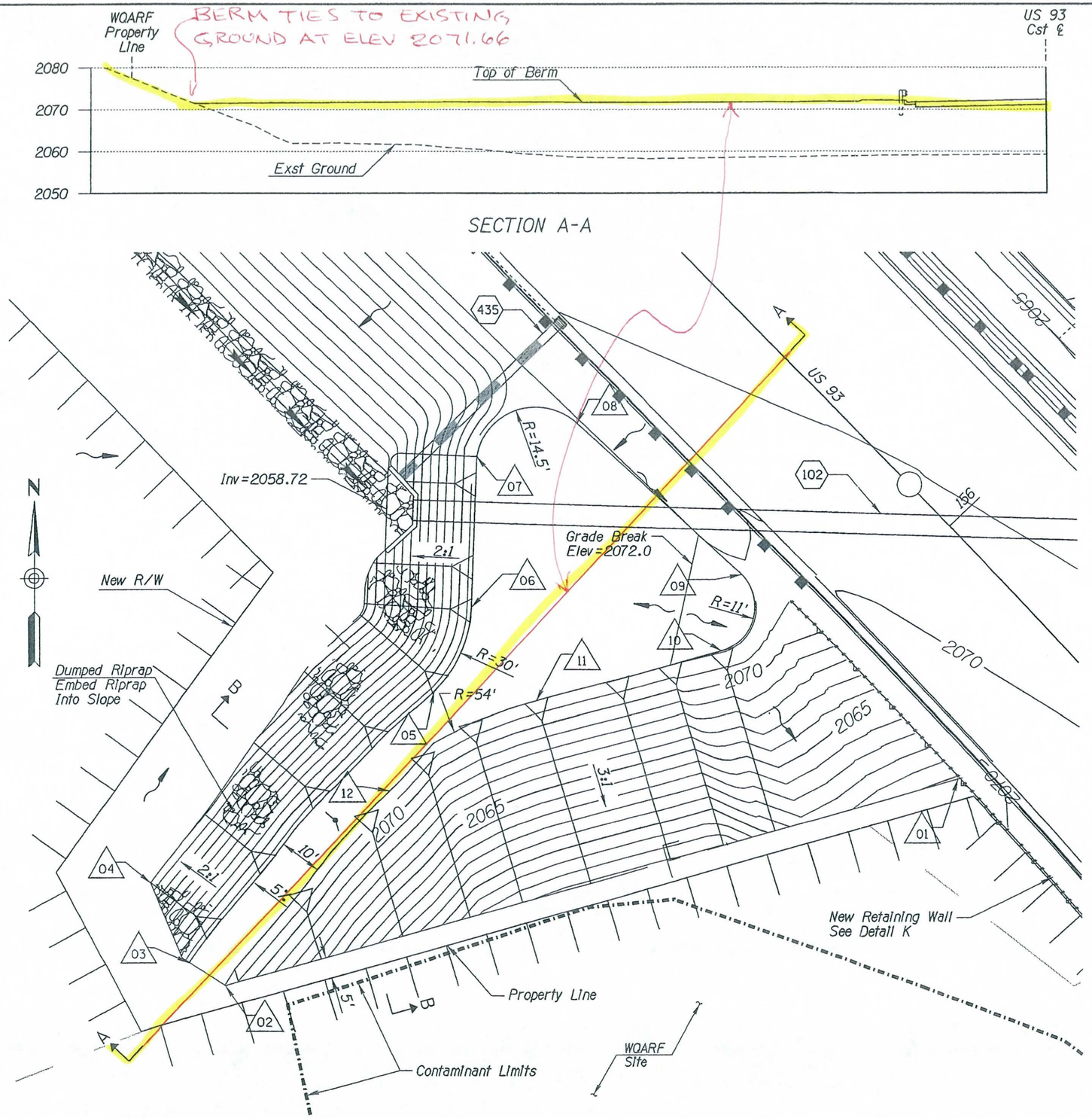
25339 BERWYN S. WILBRINK — Expires 12-31-2010

DWG PP02

114 OF 448

N:\ADOT_V8\RW\users\srivera\ 4:21:50 PM 2/27/2009 P:\w7x73400\700CADD\702CIVIL\702ADGN\734cpp02-rev3.dgn

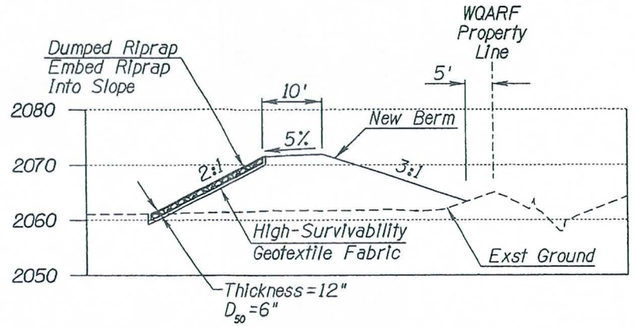
SURVEY NO. | FINISHED PLANS | REVISIONS | LOCATION | DATE



Approximate Quantity

Riprap Volume (Cu Yd)
100

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	NH-093-B(008)B	57	380	03/07/11
		93 MA 198			



SECTION B-B

Reference Number	US 93 Station	US 93 Offset	Reference Point Northing	Reference Point Easting	Reference Point Elev	Description
01	155+53.99	40.72' Lt	1 085 844.12	451 858.37	2059.83	Gr Break
02	156+41.35	201.85' Lt	1 085 794.75	451 683.33	2071.95	Gr Break
03	156+51.18	204.20' Lt	1 085 800.19	451 674.80	2071.50	Gr Break
04	156+71.29	197.45' Lt	1 085 819.34	451 665.69	2062.16	Gr Break
05	156+57.66	117.13' Lt	1 085 865.33	451 732.94	2071.50	PC, Gr Break
06	156+65.89	96.45' Lt	1 085 885.62	451 742.10	2071.50	PT, Gr Break
07	156+90.98	69.99' Lt	1 085 922.04	451 743.70	2071.50	PC, Gr Break
08	156+80.00	47.00' Lt	1 085 930.11	451 767.87	2071.74	PT
09	156+26.39	44.21' Lt	1 085 893.49	451 807.12	2072.07	PC
10	156+16.64	60.65' Lt	1 085 875.06	451 802.06	2072.10	PT, Gr Break
11	156+38.98	100.96' Lt	1 085 863.12	451 757.55	2072.00	PC, Gr Break
12	156+47.92	141.56' Lt	1 085 841.36	451 722.13	2072.00	PT, Gr Break

DETAIL W

WQARF SITE BERM

	NAME	DATE
DESIGN	BWR/PJB	06-07
DRAWN	ASJ/SR	06-07
CHECKED	BSW	06-07

JACOBS

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION

DETAIL SHEET
WQARF SITE BERM

ROUTE: US 93 | LOCATION: WICKENBURG BYPASS

TRACS NO. H 5825 01C | NH-093-B(008)B

DWG DT40

69 OF 448

BERWYN S. WILBRINK 25339 REGISTERED ENGINEER ARIZONA, U.S.A.

SURVEY NO. | FINISHED PLANS | REVISIONS | LOCATION | DATE

PLOTTED BY: srivera DATE PLOTTED: 28-JUN-2007 13:58 PENTBL: IPLOT_PEN_TABLE_PATH\xes_rV.PEN
FILE: P:\w7x73400\700CADD\702CIVIL\702ADGN\734cdt40.dgn

TERRY GODDARD
Attorney General

OFFICE OF THE ATTORNEY GENERAL
STATE OF ARIZONA

CIVIL DIVISION
TRANSPORTATION SECTION
Direct Line: 602.542.8837

INTERGOVERNMENTAL AGREEMENT DETERMINATION

A.G. Contract No. KR04-0306-TRN, an agreement between public agencies, has been reviewed pursuant to A.R.S. § 11-952, as amended, by the undersigned Assistant Attorney General who has determined that it is in the proper form and is within the powers and authority granted to the State of Arizona.

No opinion is expressed as to the authority of the remaining parties, other than the State or its agencies, to enter into said agreement.

Date: 26 April 2007

Terry Goddard
ATTORNEY GENERAL

James R. Redpath
Assistant Attorney General
Transportation Section

JRR:djd:998729

RESOLUTION NO. 1548
(JPA 08-075/CONTRACT KRO6-0806TRN)

A RESOLUTION OF THE MAYOR AND COMMON COUNCIL OF THE TOWN OF WICKENBURG, COUNTY OF MARICOPA, STATE OF ARIZONA, NOTIFYING THE ARIZONA DEPARTMENT OF TRANSPORTATION (ADOT) THAT THE REVISED MARCH 21, 2007 ADOT INTERGOVERNMENTAL AGREEMENT (IGA) FOR THE US 93 INTERIM BYPASS IS ACCEPTABLE AND UPON RECEIPT OF A FINAL IGA AGREEMENT APPROVED BY THE ATTORNEY GENERAL OF THE STATE OF ARIZONA THE TOWN WILL ENTER INTO AN INTERGOVERNMENTAL AGREEMENT WITH THE STATE OF ARIZONA, DEPARTMENT OF TRANSPORTATION RELATIVE TO CONSTRUCTION OF AN INTERIM WICKENBURG BY-PASS INCLUDING AN IMPROVEMENT PROJECT TO DESIGN AND CONSTRUCT CERTAIN ELEMENTS ON US 93 (TEGNER STREET) AND RELOCATE PORTIONS OF US 60 (WICKENBURG WAY)

WHEREAS, the Town of Wickenburg desires to have an Interim Bypass constructed; and,

WHEREAS, the Town desires certain improvements on US 93 (Tegner Street) and US 60 (Wickenburg Way); and,

WHEREAS, the State of Arizona, by and through its Department of Transportation, has agreed with the need for such an Interim Bypass and has, therefore, resolved to enter into an Intergovernmental Agreement with the Town of Wickenburg to cause such design construction with the Town of Wickenburg; and,

WHEREAS, the Intergovernmental Agreement to which this Resolution is attached, marked "REVISED March 21, 2007" sets forth the terms, provisions, and conditions along with the rights and obligations of the respective parties.

NOW, THEREFORE, BE IT RESOLVED BY THE MAYOR AND COMMON COUNCIL OF THE TOWN OF WICKENBURG, ARIZONA, as follows:

1. The Intergovernmental Agreement attached hereto, marked "REVISED and dated MARCH 21, 2007" and to which this Resolution will be denoted as Exhibit "A" thereto, be and is hereby acceptable, and that upon final receipt of a Final Intergovernmental Agreement approved by the Attorney General of the State of Arizona it will be hereby passed, approved and approved and adopted.
2. The Common Council of the Town of Wickenburg authorizes the Mayor to enter into and execute this and all future Intergovernmental Agreements.
3. The Town of Wickenburg agrees, and does by these presences, agree to be bound by all terms, provisions, and conditions of the "REVISED March 21, 2007 copy" Intergovernmental Agreement and to accept any obligations imposed upon it and accept the benefits gained therefrom.

PASSED, APPROVED AND ADOPTED by the Mayor and Common Council of the Town of Wickenburg, Arizona this 2nd day of April 2007.

R.R. Badowski

R.R. BADOWSKI, MAYOR

Date Signed: 4/2/07

ATTEST:

Donna Riffel

Donna Riffel, Town Clerk

Date Signed: 4/2/07

APPROVED AS TO FORM:

Susan D. Goodwin, Town Attorney
Curtis, Goodwin, Sullivan, Udall & Schwab, P.L.C.

Number of Councilmembers Present: 6
Number of Votes For: 6
Number of Votes Against: 0
Number of Abstentions: 0

CERTIFICATION

I HEREBY CERTIFY that the foregoing Resolution Number 1548 was duly passed and adopted by the Mayor and Common Council of the Town of Wickenburg, Arizona, at a regular meeting held on the 2nd day of April 2007 and that a quorum was present at the meeting.

Donna Riffel

Donna Riffel, Town Clerk

9. All notices or demands upon any party to this Agreement shall be in writing and shall be delivered in person or sent by mail addressed as follows:

Arizona Department of Transportation
Joint Project Administration
205 S. 17th Avenue - MD 616E
Phoenix, AZ 85007
FAX: (602) 712-7424

Town of Wickenburg, Arizona
R. R. Badowski, Mayor
155 N. Tegner, Suite A
Wickenburg, AZ 85390
FAX: (602) 506-1580

10. Pursuant to Arizona Revised Statutes Section 11-952.D., attached hereto and incorporated herein, is the written determination of each party's legal counsel that the parties are authorized under the laws of this State to enter into this Agreement and that the Agreement is in proper form.

IN WITNESS WHEREOF, the parties have executed this Agreement the day and year first above written.

TOWN OF WICKENBURG

By _____
R. R. BADOWSKI
Mayor

ATTEST

By _____
DONNA RIFFEL
Town Clerk

STATE OF ARIZONA
Department of Transportation

By _____
SAM MAROUFKHANI, P.E.
Deputy State Engineer

o. Accept $1,200,000.00 from the State, to be used for the design and construction of the Sol's Wash flood control improvements. These monies will be utilized by Wickenburg to facilitate and accelerate their construction of the Sol's Wash Improvements so that their drainage improvements are completed in conjunction with the State's project. These monies are being transferred in lieu of constructing several concrete box culverts from Sta. 117+00 to Sta. 135+00, passing through the embankment.

p. Upon completion of the Project accept full flood control responsibilities including operations and maintenance for the berm between the proposed US 93 alignment and the WQARF site embankment, approx. Sta. 156+50. The berm will prevent offsite flows, from north of the WQARF site, from flowing into drainage areas south of the WQARF site. The berm shall be added to the Town's flood control maintenance plan in order to ensure integrity of this flood control feature.

III. MISCELLANEOUS PROVISIONS

1. The terms, conditions and provisions of this Agreement shall remain in force and effect until completion of the Project, and abandonment (in phases as outlined herein); provided, however, that this Agreement, except any provisions herein for maintenance, which shall be perpetual, may be canceled at any time prior to the commencement of performance under this Agreement, upon thirty (30) days written notice to the other party.

2. This Agreement shall become effective upon filing with the Secretary of State.

3. This Agreement may be cancelled in accordance with Arizona Revised Statutes Section 38-511.

4. The provisions of Arizona Revised Statutes Section 35-214 is applicable to this contract.

5. The State assumes no financial obligation or liability for any and all flooding that may occur in the neighborhoods. The Town hereby agrees to save and hold harmless and indemnify from loss the State, any of its departments, agencies, officers or employees from any and all costs and/or damage incurred by any of the above, including preexisting conditions, and from any other damage to any person or property whatsoever, which is caused by any activity, condition, misrepresentations, directives, instruction or event arising out of the performance or nonperformance of any provisions to this Agreement by the State, any of its departments, agencies, officers and employees, the Town and any of its agents, officers and employees, or any of its independent contractors. Costs incurred by the State and/or any of its departments, agencies, officers, or employees shall include in the event of any action court costs, expenses of litigation and attorneys' fees.

6. This Agreement is subject to all applicable provisions of the Americans with Disabilities Act (Public Law 101-336, 42 U.S.C. 12101-12213) and all applicable federal regulations under the Act, including 28 CFR Parts 35 and 36. The parties to this Agreement shall comply with Executive Order Number 99-4 issued by the Governor of the State of Arizona and incorporated herein by reference regarding "Non-Discrimination".

7. Non-Availability of Funds: Every payment obligation of the State under this contract is conditioned upon the availability of funds appropriated or allocated for the payment of such obligation. If funds are not allocated and available for the continuance of this contract, this contract may be terminated by the State at the end of the period for which the funds are available. No liability shall accrue to the State in the event this provision is exercised, and the State shall not be obligated or liable for any future payments or for any damages as a result of termination under this paragraph.

8. In the event of any controversy, which may arise out of this Agreement, the parties hereto agree to abide by required arbitration as is set forth for public works contracts in Arizona Revised Statutes Section 12-1518.

Office for Town personnel to access the items listed in this section to perform said maintenance within State's rights-of-way.

e. Upon completion of the project and approval by resolution of the State Transportation Board accept ownership jurisdiction and maintenance responsibilities of Tegner Street from the Intersection with US 93 (MP 197.9) to US 60 (MP 199.7).

f. Upon completion of the project and approval by resolution of the State Transportation Board accept ownership jurisdiction and maintenance responsibilities of the existing 1962 Hassayampa River Bridge including the approaches, interpretive site and adjacent park areas as described in I.3.e.

g. Upon completion of the project and approval by resolution of the State Transportation Board accept ownership jurisdiction and maintenance responsibilities for properties immediately north of Sol's Wash and adjacent to the west side of the roadway embankment. Between the south end of the new Sol's Wash bridge (Sta. 114+25) and Sta. 133+00. From 10' left of the western toe of the roadway embankment to the proposed R/W line west of the proposed roadway. . See Exhibit "G". The Town shall maintain these properties for drainage purposes. If, at any time, it is determined by the Town that these properties are no longer needed for drainage purposes, then ownership of said properties will immediately revert back to the State.

h. Upon completion of the Project accept full flood control responsibilities, including operations and maintenance for the inlet and flap gate outlet draining the area south and east of the Community Center into the Hassayampa River. These services include operation and maintenance of flap gate and access barrier, as well as, replacement of these features if and when necessary to maintain desired flood protection from the Hassayampa River. The Town shall obtain an encroachment permit through the Prescott District Office for Town personnel to access the items listed in this section to perform said maintenance within State's rights-of-way.

i. Upon completion of the Project accept full flood control responsibilities including operations and maintenance for the flap gate outlets on US 93 culverts at Sta. 165+35 and Sta. 156+00. These services, include operation and maintenance of flap gate, as well as, replacement of these features if and when necessary to maintain desired flood protection from the Hassayampa River. The Town shall obtain an encroachment permit through the Prescott District Office for Town personnel to access the items listed in this section to perform said maintenance within State's rights-of-way.

j. Upon completion of the project and approval by resolution of the State Transportation Board accept ownership jurisdiction and maintenance responsibilities of the access roadway from MP 197.6 to MP 197.9 for the purpose of consolidating accesses of the properties on the East side of US 93 as shown in Exhibit F attached hereto and made a part hereof.

k. By execution of this Agreement, waive the four-year advance notice requirements of Arizona Revised Statute 28-7209.

l. Be responsible for any contractor claims for additional compensation caused by project delays or whatsoever reason attributable to the Town.

m. Upon completion of the Project, be responsible to provide electric power to operate the bridge lighting, other lighting, and electrical charges for lighting installed by the State and/or its contractor on the State's Project.

n. Be responsible to provide their Public Works site that is located at 500 Coney Orosco Drive, Wickenburg, approximately one (1) mile from the Project site, as a suitable site to the State, for the purpose of stockpiling unused pavement millings for use by the Town and that is conveniently located to the Project site.

p. Upon completion of the Project and upon approval by resolutions of the State Transportation Board, abandon ownership jurisdiction and maintenance responsibilities of properties immediately north of Sol's Wash and adjacent to the west side of the roadway embankment. Between the south end of the new Sol's Wash bridge (Sta. 114+25) and Sta. 133+00. From 10' west of the western toe of the roadway embankment to the proposed R/W line west of the proposed roadway as shown in Exhibit G. The Town shall maintain these properties for drainage purposes.. If, at any time, it is determined by the Town that these properties are no longer needed for drainage purposes, then ownership of said properties will immediately revert back to the State.

q. Remit to the Town $1,200,000.00 for the design and construction of the Sol's Wash flood control improvements in lieu of constructing nine (9) double barrel concrete box culverts through the US 93 embankment and acquiring associated properties/easements. These monies will be utilized by Wickenburg to facilitate and accelerate their construction of the Sol's Wash Improvements so that their drainage improvements are completed in conjunction with the State's project.

r. Delete the design and construction of concrete box culverts from Sta. 117+00 to Sta. 135+00, passing through the embankment.

s. The State shall construct a berm between the proposed US 93 alignment and the WQARF site embankment, approx. Sta. 156+50. The berm will prevent offsite flows, from north of the WQARF site, from flowing into drainage areas south of the WQARF site.

2. The Town shall:

a. Review the design documents and provide comments as appropriate.

b. Make available to the State's contractor the material site, at no cost to the State and/or the State's contractor, located as illustrated in Exhibit C as a source to construct the Project and to satisfy the requirements of this Agreement. The material source site, referred to herein, will remain open and available to the State's contractor for the duration of the Project. The excavation and restoration of the material source shall be in conformance with applicable Local, State and Federal regulations as provided in the Project specifications and in compliance with the FCDMC guidelines for material source restoration.

c. Grant an easement to the State and/or State's contractor allowing them to access, test, and mine the material from the Town-owned material source, referred to herein and as illustrated in Exhibit C, at no cost to the State and/or State's contractor. The Town intends that the use of the material source will represent the Town's agreed upon contribution to the Project and the cost for the environmental clearance of the material source. The estimated value of the material source is $1,100,000.00. This value was derived by calculating the difference in cost of hauling the material across the wash with oversize equipment verses hauling it to the project with legal sized trucks on the local streets and highway. The difference was approximately $3.00 per cubic yard and the project is expected to need approximately 370,000 cubic yards of embankment.

d. Upon completion of the Project and upon approval by resolution of the State Transportation Board be responsible for the minor maintenance of sidewalks and the pedestrian underpass (minor maintenance meaning keep the sidewalk in functional condition for the users - work would include removing dust and debris from the sidewalk surface, removing tree and other plant matter encroaching on the sidewalk users space and repair/replacement of cracked sidewalks) and for full maintenance responsibilities on all features such as landscaping, street lighting, bridge lighting and other lighting, irrigation, the interpretive site, and the new park areas installed/constructed by the State and/or its contractor on the Project. The Town shall obtain an encroachment permit through the Prescott District

b. Provide design plans, specifications, estimates and other such documents and services required for construction bidding and construction of the Project.

c. Designate material source being made available by the Town, to the State's contractor as shown in attached Exhibit C. The State's contractor will be responsible for any additional geotechnical testing to determine suitability of any potential material source. It is agreed to by both parties hereto the excavation and restoration of this material source shall be in conformance with applicable Local, State and Federal regulations as provided in the Project specifications.

d. Provide initial environmental clearance of the material source being made available by the Town as mentioned in Article II.1.c. herein. Assumptions were made providing reasonable access to and from the material site and Project. If the contractor chooses to depart from this plan, the contractor will be responsible for additional clearances, permits, mitigation, etc.

e. Construct a sidewalk *only* on the West side of Sol's Wash Bridge for future pedestrian use and construct a pedestrian underpass beneath the east abutments of the Hassayampa River bridges, connecting the north and south side of the roadway (US 60).

f. Reconstruct two-lane segment from MP 197.9 to MP 198.2 of Tegner Street to a five-lane urban configuration with sidewalks, rehabilitate existing four-and-five lane sections from MP 198.2 to MP 199.7 of Tegner Street with appropriate landscape and street lighting similar to West Wickenburg Way (US 60) as shown in Exhibit D attached hereto and made a part hereof.

g. Upon completion of the Project and upon approval by resolution of the State Transportation Board, abandon ownership jurisdiction and maintenance responsibilities of Tegner Street from intersection with US 93 (MP 197.9) to US 60 (MP 199.7) to the Town.

h. Upon completion of the Project and upon approval by resolution of the State Transportation Board, abandon ownership jurisdiction and maintenance responsibilities of the existing 1962 Hassayampa River Bridge, bridge approaches, and interpretive site, including adjacent park areas, to the Town.

i. Construct access roadway from MP 197.6 to MP 197.9 for the purpose of consolidating accesses from properties on the East side of US 93 as shown in Exhibit F attached hereto and made a part hereof.

j. Upon completion of the Project and upon approval by resolution of the State Transportation Board, abandon ownership jurisdiction and maintenance responsibilities of the access roadway from MP 197.6 to MP 197.9 to the Town. See Exhibit "F".

k. Construct distinctive lighting on the proposed Hassayampa River Bridge.

l. Construct interpretive site at one abutment of the existing Hassayampa River Bridge and provide new park areas at each abutment to include landscaping and irrigation as defined in Exhibit E.

m. Be responsible for any contractor claims for additional compensation caused by project delays or whatsoever reason attributable to the State.

n. Upon completion and acceptance of the Project by the Town, require the Town to apply and receive approval for an encroachment permit through the Prescott District Office for Town personnel to perform all planned maintenance work for the Project as described in Section II.2 below.

o. Construct enhancements to the north roundabout, including landscape, irrigation and a pair of sign posts.

h.) Properties at the Sol's Wash and adjacent to the west side of the roadway embankment. Between the south end of the new Sol's Wash bridge (Sta. 114+25) and Sta. 133+00. From 10' west of the western toe of the roadway embankment to the proposed R/W line west of the proposed roadway as shown in Exhibit "G". The Town shall maintain these properties for drainage purposes. If, at any time, it is determined by the Town that these properties are no longer needed for drainage purposes, then ownership of said properties will immediately revert back to the State.

i) The inlet grate and flap gate outlet draining the area south and east of the Community Center into the Hassayampa River. These services include operation and maintenance of flap gate and access barrier, as well as, replacement of these features if and when necessary to maintain desired flood protection from the Hassayampa River.

j) The flap gate outlets on US 93 culverts at Sta. 165+35 and Sta. 156+00. These services include operation and maintenance of flap gate including replacement if and when necessary to maintain desired flood protection from the Hassayampa River.

The Town agrees to accept:

k) The minor maintenance responsibilities of sidewalks and the pedestrian underpass (minor maintenance meaning keep the sidewalk in functional condition for the users - work would include removing dust and debris from the sidewalk surface, removing tree and other plant matter encroaching on the sidewalk users space and repair/replacement of cracked sidewalks) and for full maintenance responsibilities on all features such as landscaping, street lighting, bridge lighting and other lighting, irrigation, the interpretive site, and the new park areas installed by the State and/or its contractor for this Project. Dead or damaged plants may be replaced in-kind. Any changes to the types and sizes of landscaping will be coordinated with ADOT's Prescott District to ensure clear zone and site distance criteria are met for traffic.

5. It is understood and agreed to by the parties hereto that there are preexisting flood conditions in the vicinity of Sol's Wash confluence with the Hassayampa River as depicted in Exhibit B. The Town and the State agree to modify the construction plans of the Project in order to elevate a portion of the Interim Wickenburg By-Pass profile to a 100-year flood protection standard from flows in the Hassayampa River. These improvements will not in themselves provide the desired flood protection until complementary improvements are completed. The Town, in conjunction with the Flood Control District of Maricopa County ("FCDMC"), has an on-going study to identify, evaluate, design and construct needed improvements along Sol's Wash which complement the flood control improvements on the State's project. The anticipated start of the construction phase for the Town of Wickenburg and FCDMC's Sol's Wash Project is January 2007. Without the Sol's Wash flood control improvements the State's project would necessitate construction of 9 double barrel concrete box culverts and the purchase of additional properties and/or easements. The State has agreed to submit $1,200,000 to Wickenburg in lieu of constructing the culverts and acquiring associated properties/easements. These monies will be utilized by Wickenburg to facilitate and accelerate their construction of the Sol's Wash Improvements so that their drainage improvements are completed ahead of the completion in conjunction with the State's project.

6. Upon completion of the Project, the Town will be responsible for the maintenance of certain elements identified in Article II.2. below.

THEREFORE, in consideration of the mutual Agreements expressed herein, it is agreed as follows:

II. SCOPE OF WORK

1. The State shall:

   a. Be responsible for the design and construction of the Project.

e) Construct an interpretive site at one abutment of the existing Hassayampa River Bridge and provide new landscaped areas at each abutment to include landscaping, and associated irrigation, as referenced in the Plans; see Exhibit "E".

f) Construct an access roadway for East side properties near the northern terminus of US 93 from milepost MP 197.6 to MP 197.9; see Exhibit "F".

g) Construct a sidewalk *only* on the West side of Sol's Wash Bridge for future pedestrian use and construct a pedestrian underpass beneath the east abutments of the Hassayampa River bridges connecting the north and south side of the roadway (US 60).

h) At the Town's request, the State has agreed to additional flood control improvements. Improvements to the Project include raising the proposed US 93 profile, constructing a taller and wider roadway embankment, constructing additional soil cement embankment for erosion control and installing flap gates. The Conditional Letter of Map Revision (CLOMR) request for FEMA and the COE 404 Permit request were modified/developed to correspond to these improvements as well.

i) At the Town's Request, construct enhancements to the north roundabout. Enhancements will include landscaping, irrigation and a pair of sign posts.

j) The Project will be considered complete when all elements listed above are completed.

k) Construct a berm, blocking the swale between the proposed US 93 alignment and the WQARF site embankment, approx. Sta. 156+50

4. The State shall abandon ownership, to the Town, of the following four project elements all with the approval of the State's Transportation Board and upon completion of the project:

a) Tegner Street from the new roundabout intersection with US 93 (MP 197.9) to the intersection with US 60 (MP199.70);

b) The access roadway from MP 197.6 to MP 197.9 on the East side of US 93; see Exhibit "F".

c) The existing 1962 Hassayampa River Bridge, bridge approaches and adjacent park areas as described in I.3.e;

d) Properties at the Sol's Wash and adjacent to the west side of the roadway embankment. Between the south end of the new Sol's Wash bridge (Sta. 114+25) and Sta. 133+00. From 10' west of the western toe of the roadway embankment to the proposed R/W line west of the proposed roadway; see Exhibit "G". The Town shall maintain these properties for drainage purposes. If, at any time, it is determined by the Town that these properties are no longer needed for drainage purposes, then ownership of said properties will immediately revert back to the State.

Furthermore, the parties hereto agree the Town shall accept ownership jurisdiction and maintenance responsibilities for the following six project elements:

e) Tegner Street from the new roundabout intersection with US 93 (MP 197.9) to the intersection with US 60 (MP 199.7);

f) The access roadway from MP 197.6 to 197.9 on the East side of US 93; see Exhibit "F".

g) The existing 1962 Hassayampa River Bridge, bridge approaches and adjacent park areas as described in I.3.e.;

AG Contract No: KR04-0306TRN
ADOT ECS File No.: JPA 03-073
Project: US 93 Interim Wickenburg Bypass
TRACS No.: 093 MA 198 **H5825 01C**
Budget Source Item: 13606

INTERGOVERNMENTAL AGREEMENT

BETWEEN
THE STATE OF ARIZONA
AND
THE TOWN OF WICKENBURG, ARIZONA

THIS AGREEMENT is entered into this date April 30, 2006, pursuant to Arizona Revised Statutes, Sections 11-951 through 11-954, as amended, between the STATE OF ARIZONA, acting by and through its DEPARTMENT OF TRANSPORTATION (the "State") and the TOWN OF WICKENBURG, acting by and through its MAYOR and TOWN COUNCIL (the "Town").

I. RECITALS

1. The State is empowered by Arizona Revised Statutes Section 28-401 to enter into this Agreement and has delegated to the undersigned the authority to execute this Agreement on behalf of the State.

2. The Town is empowered by Arizona Revised Statutes Section 9-240 to enter into this Agreement and has by resolution, a copy of which is attached hereto and made a part hereof, resolved to enter into this Agreement and has authorized the undersigned to execute this Agreement on behalf of the Town.

3. The State has an improvement project to design and construct certain elements on US 93 and relocate portions of US 60 (the "Project" – see Exhibit A) to include the following:

a) Construct an Interim Wickenburg By-Pass;

b) Reconstruct portions of US 93 (Tegner Street), between milepost ("MP") 197.9 - MP 198.2, within the Town's limits from a two-lane street to a five-lane urban configuration including sidewalks, landscaping and street lighting similar to west Wickenburg Way (US 60); see Exhibit "D".

c) Rehabilitate existing four-and-five lane sections of Tegner Street, between MP 198.2 and MP 199.7 of Tegner Street, with appropriate landscape and street lighting similar to west Wickenburg Way (US 60); see Exhibit "D".

d) Construct distinctive lighting on the new Hassayampa River Bridge;

NO. 20089
Filed with the Secretary of State
Date Filed: 4-30-07
Secretary of State
By: Deborah M. Skeie

Appendix A

OPERATION and MAINTENANCE PLAN

For the:

HASSAYAMPA RIVER LEVEE
and
FLOOD CONTROL STRUCTURES

CHAPTER 1: GENERAL INFORMATION

1. Introduction

This section describes the project location and the purpose and intent of this Operation and Maintenance Plan for the Hassayampa River levee located between Sols Wash and the northern limits of the Water Quality Assurance Revolving Fund (WQARF) site.

1.1 Project Location And Description

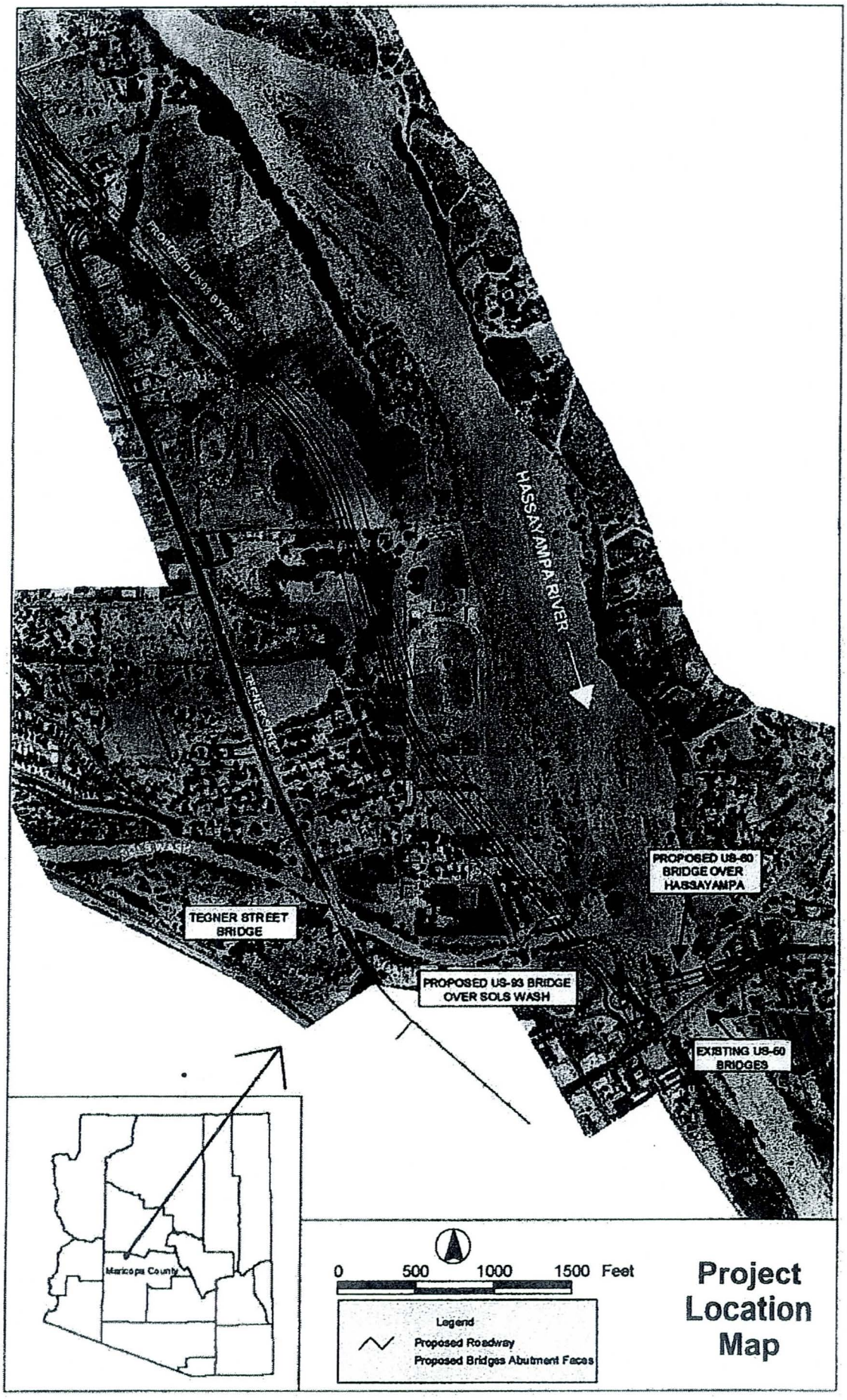
The project is located in Maricopa County in the Town of Wickenburg. It is on the west side of the Hassayampa River between Wickenburg Way and Tegner Street. The project consists of both levee section and bank protected sections. The levee extends from River cross-section 51.345 to River cross-section 52.228; roadway stations 116+72 to 169+37. The levee system consists of an earthen embankment with a soil cement bank protection on the Hassayampa River side. There are three culverts that discharge to the Hassayampa. The culvert at cross-section 51.350 is located downstream of the existing bridge. It has a flap gate to control backflow from the Hassayampa River. The two other culverts serve to discharge pavement drainage to the river. Their inlet ends are much higher than the predicted water surface so no provisions are made to block flows from entering the downstream end of the pipes.

The Hassayampa River has normally very low flows. The levee system is to protect residents of Wickenburg living east of Tegner Street and the proposed project between Sols Wash and the WQARF site, generally the Chestnut Street neighborhood, from the flooding associated with high flows in the Hassayampa River. In providing this flood protection, the levee would block offsite flows from entering the Hassayampa River. This project will directed these flows south, discharging into Sols Wash. To preclude flooding the area behind the levee, (west of the levee), during low flows in the Sols Wash, culverts with flap gates will be installed to prevent backflow from Sols Wash.

The "Wickenburg Downtown Flood Hazard Mitigation Project" by the Flood Control District of Maricopa County (FCDMC), project number FCD2003C052, will create a levee system along Sols Wash. The Sols Wash improvements include interior drainage improvements immediately adjacent to and west of the Hassayampa River. The evaluation of that by-pass system is discussed in the Sols Wash CLOMR.

1.2 Statement of Purpose

This plan defines the responsibilities and provides procedures for the operation and maintenance of the levee system along the west side of the Hassayampa River between Wickenburg Way and Tegner Street. The levee is designed to safeguard the lives and reduce damage to property of the citizens of the Town of Wickenburg living in the Chestnut Street neighborhood.


PROPOSED US-93 BYPASS
HASSAYAMPA RIVER
TEGNER STREET
SOLS WASH
TEGNER STREET BRIDGE
PROPOSED US-93 BRIDGE OVER SOLS WASH
PROPOSED US-60 BRIDGE OVER HASSAYAMPA
EXISTING US-60 BRIDGES
Maricopa County
0 500 1000 1500 Feet
Legend
Proposed Roadway
Proposed Bridges Abutment Faces
Project Location Map

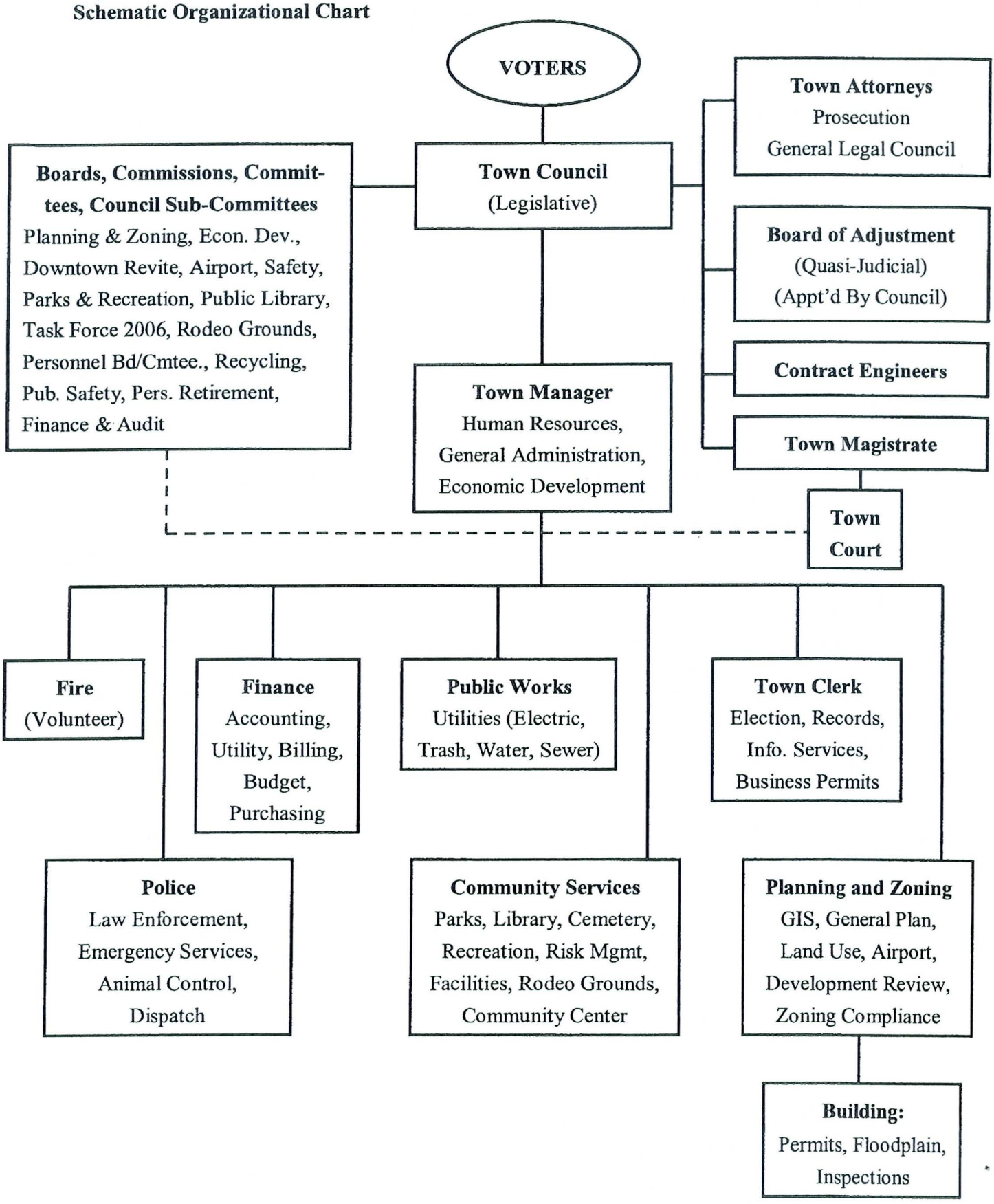
1.3 Responsibility and Authority

The Arizona Department of Transportation owns the roadway embankment and thereby owns the associated bank protection/levee. The Town of Wickenburg is responsible to inspect the levee. The Town of Wickenburg owns the flap gates at the pipe outlets. The Town of Wickenburg (TOW) is a municipal corporation and political subdivision of the State of Arizona, an entity that reports to and is governed by Common Council, the members of which are elected officials. The TOW Town Manager directs the Town's operations. The reporting responsibility of this office is to the Town Council. A schematic organizational chart is shown in Figure 1that depicts both the authorized position title and vertical/horizontal relationship definitions.

The TOW Public Works Director is designated as the responsible person for monitoring the conditions at the levee in accordance with Chapter 2.

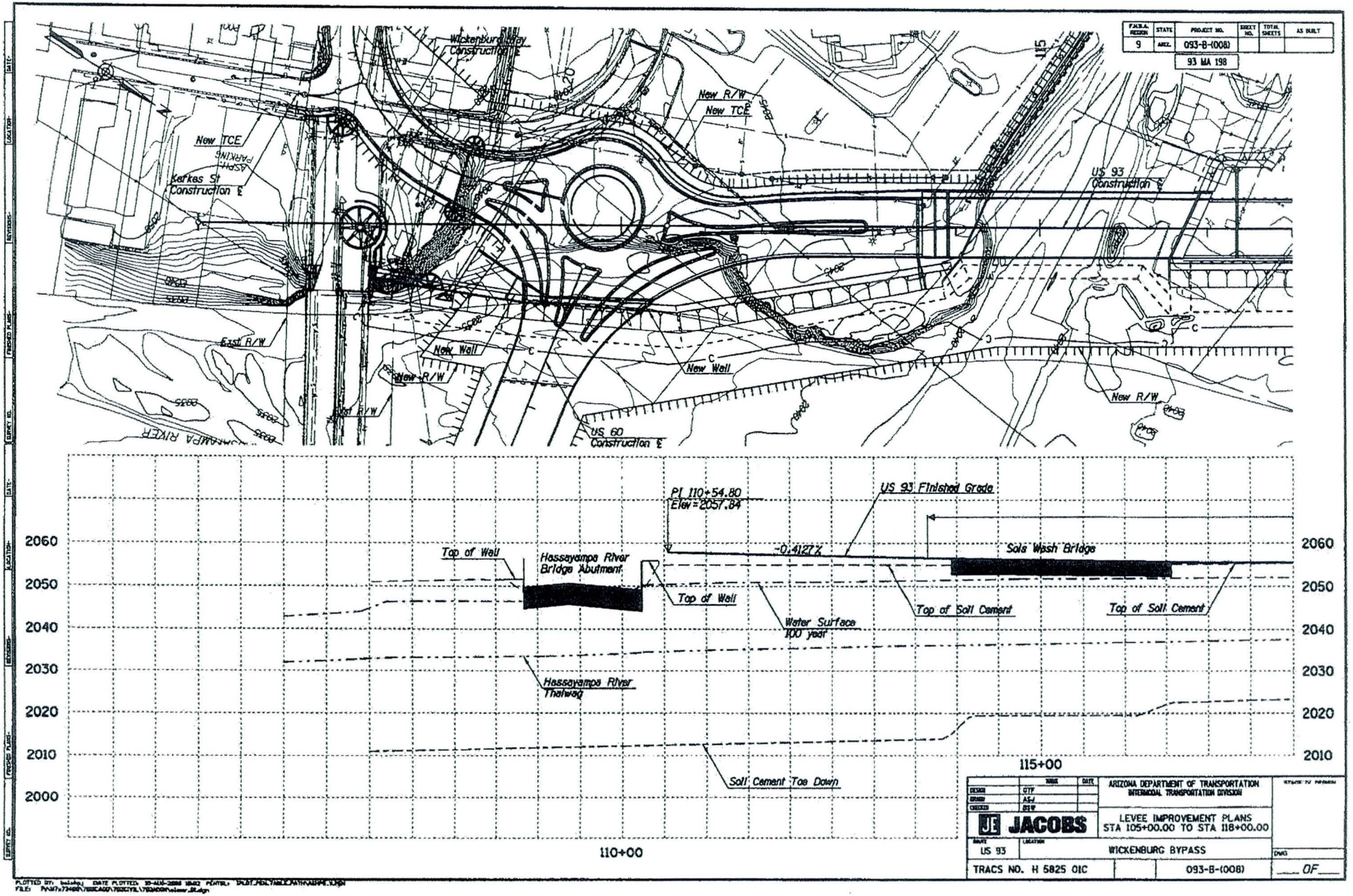
Regular inspections authorized by the Town are conducted on an annual basis. Additional inspections shall be conducted after any event exceeding a discharge of 14,500 cfs (the 10% probability event) in the Hassayampa River. The Town will add this levee to their inspection regimen. Inspection reports detailing the condition of all levee elements are generated as part of these inspections and documented. If they discover / detect any damage/deficiencies, they are to contact the ADOT Prescott District for repairs / replacement.

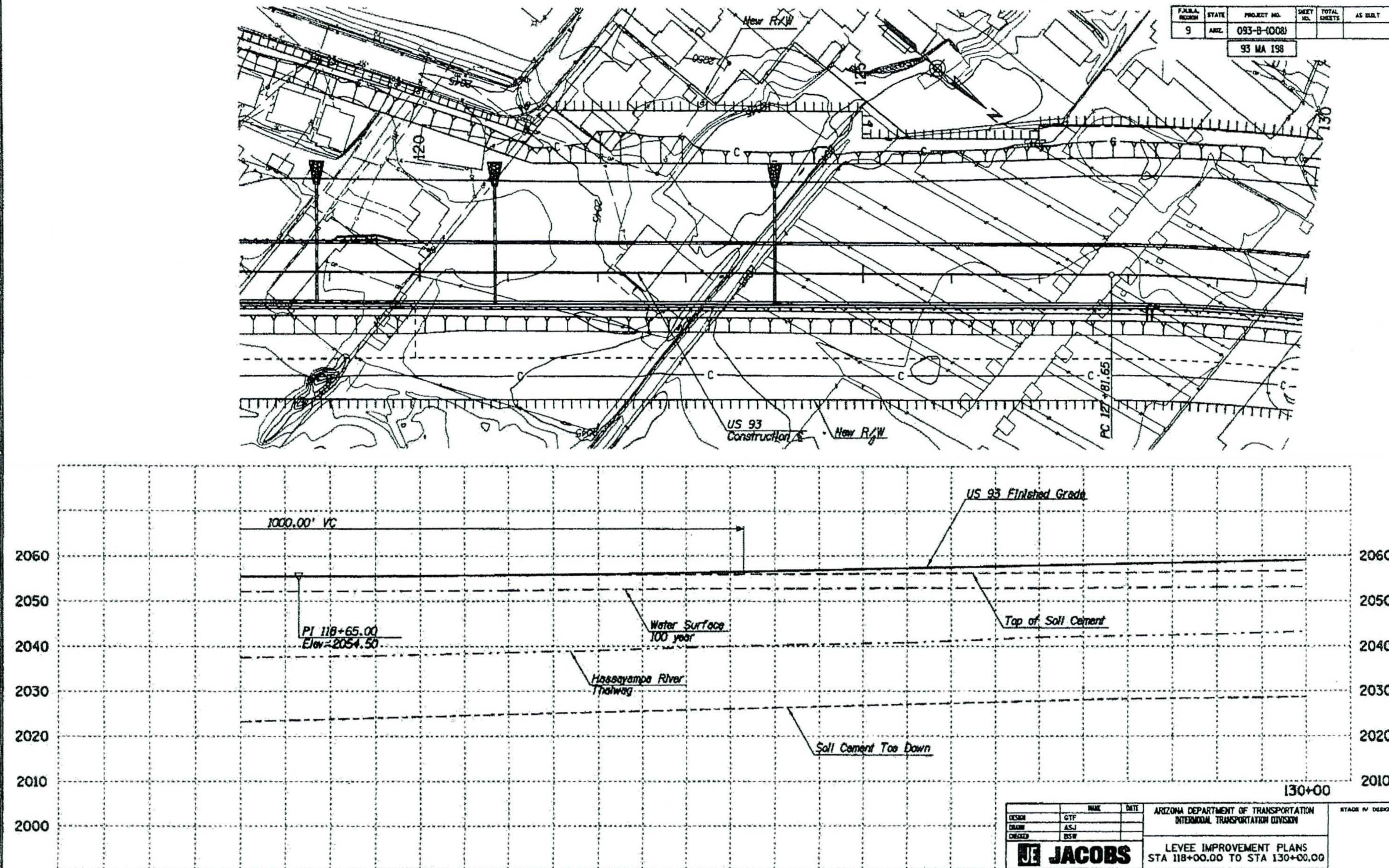
Figure 2
Schematic Organizational Chart



1.4 Plan and Typical Section of Levee.

The following plan sheets have been extracted from the construction drawings from ADOT Project 093-MA 198 H 5825 01C.


Wickenburg Bypass Construction ℄
New R/W
New TCE
New TCE
Asphalt Parking
Kerkes St Construction ℄
US 93 Construction ℄
East R/W
New Wall
New R/W
New Wall
New R/W
East R/W
US 60 Construction ℄
Hassayampa River
New R/W
PI 110+54.80
Elev = 2057.84
US 93 Finished Grade
-0.412%
Top of Wall
Hassayampa River Bridge Abutment
Top of Wall
Sols Wash Bridge
Top of Soil Cement
Top of Soil Cement
Water Surface 100 year
Hassayampa River Thalweg
Soil Cement Toe Down
2060
2050
2040
2030
2020
2010
2000
110+00
115+00
F.H.W.A. REGION 9
STATE ARIZ.
PROJECT NO. 093-B-(008)
93 MA 198
SHEET NO.
TOTAL SHEETS
AS BUILT
ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
DESIGN STF
DRAWN AS-J
CHECKED BSW
JACOBS
LEVEE IMPROVEMENT PLANS
STA 105+00.00 TO STA 118+00.00
US 93
WICKENBURG BYPASS
TRACS NO. H 5825 01C
093-B-(008)
DWG
OF



F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	093-B-(008)			
		93 MA 198			

	NAME	DATE
DESIGN	GTF	
DRAWN	ASJ	
CHECKED	BSW	

JACOBS

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION

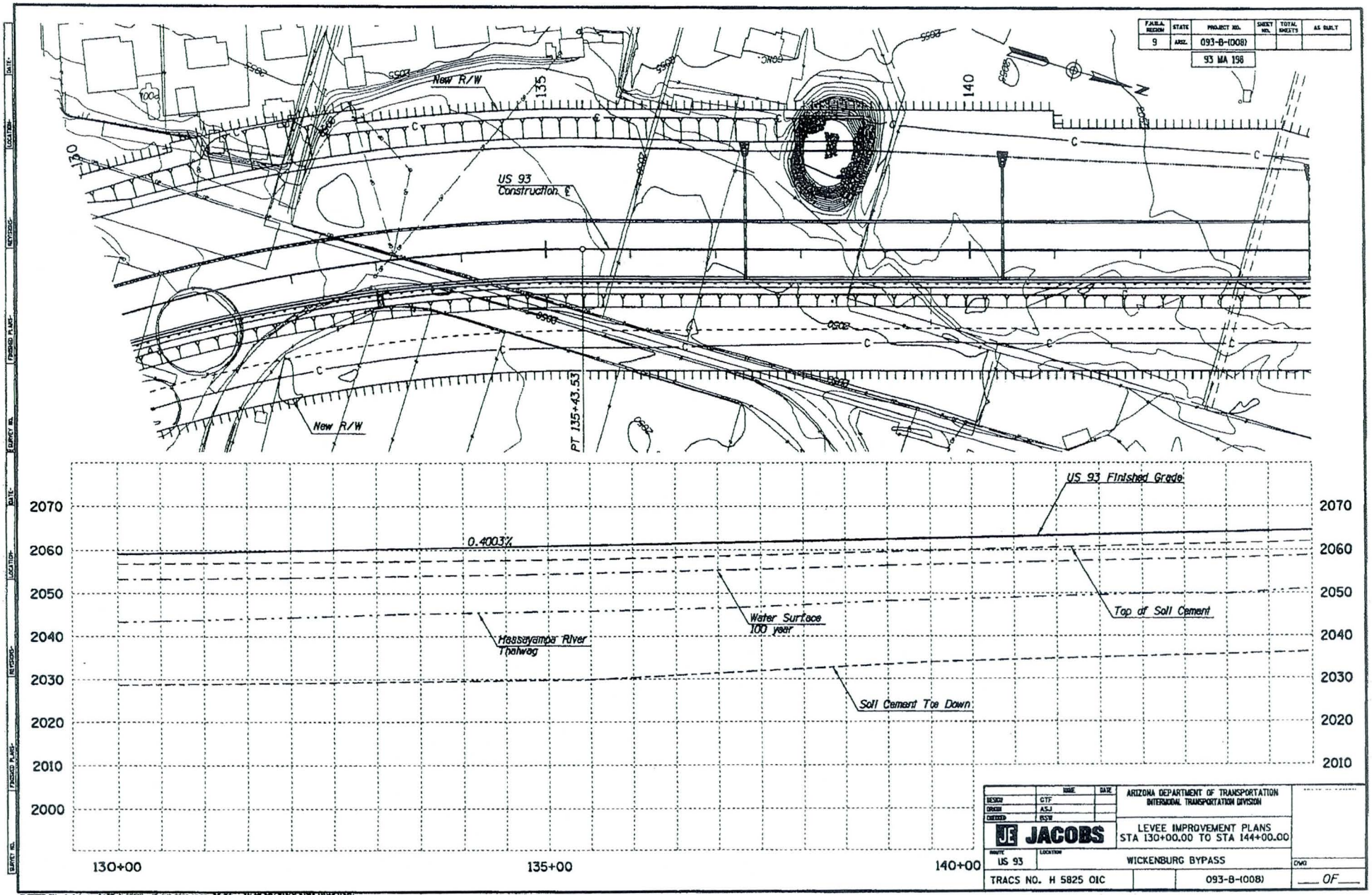
STAGE IV DESIGN

LEVEE IMPROVEMENT PLANS
STA 118+00.00 TO STA 130+00.00

ROUTE: US 93
LOCATION: WICKENBURG BYPASS

DWG

TRACS NO. H 5825 01C | 093-B-(008) | ___ OF ___



F.A.H.U. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	093-B-(008)			
		93 MA 198			

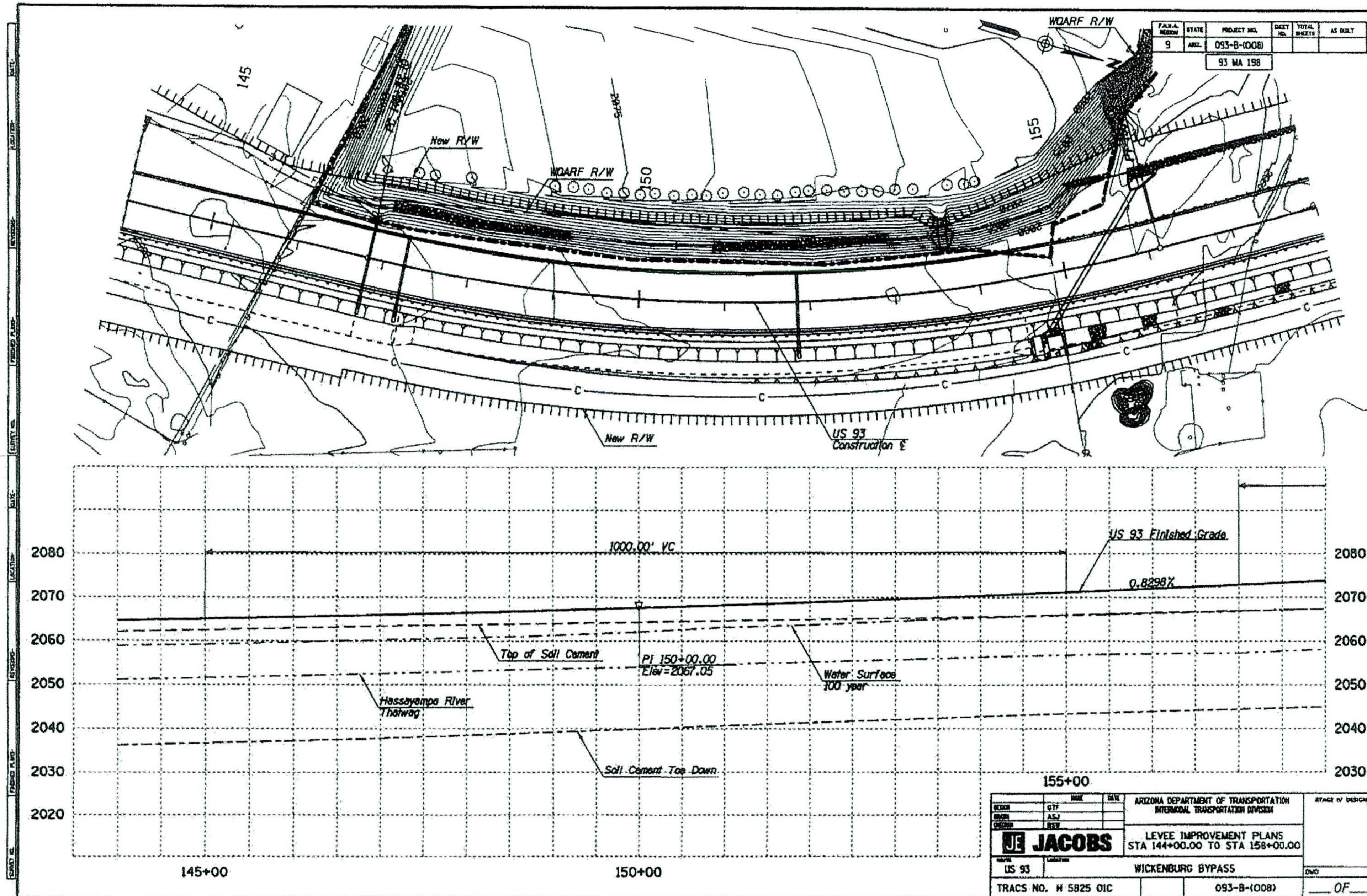
	ISSUE	DATE
DESIGN	GTF	
DRAWN	ASJ	
CHECKED	BSW	

JE JACOBS

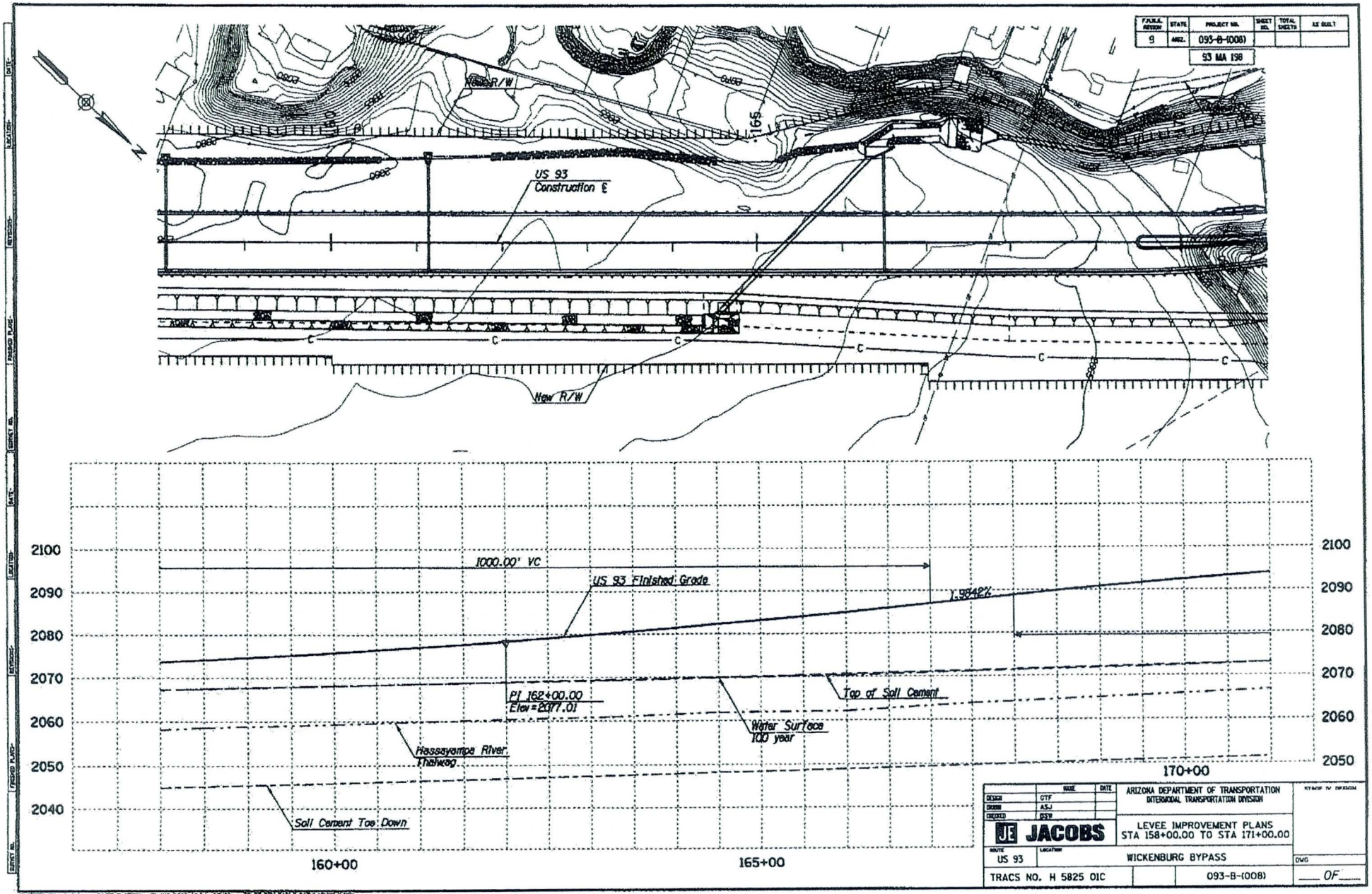
ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION

LEVEE IMPROVEMENT PLANS
STA 130+00.00 TO STA 144+00.00

ROUTE	LOCATION	DWG
US 93	WICKENBURG BYPASS	___ OF ___
TRACS NO. H 5825 01C	093-B-(008)	



9
ARIZ.
093-B-(008)
93 MA 198
WOARF R/W
145
150
155
New R/W
WOARF R/W
US 93
Construction ℄
New R/W
1000.00' VC
US 93 Finished Grade
0.8298%
Top of Soil Cement
PI 150+00.00
Elev=2067.05
Water Surface
100 year
Hassayampa River
Thalweg
Soil Cement Toe Down
2080
2070
2060
2050
2040
2030
2020
145+00
150+00
155+00
ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
STAGE IV DESIGN
GTF
ASJ
JACOBS
LEVEE IMPROVEMENT PLANS
STA 144+00.00 TO STA 158+00.00
US 93
WICKENBURG BYPASS
TRACS NO. H 5825 01C
093-B-(008)
OF


F.A.P. NO. REVISION
STATE
PROJECT NO.
SHEET NO.
TOTAL SHEETS
AZ DIST.
9
ARIZ.
093-B-(008)
93 MA 198
N
R/W
165
US 93
Construction ℄
C
New R/W
2100
2090
2080
2070
2060
2050
2040
1000.00' VC
US 93 Finished Grade
1.9848%
PI 162+00.00
Elev=2077.01
Top of Soil Cement
Water Surface
100 year
Hassayampa River
Thalweg
Soil Cement Toe Down
160+00
165+00
170+00
ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
DESIGN GTF
DRAWN AS-J
CHECKED BSW
JACOBS
LEVEE IMPROVEMENT PLANS
STA 158+00.00 TO STA 171+00.00
ROUTE US 93
LOCATION WICKENBURG BYPASS
TRACS NO. H 5825 01C
093-B-(008)
DWG
OF

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
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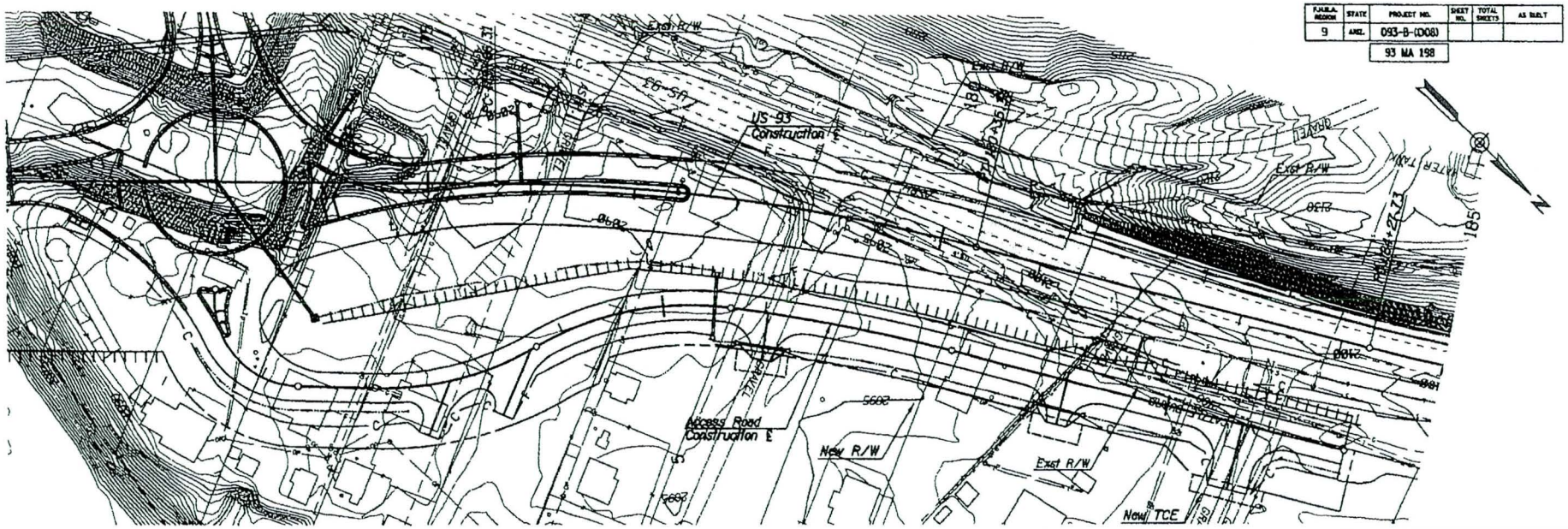
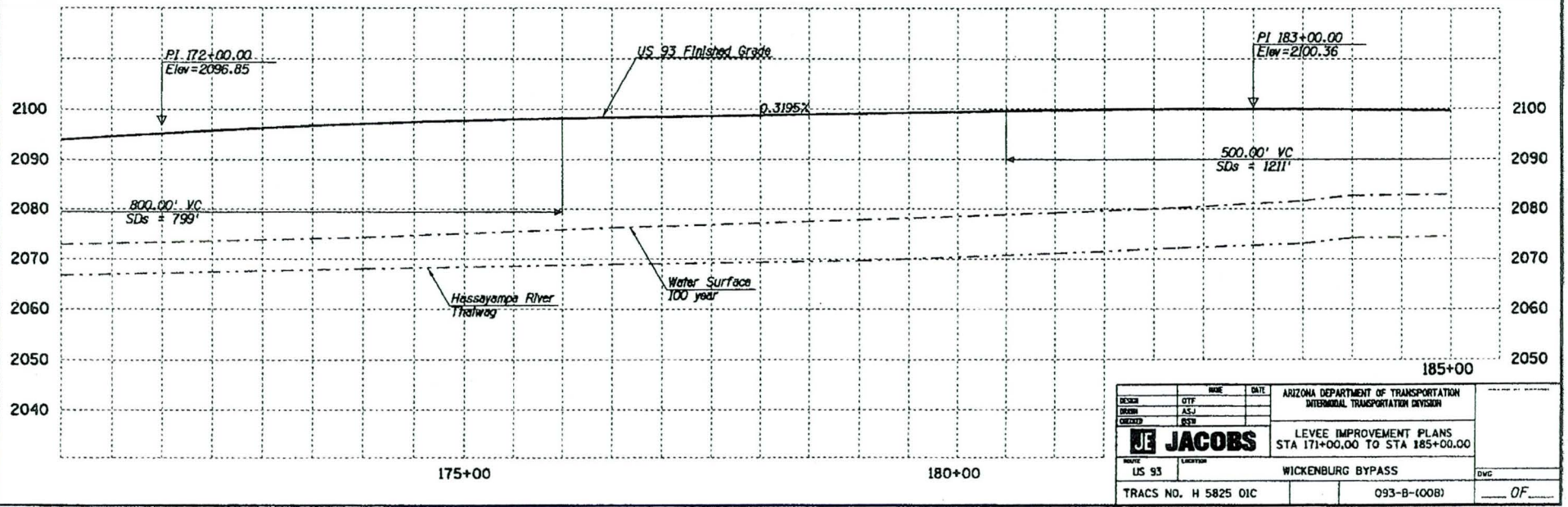
		93 MA 198			





	INIT.	DATE	ARIZONA DEPARTMENT OF TRANSPORTATION INTERMODAL TRANSPORTATION DIVISION
DESIGN	OTF		
DRAWN	ASJ		
CHECKED	RSW		LEVEE IMPROVEMENT PLANS STA 171+00.00 TO STA 185+00.00
JE JACOBS			
ROUTE: US 93	LOCATION: WICKENBURG BYPASS		DWG
TRACS NO. H 5825 01C		093-B-(008)	___ OF ___

PLOTTED BY: [illegible] DATE PLOTTED: 16-AUG-2008 10:05 MSTSU: [illegible]
FILE: [illegible]

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	093-B-(008)			

93 YV 198

CURVE DATA (1)
Δ= 31°25'50" Rt
T= 28.14'
L= 54.86'
R= 100.00'

CURVE DATA (2)
Δ= 72°07'49" Lt
T= 22.58'
L= 39.03'
R= 31.00'

CURVE DATA (3)
Δ= 41°42'50" Lt
T= 24.77'
L= 47.32'
R= 65.00'

CURVE DATA (4)
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L= 85.82'
R= 200.00'

CURVE DATA (5)
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T= 14.11'
L= 27.89'
R= 75.00'

CURVE DATA (6)
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T= 16.83'
L= 33.11'
R= 75.00'

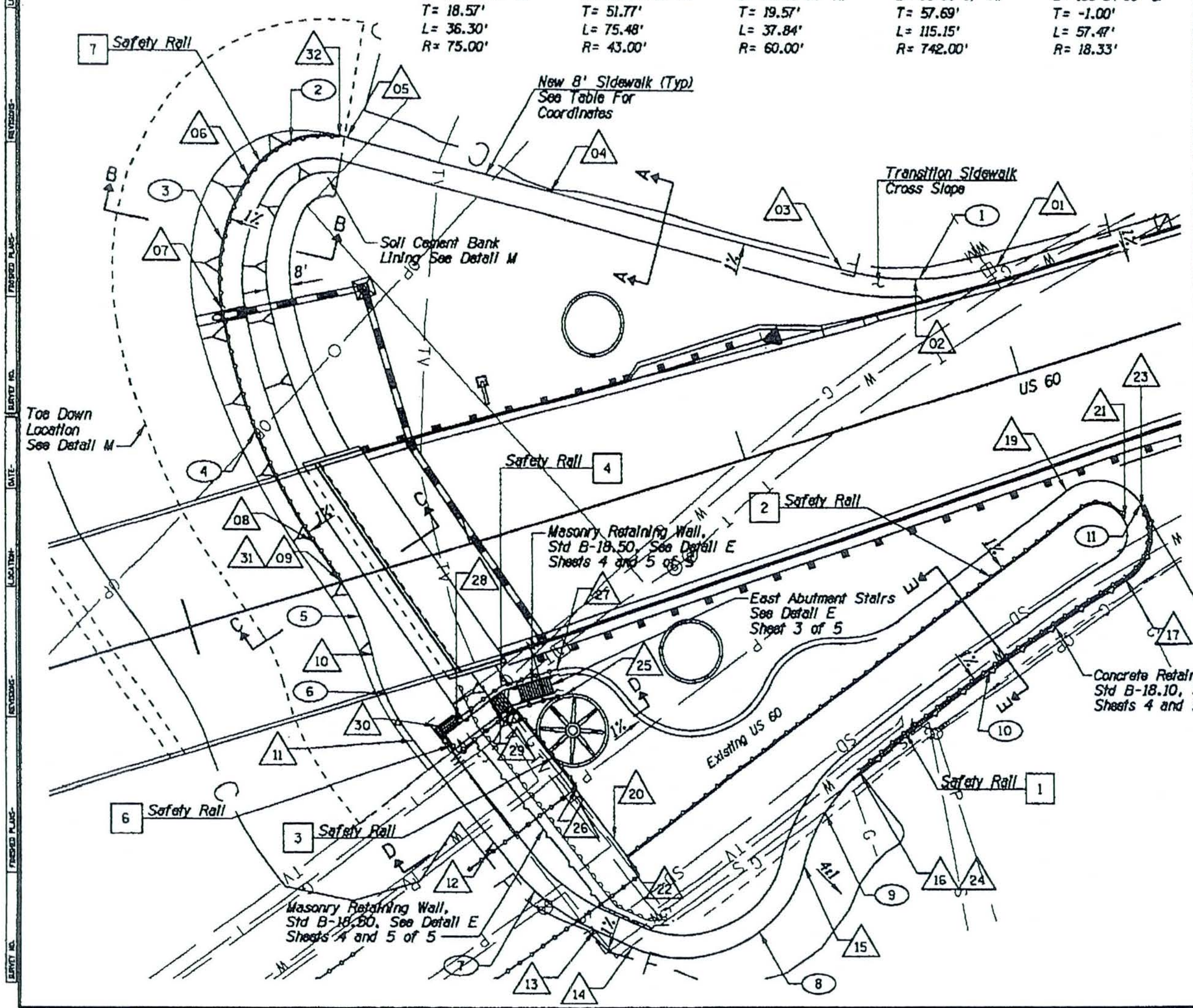
CURVE DATA (7)
Δ= 27°44'00" Lt
T= 18.57'
L= 36.30'
R= 75.00'

CURVE DATA (8)
Δ= 100°34'34" Lt
T= 51.77'
L= 75.48'
R= 43.00'

CURVE DATA (9)
Δ= 36°08'04" Rt
T= 19.57'
L= 37.84'
R= 60.00'

CURVE DATA (10)
Δ= 08°53'31" Rt
T= 57.69'
L= 115.15'
R= 742.00'

CURVE DATA (11)
Δ= 185°54'00" Lt
T= -1.00'
L= 57.47'
R= 18.33'



Reference Number	US 60 Station	US 60 Offset	Sidewalk Reference Point Northing	Sidewalk Reference Point Easting	Sidewalk Reference Point Elev	Description
EAST ABUTMENT SIDEWALK						
01	101+96.48	37.71' Rt	1 082 222.21	454 893.26	2051.92	PC
02	102+24.84	41.81' Rt	1 082 217.87	454 864.93	2052.05	Gr Break
03	102+48.62	52.38' Rt	1 082 221.05	454 839.10	2051.62	PT
04	103+38.34	107.21' Rt	1 082 247.37	454 737.31	2049.88	Gr Break
05	103+99.67	144.69' Rt	1 082 265.36	454 667.72	2046.61	PC
06	104+36.05	141.74' Rt	1 082 251.94	454 633.78	2044.83	PCC, Gr Break
07	104+58.09	101.04' Rt	1 082 206.58	454 624.54	2042.89	PCC
08	104+51.10	16.16' Rt	1 082 127.42	454 655.95	2040.90	PT
09	104+52.40	06.90' Lt	1 082 113.69	454 665.20	2039.37	PC, Gr Break
10	104+43.20	27.23" Lt	1 082 088.22	454 676.16	2039.30	PRC
11	104+38.44	59.72' Lt	1 082 058.52	454 690.18	2039.21	PT
12	104+22.79	100.52' Lt	1 082 024.05	454 717.04	2039.10	PC
13	103+98.30	140.31' Lt	1 081 993.12	454 752.05	2039.00	PT, Gr Break
14	103+87.26	150.00' Lt	1 081 987.06	454 765.44	2039.70	PC
15	103+21.91	139.65' Lt	1 082 016.00	454 824.93	2043.28	PRC
16	102+93.92	115.12' Lt	1 082 047.62	454 844.56	2045.11	PCC
17	101+84.97	78.21' Lt	1 082 114.66	454 938.04	2050.58	PRC
18	101+71.34	57.89' Lt	1 082 138.08	454 945.16	2051.85	Gr Break
19	101+95.81	43.24' Lt	1 082 144.96	454 917.48	2052.00	PT
20	103+82.41	111.78' Lt	1 082 025.04	454 758.94	2054.88	
EAST ABUTMENT HANDRAILS						
21	101+78.89	58.19' Lt	1 082 135.59	454 938.02		Begin Handrail
22	103+79.72	118.78' Lt	1 082 019.13	454 763.56		End Handrail
23	101+72.11	56.44' Lt	1 082 139.24	454 943.99		Begin Handrail
24	102+93.92	115.12' Lt	1 082 047.62	454 844.56		End Handrail
25	103+84.66	59.49' Lt	1 082 074.40	454 741.56		Begin Handrail
26	103+89.81	90.90' Lt	1 082 042.86	454 745.78		Angle Point
27	103+84.66	50.22' Lt	1 082 083.27	454 738.86		Begin Handrail
28	104+22.32	57.06' Lt	1 082 065.76	454 704.82		End Handrail
29	104+02.03	59.20' Lt	1 082 069.62	454 724.86		Begin Handrail
30	104+29.62	57.56' Lt	1 082 063.15	454 697.98		End Handrail
31	104+52.40	06.90' Lt	1 082 113.69	454 665.20		Begin Handrail
32	104+02.18	145.51' Lt	1 082 265.41	454 665.07		End Handrail

Notes:

1. For Sections A-A thru E-E See Detail E Sheet 2 of 5.
2. See Detail G For Safety Rail Quantities.
3. See Safety Rail Detail For Information Not Shown.

DETAIL E

SHEET 1 OF 5
EAST ABUTMENT

	NAME	DATE
DESIGN	SLD	02/06
DRAWN	AS.I	02/06
CHECKED	DSW	02/06

JACOBS

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION

DETAIL SHEET
PEDESTRIAN ACCESS

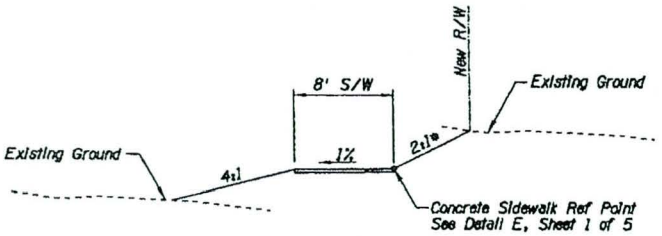
STAGE IV DESIGN
95%
REVIEW
NOT FOR CONSTRUCTION OR RECORDING

ROUTE: US 93 | LOCATION: WICKENBURG BYPASS | DWG: DT06

TRACS NO. H 5825 01C | 093-B-(008) | ___ OF ___

PLOTTED BY: ... DATE PLOTTED: 15-AUG-2006 ...

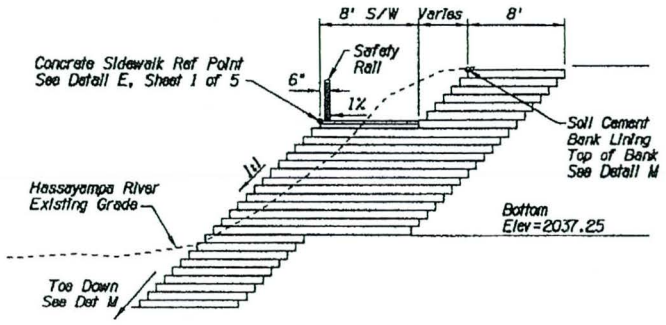
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	093-B-(008)			
		93 YV 198			



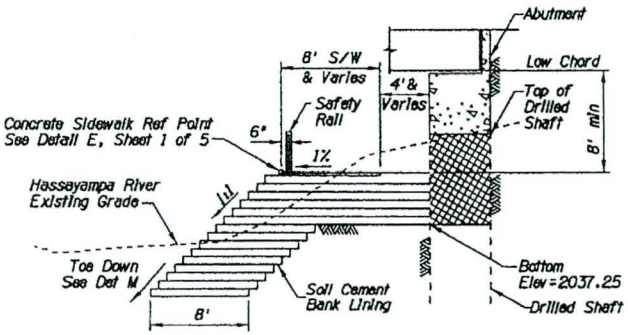
Typical Cuts are Shown on the Right, Typical Fills on the Left. They Apply to Both Sides of the Sidewalk.

* 2:1 Typical, Steeper Slope May Be Required to Stay Within New R/W.

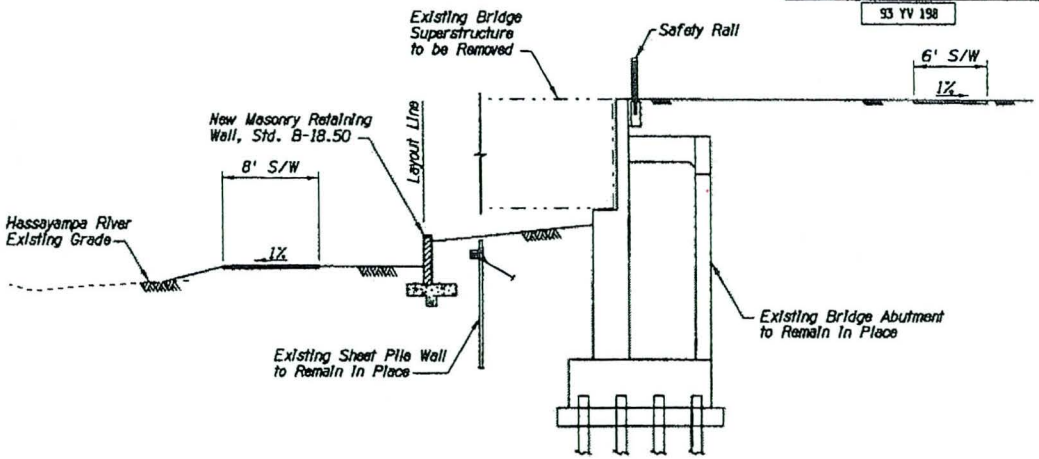
SECTION A-A



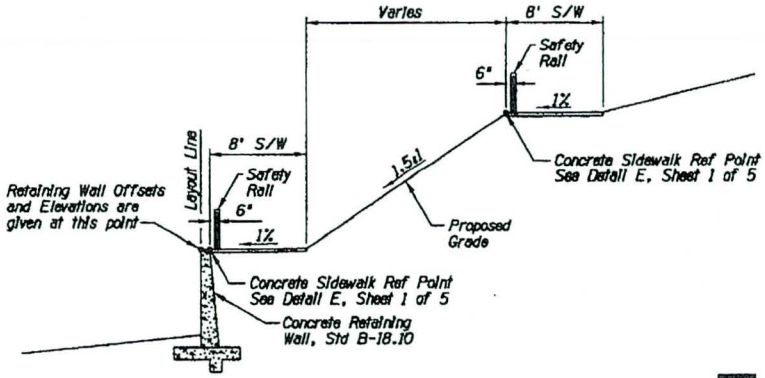
SECTION B-B



SECTION C-C



SECTION D-D



SECTION E-E

DETAIL E

SHEET 2 OF 5 SECTIONS

Note:
1. See Safety Rail Details For Information Not Shown.
2. See Detail G For Safety Rail Quantities.

	NAME	DATE
DESIGN	SLD	02/08
DRAWN	AS-J	02/08
CHECKED	[illegible]	02/08

JE JACOBS

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION

DETAIL SHEET
PEDESTRIAN ACCESS

STAGE IV DESIGN
95%
REVIEW
NOT FOR CONSTRUCTION OR RECORDING

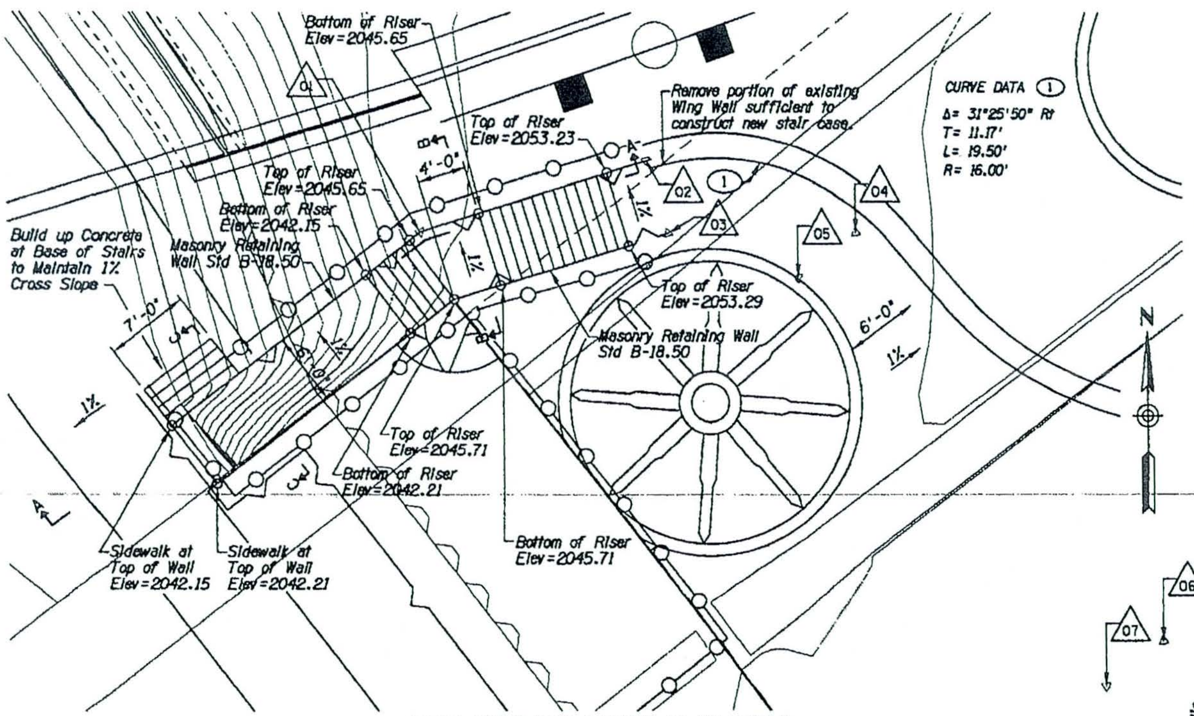
HIGHWAY	LOCATION	DWG	DTO6A
US 93	WICKENBURG BYPASS		
TRACS NO. H 5825 01C		093-B-(008)	___ OF ___

PLOTTED BY: [illegible] DATE PLOTTED: 15-AUG-2008 09:48 PDHTGL: [illegible]
FILE: [illegible]

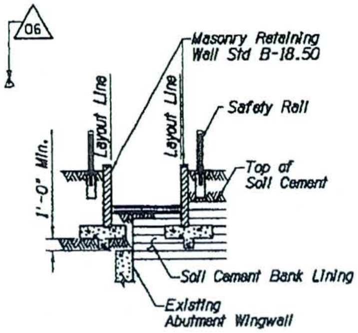
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	093-B-(008)			

93 YV 198

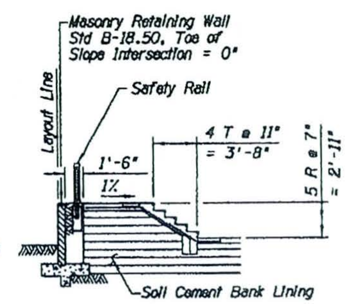
Reference Number	US 60 Station	US 60 Offset	Sidewalk Reference Point Northing	Sidewalk Reference Point Easting	Sidewalk Reference Point Elev	Description
EAST ABUTMENT SIDEWALK						
01	104+04.18	51.86' Lt	1 082 076.02	454 720.66	2045.65	AP
02	103+84.66	51.86' Lt	1 082 081.70	454 739.34	2053.20	PC
03	103+84.66	57.86' Lt	1 082 075.97	454 741.08	2053.26	PC
04	103+69.64	62.34' Lt	1 082 076.05	454 756.76	2053.09	PT
05	103+75.27	64.41' Lt	1 082 072.43	454 751.97	2053.15	PT
06	103+55.16	101.77' Lt	1 082 042.55	454 782.10	2054.48	
07	103+60.79	103.84' Lt	1 082 038.93	454 777.31	2054.56	



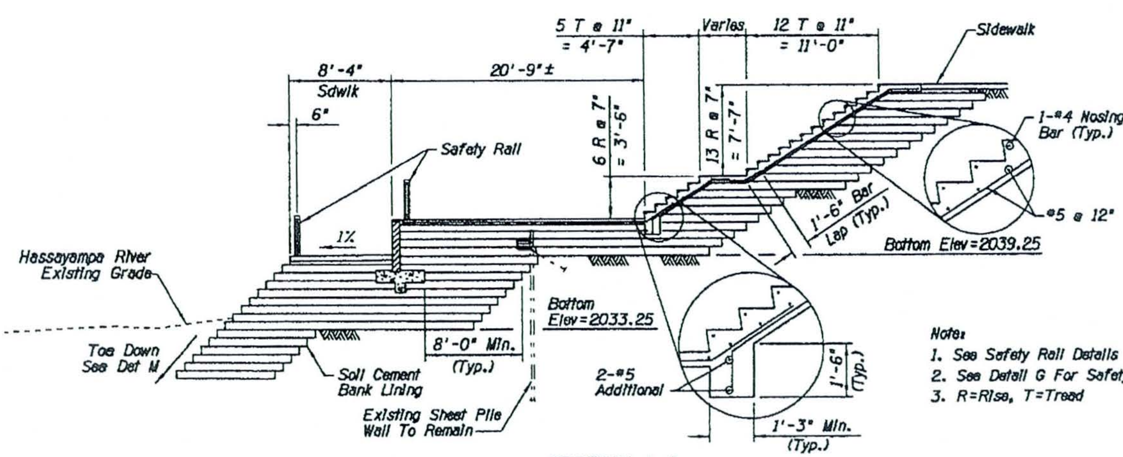
EAST ABUTMENT STAIRS PLAN DETAIL



SECTION B-B



SECTION C-C



SECTION A-A

Note:
1. See Safety Rail Details For Information Not Shown.
2. See Detail G For Safety Rail Quantities.
3. R=Rise, T=Tread

DETAIL E

SHEET 3 OF 5
SECTIONS & DETAILS

	NAME	DATE	
DESIGN	SLD	02/06	ARIZONA DEPARTMENT OF TRANSPORTATION INTERMODAL TRANSPORTATION DIVISION
DRAWN	ASJ	02/06	
CHECKED	BSW	02/06	

JACOBS

DETAIL SHEET
PEDESTRIAN ACCESS

STAGE IV DESIGN 95% REVIEW NOT FOR CONSTRUCTION OR RECORDING

ROUTE US 93 | LOCATION WICKENBURG BYPASS | DWG DT06B

TRACS NO. H 5825 01C | 093-B-(008) | ___ OF ___

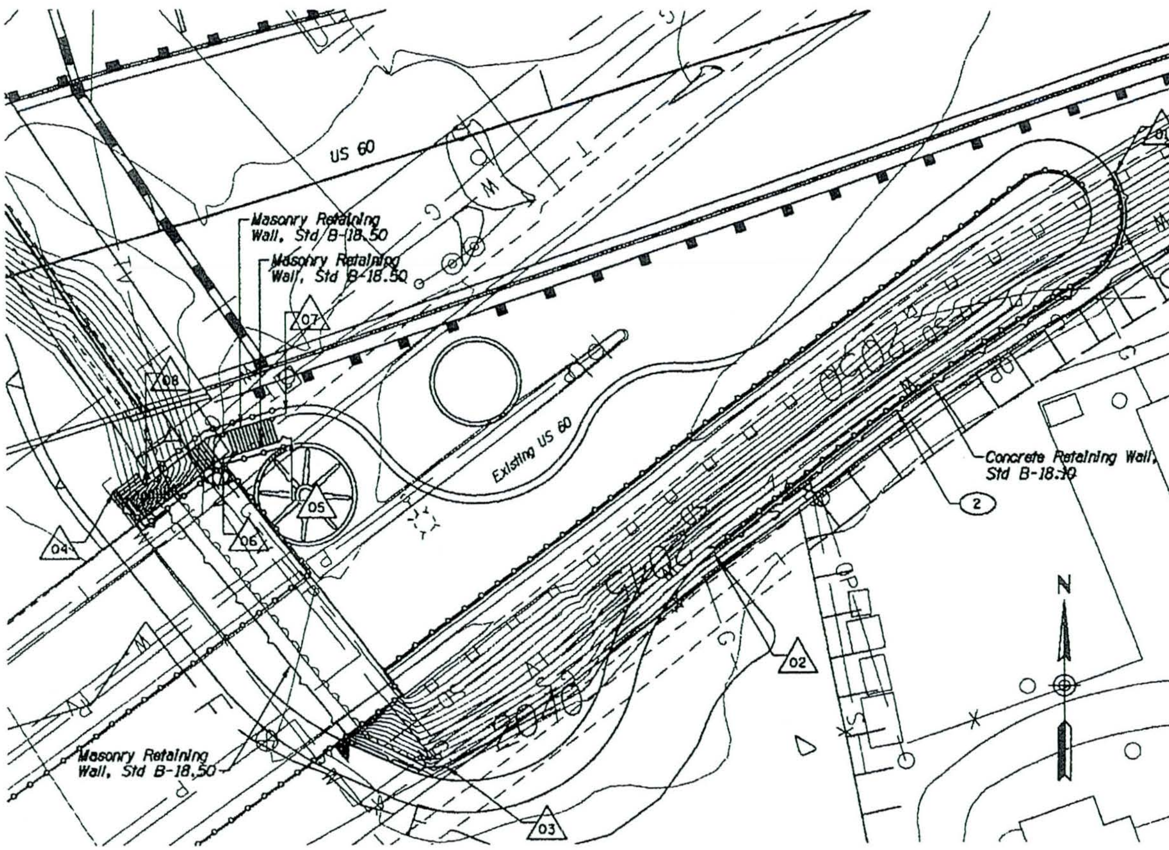
PLOTTED BY: ... DATE PLOTTED: 15-AUG-2006 ...

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	093-B-(008)			
		93 YV 198			

CURVE DATA (1)
Δ= 89°59'56" Rt
T= 19.16'
L= 30.10'
R= 19.16'

CURVE DATA (2)
Δ= 08°53'31" Lt
T= 57.63'
L= 115.02'
R= 741.17'

Reference Number	US 60 Station	US 60 Offset	Layout Line Reference Point Northing	Layout Line Reference Point Easting	Layout Line Reference Point Elev	Description
EAST ABUTMENT MASONRY WALLS						
01	101+70.91	55.73' Lt	1 082 140.27	454 944.93	2051.84	Begin Conc. Ret. Wall
02	102+93.60	115.89' Lt	1 082 046.98	454 845.10	2045.11	End Conc. Ret. Wall
03	103+72.50	146.21' Lt	1 081 994.99	454 778.46	2045.25	Begin Mas. Ret. Wall
04	104+30.27	57.75' Lt	1 082 062.78	454 697.42	2042.33	End Mas. Ret. Wall
05	103+84.66	57.86' Lt	1 082 075.97	454 741.08	2053.75	Begin Mas. Ret. Wall
06	104+01.99	57.86' Lt	1 082 070.92	454 724.50	2042.42	End Mas. Ret. Wall
07	103+84.20	51.86' Lt	1 082 081.84	454 739.77	2053.75	Begin Mas. Ret. Wall
08	104+21.63	58.54' Lt	1 082 064.54	454 705.91	2043.75	End Mas. Ret. Wall



DETAIL E

SHEET 4 OF 5
RETAINING WALLS PLAN

	NAME	DATE
DESIGN	SLD	02/06
DRAWN	ASJ	02/06
CHECKED	BSW	02/06

JACOBS

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION

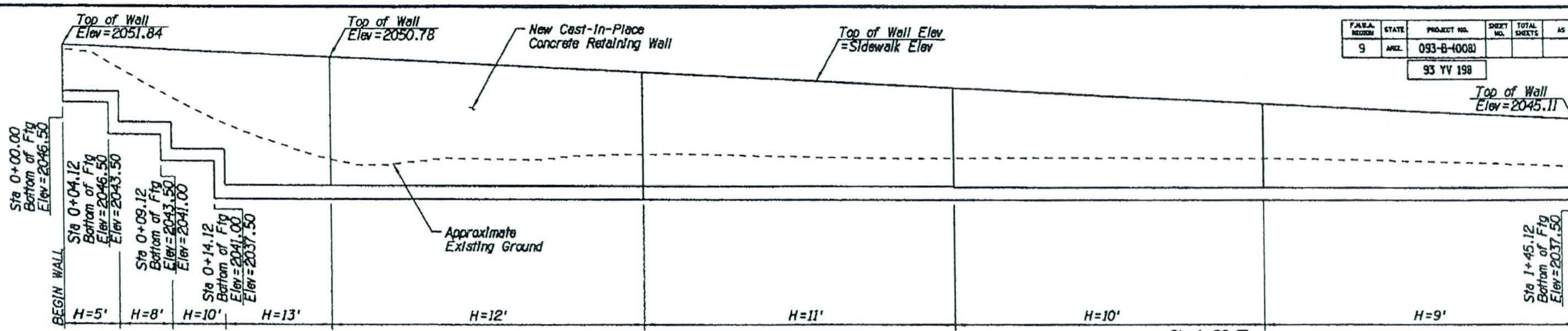
DETAIL SHEET
PEDESTRIAN ACCESS

STAGE IV DESIGN
95%
REVIEW
NOT FOR CONSTRUCTION OR RECORDING

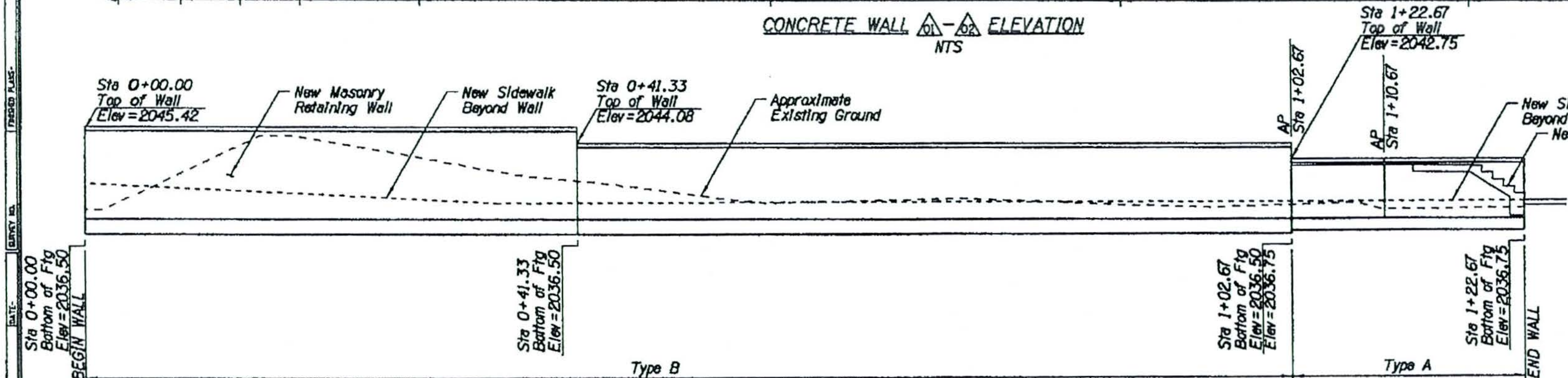
ROUTE US 93
LOCATION WICKENBURG BYPASS
DWG DT07

TRACS NO. H 5825 01C
093-B-(008)
___ OF ___

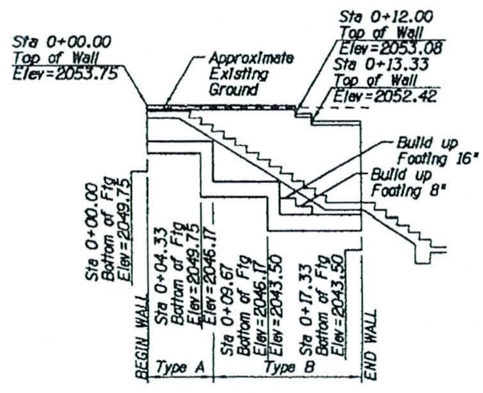
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	093-B-(008)			
		93 YV 198			



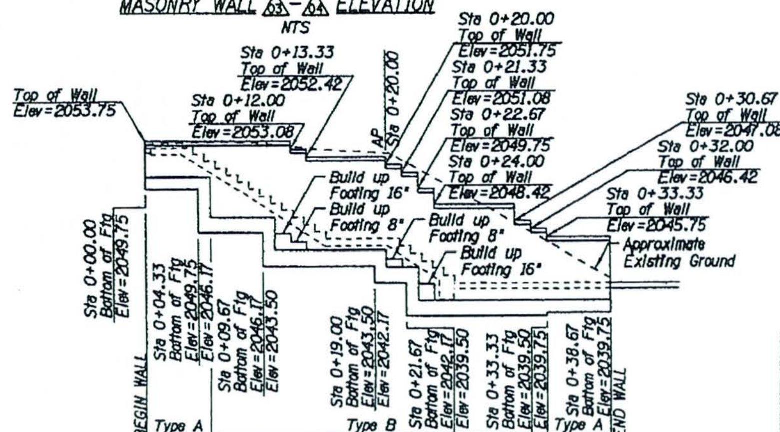
CONCRETE WALL 01 - 02 ELEVATION
NTS



MASONRY WALL 03 - 04 ELEVATION
NTS



MASONRY WALL 05 - 06 ELEVATION
NTS



MASONRY WALL 07 - 08 ELEVATION
NTS

DETAIL E
SHEET 5 OF 5
WALL ELEVATIONS

	NAME	DATE	
DESIGN	MJR	02/06	ARIZONA DEPARTMENT OF TRANSPORTATION INTERMODAL TRANSPORTATION DIVISION
DRAWN	ASJ	02/06	
CHECKED	BSW	02/06	
JACOBS			DETAIL SHEET PEDESTRIAN ACCESS
ROUTE US 93	LOCATION		WICKENBURG BYPASS
TRACS NO. H 5825 01C			093-B-(008)

STAGE IV DESIGN
95%
REVIEW
NOT FOR CONSTRUCTION OR RECORDING

DWG DT08
___ OF ___

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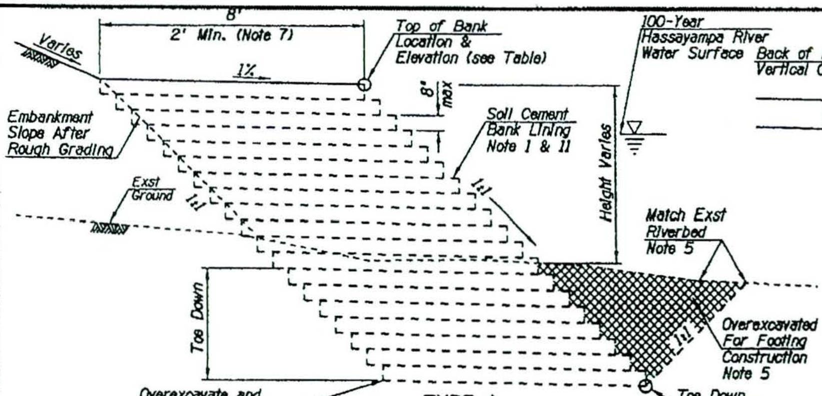
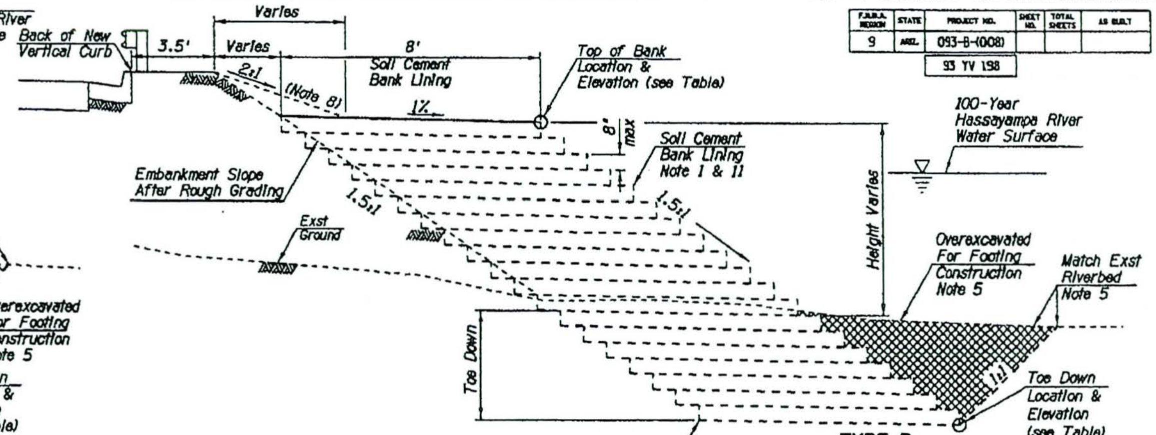
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	093-B-(008)			

93 YV 198



TYPE A
SOIL CEMENT @ 1:1 SIDESLOPE
CHANNEL BANK LINING AND CUTOFF WALL
SECTION



TYPE B
SOIL CEMENT @ 1.5:1 SIDESLOPE
CHANNEL BANK LINING
SECTION

SOIL CEMENT BANK LINING LOCATION DATA (Type A, 1:1 SS)

△ Reference Number Note 10	Top of Bank Northing	Top of Bank Easting	Elev Top of Bank	△ Reference Number Note 10	Toe Down Northing	Toe Down Easting	Toe Down Elev	Soil Cement Volume (cy)
EAST ABUTMENT BANK LINING								
1	1,082,253.2	454,664.6	2051.2	9	1,082,304.4	454,673.7	2007.2	
2	1,082,244.3	454,645.9	2051.2	10	1,082,268.9	454,600.1	2007.2	
3	1,082,211.4	454,640.6	2051.2	11	1,082,202.3	454,589.4	2007.2	
4	1,082,156.6	454,660.4	2051.2					
5	1,082,127.4	454,656.0	2041.5	12	1,082,116.8	454,623.9	2007.2	
6	1,082,049.9	454,696.9	2040.3					
7	1,082,082.2	454,709.9	2051.2					
8	1,082,067.7	454,719.7	2051.2	13	1,082,030.2	454,671.6	2007.2	
							Sub-Total	4267
WEST ABUTMENT BANK LINING								
20	1,081,769.9	454,330.0	2051.0	26	1,081,789.9	454,355.0	2011.0	
21	1,081,911.5	454,246.2	2051.6	27	1,081,931.9	454,280.7	2011.6	
22	1,081,928.9	454,235.4	2051.6	28	1,081,952.0	454,267.8	2011.8	
24	1,082,078.9	454,128.8	2055.1	30	1,082,110.3	454,157.2	2012.6	
25	1,082,301.8	453,881.6	2055.1	31	1,082,323.1	453,919.3	2014.0	
							Sub-Total	8658
CUTOFF WALL - SOLS WASH BRIDGE								
32	1,082,309.1	453,906.7	2032.8	36	1,082,317.1	453,913.9	2014.0	
33	1,082,309.8	453,868.6	2035.0	37	1,082,325.2	453,876.1	2019.5	
34	1,082,476.1	453,734.4	2035.0	38	1,082,481.0	453,750.5	2019.5	
35	1,082,524.1	453,741.4	2035.1	39	1,082,539.0	453,759.4	2019.5	
							Sub-Total	2567

SOIL CEMENT BANK LINING LOCATION DATA (Type B, 1.5:1 SS)

Approx US 93 Station	△ Reference Number Note 10	Top of Bank Northing	Top of Bank Easting	Elev Top of Bank	△ Reference Number Note 10	Toe Down Northing	Toe Down Easting	Toe Down Elev	Soil Cement Volume (cy)
NORTH LEVEE, BANK LINING									
116+55.3	40	1,082,504.6	453,718.1	2055.3	60	1,082,539.0	453,759.4	2019.5	
116+80.0	52	1,082,523.8	453,702.6	2055.3	72	1,082554.6	453,740.7	2022.6	251
119+95.0	41	1,082,768.5	453,504.1	2055.8	61	1,082,798.0	453,540.6	2024.1	3005
127+81.6	42	1,083,383.2	453,013.3	2056.4	62	1,083,409.6	453,046.1	2028.1	6992
135+43.5	43	1,084,036.5	452,673.6	2057.9	63	1,084,048.1	452,714.1	2029.8	6366
139+53.4	44	1,084,430.3	452,560.2	2060.0	64	1,084,441.0	452,597.5	2034.0	3285
146+82.1	45	1,085,131.0	452,360.1	2063.4	65	1,085,141.7	452,397.0	2037.6	5592
147+30.0	53	1,085,178.2	452,346.0	2063.5	73	1,085,189.6	452,382.3	2037.9	365
147+50.0	54	1,085,197.8	452,339.6	2063.6	74	1,085,207.6	452,370.0	2042.3	139
154+45.8	46	1,085,822.6	452,000.1	2065.8	66	1,085,846.0	452,026.6	2043.1	4536
156+13.9	47	1,085,955.8	451,889.7	2066.9	67	1,085,976.7	451,911.7	2046.7	1068
164+36.2	48	1,086,552.7	451,323.7	2070.1	68	1,086,572.6	451,344.7	2050.8	4812
164+75.9	49	1,086,581.9	451,296.7	2070.1	69	1,086,601.6	451,317.5	2051.0	226
167+97.3	50	1,086,826.4	451,086.9	2071.5	70	1,086,845.8	451,107.6	2052.6	1809
171+00.0	51	1,087,047.5	450,880.8	2073.0	71	1,087,067.2	450,901.0	2054.2	1691
								Sub-Total	40137

OVER-EXCAVATION
East Abutment - 19,423 CY
West Abutment - 24,621 CY
Cutoff Wall - 9,431 CY
North Levee - 101,233 CY

BACKFILL OVER TOE
East Abutment - 15,042 CY
West Abutment - 19,009 CY
Cutoff Wall - 7,181 CY
North Levee - 74,130 CY

NOTES:

1) All new soil cement bank lining shall comply with the project Special Provisions.

2) Install soil cement bank lining in 8' wide lifts of not more than 8-inch thickness, compacted to the requirements of the Special Provisions. See Det E for configuration of soil cement under detached sidewalk and ramp.

3) See special provisions for allowable soil gradation and Portland Cement used in the soil cement mixture.

4) Overexcavate and compact underlying soil to 95% of maximum density per applicable test methods of the ADOT Testing Manual prior to construction of all soil cement bank lining.

5) Backfill and compact to 95% and match existing riverbed grade as close as possible.

6) Quantities for soil cement bank lining are tallied separately from roadway embankment volume. Excavation to construct is itemized on this sheet.

7) Top width is 2-feet adjacent to Hassayampa River bridge West abutment. For the East Abutment see Sidewalk - East Abutment, Detail E.

8) Construct an earth fillet over soil cement bank lining to maintain a sideslope of 2:1.

9) Construct all soil cement bank lining using Northing & Eastings for Top of Bank & Toe of Slope. See also Detail E regarding the East Abutment.

10) Reference Numbers are shown on Detail M, Sheets 2 through 8.

11) Outer face of bank lining is to be left in roughened condition.

DETAIL M

SHEET 1 OF 8

	NAME	DATE	
DESIGN	SLD	02/06	ARIZONA DEPARTMENT OF TRANSPORTATION INTERMODAL TRANSPORTATION DIVISION
DRAWN	ASJ	02/06	
CHECKED	BSW	02/06	
JACOBS			DETAIL SHEET SOIL CEMENT BANK LINING

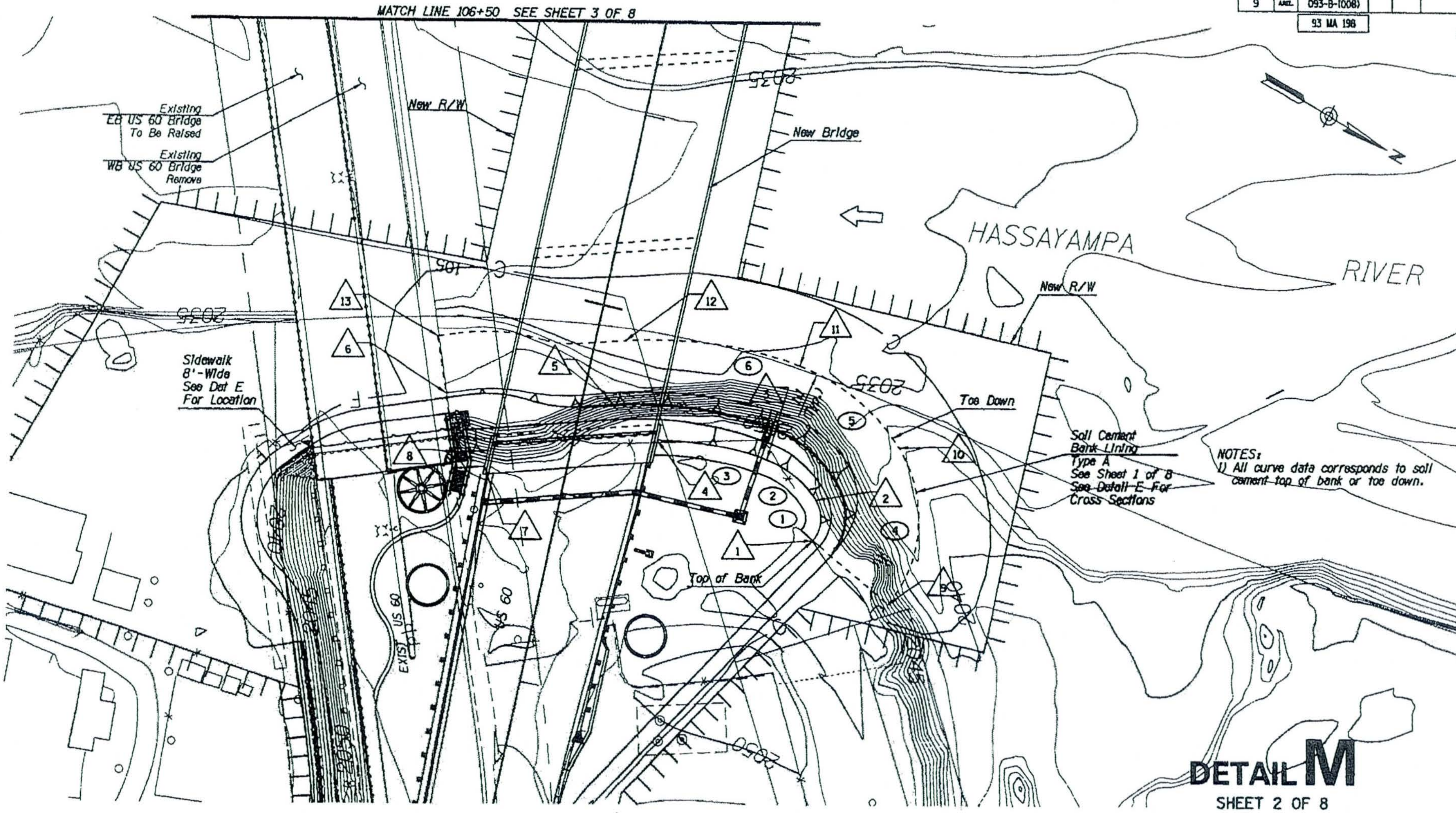
STAGE IV DESIGN 95% REVIEW NOT FOR CONSTRUCTION OR RECORDING

ROUTE: US 93 — LOCATION: WICKENBURG BYPASS — DWG DT19

TRACS NO. H 5825 01C — 093-B-(008) — ___ OF ___

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	093-B-(008)			

93 MA 198



NOTES:
1) All curve data corresponds to soil cement top of bank or toe down.

DETAIL M

SHEET 2 OF 8

CURVE DATA (1)	CURVE DATA (2)	CURVE DATA (3)	CURVE DATA (4)	CURVE DATA (5)	CURVE DATA (6)
Δ= 61°51'54" Lt	Δ= 48°05'44" Lt	Δ= 19°35'52" Lt	Δ= 61°51'38" Lt	Δ= 48°05'52" Lt	Δ= 15°02'07" Lt
T= 9.59'	T= 19.19'	T= 29.52'	T= 40.75'	T= 42.39'	T= 29.43'
L= 17.28'	L= 36.10'	L= 58.47'	L= 73.42'	L= 79.74'	L= 58.52'
R= 16.00'	R= 43.00'	R= 170.95'	R= 68.00'	R= 94.99'	R= 223.00'

	NAME	DATE
DESIGN	DES	02/06
DRAWN	ASJ	02/06
CHECKED	BSW	02/06

JACOBS

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION

DETAIL SHEET
SOIL CEMENT
BANK LINING

STAGE IV DESIGN
95%
REVIEW
NOT FOR CONSTRUCTION OR RECORDING

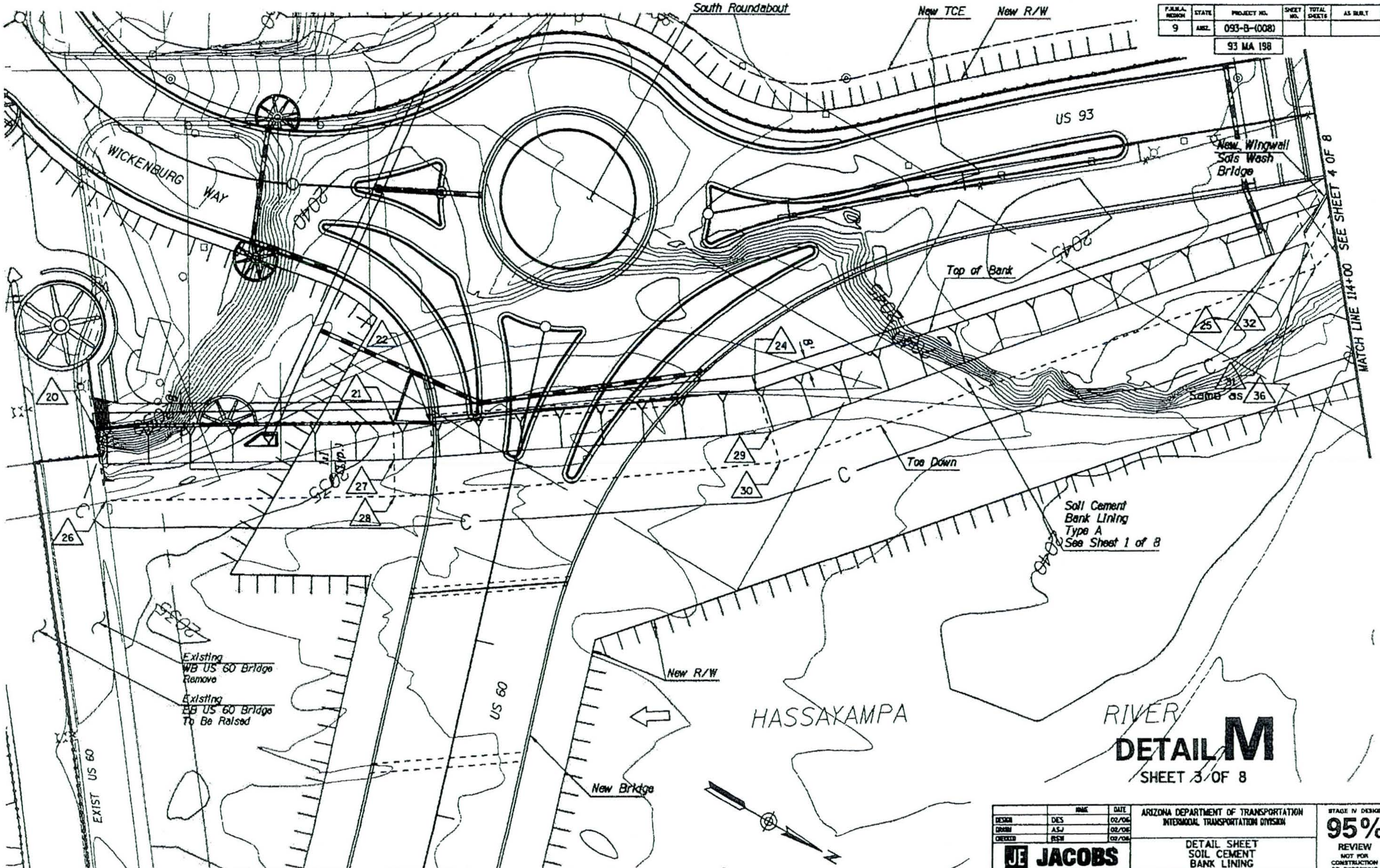
ROUTE: US 93
LOCATION: WICKENBURG BYPASS

DWG DT20

TRACS NO. H 5825 01C | 093-B-(008) | ___ OF ___

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	093-B-(008)			

93 MA 198



	NAME	DATE
DESIGN	DES	02/06
DRAWN	ASJ	02/06
CHECKED	RSW	02/06

JACOBS

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION

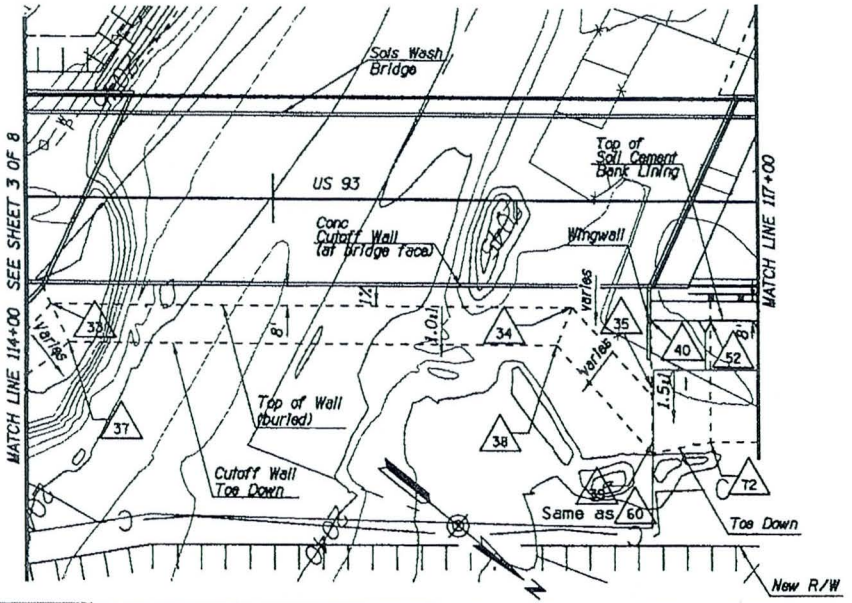
DETAIL SHEET
SOIL CEMENT
BANK LINING

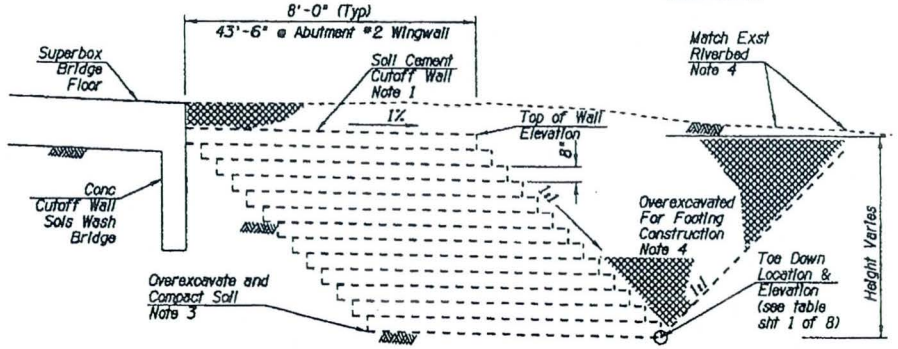
STAGE IV DESIGN
95%
REVIEW
NOT FOR CONSTRUCTION OR RECORDING

ROUTE US 93 | LOCATION WICKENBURG BYPASS | DWG DT21

TRACS NO. H 5825 01C | 093-B-(008) | ___ OF ___

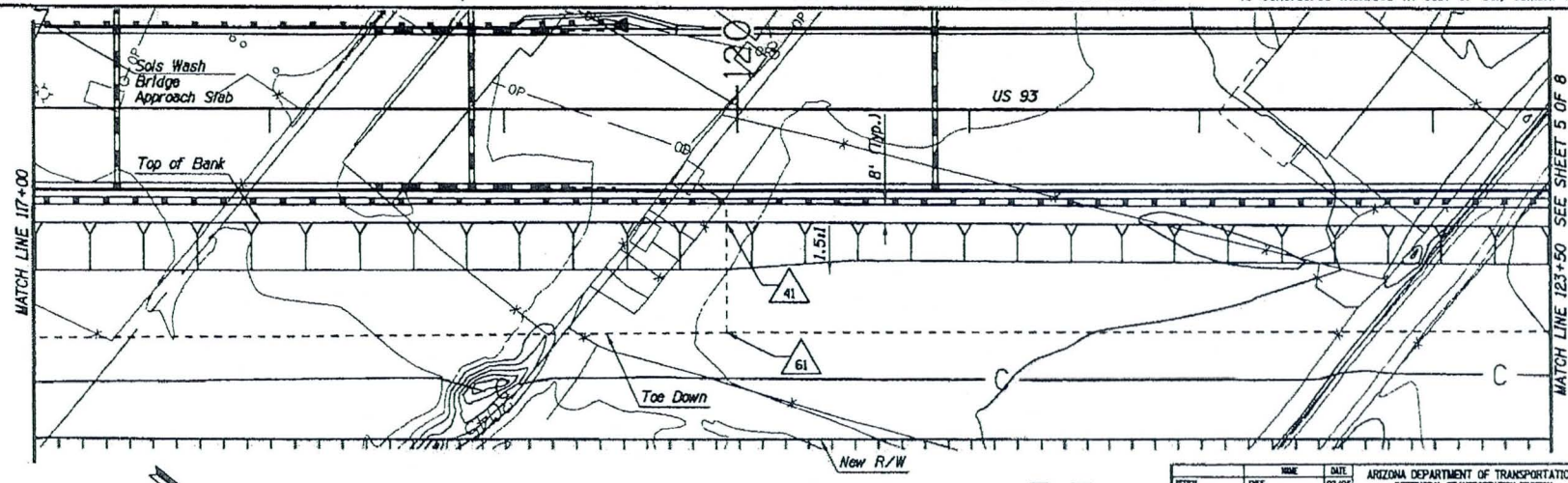
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	093-B-(008)			
		93 MA 198			





SOIL CEMENT CUTOFF WALL SECTION

NOTES:
1) Install soil cement cutoff wall in 8' wide lifts of not more than 8-inch thickness.
2) See special provisions for allowable soil gradation and Portland Cement used in the soil cement mixture.
3) Overexcavate and compact underlying soil to 95% prior to construction of all soil cement cutoff wall.
4) Backfill and compact to 95% and match existing streambed grade as close as possible.
5) Quantities for soil cement are tallied separately from roadway embankment volume. Excavation to construct is considered included in cost of soil cement item.



DETAIL M

SHEET 4 OF 8

	NAME	DATE
DESIGN	DES	02/06
DRAWN	ASJ	02/06
CHECKED	PSW	02/06

JACOBS

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION

DETAIL SHEET
SOIL CEMENT
CUTOFF WALL & BANK LINING

STAGE IV DESIGN
95%
REVIEW
NOT FOR CONSTRUCTION OR RECORDING

ROUTE	LOCATION	DWG
US 93	WICKENBURG BYPASS	DT22
TRACS NO. H 5825 01C	093-B-(008)	___ OF ___

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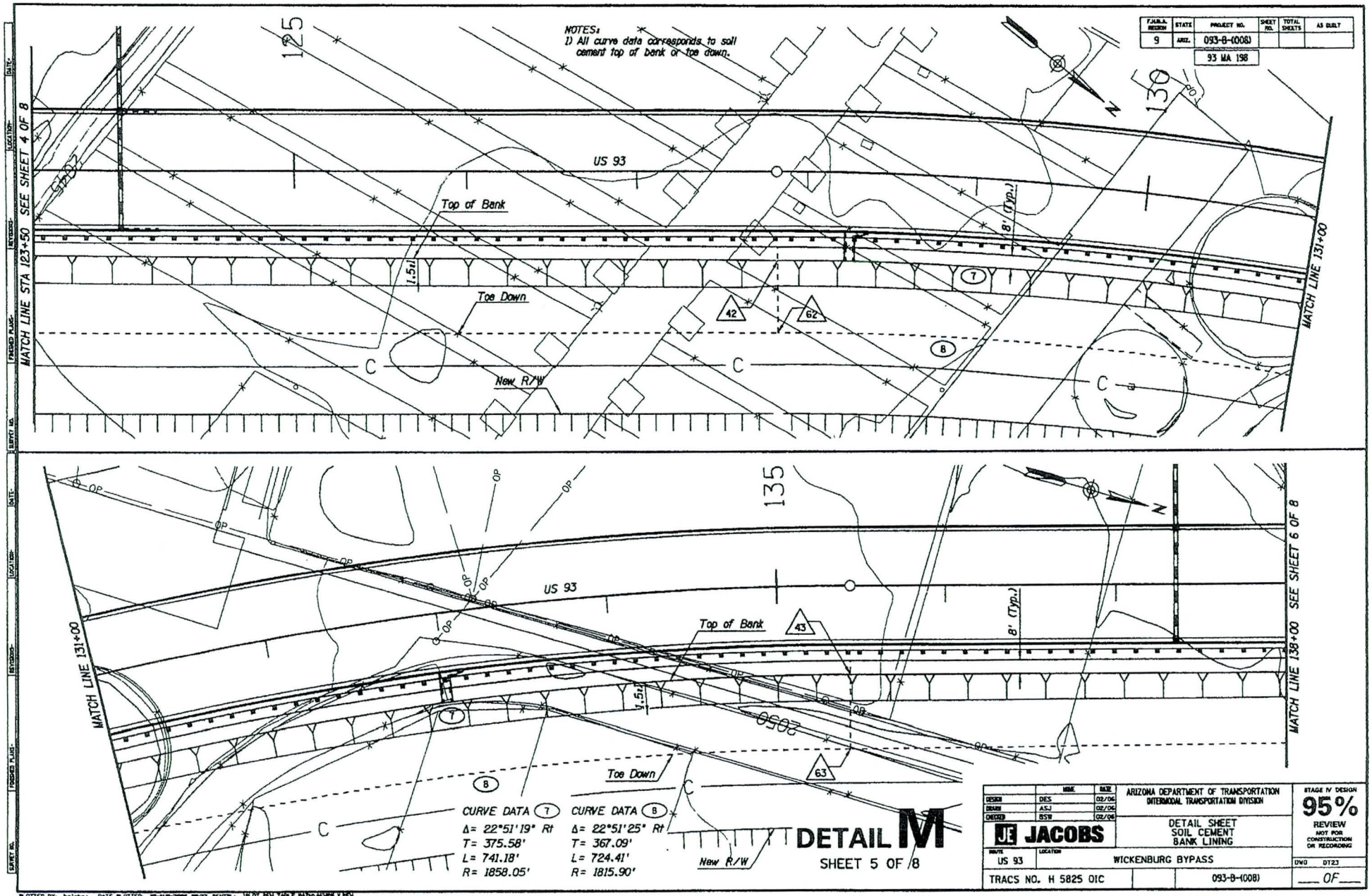
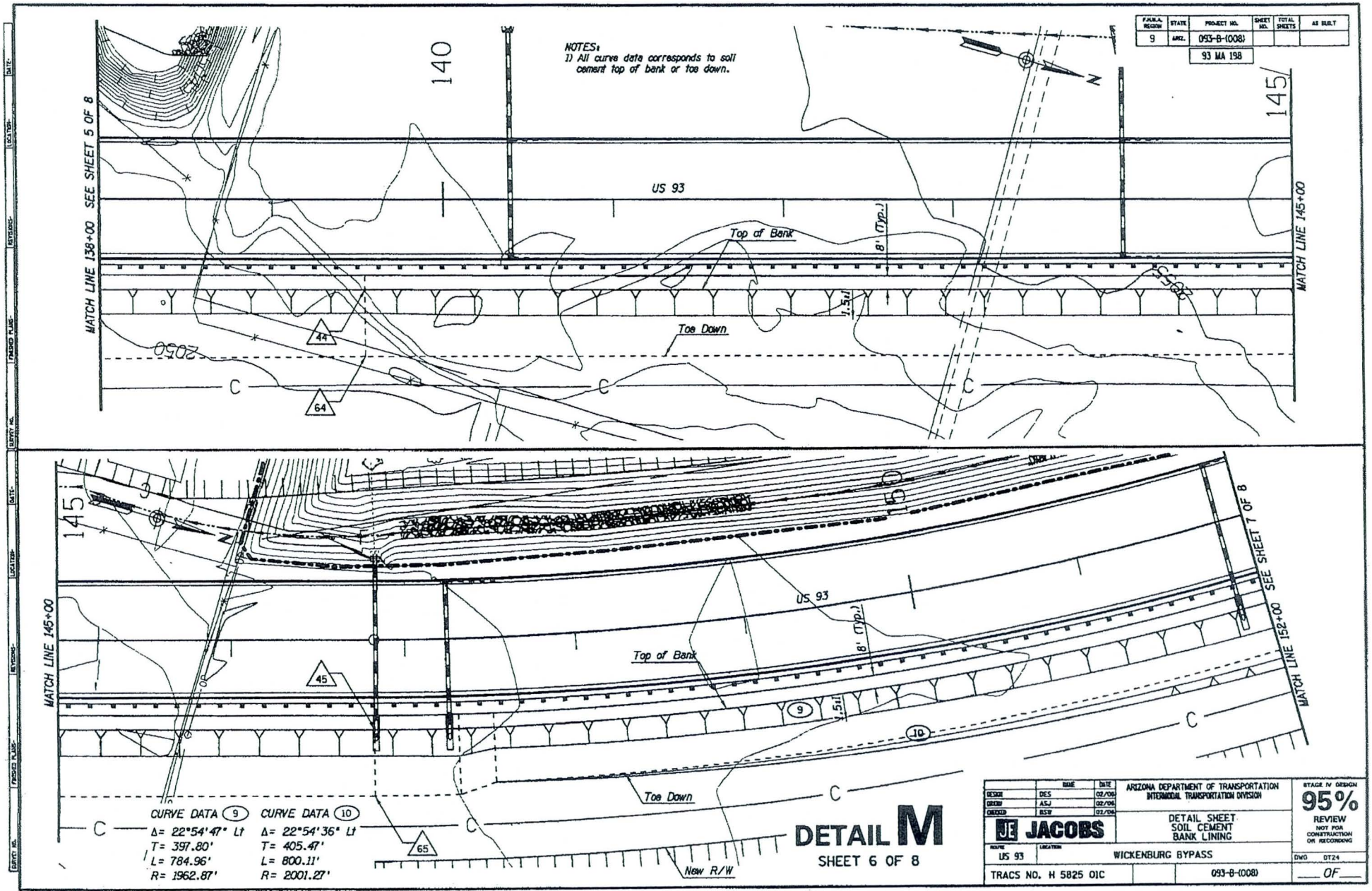
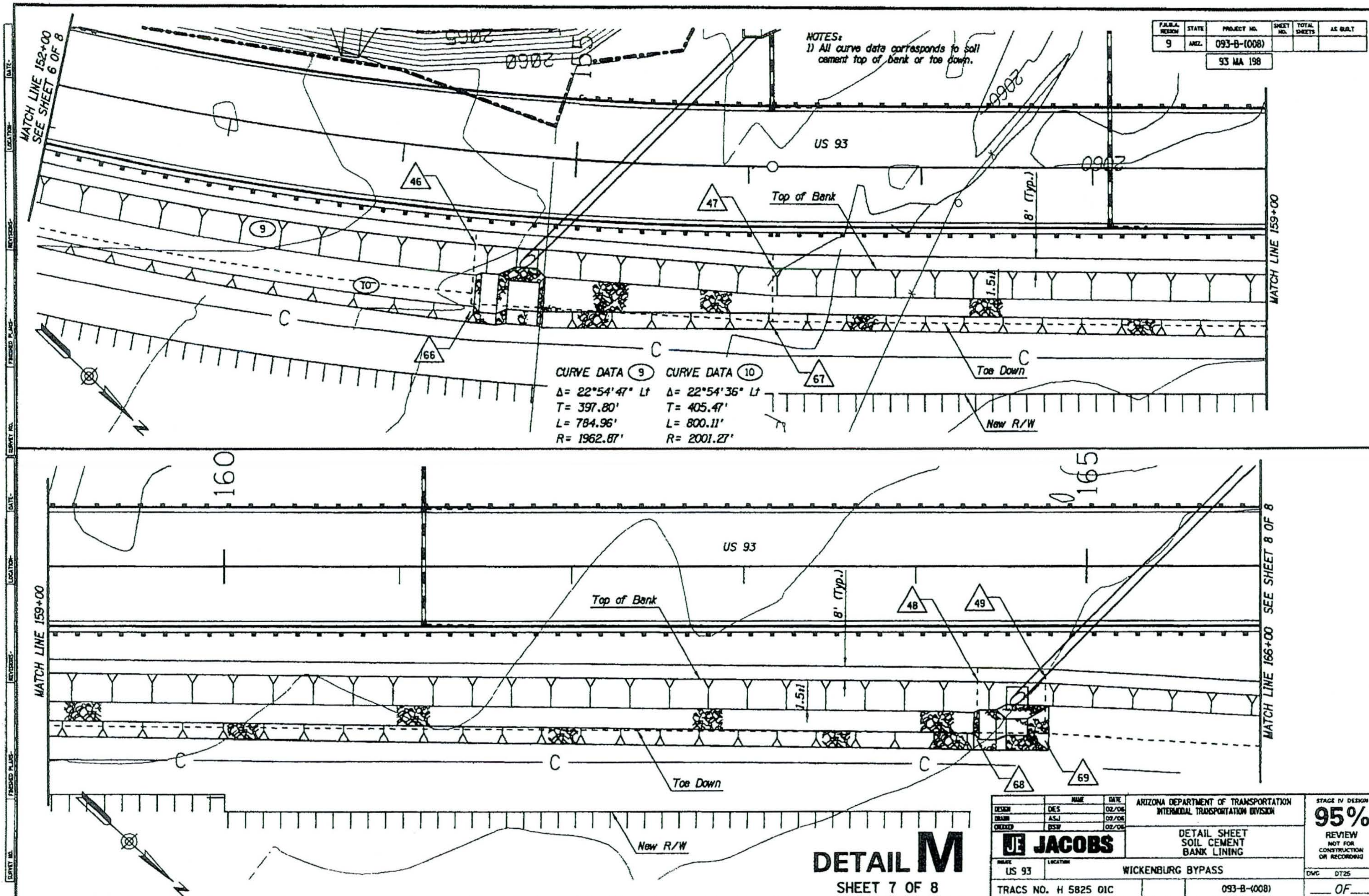

NOTES:
1) All curve data corresponds to soil cement top of bank or toe down.
F.A.H.S. REGION 9
STATE ARIZ.
PROJECT NO. 093-B-(008)
93 MA 198
SHEET NO.
TOTAL SHEETS
AS BUILT
MATCH LINE STA 123+50 SEE SHEET 4 OF 8
US 93
Top of Bank
Toe Down
New R/W
1.5:1
8' (Typ.)
MATCH LINE 131+00
MATCH LINE 131+00
MATCH LINE 138+00 SEE SHEET 6 OF 8
CURVE DATA (7)
Δ= 22°51'19" Rt
T= 375.58'
L= 741.18'
R= 1858.05'
CURVE DATA (8)
Δ= 22°51'25" Rt
T= 367.09'
L= 724.41'
R= 1815.90'
DETAIL M
SHEET 5 OF 8
ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
DESIGN DES 02/06
DRAWN AS-J 02/06
CHECKED BSW 02/06
JACOBS
DETAIL SHEET
SOIL CEMENT
BANK LINING
STAGE IV DESIGN
95%
REVIEW
NOT FOR CONSTRUCTION OR RECORDING
ROUTE US 93
LOCATION WICKENBURG BYPASS
DWG DT23
TRACS NO. H 5825 01C
093-B-(008)
OF


NOTES:
1) All curve data corresponds to soil cement top of bank or toe down.
MATCH LINE 138+00 SEE SHEET 5 OF 8
MATCH LINE 145+00
US 93
Top of Bank
8' (Typ.)
1.5:1
Toe Down
2050
44
64
140
145
MATCH LINE 145+00
MATCH LINE 152+00 SEE SHEET 7 OF 8
45
65
9
10
New R/W
CURVE DATA (9)
Δ= 22°54'47" Lt
T= 397.80'
L= 784.96'
R= 1962.87'
CURVE DATA (10)
Δ= 22°54'36" Lt
T= 405.47'
L= 800.11'
R= 2001.27'
DETAIL M
SHEET 6 OF 8
F.H.W.A. REGION 9
STATE ARIZ.
PROJECT NO. 093-B-(008)
93 MA 198
SHEET NO.
TOTAL SHEETS
AS BUILT
DESIGN DES 02/06
DRAWN AS-J 02/06
CHECKED BSW 02/06
JACOBS
ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
DETAIL SHEET
SOIL CEMENT
BANK LINING
STAGE IV DESIGN
95%
REVIEW
NOT FOR CONSTRUCTION OR RECORDING
ROUTE US 93
LOCATION WICKENBURG BYPASS
DWG DT24
TRACS NO. H 5825 01C
093-B-(008)
OF



F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	093-B-(008)			

93 MA 198

DETAIL M

SHEET 7 OF 8

	NAME	DATE
DESIGN	DES	02/06
DRAWN	ASJ	02/06
CHECKED	DSW	02/06

JACOBS

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION

DETAIL SHEET
SOIL CEMENT
BANK LINING

STAGE IV DESIGN
95%
REVIEW
NOT FOR CONSTRUCTION OR RECORDING

ROUTE: US 93
LOCATION: WICKENBURG BYPASS

DWG DT25

TRACS NO. H 5825 01C

093-B-(008)

___ OF ___

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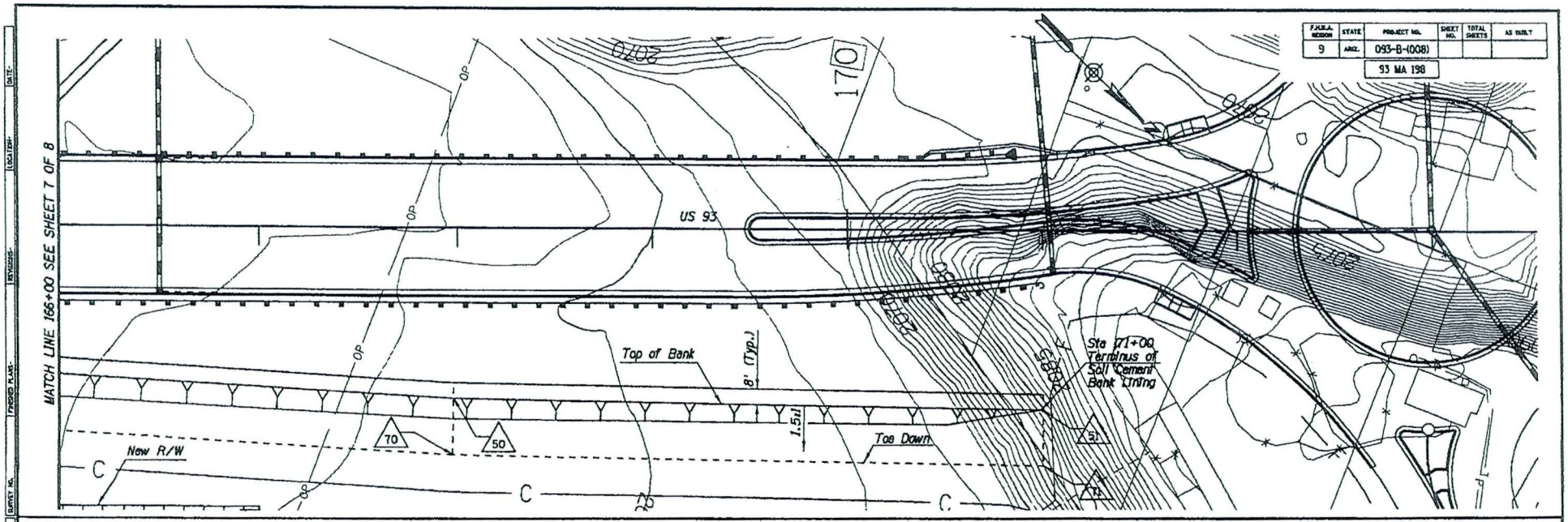

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	093-B-(008)			
		93 MA 198			

DETAIL M

SHEET 8 OF 8

	NAME	DATE
DESIGN	DES	02/06
DRAWN	ASJ	02/06
CHECKED	JSW	02/06

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION

JE JACOBS

DETAIL SHEET
SOIL CEMENT
BANK LINING

STAGE IV DESIGN
95%
REVIEW
NOT FOR CONSTRUCTION OR RECORDING

ROUTE	LOCATION	DWG
US 93	WICKENBURG BYPASS	DT26

TRACS NO. H 5825 01C | 093-B-(008) | ___ OF ___

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CHAPTER 2: INSPECTION AND MAINTENANCE

2.1 General Description of Levee

Plans and typical sections of the proposed improvements are included in Section 1.4. The levee is proposed to be constructed in 2007/2008. It is an earthfill roadway with soil cement facing on the river side. The soil cement is constructed horizontally in 8' wide lifts. The river face of the levee is sloped at 1.5H:1V. There are several pipes through the levee to allow flows west of the levee to pass to the Hassayampa River.

2.2 Inspections

2.2.1 Annual Inspection:

The Work Control Center will conduct an inspection of all of the Town's flood control facilities on an annual basis. The annual inspection will be documented in report form and reviewed by the Public Works Director. The report will include a statement concerning whether or not the structure will operate as designed. The inspection report will be filed away as a hard copy and an electronic form will also be documented and saved in the TOW share drive.

Applicable copies of the inspection report will be mailed to the Arizona Department of Transportation.

2.2.2 Maintenance Inspection:

A Maintenance Inspection will also be conducted on an annual basis. This inspection shall precede the Annual Inspection by six to eight weeks. The Public Works Department shall conduct the maintenance inspection. Items for inspection are discussed in Section 2.3. The inspection staff will provide a detailed report noting any maintenance deficiencies, continuous monitored concerns, and any safety anomalies observed during the inspection. The maintenance inspection report will be filed away as a hard copy and an electronic form will also be documented and saved in the TOW share drive.

2.2.3 Maintenance Inspection – Special:

A special inspection shall be made of the levee system after any event exceeding a discharge of 14,500 cfs (the 10% probability event) in the Hassayampa River.

Inspection Log

MONTH	DATE	Structure	INSPECTING ENGINEER

2.3 Items of General Concern

2.3.1 Graffiti

Any obscene material/writings should be removed or painted as needed to match existing conditions.

2.3.2 Unwanted or Nuisance Vegetation

A. Any vegetation with an extensive root system or prevents a clear view of the embankment or abutment areas should be removed. Deep rooted vegetation must not be allowed on embankments because they limit access and visibility, and can pose potential hazards by toppling in windstorms, fill cracking by root invasion, or openings of seepage paths by root decay.

B. Deep-rooted vegetation is defined as trees and shrubs having a woody structure penetrating below a 3' depth. The following species have been determined to be deep-rooted and are not be acceptable on all TOW dams, dikes, levees, and earthen slopes:

a) Desert Broom
b) Ironwood
c) Mesquite
d) Palo Verde
e) Salt Cedar

C. Plants will be stump cut flush with the soil surface and a suitable herbicide will be applied to the stump immediately.

D. All trees will be kept a minimum of 20' from the toe of the levee.

E. Any tree branches or foliage canopy that reduce the roadway clearance to less than 14' above the road surface or which reduce the width to less than 12', must be trimmed or removed.

2.3.3 Unlined floodways.

To ensure that the integrity of the structure is preserved and that the floodway will function as designed, unwanted vegetation will be removed or destroyed within the flow line of the floodway, collection ditches, or side inlet basins.

A. Nuisance or high unwanted vegetation.

Remove and or destroy any woody vegetation within the flow area of the floodway, of the floodway, collection ditches, or side inlet basins. Also, remove trash/debris that will impede flows in these areas. If grasses are established, maintain to the height to six inches or less.

B. Sediment/silt deposits.

Remove accumulated deposits of loose material to obtain designed grades and cross sections. Loose deposited materials shall not be used for repairs within the floodway unless tested and meets the earth fill criteria in the construction specifications. Depending on the amount of accumulation in the invert, a sediment survey may be required. Ensure any 404 permits are in order to perform the job. The lead operator shall keep a copy the 404 with him at all times.

2.4 Repair Priority

2.4.1 Function & Integrity - Priority #1

#1 Flap Gates
#2 Culvert Inlet
#3 Channels & Storm Drains Inverts
#4 Levees
#5 Channel Walls

2.4.2 Security & Liability - Priority #2

#6 Access Gates

2.4.3 Aesthetics - Priority #3

#7 Fencing
#8 Right-of-Way

2.5 Inspection and Maintenance Protocols

In the following paragraphs, items that are of concern during inspections and recommended maintenance actions are presented. The structure used is to identify the item of concern and below in italics present the recommended maintenance action.

2.5.1 Flap Gates

Maintenance, General

There are three cross-culverts that have a flap gate. One cross-culvert pipe is at Wickenburg Way station 19+65. The second is at roadway station 155+29, and the third is at roadway station 165+35. The flap gate of the culvert shall be inspected for identification of obstructions, erosion, settlement, or damage that would affect its capability to perform as intended.

A. Loose or non-functioning

1. Loose anchor bolts
   1. Refasten bolts securely in place

2. Missing, broken or bent frame or parts that prevent the gate from functioning properly
   2. Repair or replace damaged parts & ensure the frame is structurally sound & functioning properly

3. Flap gate "frozen" and not able to open & close freely
   3. Service and lubricate to function properly

B. Trash/debris

1. Trash/debris that prevents the flap gate from opening or closing
   1. Remove as needed to function as designed.

C. Painted flap gate metal works

1. Paint is peeling from the flap gate metal works.
   1. Clean, remove any rust and apply a protective coating.

D. Graffiti

1. Graffiti present on the flap gate metal works.
   1. Remove or paint over to match in kind

2.5.2 Inlet Structure

Maintenance, General

There are three cross-culverts. One cross-culvert pipe is at Wickenburg Way station 19+65. The second is at roadway station 155+29, and the third is at roadway station 165+35. The inlet of the culvert shall be inspected for identification of obstructions, erosion, settlement, or damage that would affect its capability to perform as intended.

A. General

1. Obstructed pipe

a. Pipe shows signs of obstruction.

a. Any obstruction in the pipe shall be removed immediately

2. Trash & debris

a. Trash & debris that obstructs the inlet more than ¼ the height or diameter of the structure.

a. Clear inlet free of trash and debris so as not to restrict flows.

3. Rodents/animals

a. Holes or diggings caused by burrowing animals.

a. Backfill area adjacent to structure to be free of hole. Apply initial treatment and follow up for control of burrowing animals.

4. Erosion

a. Erosion around the wing-walls or headwalls that create voids leading to the result of undermining or unwanted settlement.

a. Fill & compact voids or holes to 95% density with proper moisture conditioned material. Lifts should not exceed 6".

5. Settlement or movement.

a. Settlement or movements that have dropped or uplifted the structure facing or base more than 3".

a. Structure should be reinstalled firmly and bedded in place.

6. Vegetation

a. Vegetation 18" tall closer than 2 feet apart located on the apron or within 5' of the structure.

a. Remove vegetation as needed. If applicable, apply proper herbicide to control unwanted vegetative growth.

7. Graffiti

a. Obscene material/writings

a. Repaint areas of surface affected to match in kind the surroundings.

B. Concrete

1. Structural damage

a. Parts of the structure are cracked, chipped, broken off, or spalled more than 2" deep & 6" in diameter.

a. Remove any damaged pieces or sections; clean thoroughly, patch, replace, or repair as needed.

C. Metal

The inlet of the pipe at Wickenburg Way has a steel grillage barrier at the entrance. The grillage has openings approximately 6.5"x6.5"

1. **Damage or deterioration.**

a. Inspect the barrier noting any damage or deterioration observed. Attention shall focus on the displacement of any of the bars, either increasing or decreasing the nominal opening.

a. Any damaged or deteriorated bars shall be repaired or replaced.

2. Obstruction or Blockage

a. Trash or vegetation present

a. Any obstruction in the grillage shall be removed immediately.

2.5.3 Channel & Cross-Culvert Inverts

Wickenburg Way Culvert: During every inspection, pipe shall be evaluated for displacement or changes in alignment. Inspect the approach and discharge channels to ensure they are kept free of trees and other floating objects that would obstruct flow or damage the structure. The entire channel shall be kept free of silt, soil, stones, rocks, and other foreign objects to prevent reduced discharge capacity. Trees and shrubbery must not be allowed to grow adjacent to the structure.

A. General

1. Trash, litter, & debris

a. Trash & debris restricting the intake into a storm drain.
a. Remove any obstructions from inlets and dispose of accordingly.

b. Debris/trash which impedes flows in a channel invert.
b. Remove any obstructions from the invert and dispose of accordingly.

c. Citizen concerns involving foul odors or unsightliness.
c. Remove trash, litter, or debris from premises that are causing concern.

d. Mud or sediment deposits which restrict 10% or more of the structure.
d. Remove accumulated sediment and dispose of accordingly.

e. Vegetation in excess of 2" high protruding through cracks or expansion joints.
e. Cut & remove protruding vegetation and chemically treat if applicable.

f. Ponded water complaints of foul odors or insects.
f. Pump out water with water truck or portable pump. If not practical, treat for vector concerns and schedule follow up treatments as needed.

g. Dead animals.
g. *Remove dead animal and dispose of accordingly.*

h. Pollution - any hazardous materials.
h. Contact Public Works Department @ (928)-684-2761 & Fire Department @(928)-684-7702 for instructions and dispose of accordingly.

B. Unimproved channel invert

1. Obstructions

a. Deep-rooted vegetation (Palo Verde, Mesquite, Ironwood, and Salt Cedar trees).
a. Any growth that is not part of the original project landscape will be cut, stump treated and removed if needed. All herbicide treatment should be environmentally friendly (consult with Ecology Branch).

b. Vegetation or debris which restricts more than 10% of channel capacity.
b. Remove restrictions and dispose of accordingly.

2.5.4 Levees

A. Soil Cement Levee Facing:

The river slope of the levee shall be inspected for evidence of cracks, subsidence, and damage to the slope and other signs of erosion or deterioration when the riverside water surface is dropping during a flood event.

1. Structural damage.

a. Erosion, spalling, or deterioration which affects the structural integrity.

a. Repair erosion from runoff/sheetflow. Repair areas where spalling or deterioration has occurred.

2. Graffiti

a. Obscene material/writings

a. Remove or repaint as needed to match to existing conditions.

3. Transverse or longitudinal cracks

a. Transverse or longitudinal cracks located on the crest or toe of the levees.

a. Record the station of the crack. Give location; crest, upstream shoulder, downstream shoulder, mid-slope, or toe of levee. Take measurements to include; diameter size, and depth of crack. Include photograph, inspector, date, and structure.

B. Earthen Embankment:

Routine maintenance of the embankment slopes shall be performed as described below. However, any unusual condition that may adversely affect the safety of the levee SHALL IMMEDIATELY be reported to the Public Works Department.

1. Stability and Settlement. Sloughs, slumps, bulges, depressions, cracks, or other irregularities in the crest or slopes of the levee are often signs of instability and settlement of the embankment or foundation, or both. Significant settlement of the embankment may diminish freeboard and increase the possibility of overtopping. Signs of instability and settlement SHALL IMMEDIATELY be reported to the Public Works Department so that arrangements can be made for qualified professional engineers to inspect and evaluate the levee.

a. Inspection. Inspect the embankment for sloughs, slumps, bulges, depressions, and cracks. Sloughs, slumps, bulge, depressions or other anomalies should be photographed and surveyed to provide a record of the occurrence.

b. Maintenance. A qualified professional engineer should be consulted for evaluation of any signs of settlement or instability and of suitable repairs to the fill.

2. Erosion. Erosion involves the loss of embankment material due to water action. It reduces the embankment cross-section, thereby impairing the safety and stability of the embankment. Erosion can be in the form of gullies down side slopes. The gullies and benching may be initiated by animal and/or manmade traffic.

a. Inspection. All areas of the embankment should be inspected for loss of soil fill, for irregular ground surfaces that might indicate loss of material, or for any other signs of damage to the embankment. After heavy rainfall has occurred (1 inch in 24 hours), inspect for erosion.

b. Maintenance. Repairs should be made as necessary to maintain the integrity of the embankment. Earth materials used to repair eroded areas should be tamped or compacted into place.

i. Erosion from sheet runoff is causing deep rills on slopes of embankment.
i. If erosion/rill is deeper than 2' deep, a proctor test must be taken. Install moisture-conditioned material in lifts not to exceed more than 6" high and compaction tests will be administered on every lift and a 95% result or better must be obtained to continue each lift.

3. Other

a. Report any other embankment safety related concerns (sink holes, depressions, slides, or other anomalies).
a. Record the station of the concern. Give location; crest, upstream shoulder, downstream shoulder, mid-slope, or toe of levee. Take measurements to include; diameter size, and depth of depression. Include photograph, inspector, date, and structure.

2.5.5 Right-of-Way

A. General

1. Trash & Debris

a. Trash, litter, and debris creating an unsightly condition
a. Remove & dispose of accordingly.

2.5.6 Fencing

A. General

1. Vegetation concerns

a. Nuisance vegetation taller than 18"
a. Cut vegetation and chemically spray treatment if applicable.

2. Damaged Fencing concerns

a. Cut or damaged fencing or gates.
a. Repair or replace damaged fencing or gates to set standards.

3. Signing concerns

a. Damaged signs or stationing.
a. Refurbish or replace, as needed, any damaged signs.

CHAPTER 3: FLOOD EMERGENCY OPERATIONS

3.1 General.

When flow is occurring in the river, the landside slope of the embankments and the foundations from the embankments shall be inspected for indications of cracks, slides, sloughs, subsidence, springs, and seeps, caused by seepage through the embankment from the river.

Post event, the exposed portions of the landside ground should be examined for sinks, cracking, or any unusual conditions.

If the levee experiences periods of sustained high-flow levels, twice daily inspections should be made of the levee with particular attention being given to the crest of the levee, visible portions of the landside slope, and riverside slope for evidence of abnormal developments caused by seepage through the foundation.

Following any reportable earthquakes, (magnitude greater than 2.0, Richter scale) inspection should be made of the levee embankments for indications of physical damage, such as cracks, displacement, subsidence, and land movements, and if no damage is discovered, a report of No Damage should be made.

3.2 Monitoring Procedure

A. Each employee will be assigned to one of the defined observation teams to serve as "Flood Water Personnel." Each team will have specific observation points assigned, for which the team member will observe and report data as observed.

1. The observation points are established by the Police and Fire departments.
2. The police and fire personnel may define additional task(s) for any observation point at the time of team activation.
3. All personnel shall evaluate their personnel safety consideration when undertaking both defined and special assignments.

B. Police and Fire personnel will be assigned a TOW vehicle equipped with the following items:

1. Mobile 2-way radio
2. Rotating warning light
3. Most TOW vehicles are also equipped with a commercial radio for use in monitoring local emergency frequency available to the general public.
4. For off highway locations, a four-wheel drive vehicle will be assigned.

C. Police and Fire personnel will maintain radio contact at all times

1. A preliminary radio check to "TOW Headquarters" shall be made prior to departing the TOW complex. Refer to "Radio Usage Procedures" for additional instruction.
2. Upon arrival at assigned observation point, Police and Fire personnel will observe, record, and report by radio the following data:

    a. Team number
    b. Observation point
    c. Stream flow characteristics:

        i. Stream and/or staff gage reading(s) to be measured in feet or elevation depending on the structure.
        ii. Stream gage condition, (rising, falling, or steady).
        iii. Estimated velocity, feet per second.
        iv. Weather conditions (raining or not; light or hard).

3. The need for extended conversations should be made by cellular phone, if practical. REMEMBER, THE PUBLIC AND THE NEWS MEDIA ARE MONITORING YOUR RADIO TRANSMISSION.
4. Prior to departing from your assigned observation area notify the TOW headquarters that you are leaving and to receive any special instructions and clearance.

D. Any unusual or changing conditions having a significant potential to be life threatening or dangerous to the general public will be reported immediately.

E. If a life-threatening situation occurs in your vicinity and you can assist without endangering yourself, do so, but use good judgment and keep safety in mind at all times.

F. When the TOW vehicle is so equipped, the local AM radio station shall be monitored for general public broadcasts that may conflict with observed conditions. Should conflicting information be heard it shall be reported to "61 Flood Control."

G. Flooded streams or dip crossings and impounded water behind structures at road crossings where a potential hazard exists for public traffic will be reported by radio to the TOW police dispatch and Public Works so that traffic control devices can be installed.

H. Police and Fire personnel must understand and be experienced with the hazards of driving in rainy/foggy/snowing weather. Typical hazards can include:

1. Downed power/utility lines.
2. Flooded dip crossings.
3. General public vehicle accidents.

I. Do not divulge any information or give opinions to the news media or the general public; refer them to TOW Public Information office.

J. Maintain adequate vehicle fuel reserve during your shift and fill the fuel tank at the end of your shift.

K. In severe situations, personnel will be required to go on twelve-hour shifts, generally from 0600 to 1800 hours. Personnel will report to TOW Headquarters at the beginning of the shift.

3.3 Flood Watch Assignment and Responsibilities

This plan in no way supersedes the TOW procedures and policies that must be met during storm surveillance.

3.3.1 Team Leaders

A. Field supervisors will update flood emergency staff list at least three times a year; all areas will be fully manned at all times. Each area is assigned a monitoring crew. Members of each team must be familiar with their areas.
B. Supervisor will make certain any emergency equipment is ready for use.
C. Before each team departs, the supervisor is to verify that all members are present or substituted and the proper paper work is in their possession.
D. Any work request forms must be properly completed, and each report checked to verify that all areas have been reported.

3.3.2 Police and Fire Dispatch

A. Keep accurate logs of incoming calls.
B. TOW headquarters will monitor the various team locations movements as they make observations and inspections during the emergency.
C. The Police and Fire Dispatch will assist the field observers in obtaining equipment, materials, and other resources for emergency repairs to flood control structures.

Jacobs

Item 5

Project:	**Wickenburg Interim Bypass**	By:	**JPF**
Subject:	**LOMR**	Date:	**9/21/11**
	Responses to FEMA Review of July 18, 2011	Checked:	**GLC**
	Case No. 11-09-3216P	Project No.:	**W7X73401**

Attached is the revised FIRM at the scale of the effective FIRM. This shows the revised base floodplain and regulatory floodway boundary shown on the Post Construction work map. The 0.2-percent-annual-chance floodplain is not included since that information was unavailable. The tie into the boundary delineations have been shown.

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles, Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' National Geodetic Vertical Datum of 1929 (NGVD 29). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was *Arizona State Plane Zone 3176 (central Arizona)*. The **horizontal datum** was *NAD83, GRS80 spheroid*. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the *National Geodetic Vertical Datum of 1929*. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov or contact the National Geodetic Survey at the following address:

Spatial Reference System Division
National Geodetic Survey, NOAA
Silver Spring Metro Center
1315 East-West Highway
Silver Spring, Maryland 20910
(310) 713-3191

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242**, or visit its website at http://www.ngs.noaa.gov.

Base map information shown on this FIRM was derived from multiple sources. Base map files were provided in digital format by Maricopa County. Orthophoto images were produced at a scale of 1:6000 using HARN for control. Aerial photography is dated December 2000 to December 2002.

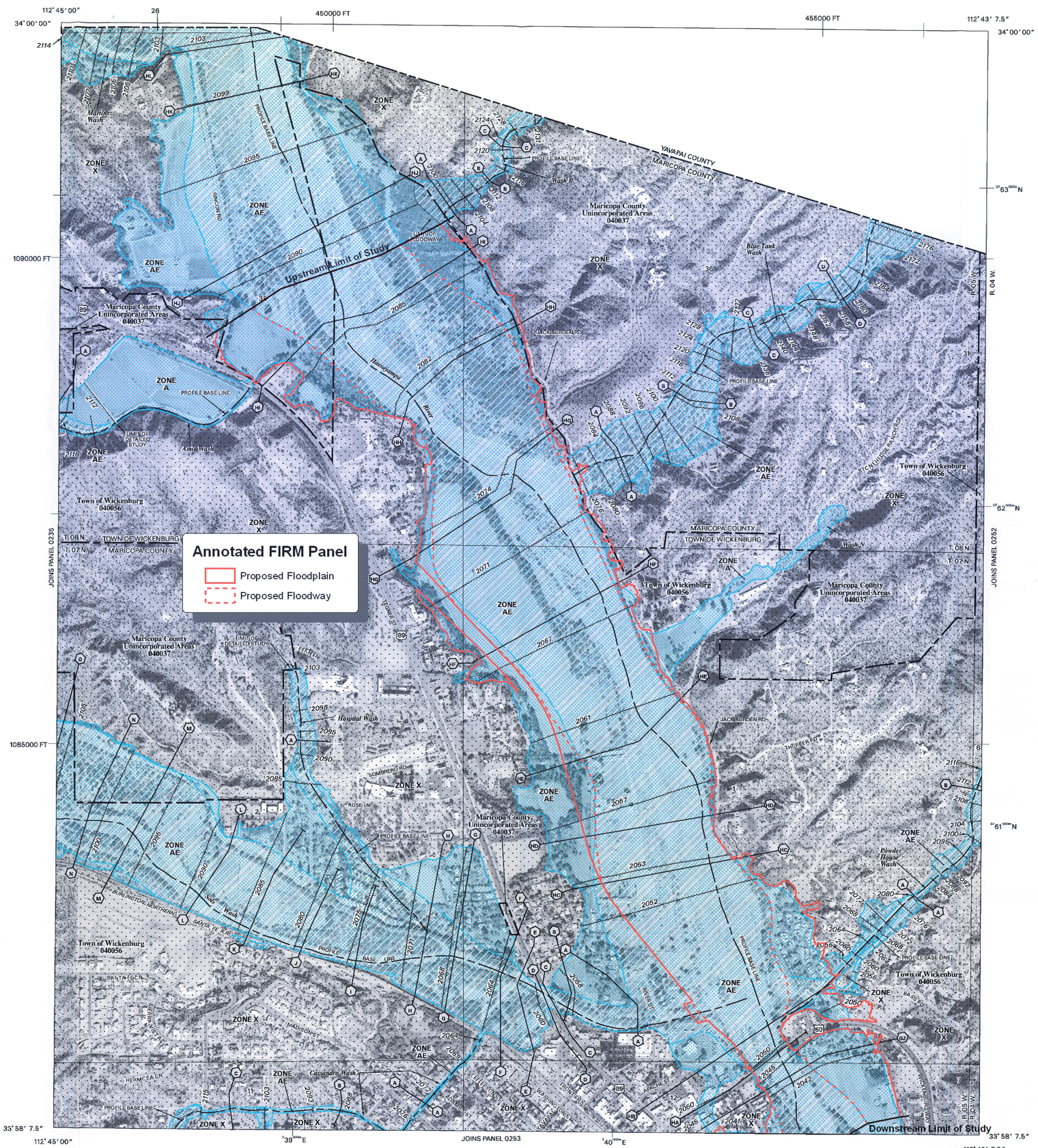
This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Service Center** at 1-800-358-9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study report, and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and its website at http://www.msc.fema.gov/.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMAMAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/.



LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A No Base Flood Elevations determined.

ZONE AE Base Flood Elevations determined.

ZONE AH Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.

ZONE AO Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

ZONE AR Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.

ZONE A99 Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.

ZONE V Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.

ZONE VE Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X Areas determined to be outside the 0.2% annual chance floodplain.

ZONE D Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- 1% annual chance floodplain boundary
- 0.2% annual chance floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths, or flood velocities.
- 513 — Base Flood Elevation line and value; elevation in feet*
- (EL 987) — Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the National Geodetic Vertical Datum of 1929

- (A)—(A) Cross section line
- (2)—(2) Transect line
- 112° 07′ 08″, 33° 25′ 41″ — Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere.
- 37°76000mE — 1000-meter Universal Transverse Mercator grid tick values zone 12
- 875000 FT — 5000-foot grid tick values: Arizona State Plane coordinate system, central zone (FIPSZONE 3176) NAD83 (Transverse Mercator)
- ×DV2313 — Bench mark (see explanation in Notes to Users section of this FIRM panel)
- M1.5 — River Mile

MAP REPOSITORY
Refer to Repositories Listing on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
April 15, 1988

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
September 28, 1989, September 4, 1991, July 19, 2001

September 30, 2005 - to update corporate limits, to change Base Flood Elevations, to add Base Flood Elevations, to add Special Flood Hazard Areas, to change Special Flood Hazard Areas, to change zone designations, to add roads and road names, to incorporate previously issued Letters of Map Revision, and to incorporate previously issued Letters of Map Amendment.

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'
250 0 500 1000 FEET
150 0 150 300 METERS

NFIP NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0251H

FIRM
FLOOD INSURANCE RATE MAP
MARICOPA COUNTY, ARIZONA
AND INCORPORATED AREAS

PANEL 251 OF 4350

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY	040037	0251	H
WICKENBURG, TOWN OF	040056	0251	H

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

MAP NUMBER
04013C0251H
MAP REVISED
SEPTEMBER 30, 2005

Federal Emergency Management Agency

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Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was *Arizona State Plane Zone 3176 (central Arizona)*. The **horizontal datum** was *NAD83, GRS80 spheroid*. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the *National Geodetic Vertical Datum of 1929*. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov or contact the National Geodetic Survey at the following address:

Spatial Reference System Division
National Geodetic Survey, NOAA
Silver Spring Metro Center
1315 East-West Highway
Silver Spring, Maryland 20910
(310) 713-3191

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242**, or visit its website at http://www.ngs.noaa.gov.

Base map information shown on this FIRM was derived from multiple sources. Base map files were provided in digital format by Maricopa County. Orthophoto images were produced at a scale of 1:6000 using HARN for control. Aerial photography is dated December 2000 to December 2002.

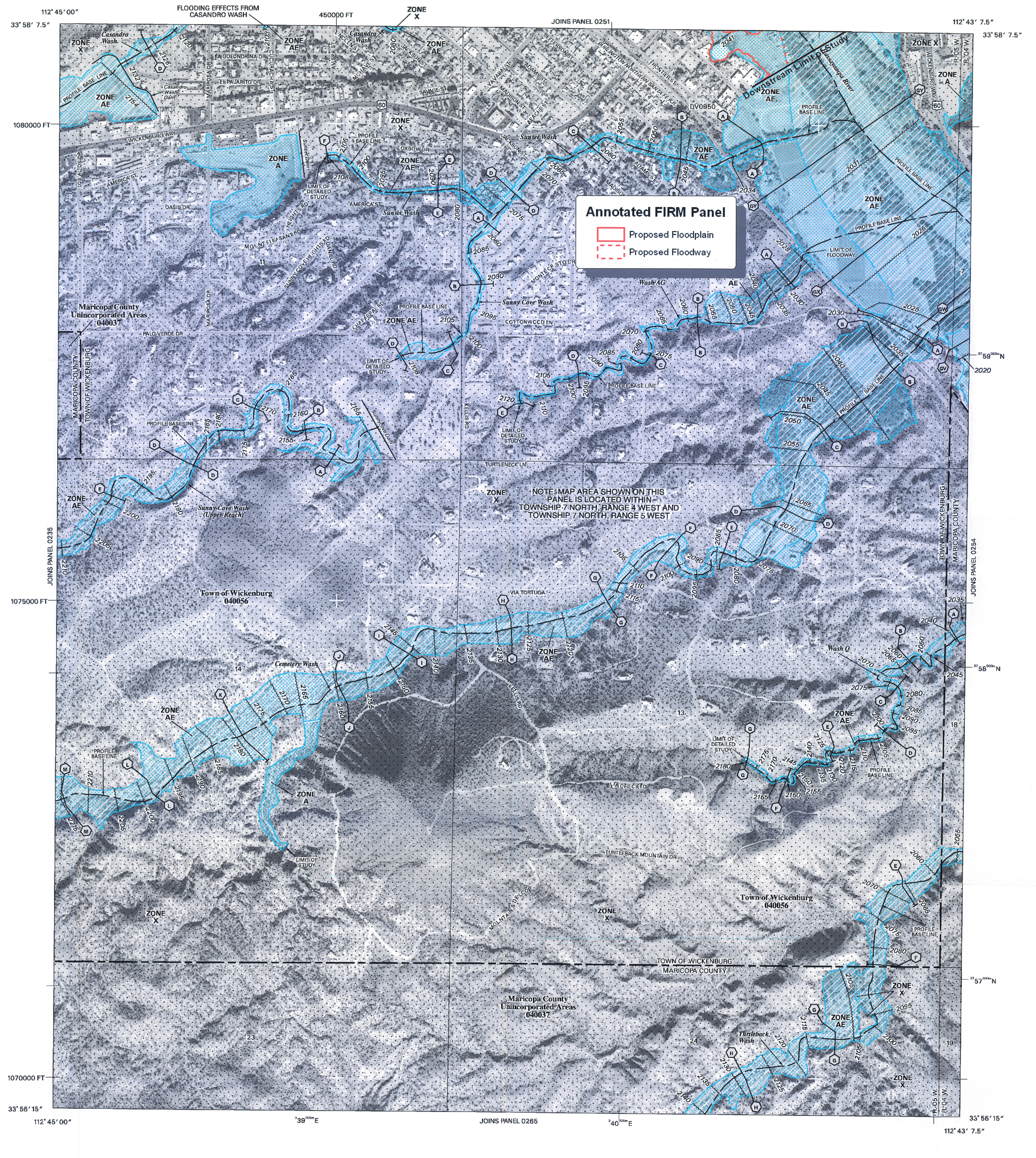
This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Service Center** at 1-800-358-9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study report, and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and its website at http://www.msc.fema.gov/.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMAMAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/.



LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A No Base Flood Elevations determined.

ZONE AE Base Flood Elevations determined.

ZONE AH Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.

ZONE AO Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

ZONE AR Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.

ZONE A99 Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.

ZONE V Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.

ZONE VE Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X Areas determined to be outside the 0.2% annual chance floodplain.

ZONE D Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

1% annual chance floodplain boundary

0.2% annual chance floodplain boundary

Floodway boundary

Zone D boundary

CBRS and OPA boundary

Boundary dividing Special Flood Hazard Area Zones, and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths, or flood velocities.

~~~513~~~ Base Flood Elevation line and value; elevation in feet*

(EL 987) Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the National Geodetic Vertical Datum of 1929

(A)—(A) Cross section line

(2)----(2) Transect line

112° 07' 08", 33° 25' 41" Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere.

$^{42}76^{000m}$E 1000-meter Universal Transverse Mercator grid tick values zone 12.

875000 FT 5000-foot grid tick values: Arizona State Plane coordinate system, central zone (FIPSZONE 3176) NAD83 (Transverse Mercator)

×DV2313 Bench mark (see explanation in Notes to Users section of this FIRM panel)

• M1.5 River Mile

MAP REPOSITORY

Refer to Repositories Listing on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP

April 15, 1988

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

September 29, 1989, September 4, 1991, July 19, 2001

September 30, 2005 - to update corporate limits, to change Base Flood Elevations, to add Base Flood Elevations, to add Special Flood Hazard Areas, to change Special Flood Hazard Areas, to change zone designations, to add roads and road names, to incorporate previously issued Letters of Map Revision, and to incorporate previously issued Letters of Map Amendment.

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

250 0 500 1000 FEET

150 0 150 300 METERS

NATIONAL FLOOD INSURANCE PROGRAM

NFIP

PANEL 0253H

FIRM
FLOOD INSURANCE RATE MAP
MARICOPA COUNTY, ARIZONA
AND INCORPORATED AREAS

PANEL 253 OF 4350

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY	040037	0253	H
WICKENBURG, TOWN OF	040056	0253	H

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

MAP NUMBER

04013C0253H

MAP REVISED

SEPTEMBER 30, 2005

Federal Emergency Management Agency
~~~

Jacobs

Item 6

Project:	**Wickenburg Interim Bypass**	By:	**JPF**
Subject:	**LOMR**	Date:	**9/21/11**
	Responses to FEMA Review of July 18, 2011	Checked:	**GLC**
	Case No. 11-09-3216P	Project No.:	**W7X73401**

The discrepancies between previously submitted topographic work maps and the HEC-RAS model were a result of modeling the area behind the levee as ineffective flow. Although this does not affect the profiles, it does give an incorrect top width. The Post Construction HEC-RAS models for both with and without levee have been revised to model the levee correctly. The topographic work maps were correct and did not require revision.

Jacobs

Item 7

Project:	**Wickenburg Interim Bypass**	By:	**JPF**
Subject:	**LOMR**	Date:	**9/21/11**
	Responses to FEMA Review of July 18, 2011	Checked:	**GLC**
	Case No. 11-09-3216P	Project No.:	**W7X73401**

Attached is a revised topographic work map for the post-project conditions and matching the top widths derived from the post construction HEC-RAS model. Below is a summary of responses to the review comments received from FEMA.

7a The post-project conditions base floodplain and regulatory floodway boundary delineations have been shown on the Post Construction topographic work map. The 0.2-percent-annual-chance floodplain has not been included since that information is unavailable.

7b The currently effective base floodplain and regulatory floodway boundary delineations have been shown on the Post Construction topographic work map. The 0.2-percent-annual-chance floodplain has not been included since that information is unavailable.

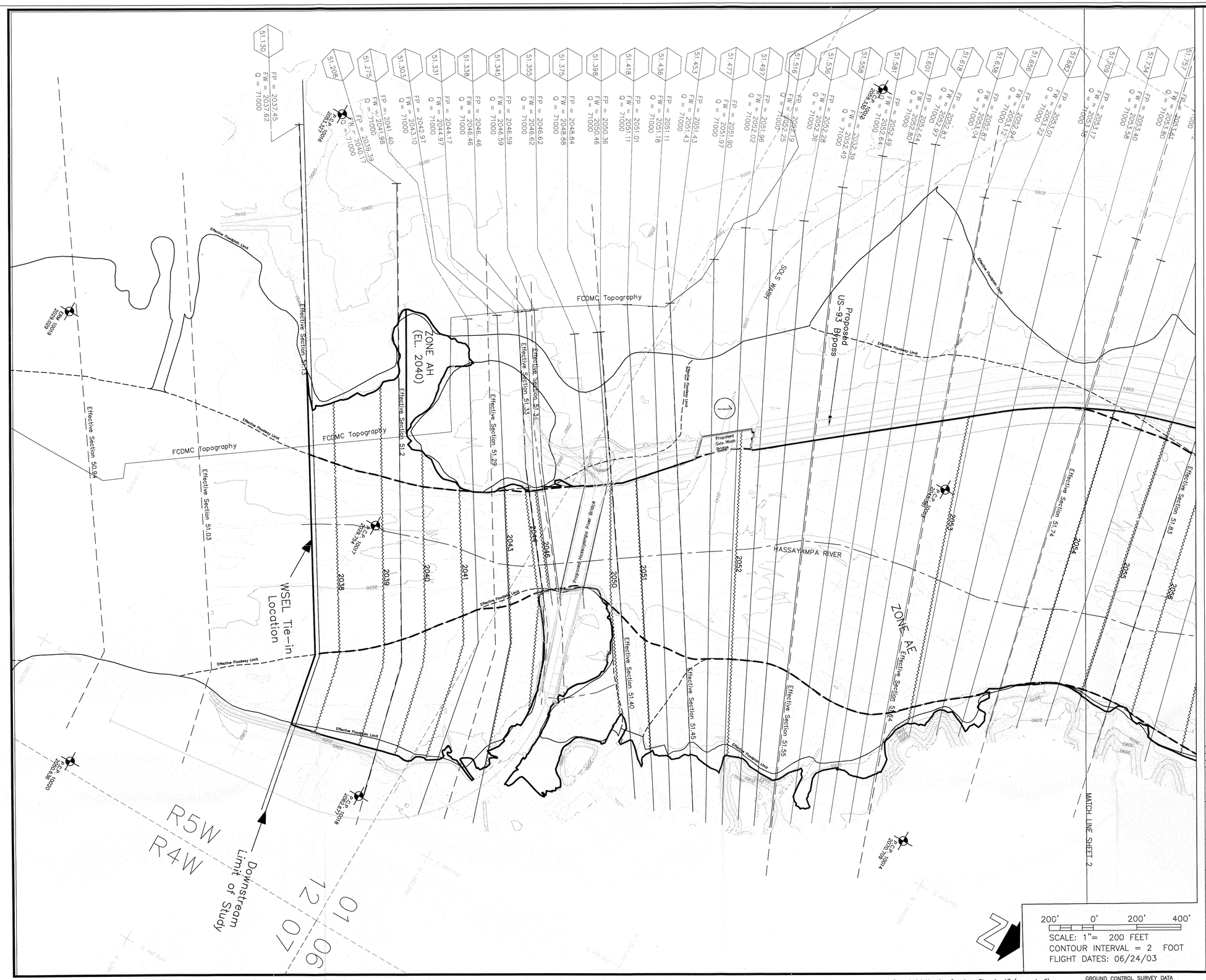
7c The logical tie-ins between the revised and effective flood hazard boundary delineations have been shown on the Post Construction topographic work map.

7d The topographic contour information used for the base floodplain boundary delineations have been shown on the Post Construction topographic work map. These contours have been developed from the mapping provided by Aerial Mapping Company, Inc.

7e The locations and alignments of all cross sections used in the post construction HEC-RAS model have been shown on the Post Construction topographic work map.

7f The flow line used in the post construction HEC-RAS model has been shown on the Post Construction topographic work map.

7g As shown on the Post Construction topographic work map, the datum used is NGVD 1929.



LEGEND

- POST CONSTRUCTION 100-YR FLOODPLAIN BOUNDARY
- FLOODWAY BOUNDARY
- HYDRAULIC BASE LINE
- EFFECTIVE STUDY CROSS-SECTIONS — Effective Section 51.29
- EFFECTIVE FLOODPLAIN LIMITS
- EFFECTIVE FLOODWAY LIMITS
- CROSS SECTION — FP= 2037.45, FW= 2037.62, Q = 71000, 51.130
- PHOTOGRAMMETRIC CONTROL POINT — P.C.P. 10017, 2039
- BASE FLOOD ELEVATIONS
- ZONE DESIGNATIONS — ZONE AE, ZONE AH
- CORPORATE LIMITS — Town of Wickenburg, Maricopa County

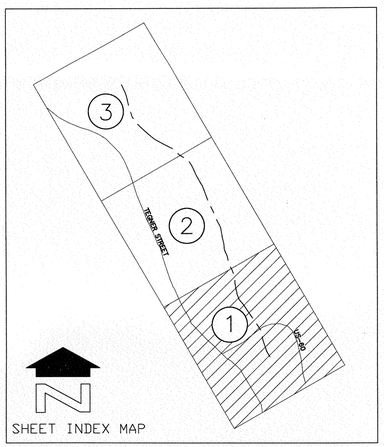
PHOTOGRAMMETRIC CONTROL POINTS

NOTE: ALL ELEVATIONS ARE NGVD 1929

I.D. NUMBER	ELEVATION (FT)
10012	2058.330
10013	2045.381
10014	2070.709
10016	2053.327
10017	2029.754
10018	2062.677
10019	2029.029
10020	2050.636

NOTES

1. FLOODPLAIN ON INTERIOR SIDE OF EMBANKMENT DELINEATED IN SOLS WASH PROJECT
2. ALL MAPPING BY AERIAL MAPPING COMPANY, INC. EXCEPT AREAS LABELED FCDMC TOPOGRAPHY WHERE MAPPING WAS DONE BY STEWART GEO TECHNOLOGIES AND CONTROL POINTS WERE PROVIDED BY A-TEAM



NO.	REVISION	BY	DATE
2			
1			

ARIZONA DEPARTMENT OF TRANSPORTATION

U.S. 93 INTERIM WICKENBURG BYPASS POST CONSTRUCTION

200' 0' 200' 400'

SCALE: 1"= 200 FEET
CONTOUR INTERVAL = 2 FOOT
FLIGHT DATES: 06/24/03

18509 JOHN PATRICK FYIE — Date Signed 9/29/2011 — ARIZONA, U.S.A. — Expires 12/31/2011

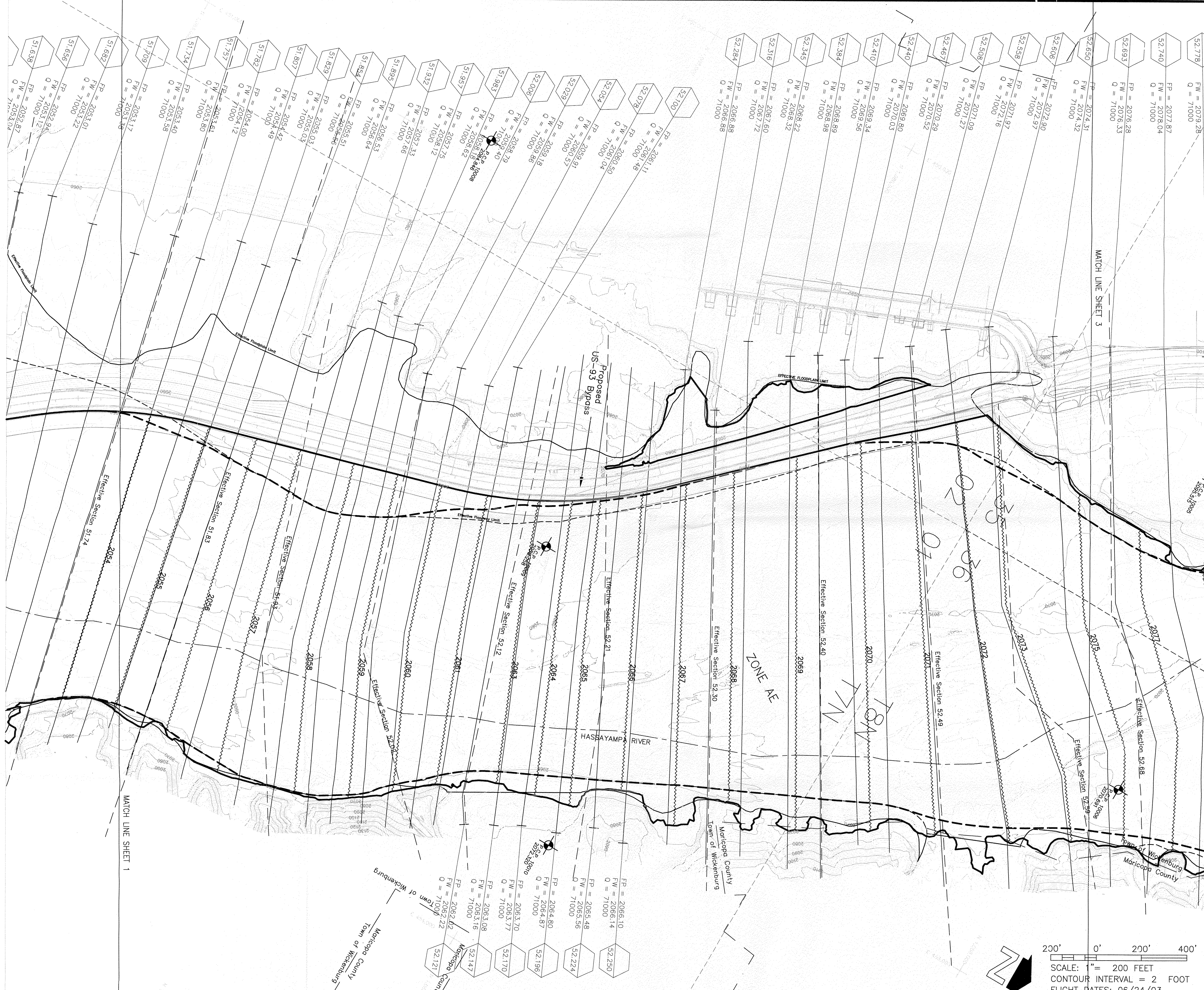
JACOBS
101 NORTH 1st AVENUE, SUITE 3100
PHOENIX, ARIZONA 85003
PHONE: 1.602.253.1200 FAX: 1.602.253.1202

	BY	DATE
DESIGN	–	–
DESIGN CHK.	–	–
PLANS	SR	9/2011
PLANS CHK.	JPF	9/2011

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2 'CONTOUR INTERVALS.

Aerial Mapping By: Aerial Mapping Co., Inc., Phoenix, AZ (see note 2)

GROUND CONTROL SURVEY DATA PROVIDED BY WILSON AND COMPANY (see note 2)



LEGEND

POST CONSTRUCTION 100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE	
EFFECTIVE STUDY CROSS-SECTIONS	Effective Section 51.29
EFFECTIVE FLOODPLAIN LIMITS	
EFFECTIVE FLOODWAY LIMITS	
CROSS SECTION	FP= 2071.97 FW= 2072.03 Q = 71000 (52.558)
PHOTOGRAMMETRIC CONTROL POINT	P.C.P. 10006
BASE FLOOD ELEVATIONS	2072
ZONE DESIGNATIONS	ZONE AE, ZONE AH
CORPORATE LIMITS	Town of Wickenburg / Maricopa County

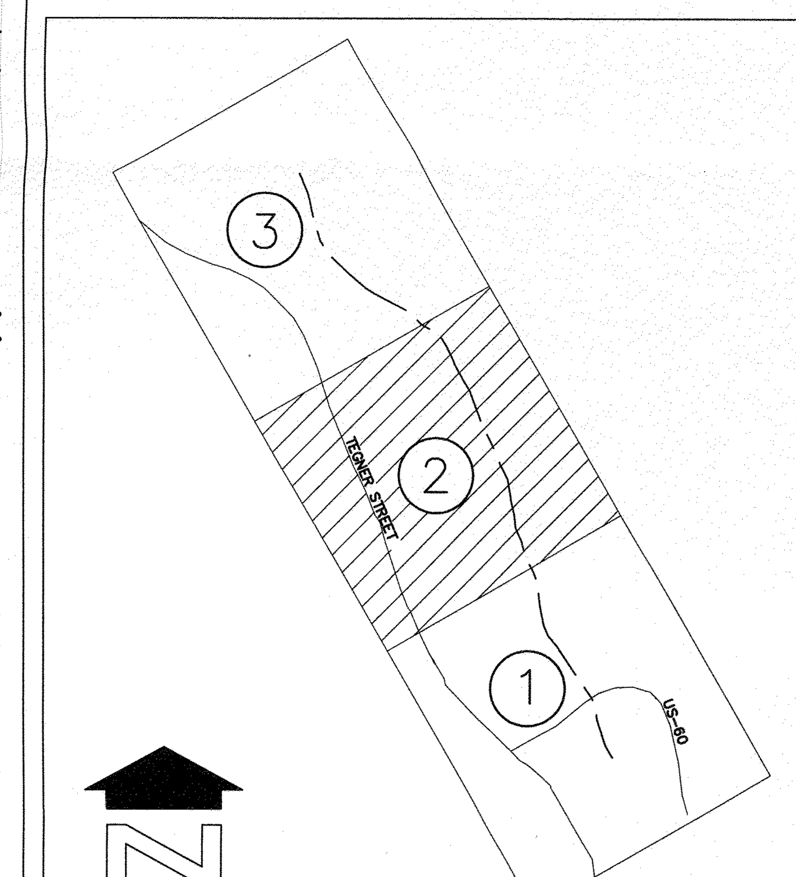
PHOTOGRAMMETRIC CONTROL POINTS

NOTE: ALL ELEVATIONS ARE NGVD 1929

I.D. NUMBER	ELEVATION (FT)
10008	2084.846
10009	2058.258
10010	2072.320

NOTES

1. FLOODPLAIN ON INTERIOR SIDE OF EMBANKMENT DELINEATED IN SOLS WASH PROJECT
2. ALL MAPPING BY AERIAL MAPPING COMPANY, INC. EXCEPT AREAS LABELED FCDMC TOPOGRAPHY WHERE MAPPING WAS DONE BY STEWART GEO TECHNOLOGIES AND CONTROL POINTS WERE PROVIDED BY A-TEAM



SHEET INDEX MAP

NO.	REVISION	BY	DATE
2			
1			

ARIZONA DEPARTMENT OF TRANSPORTATION

U.S. 93 INTERIM WICKENBURG BYPASS POST CONSTRUCTION

200' 0' 200' 400'
SCALE: 1" = 200 FEET
CONTOUR INTERVAL = 2 FOOT
FLIGHT DATES: 06/24/03

JACOBS
101 NORTH 1st AVENUE, SUITE 3100
PHOENIX, ARIZONA 85003
PHONE: 1.602.253.1200 FAX: 1.602.253.1202

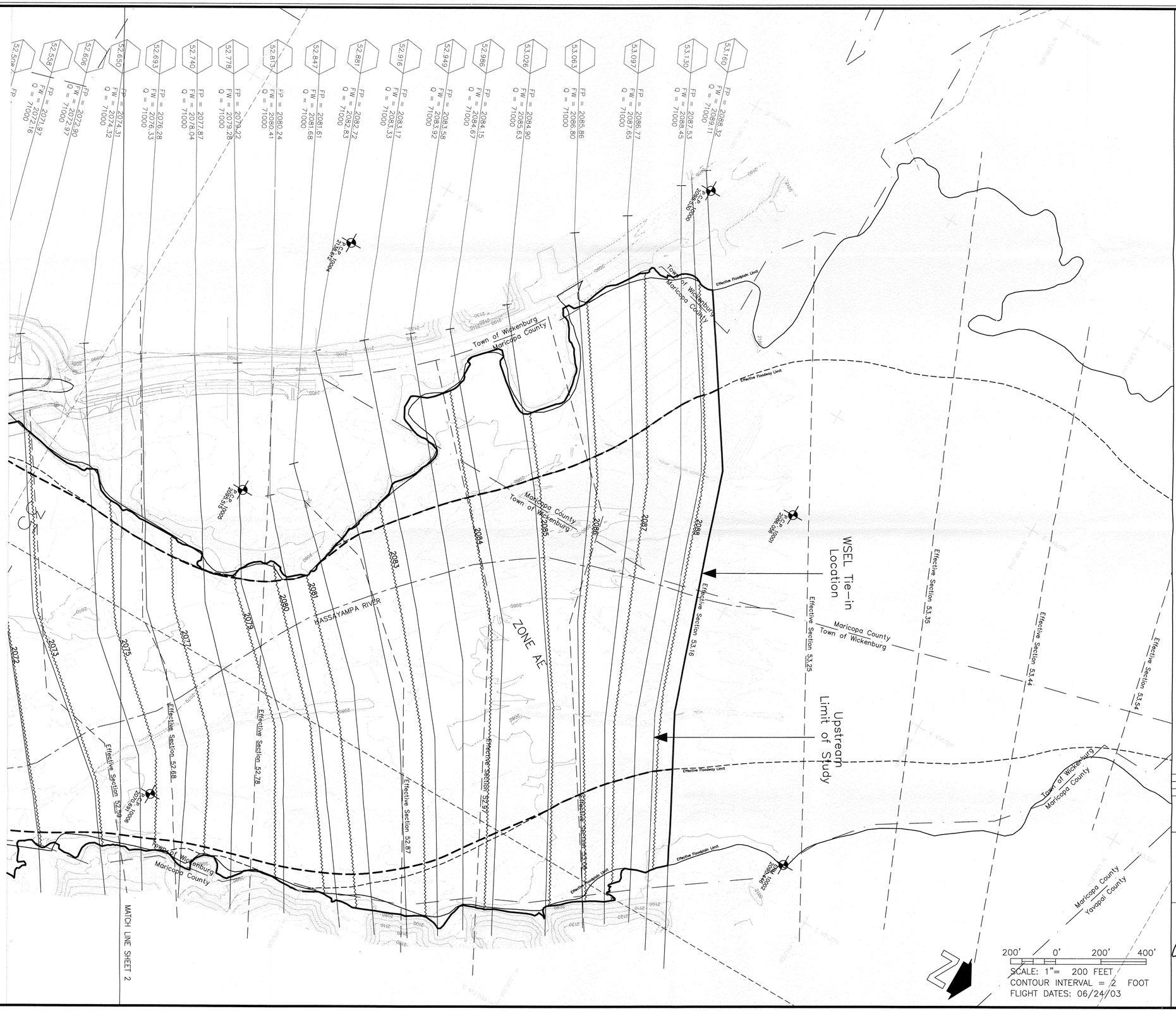
18509 JOHN PATRICK FYIE
ARIZONA, U.S.A.
Expires 12/31/2011

	BY	DATE
DESIGN	–	–
DESIGN CHK.	–	–
PLANS	SR	9/2011
PLANS CHK.	JPF	9/2011

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS.

Aerial Mapping By: Aerial Mapping Co., Inc., Phoenix, AZ

GROUND CONTROL SURVEY DATA PROVIDED BY WILSON AND COMPANY



LEGEND

POST CONSTRUCTION 100-YR FLOODPLAIN BOUNDARY

FLOODWAY BOUNDARY

HYDRAULIC BASE LINE

EFFECTIVE STUDY CROSS-SECTIONS — Effective Section 51.29

EFFECTIVE FLOODPLAIN LIMITS

EFFECTIVE FLOODWAY LIMITS

CROSS SECTION — FP= 2088.32, FW= 2089.11, Q = 71000 (53.160)

PHOTOGRAMMETRIC CONTROL POINTS — P.C.P. 10001 2088

BASE FLOOD ELEVATIONS

ZONE DESIGNATIONS — ZONE AE, ZONE AH

CORPORATE LIMITS — Town of Wickenburg / Maricopa County

PHOTOGRAMMETRIC CONTROL POINTS

NOTE: ALL ELEVATIONS ARE NGVD 1929

I.D. NUMBER	ELEVATION (FT)
10000	2098.530
10001	2086.056
10002	2090.446
10004	2138.612
10005	2095.515
10006	2070.691

NOTES

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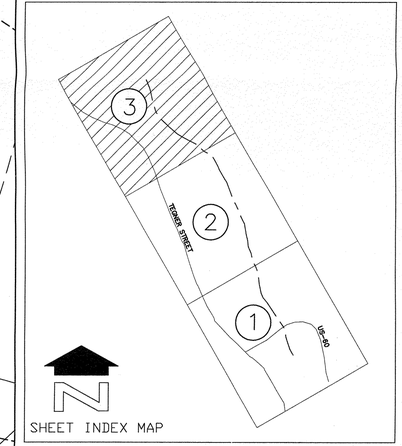

SHEET INDEX MAP

NO.	REVISION	BY	DATE
2			
1			

ARIZONA DEPARTMENT OF TRANSPORTATION

U.S. 93 INTERIM WICKENBURG BYPASS POST CONSTRUCTION

JACOBS
101 NORTH 1st AVENUE, SUITE 3100
PHOENIX, ARIZONA 85003
PHONE: 1.602.253.1200 FAX: 1.602.253.1202

Registered Professional Engineer (Civil) 18509 JOHN PATRICK FYIE Date Signed 29SEP11 ARIZONA, U.S.A.

Expires 12/31/2011

	BY	DATE
DESIGN	--	--
DESIGN CHK.	--	--
PLANS	SR	9/2011
PLANS CHK.	JPF	9/2011

SHEET 3 OF 3

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 1' CONTOUR INTERVALS.

Aerial Mapping By: Aerial Mapping Co., Inc., Phoenix, AZ

GROUND CONTROL SURVEY DATA PROVIDED BY WILSON AND COMPANY