

TECHNICAL SUPPORT DATA NOTEBOOK
Conditional Letter of Map Revision (CLOMR)
Williams Drive Improvements at McMicken Dam Outlet Wash

Contract FCD 2011C003 Assignment 5

October 30, 2013



Prepared for:
The Flood Control District of Maricopa County
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Nathan Ford, P.E.
Engineer



Federal Emergency Management Agency

Washington, D.C. 20472

May 29, 2014

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Tom Manos
Maricopa County Manager
301 W. Jefferson, 10th Floor
Phoenix, AZ 85003

REPLY REFER TO:

Case No.: 14-09-0836R
Community: Maricopa County, AZ
Community No. 040037
Effective date: May 29, 2014

Dear Mr. Manos:

We are providing our comments with the enclosed Conditional Letter of Map Revision (CLOMR) on a proposed project within your community that, if constructed as proposed, could revise the effective Flood Insurance Study report, Flood Insurance Rate Map, Flood Boundary and Floodway Map for your community.

If you have any questions regarding the floodplain management regulations for your community, the National Flood Insurance Program (NFIP) in general, or technical questions regarding this CLOMR, please contact the Director, Mitigation Division of the Federal Emergency Management Agency (FEMA) Regional Office 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,

A handwritten signature in black ink, appearing to read "Luis Rodriguez".

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

List of Enclosures:

Conditional Letter of Map Revision Comment Document

cc:

Mr. Brian Cosson, CFM

Mr. Timothy S. Philips, P.E.

Mr. Kenneth Rakestraw

Mr. Nathan Ford, P.E.



Federal Emergency Management Agency

Washington, D.C. 20472

CONDITIONAL LETTER OF MAP REVISION COMMENT DOCUMENT

COMMUNITY INFORMATION		PROPOSED PROJECT DESCRIPTION	BASIS OF CONDITIONAL REQUEST
COMMUNITY	Maricopa County Arizona (Unincorporated Areas)	CULVERT	HYDRAULIC ANALYSIS FLOODWAY NEW TOPOGRAPHIC DATA
	COMMUNITY NO.: 040037		
IDENTIFIER	Williams Drive Improvements	APPROXIMATE LATITUDE & LONGITUDE: 33.586, -112.476 SOURCE: Other DATUM: NAD 83	
AFFECTED MAP PANELS TYPE: FIRM* NO.: 04013C01230L DATE: June 27, 2014 TYPE: FIRM* NO.: 04013C01240L DATE: June 27, 2014		* FIRM - Flood Insurance Rate Map	

FLOODING SOURCE AND REACH DESCRIPTION

McMicken Dam Outlet Wash – From approximately 1,330 feet upstream of Williams Drive to approximately 1,250 feet downstream of Williams Drive

PROPOSED PROJECT DESCRIPTION

Flooding Source	Proposed Project	Location of Proposed Project
McMicken Dam Outlet Wash	Culvert	Williams Drive Culvert - approximately 3,750 feet downstream of Happy Valley Parkway (SR 303)

SUMMARY OF IMPACTS TO FLOOD HAZARD DATA

Flooding Source	Effective Flooding	Proposed Flooding	Increases	Decreases
McMicken Dam Outlet Wash	Zone AE	Zone AE	Yes	Yes
	BFEs*	BFEs	Yes	Yes
	Zone X (shaded)	Zone X (shaded)	Yes	Yes
	Floodway	Floodway	Yes	Yes

* BFEs - Base (1-percent-annual-chance) Flood Elevations

COMMENT

This document provides the Federal Emergency Management Agency's (FEMA's) comment regarding a request for a CLOMR for the project described above. This document is not a final determination; it only provides our comment on the proposed project in relation to the flood hazard information shown on the effective National Flood Insurance Program (NFIP) map. We reviewed the submitted data and the data used to prepare the effective flood hazard information for your community and determined that the proposed project meets the minimum floodplain management criteria of the NFIP. Your community is responsible for approving all floodplain development and for ensuring that all permits required by Federal or State/Commonwealth law have been received. State/Commonwealth, county, and community officials, based on their knowledge of local conditions and in the interest of safety, may set higher standards for construction in the Special Flood Hazard Area (SFHA), the area subject to inundation by the base flood). If the State/Commonwealth, county, or community has adopted more restrictive or comprehensive floodplain management criteria, these criteria take precedence over the minimum NFIP criteria.

This comment is based on the flood data presently available. 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, 847 South Pickett Street, Alexandria, VA 22304-4605. Additional Information about the NFIP is available on our website at <http://www.fema.gov/nfip>.


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

14-09-0836R

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Federal Emergency Management Agency
Washington, D.C. 20472

**CONDITIONAL LETTER OF MAP REVISION
COMMENT DOCUMENT (CONTINUED)**

COMMUNITY INFORMATION

To determine the changes in flood hazards that will be caused by the proposed project, we compared the hydraulic modeling reflecting the proposed project (referred to as the proposed conditions model) to the hydraulic modeling used to prepare the Flood Insurance Study (FIS) (referred to as the effective model). If the effective model does not provide enough detail to evaluate the effects of the proposed project, an existing conditions model must be developed to provide this detail. This existing conditions model is then compared to the effective model and the proposed conditions model to differentiate the increases or decreases in flood hazards caused by more detailed modeling from the increases or decreases in flood hazards that will be caused by the proposed project.

The table below shows the changes in the BFEs:

BFE Comparison Table

Flooding Source: McMicken Dam Outlet Wash		BFE Change (feet)	Location of maximum change
Existing vs. Effective	Maximum increase	0.0	N/A
	Maximum decrease	6.2	Approximately 1248 feet downstream of Williams Drive
Proposed vs. Existing	Maximum increase	0.0	N/A
	Maximum decrease	2.2	Approximately 15 feet upstream of Williams Drive
Proposed vs. Effective	Maximum increase	0.0	N/A
	Maximum decrease	7.0	Approximately 15 feet upstream of Williams Drive

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.

This comment is based on the flood data presently available. 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, 847 South Pickett Street, Alexandria, VA 22304-4605. Additional information about the NFIP is available on our website at <http://www.fema.gov/nfip>.

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



Federal Emergency Management Agency

Washington, D.C. 20472

CONDITIONAL LETTER OF MAP REVISION COMMENT DOCUMENT (CONTINUED)

COMMUNITY INFORMATION (CONTINUED)

DATA REQUIRED FOR FOLLOW-UP LOMR

Upon completion of the project, your community must submit the data listed below and request that we make a final determination on revising the effective FIRM and FIS report. If the project is built as proposed and the data below are received, a revision to the FIRM and FIS report would be warranted.

- Form 1, entitled "Overview & Concurrence Form". Detailed application and certification forms must be used for requesting final revisions to the maps. Therefore, when the map revision request for the area covered by this letter is submitted, Form 1 must be included. If as-built conditions differ from the proposed plans, please submit new forms, which may be accessed at http://www.fema.gov/plan/prevent/fhm/dl_mt-2.shtm, or annotated copies of the previously submitted forms showing the revised information.
- The detailed application and certification forms listed below may be required if as-built conditions differ from the preliminary plans. If required, please submit new forms or annotated copies of the previously submitted forms showing the revised information.
 - Form 2, entitled "Riverine Hydrology & Hydraulics Form"
 - Form 3, entitled "Riverine Structures Form"
- Hydraulic analyses, for as-built conditions, of the base flood, 10%, 2% and 0.2% annual chance floods together with a topographic work map showing the revised floodplain and floodway boundaries. Please ensure that the revised information ties in with the current effective information at the downstream and upstream ends of the revised reach.
- Annotated copies of the two FIRMs, at the scale of the effective FIRMs, that show the revised floodplain and floodway boundary delineations shown on the submitted work map and how they tie into the floodplain and floodway boundary delineations shown on the current effective FIRM at the downstream and upstream ends of the revised reach.
- As-built plans, certified by a registered professional engineer, of all proposed project elements. Before a follow-up LOMR is submitted, LOMR case no. 13-09-2729P effective June 27, 2014, must become effective. Otherwise, please make sure that the data submitted for the LOMR ties into the data effective at the time of the submittal.
- A copy of the public notice distributed by your community, stating its intent to revise the regulatory floodway, or a signed statement by your community that it has notified all affected property owners and affected adjacent jurisdictions
- Documentation of the individual legal notices sent to property owners who will be affected by any widening/shifting of the base floodplain and/or any BFE increases along McMicken Dam Outlet Wash.

This comment is based on the flood data presently available. 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, 847 South Pickett Street, Alexandria, VA 22304-4605. Additional Information about the NFIP is available on our website at <http://www.fema.gov/nfip>.

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Engineering Management Branch
Federal Insurance and Mitigation Administration

14-09-0836R

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Washington, D.C. 20472

**CONDITIONAL LETTER OF MAP REVISION
COMMENT DOCUMENT (CONTINUED)**

COMMUNITY INFORMATION (CONTINUED)

• A letter stating that your community will adopt and enforce the modified regulatory floodway, OR, if the State has jurisdiction over either the regulatory floodway or its adoption by your community, a copy of your community's letter to the appropriate State agency notifying it of the modification to the regulatory floodway and a copy of the letter from that agency stating its approval of the modification.

• FEMA's fee schedule for reviewing and processing requests for conditional and final modifications to published flood information and maps may be accessed at http://www.fema.gov/plan/prevent/fhm/frm_fees.shtm. The fee at the time of the map revision submittal must be received before we can begin processing the request. Payment of this fee can be made through a check or money order, made payable in U.S. funds to the National Flood Insurance Program, or by credit card (Visa or MasterCard only). Please forward the payment, along with the revision application, to the following address:

LOMC Clearinghouse
847 South Pickett Street
Alexandria, Virginia 22304-4605

After receiving appropriate documentation to show that the project has been completed, FEMA will initiate a revision to the FIRM and FIS report. Because the flood hazard information (i.e., base flood elevations, base flood depths, SFHAs, zone designations, and/or regulatory floodways) will change as a result of the project, a 90-day appeal period will be initiated for the revision, during which community officials and interested persons may appeal the revised flood hazard information based on scientific or technical data.

This comment is based on the flood data presently available. 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, 847 South Pickett Street, Alexandria, VA 22304-4605. Additional Information about the NFIP is available on our website at <http://www.fema.gov/nfip>.

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Federal Insurance and Mitigation Administration

14-09-0836R

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Federal Emergency Management Agency
Washington, D.C. 20472

**CONDITIONAL LETTER OF MAP REVISION
COMMENT DOCUMENT (CONTINUED)**

COMMUNITY INFORMATION (CONTINUED)

COMMUNITY REMINDERS

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:

Mr. Jeff Lusk
Acting Director, Mitigation Division
Federal Emergency Management Agency, Region IX
1111 Broadway Street, Suite 1200
Oakland, CA 94607-4052
(510)-627-7175

This comment is based on the flood data presently available. 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, 847 South Pickett Street, Alexandria, VA 22304-4605. Additional Information about the NFIP is available on our website at <http://www.fema.gov/nfip>.

A handwritten signature in blue ink, appearing to read "Luis Rodriguez".

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

14-09-0836R

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Technical Support Data Notebook

**CONDITIONAL LETTER OF MAP REVISION (CLOMR)
WILLIAMS DRIVE IMPROVEMENTS AT McMICKEN DAM
OUTLET WASH**

CONTRACT FCD 2011C003 Assignment 5

Prepared for:

The Flood Control District of Maricopa County
2801 West Durango Street
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(602) 506-1501

Project Manager:

Kenneth Rakestraw

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Project Manager:

Tricia Brown

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(602) 279-1234

Engineer:

Nathan Ford, P.E.
October 30, 2013



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Williams Drive CLOMR

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- E.1 Roughness Coefficient Estimation
- E.2 Cross Section Plots
- E.3 Expansion and Contraction Coefficients
- E.4 Analysis of Structures
- E.5 Hydraulic Calculations

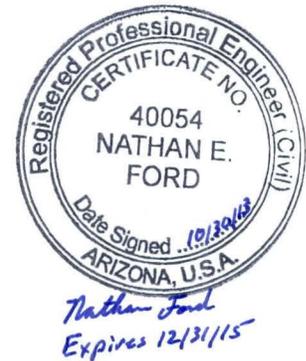
Digital Files

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Section 1 Introduction

1.1. Purpose of Study

The purpose of this Conditional Letter of Map Revision (CLOMR) is to provide technical documentation necessary for the approval of the proposed Williams Drive improvements to the McMicken Dam Outlet Wash floodplain and floodway. These proposed improvements are part of the Maricopa County Department of Transportation (MCDOT) Final Plans of Deer Valley Road – El Mirage Road to 109th Avenue project. McMicken Dam Outlet Wash Zone AE 100-year floodplain and floodway were recently re-delineated. Refer to FEMA Case No. 13-09-2729P for additional information. The study area is located within unincorporated Maricopa County (Refer to Figure 1).

1.2. Authority for the Study

The Flood Control District of Maricopa County (FCDMC) contracted RBF Consulting to perform the CLOMR for the MCDOT project. The main contacts, addresses, and other information about FCDMC, MCDOT, and RBF Consulting are:

Flood Control District of Maricopa County

Address: 2801 West Durango Street
Phoenix, Arizona 85009
Phone: (602) 506-1501
Project Manager: Kenneth Rakestraw

Maricopa County Department of Transportation

Address: 2901 West Durango Street
Phoenix, Arizona 85009
Phone: (602) 506-8600
Project Manager: Tricia Brown

RBF Consulting, a Baker Company

Address: 2929 North Central Avenue, Suite 800
Phoenix, Arizona 85012
Phone: (602) 279-1234
Principal-in-Charge: Bruce Larson, P.E.
Project Manager: Nathan Ford, P.E.

1.3. Site Location and Description

Williams Drive is an existing roadway and box culvert on the McMicken Dam Outlet Wash. The proposed Williams Drive improvements include widening Williams Drive and extending the existing box culvert and channel improvements

Williams Drive CLOMR

in the vicinity of the box culvert. Williams Drive is located on the Flood Insurance Rate Map (FIRM) Panel 04013C1230L, effective October 16, 2013.

This report is organized according to Arizona State Standard 1 *Instructions for Organizing and Submitting Technical Support Data Notebooks (TSDN) for Flood Studies* developed by the Arizona Department of Water Resources (ADWR), dated August 2012 (ADWR, 2012).

1.4. Methodology

1.4.1. Hydrology

Peak flows for the 100-year 24-hour storm were obtained from the McMicken Dam Outlet Wash Floodplain Delineation Study (FDS). Refer to McMicken Dam Outlet Wash FDS for a more detailed explanation of the hydrologic methodology and results.

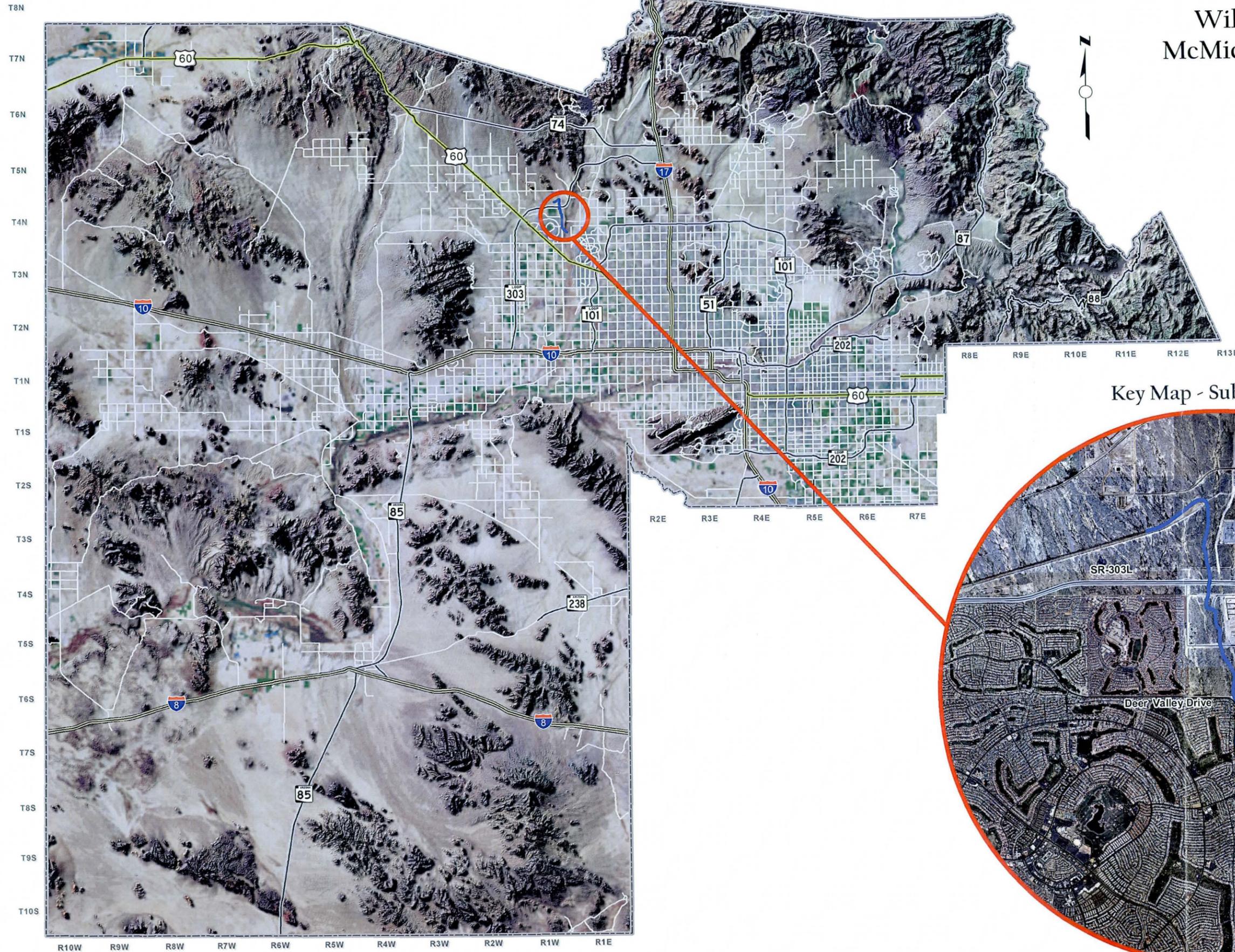
1.4.2. Hydraulics and Floodplain Delineation

The McMicken Dam Outlet Wash FDS hydraulic model was updated to incorporate the proposed Williams Drive improvements using the U.S. Army Corps of Engineers Hydrologic Engineering Center River Analysis System (HEC-RAS) version 4.1.0 dated January 2010.

1.5. Summary of Results

The study results show the proposed effects of the Williams Drive improvements. The proposed floodplain and floodway have been plotted on the Hydraulic Study Maps, located at the end of Appendix E.

Williams Drive CLOMR
McMicken Dam Outlet Wash
Location Map
Figure 1



Key Map - Subject Area





Section 2 FEMA Forms

U.S. DEPARTMENT OF HOMELAND SECURITY
 FEDERAL EMERGENCY MANAGEMENT AGENCY
OVERVIEW & CONCURRENCE FORM

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

PAPERWORK BURDEN DISCLOSURE NOTICE

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

PRIVACY ACT STATEMENT

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

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

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

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

A. REQUESTED RESPONSE FROM DHS-FEMA

This request is for a (check one):

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

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

B. OVERVIEW

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

Community No.	Community Name	State	Map No.	Panel No.	Effective Date
Example: 480301 480287	City of Katy Harris County	TX TX	48473C 48201C	0005D 0220G	02/08/83 09/28/90
040037	Maricopa County	AZ	04013C	1230L	10/16/13
040037	Maricopa County	AZ	04013C	1240L	10/16/13

2. a. Flooding Source: McMicken Dam Outlet Wash

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

3. Project Name/Identifier: Williams Drive Improvements

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)

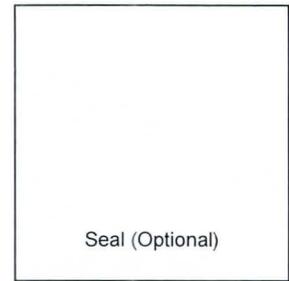
Note: A photograph and narrative description of the area of concern is not required, but is very helpful during review.

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

Form Name and (Number)

Required if ...

- | | |
|---|---|
| <input checked="" type="checkbox"/> Riverine Hydrology and Hydraulics Form (Form 2) | New or revised discharges or water-surface elevations |
| <input checked="" type="checkbox"/> Riverine Structures Form (Form 3) | Channel is modified, addition/revision of bridge/culverts, addition/revision of levee/floodwall, addition/revision of dam |
| <input type="checkbox"/> Coastal Analysis Form (Form 4) | New or revised coastal elevations |
| <input type="checkbox"/> Coastal Structures Form (Form 5) | Addition/revision of coastal structure |
| <input type="checkbox"/> Alluvial Fan Flooding Form (Form 6) | Flood control measures on alluvial fans |



U.S. DEPARTMENT OF HOMELAND SECURITY
 FEDERAL EMERGENCY MANAGEMENT AGENCY
RIVERINE HYDROLOGY & HYDRAULICS FORM

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

PAPERWORK BURDEN DISCLOSURE NOTICE

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

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

Flooding Source: McMicken Dam Outlet Wash

Note: Fill out one form for each flooding source studied

A. HYDROLOGY

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

- | | | |
|---|--|--|
| <input checked="" type="checkbox"/> Not revised (skip to section B) | <input type="checkbox"/> No existing analysis | <input type="checkbox"/> Improved data |
| <input type="checkbox"/> Alternative methodology | <input type="checkbox"/> Proposed Conditions (CLOMR) | <input type="checkbox"/> Changed physical condition of watershed |

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

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

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

- | | |
|---|--|
| <input type="checkbox"/> Statistical Analysis of Gage Records | <input type="checkbox"/> Precipitation/Runoff Model → Specify Model: _____ |
| <input type="checkbox"/> Regional Regression Equations | <input type="checkbox"/> Other (please attach description) |

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

4. Review/Approval of Analysis

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

5. Impacts of Sediment Transport on Hydrology

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

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

B. HYDRAULICS

1. Reach to be Revised

	Description	Cross Section	Water-Surface Elevations (ft.)	
			Effective	Proposed/Revised
Downstream Limit*	<u>Downstream Williams Dr culvert</u>	<u>2.461</u>	<u>1267.21</u>	<u>1267.21</u>
Upstream Limit*	<u>Upstream Williams Dr culvert</u>	<u>2.891</u>	<u>1278.59</u>	<u>1278.58</u>

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

2. Hydraulic Method/Model Used: HEC-RAS Version 4.1.0

3. Pre-Submittal Review of Hydraulic Models*

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

4.

<u>Models Submitted</u>	<u>Natural Run</u>		<u>Floodway Run</u>		<u>Datum</u>
	File Name:	Plan Name:	File Name:	Plan Name:	
Duplicate Effective Model*	_____	_____	_____	_____	_____
Corrected Effective Model*	File Name: _____	Plan Name: _____	File Name: _____	Plan Name: _____	_____
Existing or Pre-Project Conditions Model	File Name: MDOWFP.prj	Plan Name: MDOWFP.p01	File Name: MDOWFP.prj	Plan Name: MDOWFP.p01	NAVD88
Revised or Post-Project Conditions Model	File Name: WilliamsCLOMR.prj	Plan Name: WilliamsCLOMR.p01	File Name: WilliamsCLOMR.prj	Plan Name: WilliamsCLOMR.p01	NAVD88
Other - (attach description)	File Name: _____	Plan Name: _____	File Name: _____	Plan Name: _____	_____

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

Digital Models Submitted? (Required)

C. MAPPING REQUIREMENTS

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

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

Topographic Information: 1 ft contour data

Source: Woolpert for the FCDMC

Date: Flown on October 8, 2012

Accuracy: 1 Inch = 240 Feet

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

Annotated FIRM and/or FBFM (Required)

D. COMMON REGULATORY REQUIREMENTS*

1. For LOMR/CLOMR requests, do Base Flood Elevations (BFEs) increase? Yes No
- a. For CLOMR requests, if either of the following is true, please submit **evidence of compliance with Section 65.12 of the NFIP regulations**:
- The proposed project encroaches upon a regulatory floodway and would result in increases above 0.00 foot compared to pre-project conditions.
 - The proposed project encroaches upon a SFHA with or without BFEs established and would result in increases above 1.00 foot compared to pre-project conditions.
- b. Does this LOMR request cause increase in the BFE and/or SFHA compared with the effective BFEs and/or SFHA? Yes No
If Yes, please attach **proof of property owner notification and acceptance (if available)**. Elements of and examples of property owner notifications can be found in the MT-2 Form 2 Instructions.
2. Does the request involve the placement or proposed placement of fill? Yes No
- If Yes, the community must be able to certify that the area to be removed from the special flood hazard area, to include any structures or proposed structures, meets all of the standards of the local floodplain ordinances, and is reasonably safe from flooding in accordance with the NFIP regulations set forth at 44 CFR 60.3(A)(3), 65.5(a)(4), and 65.6(a)(14). Please see the MT-2 instructions for more information.
3. For LOMR requests, is the regulatory floodway being revised? Yes No
- If Yes, attach **evidence of regulatory floodway revision notification**. As per Paragraph 65.7(b)(1) of the NFIP Regulations, notification is required for requests involving revisions to the regulatory floodway. (Not required for revisions to approximate 1%-annual-chance floodplains [studied Zone A designation] unless a regulatory floodway is being established. Elements and examples of regulatory floodway revision notification can be found in the MT-2 Form 2 Instructions.)
4. For CLOMR requests, please submit documentation to FEMA and the community to show that you have complied with Sections 9 and 10 of the Endangered Species Act (ESA).

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

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

DEPARTMENT OF HOMELAND SECURITY
FEDERAL EMERGENCY MANAGEMENT AGENCY
RIVERINE STRUCTURES FORM

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

PAPERWORK BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 7 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing, reviewing, and submitting the form. You are not required to respond to this collection of information unless a valid OMB control number appears in the upper right corner of this form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Department of Homeland Security, Federal Emergency Management Agency, 1800 South Bell Street, Arlington, VA 20598-3005, Paperwork Reduction Project (1660-0016). Submission of the form is required to obtain or retain benefits under the National Flood Insurance Program. **Please do not send your completed survey to the above address.**

PRIVACY ACT STATEMENT

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

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

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

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

Flooding Source: McMicken Dam Outlet Wash

Note: Fill out one form for each flooding source studied.

A. GENERAL

Complete the appropriate section(s) for each Structure listed below:

- Channelization.....complete Section B
- Bridge/Culvert.....complete Section C
- Dam.....complete Section D
- Levee/Floodwall.....complete Section E
- Sediment Transport.....complete Section F (if required)

Description Of Modeled Structure

1. Name of Structure: Williams Drive Culvert
Type (check one): Channelization Bridge/Culvert Levee/Floodwall Dam
Location of Structure: Sta 2.618 (Williams Drive and McMicken Dam Outlet Wash)
Downstream Limit/Cross Section: 2.603
Upstream Limit/Cross Section: 2.638
2. Name of Structure: _____
Type (check one): Channelization Bridge/Culvert Levee/Floodwall Dam
Location of Structure: _____
Downstream Limit/Cross Section: _____
Upstream Limit/Cross Section: _____
3. Name of Structure: _____
Type (check one) Channelization Bridge/Culvert Levee/Floodwall Dam
Location of Structure: _____
Downstream Limit/Cross Section: _____
Upstream Limit/Cross Section: _____

NOTE: FOR MORE STRUCTURES, ATTACH ADDITIONAL PAGES AS NEEDED.

B. CHANNELIZATION

Flooding Source: _____

Name of Structure: _____

1. Hydraulic Considerations

The channel was designed to carry _____ (cfs) and/or the _____-year flood.

The design elevation in the channel is based on (check one):

- Subcritical flow
- Critical flow
- Supercritical flow
- Energy grade line

If there is the potential for a hydraulic jump at the following locations, check all that apply and attach an explanation of how the hydraulic jump is controlled without affecting the stability of the channel.

- Inlet to channel
- Outlet of channel
- At Drop Structures
- At Transitions
- Other locations (specify): _____

2. Channel Design Plans

Attach the plans of the channelization certified by a registered professional engineer, as described in the instructions.

3. Accessory Structures

The channelization includes (check one):

- Levees [Attach Section E (Levee/Floodwall)]
- Drop structures
- Superelevated sections
- Transitions in cross sectional geometry
- Debris basin/detention basin [Attach Section D (Dam/Basin)]
- Energy dissipator
- Weir
- Other (Describe): _____

4. Sediment Transport Considerations

Are the hydraulics of the channel affected by sediment transport? Yes No

If yes, then fill out Section F (Sediment Transport) of Form 3. If No, then attach your explanation for why sediment transport was not considered.

C. BRIDGE/CULVERT

Flooding Source: McMicken Dam Outlet Wash

Name of Structure: Williams Drive culvert

1. This revision reflects (check one):

- Bridge/culvert not modeled in the FIS
- Modified bridge/culvert previously modeled in the FIS
- Revised analysis of bridge/culvert previously modeled in the FIS

2. Hydraulic model used to analyze the structure (e.g., HEC-2 with special bridge routine, WSPRO, HY8): HEC-RAS Culvert Routines
If different than hydraulic analysis for the flooding source, justify why the hydraulic analysis used for the flooding source could not analyze the structures. Attach justification.

3. Attach plans of the structures certified by a registered professional engineer. The plan detail and information should include the following (check the information that has been provided):

- Dimensions (height, width, span, radius, length)
- Distances Between Cross Sections
- Shape (culverts only)
- Erosion Protection
- Material
- Low Chord Elevations – Upstream and Downstream
- Beveling or Rounding
- Top of Road Elevations – Upstream and Downstream
- Wing Wall Angle
- Structure Invert Elevations – Upstream and Downstream
- Skew Angle
- Stream Invert Elevations – Upstream and Downstream
- Cross-Section Locations

4. Sediment Transport Considerations

Are the hydraulics of the structure affected by sediment transport? Yes No

If Yes, then fill out Section F (Sediment Transport) of Form 3. If no, then attach an explanation.

D. DAM/BASIN

Flooding Source: _____
 Name of Structure: _____

1. This request is for (check one): Existing dam/basin New dam/basin Modification of existing dam/basin
2. The dam/basin was designed by (check one): Federal agency State agency Private organization Local government agency

Name of the agency or organization: _____

3. The Dam was permitted as (check one): Federal Dam State Dam

Provide the permit or identification number (ID) for the dam and the appropriate permitting agency or organization

Permit or ID number _____ Permitting Agency or Organization _____

- a. Local Government Dam Private Dam

Provided related drawings, specification and supporting design information.

4. Does the project involve revised hydrology? Yes No

If Yes, complete the Riverine Hydrology & Hydraulics Form (Form 2).

Was the dam/basin designed using critical duration storm? (must account for the maximum volume of runoff)

- Yes, provide supporting documentation with your completed Form 2.
- No, provide a written explanation and justification for not using the critical duration storm.

5. Does the submittal include debris/sediment yield analysis? Yes No

If Yes, then fill out Section F (Sediment Transport). If No, then attach your explanation for why debris/sediment analysis was not considered?

6. Does the Base Flood Elevation behind the dam/basin or downstream of the dam/basin change? Yes No

If Yes, complete the Riverine Hydrology & Hydraulics Form (Form 2) and complete the table below.

FREQUENCY (% annual chance)	Stillwater Elevation Behind the Dam/Basin	
	FIS	REVISED
10-year (10%)	_____	_____
50-year (2%)	_____	_____
100-year (1%)	_____	_____
500-year (0.2%)	_____	_____
Normal Pool Elevation	_____	_____

7. Please attach a copy of the formal Operation and Maintenance Plan

E. LEVEE/FLOODWALL

1. System Elements

a. This Levee/Floodwall analysis is based on (check one):

- upgrading of an existing levee/floodwall system a newly constructed levee/floodwall system reanalysis of an existing levee/floodwall system

b. Levee elements and locations are (check one):

- earthen embankment, dike, berm, etc. Station ____ to ____
 structural floodwall Station ____ to ____
 Other (describe): Station ____ to ____

c. Structural Type (check one): monolithic cast-in place reinforced concrete reinforced concrete masonry block sheet piling
 Other (describe): _____

d. Has this levee/floodwall system been certified by a Federal agency to provide protection from the base flood?

Yes No

If Yes, by which agency? _____

e. Attach certified drawings containing the following information (indicate drawing sheet numbers):

- | | |
|--|----------------------|
| 1. Plan of the levee embankment and floodwall structures. | Sheet Numbers: _____ |
| 2. A profile of the levee/floodwall system showing the Base Flood Elevation (BFE), levee and/or wall crest and foundation, and closure locations for the total levee system. | Sheet Numbers: _____ |
| 3. A profile of the BFE, closure opening outlet and inlet invert elevations, type and size of opening, and kind of closure. | Sheet Numbers: _____ |
| 4. A layout detail for the embankment protection measures. | Sheet Numbers: _____ |
| 5. Location, layout, and size and shape of the levee embankment features, foundation treatment, Floodwall structure, closure structures, and pump stations. | Sheet Numbers: _____ |

2. Freeboard

a. The minimum freeboard provided above the BFE is:

Riverine

- | | | |
|--|------------------------------|-----------------------------|
| 3.0 feet or more at the downstream end and throughout | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| 3.5 feet or more at the upstream end | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| 4.0 feet within 100 feet upstream of all structures and/or constrictions | <input type="checkbox"/> Yes | <input type="checkbox"/> No |

Coastal

- | | | |
|---|------------------------------|-----------------------------|
| 1.0 foot above the height of the one percent wave associated with the 1%-annual-chance stillwater surge elevation or maximum wave runup (whichever is greater). | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| 2.0 feet above the 1%-annual-chance stillwater surge elevation | <input type="checkbox"/> Yes | <input type="checkbox"/> No |

Please note, occasionally exceptions are made to the minimum freeboard requirement. If an exception is requested, attach documentation addressing Paragraph 65.10(b)(1)(ii) of the NFIP Regulations.

If No is answered to any of the above, please attach an explanation.

b. Is there an indication from historical records that ice-jamming can affect the BFE? Yes No

If Yes, provide ice-jam analysis profile and evidence that the minimum freeboard discussed above still exists.

3. Closures

a. Openings through the levee system (check one): exists does not exist

If opening exists, list all closures:

Channel Station	Left or Right Bank	Opening Type	Highest Elevation for Opening Invert	Type of Closure Device

(Extend table on an added sheet as needed and reference)

Note: Geotechnical and geologic data

In addition to the required detailed analysis reports, data obtained during field and laboratory investigations and used in the design analysis for the following system features should be submitted in a tabulated summary form. (Reference U.S. Army Corps of Engineers [USACE] EM-1110-2-1906 Form 2086.)

4. Embankment Protection

- a. The maximum levee slope land side is: _____
- b. The maximum levee slope flood side is: _____
- c. The range of velocities along the levee during the base flood is: _____ (min.) to _____ (max.)
- d. Embankment material is protected by (describe what kind): _____
- e. Riprap Design Parameters (check one): Velocity Tractive stress
Attach references

Reach	Sideslope	Flow Depth	Velocity	Curve or Straight	Stone Riprap			Depth of Toedown
					D ₁₀₀	D ₅₀	Thickness	
Sta to								
Sta to								
Sta to								
Sta to								
Sta to								
Sta to								

(Extend table on an added sheet as needed and reference each entry)

- f. Is a bedding/filter analysis and design attached? Yes No
- g. Describe the analysis used for other kinds of protection used (include copies of the design analysis):

Attach engineering analysis to support construction plans.

5. Embankment And Foundation Stability

- a. Identify locations and describe the basis for selection of critical location for analysis:

 - Overall height: Sta.: _____, height _____ ft.
 - Limiting foundation soil strength:
 - Strength ϕ = _____ degrees, c = _____ psf
 - Slope: SS = _____ (h) to _____ (v)
 - (Repeat as needed on an added sheet for additional locations)
- b. Specify the embankment stability analysis methodology used (e.g., circular arc, sliding block, infinite slope, etc.):

- c. Summary of stability analysis results:

E. LEVEE/FLOODWALL (CONTINUED)

5. Embankment And Foundation Stability (continued)

Case	Loading Conditions	Critical Safety Factor	Criteria (Min.)
I	End of construction		1.3
II	Sudden drawdown		1.0
III	Critical flood stage		1.4
IV	Steady seepage at flood stage		1.4
VI	Earthquake (Case I)		1.0

(Reference: USACE EM-1110-2-1913 Table 6-1)

- d. Was a seepage analysis for the embankment performed? Yes No
 If Yes, describe methodology used:
- e. Was a seepage analysis for the foundation performed? Yes No
- f. Were uplift pressures at the embankment landside toe checked? Yes No
- g. Were seepage exit gradients checked for piping potential? Yes No
- h. The duration of the base flood hydrograph against the embankment is ____ hours.

Attach engineering analysis to support construction plans.

6. Floodwall And Foundation Stability

- a. Describe analysis submittal based on Code (check one): UBC (1988) Other (specify): ____
- b. Stability analysis submitted provides for: Overturning Sliding If not, explain: ____
- c. Loading included in the analyses were: Lateral earth @ $P_A =$ ____ psf; $P_p =$ ____ psf
 Surcharge-Slope @ ____, surface ____ psf
 Wind @ $P_w =$ ____ psf
 Seepage (Uplift); ____ Earthquake @ $P_{eq} =$ ____ %g
 1%-annual-chance significant wave height: ____ ft.
 1%-annual-chance significant wave period: ____ sec.
- d. Summary of Stability Analysis Results: Factors of Safety.
 Itemize for each range in site layout dimension and loading condition limitation for each respective reach.

Loading Condition	Criteria (Min)		Sta	To	Sta	To
	Overturn	Sliding	Overturn	Sliding	Overturn	Sliding
Dead & Wind	1.5	1.5				
Dead & Soil	1.5	1.5				
Dead, Soil, Flood, & Impact	1.5	1.5				
Dead, Soil, & Seismic	1.3	1.3				

(Ref: FEMA 114 Sept 1986; USACE EM 1110-2-2502)
Note: (Extend table on an added sheet as needed and reference)

E. LEVEE/FLOODWALL (CONTINUED)

6. Floodwall And Foundation Stability (continued)

e. Foundation bearing strength for each soil type:

Bearing Pressure	Sustained Load (psf)	Short Term Load (psf)
Computed design maximum		
Maximum allowable		

f. Foundation scour protection is, is not provided. If provided, attach explanation and supporting documentation:

Attach engineering analysis to support construction plans.

7. Settlement

- a. Has anticipated potential settlement been determined and incorporated into the specified construction elevations to maintain the established freeboard margin? Yes No
- b. The computed range of settlement is ____ ft. to ____ ft.
- c. Settlement of the levee crest is determined to be primarily from : Foundation consolidation Embankment compression
 Other (Describe): _____
- d. Differential settlement of floodwalls has has not been accommodated in the structural design and construction.

Attach engineering analysis to support construction plans.

8. Interior Drainage

a. Specify size of each interior watershed:

Draining to pressure conduit: ____ acres

Draining to ponding area: ____ acres

b. Relationships Established

Ponding elevation vs. storage Yes No

Ponding elevation vs. gravity flow Yes No

Differential head vs. gravity flow Yes No

c. The river flow duration curve is enclosed: Yes No

d. Specify the discharge capacity of the head pressure conduit: ____ cfs

e. Which flooding conditions were analyzed?

- Gravity flow (Interior Watershed) Yes No
- Common storm (River Watershed) Yes No
- Historical ponding probability Yes No
- Coastal wave overtopping Yes No

If No for any of the above, attach explanation.

e. Interior drainage has been analyzed based on joint probability of interior and exterior flooding and the capacities of pumping and outlet facilities to provide the established level of flood protection. Yes No If No, attach explanation.

g. The rate of seepage through the levee system for the base flood is ____ cfs

h. The length of levee system used to drive this seepage rate in item g: ____ ft.

E. LEVEE/FLOODWALL (CONTINUED)

8. Interior Drainage (continued)

i. Will pumping plants be used for interior drainage? Yes No

If Yes, include the number of pumping plants: ____ For each pumping plant, list:

	Plant #1	Plant #2
The number of pumps		
The ponding storage capacity		
The maximum pumping rate		
The maximum pumping head		
The pumping starting elevation		
The pumping stopping elevation		
Is the discharge facility protected?		
Is there a flood warning plan?		
How much time is available between warning and flooding?		

Will the operation be automatic? Yes No

If the pumps are electric, are there backup power sources? Yes No

(Reference: USACE EM-1110-2-3101, 3102, 3103, 3104, and 3105)

Include a copy of supporting documentation of data and analysis. Provide a map showing the flooded area and maximum ponding elevations for all interior watersheds that result in flooding.

9. Other Design Criteria

a. The following items have been addressed as stated:

Liquefaction is is not a problem

Hydrocompaction is is not a problem

Heave differential movement due to soils of high shrink/swell is is not a problem

b. For each of these problems, state the basic facts and corrective action taken:

Attach supporting documentation

c. If the levee/floodwall is new or enlarged, will the structure adversely impact flood levels and/or flow velocities floodside of the structure?
 Yes No Attach supporting documentation

d. Sediment Transport Considerations:

Was sediment transport considered? Yes No

If Yes, then fill out Section F (Sediment Transport). If No, then attach your explanation for why sediment transport was not considered.

10. Operational Plan And Criteria

a. Are the planned/installed works in full compliance with Part 65.10 of the NFIP Regulations? Yes No

b. Does the operation plan incorporate all the provisions for closure devices as required in Paragraph 65.10(c)(1) of the NFIP regulations?
 Yes No

c. Does the operation plan incorporate all the provisions for interior drainage as required in Paragraph 65.10(c)(2) of the NFIP regulations?
 Yes No If the answer is No to any of the above, please attach supporting documentation.

E. LEVEE/FLOODWALL (CONTINUED)

11. Maintenance Plan

Please attach a copy of the formal maintenance plan for the levee/floodwall

12. Operations and Maintenance Plan

Please attach a copy of the formal Operations and Maintenance Plan for the levee/floodwall.

CERTIFICATION OF THE LEVEE DOCUMENTATION

This certification is to be signed and sealed by a licensed registered professional engineer authorized by law to certify elevation information data, hydrologic and hydraulic analysis, and any other supporting information as per NFIP regulations paragraph 65.10(e) and as described in the MT-2 Forms Instructions. All documents submitted in support of this request are correct to the best of my knowledge. I understand that any false statement may be punishable by fine or imprisonment under Title 18 of the United States Code, Section 1001.

Certifier's Name: _____ License No.: _____ Expiration Date: _____

Company Name: _____ Telephone No.: _____ Fax No.: _____

Signature: _____ Date: _____ E-Mail Address: _____

F. SEDIMENT TRANSPORT

Flooding Source: _____

Name of Structure: _____

If there is any indication from historical records that sediment transport (including scour and deposition) can affect the Base Flood Elevation (BFE); and/or based on the stream morphology, vegetative cover, development of the watershed and bank conditions, there is a potential for debris and sediment transport (including scour and deposition) to affect the BFEs, then provide the following information along with the supporting documentation:

Sediment load associated with the base flood discharge: Volume _____ acre-feet

Debris load associated with the base flood discharge: Volume _____ acre-feet

Sediment transport rate _____ (percent concentration by volume)

Method used to estimate sediment transport: _____

Most sediment transport formulas are intended for a range of hydraulic conditions and sediment sizes; attach a detailed explanation for using the selected method.

Method used to estimate scour and/or deposition: _____

Method used to revise hydraulic or hydrologic analysis (model) to account for sediment transport: _____

Please note that bulked flows are used to evaluate the performance of a structure during the base flood; however, FEMA does not map BFEs based on bulked flows.

If a sediment analysis has not been performed, an explanation as to why sediment transport (including scour and deposition) will not affect the BFEs or structures must be provided.



Section 3 Survey and Mapping Information

3.1. Digital Projection Information

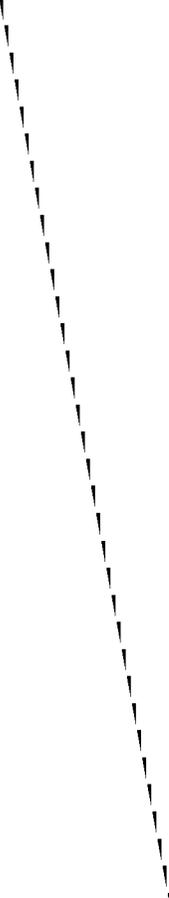
The projection is North American Datum (NAD) 1983 High Accuracy Resolution Network (HARN) Arizona State Plane Central Zone International Feet.

3.2. Field Survey Information

The vertical coordinate system of the hydraulic model is North American Vertical Datum (NAVD) 1988. The proposed improvements are on NAVD 1988. The original Williams Drive culvert plans were based on National Geodetic Vertical Datum (NGVD) 1929. The benchmark from the Williams Drive culvert plans was used to obtain the difference between NAVD 1988 and NGVD 1929. NAVD 1988 is 1.96 ft higher than NGVD 1929.

3.3. Mapping

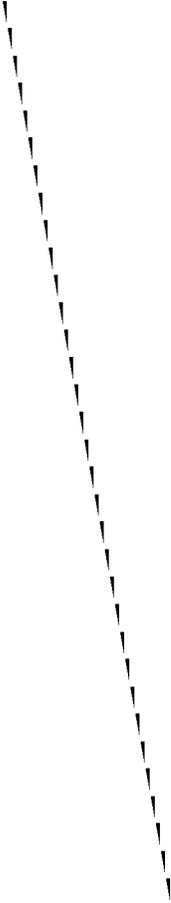
RBF used the existing digital terrain models (DTM) and 1-foot contour data provided by the FCDMC for hydraulic modeling. Woolpert created the DTM from digital ortho-photos that were flown on October 8, 2012 for the McMicken Outfall Channel Aerial Mapping (FCD Contract 2011C033 Assignment 1). The coordinate system is based on NAD 1983 (2010 epoch), Arizona State Plane – Central Zone using international feet. The vertical coordinate system is NAVD 1988. Refer to the Survey Report in Appendix C of the McMicken Dam Outlet Wash FDS for more detailed information.



Section 4 Hydrology

The hydrologic information for this CLOMR was obtained from the McMicken Dam Outlet Wash FDS. The McMicken Dam Outlet Wash FDS shows the 100-year 24-hour peak discharge at Williams Drive is 7,620 cfs.

The McMicken Dam Outlet Wash hydrology model used NOAA Atlas 14 rainfall with depth-area reduction, Green and Ampt loss method, S-Graph for the Loop 303 basins and Clark unit hydrograph for the WADMSU basins, and Normal Depth routing. For additional information, refer to the McMicken Dam Outlet Wash FDS.



Section 5 Hydraulics

5.1. Method Description

The purpose of this CLOMR is to document the proposed impacts for the Williams Drive culvert extension, Williams Drive road widening, and grading of the McMicken Dam Outlet Wash in the vicinity of the Williams Drive culvert.

The U.S. Army Corps of Engineers Hydrologic Engineering Center River Analysis System (HEC-RAS) version 4.1.0 dated January 2010 was used to update the hydraulic model for the floodplain / floodway delineation for the Williams Drive improvements. Proposed cross sections were created from the proposed elevation data provided by MCDOT and information shown on the plans.

5.2. Work Study Maps

Work Study Maps were updated from the McMicken Dam Outlet Wash floodplain and floodway delineations at a scale of 1 inch = 200 feet, according to FEMA standards using the one foot contour interval topographic mapping to show the proposed impacts from the Williams Drive improvements. Only the Work Study Maps modified from the McMicken Dam Outlet Wash FDS are included in this CLOMR.

5.3. Parameter Estimation

5.3.1. Roughness Coefficients

The procedure used to determine the Manning's "n" value roughness coefficients is outlined in the USGS publication *Selection of Manning's Roughness Coefficients for Natural and Constructed Vegetated and Non-Vegetated Channels and Vegetation Maintenance Plan Guidelines for Vegetated Channels in Central Arizona* (USGS, 2006). Based on field observations, the Manning's roughness coefficients were fairly similar for the channel and overbanks particularly between constructed features. Refer to the McMicken Dam Outlet Wash FDS for a list of the roughness coefficients for each wash segment, wash photos, and a description of how the roughness coefficients were obtained.

5.3.2. Expansion and Contraction Coefficients

The expansion and contraction coefficients used in the HEC-RAS model are 0.1 and 0.3, respectively except at culverts. There are four culverts included in the McMicken Dam Outlet Wash model. The cross sections associated with the culverts use expansion and contraction coefficients of 0.3 and 0.5, respectively.

5.4. Cross Section Description

Cross sections are at the same location as the FDS cross sections except for Cross Section 2.632 which had to be moved because of the Williams Drive culvert extension. The new cross section upstream of the Williams Drive culvert is Cross Section 2.638. Three cross sections include proposed grading as a result of the proposed project. They are Cross Sections 2.556, 2.603, and 2.638. The cross sections are oriented left to right looking downstream. The intersection of the cross section and floodplain baseline is set to station 10,000. A plot of each cross section is provided in Appendix E.2.

5.5. Modeling Considerations

The Williams Drive crossing is an 11-10'x6' reinforced concrete box culvert. The proposed extension is located north of the existing culvert. The Williams Drive proposed roadway elevations were raised compared to the existing roadway elevations. The proposed grading downstream of the Williams Drive culvert caused the floodplain limits to be narrower than the previous floodplain limits.

5.6. Floodway Modeling

The floodway delineation due to the proposed improvements results in a wider floodway to tie into the existing floodway both on the upstream and downstream sides of the culvert. The floodway width is between 46-51.5 feet wider than the previous floodway width.

5.7. Issues Encountered During the Study

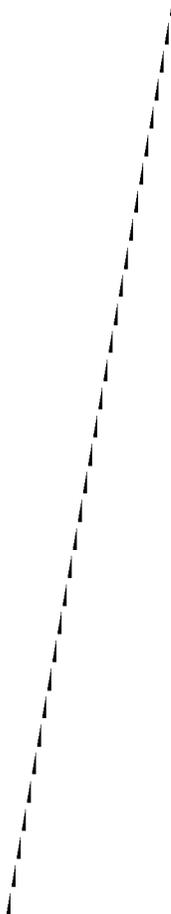
The as-built downstream invert elevation of the Williams Drive culvert was different than the MCDOT plan set invert elevation. The as-built downstream invert is 1261.46 compared to 1260.68 on the MCDOT plan set. The as-built elevation was used in the Williams Drive CLOMR HEC-RAS model for several reasons. These include the existing one foot contour data corresponds to the as-built elevation better, the McMicken Dam Outlet Wash FDS LOMR used the as-built elevation, and the proposed channel grading has a higher elevation downstream of the culvert invert than the plan elevation. It is recommended that the culvert invert be verified by survey as part of the future LOMR and any corrections can be made at that time.

5.8. Calibration

Calibration was not performed as part of this study due to a lack of gage history on the delineated wash.

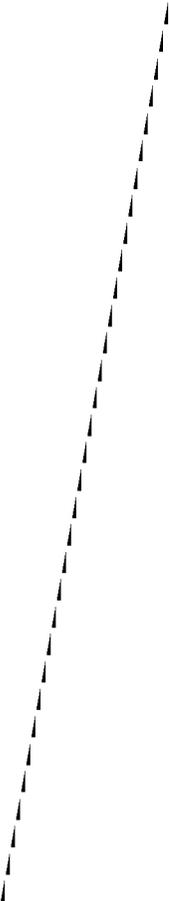
5.9. Final Results

A comparison of the results and floodplain maps are located in Appendix E.5.



Section 6 Erosion, Sediment Transport, and Geomorphic Analysis

Erosion, sediment transport, geomorphic analysis were not considered in this study.



Section 7 Draft FIS Report Data

7.1. Summary of Discharges

A summary of discharges is shown in Table 7.1 below. Please note that the drainage area corresponds to the unregulated drainage area and is less than the regulated drainage area of 323 square miles at the confluence with the Agua Fria River.

Table 7.1 Summary of Discharges

Flood Source and Location	Concentration Point	Drainage Area (sq. mi.)	10-year	50-year	100-year	500-year
McMicken Dam Outlet Wash						
At confluence with Agua Fria River	CAF820	109.1	2,667	5,554	7,620	-- ¹
Downstream of SR303L	CP802	101.1	2,618	5,454	7,481	-- ¹

--¹ Not Computed.

7.2. Floodway Data

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY (FEET NAVD 88)	WITHOUT FLOODWAY (FEET NAVD 88)	WITH FLOODWAY (FEET NAVD 88)	INCREASE (FEET)
McMicken Dam Outlet Wash								
0.324	1,712	916	2,812	3.5	1183.0	1183.0	1183.0	0.0
0.414	2,187	553	1,080	9.1	1185.6	1185.6	1185.6	0.0
0.509	2,685	608	1,614	5.5	1191.4	1191.4	1191.4	0.0
0.603	3,185	481	1,473	7.2	1194.7	1194.7	1194.7	0.0
0.709	3,744	378	1,223	7.6	1199.6	1199.6	1199.6	0.0
0.744	3,930	385	675	11.3	1201.3	1201.3	1201.3	0.0
0.792	4,181	509	2,695	2.8	1206.8	1206.8	1206.8	0.0
0.823	4,347	364	1,903	4.0	1206.9	1206.9	1206.9	0.0
0.937	4,948	212	1,123	6.8	1207.3	1207.3	1207.3	0.0
1.042	5,503	213	1,046	7.3	1209.1	1209.1	1209.1	0.0
1.137	6,003	205	994	7.7	1211.0	1211.0	1211.0	0.0
1.267	6,689	206	968	7.9	1214.3	1214.3	1214.3	0.0
1.362	7,189	201	921	8.3	1215.6	1215.6	1215.6	0.0
1.406	7,424	211	1,129	6.8	1216.3	1216.3	1216.3	0.0
1.481	7,821	235	751	10.2	1237.4	1237.4	1237.4	0.0
1.501	7,924	223	843	9.0	1238.3	1238.3	1238.3	0.0
1.576	8,323	222	1,100	6.9	1241.3	1241.3	1241.3	0.0
1.671	8,823	216	1,082	7.0	1243.3	1243.3	1243.3	0.0
1.804	9,526	215	1,102	6.9	1246.1	1246.1	1246.1	0.0
1.899	10,026	204	997	7.6	1247.9	1247.9	1247.9	0.0
2.050	10,823	224	964	7.9	1251.5	1251.5	1251.5	0.0
2.151	11,360	155	587	13.0	1254.3	1254.3	1254.3	0.0

¹ Stream Distance in Feet Above Confluence With Agua Fria River

TABLE 7.2

FEDERAL EMERGENCY MANAGEMENT AGENCY
MARICOPA COUNTY, AZ
 AND INCORPORATED AREAS

FLOODWAY DATA

McMicken Dam Outlet Wash

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY (FEET NAVD 88)	WITHOUT FLOODWAY (FEET NAVD 88)	WITH FLOODWAY (FEET NAVD 88)	INCREASE (FEET)
McMicken Dam Outlet Wash								
2.196	11,595	175	1,896	4.0	1261.4	1261.4	1261.4	0.0
2.272	11,996	187	1,047	8.6	1261.5	1261.5	1261.5	0.0
2.367	12,496	147	721	13.7	1263.5	1263.5	1263.6	0.1
2.461	12,996	237	1,219	9.2	1267.2	1267.2	1267.9	0.7
2.556	13,496	222	1,348	6.5	1268.5	1268.5	1269.5	1.0
2.603	13,744	244	1,560	5.1	1269.1	1269.1	1270.1	1.0
2.638	13,929	207	1,728	4.5	1271.9	1271.9	1272.8	0.9
2.692	14,216	213	843	12.2	1272.7	1272.7	1272.7	0.0
2.787	14,716	208	1,075	8.6	1275.7	1275.7	1276.5	0.8
2.891	15,267	130	798	9.6	1278.6	1278.6	1279.0	0.4
2.986	15,767	214	1,169	8.3	1281.5	1281.5	1282.1	0.6
3.077	16,245	466	1,662	6.5	1283.4	1283.4	1283.9	0.5
3.171	16,745	533	1,430	9.7	1284.6	1284.6	1285.6	1.0
3.266	17,245	395	1,376	9.6	1287.6	1287.6	1288.4	0.8
3.310	17,479	407	1,673	4.8	1289.1	1289.1	1289.6	0.5
3.350	17,687	343	2,812	3.5	1291.8	1291.8	1292.2	0.4
3.399	17,948	268	959	11.7	1291.7	1291.7	1292.1	0.4
3.494	18,448	312	1,225	9.3	1294.3	1294.3	1295.2	0.9
3.589	18,948	219	1,050	8.5	1296.5	1296.5	1297.1	0.6
3.706	19,566	321	1,083	10.7	1299.7	1299.7	1299.9	0.2
3.800	20,066	376	1,158	10.7	1302.3	1302.3	1302.9	0.6
3.878	20,476	272	1,164	10.3	1304.4	1304.4	1305.1	0.7

¹ Stream Distance in Feet Above Confluence With Agua Fria River

Shaded Boxes are updated to reflect Williams Drive CLOMR

TABLE 7.2

FEDERAL EMERGENCY MANAGEMENT AGENCY
MARICOPA COUNTY, AZ
 AND INCORPORATED AREAS

FLOODWAY DATA

McMicken Dam Outlet Wash

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY (FEET NAVD 88)	WITHOUT FLOODWAY (FEET NAVD 88)	WITH FLOODWAY (FEET NAVD 88)	INCREASE (FEET)
McMicken Dam Outlet Wash								
3.973	20,976	282	1,014	11.6	1307.1	1307.1	1307.5	0.4
4.104	21,669	196	1,024	9.7	1310.6	1310.6	1311.6	1.0
4.199	22,169	114	714	10.5	1312.4	1312.4	1313.1	0.7
4.293	22,669	235	1,141	7.3	1315.3	1315.3	1315.3	0.0
4.388	23,169	426	2,818	3.0	1316.1	1316.1	1316.3	0.2
4.506	23,794	320	1,693	5.2	1316.2	1316.2	1316.4	0.2
4.601	24,294	243	1,733	4.7	1316.6	1316.6	1316.8	0.2
4.699	24,813	196	1,492	5.3	1316.7	1316.7	1317.0	0.3
4.794	25,313	174	1,350	5.9	1316.8	1316.8	1317.3	0.5

¹ Stream Distance in Feet Above Confluence With Agua Fria River

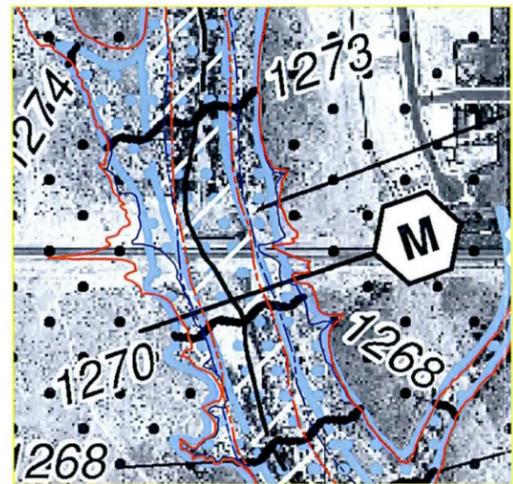
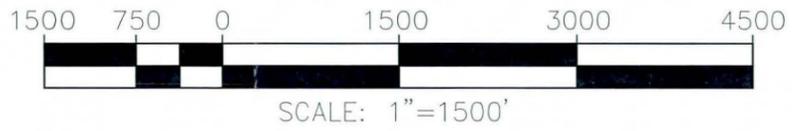
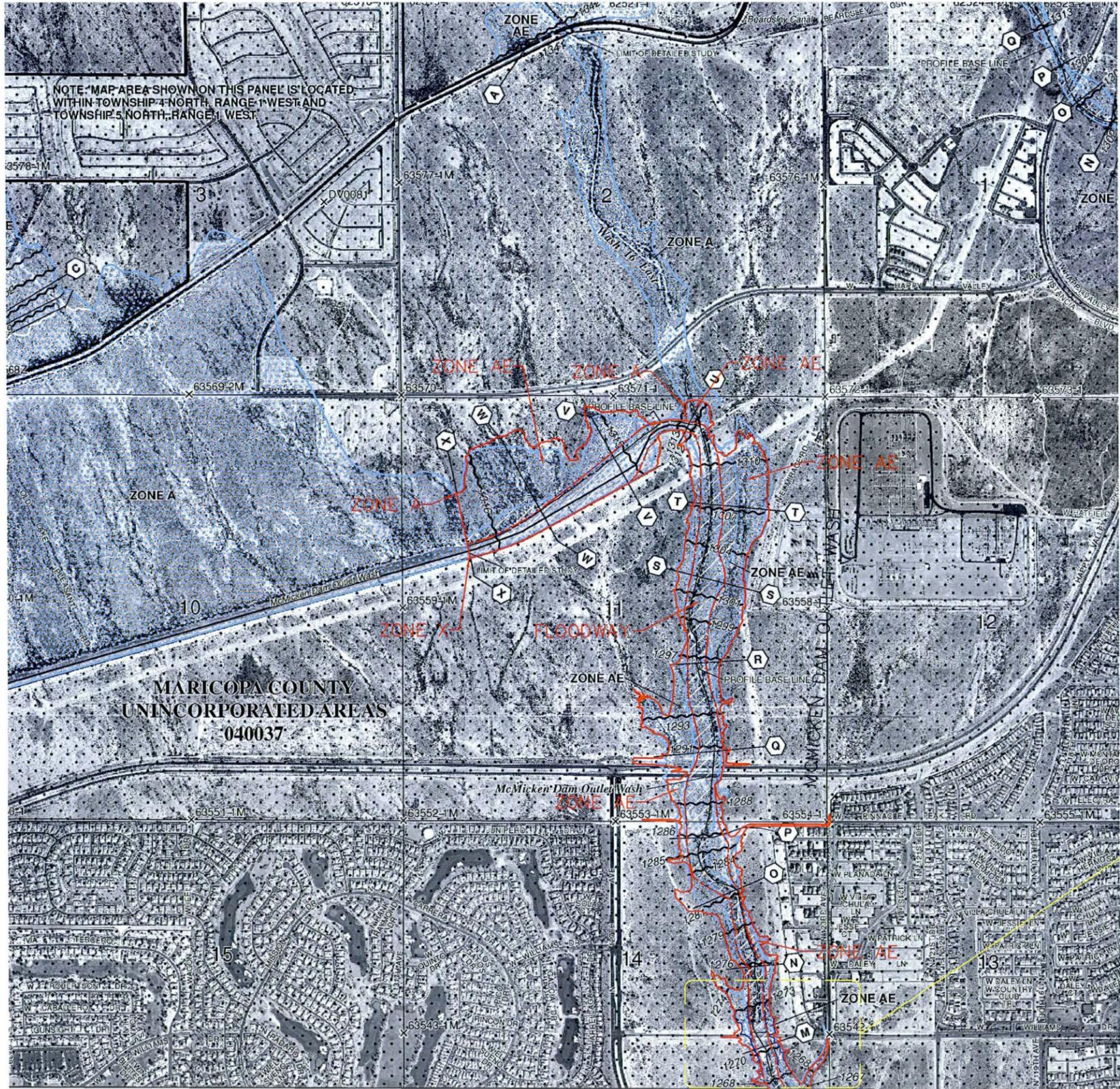
TABLE 7.2

FEDERAL EMERGENCY MANAGEMENT AGENCY
MARICOPA COUNTY, AZ
 AND INCORPORATED AREAS

FLOODWAY DATA

McMicken Dam Outlet Wash

7.3. Annotated FIRMs



PANEL 1230L

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

PANEL 1230 OF 4425
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY	040037	1230	L
PEORIA CITY OF	040050	1230	L
SURPRISE CITY OF	040053	1230	L

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.

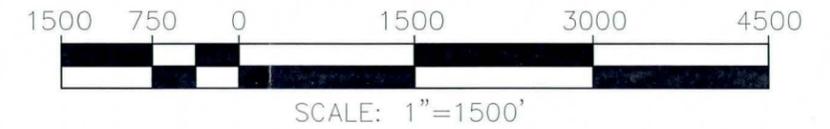
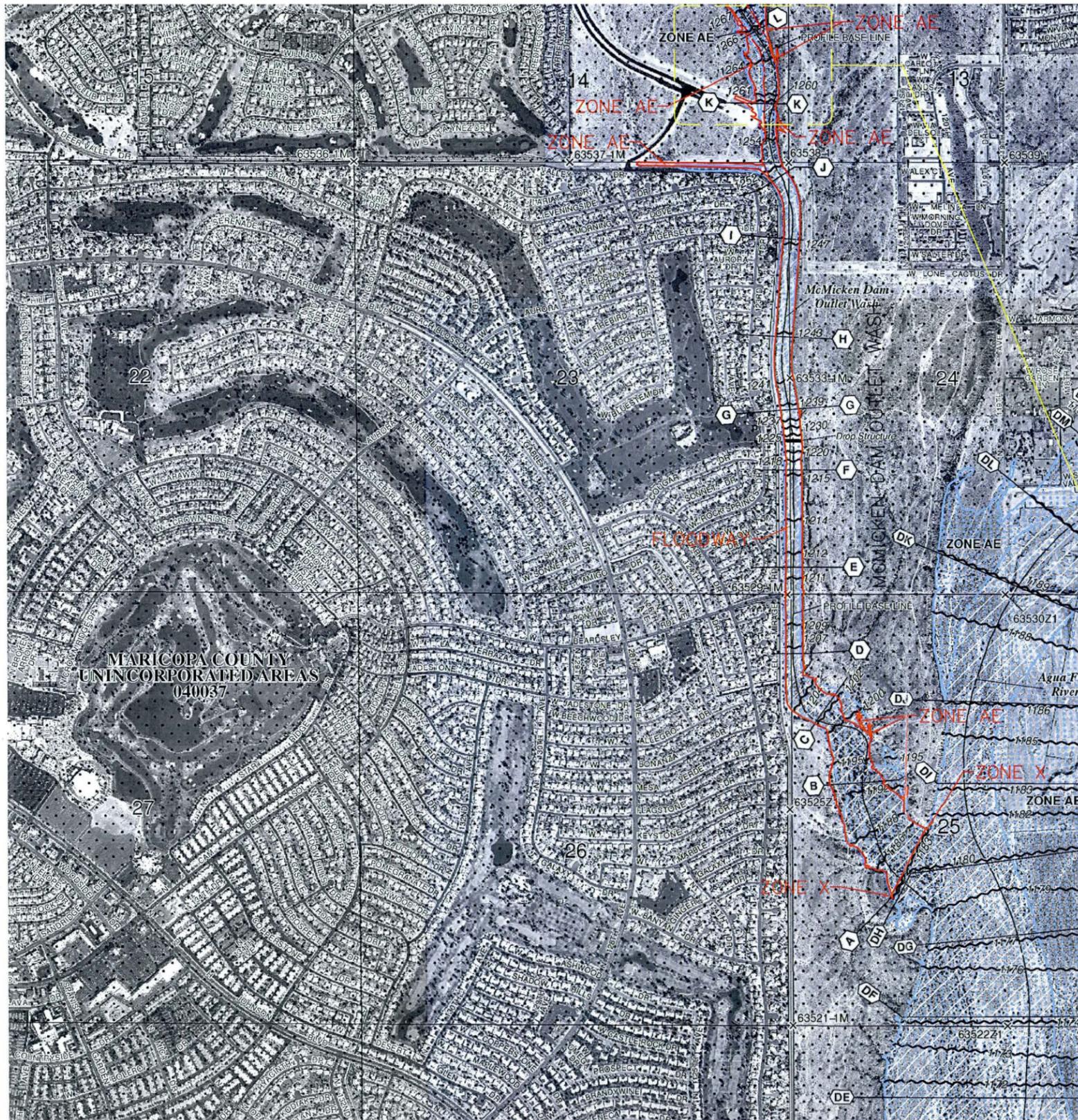


MAP NUMBER
04013C1230L
MAP REVISED
OCTOBER 16, 2013

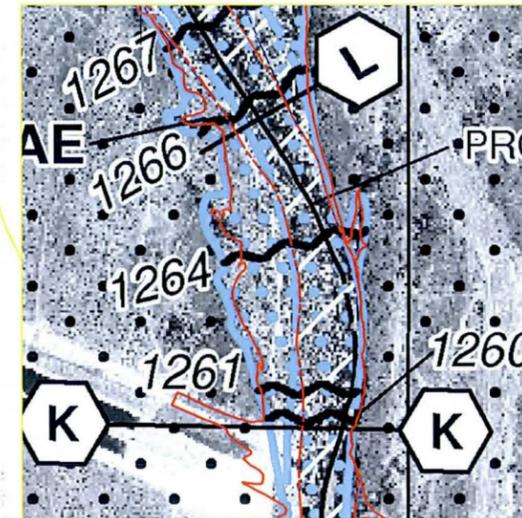
Federal Emergency Management Agency

**WILLIAMS DRIVE CLOMR
MCMICKEN DAM OUTLET WASH
ANNOTATED FIRM PANEL 1230L**

- REVISED ZONE AE FLOODPLAIN (FEMA CASE NO. 13-09-2729P)
- REVISED ZONE A FLOODPLAIN (FEMA CASE NO. 13-09-2729P)
- REVISED FLOODWAY (FEMA CASE NO. 13-09-2729P)
- WILLIAMS DRIVE CLOMR FLOODPLAIN
- WILLIAMS DRIVE CLOMR FLOODWAY



SCALE: 1"=1500'



PANEL 1240L

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

PANEL 1240 OF 4425
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY	040037	1240	L
EL MIRAGE, CITY OF	040041	1240	L
SURPRISE, CITY OF	040053	1240	L

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.

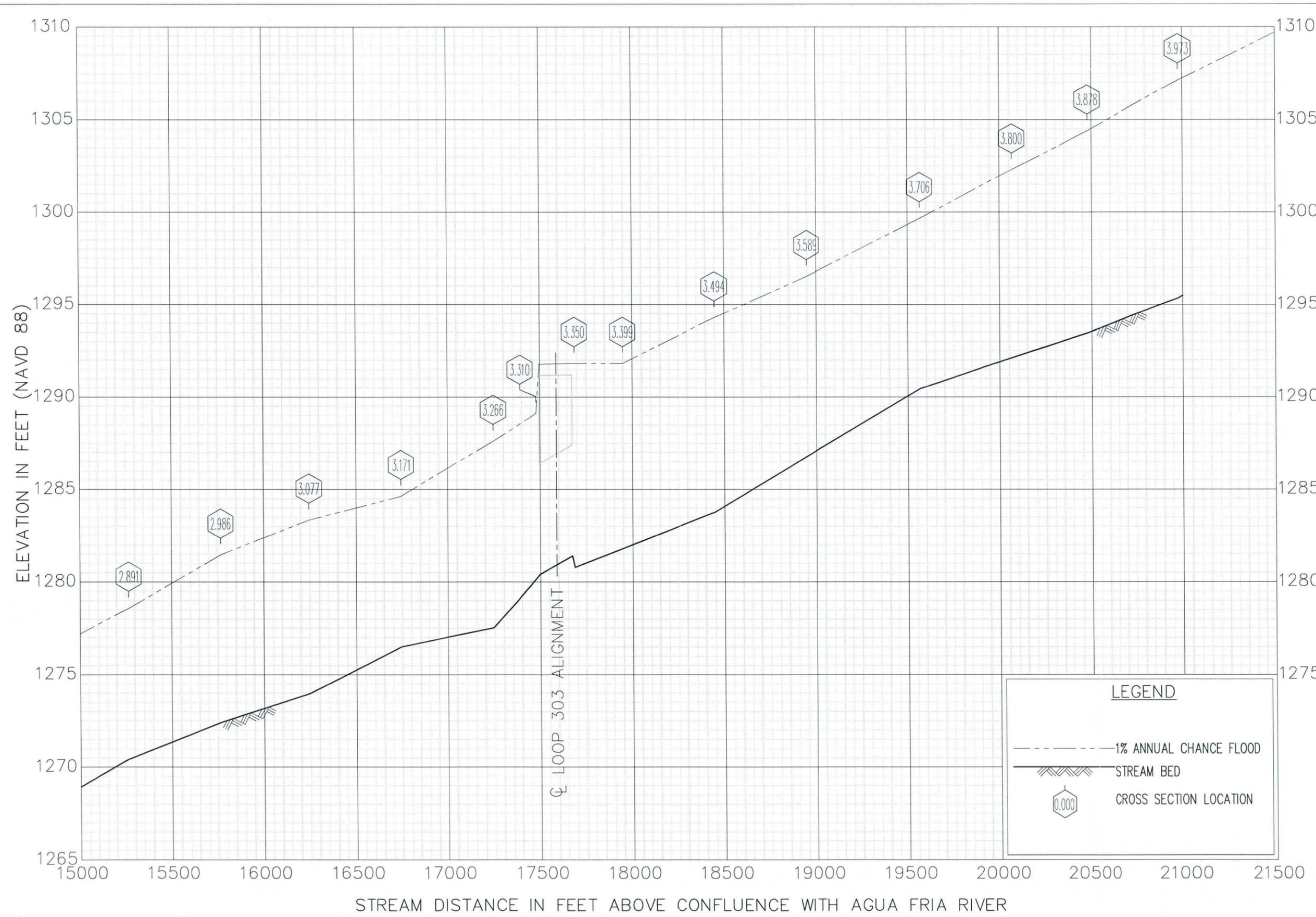
MAP NUMBER
04013C1240L
MAP REVISED
OCTOBER 16, 2013

Federal Emergency Management Agency

**WILLIAMS DRIVE CLOMR
MCMICKEN DAM OUTLET WASH
ANNOTATED FIRM PANEL 1240L**

- REVISED ZONE AE FLOODPLAIN (FEMA CASE NO. 13-09-2729P)
- REVISED ZONE A FLOODPLAIN (FEMA CASE NO. 13-09-2729P)
- REVISED FLOODWAY (FEMA CASE NO. 13-09-2729P)
- WILLIAMS DRIVE CLOMR FLOODPLAIN
- WILLIAMS DRIVE CLOMR FLOODWAY

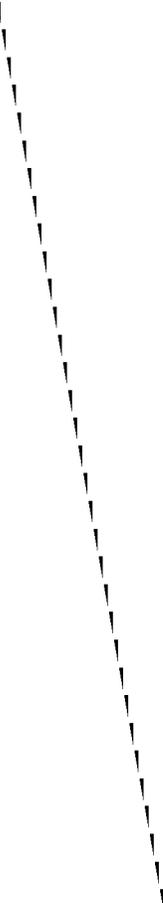
7.4. Flood Profiles



FLOOD PROFILES
MCMICKEN DAM OUTLET WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY
MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

04P



Appendix A References

A.1 Data Collection Summary

The following reports and plans were used in the preparation of this CLOMR.

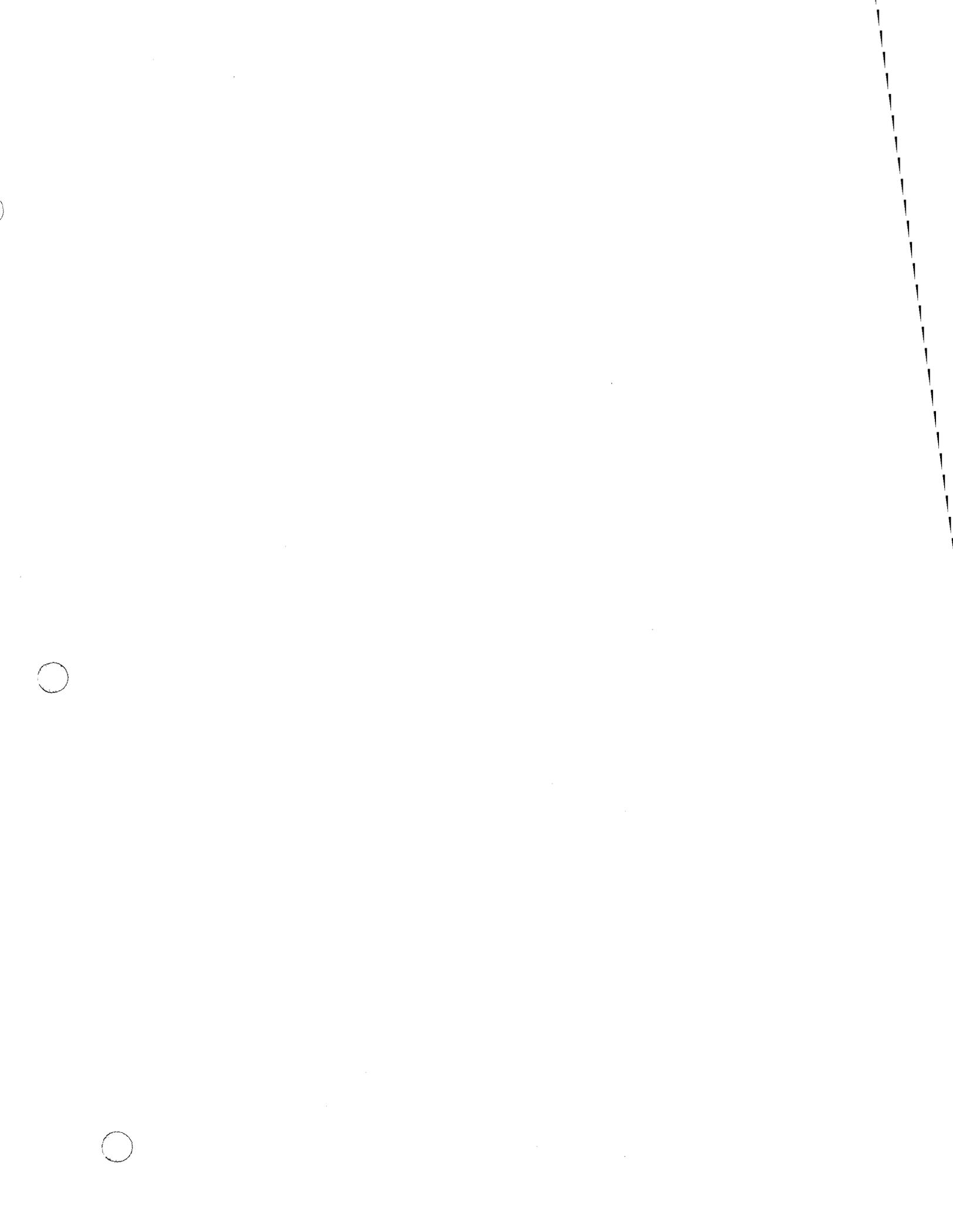
Maricopa County Department of Transportation Final Plans for the Construction of Deer Valley Road – El Mirage Road to 109th Avenue Project No. TT248 (February 2013).

McMicken Dam Outlet Wash Floodplain Delineation Study (FDS) Technical Support Data Notebook (June 2013) prepared by RBF Consulting for the Flood Control District of Maricopa County.

A.2 Referenced Documents

Arizona Department of Water Resources (August 2012). "State Standard 1 Instructions for Organizing and Submitting Technical Support Data Notebooks (TSDN) for Flood Studies".

United States Geological Survey (2006). "Selection of Manning's Roughness Coefficients for Natural and Constructed Vegetated and Non-Vegetated Channels, and Vegetation Maintenance Plan Guidelines for Vegetated Channels in Central Arizona".



**Appendix B General Documentation and
Correspondence**



B.1 General Project Documentation and Correspondence

Biological Review of MCDOT Deer Valley Road, El Mirage Road to 109th Avenue

MCDOT Project Number: TT-248

October 8, 2013

1. Species Identification

The list below was reviewed to determine the potential for the project to affect species or habitat protected by the federal Endangered Species Act (ESA). All species were excluded from further evaluation due to the justifications given below. There is no proposed or designated critical habitat within or near the project area.

US Fish and Wildlife Service List of ESA-Protected Species for Maricopa County			
Species Name	Status¹	Habitat Requirements	Exclusion Justification
Acuna cactus	ESA PE	Well drained knolls and gravel ridges in Sonoran desertscrub from 1,198 to 3,773 feet.	Out of species range.
Arizona cliffrose (<i>Purshia subintegra</i>)	ESA LE	Characteristic white soils of tertiary limestone lakebed deposits below 4,000 feet.	No suitable habitat. No white tertiary limestone. Out of species range.
California least tern (<i>Sterna antillarum browni</i>)	ESA LE	Open, bare or sparsely vegetated sand, sandbars, gravel pits, or exposed flats along shorelines of inland rivers, lakes, reservoirs, or drainage systems below 2,000 feet.	No suitable habitat. No adequate water sources.
Desert pupfish (<i>Cyprinodon macularius</i>)	ESA LE	Shallow springs, small streams, and marshes below 5,000 feet. Tolerates saline and warm water.	No suitable habitat. No adequate water sources.
Gila topminnow (<i>Poeciliopsis occidentalis occidentalis</i>)	ESA LE	Vegetated shallows of small streams, springs, and cienegas below 4,500 feet.	No suitable habitat. No adequate water sources.
Lesser long-nosed bat (<i>Leptonycteris curasoae yerbabuena</i>)	ESA LE	From Desertscrub to oak transition areas with agave and columnar cacti below 6,000 feet.	Out of species range.
Mexican spotted owl (<i>Strix occidentalis lucida</i>)	ESA LT	Canyons and dense forests with multi-layered foliage structure from 4,100 to 9,000 feet.	No suitable habitat. No canyons or dense forests. Out of elevation range.
Razorback sucker (<i>Xyrauchen texanus</i>)	ESA LE	Slow-moving riverine, lacustrine, and backwater areas below 6,000 feet.	No suitable habitat. No adequate water sources.
Sonoran pronghorn (<i>Antilocapra americana sonoriensis</i>)	ESA LE	Broad intermountain alluvial valleys with creosote-bursage and paloverde-mixed cacti associations from 2,000 to 4,000 feet.	Out of species range.
Southwestern willow flycatcher (<i>Empidonax traillii extimus</i>)	ESA LE	Dense riparian vegetation near a permanent or semi permanent source of water or saturated soil below 8,500 feet.	No suitable habitat. No dense riparian vegetation.
Woundfin (<i>Plagopterus argentissimus</i>)	ESA LE	Runs and quiet waters adjacent to riffles over sand and gravel substrates below 4,500 feet.	No suitable habitat. No adequate water sources.
Yuma clapper rail (<i>Rallus longirostris yumanensis</i>)	ESA LE	Fresh water and brackish marshes, associated with dense emergent riparian vegetation below 4,500 feet.	No suitable habitat. No marsh-type habitat.

¹ Status Definitions: ESA=Endangered Species Act, LE=Listed Endangered, LT=Listed Threatened, PE=Proposed Endangered. Source: US Fish and Wildlife Service list of threatened, endangered, proposed, candidate, and conservation agreement species for Maricopa County, AZ. List Date: February 5, 2013 (<http://www.fws.gov/southwest/es/arizona/>).

2. Recommended Determination

The project will have no effect to any ESA-protected species or habitat.

3. Signature

Prepared by:  Date: 10/8/2013
Senior Wildlife Biologist
AZTEC Engineering Group, Inc.
602-458-9296
mmyers@aztec.us



B.2 Contract Documents

EXHIBIT A



SCOPE OF WORK

CONTRACT FCD 2011C003

Work Assignment No. 5

**Conditional Letter of Map Revision (CLOMR) for Williams Drive
Improvements at McMicken Dam Outlet Wash**

EXHIBIT A

SCOPE OF WORK

CONTRACT FCD 2011C003

Work Assignment No. 5

CLOMR for Williams Drive Improvements at McMicken Dam Outlet Wash

GENERAL

This CLOMR will include the proposed improvements for Williams Drive at McMicken Dam Outlet Wash based on the Maricopa County Department of Transportation (MCDOT) Final Plans for the construction of Deer Valley Road – El Mirage Road to 109th Avenue, Project No. TT248. The existing conditions model will be the McMicken Dam Outlet Wash Floodplain Delineation, Contract FCD 2011C003 Assignment 4.

All work must meet the requirements of the DISTRICT's CONSULTANT Guidelines, Third Edition – December 1, 2003 - Revision 1. All work must also meet Arizona Department of Water Resources (ADWR) and Federal Emergency Management Agency (FEMA) requirements for CLOMRs. Prior to the finalization of this contract, the DISTRICT must review and accept the results, and all items called for in this Scope of Work must be delivered to the DISTRICT.

All work must be completed within two hundred fifty-five (255) days from the Notice to Proceed (NTP) which includes at least twenty-one (21) days for DISTRICT reviews and a FEMA review period. All project activities including study data submittals and Milestones shall occur as defined in the attached Work Schedule. The Work Schedule may be updated during the course of the project given prior approval by the DISTRICT'S Project Manager.

TASK 1 - COORDINATION

- 1.1 Within seven (7) days of the NTP the CONSULTANT will submit a project schedule to the DISTRICT's Project Manager showing coordination meetings and completion dates for each task identified in the Scope of Work (SOW). The schedule shall also show product submittal dates and DISTRICT product review periods. The CONSULTANT will update the project schedule as necessary and when otherwise directed by the DISTRICT.
- 1.2 The CONSULTANT will participate in regular coordination meetings with the DISTRICT's Project Manager as needed. The CONSULTANT is responsible for the minutes of any meetings. Draft meeting minutes must be delivered to the DISTRICT within seven (7) working days of any monthly meeting.
- 1.3 The CONSULTANT will submit an estimate of the total monthly billing projections within seven (7) days of the NTP. Thereafter, this estimate will be updated and submitted to the DISTRICT's Project Manager at least ten (10) days before the end of each quarter.
- 1.4 The CONSULTANT will submit monthly progress reports at submittal of monthly invoices. The report shall be brief and should be no longer than two (2) typed pages. At a minimum, the monthly report shall contain the following:
 - a. A description of the work accomplished by task during the reporting month.
 - b. Percent (%) completed for the month and percent (%) cumulative completed for each task.

- c. A brief description of the work to be accomplished in the following month.
- d. A description of any problems encountered.

- 1.5 The DISTRICT has prepared a separate set of guidelines for the CONSULTANT on conducting public involvement and public information activities for the DISTRICT. A copy of these guidelines will be provided to the CONSULTANT by the Public Information Office and shall be used by the CONSULTANT if or when preparing public information related materials.
- 1.6 The DISTRICT will provide any public notice beyond that described in Task 1.5.
- 1.7 CONSULTANT/DISTRICT Performance Evaluations will be performed. A formal evaluation will be performed at the completion of the project upon receipt of all deliverables.

TASK 2 - DATA COLLECTION

- 2.1 The CONSULTANT will collect and review pertinent data from the DISTRICT and MCDOT.
- 2.2 A written summary of the data collected will be included as a section in the Technical Support Data Notebook (TSDN).

TASK 3 - TOPOGRAPHIC MAPPING

- 3.1 Topographic mapping with 1-foot contour intervals (including digital terrain model data) will be provided for the study area by the DISTRICT. This topographic mapping will be referenced to the Arizona Central State Plane Coordinate System, which is tied to the North American Datum 1983 High-Accuracy Reference Network (NAD 83 HARN), horizontally; and the North American Vertical Datum 1988 (NAVD 88), vertically. The DISTRICT will provide the CONSULTANT with aerial photographic imagery that is recent enough to be appropriate to the level of study and contiguous within the study area.

TASK 4 - FLOODPLAIN DELINEATION MODIFICATIONS

- 4.1 The existing McMicken Dam Outlet Wash Floodplain Delineation Study will be used as the existing conditions hydrology and hydraulics. The proposed culvert and roadway improvements at Williams Drive will be incorporated into the proposed condition model. Hydraulic information will be obtained by using the U.S. Army Corps of Engineers latest release of HEC-RAS (version 4.1.0 or later) and methodology acceptable to FEMA as defined in their Guidelines and Specification for Flood Hazard Mapping Partners, April 2003 and FIA Document 12, Appeals, Revisions, and Amendments to Flood Insurance Maps, December 1993. The completed delineation work will meet the requirements for floodplain delineations as prescribed by FEMA and the ADWR, including the Arizona State Standard for Hydraulic Modeling (SS9-02).
- 4.2 The floodplain work maps shall have a scale of 1 inch = 200 feet. The hydraulic modeling and delineation work maps shall be referenced to the North American Vertical Datum of 1988 (NAVD 88). This work shall include inserting the cross sections, BFE boundary line work, and river mile ticks.

The CONSULTANT shall provide annotated FIRM panels to illustrate the proposed floodplain boundaries in comparison with the effective information. The annotated FIRM panels will be part of a draft addition to the FIS, which shall also include water surface profile plots and discharge data tables. These materials are normally included in Section 7 of the TSDN. Excerpts from the effective

FIS, as they relate to the study, shall be included within the TSDN appendices as backup documentation.

The CONSULTANT will obtain DISTRICT approval at each of the following steps:

- a. Draft hydraulic model with proposed improvements
- b. Draft TSDN

4.3 Cross Sections

4.3.1 The HEC-RAS output in the TSDN, in addition to summary tables and a full output report, shall include fully labeled profile and cross section plots.

4.3.2 Check-RAS reports and RAS-PLOT profiles of the 100-year event will be created for inclusion into the TSDN. Digital export file (dxf) format of the profiles will also be provided.

4.4 Culverts must be modeled according to HEC-RAS modeling requirements for the selected routine. The HEC-RAS modeling results for culverts, and other hydraulic structures must be checked by using independent methods approved by the DISTRICT to analyze these structures. The hydraulic effects of culverts shall be incorporated into assessing the floodplain around such structures, especially in areas where ponding will occur.

4.5 Flood Zones will be determined according to FEMA criteria and will be clearly labeled on the final drawings. The drawing cover sheets shall show the study title and DISTRICT contract number, and should show both location and vicinity maps and a sheet index in a cadastral section background. A list of survey control monuments (or ERM's) with elevations and coordinates shall be shown along with topographic mapping contour interval, vertical and horizontal datum's, coordinates, and the conversion factor between NAVD88 and NGVD29 vertical datum's. A field survey certification note (if necessary) will be provided and will include the signature and seal of the RLS responsible for all ground survey. The names of the companies and dates for both the topographic flights and the aerial photography flights shall be listed.

4.6 The main project Description box of the HEC-RAS models should include the following:

- a. Project Name, FCD Contract Number, work assignment number, and project control number
- b. CONSULTANT Name, phone number, address, website address, and company Job Number
- c. Study Purpose
- d. File Name and latest run date/final date if completed
- e. Vertical Datum of the model, base map date, and base map contractor information
- f. Any notable features that are considered unique or unusual to the hydraulic modeling
- g. HEC-RAS program version
- h. Source of Hydrology and discharges used
- i. Wash names including River and Reach Names used in the HEC-RAS modeling
- j. Subsequent update information, if any

In addition, minor descriptions should be added to the model for hydraulic cross sections located above or below drainage structures, at section lines, at highways and railway crossings, at canals,

and at confluences. Model descriptions should be added to culverts and lateral structures, and at any other features considered pertinent to the modeling.

- 4.7 The CONSULTANT will provide work maps using the DISTRICT's most recent contour mapping. The work map drawings will be 24" X 36" in size. The work map scale will be 1" = 200'. The cover sheet of the work map drawings shall be prepared in a manner to be approved by the DISTRICT. Each study sheet work map drawings shall include the project title, contract number, source of topographic mapping, and a location map showing the geographic range covered by each specific mapping sheet. Each study sheet will include watercourse names and existing floodplain boundaries, proposed floodplain boundaries, a north arrow, map scale section lines and section corners, current streets and highway names, subdivision boundary names, Horizontal and Vertical Datum references (State Plane Coordinate System, NAD 83, and NAVD 88) any of MCDOT's GDACS monuments and NGVD monuments located within individual sheet boundaries, major drainage features, corporate boundaries, hydraulic cross section lines, sheet index map, peak discharges, and relative Township and Range labels. A conversion factor from NAVD 88 to NGVD 29 should also be shown.
- 4.8 Technical Support Data Notebook (TSDN)
 - 4.8.1 The findings of the floodplain delineation study will be presented in Section 5 of the TSDN and will be prepared in accordance with ADWR State Standards Attachment 1 (SS1). The report will be organized as specified by the DISTRICT standards, following SS1 format.
 - 4.8.2 The hydraulic analysis/HEC-RAS output in the TSDN, in addition to summary tables and full output report, should include fully labeled cross section plots. Section plots should be grouped per study reach, and reach groups should be separated and then indexed within the main report to expedite data recovery.
- 4.9 The CONSULTANT shall review the output of the HEC-RAS computer model to ensure the flow depths and velocities are reasonable and realistic with respect to those expected in this watershed. This will include a comparison of flow velocities in the hydraulic analysis with those related to hydrologic routing. Adjustments to the model input should be completed as necessary to obtain the most realistic results. The CONSULTANT shall provide proper QA/QC of the models and TSDN before delivering to the DISTRICT.
- 4.10 The CONSULTANT shall fill out all the forms required by FEMA (MT-2 forms) for the submittal as a Conditional Letter of Map Revision (CLOMR) request.
- 4.11 MCDOT shall provide the necessary data or reports to obtain clearance from the United States Fish and Wildlife Service (USFWS) of compliance with the Endangered Species Act (ESA).

TASK 5 – DELIVERABLES

- 5.1 The CONSULTANT will provide both paper and electronic deliverables at the completion of each task unless otherwise approved in advance by the DISTRICT.
- 5.2 Prior to FEMA Submittal: The CONSULTANT will deliver the following items to the DISTRICT.

One (1) copy of the Draft TSDN including draft work maps according to ADWR SS1. The report shall be organized as specified by the DISTRICT standards, following SS1 format. All products will be labeled “Draft” or “Preliminary” prior to approval from FEMA.

- 5.3 FEMA Submittal: The CONSULTANT will submit the following items to the DISTRICT for review by FEMA and any other appropriate governmental agency. All of the following products are considered deliverables for the FEMA submittal:

Two (2) complete copies of the Technical Support Data Notebook, including completed FEMA forms, annotated Flood Insurance Rate Maps showing the proposed delineation and HEC-RAS input/output files on compact disc.

- 5.4 Final Submittal: The following products are considered deliverables for the final submittal to the DISTRICT after FEMA approval is issued.

Two (2) complete copies of the Technical Support Data Notebook including HEC-RAS input/output files on compact disc (based upon the level of changes during the FEMA review process, this may require only change-outs of modified pages and/or disks). This submittal of the Technical Support Data Notebook shall include any correspondence and/or meeting minutes with the reviewing agencies and shall reflect any revisions required by those reviewing agencies. Revisions may include, but are not limited to, addressing FEMA's comments, modifications to the delineation maps, the HEC-RAS model, and/or the Final Report. The report shall also be prepared in PDF format.

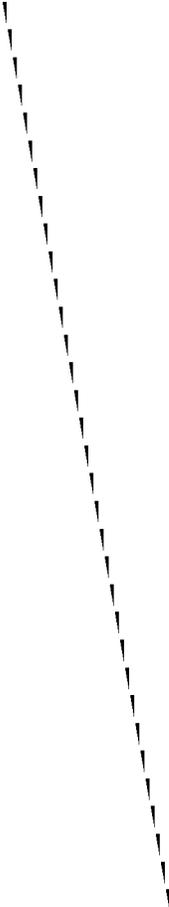


B.3 Public Notification

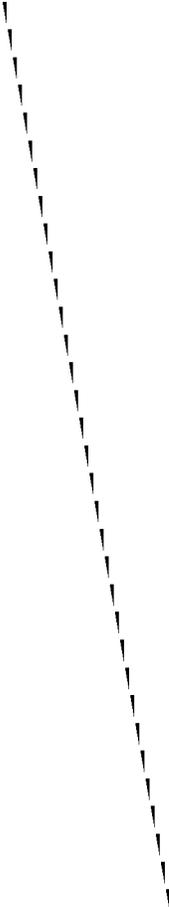
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B.4 FEMA Correspondence



Appendix C Survey Field Notes



Appendix D Hydrologic Analysis Supporting Documentation

Refer to the McMicken Dam Outlet Wash FDS for additional information.



**Appendix E Hydraulic Analysis Supporting
Documentation**

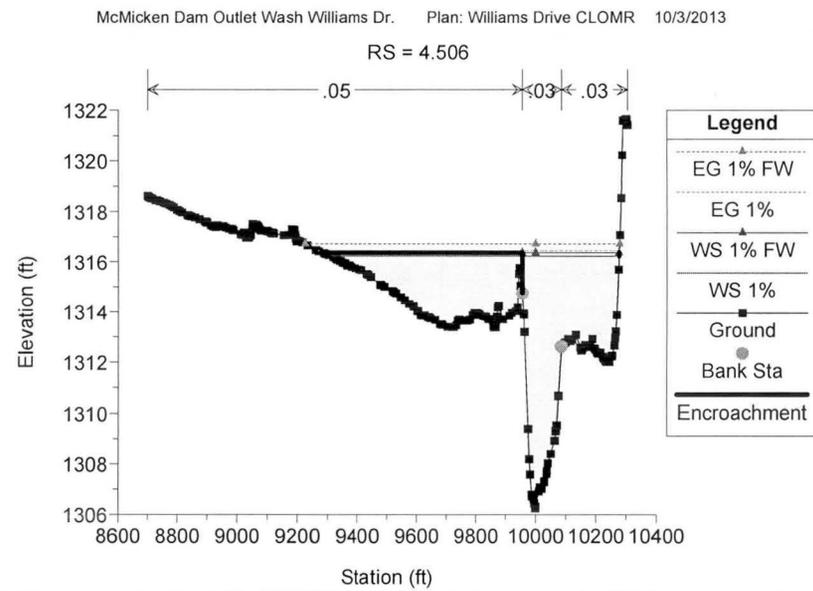
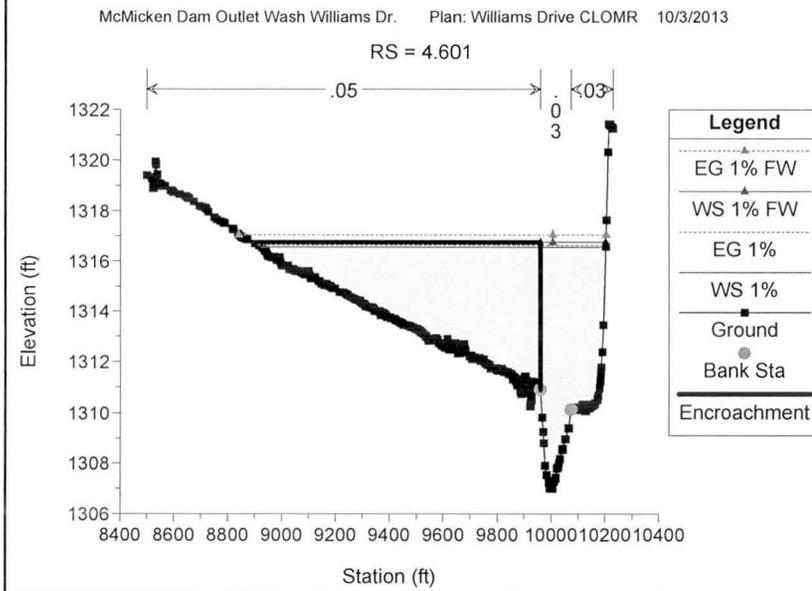
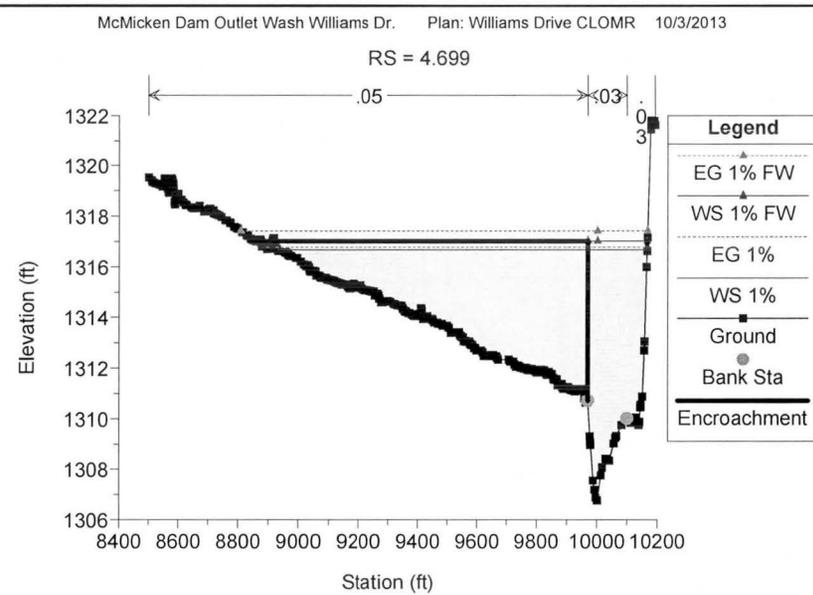
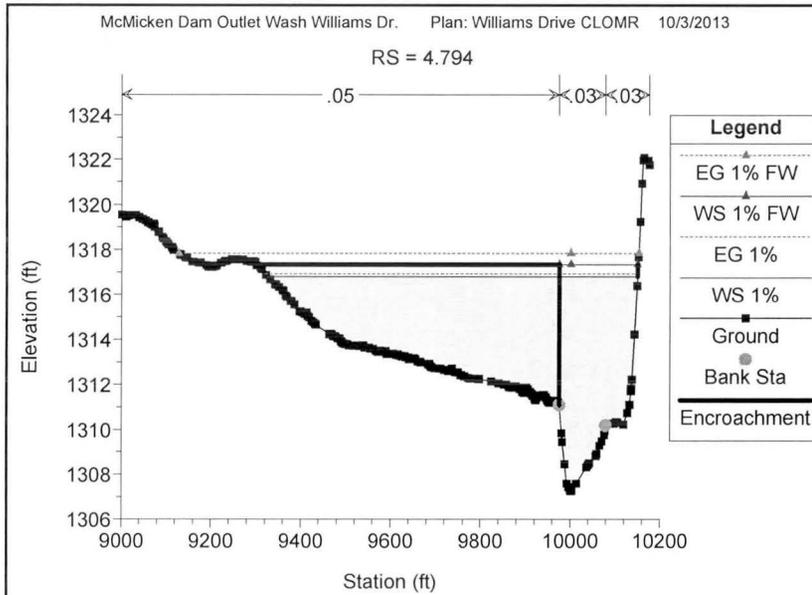


E.1 Roughness Coefficient Estimation

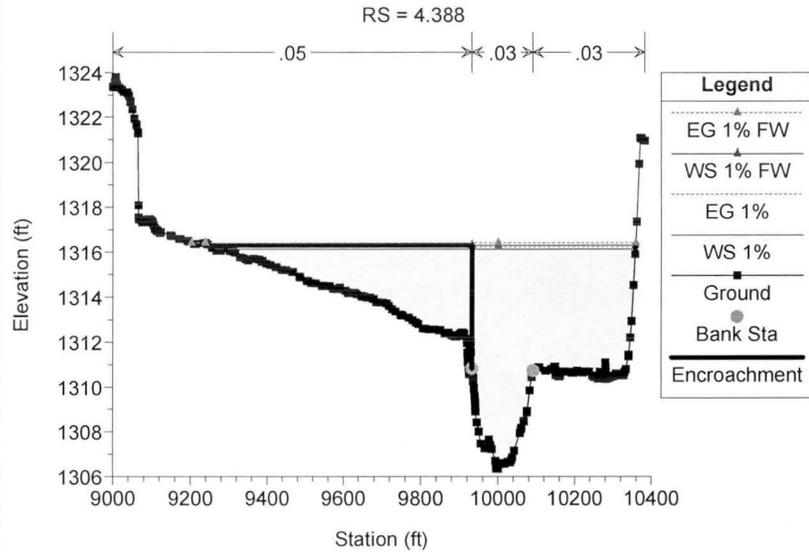
(Refer to the McMicken Dam Outlet Wash FDS)



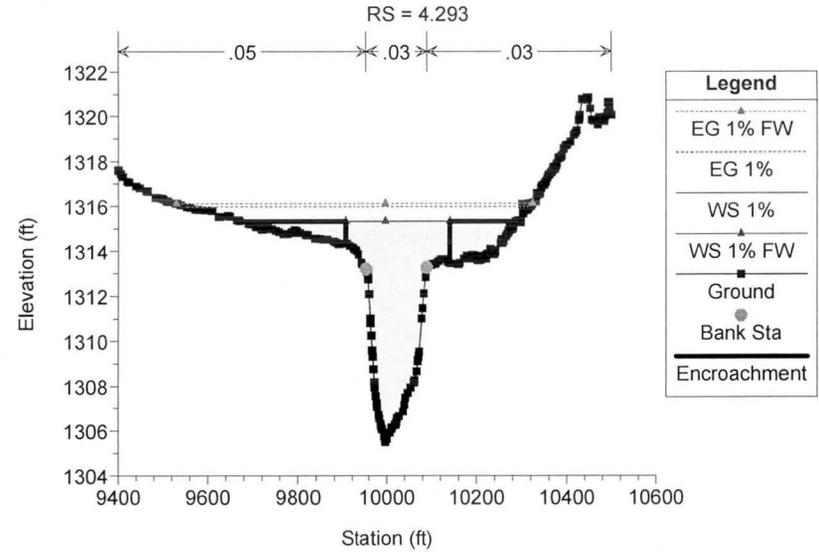
E.2 Cross Section Plots



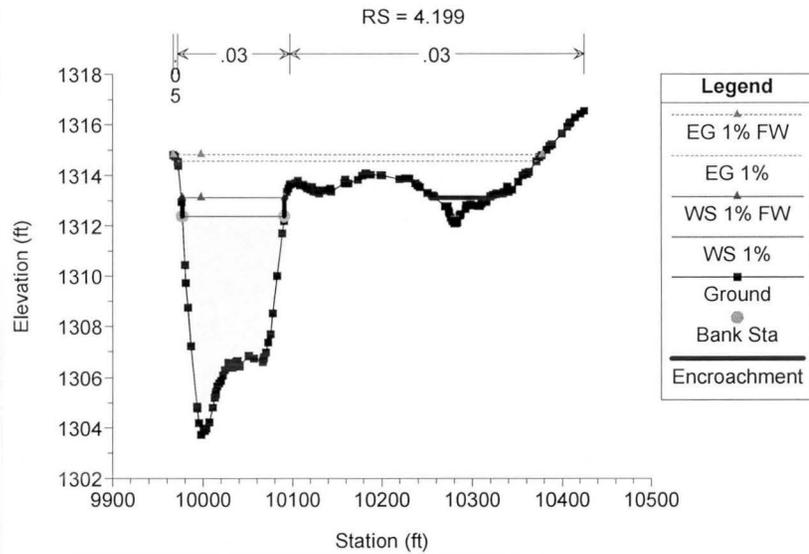
McMicken Dam Outlet Wash Williams Dr. Plan: Williams Drive CLOMR 10/3/2013



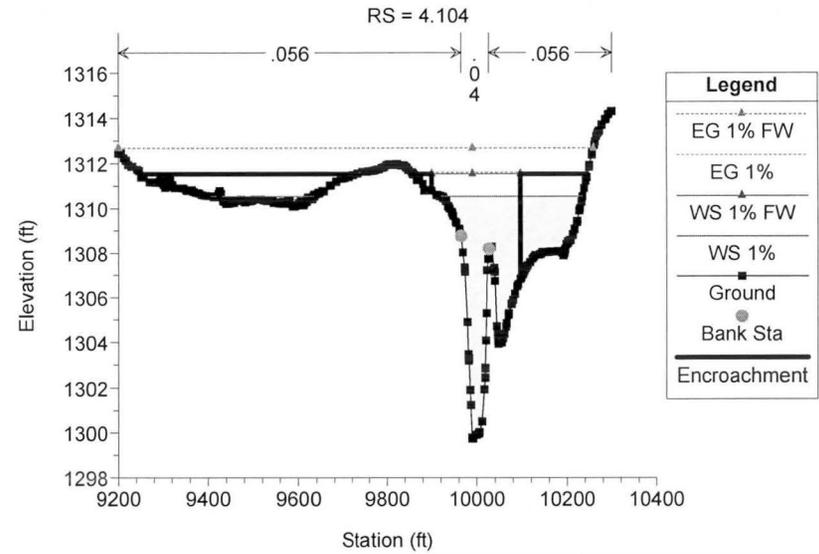
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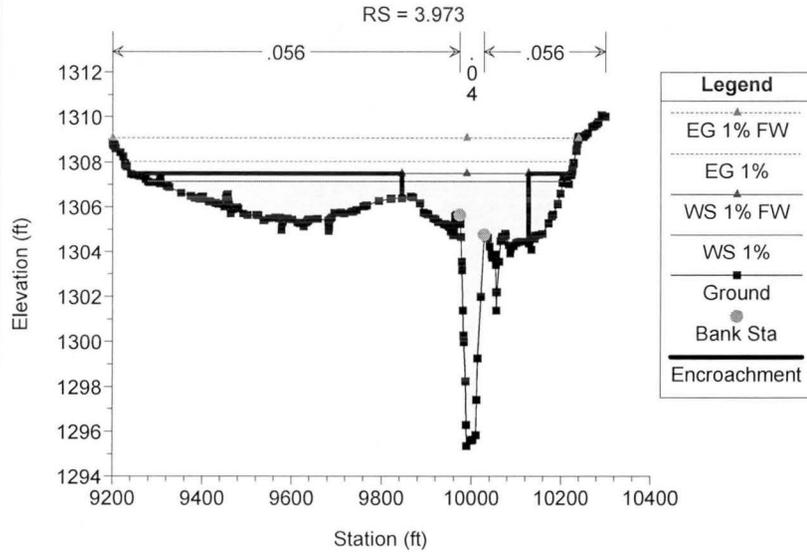
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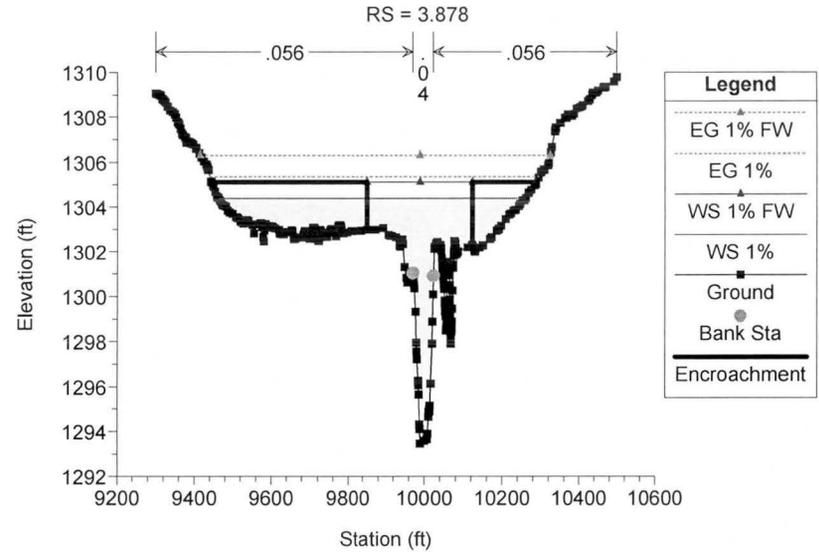
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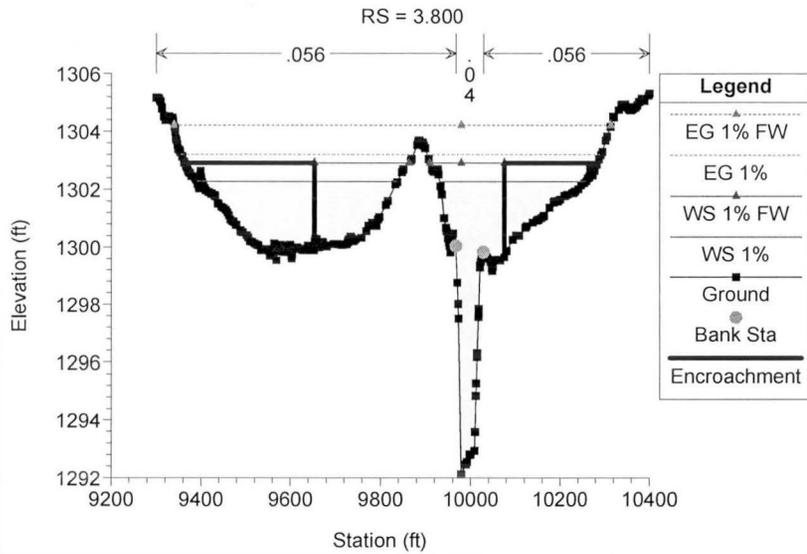
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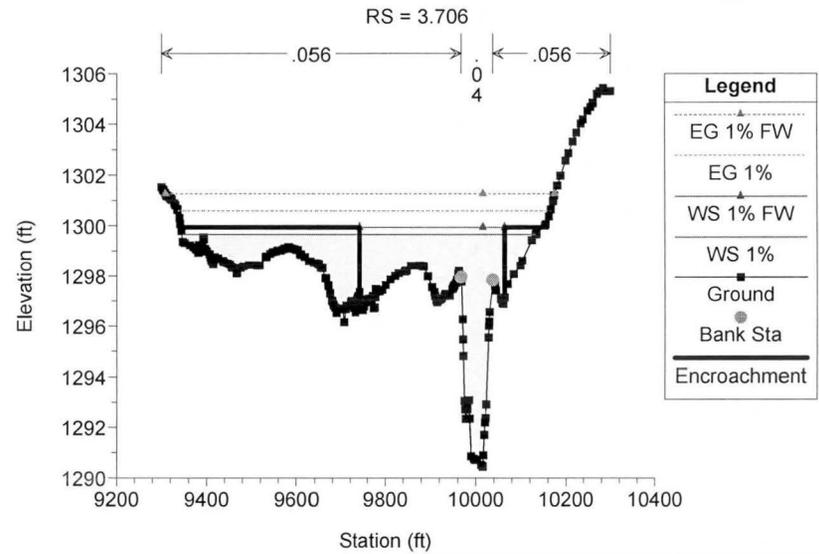
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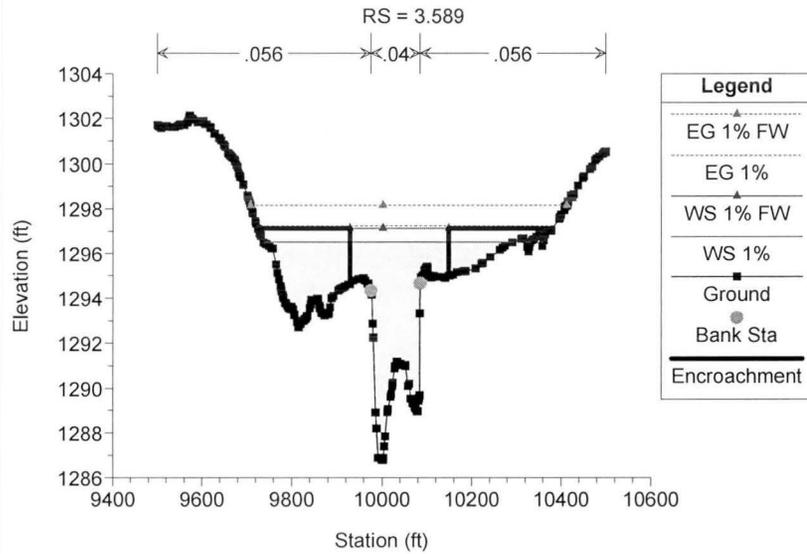
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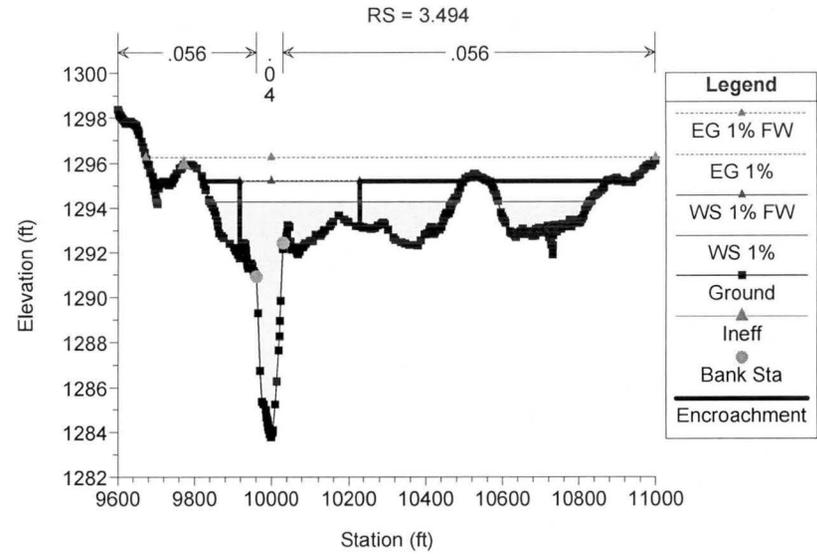
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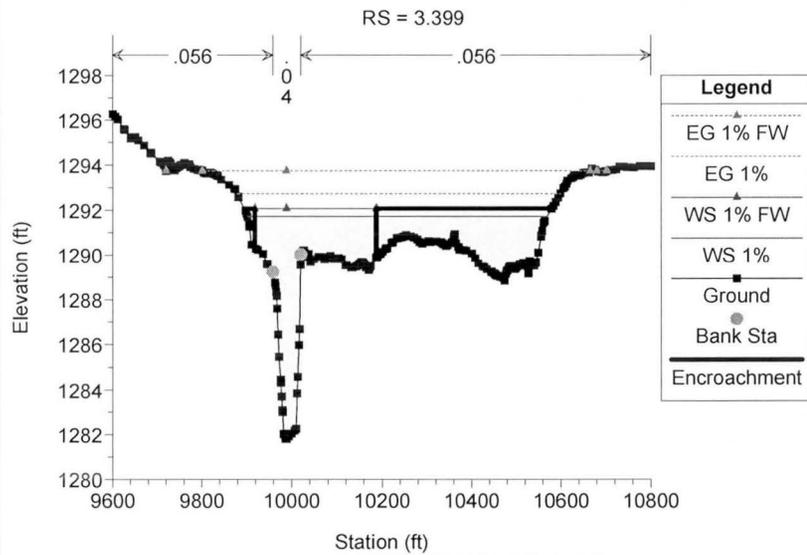
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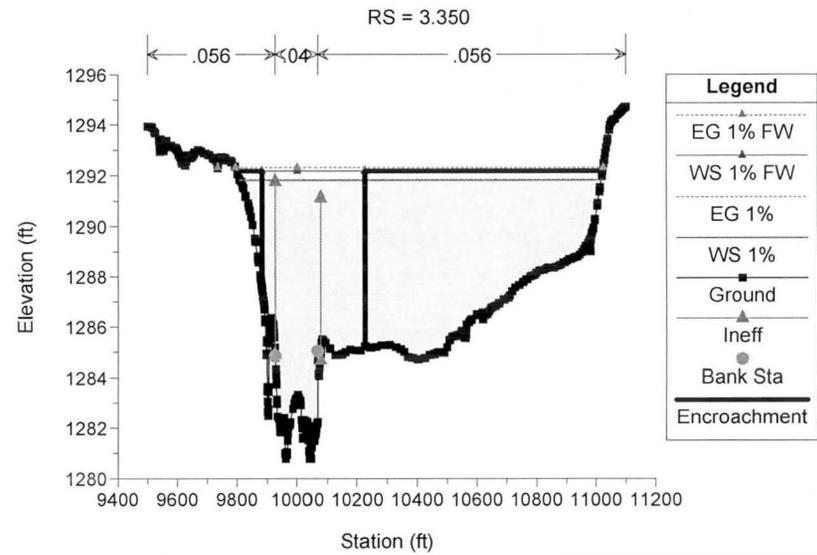
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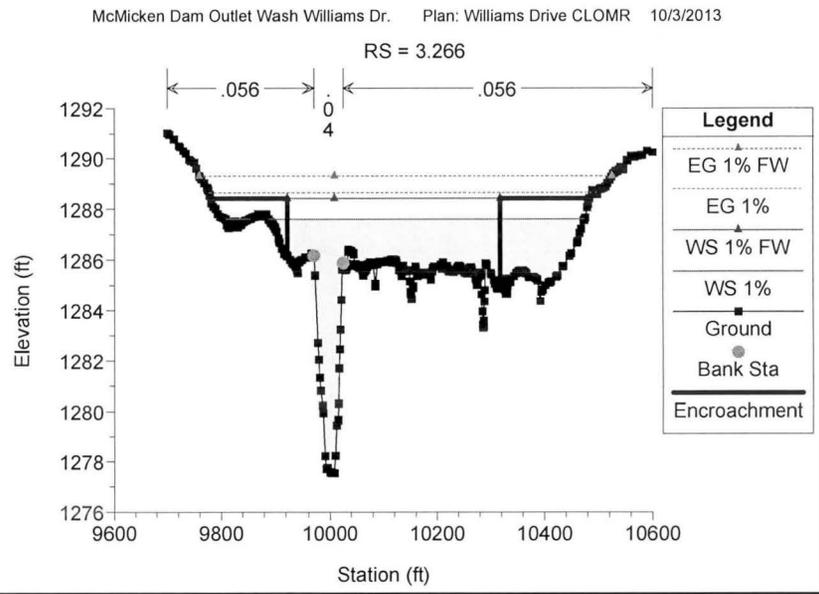
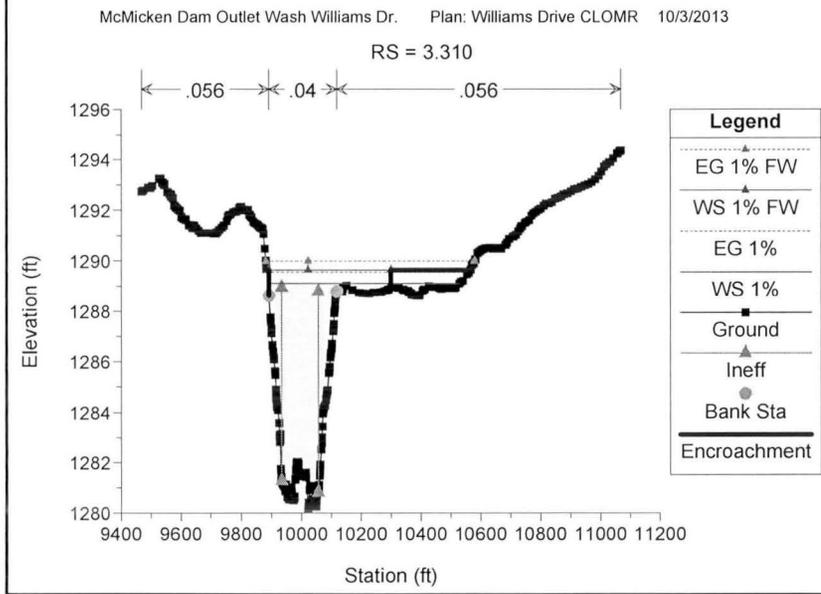
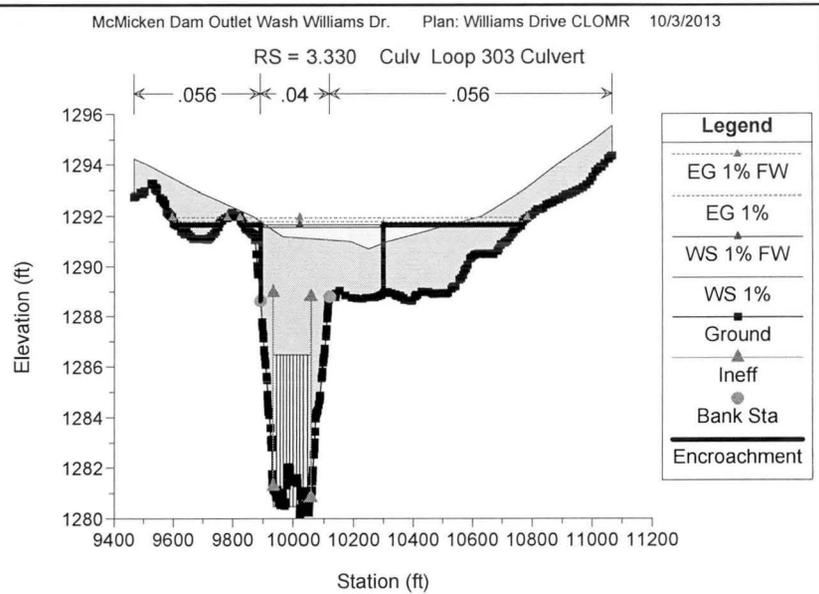
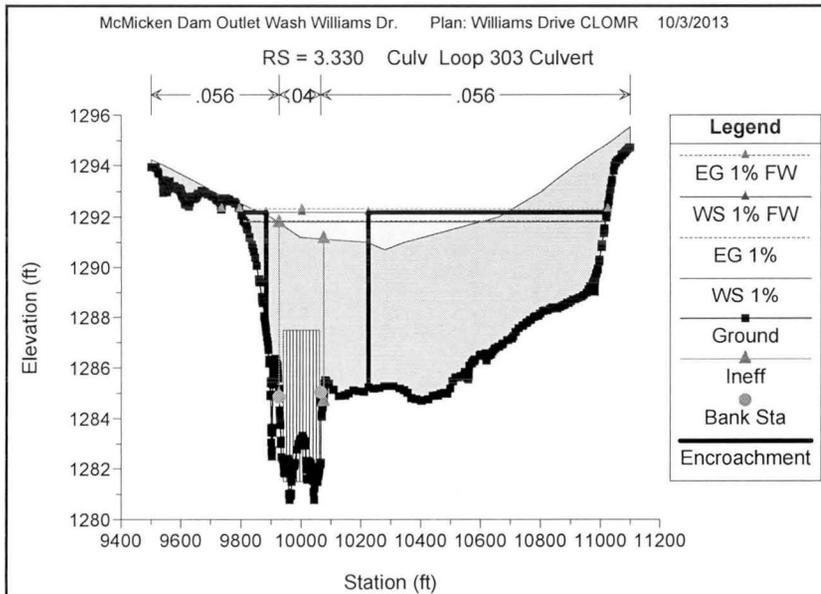


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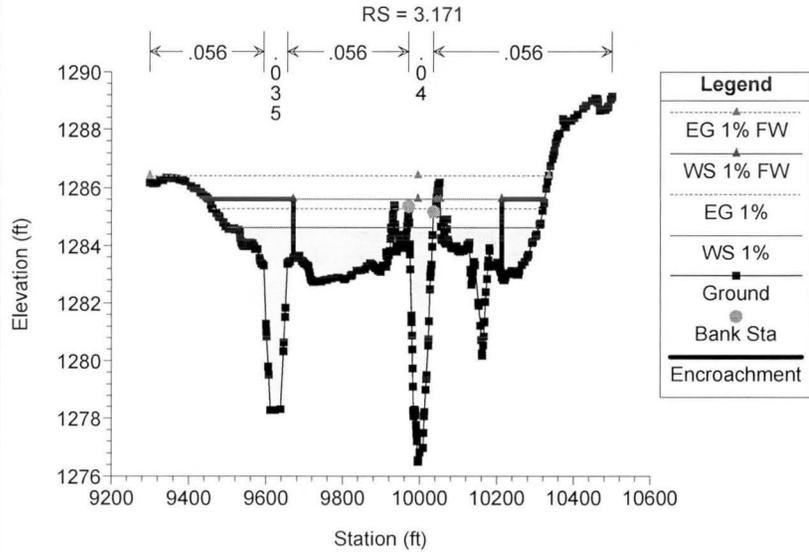


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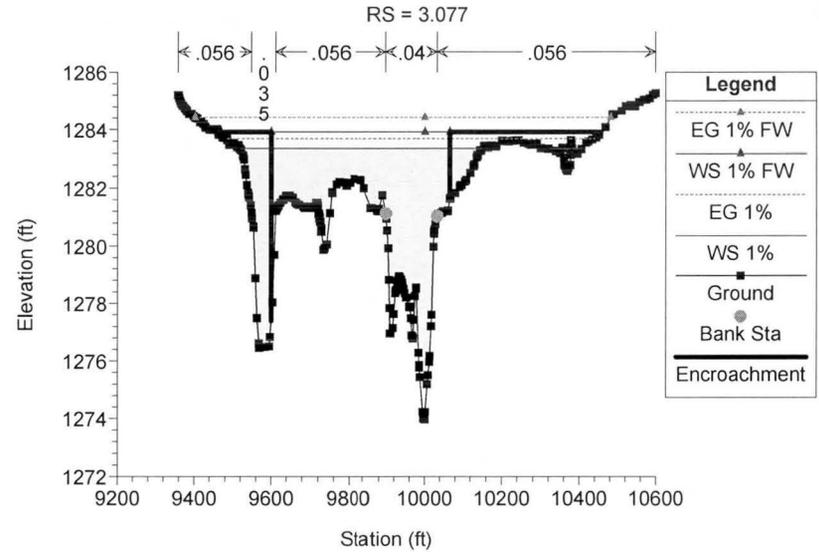




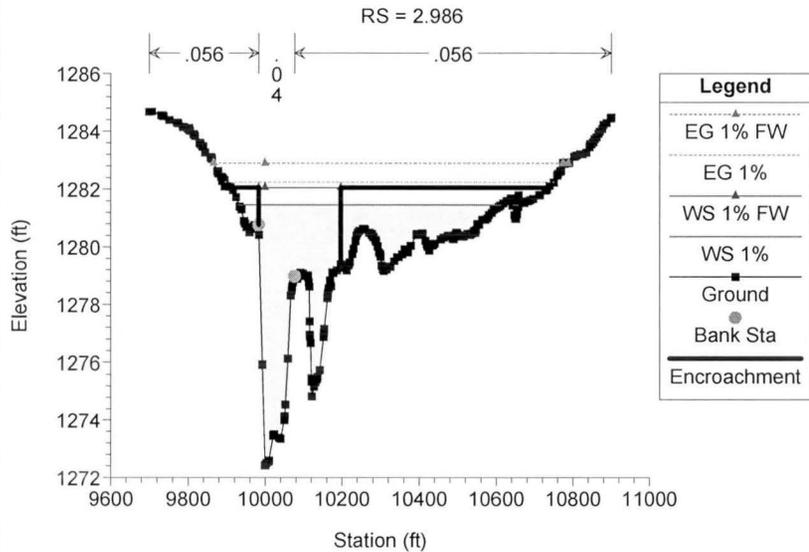
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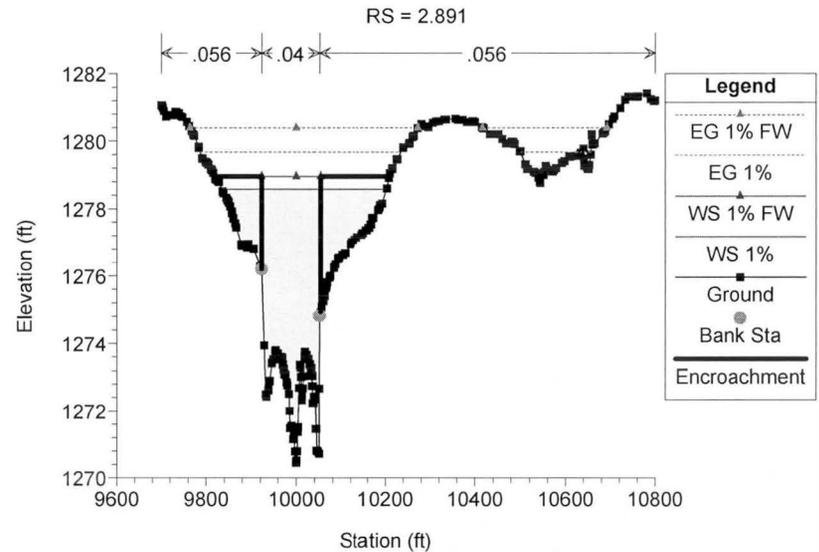
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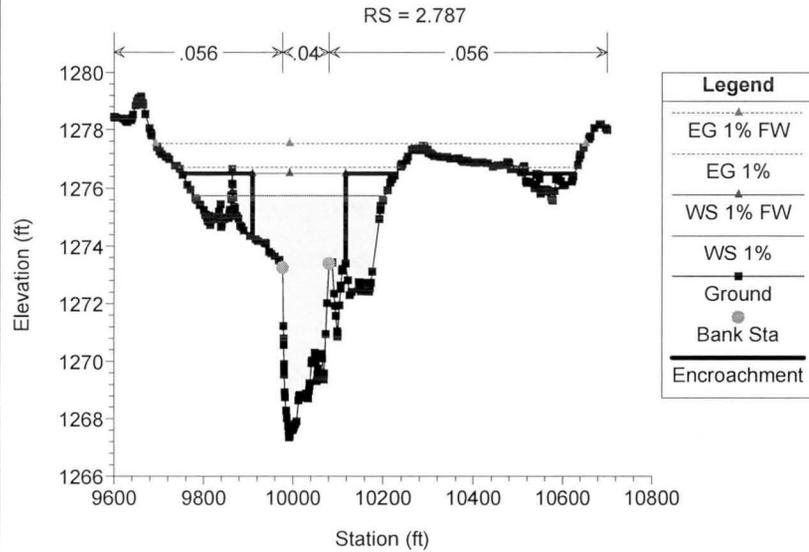
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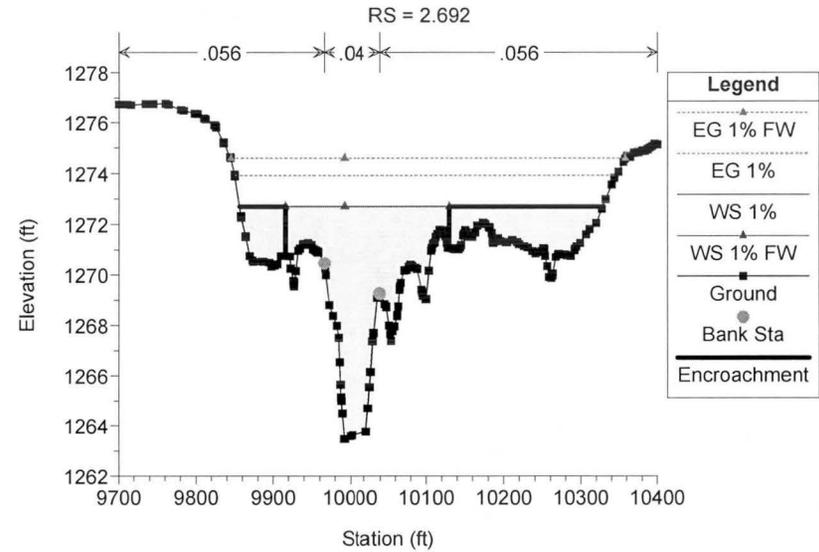
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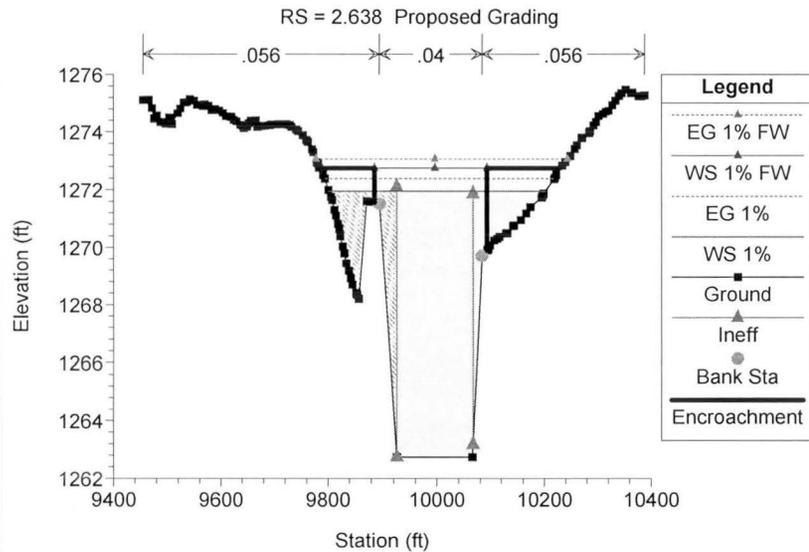
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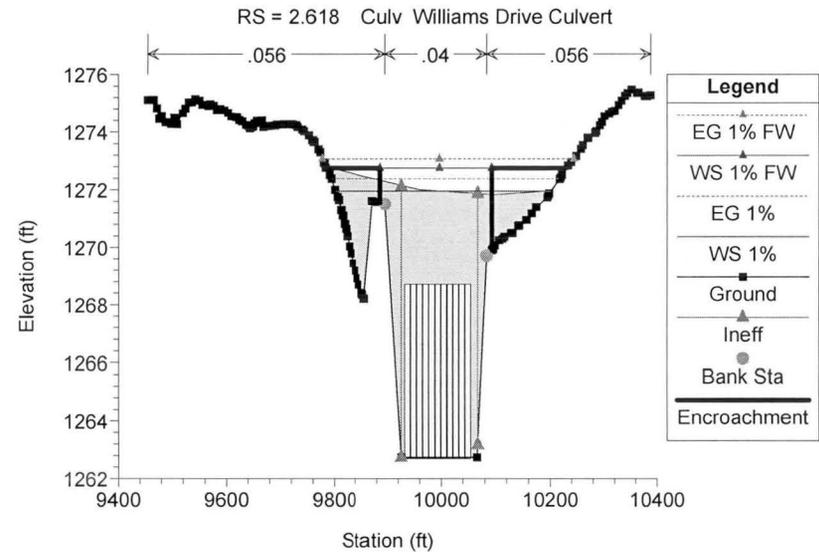
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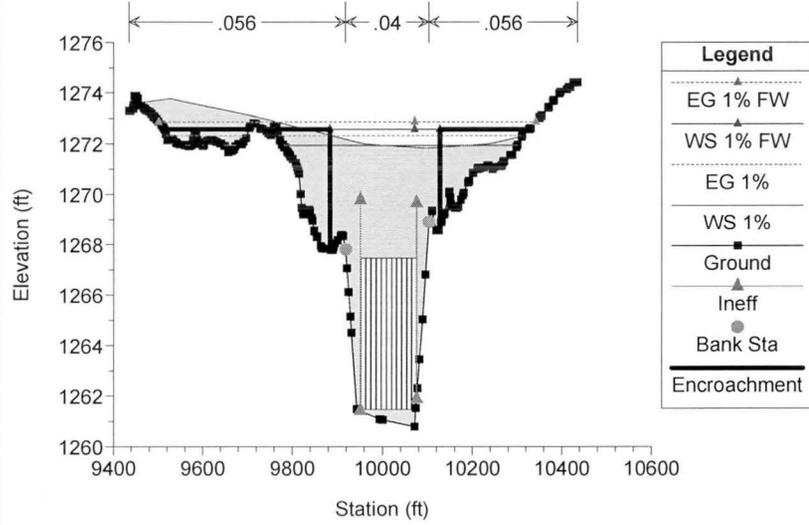


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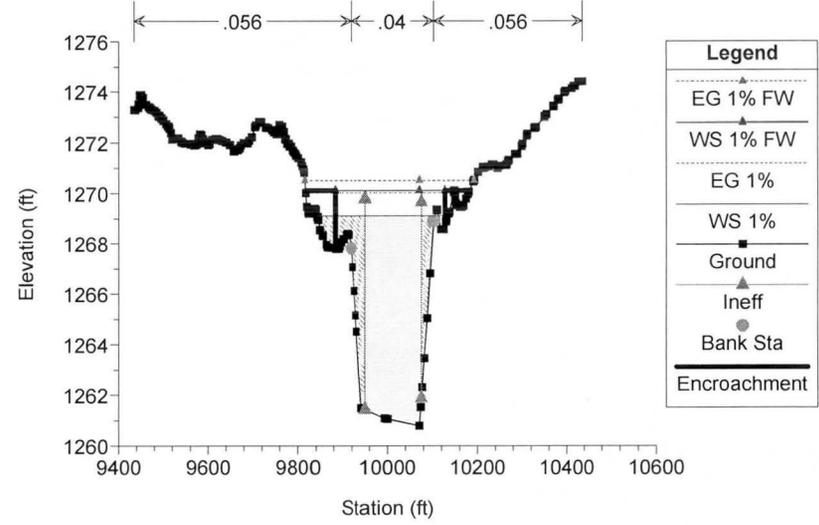
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RS = 2.618 Culv Williams Drive Culvert



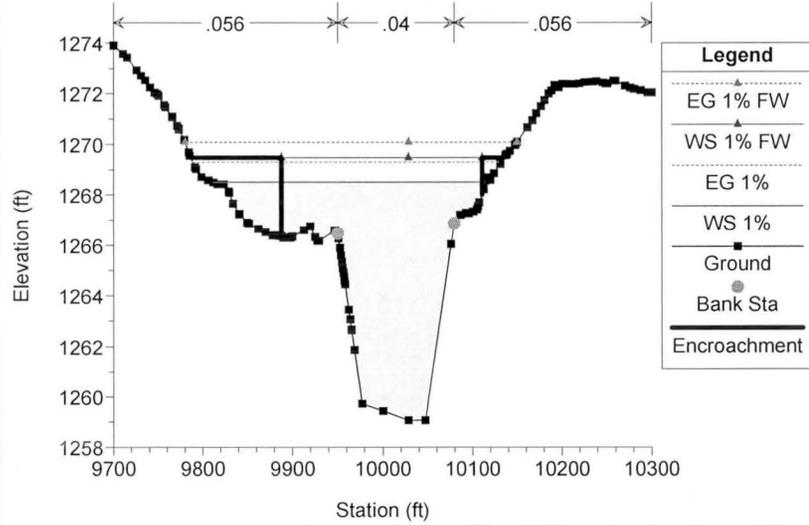
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RS = 2.603 Proposed Grading



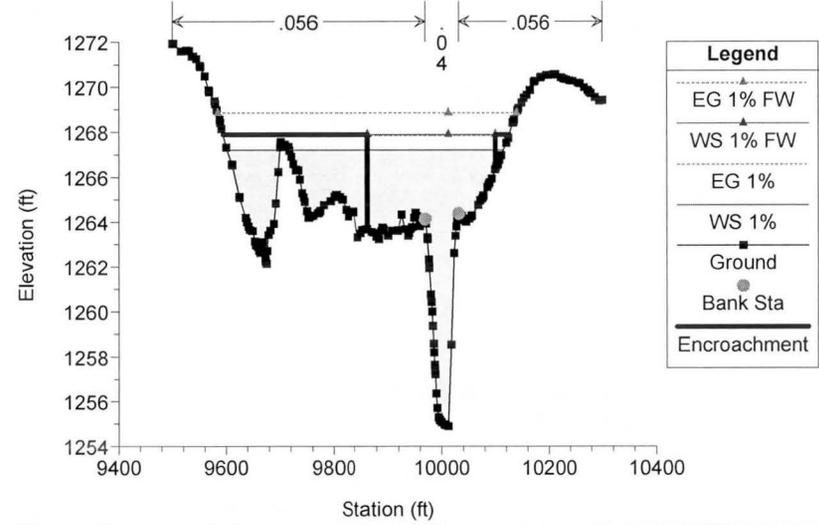
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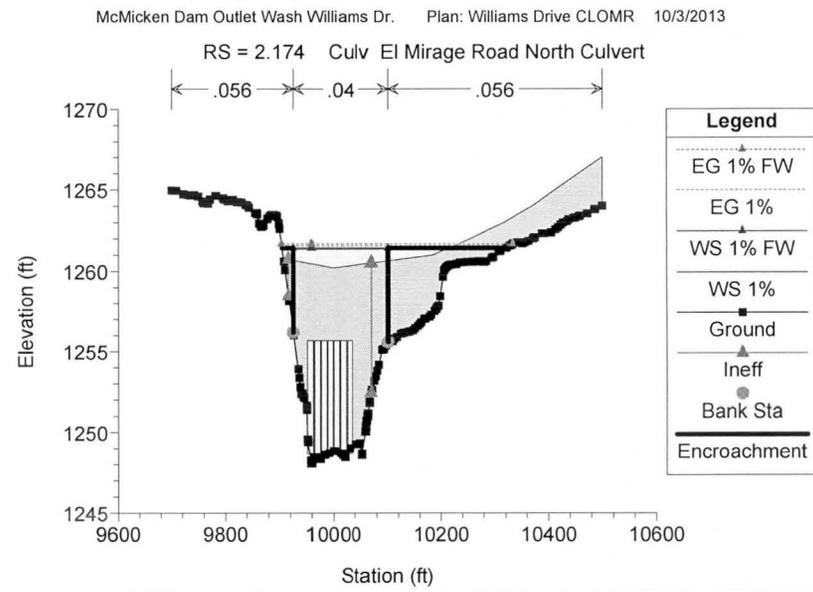
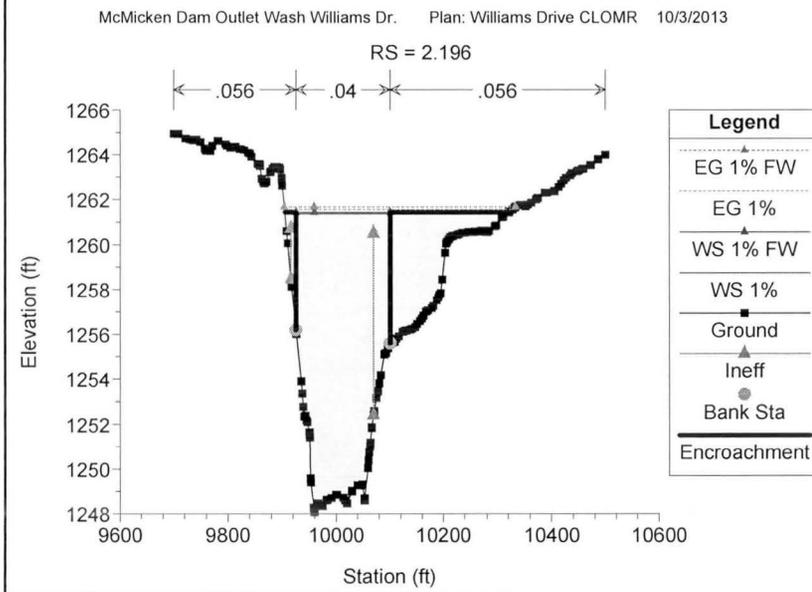
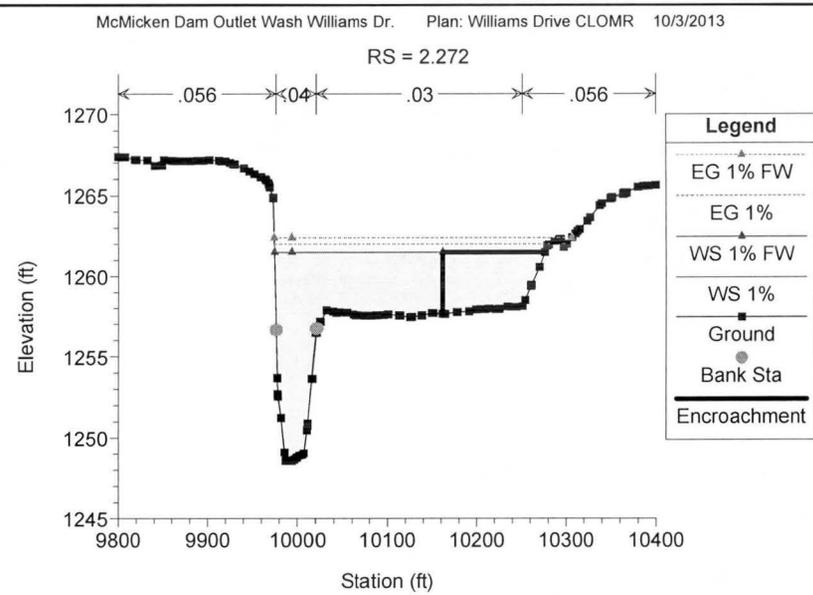
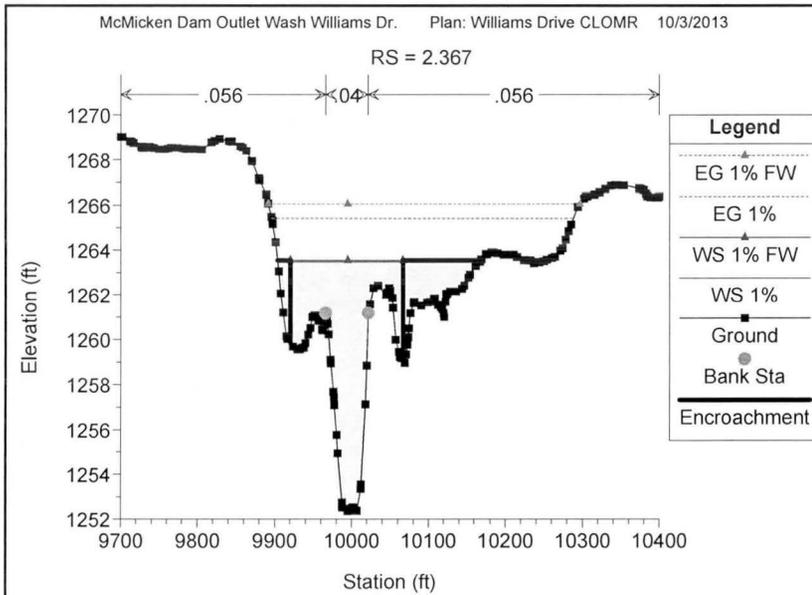
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McMicken Dam Outlet Wash Williams Dr. Plan: Williams Drive CLOMR 10/3/2013

RS = 2.461

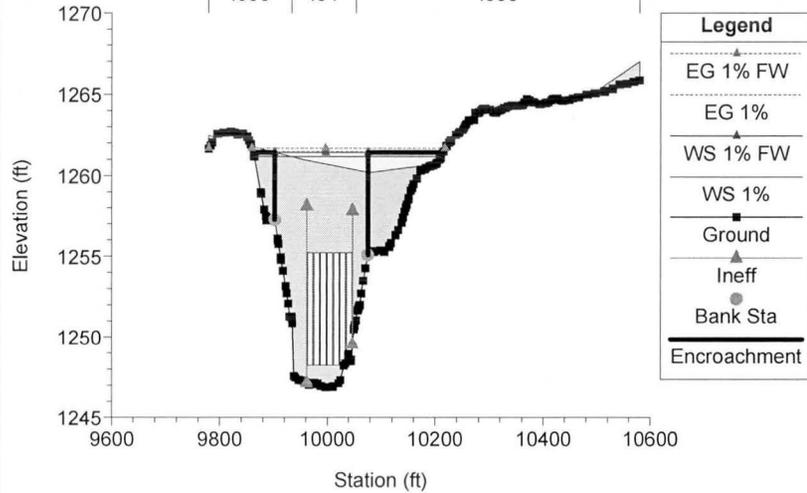




McMicken Dam Outlet Wash Williams Dr. Plan: Williams Drive CLOMR 10/3/2013

RS = 2.174 Culv EI Mirage Road North Culvert

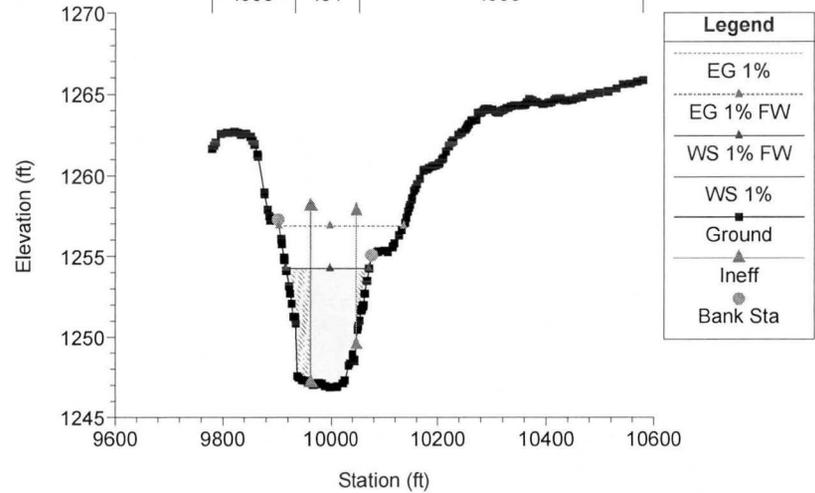
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McMicken Dam Outlet Wash Williams Dr. Plan: Williams Drive CLOMR 10/3/2013

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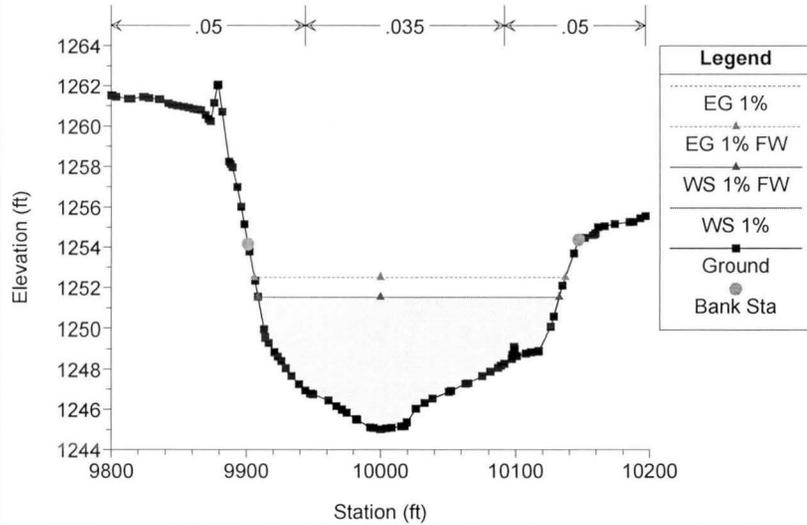
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McMicken Dam Outlet Wash Williams Dr. Plan: Williams Drive CLOMR 10/3/2013

RS = 2.050

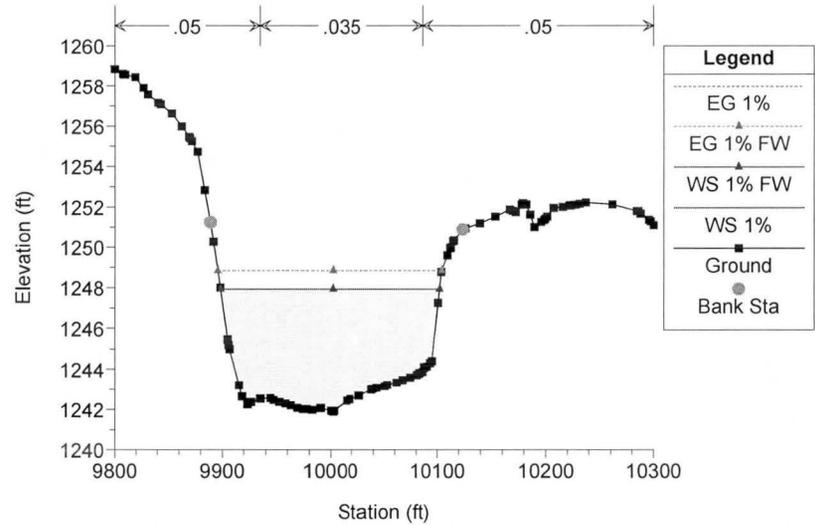
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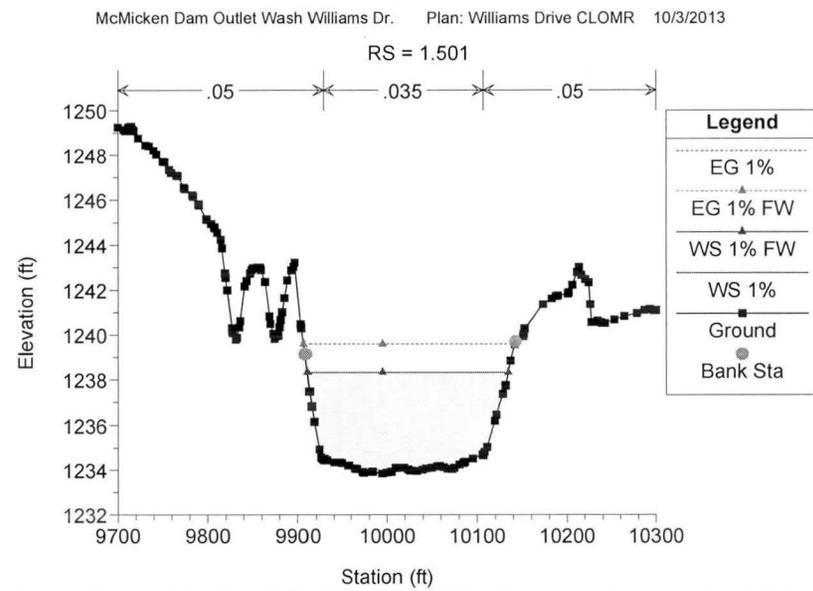
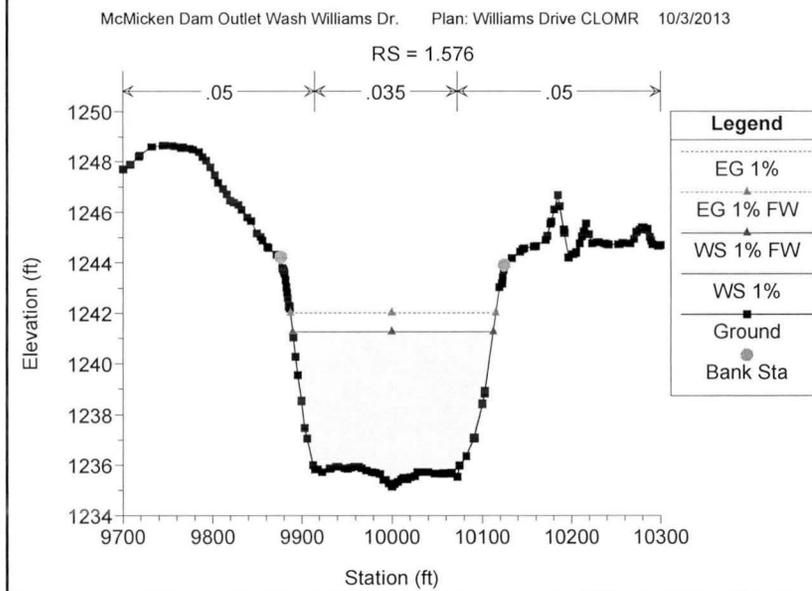
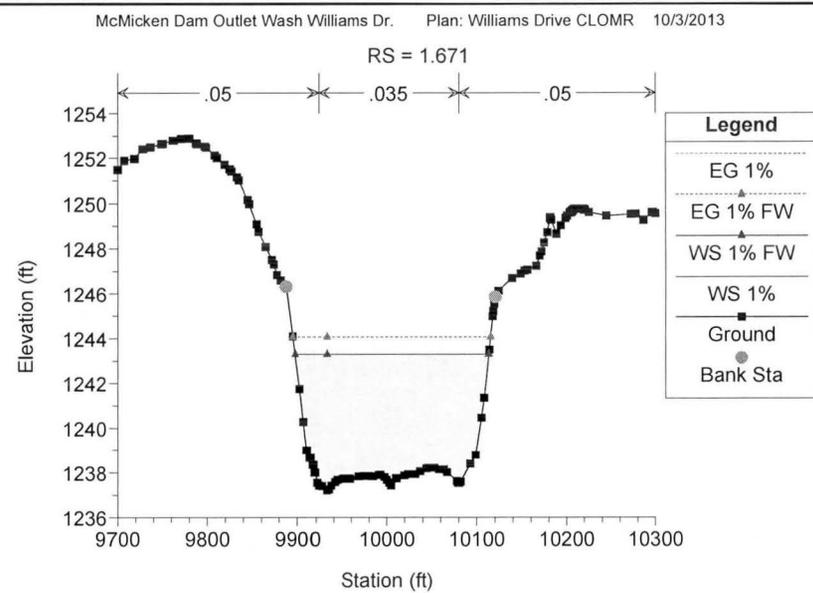
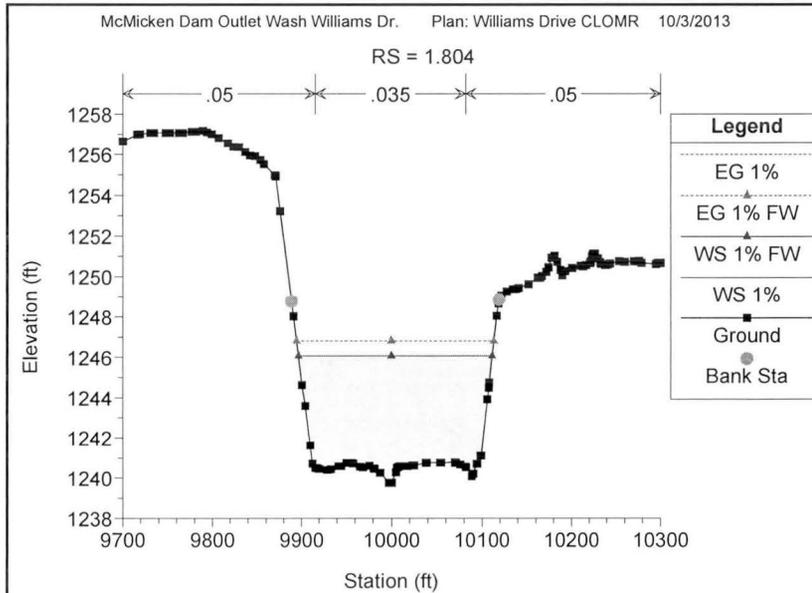


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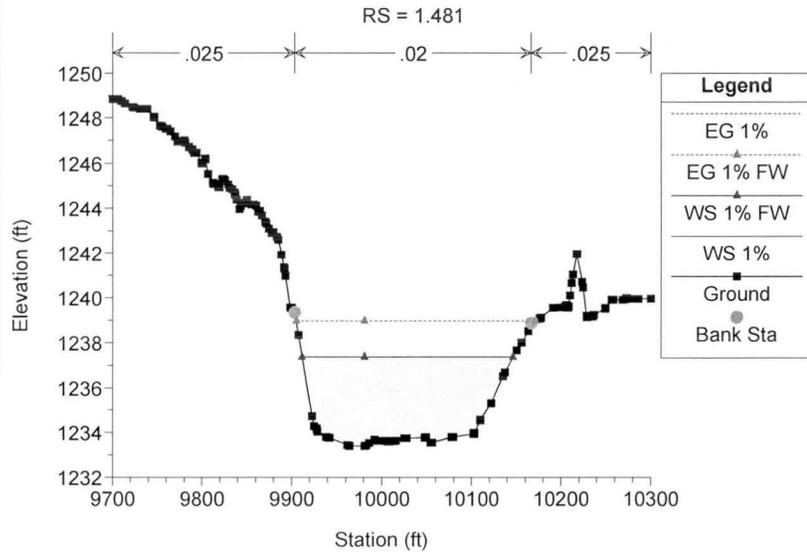
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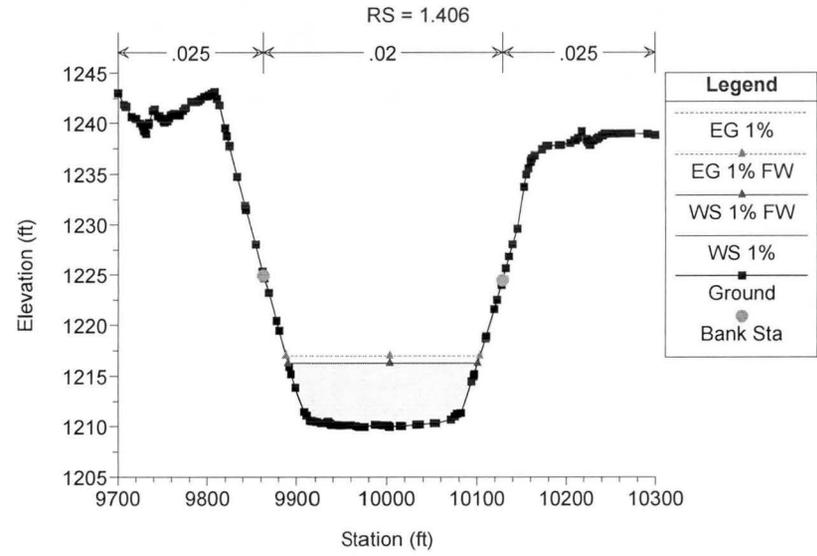




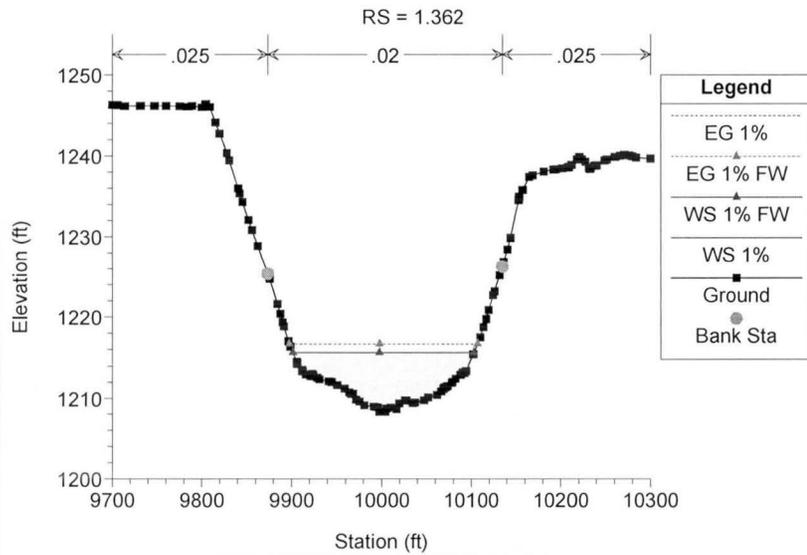
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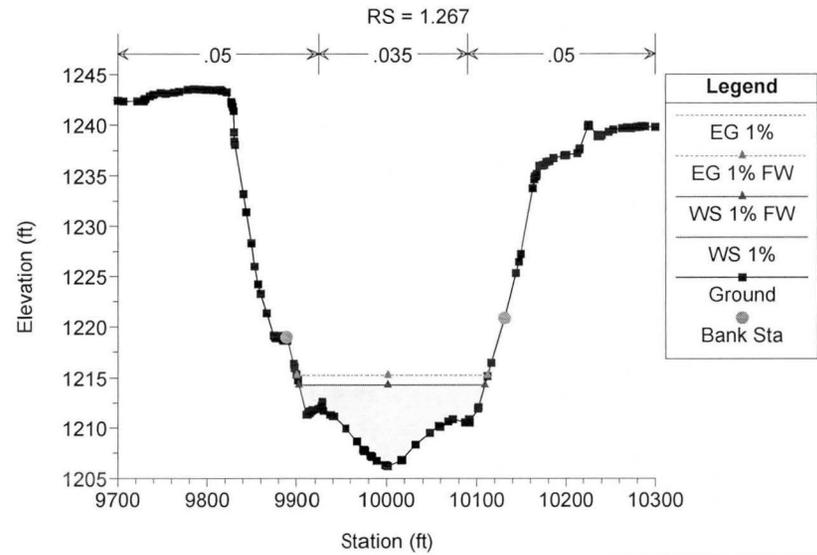
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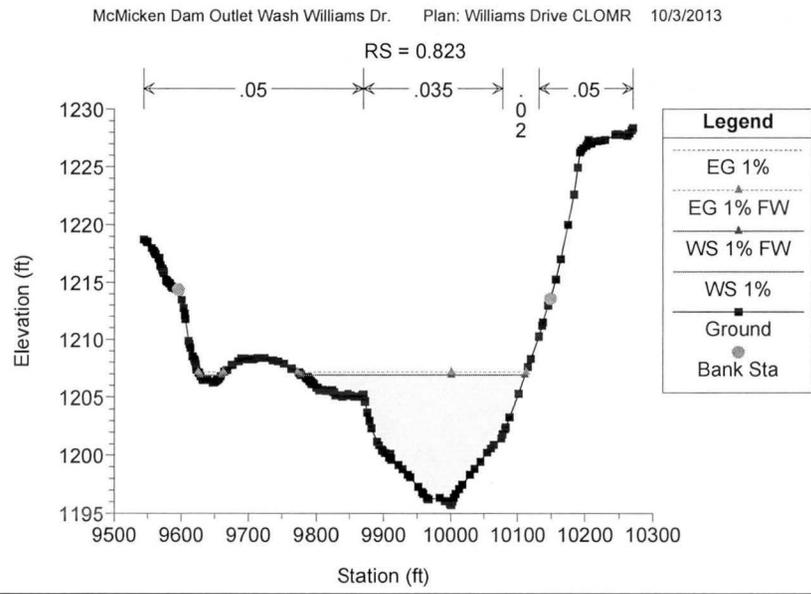
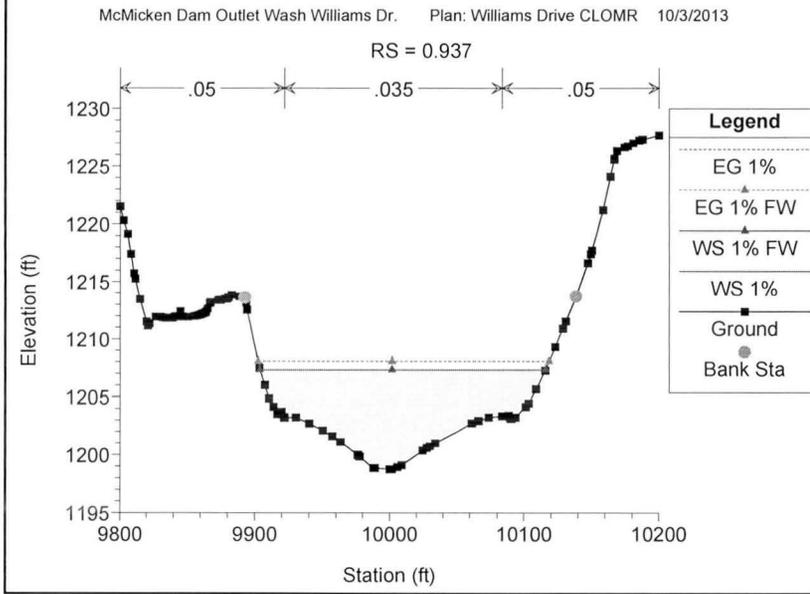
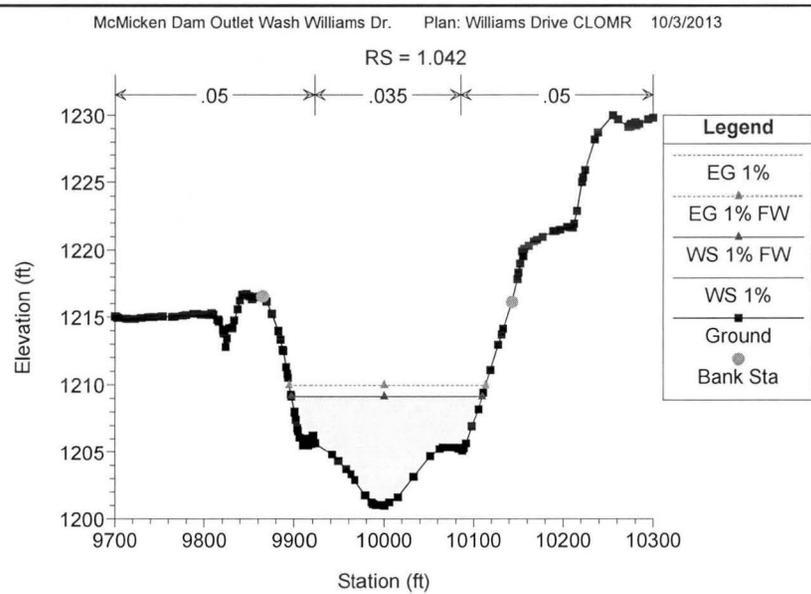
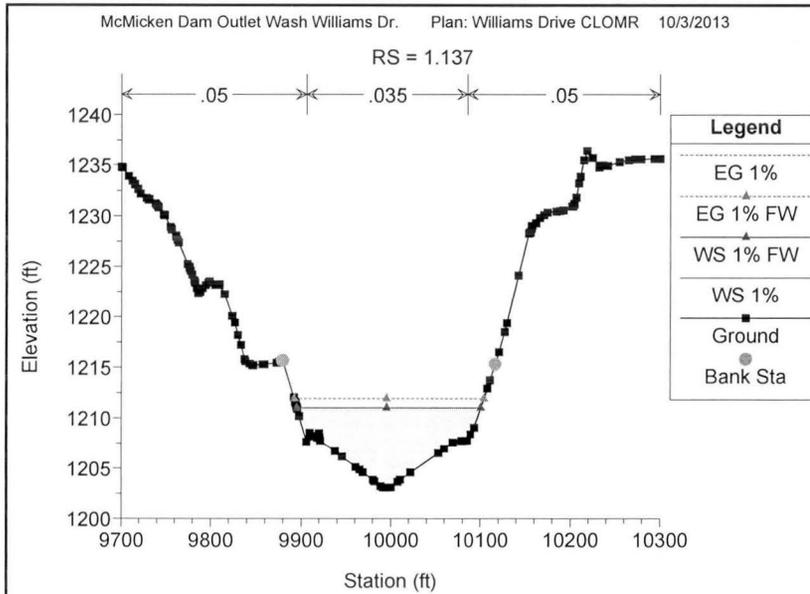


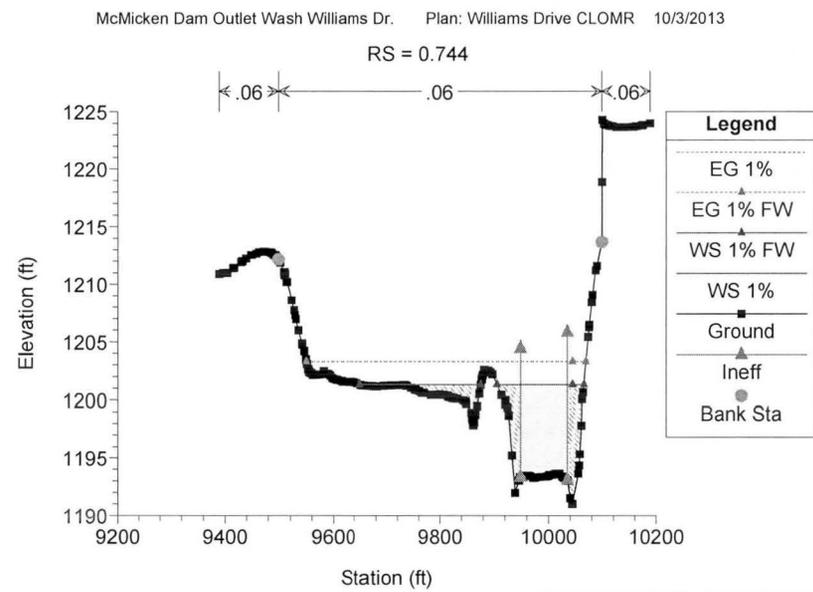
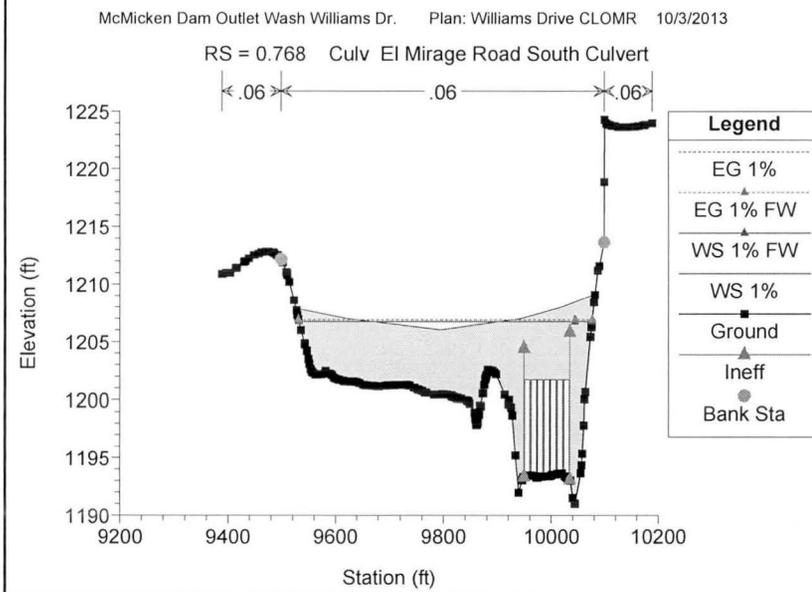
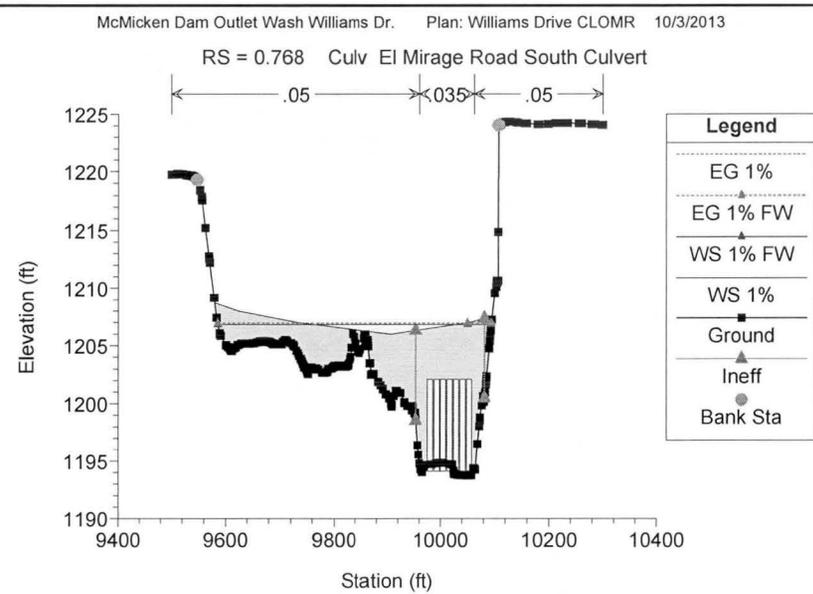
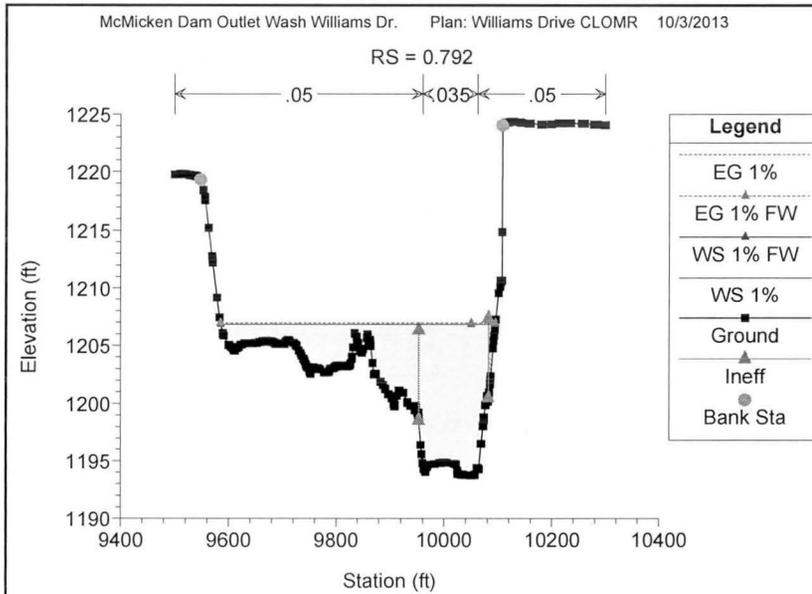
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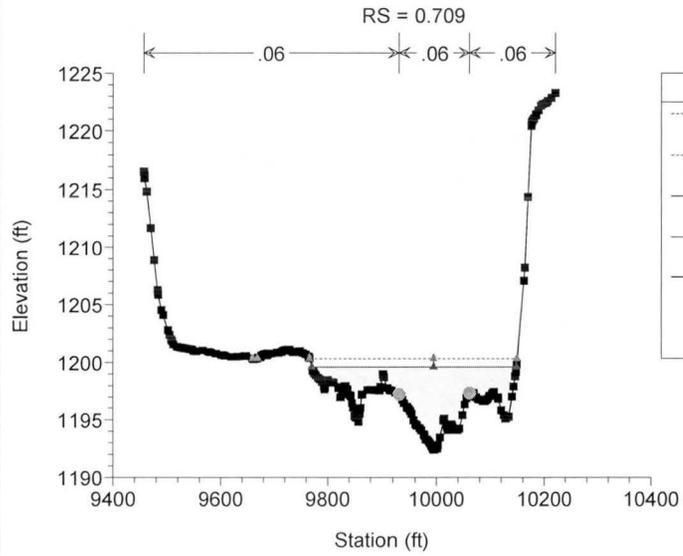
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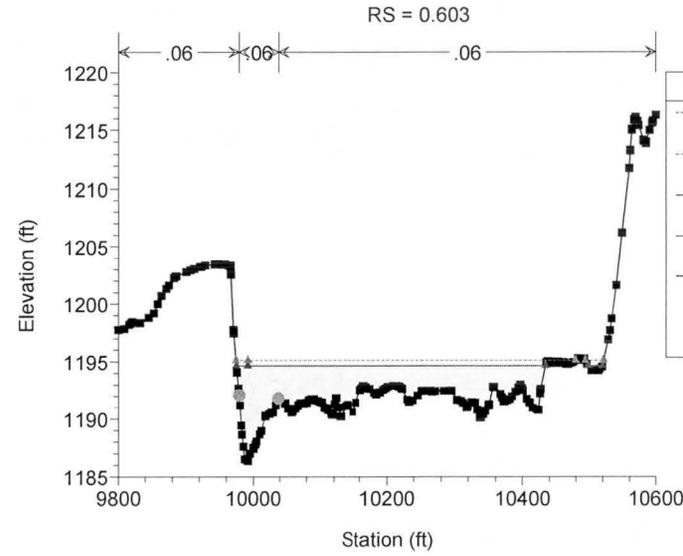




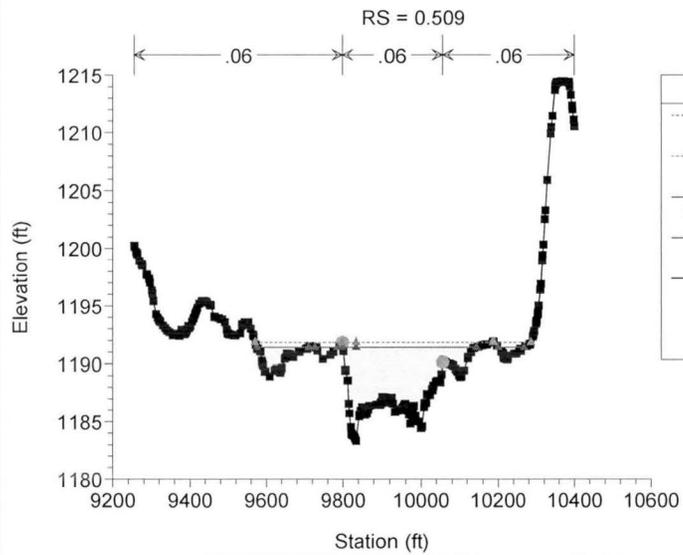
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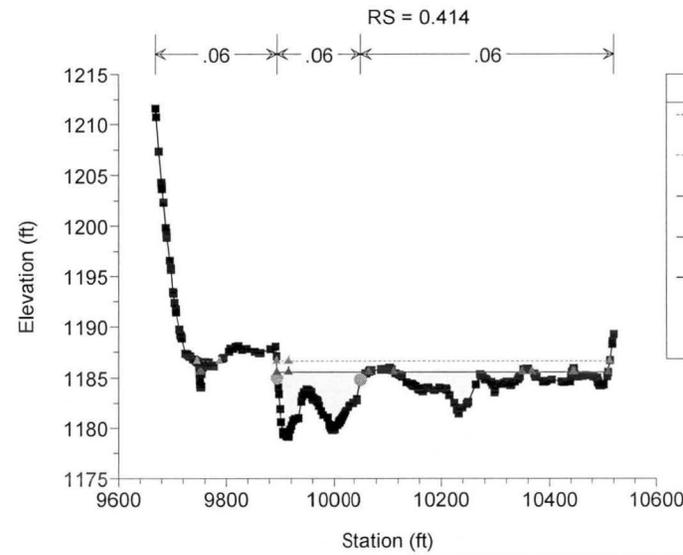
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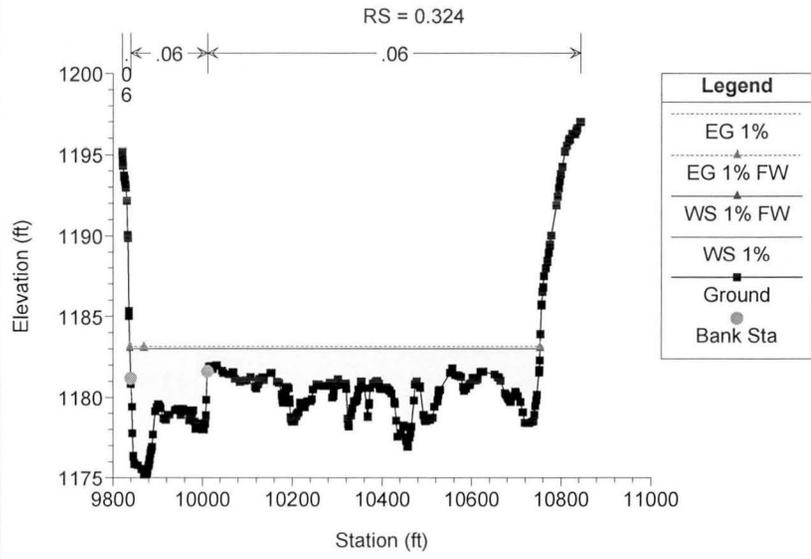


McMicken Dam Outlet Wash Williams Dr. Plan: Williams Drive CLOMR 10/3/2013



McMicken Dam Outlet Wash Williams Dr. Plan: Williams Drive CLOMR 10/3/2013





E.3 Expansion and Contraction Coefficients

E.4 Analysis of Structures

DEVELOPER
 WOODSIDE HOMES
 OF ARIZONA, INC.
 ONE AGAVE CENTER
 8950 S. 52ND ST. SUITE 115
 TEMPE, AZ 85284
 (480) 755-0801
 (480) 755-0802 (FAX)

ENGINEER
 COE & VAN LOO
 4550 N. 12TH STREET
 PHOENIX, AZ. 85014
 (602) 264-6831
 (602) 264-0928 (FAX)

BENCHMARK
 MARICOPA COUNTY DEPARTMENT OF
 TRANSPORTATION - BRASS CAP FLUSH
 @ 135TH AVENUE & DEER VALLEY ROAD
 ELEVATION 1275.80
 MARICOPA COUNTY 1929 NGVD DATUM
 (N10350.231-E3781.965)

LEGEND

TC	TOP OF CURB	▲	GRADE BREAK
G	GUTTER	▲	PROP. STOP SIGN
P	PAVEMENT	▲	SURVEY MONUMENT
E.P.	EDGE OF PAVEMENT	▲	PROP. STREET LIGHT
B.V.C.	BEGIN VERTICAL CURVE	▲	PROP. FIRE HYDRANT
P.I.	POINT OF INTERSECTION	▲	PROP. WATERLINE & VALVE
E.V.C.	END VERTICAL CURVE	▲	EXIST. FIRE HYDRANT
SW	SIDEWALK	▲	EXIST. WATERLINE & VALVE
C	CONCRETE	▲	PROP. SEWERLINE & MANHOLE
NG	NATURAL GROUND	▲	EXIST. SEWERLINE & MANHOLE
B/C	BACK OF CURB	▲	PROP. CATCH BASIN
R/W	RIGHT OF WAY	▲	PROP. STORM DRAIN & MANHOLE
S/W ESM'T	SIDEWALK EASEMENT	▲	EXIST. CATCH BASIN
LE ESM'T	LANDSCAPE ESM'T	▲	EXIST. STORM DRAIN & MANHOLE
P.U.E.	PUBLIC UTILITY EASEMENT	▲	PLAN SHEET NOS.
R.W.	RETAINING WALL	▲	
L.F.	LINEAL FOOT	▲	
G.B.	GRADE BREAK	▲	
T.N.	TOP OF WATER VALVE	▲	
INV.	ELEVATION AT PIPE	▲	
M.H.	MANHOLE	▲	
M	MONUMENT LINE	▲	
P.C.	POINT OF CURVE	▲	
P.T.	POINT OF TANGENCY	▲	
P.R.C.	POINT OF REVERSE CURVE	▲	

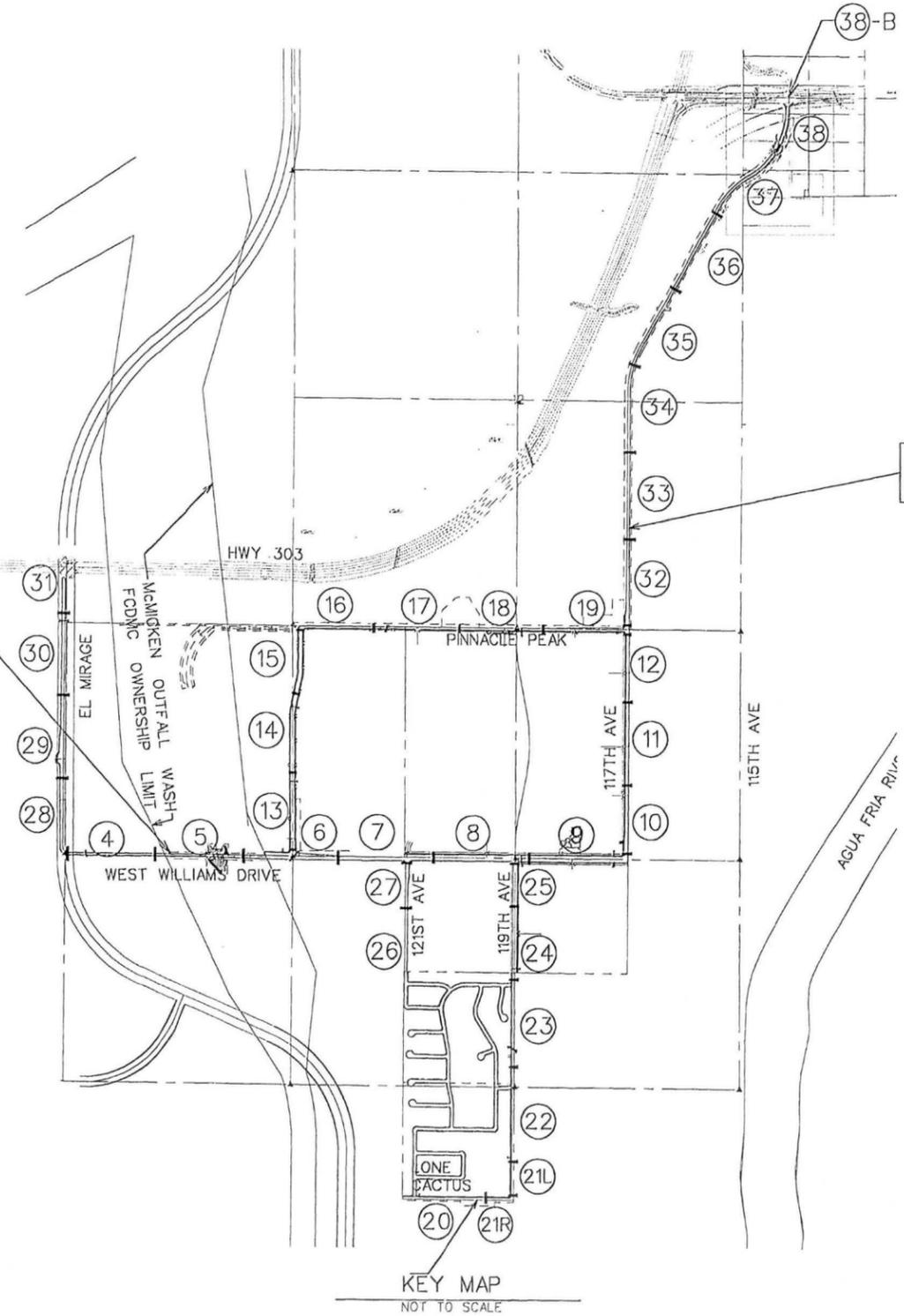
INSTALLATIONS WITHIN
 DISTRICT'S RIGHT-OF-WAY
 TO BE MAINTAINED BY
 M.C.D.O.T.

THE QUANTITIES SHOWN ARE AN ESTIMATE ONLY THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL QUANTITIES BEFORE BIDDING.

DESCRIPTION	UNITS	QUANTITY
PAVEMENT-4" AC/10" ABC (RESIDENTIAL STREETS)	SY	136,497
BRASS CAP-M.A.G. STD. DET 120-2 (TYPE "D")	EA	32
BRASS CAP-M.A.G. STD. DET 120-2 (TYPE "E")	EA	6
CONC. VALLEY GUTTER & APRON	SY	1,454
CONC. SIDEWALK-M.A.G. STD. DET. 230	SY	102,372
6" VERT. CURB & GUTTER-M.A.G. STD. DET. 220 (TYPE A)	LF	22,109
SIDEWALK RAMP-M.A.G. STD. DET. 2031-A	EA	-
SIDEWALK RAMP-M.A.G. STD. DET. 2031-B	EA	54
SIDEWALK RAMP-M.A.G. STD. DET. 2032-A	EA	-
MANHOLE FRAME & COVER ADJUSTMENT-M.A.G. STD. DET. 422	EA	43
WATER VALVE/CLEANOUT ADJUSTMENT-M.A.G. STD. DET. 270	EA	108
THICKEND EDGE-M.A.G. STD. DET. 201, TYPE "B"	LF	40,249
DRIVEWAY ENTRANCE PER M.C.D.O.T. STD. DET. 2036	EA	2
STREET SIGN BASE-M.C.D.O.T. STD. DET. 2054	EA	12
SCUPPER-M.A.G. STD. DET. 206.1 & 206.2	EA	10
W/HANDRAL-C.O.P. STD DET P-1173	EA	10
BARRICADE-M.A.G. STD. DET. 130, TYPE "A"	LF	465
GROUTED RIP-RAP PER MCFCD SPECIFICATIONS	CY	862

THE QUANTITIES SHOWN ARE AN ESTIMATE ONLY THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL QUANTITIES BEFORE BIDDING.

DESCRIPTION	UNITS	QUANTITY
10 X 6 BOX CULVERT-A.D.O.T. B-02.80	LF	957
8 X 4 BOX CULVERT-A.D.O.T. B-02.20 & B-02.30	LF	142
8 X 4 BOX CULVERT-A.D.O.T. B-02.10	LF	69
10 X 4 BOX CULVERT-A.D.O.T. B-02.10	LF	548
CONC. INLET WING WALLS-A.D.O.T. DET B-04.30	EA	1
CONC. OUTLET WING WALLS-A.D.O.T. DET B-04.10	EA	4
CONC. INLET WING WALLS-A.D.O.T. DET B-08.10 TYPE "B"	EA	3
CONC. OUTLET WING WALLS-A.D.O.T. DET B-08.10 TYPE "A"	EA	1
CONC. INLET WING WALLS-A.D.O.T. DET B-08.10 TYPE "A"	EA	1
CONC. OUTLET WING WALLS-A.D.O.T. DET B-04.50	EA	1
CONC. HEADWALL-M.A.G. STD. DET 501-1	EA	7
CONC. INLET HEADWALL-A.D.O.T. DET B-11.12 & B-11.14	EA	2
CATCH BASIN-M.A.G. STD. DET 533-K(SINGLE)	EA	12
18" RGRCP	LF	329
24" RGRCP	LF	393
32" X 52" RCPA CULVERT	LF	172



LEGAL DESCRIPTION

LOCATED AT THE SOUTHWEST CORNER OF PINNACLE PEAK ROAD AND N. 117TH AVENUE. LEGALLY DESCRIBED AS:
 THE NORTHWEST QUARTER OF THE SOUTHWEST QUARTER, ALSO THE WEST HALF OF THE NORTHEAST QUARTER, ALSO THE EAST HALF OF THE NORTHWEST QUARTER OF SECTION 13, TOWNSHIP 4 NORTH, RANGE 1 WEST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA

UTILITIES:

- WATER: CITIZENS UTILITIES
- SEWER: CITIZENS UTILITIES
- FIRE: RURAL METRO F.D.
- ELECTRIC: A.P.S.
- TELEPHONE: QWEST
- CABLE TV: COX
- POLICE: MARICOPA COUNTY

ZONING:

PAD RESIDENTIAL



ALL WORK WITHIN FCDM RIGHT-OF-WAY SHALL CONFORM TO THE DISTRICT'S SPECIFICATIONS AND A PERMIT OBTAINED FROM THE DISTRICT FOR ALL WORK WITHIN THE RIGHT-OF-WAY

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE "RECORD DRAWING" MEASUREMENTS AND SURVEY MONUMENTS AS SHOWN HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED AND ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

Kristian P. McEae
 REGISTERED LAND SURVEYOR
 34558
 REGISTRATION NUMBER
 DATE: 3-8-07
 CVL PHONE: (602) 264-6831

MCDOT APPROVAL

BY LETTER AUG. 11, 2004
 MARICOPA COUNTY DEPT. OF TRANSPORTATION DATE

SHEET INDEX

- 1.....COVER SHEET
- 2-3.....NOTES & SECTION DETAILS
- 4-38.....PLAN & PROFILES
- 38-A.....DETAILS
- 38-B.....PAVING AND STRIPING

CROSSRIVER INFRASTRUCTURE

COE & VAN LOO
 PLANNING • ENGINEERING • LANDSCAPE ARCHITECTURE

PAVING AND STORM DRAIN PLANS
 REMOVED CURB/RAMP ON WILLIAMS DRIVE



SHEET 1 OF 38
 CVL PROJECT NO.: 990050-08



2507 P07

504-P008

PAVING NOTES:

- 1 INSTALL A.C. PAVEMENT & BASE COURSE PER TYPICAL SECTIONS ON SHT. 2
- 2 INSTALL BRASS CAP-M.A.G. STD. DET. 120-2 (TYPE E)
- 3 INSTALL BRASS CAP-M.A.G. STD. DET. 120-2 (TYPE D)
- 4 INSTALL 4" VALLEY CUTTER & APRONS-M.A.G. STD. DET. 240
- 5 INSTALL SIDEWALK-M.A.G. STD. DET. 230. (WIDTH PER TYP SECTIONS)
- 6 INSTALL 6" VERTICAL CURB-M.A.G. STD. DET. 220 (TYPE A)
- 7 INSTALL SIDEWALK RAMP-M.C.D.O.T. STD. DET. 2031-A
- 8 INSTALL SIDEWALK RAMP-M.C.D.O.T. STD. DET. 2031-A
- 9 INSTALL SIDEWALK RAMP-M.C.D.O.T. STD. DET. 2032-A
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- 11 WATER VALVE/CLEANOUT ADJUSTMENT-M.A.G. STD. DET. 270
- 12 CONSTRUCT THICKENED EDGE PER M.A.G. STD DET 201 TYPE "B"
- 13 INSTALL DRIVEWAY ENTRANCE PER MCDOT. STD. DET. 2036.
- 14 INSTALL STREET SIGN BASE-M.C.D.O.T. STD. DET. 2054
- 15 INSTALL SCUPPER PER M.A.G. STD DET 206.1 & 206.2
- 16 W/HANDRAL PER C.O.P. STD DET P-1173

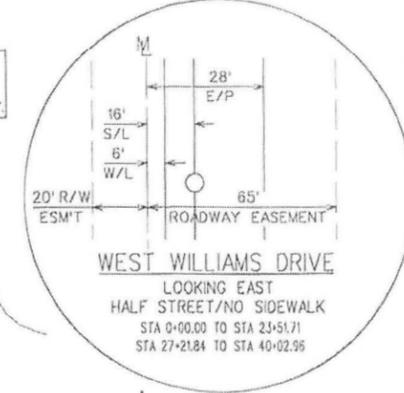
- 16 INSTALL LOOSE RIP-RAP, MIN. THICKNESS - 12", 030-6" (UNLESS OTHERWISE NOTED)
- 17 2-WAY REFLECTIVE BLUE PYMT MARKER FOR FIRE HYDRANT
- 18 BARRICADE PER M.A.G. STD. DET. 130, TYPE 'A' UNLESS OTHERWISE NOTED
- 19 REMOVE BARRICADE (I.F. GIVEN)
- 20 SAWCUT AND MATCH EXISTING PAVEMENT (2" MIN.)

ALL WORK WITHIN FCDMC RIGHT-OF-WAY SHALL CONFORM TO THE DISTRICT'S SPECIFICATIONS AND A PERMIT OBTAINED FROM THE DISTRICT FOR ALL WORK WITHIN THE RIGHT-OF-WAY

PROPOSED 16" WATER TRANSMISSION LINE PER C.V.L. PLAN NO. 990050-11 "CROSSRIVER WATER SYSTEM WELL WATER DELIVERY"

INSTALL RIP-RAP SCOUR PROTECTION PER DETAILS ON SHT. 38A

ALL WEATHER ACCESS ROAD PER MARICOPA COUNTY FLOOD CONTROL DISTRICT. SEE X-SEC LEFT. W/ACCESS GATE PER FCDMC GATE DET.



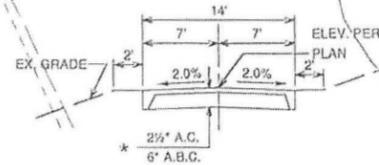
WEST WILLIAMS DRIVE
LOOKING EAST
HALF STREET/NO SIDEWALK
STA 0+00.00 TO STA 23+51.71
STA 27+21.84 TO STA 40+02.96

MATCH SHT 4
STA 10+50

MATCH SHT 6
STA 20+88.91

CONSTRUCTION NOTES
BOX CULVERT STRUCTURE

- 1 CONSTRUCT 6'-10" X 6" & 5'-10" X 6" BOX CULVERT STRUCTURES: INV 1269.70 N & 1259.40 S. PER A.D.O.T. DET. B-02.BD. S=0.0153, W/HANDRAL PER C.O.P. STD. DET. P-1173 (SEE SHT. 2)
- 2 CONSTRUCT CONC. INLET WING WALLS PER A.D.O.T. DET B-04.30
- 3 CONSTRUCT CONC. OUTLET WING WALLS PER A.D.O.T. DET B-04.10

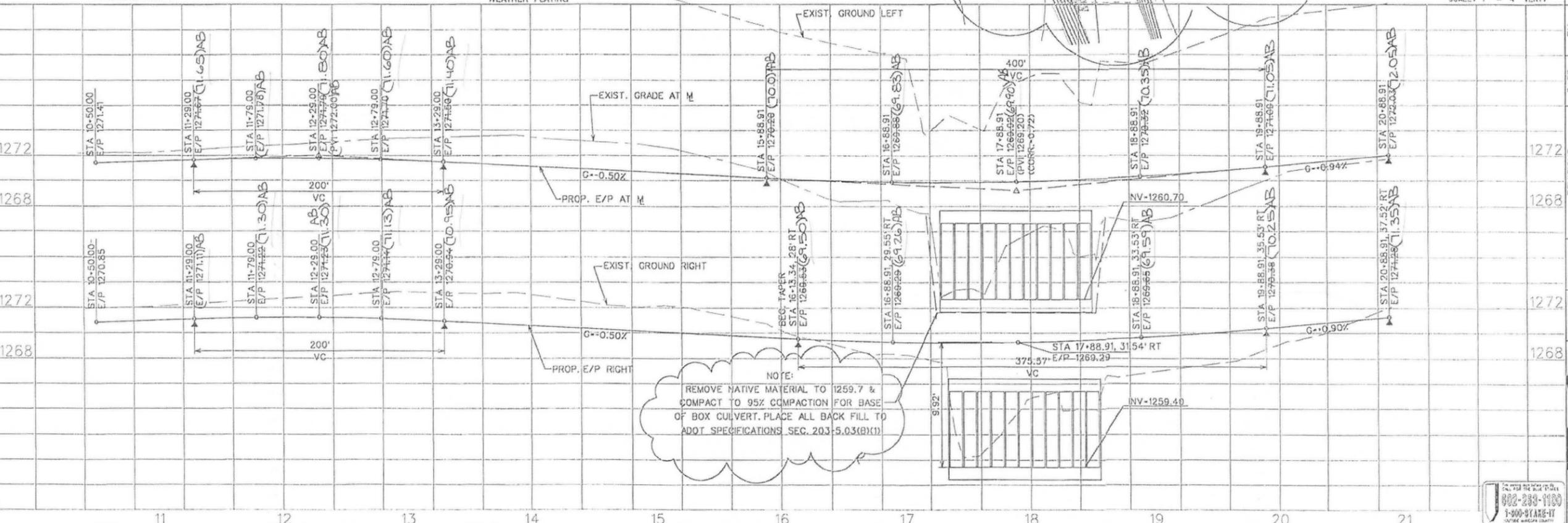


FLOOD CONTROL DISTRICT
SERVICE ROAD

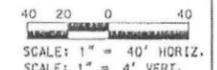
N.T.S.
* ALT-3" MIN. COMPACTED ALL WEATHER PLATING

ALL WEATHER ACCESS ROAD PER MARICOPA COUNTY FLOOD CONTROL DISTRICT. SEE X-SEC LEFT. W/ACCESS GATE PER FCDMC GATE DET.

WEST WILLIAMS DRIVE



NOTE:
REMOVE NATIVE MATERIAL TO 1259.7 & COMPACT TO 95% COMPACTION FOR BASE OF BOX CULVERT. PLACE ALL BACK FILL TO ADOT SPECIFICATIONS SEC. 20.3-5.03(B)(1)



CROSSRIVER INFRASTRUCTURE

COE & VAN LOO
PLANNING ENGINEERING • LANDSCAPE ARCHITECTURE

4550 NORTH 12TH STREET
PHOENIX, ARIZONA 85014
TELEPHONE (602) 264-6631

PAVING AND STORM DRAIN PLANS

DESIGNED	DRAWN	SM/CM	CHECKED	DATE	REVISIONS	DATE	BY
KG	KG	KG	KG	7-2004	ADDED SCOUR PROTECTION	2-4-06	PJS



SHEET 5 OF 38
CVL PROJECT NO.: 990050-08

AS BUILT

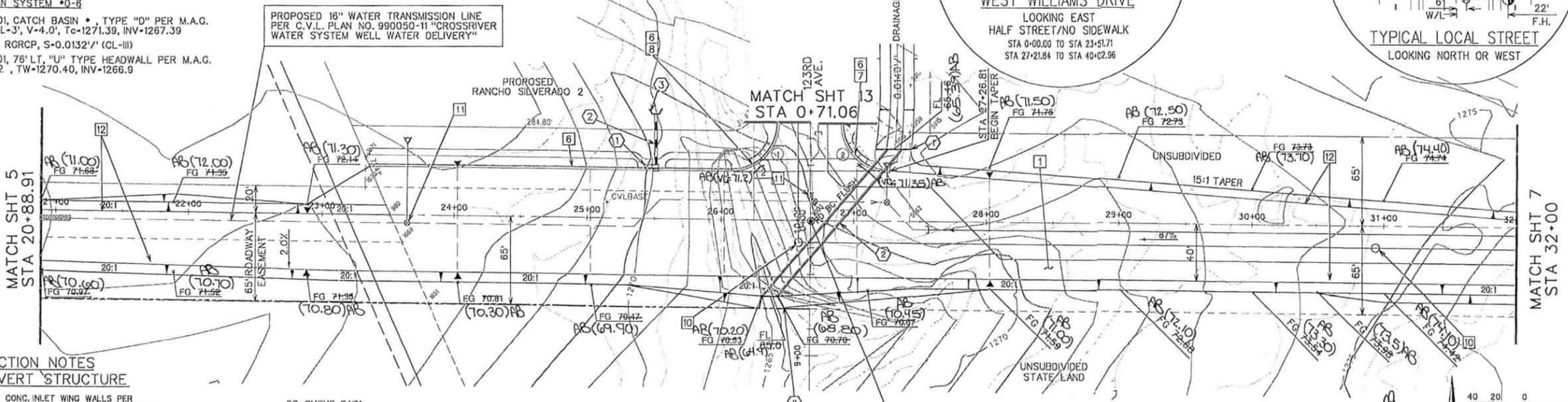
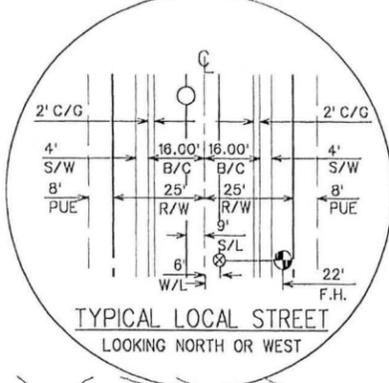
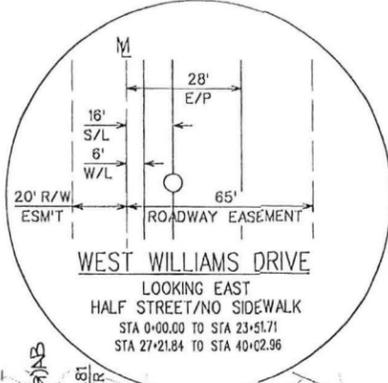
PAVING NOTES:

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- 19 REMOVE BARRICADE (I.F. GIVEN)
- 20 SAWCUT AND MATCH EXISTING PAVEMENT (2" MIN.)

STORM DRAIN SYSTEM #0-6

- 1 STA 25+51.01, CATCH BASIN •, TYPE "D" PER M.A.G. DET. 533-1, L-3", V-4'-0", Tc=1271.39, INV=1267.39
- 2 37 L.F. 24" RGRCP, S=0.01321' (CL-III)
- 3 STA 25+51.01, 76" LT, "U" TYPE HEADWALL PER M.A.G. DET. 501-1&2 , TW=1270.40, INV=1266.9

PROPOSED 16" WATER TRANSMISSION LINE PER C.V.L. PLAN NO. 990050-11 "CROSSRIVER WATER SYSTEM WELL WATER DELIVERY"

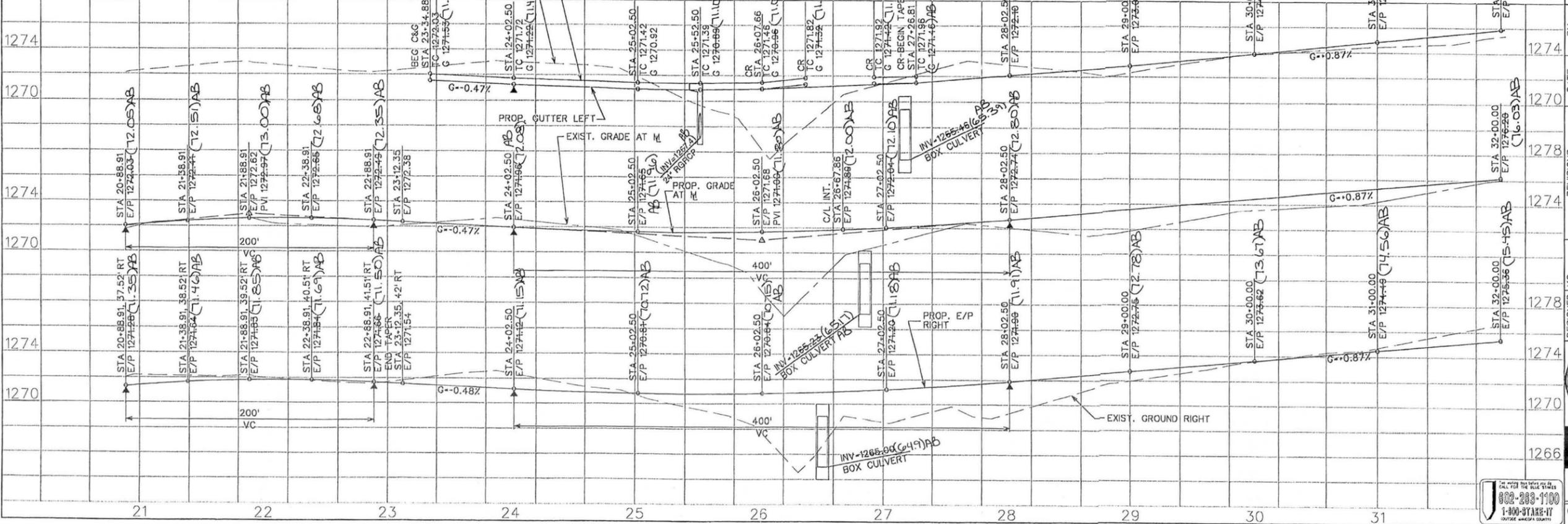


CONSTRUCTION NOTES
BOX CULVERT STRUCTURE

- 1 CONSTRUCT CONC. INLET WING WALLS PER A.D.O.T. SDT. DET B-08.10 TYPE "B" BOTH SIDES W/HANDRAL PER C.O.P. STD. DET. P-1173, L-18" INV=1265.46, TW=1270.96
- 2 CONSTRUCT BOX CULVERT 1-8' X 4' X 142' @ 45° SKEW PER A.D.O.T. DET. B-02.20 & 02.30 SLOPE=0.003241'
- 3 CONSTRUCT CONC. OUTLET WING WALLS PER A.D.O.T. SDT. DET B-08.10 TYPE "A", BOTH SIDES W/HANDRAL PER C.O.P. STD. DET. P-1173, L-18", SEE PROFILE FOR INVERT AND TW

BC CURVE DATA

NO.	RADIUS	DELTA	LENGTH	TANGENT
1	0034.42'	090°37'31"	0054.44'	0034.80'
2	0034.42'	089°37'03"	0053.84'	0034.19'



CROSSRIVER INFRASTRUCTURE

COE & VAN LOO
PLANNING • ENGINEERING • LANDSCAPE ARCHITECTURE

4550 NORTH 12TH STREET
PHOENIX, ARIZONA 85014
TELEPHONE (602) 264-6831

PAVING AND STORM DRAIN PLANS



DESIGNED	KG	DATE	BY

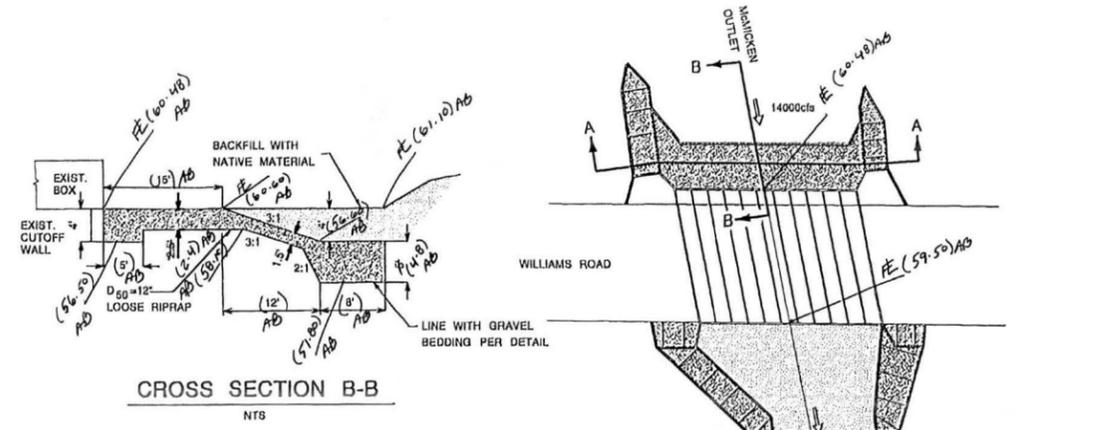
REVISIONS	DATE

SHEET 6 OF 38
CVL PROJECT NO.: 990050-08

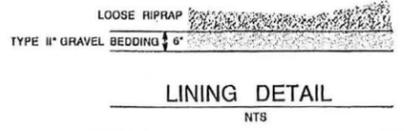
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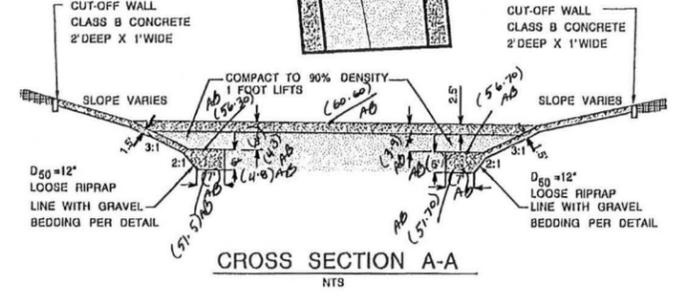
AS BUILT



CROSS SECTION B-B
NTS

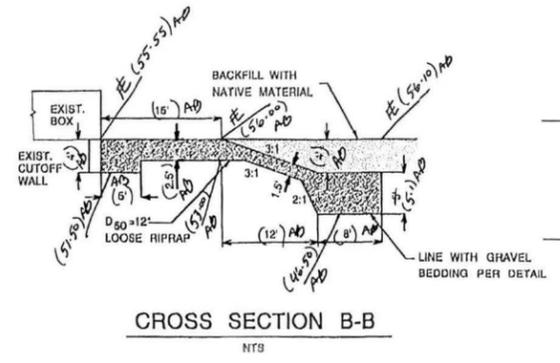


LINING DETAIL
NTS
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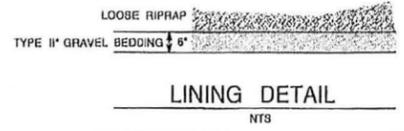


CROSS SECTION A-A
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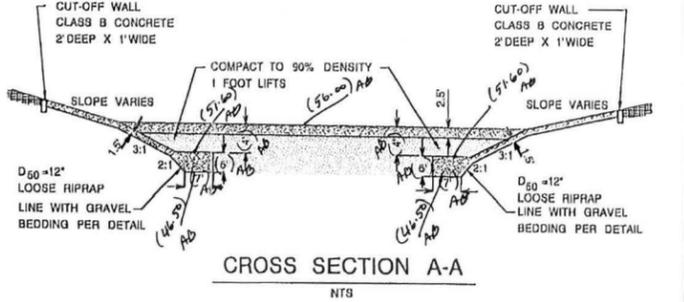
WILLIAMS ROAD - INLET



CROSS SECTION B-B
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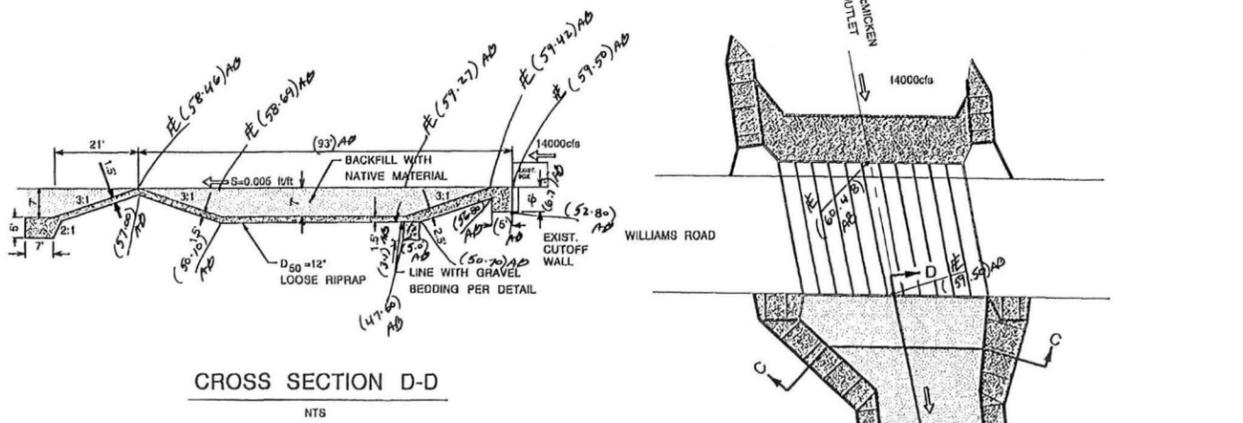


LINING DETAIL
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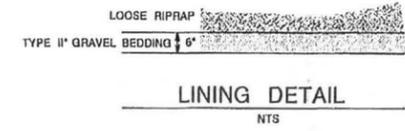


CROSS SECTION A-A
NTS

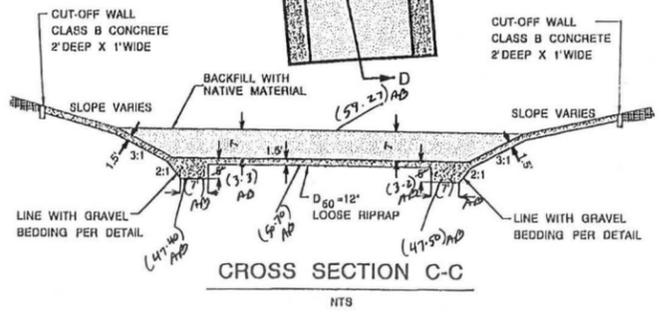
117TH AVENUE - INLET



CROSS SECTION D-D
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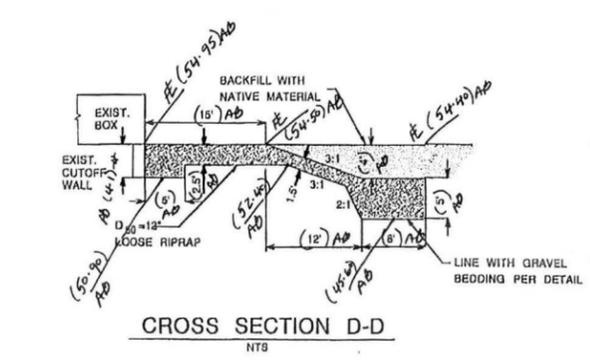


LINING DETAIL
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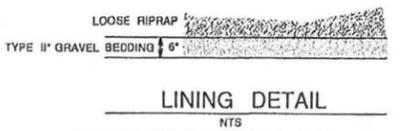


CROSS SECTION C-C
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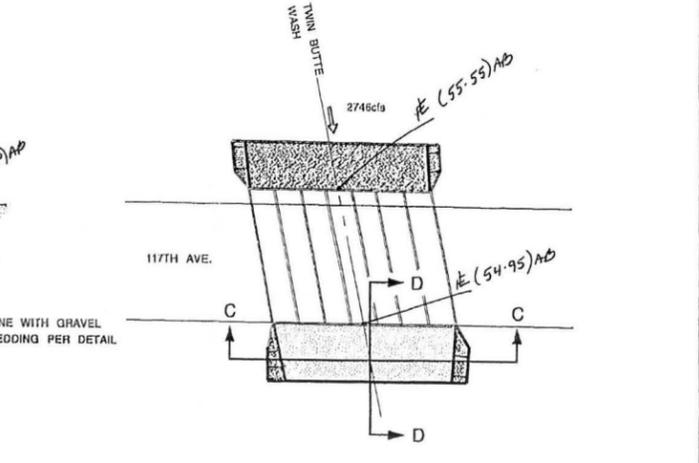
WILLIAMS ROAD - OUTLET



CROSS SECTION D-D
NTS



LINING DETAIL
NTS
* TYPE II BEDDING MATERIAL PER DRAINAGE DESIGN MANUAL FOR MARICOPA COUNTY, VOLUME II, HYDRAULICS



CROSS SECTION C-C
NTS

117TH AVENUE - OUTLET

CROSS RIVER INFRASTRUCTURE
GOE & VAN LOO
 PLANNING • ENGINEERING • LANDSCAPE ARCHITECTURE

PAVING AND STORM DRAIN PLANS



SHEET 38A OF 38
 CVL PROJECT NO.: 990050-08

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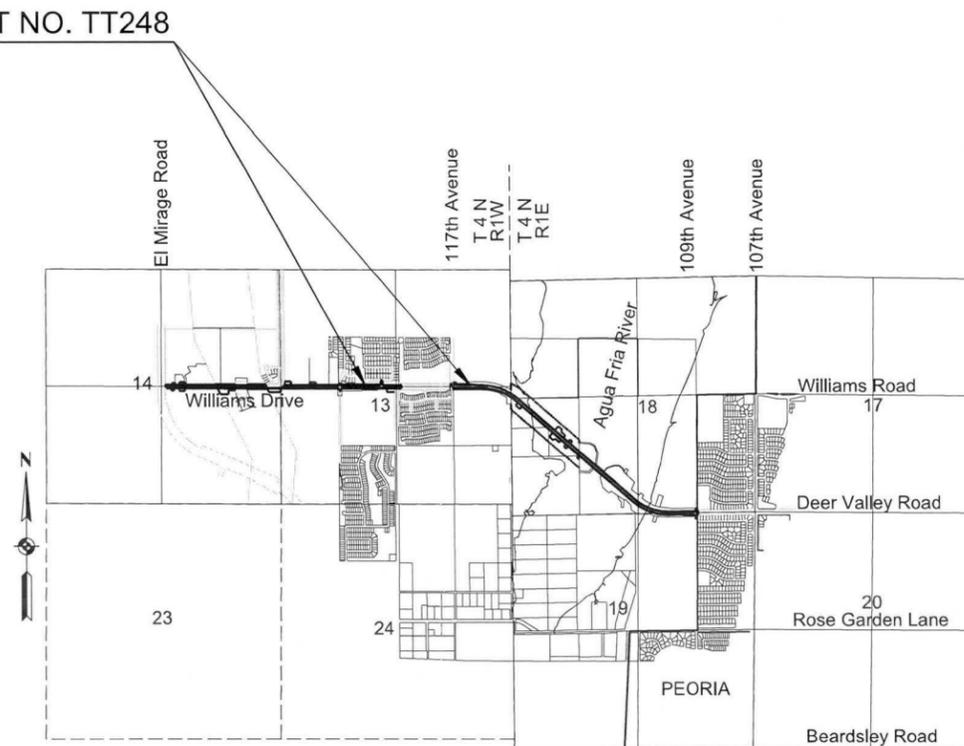
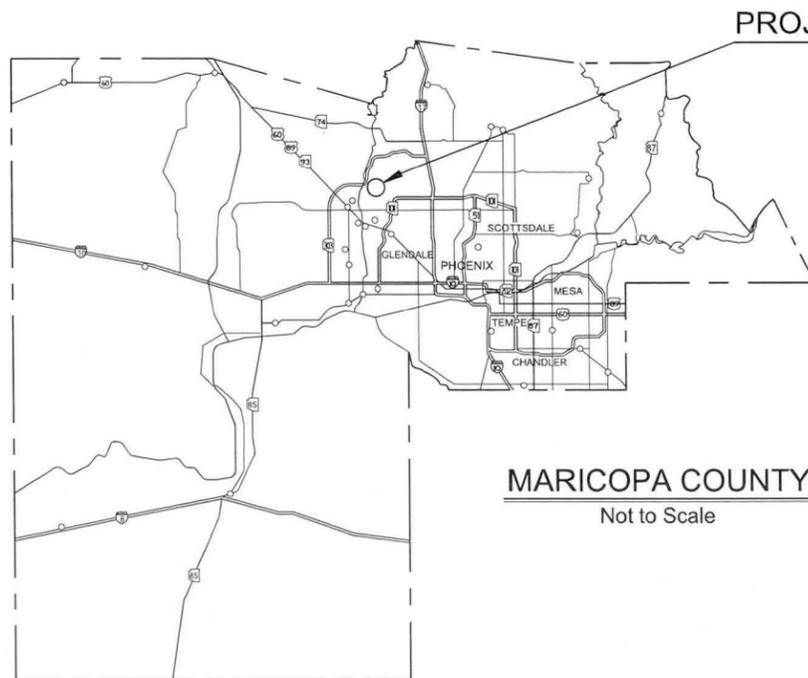
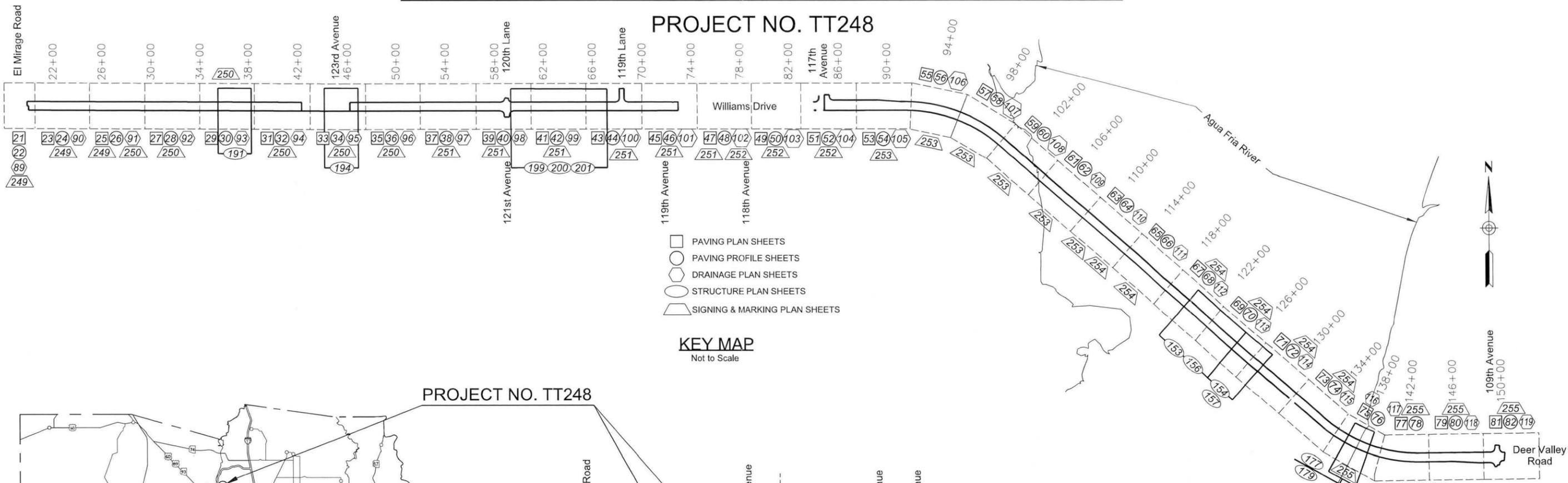
AS BUILT 470P08R



MARICOPA COUNTY DEPARTMENT OF TRANSPORTATION

FINAL PLANS FOR THE CONSTRUCTION OF
DEER VALLEY ROAD - EL MIRAGE ROAD TO 109TH AVENUE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ	TT248	1	280	



IN COOPERATION WITH:
CITY OF PEORIA

MARICOPA COUNTY DEPARTMENT OF TRANSPORTATION

RECOMMENDED FOR CONSTRUCTION:

SAMI AYOUB, P.E. PROJECT MANAGER DATE

ISSUED FOR CONSTRUCTION:

JOHN B. HAUSKINS, P.E. TRANSPORTATION DIRECTOR DATE

COUNTY BOARD OF SUPERVISORS

MAX WILSON - CHAIRMAN

DISTRICT 1	FULTON BROCK
DISTRICT 2	DON STAPLEY
DISTRICT 3	ANDREW W. KUNASEK
DISTRICT 4	MAX WILSON
DISTRICT 5	MARY ROSE WILCOX



2/25/2013 11:37:57 AM R:\Phoenix\Projects\AZ0918_MCDOT\On-Call_Eng\Des11_L_DVR\FinalDesign\CADD\Sheets\Roadway\TT248_SS_FaceSheet.dgn

ABBREVIATIONS*

AASHTO..... American Association of State Highway and Transportation Officials	CP..... Concrete Pipe	LC..... Long Chord	Reloc..... Relocate
AB..... Aggregate Base	CR..... Crown	Lump Sum	Rem..... Remove
AC..... Asphaltic Concrete	CSP..... Corrugated Steel Pipe	LS..... Left	Ret..... Retain(ing)
ACBC..... Asphaltic Concrete Base Course	CSPA..... Corrugated Steel Pipe Arch	LTS..... Lime Treated Subgrade	RGRCP..... Rubber Gasket Reinforced Concrete Pipe
ACFC..... Asphalt Concrete Friction Course	CTB..... Concrete Treated Base	MAG..... Maricopa Association of Governments	RR..... Railroad
ACI..... American Concrete Institute	DA..... Drainage Area	Matl..... Material	RT..... Right
ACP..... Asbestos Cement Pipe	DE..... Drainage Easement	MCDOT..... Maricopa County Department of Transportation	RTL..... Right Turn Lane
ACSC..... Asphalt Concrete Surface Course	Def..... Deflection	MH..... Manhole	R/W..... Right of Way
ADOT..... Arizona Department of Transportation	Det..... Detail	Min..... Minimum	S..... Slope
AFTRR..... Aqua Fria Truck Reliever Road	DIP..... Ductile Iron Pipe	Mod..... Modify	Sch..... Schedule
Ahd..... Ahead	Dm..... Drain(age)	Mon..... Monument	SCS..... Soil Conservation Service
AISC..... American Institute of Steel Construction	DW..... Driveway	NC..... Normal Crown	SD..... Storm Drain
APS..... Arizona Public Service Company	Dwg..... Drawing	NPI..... Non-Pay Item	SE..... Slope Easement
Asph..... Asphalt	E..... Electric(ity)	NPDES..... National Pollutant Discharge Elimination System	Sec..... Section
ASTM..... American Society for Testing Materials	Ext..... External	NTS..... Not to Scale	SG..... Subgrade
AWS..... American Welding Society	ECR..... End Curb Return	OC..... On Center	Shldr..... Shoulder
B/C..... Back of Curb	EFS..... End Full Super	OD..... Outside Diameter	Shr..... Shrinkage
BC..... Brass Cap	El..... Elevation	P..... Pavement (Surface Elevation)	Sht..... Sheet
BCR..... Begin Curb Return	Emb..... Embankment	Ped..... Pedestal	Sk..... Skew
BCT..... Breakaway Cable Terminal	EP..... Edge of Pavement	PC..... Point of Curvature	Specs..... Specifications
Bdy..... Boundary	Exc..... Excavation	PCC..... Point of Compound Curvature	SFP..... Salt River Project
Bev..... Bevel(ed)	Exist..... Existing	PCCP..... Portland Cement Concrete	SS..... Sanitary Sewer
BFS..... Begin Full Super	Exp Jt..... Expansion Joint	PCCP..... Portland Cement Concrete	Sta..... Station
Bit..... Bituminous	FF..... Finished Floor (Elevation)	Pavement	Struct..... Structural
Bk..... Back	FFH..... Fire Hydrant	PGL..... Profile Grade Line	Subdiv..... Subdivision
Bkfl..... Backfill	FD..... Found	PI..... Point of Intersection	Super..... Superlevation
BL..... Bike Lane	Fnd..... Freeway	POB..... Point of Beginning	Sw..... Swell
BLM..... Bureau of Land Management	G..... Gutter (Flowline Elevation)	POC..... Point on Curve	S/W..... Sidewalk
BM..... Bench Mark	Gauge	POE..... Point of Ending	SWG..... Southwest Gas Corporation
Br..... Bridge	GB..... Grade Break	POT..... Point on Tangent	T..... Tangent Length
C&G..... Curb and Gutter	GM..... Gas Meter	POV..... Point on Vertical Curve	T..... Township
CAP..... Corrugated Aluminum Pipe	Gnd..... Ground	POVT..... Point on Vertical Tangent	TC..... Top of Curb
CAPA..... Corrugated Aluminum Pipe Arch	GP..... Guy Pole	PP..... Power Pole	TCE..... Temporary Construction Easement
CB..... Catch Basin	Gr..... Grade	PRC..... Point of Reverse Curvature	Trans..... Transition
CB..... Concrete Box Culvert	GR..... Guardrail	Pre..... Preliminary	TRK..... Trash Rack
CG..... Cattle Guard	GV..... Gas Valve	Prop..... Proposed	TS..... Traffic Signal Pole
CIP..... Cast Iron Pipe	HDPE..... High Density Polyethylene	PRV..... Point of Reverse Vertical Curvature	Typ..... Typical
CIPP..... Cast-in-Place Pipe	Hdw..... Headwall	PT..... Point of Tangency	VC..... Vertical Curve
Clr..... Clear(ance)	HH..... Hand Hole	PVC..... Point of Vertical Curvature	VCP..... Vitrified Clay Pipe
CLD..... Concrete Lined Ditch	HW..... High Water	PVI..... Poly Vinyl Chloride	VG..... Valley Gutter
CMP..... Corrugated Metal Pipe	ID..... Inside Diameter	PVL..... Point of Vertical Intersection	w/..... with
CMPA..... Corrugated Metal Pipe Arch	IE..... Invert Elevation	Pvmt..... Pavement	w/o..... without
CO..... Clean Out	Inv..... Invert	PVT..... Point of Vertical Tangency	WM..... Water Meter
Conc..... Concrete	Irr..... Irrigation	Q..... Quantity of Drainage Runoff	WV..... Water Valve
Const..... Construction	L..... Length of Curve	Qtr..... Quarter	WWF..... Welded Wire Fabric
Cont..... Continuous		QW..... Qwest Communications	
Cor..... Corner		R..... Radius	
Corr..... Correction (VPI to VC)		R..... Range	
		RCP..... Reinforced Concrete Pipe	
		Rdwy..... Roadway	
		Rebar..... Reinforcing Bar	
		Reinf..... Reinforced(ing)	

GENERAL NOTES

- All work shall conform to the Uniform Standard Specifications for Public Works Construction published by the Maricopa Association of Governments (MAG) dated 2012 with revisions through 2013, together with the MCDOT Supplement to the MAG Standard Specifications dated January 2013 and the project Special Provisions.
- Standard Details refer to the MAG Uniform Standard Specifications and Details for Public Works Construction unless noted otherwise.
- All existing utility lines shown on the plans are from available utility records. The Contractor shall verify the actual location before starting construction. The Contractor shall contact "Blue Stake", (602) 263-1100, prior to beginning construction.
- Utilities interfering with construction shall be reset or relocated by the utility company concerned unless noted otherwise.
- Disposal of all waste material, broken concrete, etc. will be the responsibility of the Contractor, subject to the approval of the Engineer.
- All stations and call out distances left and right refer to the construction centerline unless noted otherwise.
- All trees, bushes and obstacles inside the existing right-of-way which interfere with construction, shall be removed by the Contractor unless noted otherwise. Any fences damaged during construction shall be restored by the Contractor at no additional cost to the County.
- All paved turnouts shall have the same asphalt and base requirements as the adjacent roadway unless noted otherwise.
- The Contractor shall obtain all the necessary permits from local governments for work within their jurisdiction.
- Construction activities shall not interfere with mail delivery. The Contractor shall temporarily relocate mailboxes as necessary to provide uninterrupted mail service. This is a non-pay item.

NO.	REVISION	BY	DATE
1		G1	FACE SHEET
2		G2	GENERAL NOTES SHEET
3		G3	DESIGN DATA
4-14		G4 - G14C	QUANTITY SUMMARY SHEETS
15-23		G15 - G23	TYPICAL SECTIONS
24		G24	GEOMETRIC LAYOUT CONTROL SHEET
25-89		P1 - P65	PAVING PLAN SHEETS (ODD NUMBERED ONLY)
26-90		P2 - P66	PAVING PROFILE SHEETS (EVEN NUMBERED ONLY)
91-92		P67 - P68	DRIVEWAY PROFILES (UTILITY ACCESS ROADS)
93-123		D1 - D31	DRAINAGE PLAN SHEETS
124-130		D32 - D38	STORM DRAIN PROFILE SHEETS
131-137		D39 - D45	CONNECTOR PIPE PROFILE SHEETS
138-142		D46 - D50	CULVERT PLAN & PROFILE SHEETS
143-151		D51 - D59	DRAINAGE DETAIL SHEETS
152-157		IR1.1 - IR1.6	IRRIGATION PLAN SHEETS
158-181		S1.1 - S1.24	AGUA FRIA RIVER BRIDGE
182-195		S2.1 - S2.14	AGUA FRIA TRUCK ROAD RELIEVER UNDERPASS
196-201		S3.1 - S3.6	BOX CULVERT GENERAL NOTES, QUANTITIES & DETAILS
202-208		S4.1 - S4.7	RETAINING WALLS
209-216		W1-W8	WATERLINE SHEETS
217		M1	MASS DIAGRAM SHEET
218-251		L1.1-L1.34	LANDSCAPE PLAN SHEETS
252-268		T1.1 - T5.5	STRIPING AND SIGNING SHEETS
269-270		T6.1-T6.2	TRAFFIC SIGNAL SHEETS
271-278		A1-A8	ADOT DETAILS
279		F1	FCDMC DETAILS
280		E1	EPCOR DETAILS

INDEX

SYMBOLS*

Exist Rdwy Conc Items	-----	Easement	-----	Angle Point	∠	Tree or Hedge Line	
Exist Edge of Pvmnt	-----	Forest or Reservation Boundary	-----	Bench Mark	▲	Palm Tree	
Exist R/W Line	-----	Flow Line	-----	Center Line	⊕	Deciduous Tree	
Property Line	-----	Hedge Line	-----	Flow Line	⊕	Arid Tree	
Railroad Tracks	-----	Proposed Guardrail	-----	Monument Line	M	Conifer Tree	
Top of Embankment Cut	-----	Proposed Chain Link Fence	-----	Property Line or Plate	⊕	Saguaro Cactus	
Toe of Filled Slope	-----	Proposed Barb Wire Fence	-----	Section Line	⊕	Misc Cactus	
Trans Cut to Fill	-----	Proposed Wood Fence / ROW	-----	Exist Manhole	⊕	Cholla Cactus	
Exist Barb Wire Fence	-----	Overhead Power	-----	Exist US Mail Box	P	Prickly Pear Cactus	
Exist Chain Link & Gate	-----	Overhead Telephone	-----	Exist Valve	⊕	Barrel Cactus	
Exist Block Wall & Gate	-----	Proposed Retaining Wall	-----	Exist Meter	⊕	Exist Sign (1 Post)	
Exist Wood Fence	-----	Proposed Noise Wall	-----	Exist Gas Regulator	⊕	Exist Sign (2 Posts)	
Exist Guardrail	-----			Exist Power or Joint Use Pole	⊕	Ground Surface	
Exist Water Line**	-----			Exist Steel Power Pole	⊕	New Bit Pvmnt (Section)	
Exist Sanitary Sewer Line**	-----			Exist Guy Wire	⊕	New ABC (Section)	
Exist Buried Electric Line	-----			Exist Street Light	⊕	Riprap (Plan)	
Exist Electric Duct Bank	-----			Exist Utility Ped	⊕	New Bit Pvmnt (Plan)	
Exist Gas Line (Typ)**	-----			Exist Stand Pipe	⊕	New Conc Pvmnt (Plan)	
Exist Irrigation Line (Typ)**	-----			Exist Fire Hydrant	⊕	Remove Pvmnt (Plan)	
Exist Storm Drain Line (Typ)**	-----			Exist Street Sign	⊕	New Conc (Section)	
Exist Buried Cable TV Line	-----			Exist Traffic Control Cab	⊕	New Metal (Section)	
Exist Buried Telephone Line	-----			Exist Traffic Pull Box	⊕	Storm Drain Pipe Number	
Exist Fiber Optic Tel Line	-----			Exist Traffic Signal Pole	⊕	Manhole Number	
New Pipe	-----			Exist Slope Direction	⊕	Catch Basin Number	
New R/W Line with Corner	-----						

FLOOD CONTROL DISTRICT GENERAL CONSTRUCTION NOTES

- All construction within Flood Control District (District) rights-of-way jurisdiction shall conform to the latest Maricopa Association of Governments (MAG) Specifications, unless the structure involved is a dam. If the structure is a dam, special permit requirements will apply. Dam shall mean a structure that is under the jurisdiction of the Arizona Department of Water Resources and is defined in Arizona Revised Statutes 45-1201.
- Contractor must obtain necessary District Permit prior to commencement of construction within District right-of-way and maintain a copy of the permit on the project site at all times.
- Notify the District's Permits Inspector at 602-506-4727 or 602-506-4723 at least 48 hours prior to any work being performed in the District's rights-of-way.
- Contractor performing excavation operations is responsible for locating and protecting all underground utilities.
- All compaction and backfill within District's right-of-way shall conform to the latest MAG Specifications modified to include a minimum of 95% standard proctor in 6" lifts, tested every other lift.
- Any damage to District's structures, equipment, materials, vegetation, and/or property shall be replaced and/or repaired in-kind to the satisfaction of the District.

MARICOPA COUNTY DEPARTMENT OF TRANSPORTATION			
DEER VALLEY ROAD EL MIRAGE ROAD TO 109TH AVENUE PROJECT NO. TT248			
DESIGNED		BY	
DRAWN		DATE	
CHECKED		DATE	
GENERAL NOTES		SHEET G2 OF G24	

F.H.W.A REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ	TT248	3	280	

DESIGN DATA

WILLIAMS DRIVE:

CLASSIFICATION..... PRINCIPAL ARTERIAL
TERRAIN..... LEVEL
DESIGN SPEED..... 55 MPH
(2012) AVG DAILY TRAFFIC..... NOT APPLICABLE
(2032) AVG DAILY TRAFFIC..... 29,095 VPD

118TH AVENUE:

CLASSIFICATION..... LOCAL STREET
TERRAIN..... LEVEL
DESIGN SPEED..... 25 MPH (POSTED)
(2012) AVG DAILY TRAFFIC..... NOT APPLICABLE
(2032) AVG DAILY TRAFFIC..... NOT APPLICABLE

DEER VALLEY ROAD:

CLASSIFICATION..... PRINCIPAL ARTERIAL
TERRAIN..... LEVEL
DESIGN SPEED..... 55 MPH
(2012) AVG DAILY TRAFFIC..... NOT APPLICABLE
(2032) AVG DAILY TRAFFIC..... 34,290 VPD

117TH AVENUE:

CLASSIFICATION..... MAJOR COLLECTOR
TERRAIN..... LEVEL
DESIGN SPEED..... 45 MPH (POSTED)
(2012) AVG DAILY TRAFFIC..... NOT APPLICABLE
(2032) AVG DAILY TRAFFIC..... 7,835 VPD

EL MIRAGE ROAD:

CLASSIFICATION..... PRINCIPAL ARTERIAL
TERRAIN..... LEVEL
DESIGN SPEED..... 45 MPH (POSTED)
(2012) AVG DAILY TRAFFIC..... NOT APPLICABLE
(2032) AVG DAILY TRAFFIC..... 59,950 VPD

109TH AVENUE:

CLASSIFICATION..... MAJOR COLLECTOR
TERRAIN..... LEVEL
DESIGN SPEED..... 25 MPH (POSTED)
(2012) AVG DAILY TRAFFIC..... NOT APPLICABLE
(2032) AVG DAILY TRAFFIC..... 795 VPD

123RD AVENUE:

CLASSIFICATION..... MAJOR COLLECTOR
TERRAIN..... LEVEL
DESIGN SPEED..... 35 MPH (POSTED)
(2012) AVG DAILY TRAFFIC..... NOT APPLICABLE
(2032) AVG DAILY TRAFFIC..... NOT APPLICABLE

121ST AVENUE:

CLASSIFICATION..... LOCAL STREET
TERRAIN..... LEVEL
DESIGN SPEED..... 35 MPH (POSTED)
(2012) AVG DAILY TRAFFIC..... NOT APPLICABLE
(2032) AVG DAILY TRAFFIC..... NOT APPLICABLE

120TH LANE:

CLASSIFICATION..... LOCAL STREET
TERRAIN..... LEVEL
DESIGN SPEED..... 25 MPH (POSTED)
(2012) AVG DAILY TRAFFIC..... NOT APPLICABLE
(2032) AVG DAILY TRAFFIC..... NOT APPLICABLE

119TH LANE:

CLASSIFICATION..... MAJOR COLLECTOR
TERRAIN..... LEVEL
DESIGN SPEED..... 25 MPH (POSTED)
(2012) AVG DAILY TRAFFIC..... NOT APPLICABLE
(2032) AVG DAILY TRAFFIC..... NOT APPLICABLE

119TH AVENUE:

CLASSIFICATION..... MAJOR COLLECTOR
TERRAIN..... LEVEL
DESIGN SPEED..... 35 MPH (POSTED)
(2012) AVG DAILY TRAFFIC..... NOT APPLICABLE
(2032) AVG DAILY TRAFFIC..... NOT APPLICABLE

LENGTH OF PROJECT

WILLIAMS DRIVE/DEER VALLEY ROAD
STA 18+90.49 TO STA 149+80.66 = 13,090.17 ft
=2.48 miles

PROJECT DISTURBED AREA

(calculated as the right of way, temporary construction easement and slope easement areas for entire length of project)

WILLIAMS DRIVE / DEER VALLEY ROAD....3,398,393 Sq ft = 78.02 Acres

▲ BENCH MARK

ALL ELEVATIONS ARE NAVD88 ELEVATIONS BASED ON THE FOLLOWING TWO SECTION CORNERS.

BM 70009
SE CORNER SEC. 18, T. 4N, R. 1E.,BCHH
DEER VALLEY ROAD STA 163+03.55, 0.00'
N=425922.587, E=586579.336
NAVD88 ELEV= 1247.35'

2/25/2013

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NO.	REVISION	BY	DATE

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION

DEER VALLEY ROAD
EL MIRAGE ROAD TO 109TH AVENUE
PROJECT NO. TT248

	BY	DATE
DESIGNED	F. Medrano	02/13
DRAWN	A. Costello	02/13
CHECKED	D. Rutkowski	02/13



AZTEC
4561 E. McDowell Road
Phoenix, AZ 85008-4505
Tel: (602) 454-0402
Fax: (602) 454-0403
www.aztec.us

GENERAL NOTES
SHEET G3 OF G24

2/19/2013

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F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ	TT248	33	280	

REMOVAL / RELOCATE

- 3 Remove Existing Pavement
- 14 Remove Existing Gate 2 EA

CONSTRUCTION	
1A) Pavement Structural Section No. 1	
1 1/2" AR-AC	290.1 Tons
2" AC (1/2")	386.8 Tons
2 1/2" AC (1/2")	483.4 Tons
4" AB	720.9 Tons
Tack Coat	2.92 Tons
1E) Pavement Structural Section No. 5	
2 1/2" AC (1/2")	114.3 Tons
6" AB	255.7 Tons
2) Subgrade Preparation	4338 SY
3) 6" Vertical Curb & Gutter, MAG Det 220-1, Type A	900 LF
5) Concrete Sidewalk, MAG Det 230	5052 SF
10) Sawcut Existing Pavement	
11) Thickened Edge of Pavement MAG Det 201, Type A	
20) 4" ITS PVC Fiber Optic Conduit, MCDOT Det 4801	450 LF
21) ITS No. 7 Pull Box W/Extension, MCDOT Det 4805 & 4810	1 EA
23) Concrete Driveway, MAG Det 250-2	748 SF
25) Safety Rail, MAG Det 145	154 LF
31) Cable Barrier Gate, FCDMC Dwg No D1	2 EA

NO.	REVISION	BY	DATE

MARICOPA COUNTY DEPARTMENT OF TRANSPORTATION

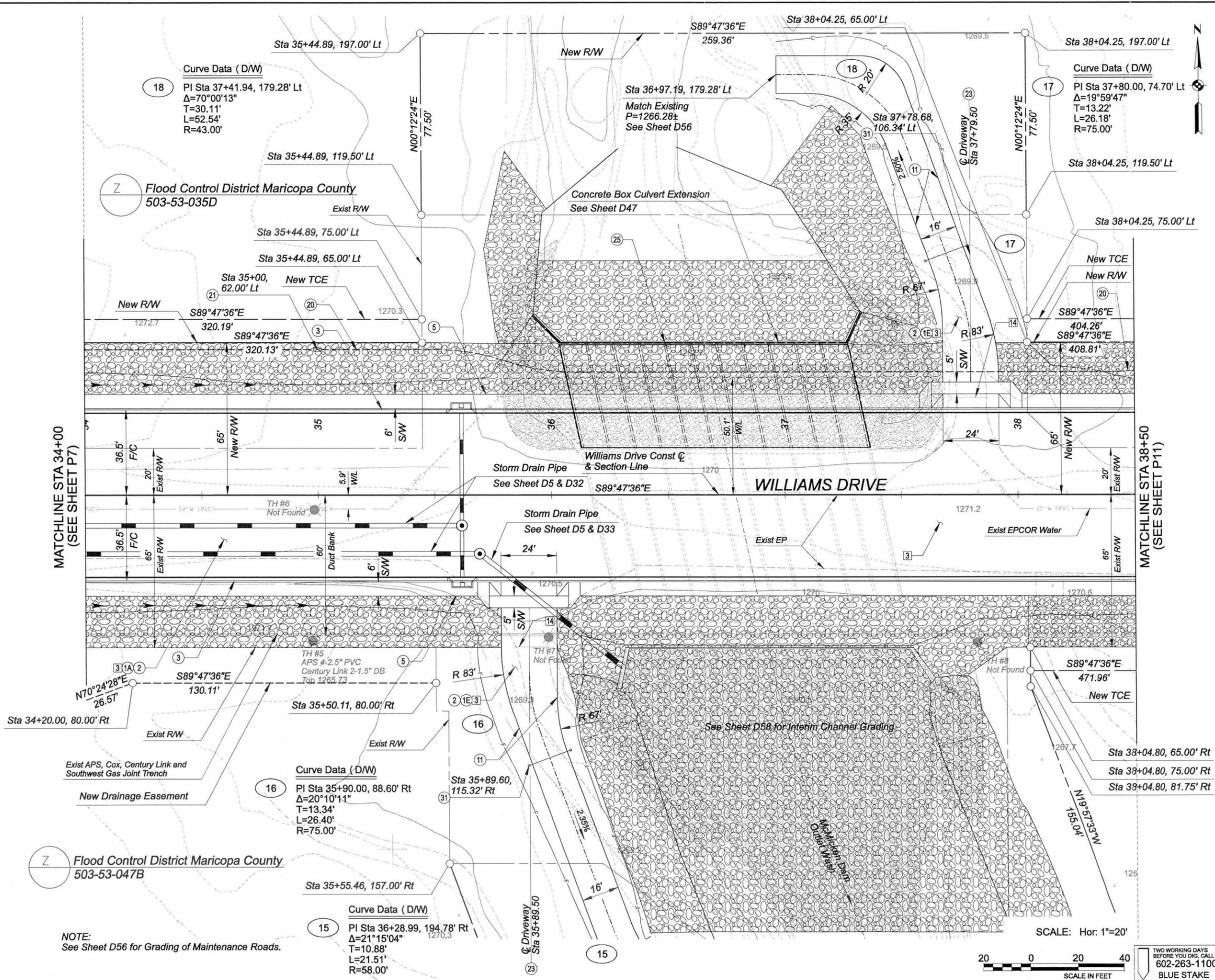
DEER VALLEY ROAD EL MIRAGE ROAD TO 109TH AVENUE PROJECT NO. TT248



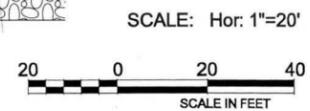
DESIGNED	BY	DATE
E. Watkins		02/13
L. Rosenberg		02/13
R. Weyrauch		02/13

NFra Inc. a transportation engineering firm 77 East Thomas Road, Suite 200 Phoenix, Arizona 85012

PLAN SHEET STA 34+00 TO STA 38+50 SHEET P9 OF P68 TRACS NO.



NOTE: See Sheet D56 for Grading of Maintenance Roads.



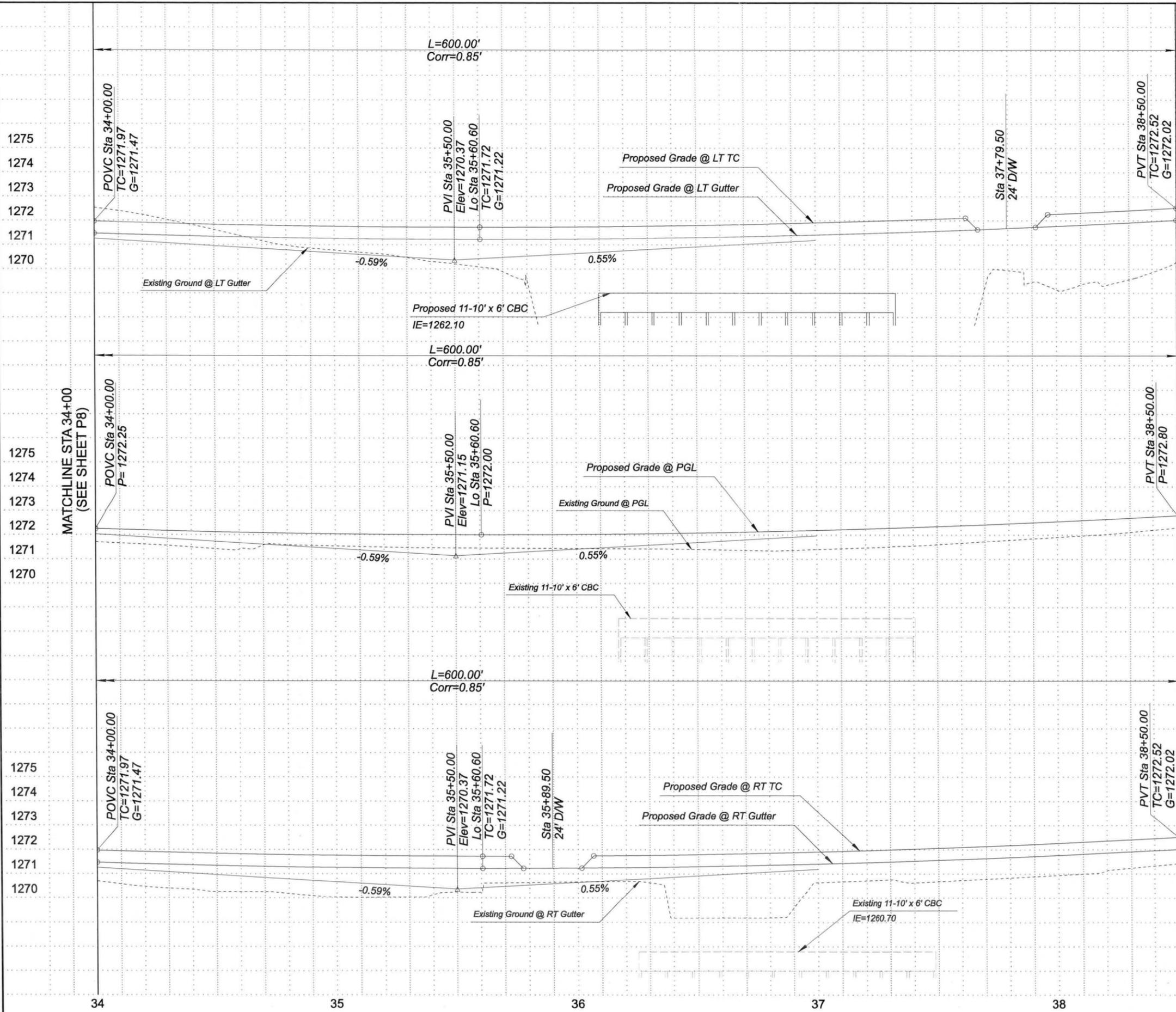
TWO WORKING DAYS BEFORE YOU DIG, CALL 602-263-1100 BLUE STAKE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ	TT248	34	280	

2/15/2013

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MATCHLINE STA 34+00
(SEE SHEET P8)

MATCHLINE STA 38+50
(SEE SHEET P12)

1275	1275
1274	1274
1273	1273
1272	1272
1271	1271
1270	1270
1275	1275
1274	1274
1273	1273
1272	1272
1271	1271
1270	1270
1275	1275
1274	1274

NO.	REVISION	BY	DATE
MARICOPA COUNTY DEPARTMENT OF TRANSPORTATION			
DEER VALLEY ROAD EL MIRAGE ROAD TO 109TH AVENUE PROJECT NO. TT248			
		BY	DATE
		E. Watkins	02/13
		L. Rosenberg	02/13
		R. Weyrauch	02/13
		NFra Inc. a transportation engineering firm 77 East Thomas Road, Suite 200 Phoenix, Arizona 85012	
PROFILE SHEET STA 34+00 TO STA 38+50			SHEET P10 OF P68

TRACS NO.

2/15/2013

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F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ	TT248	97	280	

REMOVAL / RELOCATE

CONSTRUCTION		
②	Earthen V-Ditch, 3:1 Side Slopes, 1' Deep	23 CY
⑥	Catch Basin, MAG Std Dtl 532	2 EA
⑨	Storm Drain Manhole, MAG Det 520 & 522	2 EA
⑪	18" RGRCP, Class III Storm Drain Pipe	72 LF
⑫	24" RGRCP, Class III Storm Drain Pipe	413 LF
⑳	Dumped Riprap, D ₅₀ = 8", Thickness = 16" See Detail D5 & D6 on Sheet D55 Sta 38+04.00 to Sta 38+50.00	104 CY
㉑	Dumped Riprap, D ₅₀ = 12", Thickness = 24" See Detail D5 & D6 on Sheet D55 Sta 34+00.00 to Sta 38+04.00	1300 CY
㉒	Modify Existing Outlet Wingwall See Details on Sheets S3.1 to S3.6 ADOT Class S Concrete Reinforcing Steel	1 CY 180 lbs

NOTE:
See Sheets D32, D33 and D39 for Storm Drain Profiles

NO.	REVISION	BY	DATE

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION

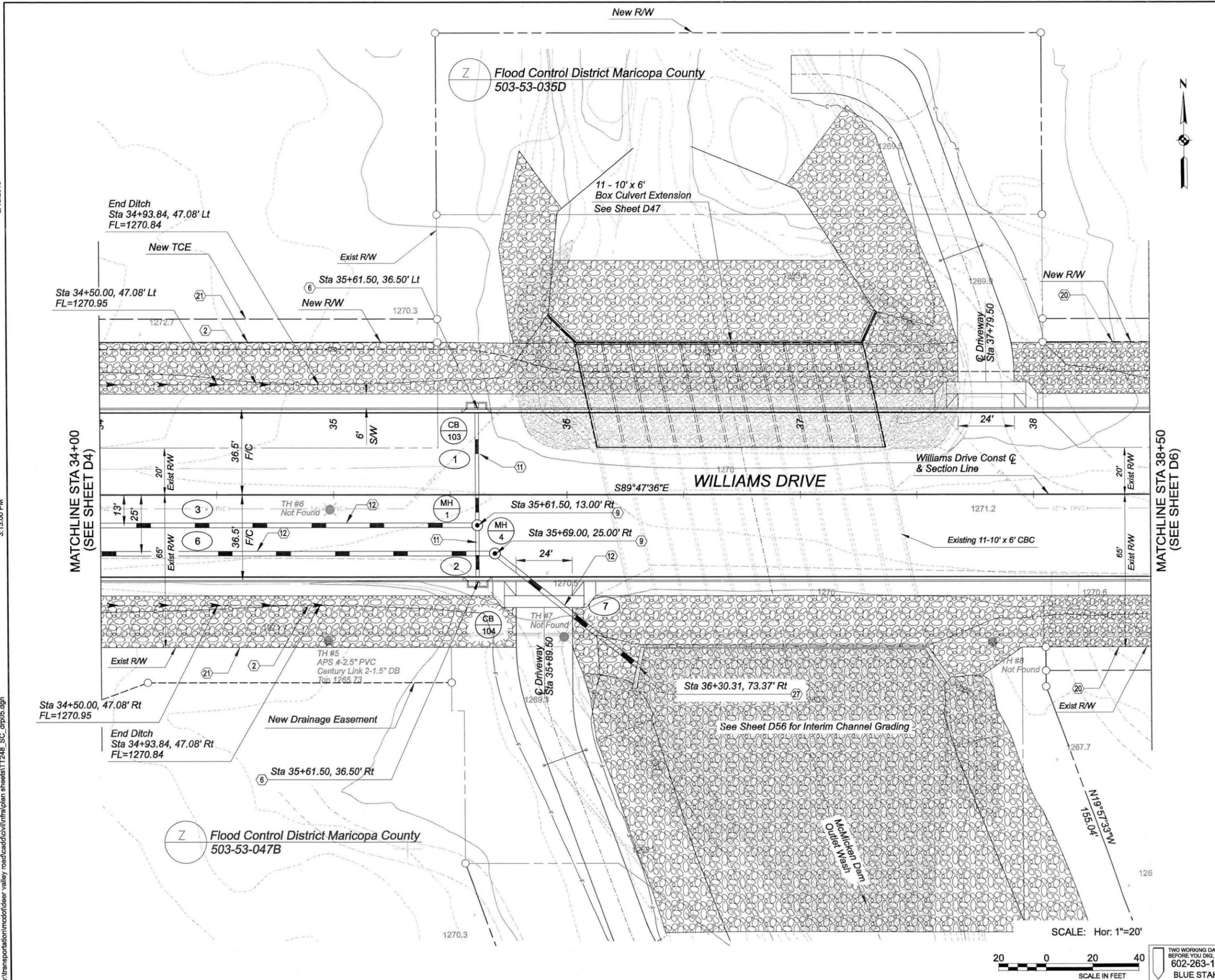
DEER VALLEY ROAD
EL MIRAGE ROAD TO 109TH AVENUE
PROJECT NO. TT248

	BY	DATE
DESIGNED	E. Watkins	02/13
DRAWN	J. Wahl	02/13
CHECKED	R. Weyrauch	02/13

NFra Inc.
a transportation engineering firm
77 East Thomas Road, Suite 200
Phoenix, Arizona 85012

DRAINAGE PLAN SHEET
STA 34+00 TO STA 38+50
SHEET D5 OF D59

TRACS NO.

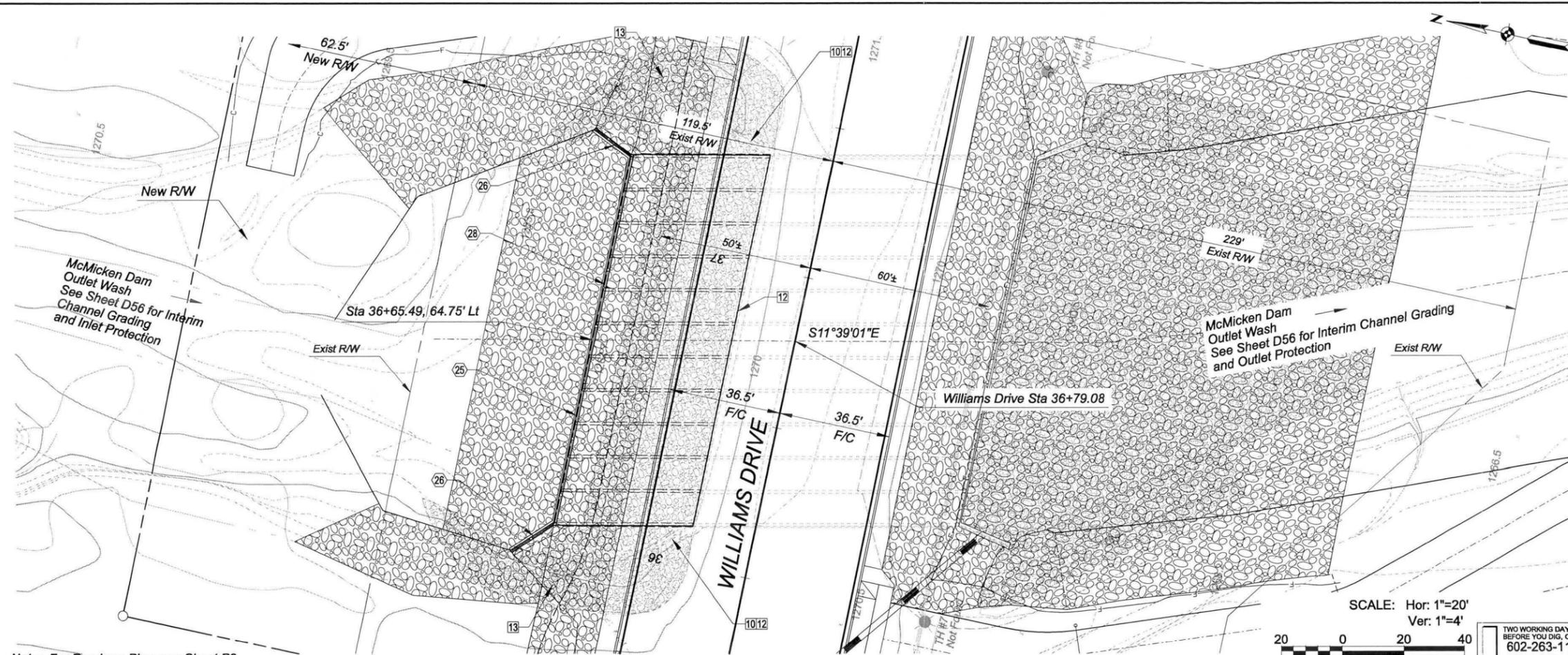


TWO WORKING DAYS
BEFORE YOU DIG, CALL
602-263-1100
BLUE STAKE

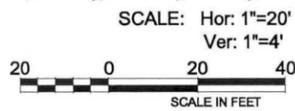
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Note: For Roadway Plan, see Sheet P9



TWO WORKING DAYS
BEFORE YOU DIG, CALL
602-263-1100
BLUE STAKE

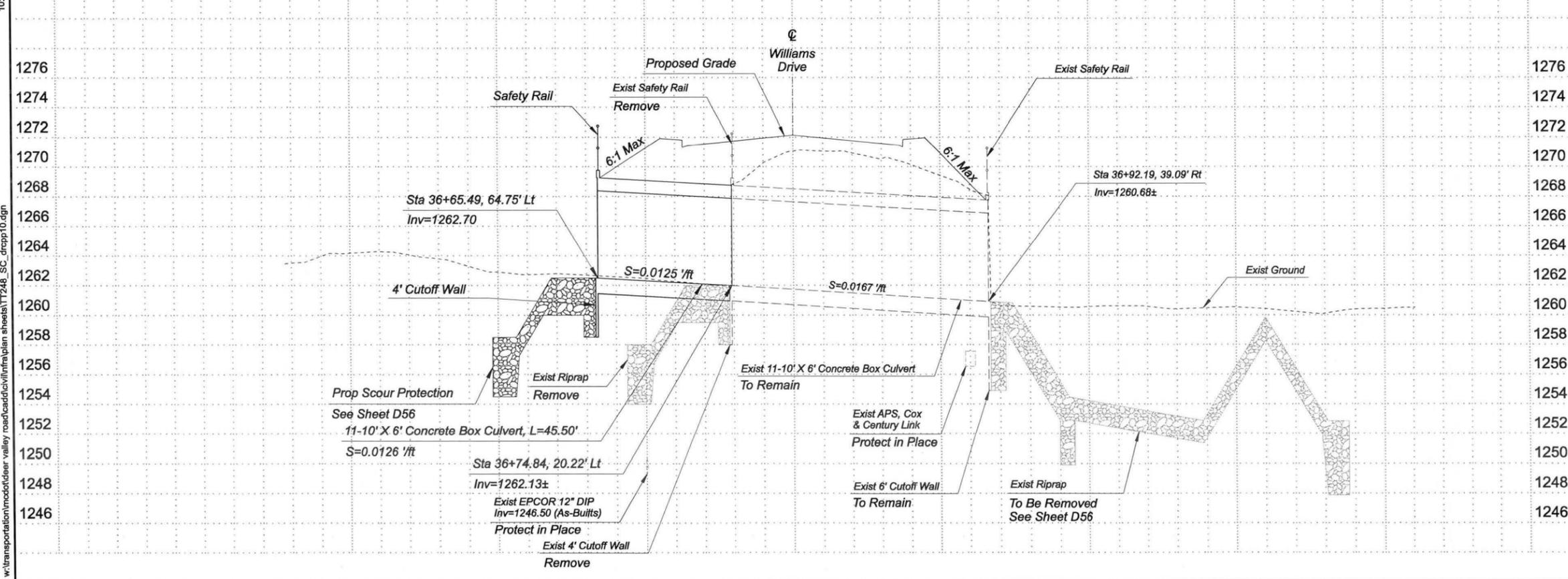
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ	TT248	139	280	

REMOVAL / RELOCATE

10	Remove Existing Wingwall and Cutoff Wall per ADOT Std Det B-01.11 See Details on Sheets S3.1 to S3.6	1 EA
12	Remove and Salvage Existing Safety Rail	154 LF
13	Remove and Salvage Existing Riprap	1212 CY

CONSTRUCTION

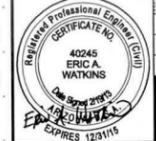
25	Construct 11-10' X 6' Concrete Box Culvert Structure Per ADOT Std Det B-02.60 See Details on Sheets S3.1 to S3.6 ADOT Class S Concrete Reinforcing Steel	508 CY 80860 LBS
26	Construct Inlet Wingwall Per ADOT Std Det B-04.30 See Details on Sheets S3.1 to S3.6 ADOT Class S Concrete Reinforcing Steel	27 CY 2290 LBS



NO.	REVISION	BY	DATE

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION

DEER VALLEY ROAD
EL MIRAGE ROAD TO 109TH AVENUE
PROJECT NO. TT248



	BY	DATE
DESIGNED	E. Watkins	02/13
DRAWN	J. Wahl	02/13
CHECKED	R. Weyrauch	02/13

NFra Inc.
a transportation engineering firm
77 East Thomas Road, Suite 200
Phoenix, Arizona 85012

CROSS CULVERT PLAN & PROFILE
STA 36+83.99

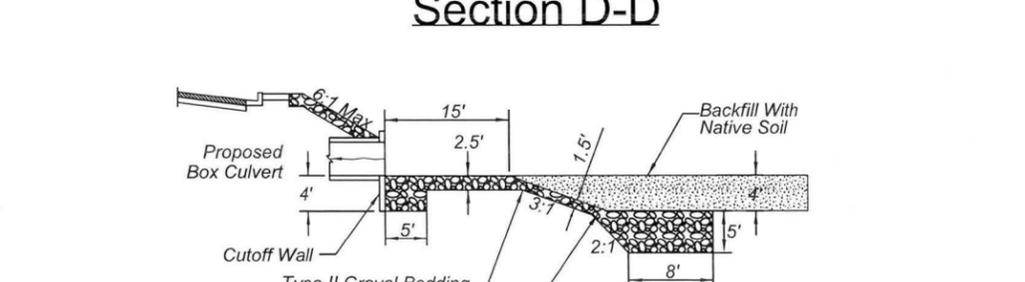
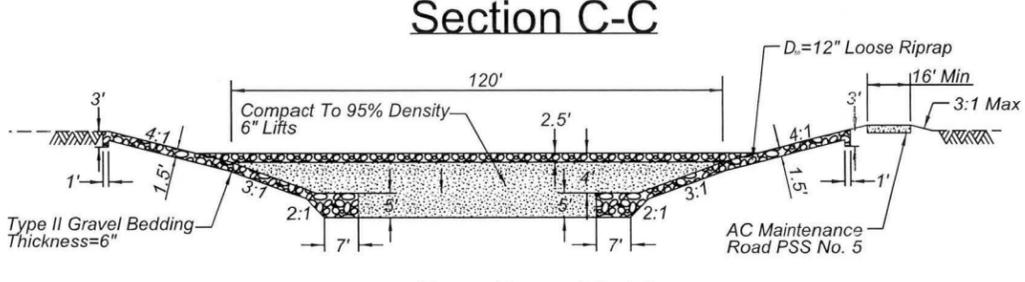
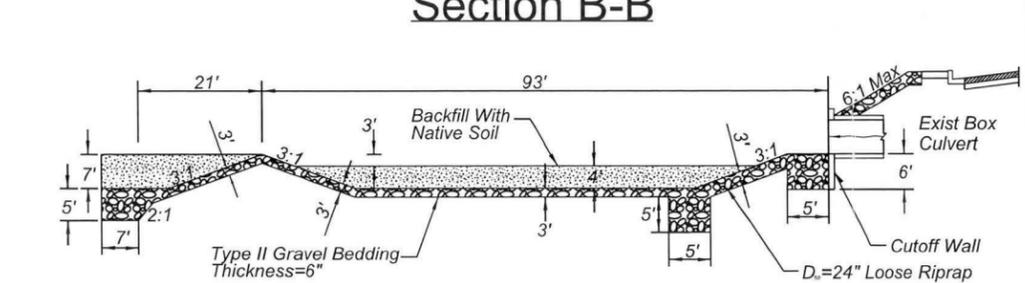
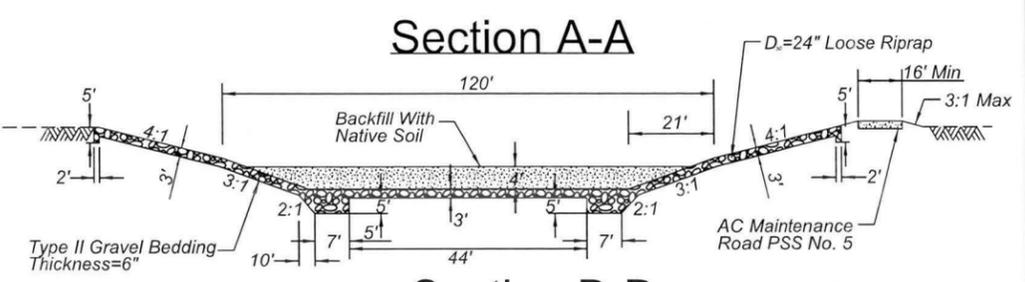
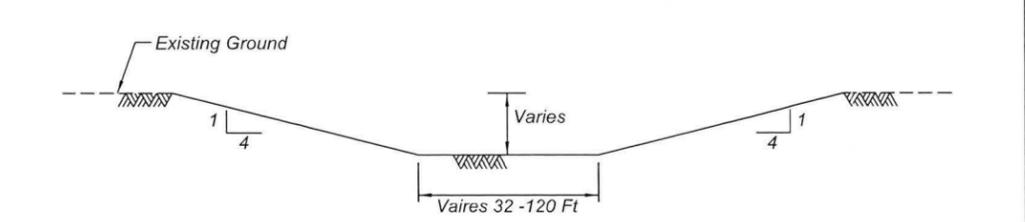
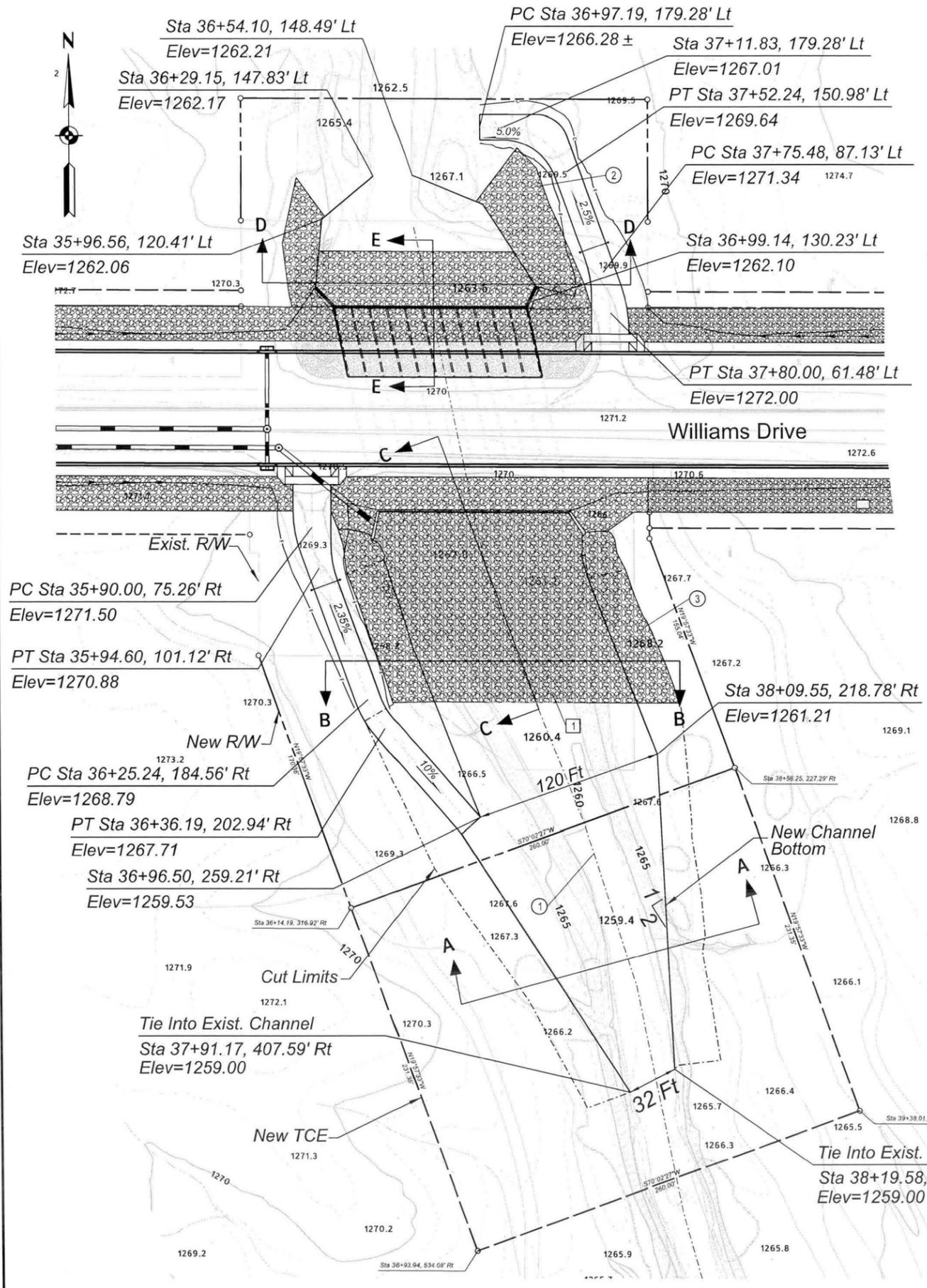
SHEET
D47 OF D59

TRACS NO.

2/21/2013

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D7

CHANNEL GRADING & EROSION PROTECTION AT MCMICKEN WASH

N.T.S.

TWO WORKING DAYS BEFORE YOU DIG, CALL 602-263-1100 BLUE STAKE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ	TT248	148	280	

<input type="checkbox"/> REMOVAL / RELOCATE		<input type="checkbox"/>
1 Removal of Riprap		1,627 CY

<input type="checkbox"/> CONSTRUCTION		<input type="checkbox"/>
1 Earthwork for Channel Grading		5,193 CY
2 Riprap D _s =12"		1,217 CY
3 Riprap D _s =24"		2,604 CY

NO.	REVISION	BY	DATE

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION

DEER VALLEY RD
EL MIRAGE ROAD TO 109TH AVENUE
PROJECT NO. TT248

DESIGNED	BY	DATE
S. Smedley	S. Smedley	02/13
DRAWN	BY	DATE
S. Hummel	S. Hummel	02/13
CHECKED	BY	DATE
T. Bokich	T. Bokich	02/13

4551 E. McDowell Road
Phoenix, AZ 85008-4505
Tel: (602) 454-9402
Fax: (602) 454-9403
www.aztec.com

AZTEC

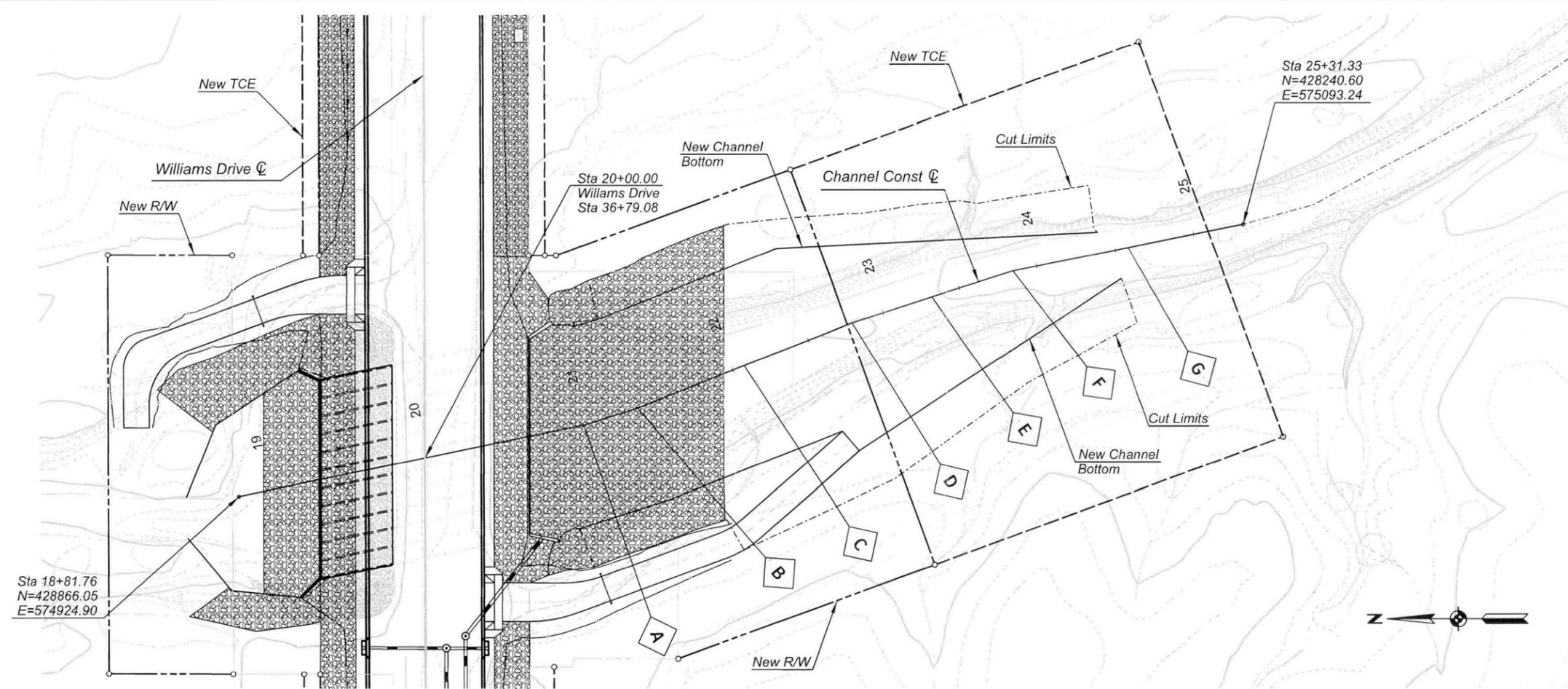
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2/21/2013

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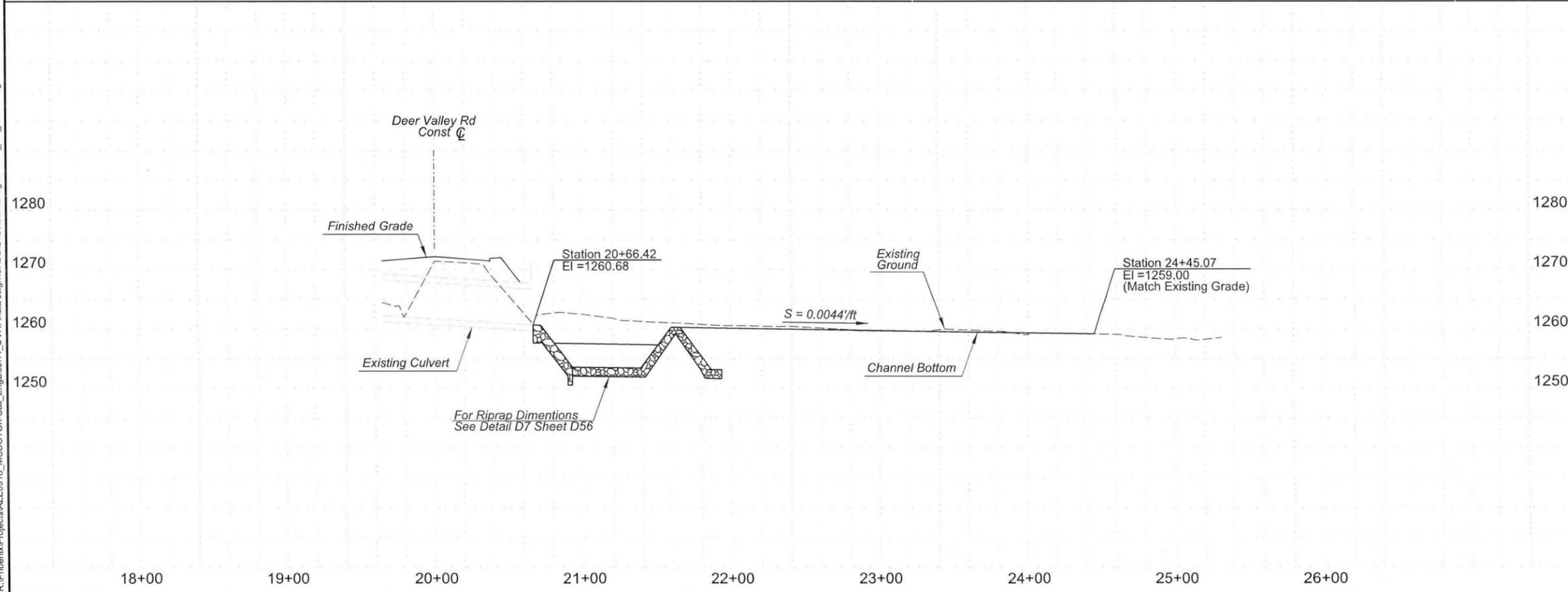
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F.H.W.A REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ	TT248	151	280	

REMOVAL / RELOCATE

CONSTRUCTION

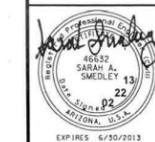


Channel Centerline			
	PI Station	Northing	Easting
A	21+00.76	428651.67	574969.10
B	21+35.86	428618.18	574979.63
C	22+07.65	428551.39	575005.95
D	22+79.44	428484.60	575032.27
E	23+32.15	428434.41	575048.30
F	23+84.85	428384.21	575064.41
G	24+58.09	428312.40	575078.83

NO.	REVISION	BY	DATE

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION

DEER VALLEY ROAD
EL MIRAGE ROAD TO 109TH AVENUE
PROJECT NO. TT248



	BY	DATE
DESIGNED	S. Smedley	02/13
DRAWN	S. Hummel	02/13
CHECKED	T. Bokich	02/13

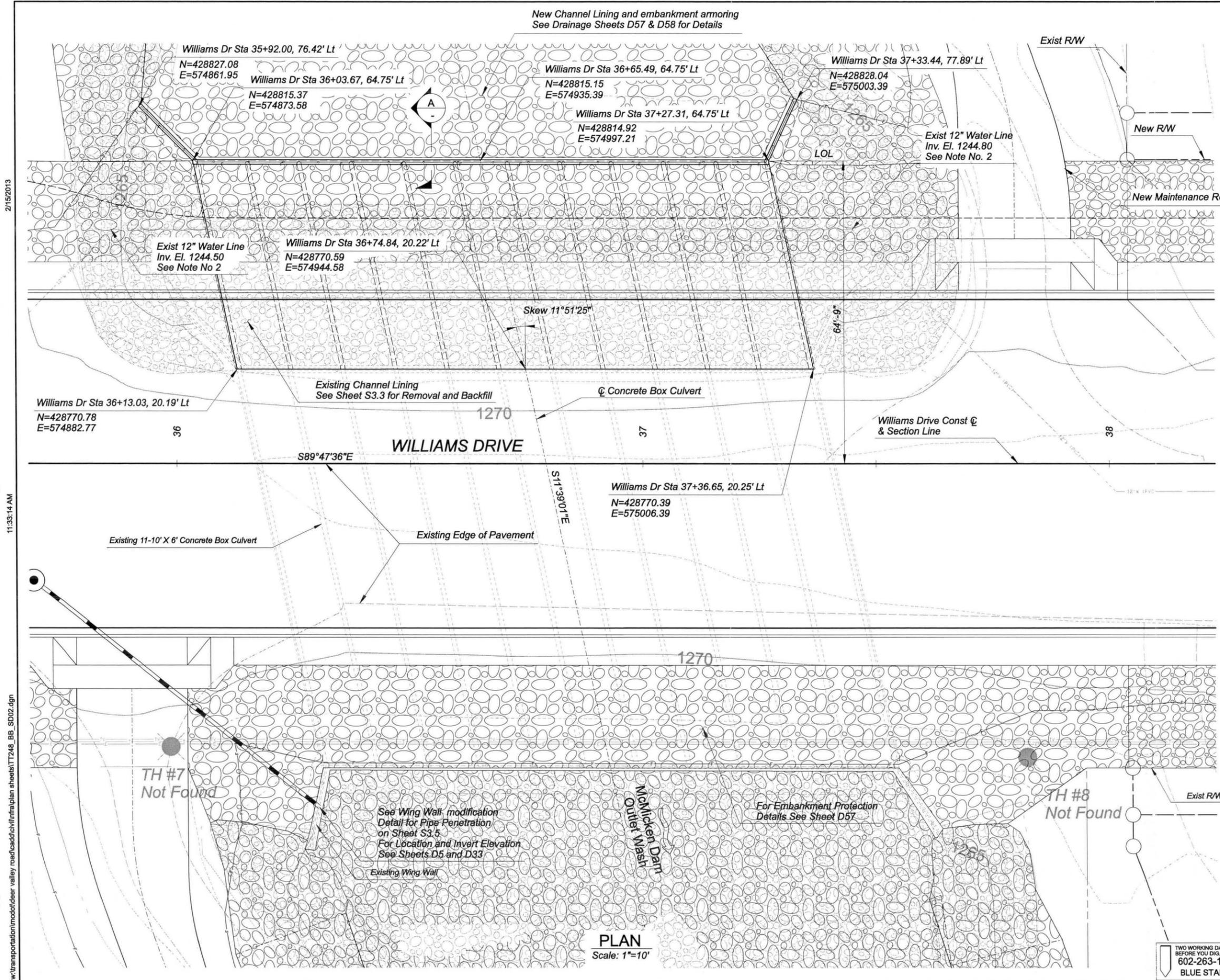


CULVERT & CHANNEL
PLAN & PROFILE

SHEET
D59 OF D59

TRACS NO.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ	TT248	197	280	



- NOTES:**
- See Utility Sheets for Relocation of Utilities and Additional Information.
 - Invert Elevations are per As-Builts. Existing EPCOR waterline to remain, protect-in-place.

NO.	REVISION	BY	DATE

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION

DEER VALLEY ROAD
EL MIRAGE ROAD TO 109TH AVENUE
PROJECT NO. TT248

BY	DATE
DESIGNED Y. Patel	02/13
DRAWN J. Wahl	02/13
CHECKED S. Lee	02/13

NFrA Inc.
a transportation engineering firm
77 East Thomas Road, Suite 200
Phoenix, Arizona 85012

McMICKEN DAM OUTLET WASH
BOX CULVERT PLAN

SHEET
S3.2 OF S3.6

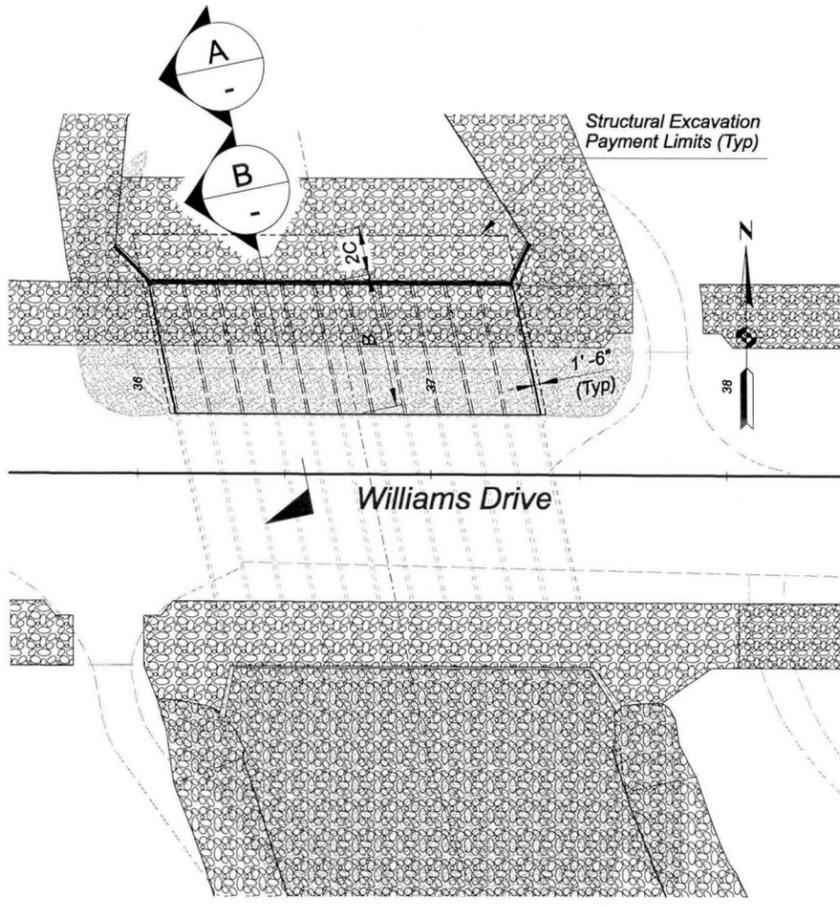
TRACS NO.

2/15/2013

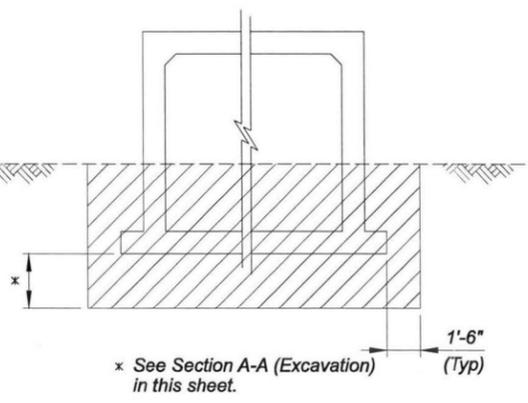
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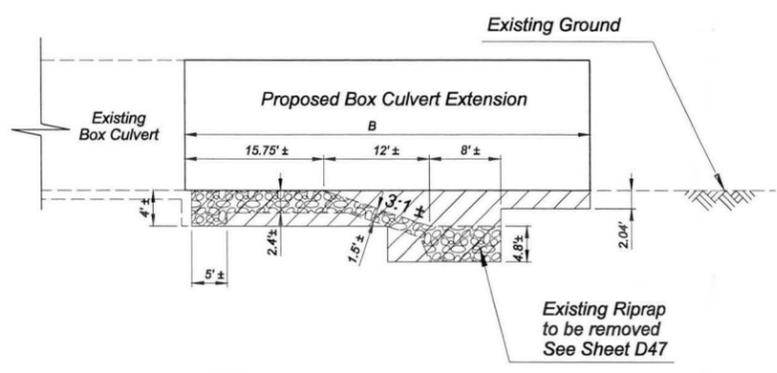
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ	TT248	198	280	



PLAN
Scale: 1"=30'



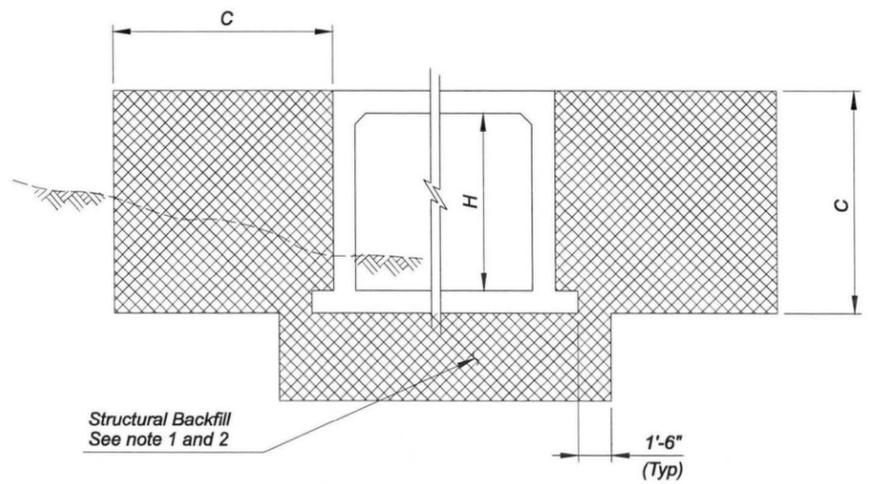
STRUCTURAL EXCAVATION PAYMENT LIMITS



A SECTION (Structural Excavation)
Scale: NTS

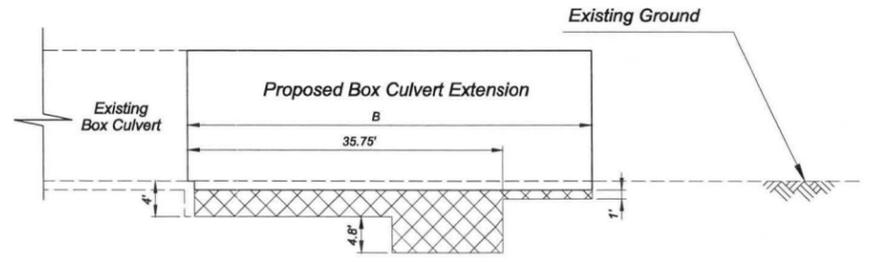
NOTES:

1. For the Extension at Box Culvert, the existing inlet channel lining (loose gravel Riprap and bedding material) shall be removed and replaced with structural backfill. See Geotech report dated September 28, 2012.
2. All compaction and backfill within District's right-of-way shall conform to the latest MAG Specifications modified to include a minimum of 95% standard proctor in 6" lifts, tested every other lift.
3. It is the responsibility of the prospective bidders to review the As-Builts for existing inlet and outlet channel details. The dimension shown in Section A and B are based on As BUILTS.
4. See ADOT Std Dwg B-19.50 for Details not shown in this Sheet.
5. Structural excavation includes removal of Riprap required for box culvert construction.
6. See Sheet D47 for Riprap removal quantity outside structural excavation payment limits.



STRUCTURAL BACKFILL - MEASUREMENT

Computation of structural backfill quantities is based on the area of a typical installation times (the total length of structure plus H). NO MEASUREMENT IS necessary for wing arms. Use H for box extensions on each end extended.



B SECTION (Structural Backfill)
Scale: NTS

LEGEND:

- Structural Excavation
- Structural Backfill

NO.	REVISION	BY	DATE

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION

DEER VALLEY ROAD
EL MIRAGE ROAD TO 109TH AVENUE
PROJECT NO. TT248

DESIGNED	Y. Patel	DATE	02/13
DRAWN	L. Rosenberg		02/13
CHECKED	S. Lee		02/13

NFra Inc.
a transportation engineering firm
77 East Thomas Road, Suite 200
Phoenix, Arizona 85012

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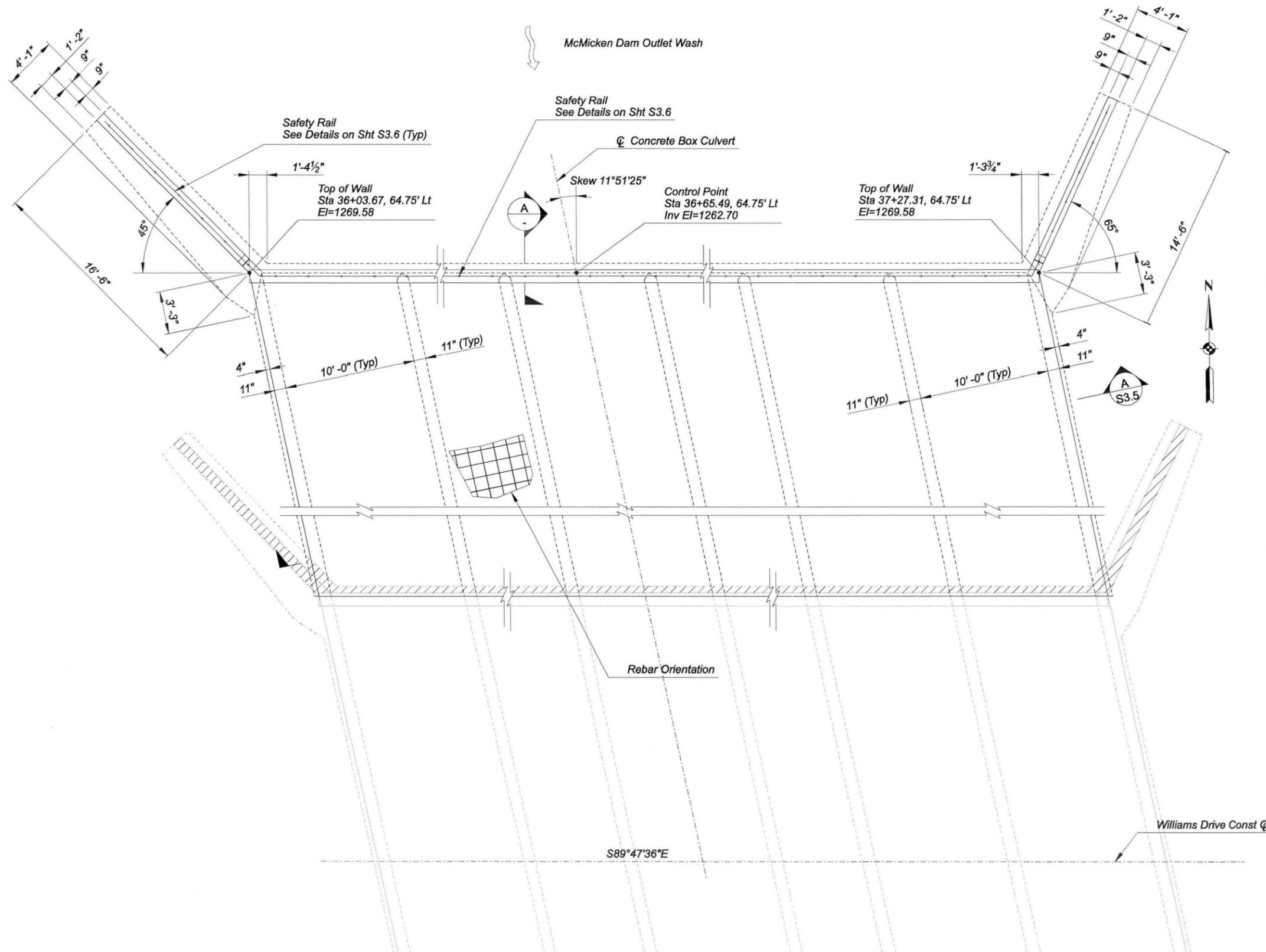
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F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ	TT248	199	280	

2/15/2013

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PLAN
Scale: 1/4" = 1'-0"

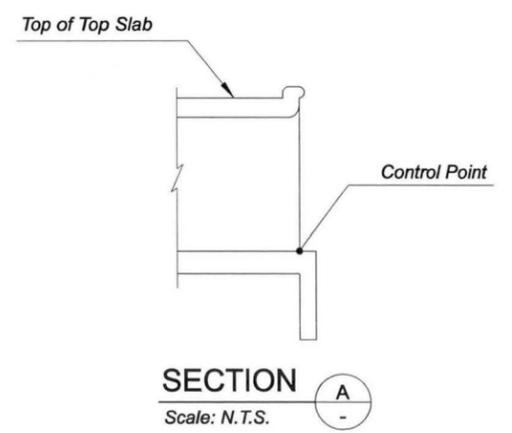
NOTES:

- For General Structural Notes, see Sheet S3.1.
- For Box Culvert General Notes and Miscellaneous Details, see ADOT Std Dwg B-01.10.
- For Box Culvert Structural Excavation and Backfill, see Sheet S3.3.
- For Box Culvert Extension Details, see ADOT Std Dwg B-01.11.
- For Box Culvert Details, see Sheet S3.5.
- For Inlet Wingwall Dimensions not shown, see ADOT Std Dwg B-04.30, 4:1 Slope, Skew = 15°.
- For Safety Rail Details, see Sheet S3.6.
- The additional cost associated with Box Culvert Extension, and not covered under separate bid items, is considered incidental to Box Culvert construction.

REMOVAL NOTES:

- Wall shall be removed in addition to ADOT Std Dwg B-01.11
- See Std Dwg B-01.11 for details not shown.

LEGEND:



NO.	REVISION	BY	DATE

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION

DEER VALLEY ROAD
EL MIRAGE ROAD TO 109TH AVENUE
PROJECT NO. TT248

	BY	DATE
DESIGNED	Y. Patel	02/13
DRAWN	L. Rosenberg	02/13
CHECKED	S. Lee	02/13

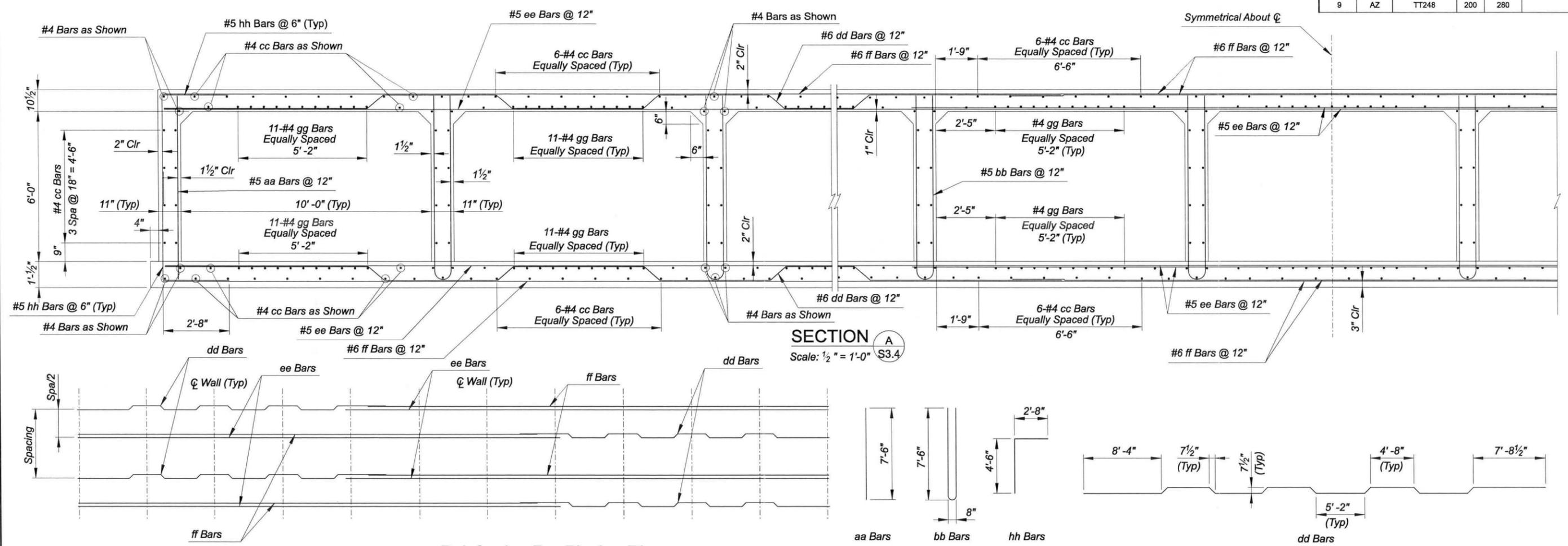
NFra Inc.
a transportation engineering firm
77 East Thomas Road, Suite 200
Phoenix, Arizona 85012

**McMICKEN DAM OUTLET WASH
BOX CULVERT DETAILS - 2**

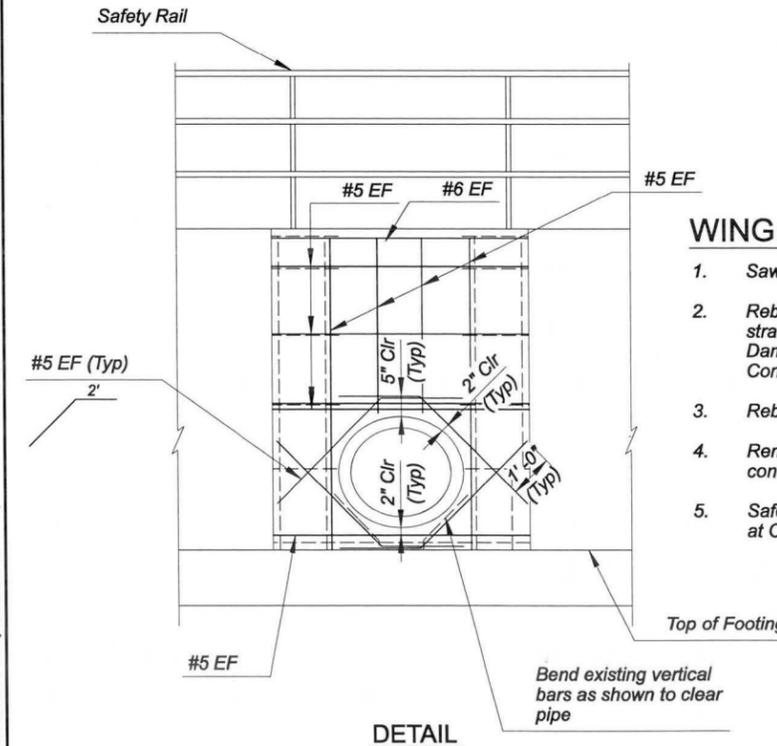
SHEET
S3.4 OF S3.6

TRACS NO.

F.H.W.A REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ	TT248	200	280	



Reinforcing Bar Placing Diagram
Scale: None



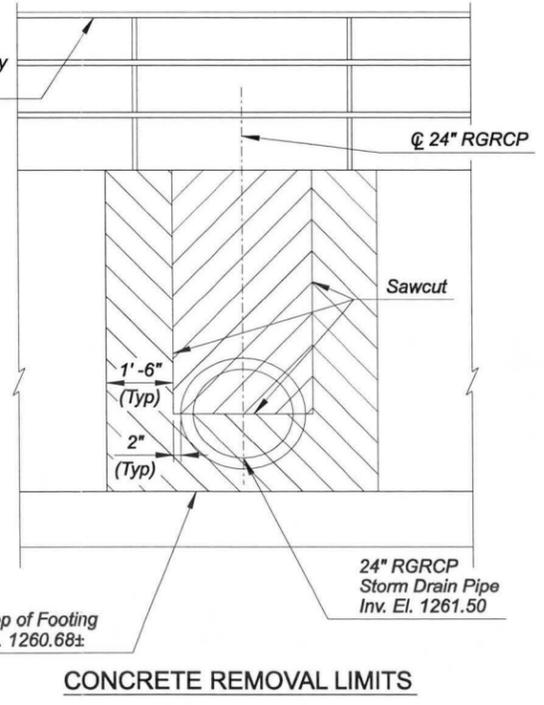
WING WALL MODIFICATION NOTES:

1. Sawcut the concrete as shown in Concrete Removal Limits.
2. Rebars to be salvaged shall be thoroughly cleaned, straightened and incorporated into new construction. Damaged rebars shall be replaced or repaired at Contractor's cost.
3. Rebar in existing wing wall not shown for clarity.
4. Removal and re-attachment of Safety Rail shall be considered incidental to concrete removal (Remove Structure).
5. Safety Rail damaged during removal shall be replaced at Contractor's own expense.

LEGEND:

- Existing Rebar
- New Rebar

WING WALL MODIFICATION DETAIL
Scale: None



CONCRETE REMOVAL LIMITS

NOTE:

For General Notes and Details, see ADOT Std Dwg B-01.10.

SPLICE NOTES:

1. Min. Lap Splices
#5 ee Bars - 2'-2" splices @ walls (supports)
#6 ff Bars - 2'-9" splices @ mid spans
2. Splices shall be staggered.
3. Reinforcing bars shall not be spliced within the required lap length of the adjacent bars.

LEGEND:

- Remove Concrete and Rebar
- Remove Concrete and Salvage Rebar
- Existing Wing Wall to Remain

NO.	REVISION	BY	DATE
MARICOPA COUNTY DEPARTMENT OF TRANSPORTATION			
DEER VALLEY ROAD EL MIRAGE ROAD TO 109TH AVENUE PROJECT NO. TT248			
DESIGNED		Y. Patel	02/13
DRAWN		L. Rosenberg	02/13
CHECKED		S. Lee	02/13
BY			
DATE			
NFra Inc. a transportation engineering firm 77 East Thomas Road, Suite 200 Phoenix, Arizona 85012			
McMICKEN DAM OUTLET WASH BOX CULVERT DETAILS - 3			SHEET S3.5 OF S3.6

2/15/2013

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E.5 Hydraulic Calculations

HEC-RAS Plan: CLOMR River: MDOW Reach: Reach1

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Reach1	4.794	7481.00	1307.26	1316.80		1316.93	0.000362	3.85	3548.18	823.95	0.24
Reach1	4.794	7481.00	1307.26	1317.34		1317.83	0.000845	5.91	1350.34	174.03	0.35
Reach1	4.699	7481.00	1306.76	1316.67		1316.77	0.000273	3.28	4468.74	1235.97	0.20
Reach1	4.699	7481.00	1306.76	1317.01		1317.41	0.000708	5.26	1492.23	195.65	0.32
Reach1	4.601	7481.00	1306.99	1316.56		1316.64	0.000226	3.03	4772.02	1278.87	0.19
Reach1	4.601	7481.00	1306.99	1316.76		1317.05	0.000561	4.69	1733.40	243.01	0.28
Reach1	4.506	7481.00	1306.25	1316.23		1316.45	0.000575	4.53	2805.01	966.65	0.29
Reach1	4.506	7481.00	1306.25	1316.37		1316.72	0.000764	5.24	1692.92	319.98	0.33
Reach1	4.388	7481.00	1306.34	1316.14		1316.23	0.000187	2.79	4056.25	1083.59	0.17
Reach1	4.388	7481.00	1306.34	1316.30		1316.42	0.000225	3.04	2817.88	425.74	0.18
Reach1	4.293	7481.00	1305.49	1315.33		1315.97	0.001364	6.77	1467.33	622.97	0.44
Reach1	4.293	7481.00	1305.49	1315.33		1316.11	0.001575	7.27	1140.87	235.00	0.48
Reach1	4.199	7481.00	1303.72	1312.39	1311.91	1314.57	0.006040	11.85	632.76	123.75	0.89
Reach1	4.199	7481.00	1303.72	1313.12		1314.83	0.004064	10.47	714.20	113.84	0.74
Reach1	4.104	7481.00	1299.73	1310.55	1309.83	1311.61	0.005343	9.97	1205.59	531.61	0.64
Reach1	4.104	7481.00	1299.73	1311.55		1312.68	0.004303	9.72	1024.25	195.81	0.59
Reach1	3.973	7481.00	1295.35	1307.14	1307.14	1308.03	0.004801	9.75	1705.79	932.97	0.60
Reach1	3.973	7481.00	1295.35	1307.50	1307.39	1309.05	0.006397	11.58	1013.70	282.39	0.70
Reach1	3.878	7481.00	1293.46	1304.39	1304.39	1305.36	0.004640	10.05	1651.31	797.63	0.61
Reach1	3.878	7481.00	1293.46	1305.12		1306.30	0.004397	10.34	1164.10	272.12	0.60
Reach1	3.800	7481.00	1292.12	1302.28	1302.21	1303.20	0.005460	9.84	1591.16	770.22	0.64
Reach1	3.800	7481.00	1292.12	1302.91	1302.52	1304.21	0.005821	10.74	1157.80	375.51	0.67
Reach1	3.706	7481.00	1290.44	1299.65	1299.65	1300.59	0.005543	9.66	1568.65	787.82	0.65
Reach1	3.706	7481.00	1290.44	1299.94	1299.79	1301.27	0.006396	10.67	1082.91	321.16	0.70

HEC-RAS Plan: CLOMR River: MDOW Reach: Reach1 (Continued)

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Reach1	3.589	7481.00	1286.79	1296.52		1297.23	0.003576	7.66	1502.66	572.16	0.52
Reach1	3.589	7481.00	1286.79	1297.13		1298.16	0.003902	8.47	1049.91	218.70	0.55
Reach1	3.494	7481.00	1283.78	1294.29	1294.29	1295.24	0.004256	9.36	1641.47	873.21	0.59
Reach1	3.494	7481.00	1283.78	1295.21	1294.39	1296.26	0.003612	9.29	1225.08	311.97	0.55
Reach1	3.399	7481.00	1281.80	1291.72	1291.72	1292.73	0.005442	10.04	1487.65	668.04	0.65
Reach1	3.399	7481.00	1281.80	1292.07	1292.07	1293.75	0.006981	11.73	958.92	268.10	0.74
Reach1	3.350	7481.00	1280.78	1291.82	1286.71	1291.84	0.000131	1.88	6804.87	1208.55	0.11
Reach1	3.350	7481.00	1280.78	1292.18	1286.71	1292.32	0.000418	3.45	2811.63	342.93	0.19
Reach1	3.330	Culvert									
Reach1	3.310	7481.00	1280.17	1289.12	1285.91	1289.55	0.001816	5.29	1517.77	641.28	0.37
Reach1	3.310	7481.00	1280.17	1289.64	1285.91	1290.00	0.001367	4.83	1673.14	406.99	0.33
Reach1	3.266	7481.00	1277.53	1287.61	1287.61	1288.65	0.006543	10.58	1408.00	631.64	0.70
Reach1	3.266	7481.00	1277.53	1288.43	1287.95	1289.31	0.004655	9.59	1376.48	394.54	0.60
Reach1	3.171	7620.00	1276.50	1284.63		1285.28	0.006337	8.52	1405.04	771.36	0.66
Reach1	3.171	7620.00	1276.50	1285.61		1286.42	0.006908	9.66	1430.41	532.75	0.70
Reach1	3.077	7620.00	1273.96	1283.35		1283.69	0.002244	5.51	1820.43	709.77	0.41
Reach1	3.077	7620.00	1273.96	1283.92		1284.42	0.002737	6.49	1662.18	466.01	0.46
Reach1	2.986	7620.00	1272.42	1281.46		1282.25	0.004407	8.47	1590.69	696.50	0.58
Reach1	2.986	7620.00	1272.42	1282.06		1282.91	0.003843	8.31	1169.15	214.07	0.55
Reach1	2.891	7620.00	1270.44	1278.58	1277.90	1279.68	0.005913	8.95	1105.20	368.07	0.66
Reach1	2.891	7620.00	1270.44	1278.96		1280.39	0.006458	9.62	797.90	129.90	0.68
Reach1	2.787	7620.00	1267.34	1275.74		1276.72	0.004846	8.83	1226.13	428.59	0.61
Reach1	2.787	7620.00	1267.34	1276.51		1277.52	0.003973	8.61	1075.27	207.67	0.56
Reach1	2.692	7620.00	1263.48	1272.70	1272.70	1273.92	0.006488	10.50	1241.41	472.34	0.71

HEC-RAS Plan: CLOMR River: MDOW Reach: Reach1 (Continued)

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Reach1	2.692	7620.00	1263.48	1272.70	1272.70	1274.60	0.008767	12.19	842.57	213.12	0.83
Reach1	2.638	7620.00	1262.74	1271.94	1267.25	1272.38	0.001169	5.39	1524.88	399.80	0.32
Reach1	2.638	7620.00	1262.74	1272.75	1267.20	1273.06	0.000795	4.48	1728.48	206.60	0.26
Reach1	2.618	Culvert									
Reach1	2.603	7620.00	1260.80	1269.11	1265.97	1270.02	0.002628	7.64	996.85	283.25	0.47
Reach1	2.603	7620.00	1260.80	1270.11	1265.98	1270.51	0.001225	5.14	1559.58	243.85	0.32
Reach1	2.556	7620.00	1259.06	1268.51		1269.30	0.002734	7.37	1233.02	302.84	0.47
Reach1	2.556	7620.00	1259.06	1269.48		1270.09	0.001793	6.47	1348.17	222.27	0.39
Reach1	2.461	7620.00	1254.90	1267.21	1266.12	1267.85	0.003074	8.16	1692.17	495.16	0.49
Reach1	2.461	7620.00	1254.90	1267.90	1266.55	1268.86	0.003494	9.17	1219.28	236.91	0.53
Reach1	2.367	7620.00	1252.37	1263.48	1263.48	1265.42	0.007397	12.54	915.05	275.22	0.76
Reach1	2.367	7620.00	1252.37	1263.55	1263.55	1266.06	0.008703	13.67	720.92	146.62	0.83
Reach1	2.272	7620.00	1248.56	1261.49		1262.00	0.001604	6.78	1412.71	301.87	0.36
Reach1	2.272	7620.00	1248.56	1261.50		1262.40	0.002581	8.61	1046.60	187.01	0.46
Reach1	2.196	7620.00	1248.07	1261.37	1254.09	1261.56	0.000427	3.71	2499.35	412.49	0.20
Reach1	2.196	7620.00	1248.07	1261.43	1254.08	1261.68	0.000539	4.02	1895.58	174.88	0.22
Reach1	2.174	Culvert									
Reach1	2.151	7620.00	1246.86	1254.26	1253.67	1256.88	0.009391	12.99	586.57	154.59	0.87
Reach1	2.151	7620.00	1246.86	1254.26	1253.68	1256.88	0.009391	12.99	586.57	154.59	0.87
Reach1	2.050	7620.00	1245.01	1251.52		1252.49	0.004951	7.90	964.25	223.66	0.67
Reach1	2.050	7620.00	1245.01	1251.52		1252.49	0.004951	7.90	964.25	223.66	0.67
Reach1	1.899	7620.00	1241.89	1247.93		1248.84	0.004229	7.64	997.33	203.80	0.61
Reach1	1.899	7620.00	1241.89	1247.93		1248.84	0.004229	7.64	997.33	203.80	0.61

HEC-RAS Plan: CLOMR River: MDOW Reach: Reach1 (Continued)

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Reach1	1.804	7620.00	1239.75	1246.07		1246.81	0.003715	6.92	1101.88	214.59	0.54
Reach1	1.804	7620.00	1239.75	1246.07		1246.81	0.003715	6.92	1101.88	214.59	0.54
Reach1	1.671	7620.00	1237.20	1243.30		1244.07	0.004101	7.04	1082.39	215.64	0.55
Reach1	1.671	7620.00	1237.20	1243.30		1244.07	0.004101	7.04	1082.39	215.64	0.55
Reach1	1.576	7620.00	1235.15	1241.26		1242.01	0.004097	6.93	1100.02	222.17	0.55
Reach1	1.576	7620.00	1235.15	1241.26		1242.01	0.004097	6.93	1100.02	222.17	0.55
Reach1	1.501	7620.00	1233.84	1238.33	1237.82	1239.59	0.009272	9.04	843.12	223.49	0.82
Reach1	1.501	7620.00	1233.84	1238.33	1237.82	1239.59	0.009272	9.04	843.12	223.49	0.82
Reach1	1.481	7620.00	1233.39	1237.37	1237.37	1238.97	0.003971	10.15	750.92	234.80	1.00
Reach1	1.481	7620.00	1233.39	1237.37	1237.37	1238.97	0.003971	10.15	750.92	234.80	1.00
Reach1	1.406	7620.00	1209.94	1216.27		1216.98	0.000886	6.75	1129.25	210.54	0.51
Reach1	1.406	7620.00	1209.94	1216.27		1216.98	0.000886	6.75	1129.25	210.54	0.51
Reach1	1.362	7620.00	1208.28	1215.60		1216.67	0.001648	8.28	920.65	201.19	0.68
Reach1	1.362	7620.00	1208.28	1215.60		1216.67	0.001648	8.28	920.65	201.19	0.68
Reach1	1.267	7620.00	1206.19	1214.32		1215.28	0.005259	7.88	967.51	205.63	0.64
Reach1	1.267	7620.00	1206.19	1214.32		1215.28	0.005259	7.88	967.51	205.63	0.64
Reach1	1.137	7620.00	1203.07	1211.01		1211.93	0.004517	7.67	993.96	205.44	0.61
Reach1	1.137	7620.00	1203.07	1211.01		1211.93	0.004517	7.67	993.96	205.44	0.61
Reach1	1.042	7620.00	1200.99	1209.13		1209.95	0.003391	7.29	1045.63	212.56	0.58
Reach1	1.042	7620.00	1200.99	1209.13		1209.95	0.003391	7.29	1045.63	212.56	0.58
Reach1	0.937	7620.00	1198.74	1207.31		1208.02	0.003447	6.79	1122.50	212.06	0.52
Reach1	0.937	7620.00	1198.74	1207.31		1208.02	0.003447	6.79	1122.50	212.06	0.52
Reach1	0.823	7620.00	1195.73	1206.89		1207.14	0.000633	4.00	1902.99	364.17	0.31
Reach1	0.823	7620.00	1195.73	1206.89		1207.14	0.000633	4.00	1902.99	364.17	0.31

HEC-RAS Plan: CLOMR River: MDOW Reach: Reach1 (Continued)

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Reach1	0.792	7620.00	1193.72	1206.83	1199.67	1206.95	0.000854	2.83	2694.82	508.83	0.21
Reach1	0.792	7620.00	1193.72	1206.83	1199.67	1206.95	0.000854	2.83	2694.82	508.83	0.21
Reach1	0.768	Culvert									
Reach1	0.744	7620.00	1190.98	1201.30	1199.67	1203.28	0.013223	11.30	674.55	384.57	0.71
Reach1	0.744	7620.00	1190.98	1201.30	1199.67	1203.28	0.013223	11.30	674.55	384.57	0.71
Reach1	0.709	7620.00	1192.39	1199.63		1200.34	0.011196	7.64	1222.96	377.68	0.60
Reach1	0.709	7620.00	1192.39	1199.63		1200.34	0.011196	7.64	1222.96	377.68	0.60
Reach1	0.603	7620.00	1186.36	1194.65		1195.12	0.008724	7.15	1472.97	480.73	0.53
Reach1	0.603	7620.00	1186.36	1194.65		1195.12	0.008724	7.15	1472.97	480.73	0.53
Reach1	0.509	7620.00	1183.33	1191.41	1189.47	1191.83	0.005831	5.46	1614.20	608.09	0.43
Reach1	0.509	7620.00	1183.33	1191.41	1189.47	1191.83	0.005831	5.46	1614.20	608.09	0.43
Reach1	0.414	7620.00	1179.16	1185.60	1185.60	1186.61	0.022161	9.06	1079.77	552.60	0.81
Reach1	0.414	7620.00	1179.16	1185.60	1185.60	1186.61	0.022161	9.06	1079.77	552.60	0.81
Reach1	0.324	7620.00	1175.19	1183.03	1181.03	1183.16	0.002504	3.53	2810.59	915.60	0.28
Reach1	0.324	7620.00	1175.19	1183.03	1181.03	1183.16	0.002504	3.53	2810.59	915.60	0.28

Comparison between Existing and Proposed Conditions

River Sta	Existing W.S. Elev	Proposed W.S. Elev	Difference
4.794 FP	1316.8	1316.8	0.0
4.794 FW	1317.34	1317.34	0.0
4.699 FP	1316.67	1316.67	0.0
4.699 FW	1317.01	1317.01	0.0
4.601 FP	1316.56	1316.56	0.0
4.601 FW	1316.76	1316.76	0.0
4.506 FP	1316.23	1316.23	0.0
4.506 FW	1316.37	1316.37	0.0
4.388 FP	1316.14	1316.14	0.0
4.388 FW	1316.3	1316.3	0.0
4.293 FP	1315.33	1315.33	0.0
4.293 FW	1315.33	1315.33	0.0
4.199 FP	1312.39	1312.39	0.0
4.199 FW	1313.12	1313.12	0.0
4.104 FP	1310.55	1310.55	0.0
4.104 FW	1311.55	1311.55	0.0
3.973 FP	1307.14	1307.14	0.0
3.973 FW	1307.5	1307.5	0.0
3.878 FP	1304.39	1304.39	0.0
3.878 FW	1305.12	1305.12	0.0
3.8 FP	1302.28	1302.28	0.0
3.8 FW	1302.91	1302.91	0.0
3.706 FP	1299.65	1299.65	0.0
3.706 FW	1299.94	1299.94	0.0
3.589 FP	1296.52	1296.52	0.0
3.589 FW	1297.13	1297.13	0.0
3.494 FP	1294.29	1294.29	0.0
3.494 FW	1295.21	1295.21	0.0
3.399 FP	1291.72	1291.72	0.0
3.399 FW	1292.07	1292.07	0.0
3.35 FP	1291.82	1291.82	0.0
3.35 FW	1292.18	1292.18	0.0
3.33		LOOP 303 CULVERT	
3.31 FP	1289.12	1289.12	0.0
3.31 FW	1289.64	1289.64	0.0
3.266 FP	1287.61	1287.61	0.0
3.266 FW	1288.43	1288.43	0.0
3.171 FP	1284.63	1284.63	0.0
3.171 FW	1285.61	1285.61	0.0
3.077 FP	1283.35	1283.35	0.0
3.077 FW	1283.92	1283.92	0.0
2.986 FP	1281.46	1281.46	0.0
2.986 FW	1282.06	1282.06	0.0
2.891 FP	1278.59	1278.58	0.0
2.891 FW	1278.96	1278.96	0.0

2.787 FP	1275.71	1275.74	0.03
2.787 FW	1276.49	1276.51	0.02
2.692 FP	1272.74	1272.7	-0.04
2.692 FW	1273.22	1272.7	-0.52
2.638 FP	N/A	1271.94	N/A
2.638 FW	N/A	1272.75	N/A
2.632 FP	1272.73	N/A	N/A
2.632 FW	1273.45	N/A	N/A
2.618	WILLIAMS DRIVE CULVERT		
2.603 FP	1271.29	1269.11	-2.18
2.603 FW	1271.92	1270.11	-1.81
2.556 FP	1269.12	1268.51	-0.61
2.556 FW	1270.1	1269.48	-0.62
2.461 FP	1267.21	1267.21	0.0
2.461 FW	1267.89	1267.9	0.0
2.367 FP	1263.48	1263.48	0.0
2.367 FW	1263.55	1263.55	0.0
2.272 FP	1261.49	1261.49	0.0
2.272 FW	1261.5	1261.5	0.0
2.196 FP	1261.37	1261.37	0.0
2.196 FW	1261.43	1261.43	0.0
2.174	EL MIRAGE NORTH CULVERT		
2.151 FP	1254.26	1254.26	0.0
2.151 FW	1254.26	1254.26	0.0
2.05 FP	1251.52	1251.52	0.0
2.05 FW	1251.52	1251.52	0.0
1.899 FP	1247.93	1247.93	0.0
1.899 FW	1247.93	1247.93	0.0
1.804 FP	1246.07	1246.07	0.0
1.804 FW	1246.07	1246.07	0.0
1.671 FP	1243.3	1243.3	0.0
1.671 FW	1243.3	1243.3	0.0
1.576 FP	1241.26	1241.26	0.0
1.576 FW	1241.26	1241.26	0.0
1.501 FP	1238.33	1238.33	0.0
1.501 FW	1238.33	1238.33	0.0
1.481 FP	1237.37	1237.37	0.0
1.481 FW	1237.37	1237.37	0.0
1.406 FP	1216.27	1216.27	0.0
1.406 FW	1216.27	1216.27	0.0
1.362 FP	1215.6	1215.6	0.0
1.362 FW	1215.6	1215.6	0.0
1.267 FP	1214.32	1214.32	0.0
1.267 FW	1214.32	1214.32	0.0
1.137 FP	1211.01	1211.01	0.0
1.137 FW	1211.01	1211.01	0.0
1.042 FP	1209.13	1209.13	0.0

1.042 FW	1209.13	1209.13	0.0
0.937 FP	1207.31	1207.31	0.0
0.937 FW	1207.31	1207.31	0.0
0.823 FP	1206.89	1206.89	0.0
0.823 FW	1206.89	1206.89	0.0
0.792 FP	1206.83	1206.83	0.0
0.792 FW	1206.83	1206.83	0.0
0.768	EL MIRAGE SOUTH CULVERT		
0.744 FP	1201.3	1201.3	0.0
0.744 FW	1201.3	1201.3	0.0
0.709 FP	1199.63	1199.63	0.0
0.709 FW	1199.63	1199.63	0.0
0.603 FP	1194.65	1194.65	0.0
0.603 FW	1194.65	1194.65	0.0
0.509 FP	1191.41	1191.41	0.0
0.509 FW	1191.41	1191.41	0.0
0.414 FP	1185.6	1185.6	0.0
0.414 FW	1185.6	1185.6	0.0
0.324 FP	1183.03	1183.03	0.0
0.324 FW	1183.03	1183.03	0.0

FP = FLOODPLAIN

FW = FLOODWAY

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

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PROJECT DATA

Project Title: McMicken Dam Outlet Wash Williams Dr.
Project File : williamsCLOMR.prj
Run Date and Time: 10/3/2013 4:14:44 PM

Project in English units

Project Description:

Williams Drive CLOMR McMicken Dam Outlet Wash
Contract FCD 2011C003
Assignment 5

Consultant: RBF Consulting
2929 North Central Avenue
#800
Phoenix, AZ 85012

Model Geometry based upon 1' contour interval
mapping and MCDOT proposed improvements at Williams Drive

Vertical Datum in
NAVD88

Aerial mapping provided by the Flood Control District of Maricopa
County for McMicken Outfall Channel Mapping, Contract FCD 2012C033, Flight Date
October 8, 2012.

HEC-RAS Version 4.1.0
McMicken Dam Outlet Wash is
tributary to the Agua Fria River

Last Run Date October 3, 2013

PLAN DATA

Plan Title: Williams Drive CLOMR
Plan File : h:\PDATA\133347\Calcs\Strmwater\Hydraulics\CLOMR\Updated\williamsCLOMR.p01

Geometry Title: Proposed Conditions
Geometry File : h:\PDATA\133347\Calcs\Strmwater\Hydraulics\CLOMR\Updated\williamsCLOMR.g01

Flow Title : Existing Conditions
Flow File : h:\PDATA\133347\Calcs\Strmwater\Hydraulics\CLOMR\Updated\williamsCLOMR.f01

Plan Summary Information:

Number of: Cross Sections = 53 Multiple Openings = 0
Culverts = 4 Inline Structures = 0
Bridges = 0 Lateral Structures = 0

Computational Information

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

Computation Options

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

Encroachment Data

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

Table with columns: River = MDOW, RS, Profile, Reach = Reach1, Method, Value1, Value2. Lists various profile and reach data points.

3.350 1% FW 1 9883.1910226.12
 3.310 1% FW 1 9892.2710299.26
 3.266 1% FW 1 9923.3210317.86
 3.171 1% FW 1 9670.310212.05
 3.077 1% FW 1 960010066.01
 2.986 1% FW 1 9982.9910197.06
 2.891 1% FW 1 9923.0510052.95
 2.787 1% FW 1 9910.110117.77
 2.692 1% FW 1 9916.1210129.24
 2.638 1% FW 1 9885.9610092.56
 2.603 1% FW 1 9883.910127.75
 2.556 1% FW 1 9888.210110.47
 2.461 1% FW 1 9862.6710099.58
 2.367 1% FW 1 9920.2310066.85
 2.272 1% FW 1 9973.2310161.58
 2.196 1% FW 1 9925.7910100.67
 2.151 1% FW 1 9901.9710075.67
 2.050 1% FW 1 9801.13 10246.7
 1.899 1% FW 1 9788.8310223.82
 1.804 1% FW 1 9788.8710218.98
 1.671 1% FW 1 9787.3310220.36
 1.576 1% FW 1 9776.5610224.42
 1.501 1% FW 1 9808.3110242.12
 1.481 1% FW 1 9803.4710266.57
 1.406 1% FW 1 9762.6610228.82
 1.362 1% FW 1 9773.9910234.81
 1.267 1% FW 1 9789.0610231.06
 1.137 1% FW 1 9779.6910216.39
 1.042 1% FW 1 9764.7610243.09
 0.937 1% FW 1 9792.5810238.29
 0.823 1% FW 1 9495.8410248.88
 0.792 1% FW 1 9427.7510227.58
 0.744 1% FW 1 9388.8910188.89
 0.709 1% FW 1 9456.7510221.05
 0.603 1% FW 1 9800 10600
 0.509 1% FW 1 9255.9110400.06
 0.414 1% FW 1 9668.3610519.95
 0.324 1% FW 1 9820.5310843.96

GEOMETRY DATA

Geometry Title: Proposed Conditions
 Geometry File : h:\pdata\133347\Calcs\Strmwater\Hydraulics\CLOMR\Updated\williamsCLOMR.g01

CROSS SECTION

RIVER: MDOW
 REACH: Reach1 RS: 4.794

INPUT

Description:

Station	Elevation	Data	num=	284	Sta	Elev	Sta	Elev	Sta	Elev
9000	1319.55	9010.04	1319.45	9015.58	1319.5	9018.45	1319.53	9028.61	1319.52	
9030.6	1319.53	9032.49	1319.53	9038.98	1319.44	9039.93	1319.42	9046.8	1319.36	
9047.32	1319.35	9047.82	1319.35	9053.77	1319.29	9058.74	1319.22	9060.6	1319.19	
9065.2	1319.14	9069.05	1319.09	9071.38	1319.15	9073.15	1319.09	9073.78	1318.99	
9082.65	1318.79	9083.39	1318.77	9084.03	1318.76	9091.03	1318.56	9093.93	1318.48	
9099.39	1318.35	9102.38	1318.28	9104.83	1318.21	9111.84	1318.11	9114.24	1318.06	
9116.24	1317.98	9130.27	1317.8	9131.54	1317.77	9133.26	1317.75	9142.18	1317.67	
9146.59	1317.64	9158.13	1317.47	9159.41	1317.47	9173.02	1317.41	9175.67	1317.43	
9177.1	1317.41	9190.28	1317.31	9194.03	1317.23	9201.98	1317.22	9202.86	1317.24	
9207.55	1317.25	9209.9	1317.28	9210.4	1317.3	9212.89	1317.3	9222.19	1317.41	
9223.32	1317.42	9231.06	1317.48	9232.49	1317.49	9234.53	1317.51	9246.97	1317.57	
9247.96	1317.56	9248.46	1317.55	9254.02	1317.55	9255.4	1317.58	9264.8	1317.56	
9267.24	1317.56	9270.89	1317.56	9279.41	1317.48	9284.86	1317.5	9289.96	1317.44	
9294.19	1317.49	9298.11	1317.44	9301.44	1317.3	9310.39	1317.19	9312.96	1317.13	
9322.45	1316.87	9322.5	1316.87	9322.58	1316.87	9331.55	1316.67	9342.77	1316.47	
9344.47	1316.45	9345.11	1316.44	9351.59	1316.33	9359.41	1316.2	9361.48	1316.16	
9366.52	1315.95	9369.26	1315.88	9377.8	1315.72	9379.55	1315.69	9386.57	1315.54	
9397.79	1315.25	9400.51	1315.23	9403.72	1315.19	9408.55	1315.12	9411.16	1315.19	
9412.96	1315.19	9415.13	1315.03	9418.59	1314.97	9423.98	1314.81	9427.95	1314.76	
9431.78	1314.7	9434	1314.64	9463.95	1314.24	9464.52	1314.23	9464.99	1314.22	
9465.72	1314.25	9469.35	1314.23	9472.24	1314.16	9475.54	1314.14	9477.39	1314.13	
9482.3	1314.05	9485.33	1314.04	9486.58	1314.04	9489.51	1313.92	9492.01	1313.88	
9493.56	1313.83	9498.63	1313.81	9498.99	1313.81	9501.85	1313.79	9503.81	1313.79	
9508.06	1313.73	9513.52	1313.73	9517.54	1313.73	9518.92	1313.72	9526.74	1313.71	
9528.95	1313.71	9533.68	1313.7	9537.42	1313.74	9539.77	1313.73	9542.6	1313.63	
9552.1	1313.64	9555.91	1313.59	9559.09	1313.59	9562	1313.59	9567.92	1313.51	
9570.07	1313.5	9571.72	1313.48	9573.46	1313.45	9574.98	1313.45	9575.84	1313.45	
9576.73	1313.5	9587.39	1313.49	9589.16	1313.49	9592.44	1313.35	9593.23	1313.35	
9596.23	1313.35	9599.79	1313.38	9602.27	1313.38	9605.18	1313.38	9609.12	1313.35	
9611.35	1313.35	9613.61	1313.31	9616.14	1313.35	9620.1	1313.27	9622.55	1313.27	
9625.2	1313.23	9628.6	1313.26	9631.22	1313.26	9634.69	1313.21	9637.24	1313.21	
9639.06	1313.2	9641.14	1313.12	9646.57	1313.18	9649.4	1313.18	9651.62	1313.18	
9653.79	1313.14	9655.79	1313.14	9660.04	1313.02	9662.49	1313.02	9664.97	1313.02	
9667.23	1312.98	9683.67	1312.89	9686.1	1312.92	9688.77	1312.82	9691.51	1312.76	
9698.56	1312.72	9701.59	1312.72	9711.28	1312.71	9719.96	1312.65	9728.62	1312.6	
9737.18	1312.71	9745.56	1312.55	9749.11	1312.54	9756.7	1312.42	9757.32	1312.41	
9763.61	1312.35	9763.87	1312.35	9764.51	1312.36	9764.64	1312.37	9773.03	1312.3	
9776.98	1312.28	9788.91	1312.27	9797.42	1312.25	9824.74	1312.14	9841.18	1312.06	
9852.81	1312	9857.81	1312	9863.41	1311.9	9866.96	1311.87	9872.52	1311.87	
9872.65	1311.86	9876.33	1311.91	9877.9	1311.93	9878.06	1311.93	9883.65	1311.87	
9883.95	1311.86	9888.3	1311.81	9888.71	1311.8	9889	1311.8	9893.25	1311.68	
9893.61	1311.68	9897.55	1311.63	9897.83	1311.63	9902.35	1311.85	9902.61	1311.85	
9902.78	1311.87	9905.6	1311.77	9906	1311.79	9908.56	1311.69	9908.87	1311.68	
9910.62	1311.66	9911.27	1311.66	9914.12	1311.6	9916.56	1311.51	9920.53	1311.39	
9923	1311.31	9926.14	1311.43	9932.35	1311.54	9934.55	1311.49	9935.49	1311.49	
9938.54	1311.49	9939.6	1311.55	9941.19	1311.54	9942.07	1311.54	9945.37	1311.45	
9946.66	1311.42	9948.35	1311.33	9950.55	1311.31	9951.68	1311.24	9954.86	1311.19	
9956.7	1311.22	9958.73	1311.24	9960.75	1311.28	9962.34	1311.29	9964.86	1311.29	

williamsCLOMR.rep
 9965.94 1311.3 9971.95 1311.23 9973.68 1311.21 9975.84 1311.1 9981.03 1309.86
 9982.6 1309.45 9988.01 1308.45 9992.67 1307.59 9996.84 1307.44 10000 1307.32
 10001.79 1307.2610003.11 1307.310013.68 1307.5910036.66 1308.3210039.81 1308.41
 10042.9 1308.510056.85 1308.8110058.67 1308.9 10065.7 1309.2810070.08 1309.49
 10075.73 1309.7710077.48 1309.9510078.79 1310.210096.11 1310.2810102.36 1310.35
 10106.07 1310.3210118.98 1310.2410127.73 1310.7510132.79 1311.110135.61 1311.73
 10136.22 1311.8310137.38 1312.2310143.31 1314.2310148.81 1316.3910152.12 1317.66
 10155.96 1319.24 10160 1320.9110162.54 1321.9610164.35 1322.07 10164.4 1322.07
 10164.67 1322.0710173.81 1321.9410173.88 1321.9410176.63 1321.75

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val

 9000 .05 9975.84 .0310078.79 .03

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 9975.8410078.79 433.5 500 518.6 .1 .3

CROSS SECTION

RIVER: MDOW
 REACH: Reach1 RS: 4.699

INPUT

Description:

Station Elevation Data num= 490
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev

 8500 1319.52 8500.54 1319.51 8509.33 1319.4 8511.59 1319.33 8515.54 1319.32
 8521.03 1319.28 8524.98 1319.27 8529.1 1319.27 8532.03 1319.26 8536.11 1319.22
 8546.14 1319.16 8547.48 1319.16 8548.56 1319.15 8551.59 1319.46 8552.94 1319.42
 8555.6 1319.49 8557.51 1319.45 8559.8 1319.35 8560.21 1319.33 8561.32 1319.24
 8562.75 1319.12 8563.72 1319.07 8565.8 1318.97 8567.7 1318.92 8570.7 1319.48
 8571.17 1319.48 8575.02 1319.46 8575.85 1319.48 8576.88 1319.46 8580.25 1319.39
 8581.72 1319.29 8583.11 1319.22 8584.13 1319 8585.6 1318.56 8587.61 1318.45
 8590.36 1318.74 8591.2 1318.74 8591.98 1318.82 8593.33 1318.82 8594.43 1318.78
 8597.21 1318.87 8599.96 1318.84 8610.54 1318.66 8616.38 1318.54 8622.89 1318.46
 8623.84 1318.46 8625.22 1318.43 8626.96 1318.41 8643.86 1318.36 8644.58 1318.35
 8645.71 1318.34 8650.74 1318.3 8663.34 1318.33 8664.82 1318.32 8665.99 1318.31
 8667.14 1318.32 8671.46 1318.41 8685.82 1318.17 8686.17 1318.21 8686.64 1318.18
 8687.14 1318.17 8687.59 1318.17 8688.03 1318.19 8697.9 1318.19 8698.73 1318.23
 8700.46 1318.27 8702.29 1318.28 8703.6 1318.28 8706.27 1318.3 8716.33 1318.23
 8717.93 1318.11 8720.83 1318.1 8724.98 1318.08 8728.54 1318.07 8735.18 1318.03
 8735.83 1318.02 8743.32 1317.96 8755.86 1317.84 8757.74 1317.84 8761.93 1317.82
 8771.63 1317.75 8774.83 1317.71 8786.56 1317.58 8793.54 1317.53 8798.66 1317.5
 8812.88 1317.36 8814.44 1317.36 8827.75 1317.25 8831.23 1317.21 8841.61 1317.1
 8847.97 1317.05 8855.04 1317.03 8856.02 1317.03 8858.65 1316.99 8863.55 1317.04
 8865.12 1317.03 8866.3 1317.07 8868.03 1317.06 8872.66 1317.08 8875.08 1317.03
 8876.16 1316.96 8878.85 1316.81 8879.5 1316.79 8880.64 1316.83 8881.93 1316.86
 8882.64 1316.86 8886.99 1316.88 8888.13 1316.89 8896.06 1316.7 8896.61 1316.69
 8903.12 1316.72 8904.18 1316.75 8905.63 1316.75 8910.92 1316.88 8913.52 1317
 8914.1 1317.04 8916.43 1317.14 8918.65 1317.14 8918.77 1317.13 8922.01 1316.83
 8922.53 1316.81 8922.91 1316.81 8923.65 1316.8 8928.53 1316.69 8932.43 1316.62
 8934.23 1316.63 8935.45 1316.63 8956.35 1316.58 8957.39 1316.57 8958.14 1316.56
 8963.23 1316.54 8965.94 1316.47 8972.14 1316.43 8975.58 1316.41 8991.1 1316.35
 8996.25 1316.34 9008.4 1316.2 9018.75 1316.09 9025.64 1316.02 9026.46 1316.02
 9029.92 1316.01 9031.44 1316.06 9035.25 1315.97 9036.15 1315.9 9036.54 1315.88
 9039.04 1315.83 9041.55 1315.82 9042.89 1315.8 9046.37 1315.85 9051.99 1315.83
 9054.69 1315.8 9059.86 1315.66 9060.86 1315.66 9063.91 1315.65 9067.96 1315.65
 9072.71 1315.59 9077.23 1315.58 9079.62 1315.57 9084.52 1315.57 9087.87 1315.58
 9092.5 1315.53 9095.2 1315.5 9097.38 1315.49 9099.66 1315.49 9102.8 1315.48
 9106.22 1315.46 9110.61 1315.47 9116.25 1315.44 9118.43 1315.45 9121.41 1315.4
 9124.81 1315.39 9128.37 1315.37 9131.2 1315.36 9133.38 1315.36 9136.45 1315.35
 9141.54 1315.32 9144.05 1315.31 9147.2 1315.3 9150.14 1315.3 9152.39 1315.31
 9161.65 1315.27 9163.19 1315.21 9166.9 1315.16 9167.93 1315.15 9172.09 1315.17
 9180.73 1315.33 9184.3 1315.31 9186.62 1315.28 9192.22 1315.23 9196.6 1315.2
 9199.08 1315.18 9203.29 1315.17 9204.25 1315.18 9204.76 1315.24 9205.48 1315.26
 9208.96 1315.27 9211.52 1315.13 9214.26 1315.13 9218.19 1315.1 9219.84 1315.1
 9221.76 1315.09 9223.48 1315.07 9229.23 1315.08 9230.23 1315.07 9234.02 1315.07
 9238.76 1315.05 9239.14 1315.06 9240.07 1315.04 9244.63 1315.04 9246.59 1315.03
 9247.46 1315.02 9252.24 1315.03 9257.8 1314.87 9258.07 1314.87 9258.72 1314.88
 9260.24 1314.93 9262.65 1314.94 9263.56 1314.94 9264.97 1314.91 9265.71 1314.91
 9268.34 1314.86 9271.45 1314.74 9271.63 1314.74 9277.87 1314.58 9279.18 1314.58
 9280.77 1314.59 9289.22 1314.65 9294 1314.66 9294.68 1314.66 9296.1 1314.65
 9296.95 1314.66 9298.95 1314.65 9299.59 1314.65 9305.3 1314.62 9307.59 1314.61
 9307.93 1314.61 9317.51 1314.54 9317.64 1314.54 9320.96 1314.52 9323.48 1314.51
 9323.7 1314.51 9330.28 1314.46 9336.45 1314.48 9338.49 1314.46 9339.32 1314.45
 9344.64 1314.46 9347.59 1314.38 9350.33 1314.31 9354.87 1314.25 9356.27 1314.23
 9358.16 1314.23 9360.66 1314.21 9367.45 1314.16 9369.3 1314.16 9372.4 1314.15
 9379.12 1314.12 9383.26 1314.08 9384.26 1314.08 9385.16 1314.07 9389.38 1314.05
 9390.13 1314.04 9392.51 1314.05 9399.8 1314.04 9405.35 1314.11 9405.85 1314.13
 9406.05 1314.13 9411.14 1314.33 9411.69 1314.36 9413.16 1314.29 9414.23 1314.23
 9417.87 1313.93 9418.12 1313.94 9419.62 1313.96 9426.98 1314.02 9429.89 1314.01
 9431.85 1314.04 9435 1313.93 9442.57 1313.93 9445.28 1313.94 9449.18 1313.9
 9451.31 1313.88 9454.81 1313.79 9466.3 1313.79 9469.26 1313.74 9480.8 1313.74
 9482.07 1313.72 9485.23 1313.66 9498.99 1313.66 9504.53 1313.59 9504.84 1313.59
 9511.24 1313.38 9511.66 1313.38 9517.12 1313.41 9517.62 1313.4 9521.99 1313.41
 9524.61 1313.41 9529.52 1313.42 9538.6 1313.42 9540.54 1313.31 9541.62 1313.31
 9544.51 1313.26 9546.46 1313.25 9550.08 1313.21 9552.33 1313.21 9555.65 1313.06
 9558.06 1313.06 9559.91 1313.07 9563.45 1313.03 9565.67 1313.04 9574.39 1313.04
 9576.27 1312.96 9577.96 1312.96 9580.44 1312.91 9584.81 1312.91 9589.92 1312.81
 9591.59 1312.79 9594.32 1312.78 9598.55 1312.7 9612.96 1312.7 9618.08 1312.63
 9618.48 1312.62 9623.02 1312.49 9623.31 1312.49 9626.45 1312.48 9629.19 1312.47
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 9717.93 1312.26 9721.79 1312.25 9722.11 1312.26 9722.38 1312.26 9726.37 1312.14
 9726.79 1312.14 9730.83 1312.08 9731.43 1312.06 9735.01 1312.06 9735.73 1312.09
 9740.4 1312.1 9741.38 1312.06 9745.73 1312.06 9746.6 1312.03 9747.66 1312.02
 9757.4 1312.02 9758.53 1311.98 9759.81 1311.98 9763.12 1312.01 9764.71 1312.01
 9767.08 1311.99 9769.2 1311.94 9773.22 1311.94 9775.86 1311.93 9776.48 1311.93
 9778.61 1311.92 9781.03 1311.95 9782.39 1311.98 9784.21 1311.95 9786.53 1311.94
 9789.13 1311.93 9790.93 1311.93 9793.88 1311.92 9795.14 1311.94 9796.15 1311.93
 9796.31 1311.89 9799.75 1311.84 9801.08 1311.82 9804.43 1311.82 9805.12 1311.83
 9809.24 1311.88 9809.99 1311.9 9810.6 1311.89 9814.27 1311.94 9814.94 1311.93

WilliamsCLOMR.rep											
9816.68	1311.93	9817.29	1311.92	9825.28	1311.92	9828.27	1311.85	9829.36	1311.85		
9833.17	1311.76	9837.52	1311.74	9841.69	1311.85	9846.51	1311.78	9847.83	1311.78		
9851.29	1311.76	9852.05	1311.75	9856.35	1311.61	9857.8	1311.58	9861.14	1311.53		
9865.4	1311.58	9866.62	1311.55	9868.03	1311.55	9871.65	1311.32	9872.93	1311.34		
9876.76	1311.34	9878.41	1311.39	9882.61	1311.39	9883.89	1311.36	9886.22	1311.27		
9888.32	1311.23	9890.53	1311.19	9891.62	1311.22	9898.87	1311.22	9901.33	1311.26		
9903.49	1311.26	9905.38	1311.23	9908.27	1311.19	9910.39	1311.19	9913.11	1311.15		
9917.04	1311.15	9918.1	1311.13	9922.48	1311.13	9926.31	1311.08	9929.65	1311.18		
9930.13	1311.1	9931.53	1311.14	9933.3	1311.12	9934.21	1311.12	9935.94	1311.16		
9938.64	1311.15	9940.36	1311.16	9942.97	1311.19	9944	1311.15	9945.26	1311.14		
9947.27	1311.19	9949.73	1311.19	9951.95	1311.14	9953	1311.15	9956.52	1311.13		
9957.8	1311.12	9960.04	1310.82	9963.48	1310.65	9965.83	1310.65	9969.19	1310.67		
9969.83	1310.72	9976.98	1309.32	9978.04	1309.1	9978.83	1308.97	9987.46	1307.56		
9991.7	1307.19	9995.29	1306.88	9999.87	1306.78	10000	1306.78	10002.15	1306.76		
10014.27	1307.76	10017.79	1308.06	10018.56	1308.08	10029.97	1308.42	10035.85	1308.37		
10041.72	1308.33	10056.76	1309.04	10062.05	1309.27	10065.15	1309.34	10081.99	1309.77		
10098.2	1309.98	10099.38	1310.02	10100.33	1310	10112.7	1309.85	10118.51	1309.96		
10128.81	1310.05	10134.42	1309.86	10137.75	1309.76	10140.72	1309.89	10143.87	1310.45		
10144.24	1310.51	10144.77	1310.56	10149.73	1310.88	10155.88	1312.7	10157.1	1313.04		
10163.92	1315.99	10165.35	1316.62	10166.65	1317.15	10177.03	1321.45	10177.54	1321.53		
10178.98	1321.76	10181.16	1321.81	10188.54	1321.79	10189.48	1321.73	10191.77	1321.62		

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val

 8500 .05 9969.83 .0310099.38 .03

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 9969.8310099.38 493.3 519.12 522.8 .1 .3

CROSS SECTION

RIVER: MDOW
 REACH: Reach1 RS: 4.601

INPUT

Description:
 Station Elevation Data num= 490

Sta	Elev								
8500	1319.41	8517.15	1319.31	8518.27	1319.31	8518.85	1319.3	8519.87	1319.29
8519.9	1319.28	8519.99	1319.27	8521.76	1318.89	8521.83	1318.89	8523.5	1318.99
8523.58	1319	8523.99	1318.98	8525.54	1318.91	8528.09	1319.33	8531.82	1319.94
8533.05	1319.83	8538.3	1319.44	8541.89	1319.1	8543.33	1319.06	8544.56	1319.05
8547.7	1319.04	8549.85	1319.06	8552.03	1319.03	8553.87	1319.01	8557.62	1318.99
8561.02	1318.99	8562.95	1318.98	8566.45	1318.98	8587.56	1318.81	8592.1	1318.8
8599.29	1318.74	8621	1318.66	8643.92	1318.59	8650.16	1318.53	8656.62	1318.5
8673.8	1318.37	8695.17	1318.2	8705.97	1318.16	8717.64	1318.13	8721.46	1318.07
8728.05	1317.96	8750.77	1317.75	8760.86	1317.66	8773.88	1317.59	8784.36	1317.54
8788.45	1317.5	8816.54	1317.3	8818.34	1317.29	8819.06	1317.28	8821.29	1317.26
8836.7	1317.1	8837.13	1317.1	8842.1	1317.04	8847.89	1316.99	8852.22	1316.94
8854.77	1316.92	8857.22	1316.92	8863.56	1316.9	8867.76	1316.9	8869.81	1316.89
8871.87	1316.89	8872.74	1316.85	8900.46	1316.7	8916.56	1316.61	8928.5	1316.52
8936.42	1316.43	8937.63	1316.42	8940.11	1316.4	8941.44	1316.38	8945.53	1316.28
8949.52	1316.2	8953.2	1316.19	8962.05	1316.15	8962.5	1316.15	8963	1316.14
8966.94	1316.14	8968.62	1316.19	8970	1316.19	8970.92	1316.16	8972.07	1316.13
8980.44	1316.07	8981.13	1316.04	8984.14	1316.04	8986.39	1316.07	8987.87	1316.07
8989.22	1316.1	8991.17	1316.16	8993.01	1316.12	8995.23	1315.97	8999.39	1315.84
9000.59	1315.83	9001.25	1315.83	9005.68	1315.81	9016.19	1315.81	9017.65	1315.82
9021.19	1315.82	9022.7	1315.83	9024.04	1315.83	9027.6	1315.68	9028.98	1315.67
9030.51	1315.67	9031.47	1315.68	9035.08	1315.69	9039.99	1315.69	9041.68	1315.67
9044.57	1315.66	9047.97	1315.63	9050.27	1315.63	9052.43	1315.62	9056.27	1315.6
9060.18	1315.59	9062.7	1315.61	9066.96	1315.6	9069.18	1315.59	9071.17	1315.58
9074.48	1315.54	9076.4	1315.55	9081.17	1315.5	9084.92	1315.49	9087.56	1315.47
9090.53	1315.45	9096.44	1315.61	9098.63	1315.6	9100.21	1315.59	9103.53	1315.46
9106.92	1315.34	9110.12	1315.3	9111.05	1315.33	9111.25	1315.32	9111.43	1315.32
9114.1	1315.35	9118.7	1315.38	9119.67	1315.35	9123.79	1315.35	9124.73	1315.33
9136.62	1315.21	9140.39	1315.2	9147.64	1315.13	9150.94	1315.09	9160.93	1315.04
9164.97	1315.1	9168.26	1315.06	9177.08	1315.03	9179.53	1315.02	9182.62	1314.98
9189.59	1314.92	9194.42	1314.92	9198.12	1314.91	9214.92	1314.77	9215.52	1314.77
9225.95	1314.76	9226.77	1314.76	9228.42	1314.75	9237.17	1314.71	9241.81	1314.68
9243.82	1314.65	9246.96	1314.63	9254.52	1314.57	9257.18	1314.57	9264.37	1314.52
9265	1314.5	9269.45	1314.5	9274.59	1314.5	9274.4	1314.48	9275.55	1314.46
9279.29	1314.44	9280.93	1314.43	9286.11	1314.43	9288.46	1314.42	9291.57	1314.39
9294.42	1314.35	9299.91	1314.3	9302.54	1314.29	9305.21	1314.28	9307.88	1314.27
9309.99	1314.21	9312.32	1314.18	9316.08	1314.18	9321	1314.17	9325.56	1314.13
9335.77	1314.15	9337.65	1314.12	9339.81	1314.11	9342.76	1314.06	9346.32	1314.01
9347.66	1313.98	9357.44	1313.98	9357.65	1313.99	9357.96	1313.98	9362.48	1314
9365.67	1313.97	9366.35	1313.94	9368.43	1313.82	9370	1313.9	9371.69	1313.92
9373.94	1313.92	9376.55	1313.93	9382.89	1313.89	9383.33	1313.88	9383.63	1313.88
9388.38	1313.81	9391.29	1313.76	9396.28	1313.75	9402.26	1313.75	9407.12	1313.69
9415.98	1313.69	9421.38	1313.65	9422.48	1313.64	9422.89	1313.64	9425.44	1313.61
9434.15	1313.58	9438.1	1313.56	9439.33	1313.55	9442.55	1313.53	9444.92	1313.51
9446.04	1313.51	9449.22	1313.49	9451.92	1313.45	9456.67	1313.45	9459.48	1313.43
9468.05	1313.43	9471.82	1313.41	9474.57	1313.39	9476.8	1313.39	9480.49	1313.35
9484.53	1313.35	9485.59	1313.34	9486.05	1313.34	9495.77	1313.31	9496.48	1313.29
9498.82	1313.29	9501.44	1313.28	9507.64	1313.25	9507.99	1313.25	9512.54	1313.21
9516.12	1313.17	9516.8	1313.16	9517.56	1313.15	9519.17	1313.14	9526.33	1313.07
9533.98	1313.01	9534.59	1313	9535.94	1312.98	9542.44	1312.9	9545.5	1312.83
9548.78	1312.82	9554.64	1312.87	9556.94	1312.85	9563.7	1312.86	9565.24	1312.86
9571.9	1312.92	9577.44	1312.86	9578.2	1312.87	9581.58	1312.74	9582.2	1312.73
9586.98	1312.73	9590.97	1312.66	9591.95	1312.66	9595.46	1312.61	9604.26	1312.59
9607.06	1312.54	9610.07	1312.58	9610.67	1312.58	9610.9	1312.59	9611.39	1312.64
9612.06	1312.69	9615.71	1312.89	9616.74	1312.75	9619.49	1312.59	9622.27	1312.48
9622.47	1312.47	9627.18	1312.46	9631.49	1312.46	9639.28	1312.53	9639.37	1312.53
9643.06	1312.73	9643.12	1312.73	9648.01	1312.6	9648.16	1312.59	9653.51	1312.32
9659.66	1312.32	9668.64	1312.36	9669.52	1312.36	9670	1312.41	9670.66	1312.46
9673.19	1312.62	9674.36	1312.66	9676.51	1312.69	9677.33	1312.68	9679.86	1312.52
9680.61	1312.48	9681	1312.43	9682.3	1312.41	9683.81	1312.39	9696.07	1312.21
9697.61	1312.22	9697.96	1312.22	9699.55	1312.25	9699.81	1312.25	9704.07	1312.2
9704.39	1312.22	9705.6	1312.13	9708	1312.09	9709.33	1312.13	9714.17	1312.18
9717.27	1312.15	9720.53	1312.13	9721.88	1312.12	9726.26	1312.09	9729.57	1312.1
9729.87	1312.09	9730.02	1312.09	9734.53	1312.15	9739.08	1312.02	9745.48	1312.02
9749.2	1312.08	9749.74	1312.07	9754.68	1311.94	9756.12	1311.94	9758.93	1311.93
9761.08	1311.88	9764.93	1311.88	9766	1311.86	9771.04	1311.86	9775.19	1311.72

WilliamsCLOMR.rep

9777.43	1311.72	9779.43	1311.73	9784.25	1311.73	9786.1	1311.74	9792.06	1311.74
9794.2	1311.75	9797.77	1311.67	9799.79	1311.67	9804.06	1311.63	9806.08	1311.66
9807.43	1311.66	9811.03	1311.65	9812.67	1311.72	9817.12	1311.71	9818.39	1311.63
9823.19	1311.62	9825.28	1311.59	9831.25	1311.59	9836.35	1311.6	9841.49	1311.54
9842.35	1311.5	9844.13	1311.5	9849.36	1311.49	9849.89	1311.52	9854.55	1311.46
9857.48	1311.29	9861.23	1311.39	9863.38	1311.36	9866.63	1311.3	9867.01	1311.32
9867.9	1311.25	9870.35	1311.2	9872.64	1311.12	9873.02	1311.11	9873.89	1311.05
9875.3	1311.13	9876.34	1311.24	9878.06	1311.31	9879.69	1311.26	9881.31	1311.23
9884.07	1310.94	9884.48	1310.9	9884.62	1310.89	9885.54	1310.82	9886.83	1310.87
9887.54	1310.9	9888.9	1310.76	9889.08	1310.73	9890.22	1310.86	9890.66	1310.85
9891.63	1310.75	9892.16	1310.77	9893.78	1310.78	9894.1	1310.8	9894.49	1310.85
9896.17	1311.18	9898.05	1311.24	9902.4	1311.38	9903.39	1311.41	9903.8	1311.42
9904.25	1311.42	9907.65	1311.25	9909.34	1311.23	9911.81	1311.18	9914.17	1311.16
9916.36	1310.98	9917.47	1310.86	9918.76	1310.8	9921.16	1310.26	9922.41	1310.29
9922.62	1310.3	9924.46	1310.57	9924.82	1310.62	9925.02	1310.66	9925.11	1310.65
9926.75	1310.51	9927.21	1310.61	9930.95	1311.22	9931.7	1311.22	9932.97	1311.19
9935.05	1311.17	9937.76	1311.17	9939.41	1311.12	9942.35	1311.11	9944.42	1311.05
9945.59	1311.03	9948.9	1310.95	9951.67	1310.96	9952.89	1311.04	9953.35	1310.98
9958.83	1310.9	9959.37	1310.89	9966.61	1309.82	9969.91	1309.26	9972.63	1308.81
9977.7	1307.9	9983.87	1307.53	9990.99	1307.24	9994.66	1307.03	9995.31	1307
9995.91	1307	10000	130710005.58	1306.9910011.09	1307.2810016.44	1307.4			
10017.72	1307.4210017.81	1307.4310021.28	1307.7810023.62	1307.8210026.89	1307.84				
10029.94	130810032.91	1308.1710041.68	1308.5210042.98	1308.5610043.54	1308.59				
10052.95	1308.9710064.03	1309.410064.1	1309.410064.15	1309.410064.24	1309.41				
10073.24	1310.1410078.12	1310.1810080.85	1310.2210082.2	1310.2310083.23	1310.23				
10090.89	1310.1410091.09	1310.1410091.13	1310.1410104.87	1310.1210105.87	1310.13				
10115.45	1310.310118.17	1310.2810123.23	1310.3210124.66	1310.1910125.34	1310.07				
10128.89	1310.110131.68	1310.1810138.1	1310.1910141.1	1310.1910147.27	1310.25				
10152.93	1310.310156.47	1310.3110162.55	1310.3610171.57	1310.5210172.63	1310.54				
10174.36	1310.6610178.64	1310.9610181.6	1311.1910181.84	1311.2110181.98	1311.24				
10183.32	1311.4810185.78	1311.6710186.87	1311.7710189.34	1312.3810193.6	1313.45				
10202.44	1316.5810205.51	1317.6410211.44	1320.3310213.91	1321.4410214	1321.44				
10216.32	1321.4410219.31	1321.3910225.32	1321.3110227.6	1321.2810228.07	1321.27				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8500	.05	9959.37	.03	10073.24	.03

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	9959.37	10073.24		478.1	500	516.3		.1	.3

CROSS SECTION

RIVER: MDOW
 REACH: Reach1 RS: 4.506

INPUT

Description:
 Station Elevation Data num= 313

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8700	1318.62	8703	1318.59	8708.41	1318.55	8715.01	1318.52	8726.95	1318.46
8733.36	1318.44	8742.06	1318.41	8754.7	1318.36	8761.43	1318.32	8762.08	1318.32
8762.8	1318.32	8773.15	1318.27	8780.57	1318.22	8788.14	1318.17	8798.95	1318.07
8800.85	1318.07	8807.78	1318.02	8815.95	1317.97	8834.29	1317.87	8838.2	1317.84
8840.22	1317.83	8846.98	1317.81	8859.23	1317.77	8873.89	1317.7	8874.07	1317.69
8874.18	1317.69	8874.69	1317.69	8891.72	1317.62	8893.68	1317.6	8896.81	1317.59
8898.71	1317.57	8900.2	1317.56	8912.38	1317.46	8919.22	1317.42	8923.89	1317.41
8928.34	1317.38	8933.37	1317.47	8948.51	1317.41	8953.9	1317.43	8961.92	1317.37
8971.76	1317.33	8978.11	1317.31	8982.61	1317.32	8984.55	1317.27	8986.22	1317.27
8988.33	1317.26	9011.31	1317.11	9014.56	1317.11	9017.43	1317.08	9021.23	1317.14
9022.49	1317.18	9025	1317.17	9026.53	1317.17	9028.52	1317.1	9029.73	1316.96
9030.62	1316.96	9034.52	1316.96	9034.77	1316.97	9037.49	1316.98	9039.6	1317.01
9041.15	1317.04	9044.69	1317.07	9044.84	1317.07	9044.99	1317.08	9048.97	1317.35
9050.58	1317.49	9052.26	1317.51	9053.98	1317.49	9056.02	1317.48	9057.19	1317.47
9058.64	1317.48	9059.34	1317.48	9062.02	1317.49	9064.11	1317.46	9064.43	1317.47
9067.78	1317.44	9068.1	1317.44	9071.27	1317.4	9072.91	1317.33	9073.14	1317.33
9075.89	1317.29	9078.85	1317.26	9081.56	1317.24	9084.34	1317.25	9088	1317.25
9094.6	1317.26	9097.75	1317.23	9099.71	1317.25	9103.25	1317.2	9111.93	1317.15
9114.41	1317.14	9114.97	1317.16	9116.08	1317.14	9117.45	1317.18	9119.07	1317.14
9121.2	1317.13	9122.46	1317.13	9155.7	1317.06	9173.95	1317.07	9174.99	1317.07
9175.08	1317.07	9175.69	1317.07	9180.54	1317.25	9182.03	1317.3	9182.66	1317.3
9183.36	1317.29	9184.37	1317.29	9187.24	1317.27	9189.61	1317.28	9190.63	1317.27
9192.69	1317.07	9193.67	1316.96	9194.9	1316.92	9196.9	1316.82	9198.7	1316.84
9200.33	1316.84	9200.91	1316.84	9201.65	1316.84	9202.21	1316.85	9203.8	1316.83
9209.51	1316.82	9217.71	1316.78	9233.4	1316.66	9261.2	1316.47	9269.47	1316.42
9286.19	1316.36	9289.85	1316.33	9295.74	1316.31	9302.88	1316.27	9317.93	1316.19
9326.6	1316.13	9331.17	1316.08	9340.39	1316.03	9348.33	1315.97	9354.61	1315.94
9355.38	1315.94	9361.52	1315.87	9364.98	1315.84	9366.12	1315.84	9371.97	1315.85
9377.55	1315.79	9392.07	1315.74	9405.72	1315.69	9414.84	1315.67	9433.45	1315.52
9438.21	1315.48	9446.69	1315.39	9476.93	1315.09	9479.63	1315.06	9480.27	1315.06
9490.53	1315	9518.02	1314.84	9522.54	1314.79	9529.5	1314.74	9544.15	1314.59
9547.04	1314.57	9557.95	1314.47	9559.65	1314.45	9573.36	1314.33	9574.68	1314.32
9574.95	1314.32	9588.12	1314.22	9589.74	1314.2	9601.08	1314.04	9604.11	1314.01
9612.71	1313.86	9619.51	1313.83	9625.06	1313.85	9636.84	1313.78	9641.57	1313.77
9645.67	1313.74	9660.92	1313.67	9677.98	1313.51	9681.29	1313.5	9681.88	1313.49
9682.94	1313.49	9686.27	1313.47	9702.76	1313.4	9711.09	1313.39	9711.97	1313.4
9712.12	1313.4	9720.6	1313.38	9723.73	1313.4	9732.5	1313.46	9736.68	1313.63
9742.12	1313.68	9747.84	1313.65	9751.14	1313.63	9759.23	1313.64	9764.08	1313.63
9769.03	1313.64	9772.28	1313.65	9778.92	1313.68	9788.12	1313.85	9788.47	1313.86
9788.55	1313.86	9794.4	1313.95	9795.46	1313.94	9802.38	1313.94	9806.55	1313.91
9809.29	1313.91	9810.91	1313.86	9824.72	1313.82	9832.2	1313.8	9839.41	1313.71
9846.87	1313.7	9855.73	1313.61	9856.95	1313.44	9859.19	1313.37	9860.66	1313.51
9863.91	1313.4	9865.01	1313.37	9866.25	1313.6	9866.87	1313.67	9868.91	1313.81
9872.41	1314.17	9874.72	1314.25	9875.99	1314.22	9890.03	1313.69	9890.09	1313.69
9911.07	1313.83	9919.53	1313.95	9933.64	1314.02	9933.71	1314.02	9933.72	1314.02
9933.81	1314.02	9934.04	1314.02	9940.43	1314.17	9944.17	1315.52	9945.54	1315.76
9949.77	1315.04	9950.58	1314.86	9955.05	1314.79	9956.24	1314.76	9960.19	1313.93
9960.37	1313.88	9962.67	1313.19	9975.39	1309.4	9979.22	1308.19	9982.56	1307.59
9986.89	1306.8	9989	1306.72	9993.65	1306.62	9996.15	1306.44	9998.73	1306.25
10000	1306.3210010.39	1306.9110013.61	1307.0910016.42	1307.0510017.42	1307.06				
10018.09	1307.0410021.67	1307.0210029.49	1307.2810030.18	1307.3110030.57	1307.32				
10037.05	1307.6110038.29	1307.7110042.36	1308.0310050.8	1308.410063.49	1308.93				
10067.78	1309.3110070.25	1309.5310075.26	1310.6710075.28	1310.6710075.32	1310.68				

WilliamsCLOMR.rep
 10085.23 1312.6110094.28 1312.7210098.12 1312.7810099.51 1312.7710106.37 1312.91
 10110.82 1312.8610116.05 1312.8310121.57 1312.910133.72 1313.08 10148.1 1312.58
 10151.22 1312.4510153.38 1312.5210163.58 1312.6810166.92 1312.6610179.36 1312.59
 10187.39 1312.910187.79 1312.9110195.06 1312.5410197.14 1312.4910201.86 1312.39
 10205.72 1312.3310210.16 1312.3410214.36 1312.3810215.46 1312.3510222.49 1312.21
 10226.09 1312.1310231.02 1312.0510234.88 1311.9910237.32 131210243.16 1312
 10251.72 1312.2210252.49 1312.2410253.07 1312.26 10260.3 1312.6510262.58 1312.95
 10265.27 1313.2110267.82 1313.8710274.56 1315.6910278.81 1317.08 10282.9 1318.55
 10286.39 1320.2510288.92 1321.6110290.61 1321.5910291.56 1321.5910295.97 1321.64
 10300.17 1321.6710301.53 1321.5910303.83 1321.43

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val

 8700 .05 9956.24 .0310085.23 .03

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 9956.2410085.23 666.5 624.32 600.9 .1 .3

CROSS SECTION

RIVER: MDOW
 REACH: Reach1 RS: 4.388

INPUT

Description:

Station Elevation Data num= 323
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev

 9000 1323.38 9001.9 1323.36 9003.02 1323.35 9004.97 1323.5 9005.52 1323.57
 9006.94 1323.73 9007.68 1323.8 9008.2 1323.54 9008.33 1323.47 9008.55 1323.47
 9010.56 1323.46 9016.91 1323.33 9023.28 1323.25 9028.73 1323.13 9036.61 1323.13
 9038.4 1323.07 9041.84 1322.96 9045.3 1322.72 9045.4 1322.71 9046 1322.67
 9050.85 1322.35 9055.75 1321.93 9055.87 1321.92 9060.68 1321.68 9061.13 1321.63
 9064.72 1321.32 9065.28 1321.27 9066.12 1318.09 9066.24 1317.55 9067.17 1317.48
 9068.68 1317.45 9071.79 1317.44 9072.36 1317.44 9075.04 1317.35 9076.17 1317.32
 9076.71 1317.32 9081.24 1317.36 9084.19 1317.36 9085.06 1317.34 9086.67 1317.32
 9088.84 1317.4 9090.23 1317.4 9093.64 1317.48 9094.26 1317.46 9095.73 1317.43
 9099.32 1317.4 9101.2 1317.37 9102.53 1317.31 9105.09 1317.2 9107.84 1317.04
 9107.98 1317.04 9108.42 1317.06 9108.82 1317.07 9111.99 1317 9113.39 1316.97
 9114.81 1316.95 9120.52 1316.86 9121.35 1316.9 9121.81 1316.9 9123.33 1316.9
 9148.16 1316.76 9151.18 1316.71 9170.57 1316.61 9174.52 1316.59 9192.35 1316.52
 9193.06 1316.52 9193.62 1316.51 9195.98 1316.48 9209.03 1316.37 9213.51 1316.36
 9232.06 1316.4 9239.31 1316.42 9244.2 1316.35 9255.54 1316.2 9259.02 1316.19
 9267.18 1316.07 9269.4 1316.06 9275.43 1316.06 9277.28 1316.07 9278.46 1316.09
 9287.11 1316.17 9290.26 1316.21 9301.57 1316.08 9303.6 1316.05 9311.17 1316
 9316.36 1315.95 9329.19 1315.77 9330.04 1315.76 9337.88 1315.74 9344.13 1315.66
 9350.31 1315.61 9363 1315.69 9365.23 1315.69 9363.7 1315.7 9374.28 1315.68
 9379.22 1315.65 9384.84 1315.56 9387.98 1315.6 9397.52 1315.47 9408.48 1315.41
 9422.87 1315.33 9424.43 1315.32 9425.19 1315.31 9438.41 1315.21 9449.2 1315.18
 9449.25 1315.18 9466.08 1315.11 9467.91 1315.1 9484.38 1314.9 9486.79 1314.87
 9503.4 1314.72 9508.22 1314.69 9516.16 1314.62 9527.11 1314.61 9543.8 1314.5
 9544.97 1314.48 9556.29 1314.49 9564.38 1314.48 9574.06 1314.37 9584.43 1314.35
 9590.48 1314.42 9604.87 1314.28 9611.27 1314.21 9613.56 1314.17 9628.85 1314.18
 9629.85 1314.18 9630.34 1314.18 9635.65 1314.13 9647.51 1314.06 9650.13 1314.02
 9653.8 1314.03 9662.88 1313.97 9669.73 1313.98 9678.34 1313.91 9685.76 1313.77
 9696.29 1313.75 9701.42 1313.75 9712.08 1313.71 9718.38 1313.6 9726.26 1313.47
 9735.35 1313.36 9748.79 1313.22 9752.23 1313.19 9754.17 1313.18 9769.81 1313.09
 9779.68 1312.98 9787.96 1312.88 9794.37 1312.81 9805.62 1312.62 9806.34 1312.61
 9812.53 1312.59 9823.88 1312.57 9825.17 1312.57 9834.26 1312.57 9848.58 1312.53
 9850.79 1312.54 9861.98 1312.41 9863.01 1312.39 9863.5 1312.39 9864.12 1312.39
 9872.61 1312.42 9880.09 1312.31 9886.32 1312.29 9890.32 1312.25 9892.36 1312.24
 9894.84 1312.29 9899.18 1312.29 9902.55 1312.38 9906.78 1312.45 9908.42 1312.44
 9909.11 1312.43 9913.36 1312.37 9913.37 1312.37 9913.38 1312.37 9913.4 1312.37
 9918.89 1312.14 9918.95 1312.15 9919.39 1312.14 9919.79 1311.96 9920.82 1311.53
 9921.24 1311.35 9921.33 1311.31 9921.82 1311.14 9923.83 1310.92 9924.54 1310.68
 9924.62 1310.66 9925.67 1310.57 9925.81 1310.58 9926.98 1311.59 9927.41 1311.99
 9927.73 1312.01 9928.42 1312.01 9929.71 1312.02 9930.22 1312.02 9930.87 1311.55
 9932.94 1310.83 9933.94 1310.72 9934.07 1310.71 9934.14 1310.68 9935.84 1310.4
 9935.95 1310.31 9936.16 1310.26 9937.88 1309.96 9938.29 1309.92 9939.58 1309.62
 9940.76 1309.43 9941.12 1309.28 9941.41 1309.1 9941.91 1308.89 9945.12 1308.41
 9950.09 1308 9954.98 1307.47 9965.03 1307.26 9965.12 1307.26 9965.18 1307.26
 9965.19 1307.26 9965.21 1307.26 9976.87 1307.65 9978.68 1307.45 9980.12 1307.36
 9981.14 1307.38 9983.95 1307.22 9993.54 1306.7 9994.9 1306.49 9995.64 1306.36
 9996.4 1306.41 9998.36 1306.47 9999.01 1306.43 10000 1306.3710000.66 1306.34
 10007.02 1306.5610009.77 1306.6210016.04 1306.5910017.09 1306.5710018.23 1306.62
 10026 1306.6610028.72 1306.6310031.64 1306.6310034.88 1306.7310037.38 1306.85
 10042.17 1307.1510056.75 1307.9410059.54 1308.1 10061.1 1308.17 10067.3 1308.46
 10067.36 1308.4710075.25 1308.85 10075.8 1308.9210082.54 1309.8510088.01 1310.45
 10091.03 1310.7310103.17 1310.8610104.32 1310.8610104.54 1310.8510105.88 1310.89
 10108.07 1310.8610123.16 1310.7410126.08 1310.7310139.46 1310.8210148.25 1310.92
 10149.98 1310.7510151.45 1310.53 10158.1 1310.4810161.01 1310.5110166.37 1310.67
 10166.95 1310.710167.09 1310.710173.36 1310.71 10176.4 1310.6910180.47 1310.69
 10189.04 1310.6710193.65 1310.6310198.21 1310.6410202.17 1310.6910206.62 1310.73
 10215.75 1310.6910221.85 1310.6410229.34 1310.710237.69 1310.6810245.95 1310.52
 10251.19 1310.4510257.19 1310.4610261.34 1310.3810263.55 1310.5110266.13 1310.69
 10266.87 1310.6510268.19 1310.41 10271.9 1310.3910277.23 1310.3910277.96 1310.39
 10278.21 1310.4610280.47 1311.1 10281 1310.910281.77 1310.6810282.52 1310.37
 10288.18 1310.410293.22 1310.4410299.35 1310.4710301.89 1310.510307.54 1310.58
 10309.01 1310.610310.31 1310.610316.84 1310.610319.63 1310.5410322.66 1310.52
 10325.59 1310.5410327.73 1310.54 10331.1 1310.69 10334 1310.810340.05 1311.36
 10340.27 1311.37 10340.7 1311.4410345.77 1312.210348.41 1312.9410353.84 1314.53
 10357.97 1315.910362.27 1317.3510368.66 1319.9310371.52 1321.0710372.76 1321.05
 10373.24 1321.0510374.84 1321.0310383.24 1320.95

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val

 9000 .05 9932.94 .0310091.03 .03

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 9932.9410091.03 494.1 500 500.7 .1 .3

CROSS SECTION

RIVER: MDOW
REACH: Reach1 RS: 4.293

INPUT

Description:

Station Elevation Data		num= 307		Sta Elev		Sta Elev		Sta Elev		Sta Elev	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9400	1317.61	9400.64	1317.58	9405.67	1317.45	9411	1317.31	9420.24	1317.11		
9424.76	1317.06	9440.39	1316.89	9448.2	1316.8	9463.32	1316.68	9465.77	1316.66		
9484.18	1316.38	9485.55	1316.37	9496.15	1316.35	9500.54	1316.32	9508.01	1316.23		
9512.09	1316.2	9528.62	1316.12	9530.42	1316.11	9531.82	1316.11	9539.98	1316.05		
9553.52	1315.96	9560.82	1315.93	9572.1	1315.85	9577.61	1315.85	9580.99	1315.84		
9596.27	1315.82	9596.6	1315.82	9609.93	1315.78	9623.98	1315.53	9624.84	1315.52		
9627.46	1315.52	9644.55	1315.58	9648.47	1315.54	9663.93	1315.38	9667.21	1315.38		
9669.68	1315.34	9689.62	1315.24	9694.3	1315.19	9705.07	1315.11	9707.73	1315.07		
9718.65	1314.99	9721.04	1314.96	9721.85	1314.96	9724.35	1315.01	9728.34	1315.08		
9732.46	1315.06	9741.69	1314.99	9750.72	1314.91	9757.86	1314.86	9768.27	1314.76		
9770.4	1314.75	9776.45	1314.77	9785.04	1314.81	9787.44	1314.86	9792.64	1314.95		
9798.3	1314.89	9804.39	1314.82	9817.83	1314.73	9820.72	1314.71	9821.85	1314.7		
9838.3	1314.56	9847.27	1314.54	9857.3	1314.52	9863.43	1314.52	9863.66	1314.52		
9863.91	1314.52	9879.13	1314.43	9884.55	1314.37	9889.74	1314.31	9903.34	1314.33		
9907.75	1314.33	9914.33	1314.23	9922.18	1314.16	9923.89	1314.08	9925.18	1314.08		
9929.85	1314.03	9931.53	1314.01	9934.78	1313.86	9935.42	1313.85	9942.45	1313.49		
9942.74	1313.48	9943.55	1313.41	9949.2	1313.27	9951.93	1313.23	9954.15	1313.19		
9954.89	1313.12	9956.52	1313.08	9957.96	1312.88	9958.39	1312.84	9958.63	1312.74		
9960.84	1312.08	9963.67	1311.01	9963.92	1310.88	9964.19	1310.81	9965.94	1310.25		
9967.63	1309.59	9968.5	1309.31	9970.47	1308.76	9972.51	1308.17	9973.28	1307.94		
9974.96	1307.56	9977.08	1307.24	9978.07	1307.06	9981.75	1306.69	9982.74	1306.55		
9985.57	1306.32	9986.45	1306.23	9988.2	1306.11	9989.26	1306.05	9993.48	1305.74		
9995.95	1305.6	9996.93	1305.49	9999.13	1305.63	10000	1305.66	10006.59	1305.91		
10009.64	1306.09	10011	1306.16	10017.59	1306.26	10019.73	1306.28	10021.05	1306.4		
10022.94	1306.57	10026.88	1306.65	10036.09	1306.86	10038.78	1307.16	10041.4	1307.49		
10046.69	1307.71	10053.22	1307.94	10059.91	1308.16	10060.84	1308.19	10061.63	1308.26		
10066.46	1308.66	10068.54	1309.11	10068.79	1309.15	10070.77	1309.31	10071.08	1309.35		
10071.83	1309.53	10077.89	1311.01	10079.96	1311.47	10082.63	1312.11	10086.98	1312.83		
10089.92	1313.26	10092.65	1313.28	10099.57	1313.37	10103.56	1313.41	10107.73	1313.42		
10109.8	1313.46	10115.09	1313.55	10121.36	1313.62	10125.12	1313.64	10136.43	1313.51		
10137.24	1313.5	10137.7	1313.49	10141.69	1313.44	10157.67	1313.42	10160.02	1313.4		
10163.19	1313.47	10172.47	1313.65	10173.7	1313.65	10178.55	1313.81	10184.46	1313.65		
10186.05	1313.64	10188.08	1313.68	10190.91	1313.81	10192.26	1313.82	10197	1313.72		
10197.59	1313.75	10198.19	1313.78	10203.23	1313.61	10203.82	1313.58	10204.19	1313.57		
10204.61	1313.59	10205.12	1313.59	10207.05	1313.59	10209.82	1313.61	10209.94	1313.62		
10210.99	1313.79	10219.03	1313.71	10219.07	1313.71	10219.77	1313.69	10220.89	1313.71		
10221.53	1313.64	10221.99	1313.74	10222.71	1313.85	10225.65	1313.91	10231.21	1314.1		
10235.69	1313.96	10237.32	1313.85	10237.63	1313.93	10238.26	1314.03	10238.64	1313.93		
10238.91	1313.87	10241.69	1313.96	10253.37	1314.34	10254.73	1314.44	10255.51	1314.53		
10256.93	1314.39	10257.55	1314.36	10260.08	1314.45	10264.37	1314.65	10267.93	1314.75		
10270.48	1314.83	10271.2	1314.91	10273.48	1315.13	10274.12	1315.08	10275.28	1314.94		
10279.39	1314.99	10281.05	1315.08	10286.48	1315.28	10287.77	1315.33	10289.23	1315.32		
10292.69	1315.36	10294.94	1315.32	10297.67	1315.26	10298.05	1315.37	10301.22	1316.09		
10302.67	1315.76	10303.01	1315.67	10304.06	1315.67	10311.92	1315.81	10313.61	1315.87		
10314.79	1315.91	10316.24	1316.11	10319.31	1316.01	10319.94	1315.99	10320.15	1315.99		
10322.38	1316.06	10325.04	1316.15	10331.1	1316.21	10331.18	1316.21	10331.21	1316.2		
10333.49	1316.55	10333.78	1316.58	10333.97	1316.58	10335.55	1316.51	10339.17	1316.54		
10340.35	1316.56	10343.07	1316.79	10344.47	1316.91	10346.52	1316.93	10349.84	1316.93		
10350.25	1317.10	10352.54	1317.05	10354.44	1317.12	10357.11	1317.26	10359.26	1317.37		
10361.13	1317.41	10361.78	1317.42	10365.01	1317.49	10366.45	1317.52	10366.86	1317.53		
10368.83	1317.61	10370.19	1317.68	10370.77	1317.74	10371.3	1317.73	10373.63	1317.66		
10376.18	1317.79	10378.3	1317.91	10381.93	1318.13	10383.15	1318.18	10384.68	1318.18		
10387.18	1318.16	10388.67	1318.25	10393.18	1318.55	10397.64	1318.67	10401	1318.72		
10407.62	1318.85	10407.66	1318.85	10407.69	1318.86	10415.94	1319.15	10419.26	1319.24		
10422.51	1319.36	10427.26	1319.81	10428.22	1319.92	10429.13	1320.04	10434.16	1320.78		
10434.7	1320.77	10436.7	1320.78	10444.42	1320.85	10446.15	1320.74	10446.34	1320.78		
10446.7	1320.81	10447.38	1320.86	10448.75	1320.84	10452.66	1320.34	10456.35	1319.83		
10460.12	1319.77	10469.52	1319.61	10472.52	1319.87	10473.08	1319.93	10473.29	1319.94		
10475.31	1319.91	10478.57	1319.88	10484.13	1319.76	10484.72	1319.82	10485.92	1319.97		
10491.5	1320.17	10491.64	1320.17	10492.65	1320.63	10493.39	1320.62	10493.7	1320.64		
10493.87	1320.65	10493.94	1320.65	10494.17	1320.62	10494.74	1320.59	10495.57	1320.21		
10495.63	1320.21	10500	1320.05								

Manning's n Values		num= 3		Sta n Val	
Sta	n Val	Sta	n Val	Sta	n Val
9400	.05	9954.15	.03	10089.92	.03

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 9954.15 10089.92 543 500 409.9 .1 .3

CROSS SECTION

RIVER: MDOW
REACH: Reach1 RS: 4.199

INPUT

Description:

Station Elevation Data		num= 154		Sta Elev		Sta Elev		Sta Elev		Sta Elev	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9966.83	1314.81	9969.15	1314.75	9971.89	1314.55	9972.25	1314.53	9972.7	1314.38		
9976.41	1312.95	9977.21	1312.391	9980	1310.44	9981.02	1309.72	9983.19	1308.74		
9986.51	1307.21	9993.41	1304.85	9993.62	1304.77	9995.27	1304.19	9997.9	1303.72		
10001.72	1303.88	10003.35	1303.97	10006.81	1304.21	10010.5	1304.81	10012.81	1305.21		
10013.59	1305.33	10014.13	1305.43	10015.53	1305.66	10017.49	1305.77	10019.74	1305.88		
10021.97	1306.09	10024.01	1306.31	10027.97	1306.55	10028.68	1306.56	10029.8	1306.47		
10032.17	1306.39	10033.46	1306.46	10034.11	1306.44	10037.29	1306.61	10038.24	1306.64		
10040.04	1306.44	10040.5	1306.46	10050.75	1306.82	10051.06	1306.84	10056.67	1306.73		
10066.31	1306.61	10067.28	1306.71	10067.84	1306.78	10070.09	1306.97	10072.48	1307.36		
10075.35	1307.68	10077.86	1308.51	10082.68	1309.99	10088.62	1311.71	10090.5	1312.2		
10091.05	1312.392	10093.8	1313.35	10095.5	1313.49	10097.2	1313.64	10098.35	1313.67		
10103.26	1313.71	10104.53	1313.71	10106.29	1313.79	10108.4	1313.61	10110.18	1313.63		
10112.13	1313.64	10115.32	1313.57	10116.79	1313.49	10117.92	1313.51	10120.25	1313.44		
10121.67	1313.56	10122.21	1313.54	10123.89	1313.37	10128.29	1313.35	10130.13	1313.29		
10130.52	1313.39	10130.83	1313.43	10134.4	1313.41	10138.16	1313.43	10142.7	1313.49		

WilliamsCLOMR_rep											
10143.84	1313.3610158.44	1313.710159.47	1313.8410159.71	1313.8410160.51	1313.68						
10163.14	1313.6910173.93	1313.8310178.81	1313.9910182.44	1314.0710183.09	1314.09						
10183.48	1314.0510187.76	1314.0410198.58	1314.0210200.5	1314.0110220.04	1313.85						
10226.59	1313.8910230.61	1313.8810237.39	1313.6910239.79	1313.610242.08	1313.54						
10250.72	1313.3210256	1313.2110257.32	1313.1810257.82	1313.1610269.86	1312.78						
10276.32	1312.7910271.26	1312.7910272.84	1312.7810274.04	1312.5810274.85	1312.51						
10276.32	1312.3410277.92	1312.2410278.61	1312.1910280.62	1312.0910281.47	1312.09						
10283.13	1312.1310285.97	1312.4110287.27	1312.4710292.49	1312.6810293.25	1312.83						
10298.12	1312.8510298.57	1312.8310301.31	1312.8110305.39	1312.8110307.14	1312.79						
10308.46	1312.7910310.38	1312.8910313.44	1312.9510315.3	1312.9510315.89	1313						
10320.05	1313.1610320.59	1313.1910323.42	1313.2410326.52	1313.2710327.28	1313.3						
10334.03	1313.2910335.2	1313.3510338.97	1313.5710339.94	1313.4210340.25	1313.35						
10344.03	1313.4410351.02	1313.7610355.68	131410359.12	1314.1110360.83	1314.06						
10362.88	1314.1410371.57	1314.5610374.55	1314.7210377.33	1314.810382.89	1315.01						
10386.39	1315.1610388.88	1315.2310399.55	1315.6510405.79	1315.9210408.35	1316.04						
10409.79	1316.0910414.85	1316.2810420.7	1316.4310425	1316.55							

Manning's n Values				
Sta	n Val	Sta	n Val	Sta n Val
9966.83	.05	9971.89	.03	10097.2 .03

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.	Expan.
	9977.21	10091.05		617.4	500	.1	.3

CROSS SECTION

RIVER: MDOW
 REACH: Reach1
 RS: 4.104

INPUT

Description:

Station Elevation Data num= 416											
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9200	1312.46	9204.75	1312.46	9206.88	1312.44	9212.38	1312.24	9216.17	1312.14		
9217.59	1312.13	9221.93	1311.95	9229.94	1311.86	9231.91	1311.88	9242.84	1311.74		
9246.57	1311.68	9251.18	1311.39	9252.51	1311.38	9255.76	1311.41	9256.93	1311.38		
9270.04	1311.19	9271.33	1311.18	9274.46	1311.17	9285.26	1311.15	9285.42	1311.15		
9287.27	1311.17	9291.22	1311.18	9292.01	1311.2	9294.41	1311.26	9294.89	1311.26		
9296.42	1311.16	9296.45	1311.15	9296.53	1311.15	9296.86	1311.14	9300.61	1311.11		
9302.33	1311.08	9303.19	1311.04	9305.02	1310.93	9307.43	1311.13	9307.63	1311.15		
9307.83	1311.15	9308	1311.15	9308.48	1311.16	9310.63	1311.2	9312.05	1311.25		
9312.23	1311.25	9312.4	1311.26	9313.32	1311.29	9314.73	1311.27	9316.16	1311.22		
9319.88	1311.05	9320.68	1311.03	9320.84	1311.01	9321.08	1311	9321.56	1310.97		
9325.8	1310.92	9334.26	1310.92	9340.4	1310.92	9345.33	1310.9	9351.52	1310.82		
9354.56	1310.79	9361.92	1310.81	9363.97	1310.82	9367.76	1310.75	9373.57	1310.71		
9376.55	1310.71	9381.03	1310.68	9386.5	1310.6	9393.46	1310.58	9401.54	1310.56		
9404.05	1310.56	9412.69	1310.51	9414.18	1310.5	9419.54	1310.56	9423.43	1310.66		
9425.65	1310.78	9426.09	1310.76	9428.69	1310.65	9433.5	1310.35	9435.54	1310.3		
9440.19	1310.21	9444.38	1310.34	9445.68	1310.33	9446.57	1310.22	9454.73	1310.25		
9456.88	1310.25	9457.33	1310.26	9460.73	1310.33	9463.9	1310.38	9468.7	1310.39		
9472.48	1310.41	9474.15	1310.37	9474.89	1310.35	9475.83	1310.38	9479.8	1310.33		
9480.89	1310.3	9481.59	1310.27	9482.65	1310.3	9486.52	1310.32	9489.46	1310.32		
9492.15	1310.35	9495.28	1310.34	9498.54	1310.38	9503.62	1310.4	9507.2	1310.4		
9514.39	1310.41	9516.61	1310.4	9523.2	1310.38	9524.19	1310.37	9530.29	1310.33		
9530.77	1310.33	9537.56	1310.33	9537.72	1310.33	9540.14	1310.34	9543.36	1310.35		
9543.43	1310.35	9543.5	1310.34	9545.35	1310.25	9545.42	1310.25	9548.13	1310.27		
9548.29	1310.27	9551.84	1310.27	9552.42	1310.27	9557.54	1310.24	9560.68	1310.22		
9562.06	1310.23	9564.69	1310.28	9566.86	1310.31	9568.68	1310.22	9569.09	1310.21		
9570.84	1310.26	9572.8	1310.28	9575.43	1310.25	9577.76	1310.3	9579.16	1310.36		
9581.61	1310.32	9587.53	1310.1	9589.01	1310.08	9590.65	1310.09	9591.31	1310.08		
9591.84	1310.08	9592.25	1310.11	9592.81	1310.13	9601.48	1310.24	9602.98	1310.25		
9607.04	1310.32	9608.55	1310.24	9609.57	1310.18	9609.7	1310.17	9610.84	1310.14		
9612.49	1310.15	9613.94	1310.24	9617.44	1310.29	9619.55	1310.31	9620.54	1310.43		
9622.12	1310.44	9622.74	1310.51	9623.71	1310.45	9624.81	1310.42	9625.97	1310.41		
9628.87	1310.42	9629.75	1310.41	9630.67	1310.47	9634.51	1310.54	9635.81	1310.6		
9637.13	1310.63	9643.29	1310.66	9644.19	1310.69	9645.12	1310.7	9646.53	1310.72		
9652.64	1310.79	9653.49	1310.79	9654.41	1310.76	9655.23	1310.76	9655.86	1310.77		
9669.34	1311.02	9670.18	1311.03	9670.78	1311.04	9671.29	1311.04	9671.96	1311.04		
9682.96	1311.19	9683.46	1311.19	9683.96	1311.21	9695.19	1311.32	9695.49	1311.32		
9695.8	1311.32	9701.45	1311.35	9710.34	1311.4	9711.36	1311.41	9712.27	1311.41		
9721.65	1311.48	9723.26	1311.49	9731.62	1311.55	9734.44	1311.57	9744.67	1311.63		
9748.8	1311.63	9754.56	1311.64	9759.32	1311.66	9764.11	1311.66	9768.81	1311.67		
9773.15	1311.71	9778.63	1311.74	9781.78	1311.75	9787.85	1311.8	9789.93	1311.82		
9793.34	1311.85	9798.87	1311.93	9799.42	1311.94	9804.45	1311.97	9806.22	1311.97		
9809.91	1311.96	9810.28	1311.95	9815.14	1311.95	9815.69	1311.94	9820.85	1311.95		
9821.69	1311.97	9822.36	1311.99	9827.55	1311.94	9829.05	1311.94	9832.05	1311.91		
9833.94	1311.94	9835.92	1311.92	9838.15	1311.91	9841.89	1311.85	9844.1	1311.8		
9847.09	1311.71	9854.88	1311.62	9856.81	1311.57	9857.72	1311.55	9858.23	1311.53		
9859.23	1311.51	9866.15	1311.28	9867.56	1311.26	9871.69	1311.35	9872.37	1311.35		
9879.91	1311.1	9880.29	1311.09	9883.07	1310.79	9883.13	1310.79	9883.18	1310.79		
9885.43	1310.79	9886.85	1310.79	9886.9	1310.79	9889.45	1310.82	9898.28	1310.78		
9899.25	1310.78	9900	1310.79	9910.29	1310.61	9911.99	1310.59	9917.71	1310.57		
9918.5	1310.56	9919.29	1310.53	9923.56	1310.53	9924.71	1310.47	9926.13	1310.44		
9930.3	1310.33	9931.59	1310.32	9935.15	1310.11	9936.99	1310.08	9938.84	1310		
9943.58	1309.86	9945.58	1309.76	9947.35	1309.66	9952.65	1309.4	9954.65	1309.35		
9960.66	1309.08	9961	1309.05	9961.52	1309.04	9963.26	1308.88	9965.09	1308.76		
9968.53	1308.03	9972.61	1307.36	9973.11	1307.27	9973.15	1307.27	9973.29	1307.25		
9973.35	1307.23	9973.46	1307.18	9973.56	1307.14	9979	1304.89	9981.01	1303.46		
9981.42	1303.36	9981.94	1303.17	9982.5	1303.27	9985.18	1301.9	9986.71	1301.24		
9990.14	1299.79	9990.28	1299.73	9991.67	1299.76	10000	1299.8910004.33	1299.96			
10005.51	1299.9810005.88	1300.0210011.95	1300.4910016.85	1301.9310018.52	1302.45						
10018.71	1302.44	10019.1	1302.8710020.17	1304.0710021.16	1305.29	10022.6	1307.21				
10025.02	1307.7310026.79	1308.1910028.96	1308.2210032.23	1308.2910037.98	1307.33						
10039.15	1307.1310039.81	1306.7310043.92	1304.7110045.35	1304.36	10046						
10046.4	1304.1	10047.2	1303.9110047.98	1303.9510048.05	1303.9610049.53	1304.05					
10049.56	1304.0610049.59	1304.0610050.05	1304.0710052.16	1304.1310052.94	1304.08						
10054.17	1303.9810054.32	1303.9710054.46	1303.9710054.54	1303.9710054.67	1303.98						
10058.03	1304.1610060.81	1304.3610064.3	1304.6810065.8	1304.8310069.7	1305.2						
10070.6	1305.2810076.48	1305.6810077.01	1305.7210079.78	1305.8810083.97	1306.15						
10084.43	1306.1710089.18	1306.4810091.37	1306.5910095.81	1306.8110098.02	1306.88						
10101.38	1307.0110102.92	1307.0810105.28	1307.1710107.89	1307.2910110.97	1307.4						
10112.5	1307.4610117.27	1307.5710118.34	1307.610122.78	1307.7510123.1	1307.75						
10126.07	1307.8310129.53	1307.9210130.07	1307.9210135.6	1307.9210139.41	1307.95						

williamsCLOMR.rep

10140.95	1307.9610144.59	1308.0410147.56	1308.0610150.32	1308.0610154.91	1308.03
10159.25	1308.0510162.47	1308.0810168.32	1308.0610169.09	1308.0910174.65	1308.08
10175.47	1308.0810178.08	1308.0910181.34	1308.110181.61	1308.110181.63	1308.1
10181.69	1308.110185.22	1308.110188.45	1308.0110190.87	1307.8910191.83	1307.9
10192.37	1307.9210193.71	130810194.32	1308.0910195.41	1308.1510196.08	1308.2
10198.31	1308.3910199.35	1308.410201.22	1308.52 10202.4	1308.4610204.97	1308.55
10206.49	1308.59 10208.2	1308.5910211.86	1308.79 10212.9	1308.8510216.14	1309.06
10216.5	1309.0910221.41	1309.3710222.41	1309.4310222.59	1309.4510227.08	1309.9
10228.25	1310.0110231.97	1310.2910234.37	1310.5410237.77	1310.910241.41	1311.22
10243.79	1311.3910249.12	1311.8510250.08	1311.9310255.07	1312.3910255.94	1312.46
10256.31	1312.4910260.75	1312.8310262.32	1312.9710265.63	1313.2110268.24	1313.33
10270.54	1313.410271.93	1313.4510277.26	1313.6810278.25	1313.7210284.87	1313.92
10286.63	1313.9710286.91	1313.9710291.33	1314.1510292.88	1314.1910298.63	1314.3
10300	1314.33				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9200	.056	9965.09	.0410026.79		.056

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

9965.09	10026.79	793.5	693	658.3	.1	.3
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CROSS SECTION

RIVER: MDOW
REACH: Reach1 RS: 3.973

INPUT

Description:
Station Elevation Data num= 259

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9200	1308.81	9200.22	1308.81	9200.42	1308.81	9201.55	1308.78	9202.93	1308.75
9204.44	1308.71	9206.46	1308.6	9217.5	1308.43	9223.86	1308.25	9227.17	1307.96
9227.77	1307.9	9228.89	1307.86	9231.47	1307.8	9240.91	1307.47	9247.74	1307.43
9249.04	1307.43	9258.1	1307.4	9258.48	1307.4	9258.76	1307.4	9261.94	1307.38
9273.15	1307.26	9274.11	1307.23	9278.61	1307.13	9281.6	1307.09	9298.44	1307.09
9305.02	1307.06	9305.51	1307.16	9306.37	1307.27	9306.76	1307.11	9307.06	1307.04
9320.72	1306.94	9322.86	1306.92	9326.17	1306.88	9352.54	1306.62	9373.8	1306.5
9374.37	1306.49	9382.97	1306.4	9390.54	1306.41	9394.18	1306.35	9396.13	1306.37
9397.78	1306.45	9401.02	1306.46	9414.29	1306.26	9415.98	1306.24	9417.37	1306.23
9429.27	1306.19	9430.14	1306.18	9435.86	1306.12	9449.08	1306.01	9452.54	1306.38
9453.67	1306.49	9454.17	1306.51	9454.67	1306.53	9456.56	1306.57	9458.01	1306.26
9458.66	1306.15	9458.76	1306.15	9459.43	1306.09	9463.16	1305.71	9469.01	1305.89
9469.13	1305.9	9469.19	1305.9	9469.2	1305.9	9469.35	1305.9	9473.18	1305.96
9474.5	1305.99	9475.31	1305.98	9476.73	1305.99	9478.14	1305.97	9480.3	1305.93
9491.5	1305.71	9501.52	1305.64	9520.85	1305.65	9522.52	1305.65	9525.23	1305.62
9536.58	1305.39	9538.7	1305.4	9548.93	1305.5	9563.42	1305.54	9569.78	1305.48
9572.67	1305.52	9576.56	1305.02	9577.2	1304.97	9578.62	1305.29	9578.86	1305.35
9578.91	1305.36	9580.21	1305.37	9588.13	1305.46	9589.34	1305.47	9590.68	1305.49
9601.79	1305.43	9613.04	1305.31	9614.92	1305.31	9618.99	1305.26	9627.46	1305.13
9633.14	1305.31	9634.91	1305.36	9636.23	1305.39	9636.76	1305.41	9637.56	1305.45
9656.41	1305.46	9657.25	1305.46	9657.38	1305.46	9657.66	1305.46	9680.99	1305.39
9682.16	1305.09	9682.85	1304.93	9683.78	1305.09	9685.95	1305.47	9689.28	1305.54
9695.32	1305.73	9710.03	1305.75	9717.29	1305.7	9733.12	1305.77	9737.8	1305.8
9744.9	1305.86	9759.95	1306.02	9763.62	1306.04	9767.35	1306.07	9793.4	1306.27
9818.72	1306.36	9819.64	1306.37	9821.74	1306.38	9844.68	1306.39	9864.38	1306.46
9869.19	1306.42	9884.39	1306.18	9884.85	1306.17	9885.12	1306.16	9892.87	1305.75
9898.83	1305.71	9900.35	1305.7	9902.94	1305.67	9913.75	1305.5	9918.85	1305.44
9924.89	1305.32	9938.4	1305.24	9939.62	1305.24	9940.37	1305.23	9941.42	1305.21
9946.54	1305.17	9949.41	1305.12	9949.82	1305.12	9953.27	1304.89	9958.19	1304.73
9958.93	1304.72	9960.46	1304.95	9960.99	1304.98	9961.47	1305.23	9962.29	1305.57
9965.51	1305.65	9969.47	1305.65	9973.58	1305.65	9974.75	1305.23	9976.24	1304.66
9978.09	1303.53	9978.62	1303.15	9980.68	1301.38	9982	1300.27	9982.65	1299.98
9986.98	1298.23	9988.55	1296.28	9989.33	1295.35	10000	1295.5910002.13	1295.64	
10009.41	1295.8310011.35	1297.4110013.57	1299.2510020.26	1301.9810027.07	1304.76				
10032.55	1304.63 10035.5	1304.6210039.55	1304.2310043.34	1303.8710045.36	1303.72				
10045.9	1303.7510046.87	1303.7510048.77	1303.7310050.44	1303.7210051.45	1303.75				
10052.11	1303.8810052.12	1303.8810052.14	1303.8810053.18	1303.410054.36	1302.18				
10054.96	1301.3810056.22	1302.1910056.24	1302.210060.96	1303.5510064.05	1304.48				
10067.39	1304.6210068.39	1304.6810069.67	1304.69 10075	1304.8210076.21	1304.73				
10082.52	1304.2910085.88	1303.9110087.24	1304.1410087.71	1304.1910094.29	1304.25				
10099.99	1304.3810104.62	1304.4410110.32	1304.4610123.48	1304.4610126.42	1304.45				
10128.19	1304.3610133.62	1304.1 10140.3	1304.5710142.64	1304.7310149.85	1304.76				
10158.59	1304.810171.96	1305.2710178.88	1305.57 10181.7	1305.6610192.06	1306.11				
10192.3	1306.1310192.49	1306.1410198.44	1306.5910203.51	1307.0810205.04	1307.24				
10205.86	1307.2610208.57	1307.3410210.22	1307.1810212.07	1307.1210213.31	1307.07				
10217.96	1307.0210222.48	1307.4110223.29	1307.4610224.67	1307.5810225.77	1307.69				
10227.94	1307.93 10228.8	1307.9810234.12	1308.510234.63	1308.5510234.83	1308.56				
10236.83	1308.8110238.42	1308.9810238.83	1309.0310239.46	1309.110241.04	1309.13				
10242.34	1309.1310243.18	1309.1310243.63	1309.1310248.11	1309.110248.97	1309.1				
10250.19	1309.1410251.09	1309.13 10255.7	1309.2110260.66	1309.2810269.81	1309.55				
10274.64	1309.5910280.48	1309.6810283.96	1309.7610284.02	1309.7710291.27	1310.07				
10291.46	1310.0710291.55	1310.0710298.46	1310.02 10300	1310.01					

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9200	.056	9973.58	.0410027.07		.056

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

9973.58	10027.07	530	500	490	.1	.3
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CROSS SECTION

RIVER: MDOW
REACH: Reach1 RS: 3.878

INPUT

Description:
Station Elevation Data num= 437

Sta	Elev								
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WilliamsCLOMR.rep

9300	1309.06	9304.03	1309.04	9307.93	1309.01	9309.96	1309.01	9312.42	1308.97
9316.64	1308.83	9318.12	1308.79	9321.98	1308.74	9324.84	1308.67	9329.93	1308.49
9330.84	1308.45	9335.99	1308.31	9336.52	1308.3	9337.09	1308.28	9343.44	1308.25
9344.06	1308.23	9348.34	1308.13	9348.89	1308.11	9352.42	1307.98	9356.47	1307.78
9356.57	1307.78	9357.91	1307.74	9360.65	1307.66	9363.38	1307.48	9363.74	1307.47
9366.9	1307.29	9369.08	1307.2	9374.8	1307.11	9376.46	1307.07	9377.24	1307.05
9377.85	1306.98	9379.03	1306.84	9379.06	1306.84	9379.08	1306.84	9380.96	1306.84
9381.59	1306.92	9383.07	1306.9	9384.3	1306.88	9384.99	1306.86	9386.81	1306.88
9387.33	1306.87	9390.25	1306.84	9390.71	1306.82	9392.57	1306.82	9392.86	1306.82
9395.79	1306.78	9396.37	1306.77	9403.19	1306.63	9403.86	1306.63	9404.69	1306.6
9412.84	1306.39	9417.42	1306.22	9418.15	1306.2	9423.98	1306.03	9430.43	1305.91
9430.59	1305.9	9433.05	1305.79	9435.02	1305.67	9435.14	1305.67	9435.31	1305.66
9442.4	1305.14	9443.02	1305.12	9443.64	1305.1	9447.27	1304.98	9448.67	1304.91
9453.17	1304.68	9456.8	1304.48	9458.9	1304.41	9461.85	1304.43	9464.71	1304.31
9466.76	1304.26	9469.98	1304.15	9472.98	1304.07	9477.07	1304.06	9481.69	1304.02
9486.37	1303.84	9491.4	1303.74	9498.63	1303.69	9507.63	1303.55	9508.05	1303.55
9510.85	1303.52	9513.22	1303.5	9519.05	1303.37	9521.84	1303.33	9522.98	1303.33
9527.55	1303.25	9531.15	1303.29	9532.62	1303.35	9534.3	1303.4	9535.75	1303.42
9537.7	1303.36	9539.7	1303.38	9550.17	1303.19	9550.24	1303.19	9555	1302.82
9555.01	1302.82	9555.02	1302.82	9559.06	1303.22	9571.07	1303.26	9573.06	1303.27
9573.43	1303.25	9576.34	1303.09	9578.52	1302.66	9580.22	1302.46	9582.39	1302.94
9583.48	1303.23	9585.55	1303.21	9594.2	1303.15	9596.55	1303.08	9597.16	1303.08
9601.08	1303.13	9601.23	1303.13	9602.97	1303.1	9604.83	1303.08	9604.98	1303.07
9609.47	1303.04	9610.04	1303.04	9620.05	1302.99	9620.09	1302.99	9622.14	1302.82
9624.97	1302.8	9627.16	1302.79	9629.85	1302.79	9631.22	1302.77	9631.8	1302.8
9633.5	1302.87	9634.82	1302.86	9635.7	1302.87	9636.86	1302.87	9638.28	1302.88
9653.3	1302.96	9656.63	1302.91	9658.13	1302.67	9658.82	1302.55	9663	1302.57
9679.3	1302.63	9680.03	1302.65	9684.34	1302.76	9686.56	1302.87	9688.31	1302.93
9693.68	1302.88	9694.85	1302.82	9697.15	1302.86	9698.35	1302.75	9700.5	1302.57
9703.1	1302.72	9704.43	1302.78	9707.46	1302.89	9707.72	1302.91	9707.96	1302.93
9709.89	1303.05	9710.96	1303.07	9712.87	1302.96	9713.46	1302.96	9713.92	1302.89
9715.94	1302.91	9716.5	1302.89	9721.18	1302.56	9721.34	1302.56	9722.3	1302.48
9725.03	1302.94	9725.33	1302.99	9727.3	1302.94	9731.83	1302.81	9733.01	1302.79
9735.43	1302.77	9740.94	1302.75	9744.04	1302.66	9744.48	1302.68	9745.19	1302.7
9749.11	1302.86	9752.11	1302.93	9752.69	1302.96	9752.96	1302.95	9755.62	1303.01
9755.75	1303.01	9756.79	1302.96	9759.31	1302.9	9760.58	1302.85	9763.22	1302.85
9768.11	1302.68	9770.66	1302.92	9773	1303.13	9775.38	1303.13	9776.28	1303.18
9776.55	1303.2	9778.51	1303.19	9779.83	1303.12	9780.94	1303.07	9781.91	1302.97
9785.14	1302.85	9786.73	1302.81	9796.18	1302.85	9807.41	1302.91	9810.82	1302.92
9831.09	1302.93	9835.5	1302.94	9851.14	1302.98	9871.14	1302.98	9871.65	1302.98
9871.98	1302.98	9892.49	1303.05	9906.97	1302.76	9910.22	1302.71	9916.21	1302.7
9926.58	1302.64	9935.66	1302.29	9937.15	1302.22	9942.29	1302.49	9942.74	1302.54
9944.36	1302.33	9949.03	1301.3	9953.81	1300.82	9955.84	1300.61	9956.73	1300.63
9957.1	1300.65	9957.96	1300.69	9960.65	1300.77	9960.72	1300.78	9962.31	1300.95
9963.14	1301.08	9963.52	1301.08	9963.98	1301.04	9964.52	1301.03	9965.89	1301.08
9966.55	1301.1	9967.91	1301.02	9969.61	1301.03	9970.53	1301.06	9971	1301.04
9972.44	1300.8	9972.97	1300.73	9973.7	1300.49	9974.22	1300.35	9977.59	1299.32
9977.88	1299.32	9979.59	1297.95	9980.18	1297.55	9980.7	1297.21	9984.4	1296.26
9984.77	1296.17	9985.07	1296.07	9985.67	1295.66	9987.85	1294.32	9988.37	1294.1
9989.37	1293.46	10000	1293.5910000.05	1293.5910007.08	1293.6610008.58	1293.6610008.58	1293.6610008.58	1293.9	1293.9
10010.8	1294.6510011.84	1294.8810012.56	1294.9110012.84	1294.9110012.84	1294.8810013.29	1294.8810013.29	1294.8810013.29	1295	1295
10013.93	1295.1610015.97	1296.1410019.64	1297.9110020.69	1298.8810022.04	1300.08	1300.08	1300.08	1300.08	1300.08
10023.26	1300.91	10025.1	1302.1210025.69	1302.1710027.23	1302.2210027.77	1302.24	1302.24	1302.24	1302.24
10029.82	1302.3510030.25	1302.3710032.58	1302.4410038.79	1302.18	10038.8	1302.18	1302.18	1302.18	1302.18
10038.81	1302.1810038.84	1302.1810039.01	1302.210040.48	1302.3110040.63	1302.3	1302.3	1302.3	1302.3	1302.3
10041.34	1302.2310042.57	1302.1310043.03	1302.05	10044.2	1301.7310045.62	1301.38	1301.38	1301.38	1301.38
10046.36	1301.2210048.03	1300.9210048.74	1300.7610049.62	1300.5210050.46	1300.35	1300.35	1300.35	1300.35	1300.35
10050.72	1300.3210051.99	1299.8210052.23	1299.7310052.44	1299.5210052.95	1299.34	1299.34	1299.34	1299.34	1299.34
10054.14	1299.1210055.43	1298.4810055.75	1298.610056.54	1298.7810056.98	1299.24	1299.24	1299.24	1299.24	1299.24
10059.13	1301.5610060.41	1301.3810061.56	1301.2610063.71	1300.9910063.93	1300.96	1300.96	1300.96	1300.96	1300.96
10064.31	1300.9310064.46	1300.9310064.78	1300.4910065.24	1299.8610065.42	1299.7	1299.7	1299.7	1299.7	1299.7
10066.04	1299.1210066.85	1298.4610067.55	1298.2510068.12	1297.910069.69	1298.43	1298.43	1298.43	1298.43	1298.43
10070.27	1298.5810070.27	1298.5910070.29	1298.610070.59	1298.88	10071.2	1299.45	1299.45	1299.45	1299.45
10071.21	1299.4710072.14	1300.2510073.23	1301.26	10073.7	1301.4110075.01	1301.81	1301.81	1301.81	1301.81
10075.41	1301.9110075.81	1302.0710076.77	1302.4810077.66	1302.4210079.02	1302.34	1302.34	1302.34	1302.34	1302.34
10080.01	1302.13	10081.5	1301.8910082.04	1301.9210083.97	1301.9910084.03	1301.99	1301.99	1301.99	1301.99
10084.37	1301.9710084.51	1301.9710085.69	1302.10110.78	1302.1910122.43	1302.31	1302.31	1302.31	1302.31	1302.31
10122.68	1302.310124.13	1302.2110127.85	1302.04	10128.3	1302.0710129.82	1301.99	1301.99	1301.99	1301.99
10130.61	1302.0510140.99	1302.1810149.63	1302.2710150.82	1302.2910168.32	1302.55	1302.55	1302.55	1302.55	1302.55
10172.31	1302.6410185.98	1302.9310189.81	1302.9910190.65	130310190.84	1303.01	1303.01	1303.01	1303.01	1303.01
10191.08	1303.0210191.58	1303.0310196.91	1303.1610209.11	1303.4410217.98	1303.65	1303.65	1303.65	1303.65	1303.65
10222.3	1303.7110230.16	1303.8410234.37	1303.8610242.58	1304.0310245.88	1304.12	1304.12	1304.12	1304.12	1304.12
10252.83	1304.2810253.66	1304.310253.95	1304.310254.05	1304.310258.01	1304.3	1304.3	1304.3	1304.3	1304.3
10260.96	1304.410267.77	1304.6110267.93	1304.6110268.62	1304.6310269.45	1304.65	1304.65	1304.65	1304.65	1304.65
10275.31	1304.7710284.43	1304.9610287.58	1305.0210293.92	1305.3210299.33	1305.55	1305.55	1305.55	1305.55	1305.55
10299.71	1305.54	10300	1305.54	10301.1	1305.5810301.73	1305.5910307.14	1305.65	1305.65	1305.65
10308.3	1305.6810309.49	1305.6710319.12	1305.8610319.23	1305.8710319.42	1305.87	1305.87	1305.87	1305.87	1305.87
10319.85	1305.8910321.64	1305.9710326.19	1306.4310328.83	1306.6610336.87	1307.36	1307.36	1307.36	1307.36	1307.36
10337.62	1307.4210339.11	1307.5310339.59	1307.5110339.79	1307.5310350.68	1307.73	1307.73	1307.73	1307.73	1307.73
10363.05	1307.9710363.48	1307.9610364.29	1307.9810364.89	1307.9710365.89	1307.95	1307.95	1307.95	1307.95	1307.95
10366.53	1307.9710370.06	1308.1110370.45	1308.1110370.71	1308.1110371.03	1308.11	1308.11	1308.11	1308.11	1308.11
10371.62	1308.110375.95	1308.0910377.49	1308.0910378.24	1308.110379.86	1308.1	1308.1	1308.1	1308.1	1308.1
10380.6	1308.0810381.07	1308.06	10381.4	1308.0510386.94	1308.1510393.33	1308.38	1308.38	1308.38	1308.38
10399.63	1308.4210404.35	1308.4610406.54	1308.4810409.99	1308.5410423.66	1308.73	1308.73	1308.73	1308.73	1308.73
10428.81	1308.810428.86	1308.8110434.39	1308.9810436.19	1309.0910438.53	1309.09	1309.09	1309.09	1309.09	1309.09
10438.61	1309.1	10446.5	1309.1110450.24	1309.210464.33	1309.3210466.56	1309.34	1309.34	1309.34	1309.34
10467.26	1309.3510468.01	1309.3610468.64	1309.3610469.44	1309.3510469.93	1309.36	1309.36	1309.36	1309.36	1309.36
10492.72	1309.59	10500	1309.78						

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val

 9300 .056 9971 .0410023.26 .056

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 997110023.26 433.4 410.73 399.9 .1 .3

CROSS SECTION

RIVER: MDOW
 REACH: Reach1 RS: 3.800

WilliamsCLOMR.rep											
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9300	1305.17	9301.11	1305.18	9303.19	1305.16	9305.55	1305.16	9307.81	1305.07		
9309.75	1305.03	9312.04	1304.84	9312.83	1304.77	9316.48	1304.53	9317	1304.5		
9319.95	1304.4	9320.11	1304.37	9322.99	1304.41	9323.01	1304.41	9323.2	1304.42		
9325.66	1304.48	9327.89	1304.51	9328.35	1304.52	9332.32	1304.48	9334.77	1304.46		
9336.13	1304.47	9336.36	1304.46	9337.54	1304.36	9340.66	1304.14	9341.57	1304.06		
9342.02	1303.99	9343.16	1303.76	9344.49	1303.68	9345.32	1303.68	9346.56	1303.55		
9346.58	1303.54	9347.92	1303.4	9348.22	1303.39	9351.8	1303.35	9353.33	1303.28		
9357.28	1303.14	9358.29	1303.12	9361.53	1302.96	9362.69	1302.92	9366.03	1302.8		
9367.67	1302.74	9370.52	1302.65	9372.29	1302.58	9375.07	1302.56	9378.1	1302.45		
9381.69	1302.45	9385.27	1302.42	9387.24	1302.37	9388.65	1302.34	9389.65	1302.32		
9391.1	1302.19	9394.06	1302.09	9395.64	1302.04	9396.13	1302.02	9397.71	1302.52		
9398.57	1302.64	9399.78	1302.42	9400.69	1302.32	9402.29	1302.23	9402.82	1302.17		
9404.72	1302.1	9405.12	1302.08	9407.62	1302.03	9409.91	1301.95	9410.36	1301.96		
9415.97	1301.9	9416.35	1301.91	9416.8	1301.91	9421.97	1301.87	9422.48	1301.85		
9423.71	1301.83	9429.76	1301.8	9431.05	1301.76	9436.74	1301.53	9438.94	1301.49		
9444.9	1301.39	9450.16	1301.35	9454.85	1301.28	9458.57	1301.2	9462.06	1301.1		
9465.2	1300.96	9469.57	1300.9	9471.05	1300.9	9472.83	1300.87	9477.3	1300.78		
9478.26	1300.77	9478.95	1300.76	9487.46	1300.59	9488.2	1300.56	9488.76	1300.54		
9493.2	1300.52	9501.84	1300.42	9505.43	1300.34	9509.23	1300.21	9513.55	1300.18		
9519.45	1300.13	9524.4	1300.08	9528.36	1300.06	9533.27	1299.93	9534.01	1299.91		
9535.97	1299.89	9538.05	1299.89	9538.18	1299.9	9538.49	1299.9	9538.86	1299.9		
9544.61	1299.94	9545.56	1299.91	9548.93	1299.93	9553.48	1299.75	9554.67	1299.7		
9555.73	1299.79	9563.65	1300.13	9565.41	1300.02	9565.46	1299.98	9566.16	1299.87		
9568.2	1299.53	9569.85	1299.85	9570.61	1299.94	9571.56	1299.98	9572.78	1299.99		
9576.65	1300.09	9577.02	1300.09	9578.87	1300.02	9579.01	1300.02	9580.43	1300.05		
9581.04	1300.01	9583.67	1299.87	9583.72	1299.87	9584.21	1299.86	9587.41	1299.84		
9587.68	1299.82	9592.8	1299.88	9593.62	1299.91	9593.72	1299.92	9593.99	1299.94		
9594.44	1299.97	9595.01	1300	9596.49	1300.05	9597.1	1300.06	9598.05	1300.08		
9598.8	1300.08	9599.95	1300.09	9600.23	1300.06	9600.61	1300.04	9602.54	1299.68		
9603.37	1299.59	9604.62	1299.75	9606.91	1299.97	9607.94	1299.97	9608.03	1299.97		
9609.98	1299.94	9610.22	1299.96	9610.8	1299.98	9613.03	1299.96	9613.22	1299.96		
9615.23	1300	9615.4	1300	9618.04	1299.96	9620.65	1299.96	9620.88	1299.94		
9626.62	1299.91	9630.66	1299.89	9634.82	1299.93	9639.32	1300.04	9639.55	1300.05		
9643.78	1299.97	9645.59	1299.94	9646.78	1299.9	9649.23	1299.92	9652.01	1299.89		
9652.09	1299.91	9652.16	1299.91	9653.91	1300.16	9654.12	1300.19	9656.03	1300.3		
9657.32	1300.28	9658.76	1300.26	9661.37	1300	9662.02	1300	9662.21	1299.99		
9664.4	1300.05	9670.96	1300.18	9672.18	1300.16	9677.32	1300.07	9678.73	1300.07		
9681.51	1300.02	9696.97	1300.11	9698.81	1300.12	9703.73	1300.12	9707.08	1300.1		
9714.64	1300.07	9716.38	1300.09	9719.2	1300.1	9723.46	1300.1	9726	1300.11		
9727.98	1300.16	9728.32	1300.19	9728.47	1300.19	9730.11	1300.26	9730.69	1300.25		
9731.86	1300.27	9732.33	1300.27	9734.15	1300.36	9735.09	1300.37	9736.32	1300.31		
9738.12	1300.21	9738.58	1300.2	9739.54	1300.2	9741.18	1300.23	9745.12	1300.27		
9758.44	1300.33	9768.83	1300.56	9774.13	1300.74	9781.36	1300.85	9786.87	1300.79		
9788.68	1300.73	9790.98	1300.74	9794.74	1300.97	9797.32	1301.05	9811.42	1301.46		
9815.33	1301.61	9833	1302.18	9836.47	1302.26	9846.89	1302.59	9849.85	1302.68		
9850.66	1302.7	9866.75	1302.99	9868.77	1303.05	9880.95	1303.53	9883.34	1303.63		
9883.36	1303.63	9884.15	1303.68	9885.78	1303.69	9886.58	1303.61	9892.05	1303.63		
9893.26	1303.59	9895.54	1303.5	9898.83	1303.42	9905.92	1303.05	9906.13	1303.04		
9906.39	1303.04	9913.19	1302.71	9914.45	1302.67	9916.71	1302.63	9918.77	1302.62		
9920.07	1302.6	9922.14	1302.64	9924.55	1302.7	9924.56	1302.7	9924.58	1302.7		
9924.6	1302.7	9924.62	1302.7	9925.38	1302.69	9926.21	1302.69	9926.76	1302.67		
9928.05	1302.52	9932.52	1302.11	9935.09	1301.82	9940.46	1301.01	9944.32	1300.68		
9945.87	1300.56	9948.56	1300.32	9951.09	1300.17	9952.27	1300.05	9954.53	1299.82		
9958.48	1300.25	9960.98	1300.48	9965.74	1300.07	9966.74	1300.05	9970.44	1298.76		
9971.89	1298.01	9971.99	1298.02	9972.73	1297.5	9979.5	1292.12	9989.41	1292.46		
9991.97	1292.55	9997.89	1292.79	10000	1292.82	10008.09	1292.93	10009.25	1293.58		
10011.31	1294.85	10012.08	1295.28	10013.91	1296.17	10014.18	1296.31	10016.87	1297.56		
10017.17	1297.71	10017.22	1297.72	10017.44	1297.84	10020.17	1299.29	10020.45	1299.33		
10020.8	1299.36	10022.31	1299.49	10023.66	1299.62	10024.67	1299.62	10025.19	1299.67		
10026.12	1299.65	10026.56	1299.71	10027.75	1299.83	10029.23	1299.83	10029.57	1299.83		
10034.88	1299.66	10035.73	1299.65	10038.18	1299.59	10043.46	1299.49	10043.64	1299.48		
10043.75	1299.48	10046.73	1299.25	10048.18	1299.16	10049.14	1299.31	10050.02	1299.54		
10056.83	1299.56	10060	1299.57	10063.78	1299.54	10065.79	1299.52	10075.15	1299.65		
10079.97	1299.87	10080.1	1299.87	10080.33	1299.88	10094.23	1300.26	10102.06	1300.41		
10108.51	1300.41	101022.15	1300.68	10125.33	1300.73	10138.56	1300.85	10147.53	1300.92		
10150.35	1300.95	10152.27	1300.97	10157.5	1301.01	10162.54	1301.07	10164.33	1301.1		
10176.58	1301.37	10185.61	1301.55	10186.84	1301.58	10188.26	1301.59	10193.74	1301.58		
10196.17	1301.62	10200.11	1301.66	10209.62	1301.77	10210.26	1301.78	10210.54	1301.78		
10211.48	1301.79	10216.7	1301.82	10226.66	1301.87	10230.14	1301.89	10233.24	1301.93		
10240.81	1302.01	10246.96	1302.14	10254.48	1302.22	10258.93	1302.29	10261.43	1302.39		
10265.39	1302.42	10265.62	1302.44	10265.71	1302.45	10265.75	1302.45	10267.61	1302.69		
10269.33	1302.65	10269.72	1302.63	10270.8	1302.61	10272.82	1302.48	10273.48	1302.53		
10277.65	1302.65	10282.34	1302.86	10287.37	1303.04	10291.74	1303.19	10294.99	1303.3		
10301.94	1303.68	10305.46	1303.82	10313.41	1304.16	10319.5	1304.51	10319.89	1304.5		
10320.26	1304.48	10331.27	1304.74	10331.39	1304.74	10331.83	1304.74	10336.58	1304.9		
10338.03	1304.94	10340.92	1304.95	10344.07	1304.94	10345.1	1304.95	10350.8	1304.86		
10351.72	1304.83	10352.74	1304.82	10354.22	1304.75	10357.28	1304.72	10360.36	1304.74		
10362.99	1304.77	10366.55	1304.85	10367.21	1304.85	10367.78	1304.85	10369.16	1304.83		
10372.02	1304.91	10372.27	1304.91	10375.83	1305.01	10376.29	1305.03	10376.61	1305.04		
10381.82	1305.15	10386.16	1305.06	10386.29	1305.06	10386.46	1305.06	10388.74	1305.06		
10398.04	1305.25	10400	1305.32								

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val

 9300 .056 9966.74 .0410027.75 .056

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 9966.74 10027.75 414.5 500 522 .1 .3

CROSS SECTION

RIVER: MDOW
 REACH: Reach1 RS: 3.706

INPUT

Description:
 Station Elevation Data num= 298
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev

 9300 1301.53 9302.88 1301.44 9303.94 1301.42 9304.91 1301.39 9307.87 1301.3
 9310.2 1301.21 9311.54 1301.18 9313.87 1301.16 9314.54 1301.15 9318.14 1301.1
 9320.49 1301.07 9320.8 1301.06 9321.04 1301.06 9322.76 1301.02 9328.57 1300.89

WilliamsCLOMR.rep

9330.51	1300.81	9334.39	1300.68	9334.51	1300.68	9334.65	1300.67	9335.21	1300.63
9339.95	1300.31	9341.23	1300.07	9343.61	1299.79	9346.67	1299.36	9350.71	1299.32
9363.41	1299.23	9370.93	1299.15	9374.85	1299.1	9376.76	1299.05	9381.78	1298.92
9382.39	1298.92	9383.06	1299.23	9383.18	1299.24	9384.78	1299.22	9385.35	1299.23
9385.97	1299.22	9388.93	1299.07	9389.12	1299.06	9389.16	1299.05	9389.76	1299.19
9393.06	1299.54	9393.27	1299.47	9395.35	1299.09	9397.89	1299.01	9399.92	1298.98
9406.26	1298.87	9406.49	1298.86	9408.13	1298.75	9409.94	1298.61	9411.62	1298.56
9413.52	1298.46	9414.74	1298.53	9415.89	1298.62	9417.53	1298.76	9419.42	1298.71
9419.77	1298.71	9419.81	1298.71	9420.5	1298.71	9423.9	1298.7	9424.96	1298.71
9425.18	1298.71	9435.94	1298.61	9436.94	1298.57	9439.41	1298.54	9446.31	1298.5
9451.32	1298.46	9454.78	1298.37	9456.92	1298.33	9466.32	1298.12	9467.29	1298.1
9468.02	1298.13	9476.02	1298.33	9482.08	1298.39	9494.53	1298.44	9495.51	1298.44
9495.72	1298.44	9507.43	1298.43	9513.28	1298.41	9517.73	1298.42	9531.29	1298.75
9531.99	1298.77	9533.35	1298.79	9541.39	1298.89	9547.49	1298.95	9554.42	1298.98
9558.3	1299.03	9564.22	1299.02	9564.98	1299.02	9570.5	1299.06	9573.88	1299.1
9574.88	1299.12	9582.19	1299.17	9583.64	1299.15	9589.28	1299.12	9591.22	1299.09
9596.64	1299.07	9600.67	1299.04	9603.64	1299.04	9609.02	1298.87	9610.6	1298.87
9611.78	1298.84	9619.34	1298.76	9620.21	1298.76	9629.39	1298.59	9629.56	1298.58
9629.58	1298.58	9629.59	1298.58	9629.61	1298.58	9639.79	1298.52	9640.35	1298.52
9641.18	1298.53	9647.12	1298.5	9648.02	1298.46	9649.46	1298.46	9652.6	1298.34
9656.59	1298.32	9663.25	1297.91	9663.99	1297.92	9665.24	1297.9	9669.87	1297.63
9670.25	1297.62	9670.77	1297.58	9674.05	1297.31	9674.39	1297.29	9678.41	1297.02
9679.29	1296.98	9681.82	1296.87	9683.31	1296.8	9685.73	1296.73	9688.59	1296.53
9689.04	1296.51	9690.27	1296.7	9700.84	1296.68	9701.94	1296.69	9702.18	1296.66
9705.45	1296.15	9709.45	1296.66	9711.12	1296.82	9720.64	1296.95	9722.89	1297
9723.74	1296.95	9728.76	1296.71	9731.86	1296.54	9733.99	1296.83	9734.92	1297.04
9736.48	1297.12	9738.28	1297.19	9741.96	1297.35	9742.03	1297.35	9742.08	1297.34
9745.3	1297.05	9747.4	1296.87	9748.62	1296.75	9749.91	1296.62	9752.07	1296.78
9754.09	1296.92	9754.73	1296.96	9755.62	1296.99	9759.81	1297	9762	1297.07
9764.36	1297.07	9765.06	1297.1	9766.25	1297.09	9766.85	1297.05	9771.83	1297.19
9771.85	1297.19	9771.86	1297.19	9771.87	1297.18	9773.47	1296.7	9774.77	1296.72
9775.96	1296.74	9776.93	1297.14	9777.9	1297.48	9778.35	1297.47	9778.64	1297.48
9779.98	1297.38	9784.56	1297.37	9786.86	1297.39	9792.87	1297.45	9800.57	1297.63
9811.5	1297.85	9822.38	1297.99	9829.39	1298.11	9843.31	1298.18	9845.47	1298.2
9847.22	1298.22	9857.82	1298.41	9869.19	1298.41	9871.11	1298.41	9877.13	1298.42
9883.6	1298.4	9885.07	1298.37	9894.17	1297.98	9903.11	1297.55	9908.02	1297.35
9909.95	1297.19	9912.52	1297.03	9913.27	1297.02	9914.41	1296.94	9916.71	1297.02
9917.6	1297.03	9920.97	1297.07	9922.06	1297.05	9924.51	1297.11	9930.76	1297.19
9932.27	1297.26	9933.44	1297.28	9935.3	1297.28	9937.65	1297.26	9940.17	1297.21
9941.72	1297.2	9948.34	1297.47	9950.18	1297.55	9952.22	1297.62	9952.28	1297.63
9955.63	1297.72	9957.97	1297.83	9960.3	1298.08	9962.56	1298.2	9964.63	1298.05
9965.92	1297.97	9967.32	1297.95	9967.73	1297.91	9968.06	1297.77	9970.52	1296.26
9971.7	1295.46	9972.37	1294.81	9974.69	1293.05	9975.93	1292.72	9977.54	1292.33
9981.62	1292.74	9984.47	1293.08	9986.41	1292.34	9989.76	1290.85	9994.99	1290.77
9997.73	1290.73	10000	1290.72	10002.38	1290.7	10011.6	1290.52	10015.21	1290.47
10015.28	1290.47	10015.47	1290.44	10016.6	1290.89	10018.66	1291.69	10020.3	1292.19
10021.48	1292.38	10023.35	1292.91	10028.07	1295.53	10028.96	1295.99	10029.12	1296.17
10030.52	1296.55	10037.39	1297.84	10037.8	1297.83	10038.84	1297.86	10040.02	1297.83
10042.07	1297.61	10044.33	1297.41	10054.69	1297.06	10058.31	1296.93	10060.38	1296.88
10063.12	1297.13	10069.61	1297.67	10083.28	1298.07	10098.16	1298.41	10102.33	1298.61
10123.65	1299.43	10132.38	1299.65	10134.08	1299.69	10134.6	1299.71	10152.7	1300
10152.79	1300.01	10152.92	1300.01	10153.14	1300	10154.7	1300.07	10161.69	1300.37
10165.96	1300.65	10170.86	1300.98	10173.5	1301.21	10180.27	1301.59	10187.5	1301.98
10198.45	1302.57	10205.34	1302.86	10215.06	1303.31	10223.83	1303.67	10233.79	1304.01
10238.51	1304.18	10249.1	1304.54	10255.27	1304.69	10260.06	1304.83	10260.38	1304.83
10260.58	1304.84	10260.86	1304.86	10270.44	1305.21	10276.28	1305.32	10283.79	1305.44
10291.87	1305.31	10299.65	1305.32	10300	1305.32				

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val

 9300 .056 9967.32 .0410037.39 .056

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 9967.32 10037.39 590.8 617.7 623.3 .1 .3

CROSS SECTION

RIVER: MDOW
 REACH: Reach1 RS: 3.589

INPUT Description:

Station	Elevation	Data	num=	318	Sta	Elev	Sta	Elev	Sta	Elev
9500	1301.7	9501.16	1301.69	9503.2	1301.64	9507.55	1301.57	9508.8	1301.58	
9518.55	1301.66	9519.42	1301.66	9520.53	1301.66	9526.15	1301.63	9533.17	1301.61	
9537.14	1301.6	9537.52	1301.61	9538.95	1301.62	9546.84	1301.66	9548.87	1301.69	
9551.97	1301.75	9552.45	1301.75	9555.05	1301.73	9556.25	1301.74	9556.75	1301.75	
9560	1301.7	9560.05	1301.7	9560.14	1301.69	9567.17	1301.81	9569.16	1301.87	
9570.79	1302.03	9572.21	1302.13	9572.8	1302.13	9573.17	1302.14	9574.72	1301.99	
9575.57	1302	9576.4	1302	9577.03	1302	9580.29	1301.95	9589.79	1301.82	
9591.17	1301.84	9594.36	1301.88	9596.07	1301.88	9598.91	1301.89	9600.56	1301.89	
9603.1	1301.89	9607.3	1301.74	9609.9	1301.74	9610.32	1301.74	9617.97	1301.62	
9618.02	1301.61	9618.09	1301.61	9619.53	1301.57	9627.74	1301.32	9628.72	1301.31	
9637.83	1301.14	9639.7	1301.11	9642.94	1301.02	9648.83	1300.85	9651.72	1300.76	
9658.16	1300.49	9658.88	1300.46	9660.54	1300.43	9662.67	1300.36	9664.68	1300.37	
9667.16	1300.3	9667.78	1300.28	9668.01	1300.28	9672.5	1300.19	9674.06	1300.11	
9677.24	1299.95	9679.88	1299.85	9682.54	1299.59	9684.13	1299.49	9685.19	1299.44	
9686.06	1299.4	9692.22	1299.09	9692.32	1299.08	9692.41	1299.08	9693.01	1299.06	
9702.03	1298.59	9703.28	1298.5	9705.1	1298.37	9707.66	1298.24	9709.43	1298.13	
9712.69	1297.87	9713.11	1297.84	9713.97	1297.79	9719.67	1297.44	9721.08	1297.34	
9725.13	1297.12	9729.11	1296.93	9730.35	1296.88	9731.36	1296.82	9732.05	1296.79	
9738.09	1296.5	9741.87	1296.45	9742.7	1296.45	9745.21	1296.41	9750.44	1296.33	
9756.05	1296.24	9756.95	1296.23	9758.15	1296.21	9765.24	1295.49	9768.81	1295.12	
9771.79	1294.83	9775.52	1294.53	9776.54	1294.42	9777.88	1294.29	9780.47	1294.12	
9781.29	1294.04	9781.98	1294	9785.51	1293.79	9787.49	1293.75	9790.71	1293.65	
9793.14	1293.55	9795.27	1293.59	9797.37	1293.51	9799.36	1293.61	9801.45	1293.5	
9803.47	1293.49	9805.16	1293.26	9806.34	1293.24	9807.08	1293.25	9811.45	1292.94	
9811.67	1292.94	9811.89	1292.94	9814.8	1292.7	9815.87	1292.69	9815.92	1292.69	
9818.57	1292.84	9819.36	1292.85	9820.03	1292.87	9823.86	1292.93	9825.0	1292.98	
9827.05	1293.01	9828.45	1293.06	9831.22	1293.08	9831.95	1293.12	9833.48	1293.2	
9835.22	1293.19	9839.79	1293.54	9841.99	1293.71	9843.16	1293.9	9843.65	1293.93	
9844.15	1293.9	9856.25	1293.98	9858.09	1293.99	9858.69	1293.91	9861.06	1293.66	

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9861.8	1293.59	9862.05	1293.55	9862.44	1293.53	9865.8	1293.36	9867.39	1293.32
9872.75	1293.22	9880.19	1293.28	9882.64	1293.32	9884.51	1293.59	9887.48	1293.98
9888.92	1294.02	9892.72	1294.1	9903.37	1294.33	9906.27	1294.39	9909.7	1294.44
9914.33	1294.46	9917.94	1294.52	9925.45	1294.6	9929.05	1294.61	9936.41	1294.77
9947.68	1294.83	9948.31	1294.83	9948.49	1294.83	9948.74	1294.84	9958.17	1294.88
9959.76	1294.89	9962.3	1294.77	9963.55	1294.77	9967.84	1294.65	9969.17	1294.64
9970.16	1294.63	9972.59	1294.4	9975.88	1294.34	9975.97	1294.33	9977.8	1294.15
9979.47	1292.87	9981.07	1292.25	9986.32	1288.9	9988.06	1288.2	9991.44	1286.88
9999.32	1286.81	10000	1286.810001.49	1286.7910001.91	1286.8810004.46	1287.4			
10006.44	1287.8510011.31	1288.9210011.62	1288.9410012.01	128910012.65	1289.07				
10018.47	1289.6210019.45	1289.74 10021.8	1290.110022.92	1290.1710023.38	1290.25				
10027.47	1290.8910027.72	1290.9210027.95	1290.9810031.94	1291.1510032.65	1291.18				
10032.68	1291.1810033.49	1291.1810039.88	1291.1 10040.1	1291.110040.62	1291.09				
10047.29	1291.0310050.71	1291.0510051.11	1291.0410051.45	1290.9910057.61	1290.11				
10060.26	1290.21 10063.4	1289.5510067.54	1289.3410068.58	1289.3110072.16	1289.17				
10073.17	1289.1410075.47	1289.0610078.06	1288.9510079.43	1288.9610081.16	1289.44				
10082.67	1289.5710083.38	1289.710083.97	1293.3210084.22	1294.6610084.66	1294.72				
10086.63	1294.9210090.41	129510090.71	129510093.66	1295.2110094.22	1295.24				
10097.26	1295.34 10099.5	1295.410100.58	1295.3210105.33	129510105.59	1294.99				
10108.84	1294.9110110.68	1294.9310113.14	1294.9810113.81	1294.9810121.58	1294.94				
10138.4	1294.9210139.01	1294.93 10139.9	1294.8910140.02	1294.8910140.41	1294.89				
10147.75	1294.9810150.36	1294.99 10157.8	1295.0410166.44	1295.1410179.38	1295.17				
10183.32	1295.1910183.78	1295.2110186.44	1295.1910208.11	1295.3110221.17	1295.52				
10223.66	1295.5610224.56	1295.5710240.78	1295.8410241.86	1295.8410262.95	1296.16				
10269.18	1296.2710274.04	1296.3410291.14	1296.510311.08	1296.6610313.82	1296.68				
10316.07	1296.6910324.91	1296.2910327.04	1296.110329.66	1296.3110331.42	1296.5				
10335.7	1296.6110339.04	1296.6510344.74	1296.7610351.23	1296.8210352.02	1296.84				
10354.5	1296.8410358.56	1296.3310361.53	1296.5910361.68	1296.610364.71	1296.86				
10376.94	1297.0110377.93	1297.02 10378.3	1297.0310395.77	1297.5510396.62	1297.59				
10397.93	1297.65 10400.4	1297.7410407.05	1297.93 10408	1298.0310408.19	1298.06				
10408.63	1298.110412.37	1298.1310412.69	1298.1410414.16	1298.1810415.36	1298.31				
10416.04	1298.3310422.15	1298.610423.96	1298.5410424.72	1298.5110428.75	1298.65				
10438.16	1299.0310448.63	1299.38 10450.3	1299.4410450.76	1299.4510451.16	1299.46				
10464.47	1299.7710469.42	1299.8910476.06	1300.1610479.16	1300.2510485.09	1300.34				
10492.88	1300.45 10496.2	1300.51 10500	1300.53						

Manning's n Values num= 3

Sta	n Val	Sta	n Val
9500	.056	9975.97	.0410084.22
			.056

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	9975.97	10084.22		481.7	500	555.7		.1	.3

CROSS SECTION

RIVER: MDOW
 REACH: Reach1 RS: 3.494

INPUT

Description: Station Elevation Data num= 490

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9600	1298.39	9602.39	1298.25	9604.08	1298.14	9605.47	1298.1	9606.45	1298.08
9607.35	1298.08	9609.54	1298.01	9610.41	1298	9612.8	1297.95	9612.97	1297.95
9616.06	1297.86	9616.53	1297.86	9619.09	1297.75	9619.42	1297.75	9624.17	1297.8
9624.79	1297.76	9625.27	1297.74	9626.36	1297.74	9629.27	1297.8	9631.02	1297.85
9633.96	1297.85	9637.78	1297.78	9641.23	1297.74	9643.22	1297.71	9645.45	1297.67
9647.77	1297.68	9648.73	1297.64	9649.44	1297.56	9651.5	1297.46	9653.04	1297.44
9654.23	1297.35	9655.74	1297.25	9662.08	1296.95	9665.87	1296.7	9670.37	1296.45
9674.24	1296.18	9678.03	1295.96	9680.25	1295.93	9680.98	1295.94	9684.32	1295.57
9685.07	1295.61	9690.85	1295.42	9692.09	1295.34	9693.46	1295.07	9696	1294.81
9696.51	1294.78	9699.56	1294.47	9700.97	1294.32	9702.24	1294.23	9702.89	1294.21
9703.09	1294.19	9703.65	1294.22	9706.58	1294.88	9707.43	1295.05	9710.03	1295.11
9712.22	1295.14	9715.03	1295.09	9717.32	1295.12	9718.59	1295.18	9719.62	1295.2
9724.97	1295.16	9726.4	1295.18	9727.93	1295.18	9732.15	1295.04	9734.2	1295.02
9734.67	1295.02	9740.54	1295.12	9741.58	1295.12	9744.38	1295.29	9747.33	1295.36
9747.92	1295.39	9752.9	1295.52	9754.04	1295.56	9761.3	1295.79	9761.59	1295.79
9764.03	1295.74	9766.54	1295.8	9767.08	1295.82	9771.22	1295.92	9772.13	1295.95
9777.18	1295.93	9780.76	1295.96	9789.32	1295.96	9790.68	1295.93	9791.27	1295.93
9792.3	1295.94	9796.8	1295.9	9805.97	1295.79	9817.8	1295.45	9818.41	1295.44
9819	1295.41	9823.03	1295.1	9824.1	1295.06	9828.35	1294.83	9828.98	1294.8
9837.28	1294.39	9838.36	1294.33	9842.37	1294.21	9846.24	1294.11	9847.33	1294.05
9851.59	1293.87	9854.83	1293.68	9858.41	1293.42	9860.64	1293.2	9863.73	1292.87
9870.05	1292.75	9875.36	1292.66	9891.23	1292.42	9891.6	1292.41	9903	1292.23
9905.99	1292.13	9906.33	1292.11	9908.31	1292.06	9912.32	1291.93	9912.97	1291.9
9917.73	1291.73	9922.09	1291.74	9924.35	1291.73	9926.88	1292.3	9927.67	1292.45
9931.55	1292.38	9932.65	1292.34	9933.67	1292.11	9935.5	1291.74	9936.31	1291.58
9937.03	1291.48	9938.31	1291.42	9939.48	1291.36	9939.82	1291.33	9940.09	1291.27
9941.05	1291.29	9943.08	1291.46	9943.94	1291.5	9946.01	1291.51	9947.41	1291.47
9949.53	1291.4	9950.21	1291.37	9953.88	1291.16	9956.27	1291.08	9957.9	1290.94
9958.18	1290.91	9958.34	1290.92	9961.27	1290.9	9965.11	1289.3	9971.15	1286.74
9975.95	1285.38	9976.28	1285.38	9980.4	1285.25	9985.93	1285	9987.25	1284.67
9989.74	1284.52	9990.25	1284.44	9990.55	1284.44	9991.62	1284.31	9992.08	1284.24
9993.85	1284.12	9996.31	1283.91	9998.82	1283.78	10000	1283.8410003.18	1283.99	
10004.6	1284.0810009.46	1285.2410013.89	1286.2810018.84	1287.6510021.18	1288.28				
10022.64	1288.9610024.41	1289.8410029.86	1292.1610030.49	1292.44 10033.2	1292.53				
10038.98	1292.7310039.78	1292.7510040.45	1292.910041.67	1293.23 10044.7	1293.17				
10046.88	1293.1510050.45	1292.510052.05	1292.1910052.59	1292.1810053.62	1292.14				
10055.37	1292.1710062.29	1292.2610065.36	1292.110067.31	1291.9810069.05	1291.93				
10070.1	1291.9710071.63	1292.0410074.85	1292.07 10082.2	1292.23 10085.3	1292.32				
10088.7	1292.4110090.17	1292.4410101.01	1292.5110105.06	1292.5310105.26	1292.54				
10114.91	1292.8210117.65	1292.7810124.72	1292.7610128.15	1292.8610133.23	1292.96				
10135.18	1293.0110137.08	1293.0210149.75	1293.1810153.04	1293.2810159.08	1293.39				
10172.35	1293.6810173.32	1293.6710186.74	1293.510195.34	1293.3910196.54	1293.38				
10198.16	1293.3610217.74	1293.19 10229.7	1293.1810236.26	1293.1610238.22	1293.15				
10239.26	1293.12 10245.8	1293.110257.86	1293.0710261.67	1293.110267.88	1293.11				
10275.43	1293.2210285.21	1293.31 10289.1	1293.3510292.92	1293.2710301.27	1293.03				
10301.35	1293.0410301.85	1293.03 10315.8	1292.6910320.59	1292.5710335.87	1292.48				
10346.25	1292.4110356.79	1292.3410378.24	1292.3210379.65	1292.3410387.23	1292.54				
10396.38	1292.8110400.67	1292.83 10401.2	1292.8310403.19	1292.8610404.05	1292.87				
10405.48	1292.8710406.26	1292.8310407.24	1292.8410409.54	1293.0210409.62	1293.03				
10410.52	1293.0310411.41	1293.0410412.31	1293.1210413.24	1293.14 10414.7	1293.15				
10416.49	1293.1410417.53	1293.1210419.44	1292.9210420.38	1292.8310421.23	1292.85				

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10249.06	1290.83	10253.3	1290.8910261.73	1290.8310263.95	1290.8410270.52	1290.78
10278.37	1290.6910283.75	1290.59	10289.2	1290.5110302.89	1290.6210307.37	1290.59
10317.23	1290.6110320.11	1290.6110330.91	1290.5810333.79	1290.5410337.09	1290.48	1290.48
10342.33	1290.4210345.95	1290.4610354.66	1290.5510356.59	1290.5710358.98	1290.57	1290.57
10359.73	1290.7410360.46	1290.8410361.38	1290.8910362.47	1290.9410362.81	1290.91	1290.91
10365.53	1290.5210370.31	1290.3710371.41	1290.3610372.69	1290.2610372.98	1290.25	1290.25
10381.85	1290.2310387.49	1290.1910400.66	1290.0710407.52	1289.8610414.56	1289.63	1289.63
10424.04	1289.4910428.37	1289.4610433.53	1289.3710443.28	1289.2510444.19	1289.27	1289.27
10445.12	1289.2310449.98	1289.1810451.97	1289.1510452.31	1289.1410453.71	1289.1	1289.1
10455.4	1289.0910457.34	1289.0610462.85	1289.0510464.57	1289.0110468.89	1289.02	1289.02
10469.9	1289.0110471.43	1288.9710473.41	1288.9610474.44	1288.8510476.98	1289.15	1289.15
10478.63	1289.2610480.26	1289.310480.71	1289.3210483.29	1289.4210484.79	1289.46	1289.46
10485.97	1289.4910488.16	1289.4810489.12	1289.510491.34	1289.510491.84	1289.5	1289.5
10492.26	1289.5	10493.9	1289.510494.25	1289.4910496.49	1289.3710497.68	1289.41
10499.09	1289.4110499.97	1289.4210502.13	1289.4910502.94	1289.5110505.33	1289.51	1289.51
10506.01	1289.5110508.33	1289.6110509.03	1289.6110511.62	1289.6110515.93	1289.66	1289.66
10517.62	1289.6610520.06	1289.5710520.96	1289.5710524.63	1289.610524.81	1289.6	1289.6
10524.87	1289.610525.03	1289.6	10525.6	1289.48	10527.4	1289.21
10530.11	1289.7310531.66	1289.69	10540.1	1289.5210543.85	1289.6510544.18	1289.66
10544.34	1289.6810549.52	1290.1210555.75	1290.8210556.27	1290.8810558.08	1291.07	1291.07
10561.64	1291.4510563.88	1291.5210579.28	1292.0610582.98	1292.210588.34	1292.37	1292.37
10594.32	1292.5610598.45	1292.7510605.01	1292.9710608.53	1293.0410612.34	1293.17	1293.17
10614.33	1293.3110622.99	1293.4110627.12	1293.4710630.27	1293.5410634.37	1293.55	1293.55
10636.26	1293.55	10639.2	1293.5310643.74	1293.5710649.26	1293.6310652.69	1293.66
10660.3	1293.6710661.78	1293.6610668.83	1293.8410668.98	1293.8410675.35	1293.79	1293.79
10676.02	1293.7910683.45	1293.7110692.55	1293.6810694.13	1293.6910697.89	1293.71	1293.71
10699.88	1293.7410700.69	1293.7410711.37	1293.7810713.24	1293.7810722.77	1293.81	1293.81
10723.69	1293.8110730.53	1293.9310735.31	1293.93	10738.3	1293.9410747.61	1293.9
10749.52	1293.910760.72	1293.8910761.79	1293.8910776.16	1293.9510777.06	1293.96	1293.96
10777.13	1293.9610789.56	1293.9610789.57	1293.9610799.66	1293.95	10800	1293.95

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9600	.056	9959.14	.0410020.73	.056	

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	9959.14	10020.73		225.4	260.73	266.7		.3	.5

CROSS SECTION

RIVER: MDOW
REACH: Reach1 RS: 3.350

INPUT

Description: Station Elevation Data num= 490

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9500	1293.94	9502.41	1293.93	9511.63	1293.93	9516.43	1293.9	9521.75	1293.75
9526.1	1293.67	9537.9	1293.4	9538.98	1293.41	9539.52	1293.44	9540.08	1293.37
9540.7	1293.34	9541.12	1292.94	9541.48	1293.06	9542.65	1293.44	9545.97	1293.4
9547.7	1293.37	9549.84	1293.37	9550.93	1293.32	9551.29	1293.3	9552.99	1293.34
9553.86	1293.05	9554.08	1292.99	9554.26	1292.97	9554.55	1293.01	9555.28	1293.08
9555.6	1293.12	9556.56	1293.26	9557.08	1293.32	9557.74	1293.35	9558.63	1293.38
9563.11	1293.38	9563.42	1293.37	9578.5	1293.19	9583.25	1293.12	9584.39	1293.11
9592.16	1293.1	9593.65	1293.08	9594.72	1293.08	9596.51	1293.04	9598.43	1293.03
9600.28	1292.99	9602.58	1292.9	9604.23	1292.82	9606.2	1292.81	9608.91	1292.75
9610.59	1292.72	9612.87	1292.58	9614.31	1292.5	9614.43	1292.5	9617.18	1292.47
9620.02	1292.59	9620.17	1292.59	9622.34	1292.54	9622.58	1292.55	9626.68	1292.4
9629.68	1292.57	9629.96	1292.58	9631.64	1292.7	9632.41	1292.74	9633.27	1292.77
9634.67	1292.8	9636.06	1292.81	9637.84	1292.72	9638.84	1292.72	9640.4	1292.75
9644.05	1292.69	9648.82	1292.74	9651	1292.78	9653.81	1292.82	9655.62	1292.88
9657.13	1292.92	9668.88	1293	9669.71	1293.01	9676.81	1292.97	9679.2	1292.95
9689.34	1292.88	9694.56	1292.88	9703.37	1292.83	9707.42	1292.8	9717.94	1292.71
9719.66	1292.7	9720.81	1292.66	9727.37	1292.63	9731.01	1292.58	9731.74	1292.58
9733.53	1292.49	9733.66	1292.49	9734.15	1292.44	9735.15	1292.29	9735.53	1292.32
9736.35	1292.43	9737.05	1292.56	9737.17	1292.57	9738.73	1292.6	9739.87	1292.62
9741.09	1292.69	9744.17	1292.7	9746.41	1292.74	9748.91	1292.74	9753.27	1292.71
9757.13	1292.7	9761.6	1292.68	9768.14	1292.6	9772.06	1292.6	9778.02	1292.59
9780.42	1292.53	9782.02	1292.52	9791.71	1292.37	9792.76	1292.36	9800.6	1292.08
9802.11	1292.06	9806.71	1291.88	9807.16	1291.87	9807.87	1291.83	9814.11	1291.77
9814.33	1291.77	9817.91	1291.61	9820.2	1291.51	9820.5	1291.5	9827.82	1291.21
9828.86	1291.17	9836.49	1290.91	9839.3	1290.77	9842.48	1290.62	9846.54	1290.39
9852.18	1290.06	9859.22	1289.53	9860.51	1289.44	9860.77	1289.42	9860.88	1289.42
9861.05	1289.4	9868.39	1288.83	9868.86	1288.78	9869.37	1288.76	9870.18	1288.7
9870.75	1288.65	9871.53	1288.56	9876.76	1288.06	9877.92	1288	9878.91	1287.96
9879.74	1287.87	9880.65	1287.74	9881.8	1287.62	9882.9	1287.55	9884.05	1287.43
9885.82	1287.21	9887.78	1287.04	9889.73	1286.9	9890.15	1286.86	9890.94	1286.69
9892.9	1286.31	9893.61	1286.17	9897.32	1284.94	9897.44	1284.88	9898.23	1285.47
9898.68	1285.38	9900.04	1283.63	9900.85	1283.47	9901.33	1283.06	9901.81	1282.66
9902.99	1282.48	9903.35	1282.52	9903.6	1282.74	9904.9	1283.44	9905.25	1283.65
9906.1	1285.35	9906.47	1285.7	9907.27	1285.58	9908.76	1285.54	9909.12	1285.81
9909.7	1286.07	9910.28	1286.05	9911.39	1286.02	9912.68	1286.06	9913.76	1286.23
9914.46	1286.36	9915.97	1286.31	9916.38	1286.28	9918.78	1286.15	9921.32	1286.09
9921.85	1286.06	9923.29	1285.77	9924.35	1285.58	9925.61	1285.18	9926.99	1284.85
9927.2	1284.83	9927.21	1284.79	9927.27	1284.78	9928.71	1284.33	9929.56	1284.13
9930.68	1283.87	9931.35	1283.74	9932.29	1283.14	9932.86	1282.97	9934.85	1282.46
9938.87	1282.38	9941.39	1282.24	9941.95	1282.23	9942.28	1282.17	9943.04	1281.86
9943.62	1281.87	9944.09	1281.91	9946.74	1281.82	9947.64	1281.86	9953.03	1281.87
9957.52	1282.4	9957.55	1282.39	9960.1	1281.01	9960.27	1280.99	9961.79	1280.78
9962.04	1280.84	9962.4	1280.97	9965.09	1281.04	9966.43	1280.98	9967.16	1280.94
9967.32	1281	9968.95	1281.49	9971.12	1281.79	9973.24	1282.06	9974.73	1282.19
9976.12	1282.11	9977.14	1282.13	9977.46	1282.15	9977.67	1282.17	9978.65	1282.23
9986.55	1282.76	9990.52	1282.96	9991.33	1283	9995.1	1283.12	9996.16	1283.13
9998.26	1283.17	10000	1283.1910000.37	1283.210001.83	1283.1910002.54	1283.21	10003.37	1283.22	10004.5
10003.37	1283.22	10004.5	1283.33	10007.6	1283.2210007.84	1283.2210007.96	1283.21	10008.34	1283.16
10008.34	1283.16	10009.7	1282.9610010.51	1282.9810011.77	128310013.04	1283.11	10014.28	1282.91	10016.59
10014.28	1282.91	10016.59	1282.3210018.08	128210020.55	1281.5710020.81	1281.62	10021.67	1281.97	10022.39
10021.67	1281.97	10022.39	1282.2110029.11	1282.2710033.23	1282.2210034.26	1282.02	10026.94	1282.07	10028.11
10026.94	1282.07	10028.11	1281.5910039.76	1281.5210041.61	1281.0910044.16	1280.78	10036.33	1281.71	10038.93
10036.33	1281.71	10038.93	1281.6110047.64	1281.6410048.38	1281.9610049.25	1282.07	10045.69	1281.23	10047.53
10045.69	1281.23	10047.53	1281.7110053.71	1281.5310054.45	1281.48	10055.6	1281.54	10050.89	1281.82
10050.89	1281.82	10051.79	1281.810059.99	1281.8510060.66	1281.9310062.05	1282.02	10057.94	1281.72	10059.49

WilliamsCLOMR.rep

10064.19	1282.1610065.06	1282.1910065.82	1282.24	10066.3	1284.6610066.37	1285.04	
10066.58	1284.9910066.95	1284.8810067.25	1284.93	10068	1284.1510070.05	1284.08	
10070.89	1284.410071.44	1284.4710071.94	1284.51	10073.32	1284.4710075.57	1284.66	
10077.06	1285.10077.39	1285.0610078.49	1285.37	10079.78	1285.4110080.56	1285.51	
10084.83	1285.4610092.38	1285.3710092.91	1285.37	10106.99	1285.1510108.84	1285.12	
10125.77	1284.8810128.81	1284.8810144.62	1284.89	10146.83	1284.910147.91	1284.93	
10158.22	1285.10159.71	1284.9910174.95	1285.11	10175.81	1285.1110193.24	1285.07	
10194.42	1285.0710210.94	1285.0610212.05	1285.05	10226.12	1285.2310227.53	1285.23	
10243.19	1285.1810244.62	1285.1710245.79	1285.18	10262.21	1285.210263.07	1285.2	
10279.72	1285.2710307.33	1285.2710307.91	1285.28	10308.82	1285.2710328.52	1285.19	
10329.55	1285.1910343.83	1285.1210345.08	1285.11	10356.05	1285.0110367.43	1284.81	
10369.66	1284.810382.81	1284.7610384.92	1284.76	10401.48	1284.7210402.91	1284.7	
10423.53	1284.7510425.45	1284.7610440.76	1284.89	10442.86	1284.8810455.64	1284.92	
10457.4	1284.910465.76	1284.9810469.01	1284.99	10478.15	1285.0110486.59	1284.97	
10489.76	1284.9810498.78	1285.1810506.67	1285.46	10507.75	1285.48	10516.1	
10523.78	1285.6210524.55	1285.6310532.89	1285.66	10533.13	1285.66	10534.8	
10539.56	1285.6810545.26	1285.7310547.28	1285.81	10548.63	1285.8410549.51	1285.83	
10550.55	1285.8310552.23	1285.8110554.06	1285.69	10554.13	1285.68	10555.4	
10555.63	1285.6210557.55	1285.5910560.03	1285.54	10560.3	1285.5510562.26	1285.68	
10562.59	1285.7910562.85	1286.0510563.25	1286.08	10572.29	1286.1710576.28	1286.26	
10580	1286.2710581.98	1286.3110597.54	1286.49	10598.02	1286.4510598.25	1286.45	
10602.01	1286.5210609.44	1286.4910617.35	1286.57	10617.43	1286.56	10618.9	
10619.49	1286.28	10621.9	1286.47	10627.52	1286.47	10634.4	
10645.22	1286.7210650.03	1286.7710657.78	1286.82	10662.37	1286.8410672.33	1286.91	
10675.4	1286.9610688.82	1287.0910691.37	1287.08	10704.18	1287.1510705.07	1287.16	
10709.21	1287.2510716.83	1287.4110717.47	1287.42	10726.66	1287.5710727.55	1287.57	
10740.2	1287.65	10742.4	1287.67	10752.68	1287.7710755.45	1287.8	10764.9
10768.6	1287.910777.83	128810783.19	1288.04	10791.71	1288.0610798.58	1288.14	
10807.3	1288.2410813.73	1288.2610822.97	1288.26	10831.41	1288.3310838.88	1288.39	
10848.14	1288.3510856.42	1288.3510865.02	1288.41	10874.06	1288.4510880.09	1288.49	
10887.96	1288.5910894.34	1288.5610901.65	1288.64	10908.63	1288.7210915.04	1288.71	
10923.64	1288.76	10929.8	1288.81	10937.88	1288.8210944.33	1288.8910953.41	1288.99
10960.31	1289.1210965.14	1289.2410973.37	1289.35	10975.8	1289.3810977.84	1289.41	
10979.15	1289.4710979.45	1289.4810980.96	1289.21	10981.54	1289.0210982.57	1289.47	
10982.76	1289.57	10983	1289.5810985.69	1289.71	10987.49	1289.7810990.42	1289.9
10991.35	1289.9510995.85	1290.2310997.31	1290.31	11004.26	1290.8111004.45	1290.82	
11005.71	1290.9211012.11	1291.3611013.42	1291.47	11014.04	1291.54	11020	1291.97
11022.57	1292.1911026.19	1292.4711028.36	1292.62	11031.12	1292.87	11034	1293.09
11037.71	1293.3211039.17	1293.4411044.29	1293.79	11046.97	1293.9811051.54	1294.09	
11053.37	1294.1311057.72	1294.211063.28	1294.22	11065.43	1294.2511070.91	1294.38	
11072.76	1294.4211073.14	1294.4211073.86	1294.43	11079.65	1294.4811082.43	1294.53	
11086.91	1294.5811090.44	1294.65	11095.8	1294.69	11096.96	1294.71	11100

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val

 9500 .056 9926.99 .0410066.37 .056

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 9926.9910066.37 208.5 208.5 .3 .5
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 9500 9926.7 1291.77 F
 10075.64 11100 1291.33 F

CULVERT

RIVER: MDOW
 REACH: Reach1 RS: 3.330

INPUT
 Description: Loop 303 Culvert
 Distance from Upstream XS = 38
 Deck/Roadway width = 148
 Weir Coefficient = 2.6
 Upstream Deck/Roadway Coordinates
 num= 14
 Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord

 9500 1294.23 9544.47 1294 9708.35 1293
 9800 1292.52 9898.3 1292 9996.88 1291.2
 10223.67 1291 10281.26 1290.7 10344.77 1291
 10661.78 1292 10802.4 1293 10914.78 1294
 11039.12 1295 11100 1295.53

Upstream Bridge Cross Section Data
 Station Elevation Data num= 490
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev

 9500 1293.94 9502.41 1293.93 9511.63 1293.93 9516.43 1293.9 9521.75 1293.75
 9526.1 1293.67 9537.9 1293.4 9538.98 1293.41 9539.52 1293.44 9540.08 1293.37
 9540.7 1293.14 9541.12 1292.94 9541.48 1293.06 9542.65 1293.44 9545.97 1293.4
 9547.7 1293.37 9549.84 1293.37 9550.93 1293.32 9551.29 1293.3 9552.99 1293.34
 9553.86 1293.05 9554.08 1292.99 9554.26 1292.97 9554.55 1293.01 9555.28 1293.08
 9555.6 1293.12 9556.56 1293.26 9557.08 1293.32 9557.74 1293.35 9558.63 1293.38
 9563.11 1293.38 9563.42 1293.37 9578.5 1293.19 9583.25 1293.12 9584.39 1293.11
 9592.16 1293.1 9593.65 1293.08 9594.72 1293.08 9596.51 1293.04 9598.43 1293.03
 9600.28 1292.99 9602.58 1292.9 9604.23 1292.82 9606.2 1292.81 9608.91 1292.75
 9610.59 1292.72 9612.87 1292.58 9614.31 1292.5 9614.43 1292.5 9617.18 1292.47
 9620.02 1292.59 9620.17 1292.59 9622.34 1292.54 9622.58 1292.55 9626.68 1292.4
 9629.68 1292.57 9629.96 1292.58 9631.64 1292.7 9632.41 1292.74 9633.27 1292.77
 9634.67 1292.8 9636.06 1292.81 9637.84 1292.72 9638.84 1292.72 9640.4 1292.75
 9644.05 1292.69 9648.82 1292.74 9651 1292.78 9653.81 1292.82 9655.62 1292.88
 9657.13 1292.92 9668.88 1293 9669.71 1293.01 9676.81 1292.97 9679.2 1292.95
 9689.34 1292.88 9694.56 1292.88 9703.37 1292.83 9707.42 1292.8 9717.94 1292.71
 9719.66 1292.7 9720.81 1292.66 9727.37 1292.63 9731.01 1292.58 9731.74 1292.58
 9733.53 1292.49 9733.66 1292.49 9734.15 1292.44 9735.15 1292.29 9735.53 1292.32
 9736.35 1292.43 9737.05 1292.56 9737.17 1292.57 9738.73 1292.6 9739.87 1292.62
 9741.09 1292.69 9744.17 1292.7 9746.41 1292.74 9748.91 1292.74 9753.27 1292.71
 9757.13 1292.7 9761.6 1292.68 9768.14 1292.6 9772.06 1292.6 9778.02 1292.59
 9800.42 1292.53 9782.02 1292.52 9791.71 1292.37 9792.76 1292.36 9800.6 1292.08
 9802.11 1292.06 9806.71 1291.88 9807.16 1291.87 9807.87 1291.83 9814.11 1291.77
 9814.33 1291.77 9817.91 1291.61 9820.2 1291.51 9820.5 1291.5 9827.82 1291.21
 9828.86 1291.17 9836.49 1290.91 9839.3 1290.77 9842.48 1290.62 9846.54 1290.39
 9852.18 1290.06 9859.22 1289.53 9860.51 1289.44 9860.77 1289.42 9860.88 1289.42

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Table with 12 columns of stationing and elevation data. Includes a header row with station numbers and elevations, followed by a dense grid of data points.

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
9500 .056 9926.99 .0410066.37 .056

Bank Sta: Left Right Coeff Contr. Expan.
9926.9910066.37 .3 .5
Ineffective Flow num= 2
Sta L Sta R Elev Permanent
9500 9926.7 1291.77 F
10075.64 11100 1291.13 F

Downstream Deck/Roadway Coordinates num= 14
Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord
9468.44 1294.23 9512.91 1294 9676.79 1293
9768.44 1292.52 9866.74 1292 9965.32 1291.2
10192.11 1291 10249.7 1290.7 10313.21 1291
10630.22 1292 10770.84 1293 10883.22 1294
11007.56 1295 11068.44 1295.53

Downstream Bridge Cross Section Data num= 416
Station Elevation Data num= 416
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
9468.44 1292.74 9473.28 1292.78 9489.23 1292.9 9494.06 1292.88 9498.19 1292.87
9503.07 1292.97 9504.44 1292.97 9526.54 1293.25 9527.8 1293.27 9529.21 1293.27
9531.22 1293.27 9531.35 1293.27 9531.68 1293.26 9532.84 1293.22 9537.68 1293.08
9540.13 1293.1 9543.02 1293.04 9545.75 1293.04 9546.01 1292.99 9546.13 1292.99
9555.31 1292.71 9556.9 1292.72 9563.22 1292.65 9563.93 1292.64 9565.14 1292.64
9567.09 1292.61 9567.52 1292.6 9568.07 1292.58 9568.44 1292.54 9573 1292.48
9577.87 1292.18 9579.71 1292.17 9583.41 1292.11 9586.15 1292.08 9590.44 1292.02

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9595.67	1291.98	9600.82	1291.74	9601.34	1291.73	9601.68	1291.72	9607.58	1291.66
9612.89	1291.66	9613.89	1291.66	9614.72	1291.63	9615.92	1291.61	9624.82	1291.43
9626.87	1291.4	9628.03	1291.42	9630.81	1291.39	9632.51	1291.42	9636.03	1291.36
9637.21	1291.32	9639.55	1291.29	9640.78	1291.41	9640.8	1291.41	9642.36	1291.4
9643.48	1291.35	9644.79	1291.35	9650.87	1291.28	9658.66	1291.19	9666.39	1291.11
9671.12	1291.1	9687.79	1291.11	9688.64	1291.11	9700	1291.1	9705.77	1291.11
9710.9	1291.08	9711.72	1291.08	9715.79	1291.07	9721.39	1291.14	9727.52	1291.22
9736.3	1291.31	9742.45	1291.4	9751.6	1291.57	9754.75	1291.73	9758.63	1291.81
9764.39	1291.83	9772.91	1291.92	9781.08	1291.93	9783.58	1291.97	9793.22	1292.08
9796.81	1292.12	9800.27	1292.14	9807.12	1292.04	9812.24	1291.98	9816.56	1291.98
9821.38	1292.02	9822.46	1292	9826.81	1291.83	9828.17	1291.81	9830.75	1291.78
9834	1291.72	9834.68	1291.71	9840.1	1291.56	9844.5	1291.49	9844.85	1291.49
9851.48	1291.45	9851.62	1291.45	9855.49	1291.41	9859.99	1291.35	9860.02	1291.35
9862.65	1291.31	9862.68	1291.31	9862.72	1291.31	9865.28	1291.31	9865.3	1291.31
9866.36	1291.31	9867.95	1291.29	9868.07	1291.29	9871.67	1291.27	9873.45	1291.06
9878.17	1290.49	9881.56	1290.02	9882.85	1289.84	9884.06	1289.68	9892.27	1288.62
9897.7	1287.76	9898.76	1287.6	9900.32	1287.29	9901	1287.17	9901.25	1287.13
9904.05	1286.66	9904.31	1286.62	9905.94	1286.4	9907.61	1286.18	9908.72	1286.08
9912.64	1285.62	9913.08	1285.57	9913.73	1285.47	9915.33	1284.89	9916.2	1284.61
9916.38	1284.56	9917.43	1284.34	9919.22	1284.23	9921.64	1284.12	9922.04	1284.1
9926.07	1283.59	9927.15	1283.1	9927.32	1283.1	9928.82	1282.81	9928.96	1282.81
9930.76	1283.14	9930.95	1283.14	9930.98	1282.89	9931.51	1281.75	9932.51	1281.44
9932.98	1281.41	9933.58	1281.4	9933.81	1281.36	9935.69	1281.19	9937.93	1281.13
9941.38	1281.07	9942.29	1281.08	9943.83	1281.03	9945.28	1280.91	9946.09	1280.85
9947.44	1281.02	9948.29	1281.13	9950.34	1280.94	9953.04	1280.64	9954.21	1280.62
9959.18	1280.54	9961.42	1280.53	9964.32	1280.91	9965.37	1281.02	9965.55	1281.02
9967.83	1280.85	9968.45	1280.76	9970.92	1280.63	9973.37	1280.51	9974.2	1280.51
9977.23	1280.59	9977.29	1280.62	9977.44	1280.65	9979.68	1281.31	9980.2	1281.36
9981.9	1281.7	9983.28	1281.96	9984.14	1281.96	9985	1282.02	9987.87	1282.03
9989.34	1281.96	9990.14	1281.95	9990.99	1281.91	9993.47	1281.54	9994.12	1281.45
9994.39	1281.45	9994.48	1281.45	9998.38	1281.51	10000	1281.47	10000.33	1281.47
10001.08	1281.46	10002.29	1281.48	10003.5	1281.57	10006.08	1281.61	10007.26	1281.59
10009.14	1281.59	10009.96	1281.56	10010.21	1281.55	10012.41	1281.61	10014.01	1281.6
10015.68	1281.41	10023.1	1280.17	10023.82	1280.31	10024.36	1280.41	10027.01	1280.9
10027.96	1280.94	10027.97	1280.94	10031.15	1281.02	10031.84	1281.08	10033.99	1281.04
10035.11	1281.04	10035.49	1281.06	10037.87	1280.55	10038.74	1280.44	10039.93	1280.28
10040.48	1280.27	10041.6	1280.27	10043.15	1280.25	10044.85	1280.27	10045.89	1280.27
10046.99	1280.26	10049.29	1280.25	10050.62	1280.51	10051.52	1280.75	10056.35	1280.81
10057.78	1280.83	10059.26	1281.11	10061.04	1281.47	10061.76	1281.63	10063.03	1281.91
10065.99	1282.52	10066.38	1282.52	10067.86	1282.76	10068.17	1282.86	10068.62	1283.02
10068.75	1283.02	10070.68	1283.45	10072.24	1283.96	10072.6	1283.99	10074.26	1284.15
10074.36	1284.15	10075.1	1284.16	10076.4	1284.22	10078.78	1284.28	10081.92	1284.51
10085.11	1284.69	10085.98	1284.79	10086.51	1284.84	10087.22	1284.86	10092.18	1285.55
10093.65	1285.62	10095.1	1285.81	10097.12	1286.16	10098.87	1286.31	10099.46	1286.36
10099.93	1286.36	10101	1286.52	10102.92	1286.71	10106.59	1287.21	10107.41	1287.34
10108.4	1287.49	10110.52	1287.92	10111.07	1288.10	10111.84	1288.11	10112.79	1288.2
10113.08	1288.23	10113.67	1288.28	10114.43	1288.54	10116.48	1288.68	10119.26	1288.79
10122.05	1288.84	10124.7	1288.87	10126.86	1288.85	10127.62	1288.86	10129.39	1288.84
10133.6	1288.81	10133.81	1288.81	10134.06	1288.79	10137.43	1288.77	10139.74	1288.91
10139.85	1288.92	10151.46	1289.03	10151.58	1289.03	10170.77	1288.85	10171.08	1288.84
10193.19	1288.74	10193.78	1288.74	10205.98	1288.73	10211.38	1288.71	10212.16	1288.71
10218.2	1288.71	10227.83	1288.71	10228.41	1288.7	10241.8	1288.74	10246.15	1288.75
10246.8	1288.75	10264.65	1288.75	10269.08	1288.77	10279.71	1288.81	10288.08	1288.84
10293.8	1288.87	10300.27	1288.95	10301.36	1288.95	10303.38	1288.98	10311.75	1288.98
10312.9	1288.97	10313.26	1288.96	10315.3	1288.95	10324.12	1288.93	10325.12	1288.93
10339.25	1288.88	10341.69	1288.86	10345.13	1288.82	10354.53	1288.83	10355.3	1288.83
10358.25	1288.77	10359.89	1288.75	10367.06	1288.73	10369.56	1288.65	10373.06	1288.65
10380.93	1288.65	10381.72	1288.65	10382.58	1288.64	10383.39	1288.63	10384.13	1288.63
10384.76	1288.64	10385.65	1288.65	10392.11	1288.61	10393.4	1288.63	10395.55	1288.66
10404.78	1288.81	10408.69	1288.86	10412.56	1288.87	10426.76	1289.10	10431.81	1288.98
10443.03	1288.97	10449.05	1288.98	10461.81	1288.93	10467.44	1288.89	10474.39	1288.91
10484.85	1288.93	10492.39	1288.91	10502.54	1288.95	10510.53	1288.91	10516.89	1288.95
10528.73	1289.11	10534.25	1289.18	10542.3	1289.21	10554.75	1289.47	10560.97	1289.53
10567.5	1289.66	10572.04	1289.84	10577.52	1289.91	10582.62	1290.06	10590.54	1290.31
10596.59	1290.37	10603.22	1290.44	10608.83	1290.48	10616.52	1290.51	10626.12	1290.51
10631.07	1290.52	10640.91	1290.48	10643.57	1290.51	10653.37	1290.51	10656.04	1290.52
10667.61	1290.48	10669.14	1290.49	10683.26	1290.62	10683.94	1290.63	10687.91	1290.72
10694.41	1290.86	10695.4	1290.88	10706.8	1290.95	10710.33	1290.98	10717.34	1291.03
10725.01	1291.16	10730.88	1291.27	10735.15	1291.35	10738.54	1291.38	10747.17	1291.49
10752.63	1291.54	10762.84	1291.61	10769.04	1291.78	10776.21	1291.87	10783.54	1291.93
10791.76	1292.01	10799.76	1292.06	10809.61	1292.17	10817.55	1292.26	10827.65	1292.26
10837.29	1292.31	10847.76	1292.44	10858.07	1292.49	10868.3	1292.53	10876.98	1292.62
10889.71	1292.66	10900.8	1292.73	10911.97	1292.82	10923.55	1292.85	10935.73	1292.91
10947.55	1292.98	10959.31	1293.03	10970.49	1293.11	10982.01	1293.21	10993.96	1293.35
11002.43	1293.51	11012.19	1293.71	11019.79	1293.81	11028.45	1293.91	11032.53	1293.9
11042.58	1294.04	11055.28	1294.22	11057.44	1294.24	11063.61	1294.32	11068.33	1294.36
11068.44	1294.36								

Manning's n Values num= 3
 Sta n Val Sta n Val

 9468.44 .056 9892.27 .0410119.26 .056

Bank Sta: Left Right Coeff Contr. Expan.
 9892.27 10119.26 .3 .5
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 9468.44 9934.72 1288.96 F
 10056.97 11068.44 1288.79 F

Upstream Embankment side slope = 0 horiz. to 1.0 vertical
 Downstream Embankment side slope = 0 horiz. to 1.0 vertical
 Maximum allowable submergence for weir flow = .98
 Elevation at which weir flow begins =
 Energy head used in spillway design =
 Spillway height used in design =
 Weir crest shape = Broad Crested

Number of Culverts = 1

Culvert Name Shape Rise Span
 Culvert #1 box 6 10
 FHWA Chart # 8 - flared wingwalls
 FHWA Scale # 1 - Wingwall flared 30 to 75 deg.
 Solution Criteria = Highest U.S. EG
 Culvert Upstrm Dist Length Top n Bottom n Depth Blocked Entrance Loss Coef Exit Loss Coef
 Page 18

13.8 176.8 .013 .013 0 .4 1
 Number of Barrels = 11
 Upstream Elevation = 1281.49
 Centerline Stations
 Sta.
 9945.99 9957.03 9968.06 9979.1 9990.14 10001.17 10012.21 10023.25 10034.28 10045.32
 10056.36
 Downstream Elevation = 1280.47
 Centerline Stations
 Sta.
 9940.7 9951.73 9962.76 9973.78 9984.81 9995.84 10006.87 10017.91 10028.93 10039.96
 10050.99

CROSS SECTION

RIVER: MDOW
 REACH: Reach1 RS: 3.310

INPUT

Description:

Station	Elevation	Data	num=	416	Station	Elev	Station	Elev	Station	Elev	Station	Elev
9468.44	1292.74	9473.28	1292.78	9489.23	1292.9	9494.06	1292.88	9498.19	1292.87			
9503.07	1292.97	9504.44	1292.07	9526.54	1293.25	9527.8	1293.27	9529.21	1293.27			
9511.22	1293.27	9531.35	1293.27	9531.68	1293.26	9532.84	1293.22	9537.68	1293.08			
9540.13	1293.1	9543.02	1293.04	9545.75	1293.04	9546.01	1292.99	9546.13	1292.99			
9555.31	1292.71	9556.9	1292.72	9563.22	1292.65	9563.93	1292.64	9565.14	1292.64			
9567.09	1292.61	9567.52	1292.6	9568.07	1292.58	9568.44	1292.54	9573	1292.48			
9577.87	1292.18	9579.71	1292.17	9583.41	1292.11	9586.15	1292.08	9590.44	1292.02			
9595.67	1291.98	9600.82	1291.74	9601.34	1291.73	9601.68	1291.72	9607.58	1291.66			
9612.89	1291.66	9613.89	1291.66	9614.72	1291.63	9615.92	1291.61	9624.82	1291.43			
9626.87	1291.4	9628.03	1291.42	9630.81	1291.39	9632.51	1291.42	9636.03	1291.36			
9637.21	1291.32	9639.55	1291.29	9640.78	1291.41	9640.8	1291.41	9642.36	1291.4			
9643.48	1291.35	9644.79	1291.35	9650.87	1291.28	9658.66	1291.19	9666.39	1291.11			
9671.12	1291.1	9687.79	1291.11	9688.64	1291.11	9700	1291.1	9705.77	1291.11			
9710.9	1291.08	9711.72	1291.08	9715.79	1291.07	9721.39	1291.14	9727.52	1291.22			
9736.3	1291.31	9742.45	1291.4	9751.6	1291.57	9754.75	1291.73	9758.63	1291.81			
9764.39	1291.83	9772.91	1291.92	9781.08	1291.93	9783.58	1291.97	9793.22	1292.08			
9796.81	1292.12	9800.27	1292.14	9807.12	1292.04	9812.24	1291.98	9816.56	1291.98			
9821.38	1292.02	9822.46	1292	9826.81	1291.83	9828.17	1291.81	9830.75	1291.78			
9834	1291.72	9834.68	1291.71	9840.1	1291.56	9844.5	1291.49	9844.85	1291.49			
9851.48	1291.45	9851.62	1291.45	9855.49	1291.41	9859.99	1291.35	9860.02	1291.35			
9862.65	1291.31	9862.68	1291.31	9862.72	1291.31	9865.28	1291.31	9865.3	1291.31			
9866.36	1291.31	9867.95	1291.29	9868.07	1291.29	9871.67	1291.27	9873.45	1291.06			
9878.17	1290.49	9881.56	1290.02	9882.85	1289.84	9884.06	1289.68	9892.27	1288.62			
9897.7	1287.76	9898.76	1287.6	9900.32	1287.29	9901	1287.17	9901.25	1287.13			
9904.05	1286.66	9904.31	1286.62	9905.94	1286.4	9907.61	1286.18	9908.72	1286.08			
9912.64	1285.62	9913.08	1285.57	9913.73	1285.47	9915.33	1284.89	9916.2	1284.61			
9916.38	1284.56	9917.43	1284.34	9919.22	1284.23	9921.64	1284.12	9922.04	1284.1			
9926.07	1283.59	9927.15	1283.1	9927.32	1283.1	9928.82	1282.81	9928.96	1282.81			
9930.76	1283.14	9930.95	1283.14	9930.98	1282.89	9931.51	1281.75	9932.51	1281.44			
9932.98	1281.41	9933.58	1281.4	9933.81	1281.36	9935.69	1281.19	9937.91	1281.13			
9941.38	1281.07	9942.29	1281.08	9943.83	1281.03	9945.28	1280.91	9946.09	1280.85			
9947.44	1281.02	9948.29	1281.13	9950.34	1280.94	9953.04	1280.64	9954.21	1280.62			
9959.18	1280.54	9961.42	1280.53	9964.32	1280.91	9965.37	1281.02	9965.55	1281.02			
9967.83	1280.85	9968.45	1280.76	9970.92	1280.63	9973.37	1280.51	9974.2	1280.51			
9977.23	1280.59	9977.29	1280.62	9977.44	1280.65	9979.68	1281.31	9980.2	1281.36			
9981.9	1281.7	9983.28	1281.96	9984.14	1281.96	9985	1282.02	9987.87	1282.03			
9989.34	1281.96	9990.14	1281.95	9990.99	1281.91	9993.47	1281.54	9994.12	1281.45			
9994.39	1281.45	9994.48	1281.45	9998.38	1281.51	10000	1281.47	10000.33	1281.47			
10001.08	1281.46	10002.29	1281.48	10003.5	1281.57	10006.08	1281.61	10007.26	1281.59			
10009.14	1281.59	10009.96	1281.56	10010.21	1281.55	10012.41	1281.61	10014.01	1281.6			
10015.68	1281.41	10023.1	1280.17	10023.82	1280.31	10024.36	1280.41	10027.01	1280.9			
10027.96	1280.94	10027.97	1280.94	10031.15	1281.02	10031.84	1281.08	10033.99	1281.04			
10035.11	1281.04	10035.49	1281.06	10037.87	1280.55	10038.74	1280.44	10039.93	1280.28			
10040.48	1280.27	10041.6	1280.27	10043.15	1280.25	10044.85	1280.27	10045.89	1280.27			
10046.99	1280.26	10049.29	1280.25	10050.62	1280.51	10051.52	1280.75	10056.35	1280.81			
10057.78	1280.83	10059.26	1281.11	10061.04	1281.47	10061.76	1281.63	10063.03	1281.91			
10065.99	1282.52	10066.38	1282.52	10067.86	1282.76	10068.17	1282.86	10068.62	1283.02			
10068.75	1283.02	10070.68	1283.45	10072.24	1283.96	10072.6	1283.99	10074.26	1284.15			
10074.36	1284.15	10075.1	1284.16	10076.4	1284.22	10078.78	1284.28	10081.92	1284.51			
10085.11	1284.69	10085.98	1284.79	10086.51	1284.84	10087.22	1284.86	10092.18	1285.55			
10093.65	1285.62	10095.1	1285.81	10097.12	1286.16	10098.87	1286.31	10099.46	1286.36			
10099.93	1286.36	10101	1286.52	10102.92	1286.71	10106.59	1287.21	10107.41	1287.34			
10108.4	1287.49	10110.52	1287.92	10111.07	1288.10	10111.84	1288.68	10112.79	1288.2			
10113.08	1288.23	10113.67	1288.28	10114.43	1288.54	10116.48	1288.86	10119.26	1288.79			
10122.05	1288.84	10124.7	1288.87	10126.86	1288.85	10127.62	1288.86	10129.39	1288.84			
10133.6	1288.81	10133.81	1288.81	10134.06	1288.79	10137.43	1288.77	10139.74	1288.91			
10139.85	1288.92	10151.46	1289.03	10151.58	1289.03	10170.77	1288.85	10171.08	1288.84			
10193.19	1288.74	10193.78	1288.74	10205.98	1288.73	10211.38	1288.71	10212.6	1288.71			
10218.2	1288.71	10227.83	1288.71	10228.41	1288.7	10241.8	1288.74	10246.15	1288.75			
10246.8	1288.75	10264.65	1288.75	10269.08	1288.77	10279.71	1288.81	10288.08	1288.84			
10293.28	1288.87	10300.27	1288.95	10302.36	1288.95	10303.38	1288.98	10311.75	1288.98			
10312.7	1288.97	10313.26	1288.96	10315.3	1288.95	10324.12	1288.93	10325.12	1288.93			
10339.25	1288.88	10341.69	1288.86	10345.13	1288.82	10354.53	1288.83	10355.3	1288.83			
10358.25	1288.77	10359.89	1288.75	10367.06	1288.73	10369.56	1288.65	10373.06	1288.65			
10380.93	1288.65	10381.72	1288.65	10382.58	1288.64	10383.39	1288.63	10384.13	1288.63			
10384.76	1288.64	10385.65	1288.65	10392.11	1288.61	10393.4	1288.63	10395.55	1288.66			
10404.78	1288.81	10408.69	1288.86	10412.56	1288.87	10426.76	1289.10	10431.81	1288.98			
10443.03	1288.97	10449.05	1288.98	10461.81	1288.93	10467.44	1288.89	10474.39	1288.91			
10484.85	1288.93	10492.39	1288.91	10502.54	1288.95	10510.53	1288.91	10516.89	1288.95			
10528.73	1289.11	10534.25	1289.18	10542.3	1289.21	10554.75	1289.47	10560.97	1289.53			
10567.5	1289.66	10572.04	1289.84	10577.52	1289.91	10582.62	1290.06	10590.54	1290.31			
10596.59	1290.37	10603.22	1290.44	10608.83	1290.48	10616.52	1290.51	10626.12	1290.51			
10631.07	1290.52	10640.91	1290.48	10643.57	1290.51	10653.37	1290.51	10656.04	1290.52			
10667.61	1290.48	10669.14	1290.49	10683.26	1290.62	10683.94	1290.63	10687.91	1290.72			
10694.41	1290.86	10695.4	1290.88	10706.8	1290.95	10710.33	1290.98	10717.34	1291.03			
10725.01	1291.16	10730.88	1291.27	10735.15	1291.35	10738.54	1291.38	10747.17	1291.49			
10752.63	1291.54	10762.84	1291.61	10769.04	1291.78	10776.21	1291.87	10783.54	1291.93			
10791.76	1292.01	10799.76	1292.06	10809.61	1292.17	10817.55	1292.26	10827.65	1292.26			
10837.29	1292.31	10847.76	1292.44	10858.07	1292.49	10868.3	1292.53	10876.98	1292.62			
10889.71	1292.66	10900.8	1292.73	10911.97	1292.82	10923.55	1292.85	10935.73	1292.91			
10947.55	1292.98	10959.31	1293.03	10970.49	1293.11	10982.01	1293.21	10993.96	1293.35			
11002.43	1293.51	11012.19	1293.71	11019.79	1293.81	11028.45	1293.91	11032.53	1293.9			

11042.58 1294.0411055.28 1294.2211057.44 1294.2411063.61 1294.3211068.33 1294.36
11068.44 1294.36

WilliamsCLOMR.rep

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val

9468.44 .056 9892.27 .0410119.26 .056

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9892.2710119.26 237.1 233.89 231.2 .3 .5
Ineffective Flow num= 2
Sta L Sta R Elev Permanent
9468.44 9934.72 1288.96 F
10056.9711068.44 1288.79 F

CROSS SECTION

RIVER: MDOW
REACH: Reach1 RS: 3.266

INPUT

Description:

Station	Elevation	Data	num=	459	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1291.03	9703.37	1290.96	9711.38	1290.78	9711.8	1290.77	9712.22	1290.77			
9721.27	1290.51	9723.72	1290.46	9729.22	1290.31	9733.74	1290.2	9740.44	1289.96			
9743.35	1289.89	9750	1289.84	9753.8	1289.61	9758.68	1289.31	9760.12	1289.27			
9763.1	1289.18	9768.13	1289.03	9773.55	1288.85	9774.8	1288.8	9775.89	1288.74			
9778.24	1288.57	9778.63	1288.54	9781.11	1288.24	9781.3	1288.24	9784.78	1288.09			
9784.96	1288.09	9789.23	1288.02	9789.45	1288.01	9793.49	1287.81	9793.95	1287.81			
9797.77	1287.7	9798.01	1287.7	9798.14	1287.69	9802.66	1287.66	9803.84	1287.67			
9807.2	1287.62	9808.17	1287.61	9808.9	1287.59	9810.32	1287.37	9813.28	1287.29			
9813.81	1287.27	9814.18	1287.25	9816.57	1287.35	9818.12	1287.43	9819.61	1287.44			
9820.21	1287.44	9824.13	1287.5	9825.43	1287.52	9825.84	1287.53	9827.07	1287.43			
9829.21	1287.28	9829.61	1287.29	9829.98	1287.29	9831.35	1287.29	9836.26	1287.36			
9838.06	1287.41	9841.97	1287.49	9843.9	1287.54	9846.84	1287.55	9847.27	1287.56			
9847.49	1287.56	9847.68	1287.57	9852.3	1287.61	9853.19	1287.61	9853.54	1287.62			
9853.89	1287.62	9854.98	1287.63	9855.61	1287.64	9858.46	1287.68	9862.04	1287.69			
9863.61	1287.72	9868.72	1287.8	9869.9	1287.81	9872.64	1287.74	9876.42	1287.72			
9876.88	1287.71	9880.19	1287.81	9881.45	1287.81	9884.22	1287.79	9884.33	1287.78			
9884.47	1287.78	9884.63	1287.77	9888.35	1287.61	9889.01	1287.58	9892.08	1287.5			
9892.98	1287.46	9895.3	1287.44	9896.85	1287.36	9899.06	1287.3	9900.57	1287.22			
9902.92	1287.12	9906.48	1286.85	9907.63	1286.74	9908.47	1286.68	9912.18	1286.46			
9912.36	1286.45	9916.36	1286.24	9916.43	1286.24	9916.7	1286.23	9921.27	1286.2			
9922.15	1286.18	9923.32	1286.14	9927.92	1286.01	9931.71	1285.91	9933.25	1285.89			
9934.97	1285.83	9937.36	1285.76	9939.39	1285.71	9940.55	1285.59	9941.67	1285.49			
9944.09	1285.92	9944.7	1285.96	9948.33	1286	9955.44	1286.09	9957.36	1286.11			
9965.58	1286.25	9965.7	1286.25	9965.93	1286.26	9966.48	1286.25	9970	1286.17			
9971.6	1285.4	9977.27	1282.71	9978.8	1282.05	9980.54	1281.33	9982.58	1280.82			
9986	1280.22	9986.92	1279.93	9990.76	1278.21	9993.26	1277.69	9994.54	1277.75			
9995.47	1277.73	10000	1277.58	10000.47	1277.56	10003.22	1277.54	10008.1	1277.53			
10009.56	1278.22	10012.28	1279.45	10014.86	1279.65	10015.2	1279.68	10015.64	1280.31			
10016.59	1281.71	10017.84	1282.46	10019.08	1283.25	10020.63	1284.42	10022.16	1285.63			
10022.59	1285.72	10023.4	1285.78	10024.56	1285.88	10024.87	1285.88	10025.44	1285.84			
10029.16	1285.61	10030.41	1285.66	10031.33	1285.68	10031.44	1285.68	10032.13	1285.85			
10034.08	1286.33	10034.5	1286.41	10038.28	1286.37	10040.6	1286.35	10043.67	1286.28			
10044.01	1286.27	10044.29	1286.26	10044.58	1286.22	10047.02	1285.77	10048.03	1285.84			
10049.3	1285.81	10051.85	1285.75	10054.58	1285.72	10055.61	1285.68	10058.1	1285.81			
10058.55	1285.76	10060.18	1285.77	10060.79	1285.62	10061.48	1285.51	10062.02	1285.45			
10062.41	1285.41	10062.65	1285.45	10063.4	1285.53	10064.42	1285.56	10064.96	1285.6			
10067.56	1285.62	10069.61	1285.73	10070.31	1285.77	10071.12	1285.84	10072.98	1285.84			
10074.99	1285.92	10075.45	1285.92	10077.11	1285.84	10078.8	1285.82	10079.91	1285.82			
10080.38	1285.81	10083.88	1285.08	10084.4	1284.97	10084.57	1284.99	10084.76	1285.04			
10087.92	1285.83	10088.46	1285.91	10088.97	1285.91	10092.05	1285.94	10095.15	1285.91			
10096.21	1285.93	10099.29	1285.95	10102.12	1285.95	10105.62	1285.92	10107.23	1285.98			
10110.76	1285.97	10112.13	1285.95	10113.71	1286.02	10114.75	1285.99	10116.08	1285.9			
10117.22	1285.99	10117.73	1286.04	10119.03	1286.02	10122.94	1285.99	10124.23	1285.88			
10128.25	1285.61	10130.71	1285.66	10131.63	1285.58	10133.05	1285.44	10133.57	1285.37			
10135.83	1285.71	10136.31	1285.78	10136.66	1285.76	10142.06	1285.56	10142.4	1285.56			
10142.69	1285.57	10145.29	1285.61	10147.85	1285.61	10149.09	1285.16	10150.15	1284.75			
10150.64	1284.64	10152.06	1284.45	10154.56	1284.91	10155.02	1284.98	10158.42	1285.58			
10159.22	1285.74	10159.8	1285.64	10161.07	1285.42	10162.48	1285.39	10163.23	1285.37			
10163.56	1285.45	10163.83	1285.49	10164.45	1285.51	10164.87	1285.49	10165.1	1285.49			
10172.43	1285.51	10174.88	1285.48	10176.08	1285.42	10179.78	1285.51	10184.03	1285.52			
10184.63	1285.52	10185.37	1285.52	10187.89	1285.24	10187.98	1285.23	10188	1285.23			
10188.06	1285.24	10190.95	1285.56	10191.74	1285.68	10193.73	1285.75	10206.52	1285.82			
10206.53	1285.82	10208.76	1285.65	10209.17	1285.71	10210.21	1285.91	10210.84	1285.91			
10218.2	1285.77	10218.41	1285.77	10220.43	1285.64	10220.64	1285.62	10220.69	1285.62			
10221.97	1285.57	10222.36	1285.55	10225.59	1285.55	10228.5	1285.58	10230.78	1285.53			
10234.03	1285.61	10236.22	1285.64	10237.73	1285.71	10239.45	1285.75	10240.93	1285.78			
10242.84	1285.71	10244.26	1285.73	10245.82	1285.66	10246.85	1285.66	10249.65	1285.58			
10250.84	1285.56	10251.87	1285.51	10254.44	1285.51	10255.88	1285.47	10257.63	1285.52			
10258.51	1285.53	10259.71	1285.61	10261.15	1285.71	10262.29	1285.67	10263.78	1285.72			
10264.89	1285.63	10271.49	1285.28	10272.32	1285.21	10273.31	1285.02	10273.72	1285.01			
10274.24	1285.18	10274.51	1285.17	10276.17	1285.3	10276.2	1285.31	10277.55	1285.34			
10277.57	1285.34	10279.19	1285.51	10279.24	1285.5	10279.5	1285.51	10280.73	1285.46			
10281.68	1285.4	10283.1	1284.64	10284.42	1283.96	10285.6	1283.43	10285.75	1283.36			
10285.81	1283.32	10286.92	1283.36	10287.02	1283.36	10287.26	1283.59	10288.32	1284.36			
10288.66	1284.82	10290.26	1285.87	10292.34	1285.81	10300.03	1285.49	10301.34	1285.43			
10305.22	1285.22	10307.04	1285.06	10310.52	1284.93	10312.56	1284.86	10313.89	1284.89			
10314.69	1284.89	10320.1	1285.02	10321.19	1285.11	10321.22	1285.11	10321.65	1285.15			
10322.86	1285.24	10323.69	1285.27	10324.99	1285.23	10326.21	1284.93	10326.52	1284.84			
10327.51	1284.77	10328.45	1284.66	10330.31	1284.66	10330.78	1284.67	10330.93	1284.66			
10330.98	1284.66	10331.28	1284.76	10332.15	1285.01	10332.96	1285.22	10334.47	1285.27			
10334.7	1285.28	10336.86	1285.13	10336.9	1285.13	10337.2	1285.14	10344	1285.36			
10347.6	1285.48	10349.36	1285.51	10352.84	1285.57	10354.22	1285.58	10355.18	1285.59			
10358.36	1285.59	10359.33	1285.6	10360.1	1285.59	10360.7	1285.57	10361.3	1285.56			
10363.66	1285.53	10364.54	1285.51	10365.36	1285.49	10366.72	1285.47	10370.83	1285.34			
10373.39	1285.32	10375.4	1285.33	10378.76	1285.34	10379.35	1285.32	10380.82	1285.32			
10383.94	1285.28	10386.82	1285.24	10387.23	1285.19	10392.5	1284.37	10394.77	1284.75			
10395.36	1284.82	10395.56	1284.82	10396.5	1284.83	10397.14	1284.84	10401.97	1285.02			
10407.99	1285.11	10408.71	1285.12	10409.34	1285.13	10410.11	1285.13	10412.16	1285.17			
10421.55	1285.34	10423.88	1285.39	10433.34	1285.75	10435.23	1285.77	10446.22	1286.16			
10450.08	1286.26	10460.38	1286.68	10461.7	1286.74	10465.71	1287.05	10468.38	1287.21			

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
10473.38	1287.56	10474.3	1287.5610474.35	1287.5610474.41	1287.5610475.27	1287.64			
10475.89	1287.65	10479.6	1288.0610481.35	1288.210483.76	1288.4210488.89	1288.74			
10489.33	1288.73	10489.78	1288.7110490.45	1288.6910491.94	1288.710492.63	1288.68			
10493.74	1288.62	10494.44	1288.61	10495.7	1288.5710496.75	1288.57	10497.9	1288.59	
10498.62	1288.58	10503.42	1288.77	10503.7	1288.7710503.87	1288.7810504.03	1288.78		
10505.66	1288.81	10506.43	1288.8210506.52	1288.8210509.87	1288.8310512.92	1288.87			
10513.39	1288.88	10516.92	1289.0110520.76	1289.1410523.79	1289.2710527.07	1289.39			
10530.03	1289.43	10531.97	1289.4910534.82	1289.4810535.57	1289.510537.94	1289.55			
10538.16	1289.56	10540.9	1289.6510543.48	1289.6410543.61	1289.65	10545.5	1289.54		
10546.4	1289.58	10552.61	1289.910553.22	1289.9310554.21	1289.9210560.29	1290.1			
10562.68	1290.11	10566.02	1290.0510570.11	1290.0910573.07	1290.1110579.51	1290.12			
10581.4	1290.13	10589.85	1290.310599.63	1290.24	10600	1290.24			

WilliamsCLOMR.rep

Manning's n	num=
9700	.056
9970	.0410024.56

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	9970	10024.56		439.8	500	577.9	.1	.3

CROSS SECTION

RIVER: MDOW
REACH: Reach1 RS: 3.171

INPUT

Station	Elevation	Data	num=	451					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9300	1286.17	9308.3	1286.14	9311.72	1286.15	9317.72	1286.16	9325.85	1286.24
9333.34	1286.25	9342.27	1286.35	9350.58	1286.32	9356.79	1286.34	9362.46	1286.31
9368.9	1286.31	9376.14	1286.27	9384.31	1286.25	9390.92	1286.21	9404.87	1286.06
9412.51	1285.99	9417.39	1285.97	9419.12	1285.98	9429.12	1285.85	9431.29	1285.82
9437.41	1285.74	9444.47	1285.68	9449.02	1285.62	9456.53	1285.41	9460.11	1285.29
9461.18	1285.27	9470.99	1285.12	9476.63	1285.02	9479.61	1284.98	9488.7	1284.82
9489.88	1284.8	9494.59	1284.68	9496.24	1284.67	9502.88	1284.58	9509.29	1284.59
9512	1284.6	9516.45	1284.61	9520.52	1284.55	9528.07	1284.55	9531.72	1284.48
9532.3	1284.38	9532.69	1284.28	9534.48	1284.16	9534.92	1284.16	9535.94	1284.14
9536.74	1284.1	9537.99	1284.06	9539.63	1284.03	9540.95	1284	9541.35	1284
9542.18	1283.99	9542.96	1283.98	9544.4	1283.98	9545.44	1283.98	9545.71	1283.98
9546.67	1283.98	9546.84	1283.97	9546.92	1283.97	9547.02	1283.97	9547.49	1284
9547.87	1284.01	9557.65	1284.12	9564.64	1284.09	9568.5	1283.99	9570.83	1283.89
9571.34	1283.88	9577.84	1283.88	9582.72	1283.58	9584.6	1283.47	9587.75	1283.37
9589.22	1283.35	9590	1283.35	9594.44	1283.3	9600.03	1281.29	9600.76	1281.02
9601.57	1280.83	9606.15	1279.8	9607.3	1279.52	9612.16	1278.27	9623.6	1278.27
9637.63	1278.31	9645.17	1280.33	9646.43	1280.64	9649.43	1281.51	9650.54	1281.84
9655.77	1283.37	9656.57	1283.35	9657.47	1283.38	9658.5	1283.42	9660.19	1283.42
9661.98	1283.45	9670.3	1283.56	9671.3	1283.57	9672.15	1283.6	9675.03	1283.63
9676	1283.63	9676.96	1283.64	9681.15	1283.66	9682.02	1283.65	9683.07	1283.63
9684.46	1283.62	9686.76	1283.65	9693.07	1283.46	9694.52	1283.45	9696.48	1283.42
9698.69	1283.38	9701.35	1283.35	9706.41	1283.31	9708.94	1283.28	9710.54	1283.24
9711.22	1283.2	9712.71	1283.08	9713.76	1283.05	9714.97	1282.93	9716.76	1282.83
9718.76	1282.79	9722.85	1282.72	9725.89	1282.72	9736.61	1282.76	9744	1282.74
9752.21	1282.79	9756.65	1282.79	9756.86	1282.79	9757.24	1282.79	9757.61	1282.79
9759.04	1282.81	9770.35	1282.85	9785.71	1282.88	9789.33	1282.88	9803.78	1282.82
9807.28	1282.85	9820.4	1282.94	9822.28	1282.96	9824.86	1282.98	9836.68	1283.12
9847.84	1283.13	9858.39	1283.17	9862.84	1283.27	9871.55	1283.37	9875.47	1283.34
9876.42	1283.34	9879.1	1283.3	9884.66	1283.23	9885.04	1283.23	9886.92	1283.2
9891.32	1283.14	9891.68	1283.14	9892.93	1283.12	9898.41	1283.08	9904.39	1283.31
9912.43	1283.77	9912.73	1283.64	9913.86	1283.25	9916.65	1283.45	9919.61	1283.66
9921.7	1283.81	9922.55	1283.82	9924.39	1284.25	9925.09	1284.61	9925.22	1284.61
9926.58	1284.63	9927.62	1284.45	9928.24	1284.49	9928.86	1284.54	9929.84	1284.92
9930.14	1285	9930.48	1285.08	9933.11	1285.35	9933.39	1285.38	9933.49	1285.39
9933.5	1285.4	9933.52	1285.4	9933.54	1285.4	9933.63	1285.4	9934.68	1285.36
9935.6	1284.74	9935.78	1284.66	9936.16	1284.64	9936.33	1284.63	9938.63	1283.96
9939.49	1283.81	9939.93	1283.8	9940.5	1283.79	9943.24	1283.93	9944	1283.96
9944.64	1283.96	9946.13	1284.2	9947.13	1284.35	9947.93	1284.36	9950.09	1284.39
9950.8	1284.36	9951.78	1284.08	9952.83	1283.95	9953.63	1283.91	9955.12	1284.01
9955.71	1284.08	9956.63	1284.11	9957.62	1284.16	9958.58	1284.2	9959.48	1284.27
9960.56	1284.31	9961.43	1284.29	9962.49	1284.29	9963.17	1284.26	9964.69	1284.34
9965.28	1284.41	9966.73	1284.65	9967.09	1284.68	9967.34	1284.64	9968.44	1284.82
9968.57	1284.81	9969.47	1285	9969.95	1285.08	9970.11	1285.12	9971.4	1285.36
9971.47	1285.31	9972.54	1284.81	9973.92	1284.06	9974.31	1283.92	9974.79	1283.69
9975.78	1283.17	9978.27	1281.57	9978.74	1281.34	9980.16	1280.88	9980.95	1280.39
9982.06	1279.73	9982.92	1279.1	9984	1278.25	9984.35	1278.06	9985.04	1278.14
9985.5	1278.19	9986.99	1278.3	9988.76	1278.24	9989.28	1278.12	9989.39	1278.12
9989.62	1278.1	9990.96	1277.76	9992.08	1277.5	9992.23	1277.45	9993.07	1277.2
9995.07	1276.55	9995.38	1276.5	9997.02	1276.52	10000	1276.82	10008.33	1276.98
10009	1276.99	10010.21	1277.49	10011.65	1278.06	10012.46	1278.21	10015.77	1279
10017.61	1279.37	10018.36	1279.51	10021.91	1280.53	10022.43	1280.65	10022.82	1280.75
10024.05	1281.37	10026.45	1282.48	10027.41	1282.91	10027.53	1282.93	10028.08	1283.02
10028.9	1283.09	10029.36	1283.15	10030.36	1283.33	10031.83	1283.97	10033.14	1284.38
10035.72	1285.1	10036	1285.17	10036.34	1285.16	10038.42	1285.19	10039.22	1285.11
10041.73	1285.41	10042.92	1285.51	10043.66	1285.65	10045.58	1285.86	10045.99	1285.89
10047.26	1286.02	10047.91	1286.11	10048.83	1285.94	10049.49	1285.82	10049.87	1285.88
10051.08	1286.18	10054.7	1284.67	10055.48	1284.28	10056.52	1284.24	10057.86	1284.21
10058.58	1284.21	10060.67	1284.73	10061.25	1284.91	10062.62	1284.51	10063.68	1284.27
10063.87	1284.23	10064.66	1284.14	10065.21	1284.16	10066.88	1284.11	10068.12	1284.07
10068.97	1284.22	10070.16	1284.57	10071.44	1284.92	10072.78	1284.21	10072.95	1284.16
10073.18	1284.15	10075.38	1284.08	10080.88	1283.95	10082.8	1283.91	10088.07	1283.91
10089.14	1283.91	10089.64	1283.91	10094.84	1283.91	10095.74	1283.99	10095.82	1283.98
10099.55	1283.84	10100.77	1283.83	10101.46	1283.82	10103.8	1283.79	10112.35	1283.83
10113.09	1283.84	10114.17	1283.85	10115.9	1283.89	10123.11	1284.02	10125.15	1284.05
10125.72	1284.04	10127.28	1283.88	10127.99	1283.92	10128.93	1284.12	10128.96	1284.11
10131.38	1283.15	10131.8	1283.06	10133.97	1282.64	10135.83	1282.87	10137.91	1283.09
10139.69	1283.31	10140.78	1283.43	10141.08	1283.32	10142.82	1283.32	10152.15	1282.02
10152.48	1281.97	10152.59	1281.95	10152.62	1281.95	10152.68	1281.94	10152.8	1281.93
10152.92	1281.91	10157.51	1281.22	10159.82	1280.72	10161.52	1280.75	10162.22	1280.17
10164.33	1280.54	10166.11	1280.84	10167.38	1281.33	10167.71	1281.36	10169.67	1282.04
10171.39	1282.39	10174.23	1282.84	10176.15	1283.25	10176.8	1283.31	10178.09	1283.5
10180.59	1283.93	10181.22	1283.82	10183.85	1283.32	10186.26	1283.26	10191.16	1283.27
10197.2	1283.31	10197.66	1283.31	10198.43	1283.26	10199.06	1283.3	10201.1	1283.41
10202.65	1283.37	10203.24	1283.36	10205.5	1283.27	10207.89	1283.2	10208.3	1283.18

WilliamsCLOMR.rep

10208.49	1283.1810209.08	1283.13	10210	1283.0810212.05	1282.9210212.27	1282.91	
10212.52	1282.8910215.66	1282.82	10215.9	1282.8110218.07	1282.7910218.27	1282.79	
10219.54	1282.8210222.24	1282.8910222.71	1282.9	10227.8	128310228.41	1283	
10230.48	1283.0210233.86	1283.0510238.44	1283.11	10243	1283.1210245.94	1283.08	
10246.99	1283.0910248.92	1283.0810249.74	1283.0410250.91	1282.9810250.94	1282.98	1282.98	
10250.95	1282.9810254.92	1282.9810255.14	128310256.22	1283.0910257.29	1283.12	1283.12	
10264.3	1283.3210271.68	1283.4310278.83	1283.5910280.58	1283.6410282.05	1283.7	1283.7	
10290.83	1284.110293.36	1284.1510299.87	1284.33	10302.2	1284.3810302.69	1284.4	
10311.16	1284.7310313.12	1284.7810318.23	1285.2110322.32	1285.4810328.04	1285.97	1285.97	
10331.82	1286.2210334.36	1286.4210338.63	1286.7510344.76	128710346.95	1287.14	1287.14	
10349.45	1287.2610353.28	1287.5310356.37	1287.6810357.62	1287.7910362.79	1287.85	1287.85	
10371.57	1288.3610371.73	1288.34	10373.6	1288.310379.19	1288.11	10379.8	1288.07
10393.31	1288.310401.31	1288.3910410.08	1288.5110424.35	1288.7210430.72	1288.81	1288.81	
10432.36	1288.8410446.93	128910455.93	1289.0810461.14	1289.0610462.66	1288.95	1288.95	
10467.37	1288.6410470.56	1288.710475.67	1288.6710479.79	1288.6810483.09	1288.68	1288.68	
10487.82	1288.7610489.22	1288.7810490.33	1288.8110495.97	1289.0510499.49	1289.13	1289.13	
10500	1289.15						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val		
9300	.056	9594.44	.035	9655.77	.056	9971.4	.04	10036	.056

Bank Sta: Left 9971.4 Right 10036 Lengths: Left Channel 319.5 Right 500 Coeff Contr. .1 Expan. .3

CROSS SECTION

RIVER: MDOW
REACH: Reach1 RS: 3.077

INPUT

Description:

Station	Elevation	Data	num=	303	Sta	Elev	Sta	Elev	Sta	Elev
9357.94	1285.2	9358.36	1285.2	9360.37	1285.11	9363.02	1285.01	9365.37	1284.92	1284.92
9368.48	1284.85	9369.72	1284.82	9370.21	1284.82	9374.42	1284.76	9375.86	1284.72	1284.72
9378.09	1284.69	9380.11	1284.66	9381.55	1284.63	9386.19	1284.54	9386.5	1284.53	1284.53
9387.72	1284.53	9391.21	1284.54	9392.49	1284.54	9398.14	1284.47	9402.49	1284.42	1284.42
9403.36	1284.41	9404.01	1284.41	9407.86	1284.38	9414.95	1284.25	9418	1284.28	1284.28
9423.12	1284.2	9424.67	1284.2	9427.85	1284.11	9430.26	1284.06	9439.39	1284	1284
9443.84	1284	9449.67	1283.98	9451.01	1283.98	9454.16	1284.02	9455.83	1284.02	1284.02
9458.04	1284.02	9458.37	1284.01	9459.29	1283.99	9459.79	1283.99	9459.94	1283.98	1283.98
9462.07	1283.92	9463.33	1283.83	9463.92	1283.82	9472.89	1283.74	9473.17	1283.74	1283.74
9476.76	1283.71	9477.77	1283.74	9484.49	1283.75	9485.23	1283.63	9489.96	1283.5	1283.5
9491.31	1283.47	9493.65	1283.47	9494.69	1283.56	9505.04	1283.53	9510.72	1283.41	1283.41
9512.01	1283.42	9514.28	1283.47	9514.62	1283.43	9517.19	1283.36	9520.7	1283.3	1283.3
9525.51	1283.14	9526.63	1283.11	9527.14	1283.08	9528.86	1282.99	9531.53	1282.65	1282.65
9533.28	1282.46	9536.69	1282.1	9539.46	1281.84	9540.9	1281.75	9542.31	1281.67	1281.67
9546.41	1281.4	9548.49	1281.13	9549.46	1280.96	9553.51	1280.68	9553.81	1280.66	1280.66
9553.86	1280.64	9558.75	1278.87	9563.34	1277.49	9563.35	1277.48	9567.66	1276.62	1276.62
9568.49	1276.45	9571.24	1276.47	9583.99	1276.48	9595.27	1276.51	9596.93	1276.83	1276.83
9603.63	1278.03	9608.13	1279.7	9612.01	1281.21	9613.48	1281.26	9616.08	1281.31	1281.31
9618.02	1281.38	9619.58	1281.41	9623.75	1281.5	9630.39	1281.59	9632.49	1281.62	1281.62
9638.77	1281.73	9640.87	1281.74	9646.8	1281.74	9647.47	1281.73	9649.36	1281.69	1281.69
9655.17	1281.67	9656.51	1281.65	9662.46	1281.51	9665.91	1281.46	9672.11	1281.42	1281.42
9683.6	1281.37	9686.91	1281.31	9688.63	1281.33	9702.66	1281.36	9708.94	1281.32	1281.32
9710.72	1281.35	9712.42	1281.37	9717.44	1281.49	9718.26	1281.42	9718.96	1281.36	1281.36
9722.44	1281.11	9723.94	1281	9724.46	1280.96	9725.47	1280.84	9727.8	1280.62	1280.62
9728.5	1280.5	9733.5	1279.87	9736.37	1279.94	9741.78	1280.06	9750.36	1281.14	1281.14
9756.33	1281.86	9757.2	1281.83	9767.96	1282.13	9775.46	1282.21	9784.9	1282.19	1282.19
9793.53	1282.08	9802.8	1282.18	9812.93	1282.31	9831.3	1282.28	9834.81	1282.27	1282.27
9841.89	1282	9859.91	1281.32	9875.28	1281.23	9878.24	1281.2	9879.8	1281.29	1281.29
9889.03	1281.75	9898.49	1281.12	9900.2	1280.95	9901.78	1280.54	9904.68	1279.93	1279.93
9906.54	1278.82	9908.01	1277.84	9909.42	1276.95	9910.62	1276.96	9916.29	1277.15	1277.15
9919.17	1277.63	9923.29	1278.35	9923.85	1278.44	9924.35	1278.42	9925.63	1278.46	1278.46
9927.97	1278.69	9928.37	1278.78	9931.19	1278.85	9931.95	1278.9	9932.96	1278.95	1278.95
9935.24	1278.9	9938.51	1278.83	9939.25	1278.77	9941.02	1278.71	9942.14	1278.64	1278.64
9943.87	1278.52	9945.51	1278.45	9948.11	1278.35	9950.81	1278.2	9952.71	1278.2	1278.2
9959.76	1277.88	9959.93	1277.89	9960.88	1277.86	9962.02	1277.89	9963.99	1277.48	1277.48
9966.37	1276.96	9968.74	1276.84	9969.4	1276.78	9971.59	1277.43	9979.96	1278.26	1278.26
9977.59	1278.51	9978.01	1278.55	9984.38	1276.28	9985.43	1275.86	9985.9	1275.77	1275.77
9987.94	1275.44	9995.09	1274.23	9996.4	1273.99	10000	1273.9710000.25	1273.97	1273.97	1273.97
10000.55	1273.9610000.71	127410001.91	1274.23	10006.9	1275.210008.91	1275.5	1275.5	1275.5	1275.5	1275.5
10012.21	1275.9710012.92	1276.1710017.04	1277.2110018.16	1277.6	10022.8	1279.98	1279.98	1279.98	1279.98	1279.98
10023.97	1280.4810024.29	1280.4310024.88	1280.510025.54	1280.5910028.03	1280.76	1280.76	1280.76	1280.76	1280.76	1280.76
10033.2	1281.0310034.08	1281.0210034.93	1281.0610035.44	1281.1110041.74	1281.14	1281.14	1281.14	1281.14	1281.14	1281.14
10045.72	1281.1610048.28	1281.210059.52	1281.210060.87	1281.2310066.01	1281.63	1281.63	1281.63	1281.63	1281.63	1281.63
10067.25	1281.6510068.13	1281.6610080.21	1281.8310091.46	1282.04	10093.6	1282.09	1282.09	1282.09	1282.09	1282.09
10097.21	1282.110105.94	1282.2210109.09	1282.2810119.62	1282.5210127.57	1282.75	1282.75	1282.75	1282.75	1282.75	1282.75
10129.84	1282.8210136.45	1283.0610138.42	1283.1310144.62	1283.2810146.72	1283.29	1283.29	1283.29	1283.29	1283.29	1283.29
10154.75	1283.4310158.65	1283.4410164.02	1283.3910170.04	1283.4410174.12	1283.46	1283.46	1283.46	1283.46	1283.46	1283.46
10183.3	1283.4110185.86	1283.4310200.38	1283.610201.76	1283.6210202.45	1283.62	1283.62	1283.62	1283.62	1283.62	1283.62
10217.78	1283.5910226.79	1283.6110233.89	1283.6210240.42	1283.6410241.82	1283.64	1283.64	1283.64	1283.64	1283.64	1283.64
10243.85	1283.6310256.77	1283.5410268.85	1283.5110275.23	1283.4710285.35	1283.52	1283.52	1283.52	1283.52	1283.52	1283.52
10286.81	1283.4810289.87	1283.5110299.32	1283.3710319.83	1283.3510319.99	1283.35	1283.35	1283.35	1283.35	1283.35	1283.35
10320.19	1283.3510339.31	1283.2710350.42	1283.2110356.18	1283.3610358.68	1283.38	1283.38	1283.38	1283.38	1283.38	1283.38
10360.23	1283.0510361.27	1282.8110363.27	1282.7510366.27	1282.66	10366.9	1282.65	1282.65	1282.65	1282.65	1282.65
10369.38	1282.5910371.75	1282.69	10376.5	1282.7910377.52	1283.1410378.54	1283.64	1283.64	1283.64	1283.64	1283.64
10379.67	1283.5810380.25	1283.4610381.37	1283.3510390.35	1283.1810394.68	1283.19	1283.19	1283.19	1283.19	1283.19	1283.19
10395.72	1283.1810406.06	1283.3410417.92	1283.5410424.35	1283.5910434.17	1283.66	1283.66	1283.66	1283.66	1283.66	1283.66
10444.89	1283.72	10451.4	1283.8210468.26	1284.0810487.03	1284.52	10488	1284.53	1284.53	1284.53	1284.53
10489.52	1284.5510510.68	1284.6610520.83	1284.8210533.78	1284.8710537.66	1284.8	1284.8	1284.8	1284.8	1284.8	1284.8
10539.08	1284.8510541.29	1284.8310542.47	1284.810544.98	1284.8210545.41	1284.82	1284.82	1284.82	1284.82	1284.82	1284.82
10546.32	1284.8410556.15	1284.9710557.37	1284.9710568.66	1285.04	10574.9	1285.05	1285.05	1285.05	1285.05	1285.05
10584.29	1285.110592.58	1285.22	10600	1285.27						

Manning's n Values num= 5

Sta	n Val								
9357.94	.056	9548.49	.035	9612.01	.056	9898.49	.04	10033.2	.056

Bank Sta: Left 9898.49 Right 10033.2 Lengths: Left Channel 490 Right 478.23 Coeff Contr. .1 Expan. .3

CROSS SECTION

RIVER: MDOW
REACH: Reach1 RS: 2.986

INPUT
Description:

Table with columns: Station, Elevation, Data, num=, 298, Sta, Elev, Sta, Elev, Sta, Elev, Sta, Elev. Contains elevation data for station 9700 to 10887.

Manning's n Values table with columns: Sta, n, Val, Sta, n, Val, Sta, n, Val. Values range from 0.056 to 0.10900.

Bank Sta: Left, Right, Lengths: Left, Channel, Right, Coeff, Contr., Expan. Values include 9982.99, 446.4, 500, 507.6, .1, .3.

CROSS SECTION

RIVER: MDOW
REACH: Reach1 RS: 2.891

INPUT
Description:

Table with columns: Station, Elevation, Data, num=, 284, Sta, Elev, Sta, Elev, Sta, Elev, Sta, Elev. Contains elevation data for station 9700 to 9905.

WilliamsCLOMR.rep

9933.6	1272.43	9937.88	1272.61	9938.59	1272.62	9938.81	1272.65	9941.34	1272.88
9941.71	1272.91	9946.05	1273.4	9946.45	1273.43	9948.95	1273.53	9949.5	1273.53
9953.48	1273.71	9954.01	1273.77	9954.75	1273.8	9959.61	1273.71	9960.28	1273.59
9961.17	1273.52	9963.99	1273.55	9964.92	1273.59	9966.49	1273.6	9968.98	1273.57
9970.14	1273.39	9972.65	1273.25	9973.99	1273.1	9975.89	1273.07	9979.23	1272.86
9980.44	1272.76	9983.84	1272.51	9984.99	1272	9986.14	1271.48	9988.16	1271.5
9990	1271.56	9990.58	1271.52	9993.11	1271.15	9994.26	1271.35	9994.57	1271.43
9994.94	1271.34	9997.29	1270.78	9999.76	1270.48	10000	1270.45	10000.07	1270.44
10000.73	1270.52	10002.54	1270.79	10003.9	1271.37	10004.23	1271.52	10006.96	1272.69
10008.62	1273.37	10010.14	1273.29	10010.24	1273.31	10011.03	1273.02	10012.92	1272.32
10014.16	1272.46	10015.89	1272.68	10016.37	1273.04	10018.83	1273.61	10019.19	1273.71
10019.39	1273.74	10019.77	1273.75	10022.37	1273.61	10023.46	1273.66	10024.83	1273.54
10027.26	1273.54	10029.76	1273.39	10033.18	1273.27	10034.9	1273.05	10035.53	1272.74
10036.93	1272.24	10040.17	1272.43	10041.34	1272.35	10043.25	1271.46	10044.76	1270.81
10046.92	1270.78	10049.69	1270.72	10050.15	1272.67	10050.87	1274.82	10052.43	1274.9
10054.88	1275.07	10058.98	1275.25	10062.17	1275.41	10064.75	1275.64	10065.64	1275.71
10067.56	1275.81	10072.72	1275.95	10073.34	1275.97	10074.36	1276.01	10082.2	1276.23
10082.59	1276.23	10082.8	1276.25	10083.13	1276.28	10086.15	1276.36	10091.14	1276.52
10093.59	1276.55	10101.37	1276.63	10106.87	1276.68	10119.32	1276.95	10121.7	1277.01
10127.6	1277.07	10134.15	1277.14	10135.64	1277.15	10146.93	1277.22	10149.56	1277.27
10157.26	1277.95	10163	1277.43	10167.1	1277.54	10170.19	1277.72	10172.64	1277.73
10182.45	1277.96	10184.03	1277.99	10186.06	1278.05	10187.52	1278.11	10192.12	1278.16
10192.13	1278.16	10192.14	1278.16	10192.16	1278.16	10202.58	1278.6	10207.1	1278.91
10209.43	1279.05	10214.37	1279.18	10214.88	1279.19	10215.27	1279.21	10224.14	1279.46
10226.15	1279.47	10238.95	1279.81	10239.23	1279.81	10240	1279.81	10252.34	1279.92
10253.62	1279.95	10259.9	1280.12	10263.22	1280.15	10271.15	1280.38	10280.12	1280.5
10288.7	1280.44	10295.62	1280.41	10305.78	1280.54	10312.87	1280.58	10319.88	1280.59
10331.74	1280.64	10334.79	1280.64	10335.66	1280.64	10356.17	1280.67	10362.17	1280.63
10372.81	1280.63	10382.53	1280.56	10395.23	1280.59	10399.85	1280.56	10415.08	1280.41
10417.78	1280.38	10418.5	1280.37	10432.72	1280.21	10445.07	1280.21	10451.77	1280.2
10459.75	1280.06	10468.63	1279.93	10481.27	1279.99	10484.97	1279.97	10487.45	1279.91
10498.59	1279.71	10500.16	1279.69	10510.66	1279.32	10514.83	1279.18	10515.48	1279.18
10529.65	1279.11	10532.58	1279.06	10539.21	1278.92	10542.25	1278.81	10543.66	1278.76
10549.88	1278.99	10550.28	1279.10	10550.99	1279.03	10552.23	1279.09	10555.54	1279.27
10556.71	1279.21	10571.52	1279.11	10574.24	1279.15	10578.73	1279.21	10591.61	1279.35
10597.68	1279.41	10608.23	1279.53	10610.9	1279.55	10623.87	1279.56	10630.36	1279.59
10633.5	1279.66	10639.92	1279.78	10640.76	1279.49	10641.48	1279.29	10642.81	1279.27
10647.51	1279.22	10649.55	1279.18	10651.14	1279.18	10652.79	1279.31	10656.37	1279.6
10658.03	1280.16	10658.09	1280.16	10658.2	1280.21	10658.29	1280.18	10659.49	1279.91
10660.5	1279.89	10664.6	1279.93	10682.74	1280.22	10685.94	1280.26	10687.98	1280.3
10696.55	1280.49	10704.87	1280.66	10708.83	1280.74	10722.02	1280.99	10732.15	1281.23
10739.5	1281.32	10758.29	1281.32	10760.17	1281.33	10760.85	1281.33	10761.98	1281.34
10781.58	1281.42	10789.93	1281.25	10797.32	1281.19	10800	1281.21		

Manning's n Values num= 3
 Sta n Val Sta n Val

 9700 .056 9923.05 .0410050.87 .056

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 9923.0510050.87 575.3 551.08 504.9 .1 .3

CROSS SECTION

RIVER: MDOW
 REACH: Reach1 RS: 2.787

INPUT

Description:
 Station Elevation Data num= 346
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev

 9600 1278.45 9600.78 1278.43 9603.01 1278.43 9603.8 1278.42 9620.21 1278.39
 9621.03 1278.37 9624.79 1278.32 9627.14 1278.28 9628.87 1278.26 9637.28 1278.33
 9639.87 1278.4 9641.75 1278.52 9647.47 1278.85 9650.52 1279 9653.13 1279.07
 9654.19 1279.08 9654.95 1279.12 9654.98 1279.12 9659.72 1279.17 9659.76 1279.17
 9659.79 1279.17 9659.83 1279.17 9660.62 1279.1 9664.05 1278.94 9664.87 1278.87
 9669.91 1278.54 9679.04 1278.05 9681.85 1277.89 9682.29 1277.86 9683.8 1277.8
 9695.74 1277.41 9701.45 1277.27 9705.44 1277.17 9714.72 1277.1 9718.02 1277.07
 9722.71 1277 9735.78 1276.77 9739.59 1276.77 9745.92 1276.67 9752.44 1276.46
 9763.38 1276.12 9770.29 1275.95 9781.04 1275.65 9784.23 1275.59 9790.58 1275.43
 9792.04 1275.41 9799.81 1275.25 9802.37 1275.09 9802.96 1275.08 9804.35 1275.07
 9806.81 1275 9807.16 1274.98 9808.31 1274.92 9808.79 1274.86 9810.18 1274.97
 9811.36 1275.06 9812.23 1275.04 9813.43 1275 9813.47 1275 9814.29 1274.73
 9814.72 1274.77 9815.93 1274.9 9818.54 1274.93 9819.66 1274.95 9820.77 1274.95
 9823.62 1274.94 9826.7 1275 9830.05 1275.01 9833.81 1275.19 9837.11 1275.45
 9837.23 1275.45 9837.26 1275.45 9837.27 1275.45 9838.61 1274.7 9839.04 1274.67
 9840.17 1274.76 9844.83 1274.93 9848.17 1274.99 9854.94 1274.96 9855.43 1274.97
 9855.91 1274.98 9856.45 1275.05 9856.77 1275.1 9857.14 1275.15 9858.38 1275.22
 9858.96 1275.26 9860.6 1275.62 9860.71 1275.64 9860.86 1275.7 9861.06 1275.75
 9862.55 1276.16 9863.72 1276.67 9865.31 1276.13 9866.04 1275.81 9866.47 1275.67
 9867.34 1275.36 9870.04 1275.31 9874.65 1275.03 9878.02 1274.95 9881.6 1274.71
 9885.3 1274.66 9889.54 1274.54 9903.86 1274.35 9904.21 1274.35 9904.38 1274.35
 9916.87 1274.25 9921.64 1274.18 9936.78 1274.13 9938.3 1274.12 9939.19 1274.09
 9946.55 1273.8 9951.67 1273.74 9958.84 1273.65 9968.67 1273.53 9969.01 1273.52
 9970.03 1273.5 9976.96 1273.25 9977.24 1273.23 9979.13 1271.23 9979.56 1270.8
 9979.78 1270.57 9980.44 1269.91 9980.56 1269.79 9980.65 1269.62 9980.77 1269.55
 9982.22 1268.93 9982.92 1268.76 9985.06 1268.28 9987.3 1268.02 9989.85 1267.75
 9990.9 1267.56 9991.72 1267.35 9992.2 1267.34 9992.31 1267.44 9993.92 1267.41
 10000 1267.610000.61 1267.6110001.95 1267.6810003.21 1267.7310006.37 1267.82
 10008.89 1267.9110013.35 1268.6410014.51 1268.8110016.66 1268.8510020.52 1268.84
 10024.63 1268.7510028.96 1268.8510030.02 1268.8910033.25 1268.7710034.04 1268.71
 10036.28 1268.9910037.73 1269.16 10038.3 1269.2510042.21 1269.9510042.47 1269.97
 10043.12 1270.03 10049 1270.3 10049.5 1270.1310050.35 1269.9610053.41 1269.32
 10055.12 1269.5410056.47 1269.76 10062.9 1270.1310064.84 1270.2510065.31 1270.27
 10065.99 1270.1110069.64 1269.3710070.32 1269.5910074.34 1270.9510076.86 1272.02
 10081.1 1273.3910082.73 1273.410088.39 1273.4310092.36 1272.3510094.56 1271.92
 10096.46 1271.5810099.39 1271.0510099.87 1270.9610100.44 1270.8510100.87 1270.97
 10104.64 1271.9510107.18 1272.5210107.69 1272.6410109.95 1273.1510111.61 1273.21
 10117.77 1273.3910122.78 1272.8210127.34 1272.310131.17 1272.4110146.82 1272.75
 10149.71 1272.5210151.99 1272.4310156.12 1272.610156.49 1272.6110163.67 1272.67
 10165.09 1272.7410168.23 1272.610170.03 1272.4210171.57 1272.5410173.84 1272.72
 10177.16 1273.1110191.85 1274.9410194.44 1275.2510195.54 1275.3910200.33 1275.58
 10210.04 1275.9310215.45 1276.1910218.21 1276.3110219.62 1276.3410225.02 1276.43
 10238.37 1276.7410239.52 1276.7810240.02 1276.8110241.56 1276.84 10250.8 1276.95

WilliamsCLOMR.rep
 10253.96 1277.110262.09 1277.3110268.75 1277.3510280.66 1277.3110280.94 1277.3
 10286.88 1277.4510287.97 1277.4410290.86 1277.4110297.04 1277.3110297.63 1277.3
 10299.92 1277.2210302.83 1277.2210302.85 1277.2210303.81 1277.2110307.72 1277.16
 10307.78 1277.1610312.58 1277.1110312.76 1277.1110318.18 1277.1110318.52 1277.11
 10326.92 1277.0910327.37 1277.0910334.63 1277.0710335.29 1277.0710339.77 1277.09
 10341.11 1277.0810348.81 1277.0210349.64 1277.0210357.54 1277.02 10362.2 1277.02
 10362.4 1277.02 10363.8 1277.0310366.47 1277.0410366.51 1277.0410372.58 1276.96
 10373.07 1276.9510377.45 1276.9110377.73 1276.9110380.71 1276.9310385.73 1276.95
 10386.25 1276.9510394.15 1276.910395.06 1276.8910403.62 1276.8710409.55 1276.89
 10411.24 1276.88 10418.8 1276.8910420.01 1276.910430.07 1276.8610431.38 1276.86
 10442.68 1276.7610443.08 1276.74 10454.3 1276.7810455.12 1276.7910456.07 1276.79
 10468.29 1276.8110469.19 1276.810475.71 1276.9110478.56 1276.8710479.75 1276.84
 10483.35 1276.6510483.89 1276.6610484.63 1276.6710491.93 1276.6510492.73 1276.65
 10493.79 1276.6510504.79 1276.6310505.63 1276.5810506.19 1276.5510511.29 1276.69
 10511.51 1276.6910512.05 1276.7110512.74 1276.7610513.42 1276.7210513.79 1276.68
 10514.87 1276.5710517.54 1276.2410519.73 1276.1810522.98 1276.1810528.14 1276.22
 10536.37 1276.0310538.19 1276.1310540.83 1276.510540.99 1276.5
 10544.66 1276.4810546.02 1276.4810546.26 1276.4810547.59 1276.32 10550.4 1275.85
 10550.42 1275.8510550.91 1275.8110552.51 1275.9210552.88 1275.93 10556.6 1275.97
 10559.81 1275.9610565.17 1275.95 10568.6 1275.8910569.91 1275.8910573.27 1275.71
 10575.23 1275.6110575.86 1275.6110576.38 1275.6110577.46 1275.5710581.57 1275.91
 10584.7 1276.3110585.38 1276.3510585.57 1276.3610590.37 1276.310596.25 1276.24
 10600.27 1276.0910604.92 1276.1210619.97 1276.2210621.42 1276.2710622.24 1276.31
 10624.16 1276.410634.16 1276.810637.71 1277.0510639.31 1277.1510640.57 1277.17
 10646.84 1277.410659.02 1277.6810660.61 1277.75 10662.1 1277.7810670.69 1278.06
 10683.4 1278.1810684.31 1278.2 10684.6 1278.210685.66 1278.1910696.56 1278.06
 10700 1278

Manning's n Values num= 3
 Sta n Val Sta n Val

 9600 .056 9976.96 .04 10081.1 .056

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 9976.96 10081.1 507.5 500 485.7 .1 .3

CROSS SECTION

RIVER: MDOW
 REACH: Reach1 RS: 2.692

INPUT
 Description:
 Station Elevation Data num= 229
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev

 9700 1276.73 9710.74 1276.73 9715.86 1276.7 9734.89 1276.75 9739.3 1276.75
 9744.36 1276.75 9760.51 1276.76 9763.86 1276.72 9780.1 1276.52 9783.76 1276.48
 9798.13 1276.36 9801.73 1276.34 9810.05 1276.16 9811.98 1276.12 9823.27 1275.9
 9824.66 1275.87 9825.74 1275.8 9834.87 1275.22 9835.79 1275.17 9843.96 1274.66
 9844.7 1274.62 9849.58 1273.96 9850.01 1273.89 9858.08 1272.32 9858.38 1272.26
 9863.77 1271.54 9863.91 1271.51 9869.16 1270.75 9869.23 1270.74 9872.79 1270.58
 9874.03 1270.52 9874.08 1270.52 9885.21 1270.54 9886.41 1270.53 9887.83 1270.52
 9895.01 1270.49 9897.58 1270.33 9901.58 1270.37 9905.54 1270.42 9910.01 1270.74
 9911.68 1270.76 9919.13 1270.74 9921.57 1270.73 9922.9 1270.25 9922.91 1270.24
 9925.79 1269.77 9926.43 1269.67 9926.68 1269.63 9926.9 1269.55 9927.47 1269.71
 9929.24 1270.15 9932.42 1270.97 9934.42 1271.05 9934.7 1271.06 9938.36 1271.2
 9939.12 1271.22 9939.47 1271.22 9939.72 1271.22 9940.03 1271.23 9945.21 1271.26
 9945.53 1271.27 9946.3 1271.21 9949.58 1271.19 9951.65 1271.03 9951.98 1271.02
 9952.28 1271.02 9954.51 1270.98 9956.23 1270.95 9957.34 1270.93 9958.04 1270.89
 9965.7 1270.48 9966.01 1270.46 9967 1270.27 9967.97 1269.99 9972.54 1268.81
 9977.32 1268.38 9982.48 1267.99 9984.64 1267.51 9985.76 1266.54 9986.98 1265.65
 9987.68 1265.15 9988.04 1265 9989.2 1264.49 9992.01 1263.48 10000 1263.59
 10002.96 1263.6310021.82 1263.7710024.24 1264.710026.35 1265.5610027.64 1266.15
 10030.15 1267.3710031.15 1267.7110035.94 1269.110036.07 1269.110039.25 1269.26
 10040.07 1269.2610040.94 1269.2610045.45 1268.8510047.63 1268.7610047.99 1268.72
 10051.26 126810052.79 1267.6610054.36 1267.39 10056.3 1267.7810058.73 1267.97
 10061.93 1268.3710062.33 1268.4310063.78 1268.7510065.38 1269.4110065.47 1269.45
 10065.58 1269.5110065.68 1269.5510066.76 1269.6810071.31 1270.1710074.72 1270.19
 10077.31 1270.3110079.27 1270.3910079.66 1270.410081.79 1270.3610085.86 1270.28
 10088.22 1270.2310093.93 1269.4110094.62 1269.3210095.62 1269.1710099.32 1269.03
 10100.06 1269.0510103.25 1270.1610106.24 1270.9710106.92 1271.0810108.86 1271.25
 10110.71 1271.310112.01 1271.5110114.03 1271.6310117.04 1271.7910119.53 1271.78
 10122.18 1271.7710123.49 1271.6610124.37 1271.5310125.85 1271.2810127.07 1271.08
 10131.21 1271.07 10132.5 1271.07 10134.4 1271.0510137.11 1271.0210140.14 1271.02
 10141.65 1271.0210143.64 1271.110145.01 1271.1910147.34 1271.5810148.64 1271.65
 10150.44 1271.7710151.75 1271.68 10153.1 1271.5410153.97 1271.5210158.75 1271.51
 10159.47 1271.5210162.73 1271.6810163.18 1271.6910165.84 1271.9510173.21 1272.07
 10173.42 1272.0710176.19 1272.0110180.63 1271.9 10181.9 1271.8710181.91 1271.87
 10181.92 1271.8710184.14 1271.6610185.62 1271.3510185.87 1271.310186.16 1271.28
 10188.6 1271.33 10190.1 1271.3510192.41 1271.4610195.29 1271.3510195.36 1271.35
 10202.76 1271.310203.07 1271.3 10204.1 1271.3110210.92 1271.3810216.89 1271.31
 10219.23 1271.2210225.45 1271.1510230.49 1271.110236.38 1270.9610240.48 1270.86
 10244.13 1270.9210248.51 1270.9610250.35 1271.0710252.07 1271.0310252.79 1270.75
 10255.66 1270.3410257.99 1269.9210261.07 1269.8810262.15 1269.9710262.57 1269.98
 10263.08 1270.0510266.75 1270.7110269.71 1270.8110270.88 1270.8310271.06 1270.85
 10278.38 1270.8210281.31 1270.7910286.45 1270.7510291.25 1270.9910291.69 1271.04
 10293.83 1271.1310298.64 1271.2810306.78 1271.6110311.02 1271.81 10319.8 1272.05
 10327.07 1272.610332.24 1272.9810340.08 1273.5610343.26 1273.8210348.73 1274.07
 10355.14 1274.4510357.23 1274.5810359.71 1274.6810364.27 1274.6410369.36 1274.81
 10374.76 1274.8310379.87 1274.8810383.55 1274.8910387.39 1274.9510390.17 1275.01
 10393.01 1275.0610395.92 1275.1610398.47 1275.13 10400 1275.12

Manning's n Values num= 3
 Sta n Val Sta n Val

 9700 .056 9966.01 .0410039.25 .056

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 9966.0110039.25 285.82 286.2 287.08 .3 .5

CROSS SECTION

RIVER: MDOW

REACH: Reach1

RS: 2.638

williamsCLOMR.rep

INPUT

Description: Proposed Grading

Station Elevation Data num= 145

Sta	Elev								
9455.14	1275.12	9455.33	1275.12	9455.39	1275.12	9463.49	1275.13	9464.37	1275.12
9465.36	1275.12	9471.59	1274.83	9475.74	1274.46	9476.02	1274.45	9480.02	1274.54
9480.6	1274.56	9487.27	1274.34	9487.76	1274.33	9487.88	1274.33	9497.13	1274.28
9497.74	1274.28	9503.18	1274.5	9506.62	1274.43	9508.86	1274.27	9508.96	1274.27
9519.11	1274.65	9523.81	1274.82	9530.31	1275.02	9535.77	1275.04	9542.1	1275.15
9549.58	1275.09	9555.5	1274.95	9566.58	1274.9	9569.82	1274.97	9576.4	1274.91
9582.47	1274.75	9588.44	1274.8	9596.15	1274.75	9603.2	1274.66	9608.89	1274.54
9617.14	1274.53	9618.45	1274.52	9619.35	1274.51	9624.03	1274.41	9629.41	1274.36
9636.3	1274.24	9640.39	1274.21	9642.95	1274.12	9646.97	1274.17	9648.96	1274.19
9652.25	1274.3	9656.33	1274.39	9660.46	1274.36	9665.49	1274.4	9668.01	1274.17
9674.8	1274.2	9680.75	1274.21	9690.45	1274.22	9694.29	1274.25	9703.51	1274.25
9708.96	1274.26	9719.45	1274.26	9723.08	1274.25	9729.1	1274.23	9731.78	1274.17
9740.73	1274.08	9744.28	1274.03	9753.39	1273.88	9759.89	1273.71	9762.67	1273.65
9770.02	1273.4	9772.81	1273.3	9779.41	1272.95	9781.31	1272.91	9783.37	1272.76
9791.02	1272.51	9794.34	1272.38	9800.71	1271.99	9805.8	1271.75	9807.8	1271.64
9812.39	1271.29	9814.86	1271.1	9818.91	1270.81	9820.92	1270.64	9823.11	1270.38
9827.29	1270.03	9830.3	1269.79	9834	1269.44	9838.77	1269.17	9842.2	1268.91
9845.3	1268.69	9852.22	1268.4	9852.85	1268.37	9853.8	1268.34	9857.14	1268.2
9871.59	1271.61	9880.66	1271.57	9894.96	1271.5	9926.01	1262.74	10066.05	1262.74
10083.56	1269.71	10092.81	1269.91	10094.42	1269.93	10095.62	1269.94	10098.39	1270.06
10106.35	1270.24	10112.31	1270.31	10116.28	1270.36	10128.43	1270.48	10130.56	1270.5
10141.55	1270.73	10143.14	1270.75	10156.03	1270.94	10156.49	1270.95	10166.05	1271.18
10173.97	1271.39	10174.25	1271.39	10195.1	1271.73	10196.9	1271.81	10198.82	1271.87
10217.91	1272.36	10219.73	1272.42	10222.56	1272.51	10233.57	1272.84	10239.38	1272.96
10248.47	1273.16	10257.49	1273.41	10261.17	1273.54	10270.26	1273.78	10270.89	1273.8
10284.02	1273.96	10284.4	1273.98	10286.38	1274.03	10292.86	1274.22	10296.99	1274.34
10302.09	1274.55	10310.36	1274.63	10315.59	1274.71	10320.92	1274.74	10327.57	1274.94
10333.74	1275.09	10340.43	1275.26	10345.37	1275.36	10352.61	1275.48	10362.96	1275.36
10364.87	1275.38	10376.8	1275.26	10378.73	1275.25	10381.17	1275.25	10387.67	1275.28

Manning's n Values

Sta	n Val	Sta	n Val	Sta	n Val
9455.14	.056	9894.96	.0410083	56	.056

Bank Sta	Left	Right	Lengths	Left Channel	Right	Coeff	Contr.	Expan.
9894.96	10083.56		185.57	185.57	185.57		.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
9455.14	9926.01	1272.1	F
10067.12	10387.67	1271.85	F

CULVERT

RIVER: MDOW

REACH: Reach1

RS: 2.618

INPUT

Description: Williams Drive Culvert

Distance from Upstream XS = 36

Deck/Roadway width = 108

Weir Coefficient = 2.6

Upstream Deck/Roadway Coordinates

num=	7	Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
9387.67	1273.42					9526.32	1273.76					9735.89	1273			
9959.54	1272					10096.3	1271.82					10237.19	1272			
10387.67	1272.6															

Upstream Bridge Cross Section Data

Station Elevation Data num= 145

Sta	Elev								
9455.14	1275.12	9455.33	1275.12	9455.39	1275.12	9463.49	1275.13	9464.37	1275.12
9465.36	1275.12	9471.59	1274.83	9475.74	1274.46	9476.02	1274.45	9480.02	1274.54
9480.6	1274.56	9487.27	1274.34	9487.76	1274.33	9487.88	1274.33	9497.13	1274.28
9497.74	1274.28	9503.18	1274.5	9506.62	1274.43	9508.86	1274.27	9508.96	1274.27
9519.11	1274.65	9523.81	1274.82	9530.31	1275.02	9535.77	1275.04	9542.1	1275.15
9549.58	1275.09	9555.5	1274.95	9566.58	1274.9	9569.82	1274.97	9576.4	1274.91
9582.47	1274.75	9588.44	1274.8	9596.15	1274.75	9603.2	1274.66	9608.89	1274.54
9617.14	1274.53	9618.45	1274.52	9619.35	1274.51	9624.03	1274.41	9629.41	1274.36
9636.3	1274.24	9640.39	1274.21	9642.95	1274.12	9646.97	1274.17	9648.96	1274.19
9652.25	1274.3	9656.33	1274.39	9660.46	1274.36	9665.49	1274.4	9668.01	1274.17
9674.8	1274.2	9680.75	1274.21	9690.45	1274.22	9694.29	1274.25	9703.51	1274.25
9708.96	1274.26	9719.45	1274.26	9723.08	1274.25	9729.1	1274.23	9731.78	1274.17
9740.73	1274.08	9744.28	1274.03	9753.39	1273.88	9759.89	1273.71	9762.67	1273.65
9770.02	1273.4	9772.81	1273.3	9779.41	1272.95	9781.31	1272.91	9783.37	1272.76
9791.02	1272.51	9794.34	1272.38	9800.71	1271.99	9805.8	1271.75	9807.8	1271.64
9812.39	1271.29	9814.86	1271.1	9818.91	1270.81	9820.92	1270.64	9823.11	1270.38
9827.29	1270.03	9830.3	1269.79	9834	1269.44	9838.77	1269.17	9842.2	1268.91
9845.3	1268.69	9852.22	1268.4	9852.85	1268.37	9853.8	1268.34	9857.14	1268.2
9871.59	1271.61	9880.66	1271.57	9894.96	1271.5	9926.01	1262.74	10066.05	1262.74
10083.56	1269.71	10092.81	1269.91	10094.42	1269.93	10095.62	1269.94	10098.39	1270.06
10106.35	1270.24	10112.31	1270.31	10116.28	1270.36	10128.43	1270.48	10130.56	1270.5
10141.55	1270.73	10143.14	1270.75	10156.03	1270.94	10156.49	1270.95	10166.05	1271.18
10173.97	1271.39	10174.25	1271.39	10195.1	1271.73	10196.9	1271.81	10198.82	1271.87
10217.91	1272.36	10219.73	1272.42	10222.56	1272.51	10233.57	1272.84	10239.38	1272.96
10248.47	1273.16	10257.49	1273.41	10261.17	1273.54	10270.26	1273.78	10270.89	1273.8
10284.02	1273.96	10284.4	1273.98	10286.38	1274.03	10292.86	1274.22	10296.99	1274.34
10302.09	1274.55	10310.36	1274.63	10315.59	1274.71	10320.92	1274.74	10327.57	1274.94
10333.74	1275.09	10340.43	1275.26	10345.37	1275.36	10352.61	1275.48	10362.96	1275.36
10364.87	1275.38	10376.8	1275.26	10378.73	1275.25	10381.17	1275.25	10387.67	1275.28

Manning's n Values

Sta	n Val	Sta	n Val	Sta	n Val
9455.14	.056	9894.96	.0410083	56	.056

Bank Sta: Left Right Coeff Contr. Expan.
9894.9610083.56 .3 .5
Ineffective Flow num= 2
Sta L Sta R Elev Permanent
9455.14 9926.01 1272.1 F
10067.1210387.67 1271.85 F

Downstream Deck/Roadway Coordinates
num= 7
Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord
9387.67 1273.42 9526.32 1273.76 9735.89 1273
9959.54 1272 10096.3 1271.82 10237.19 1272
10387.67 1272.6

Downstream Bridge Cross Section Data
Station Elevation Data num= 227
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
9435.21 1273.28 9437.88 1273.27 9443.78 1273.36 9444.54 1273.45 9444.85 1273.51
9447.32 1273.85 9447.45 1273.87 9447.54 1273.87 9450.38 1273.87 9451.19 1273.81
9451.62 1273.69 9454.38 1273.76 9461.47 1273.48 9467.8 1273.39 9470.04 1273.36
9470.71 1273.32 9474.39 1273.29 9480.12 1273.24 9484.75 1273.17 9488.96 1273.07
9489.97 1273.05 9491.2 1273.03 9495.51 1272.96 9500.15 1272.87 9506.22 1272.74
9509.97 1272.66 9511.84 1272.64 9513.64 1272.57 9516.65 1272.39 9519.8 1272.14
9525.12 1272.17 9525.66 1272.18 9531.36 1272.19 9532.95 1272.18 9533.26 1272.18
9539.69 1272.07 9541.49 1272.01 9548.25 1271.97 9554.09 1271.97 9555.92 1271.98
9560.47 1271.94 9568.33 1271.9 9569 1271.9 9570.28 1271.91 9573.62 1271.94
9574.77 1271.97 9577.96 1272.19 9581.25 1272.34 9584.79 1272.3 9588.14 1272.15
9590.26 1272.07 9592.94 1271.99 9594.78 1272.04 9599.37 1271.99 9600.07 1271.93
9600.57 1271.91 9603.01 1271.96 9608.86 1272.12 9609.98 1272.12 9617.2 1272.16
9621.08 1272.15 9626.02 1272.11 9631.37 1272.08 9639.27 1272.02 9639.75 1272.02
9641.19 1272.01 9648.41 1271.93 9649.85 1271.91 9656.82 1271.66 9658.51 1271.69
9663.47 1271.72 9665.39 1271.71 9668.41 1271.76 9670.52 1271.8 9672.81 1271.9
9678.99 1272 9680.89 1271.99 9685.67 1271.98 9688.57 1271.99 9692.02 1272.09
9697.72 1272.23 9704.98 1272.62 9706.81 1272.69 9713.68 1272.81 9717.5 1272.8
9719.22 1272.79 9728.77 1272.62 9730.3 1272.59 9734.6 1272.58 9743.1 1272.51
9747.26 1272.41 9752.4 1272.34 9754.23 1272.52 9759.21 1272.71 9764.72 1272.65
9765.84 1272.64 9768.87 1272.43 9772.09 1272.16 9773.16 1272.12 9777.13 1271.96
9779.81 1271.98 9782.18 1271.87 9785.35 1271.85 9788.83 1271.7 9790.83 1271.64
9794.61 1271.58 9796.44 1271.48 9801.08 1271.39 9807.82 1271.23 9808.19 1271.22
9810.94 1271.07 9813.49 1270.95 9815.45 1270.82 9818.54 1270.01 9820.76 1269.47
9823.46 1269.28 9825.26 1269.19 9826.77 1269.22 9830.15 1269.31 9832.89 1269.34
9834.7 1269.36 9837.21 1269.39 9839.25 1269.34 9843.22 1269.07 9844.59 1268.95
9848.5 1268.56 9848.88 1268.52 9854.11 1268.33 9855.08 1268.29 9863.03 1267.95
9865.75 1267.86 9867.96 1267.84 9874.91 1267.82 9876.61 1267.82 9877.03 1267.83
9877.43 1267.82 9882.91 1267.84 9886.28 1267.78 9890.28 1267.79 9892.82 1267.89
9895.42 1268.05 9900.87 1268.17 9908.12 1268.33 9909.69 1268.37 9910.1 1268.38
9912.68 1268.34 9918.9 1267.81 9921.38 1267.06 9925.18 1266.11 9928.95 1265.15
9931.48 1264.51 9943.31 1261.49 9994.21 1261.08 10000 1261.0610070.66 1260.8
10073.9 1261.5310077.08 1262.3110081.79 1263.4610088.61 1265.0410095.08 1266.81
10102.75 1268.910109.34 1269.3610109.58 1269.3610109.84 1269.3410118.91 1268.56
10122.92 1268.5710124.74 1268.5610129.93 1268.8810130.25 1268.9110131.01 1268.98
10133.49 1269.2 10134.1 1269.2210135.98 1269.210136.12 1269.210137.14 1269.28
10147.42 1270.0410147.76 1270.11 10149.9 1269.8610152.03 1269.610152.52 1269.57
10155.36 1269.5210157.21 1269.5310160.26 1269.4610164.61 1269.4610168.47 1269.51
10173.92 1269.7910178.84 1269.9610180.83 1270.0610190.39 1270.47 10192.6 1270.53
10201 1270.8410211.32 1270.9910212.96 1271.0410215.73 1271.0210225.28 1271.06
10232.67 1271.1410235.77 1271.1510245.16 1271.10248.84 1271.0810263.04 1271.11
10265.62 1271.1510268.42 1271.2710270.57 1271.3210283.79 1271.54 10288.7 1271.56
10298.69 1271.8710301.35 1271.9610309.96 1272.2810311.79 1272.3610327.04 1272.57
10328.61 1272.5910330.45 1272.6210350.09 1273.0110350.74 1273.0310354.88 1273.1
10369.66 1273.3910371.46 1273.4410380.68 1273.66 10382.5 1273.7110394.46 1273.96
10397.49 1274.0310411.55 1274.1310415.76 1274.2110419.43 1274.2210426.61 1274.39
10430.5 1274.410435.21 1274.4

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
9435.21 .056 9918.9 .0410102.75 .056

Bank Sta: Left Right Coeff Contr. Expan.
9918.910102.75 .3 .5
Ineffective Flow num= 2
Sta L Sta R Elev Permanent
9435.21 9951.54 1269.78 F
10075.3710435.21 1269.66 F

Upstream Embankment side slope = 0 horiz. to 1.0 vertical
Downstream Embankment side slope = 0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .98
Elevation at which weir flow begins =
Energy head used in spillway design =
Spillway height used in design =
Weir crest shape = Broad Crested

Number of Culverts = 1

Culvert Name Shape Rise Span
Culvert #1 Box 6 10
FHWA Chart # 8 - flared wingwalls
FHWA Scale # 1 - wingwall flared 30 to 75 deg.
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist Length Top n Bottom n Depth Blocked Entrance Loss Coef Exit Loss Coef
13.5 132.2 .013 .013 0 .4 1

Number of Barrels = 11
Upstream Elevation = 1262.7
Centerline Stations
Sta. Sta. Sta. Sta. Sta. Sta. Sta. Sta. Sta. Sta.
9937.39 9948.62 9959.78 9970.95 9982.11 9993.2710004.44 10015.610026.7610037.93
10048.93
Downstream Elevation = 1261.46
Centerline Stations
Sta. Sta. Sta. Sta. Sta. Sta. Sta. Sta. Sta. Sta.
9957.88 9969.06 9980.23 9991.4110002.5810013.7510024.93 10036.110047.2710058.45
Page 27

10069.62

CROSS SECTION

RIVER: MDOW
REACH: Reach1 RS: 2.603

INPUT

Description: Proposed Grading

Table with 12 columns: Station, Elev, Sta, Elev, Sta, Elev, Sta, Elev, Sta, Elev, Sta, Elev. Contains stationing data for a proposed grading project.

Manning's n Values

Table with 6 columns: Sta, n Val, Sta, n Val, Sta, n Val. Shows Manning's n values for different stationing points.

Table with 6 columns: Bank Sta, Lengths, Channel, Right, Coeff Contr., Expan. Shows bank stationing and channel characteristics.

CROSS SECTION

RIVER: MDOW
REACH: Reach1 RS: 2.556

INPUT

Description: Proposed Grading

Table with 12 columns: Station, Elev, Sta, Elev, Sta, Elev, Sta, Elev, Sta, Elev, Sta, Elev. Contains stationing data for a proposed grading project.

10234.08 1272.47 10238.7 1272.510245.86 1272.4410249.41 1272.410249.96 1272.4
 10250.13 1272.410251.16 1272.4210257.87 1272.5210260.03 1272.5110270.67 1272.31
 10276.28 1272.2310280.54 1272.1910288.06 1272.1310295.24 1272.05 10300 1272.05

WilliamsCLOMR.rep

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val

 9700 .056 9950.49 .0410079.47 .056

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 9950.4910079.47 434.5 500 515.1 .1 .3

CROSS SECTION

RIVER: MDOW
 REACH: Reach1 RS: 2.461

INPUT

Description:

Station Elevation Data num= 223
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev

 9500 1271.93 9501.12 1271.93 9501.63 1271.92 9515.62 1271.59 9515.87 1271.59
 9525.49 1271.64 9530.8 1271.61 9535.94 1271.37 9538.22 1271.37 9544.19 1271.25
 9550.16 1270.96 9550.84 1270.94 9551.7 1270.9 9559.94 1270.5 9567.42 1269.85
 9567.99 1269.81 9568.41 1269.78 9577.94 1269.38 9579.75 1269.24 9582.71 1268.98
 9587.69 1268.56 9589.03 1268.41 9591.04 1268.15 9600.29 1267.32 9610.82 1266.58
 9611.24 1266.54 9624.29 1265.13 9624.71 1265.09 9635.94 1264.2 9638.4 1264
 9641.53 1263.8 9643.73 1263.65 9648.15 1263.6 9649.31 1263.59 9653.59 1263.12
 9654.98 1262.95 9657.86 1262.92 9659.18 1262.88 9661.25 1262.72 9663 1262.61
 9664.94 1262.86 9666.24 1263.08 9667.38 1263.09 9668.04 1263.1 9672.73 1262.33
 9673.25 1262.24 9673.58 1262.23 9674.94 1262.13 9676.51 1262.7 9678.33 1263.42
 9682.53 1263.62 9688.7 1263.93 9691.9 1264.83 9696.74 1266.23 9700.28 1267.33
 9701.04 1267.53 9701.63 1267.57 9701.64 1267.57 9707.98 1267.45 9708.44 1267.45
 9715.94 1267.36 9717.68 1267.19 9720.95 1266.92 9724.77 1266.59 9729.08 1266.3
 9730.44 1266.35 9734.57 1266.31 9737.65 1265.9 9741.93 1265.29 9744.74 1265.1
 9746.72 1264.9 9750.51 1264.49 9753.64 1264.2 9757.01 1264.27 9760.99 1264.3
 9769.83 1264.4 9771.66 1264.43 9772.39 1264.46 9774.16 1264.51 9781.08 1264.76
 9793.94 1264.93 9793.97 1264.93 9793.98 1264.93 9801.05 1265.14 9804.58 1265.22
 9809.43 1265.12 9814.95 1265.01 9821.81 1264.55 9826.17 1264.26 9836.93 1264.47
 9837.33 1264.48 9837.66 1264.44 9844.93 1263.31 9850.66 1263.49 9854.5 1263.65
 9858.65 1263.66 9862.13 1263.69 9870.41 1263.57 9873.11 1263.51 9879.13 1263.33
 9884.02 1263.22 9888.52 1263.6 9890.41 1263.76 9892.19 1263.69 9900.71 1263.38
 9908.17 1263.6 9909.04 1263.62 9909.72 1263.61 9912.84 1263.6 9917.3 1263.59
 9918.04 1263.59 9919.15 1263.65 9925.48 1264.34 9931.78 1263.68 9931.91 1263.68
 9932.08 1263.67 9937.45 1263.38 9939.26 1263.49 9942.22 1263.67 9944.88 1263.78
 9949.2 1264.19 9951.43 1264.43 9953.9 1264.27 9958.92 1263.86 9959.76 1263.82
 9963.44 1263.97 9964.59 1263.97 9967.61 1264.01 9969.34 1264.13 9969.62 1264.08
 9970.88 1263.94 9972.98 1263.31 9973.57 1263.22 9975.74 1262.31 9976.71 1262
 9976.93 1261.93 9979.79 1260.77 9980.68 1260.43 9981.71 1260 9983.3 1259.36
 9984.87 1258.6 9985.68 1258.2 9986.71 1257.65 9987.27 1257.41 9987.67 1257.23
 9989.35 1256.35 9991.49 1255.69 9993.7 1255.29 9995.3 1255.19 9996.51 1255.14
 10000 1255.0710004.52 1254.9810006.72 1254.9510007.51 1254.9410012.26 1254.9
 10017.14 1258.5510022.64 1262.610025.26 1263.3810026.66 1263.810027.93 1264.09
 10029.85 1264.2710030.99 1264.3810032.58 1264.37 10036.9 1264.2910039.92 1264.13
 10043.89 1264.0410045.06 1264.0110045.36 1264.0210050.84 1264.1610054.27 1264.26
 10054.73 1264.2710055.79 1264.310067.64 1264.7610071.27 1264.9610071.78 1264.98
 10075.07 1265.0610076.32 1265.1410077.28 1265.1910084.43 1265.5510087.19 1265.68
 10089.04 1265.7710093.09 1265.9410099.14 1266.3510101.22 1266.4810103.91 1266.56
 10104.92 1266.6610107.37 1266.7710110.41 1266.9710119.97 1267.52 10123.7 1267.73
 10132.18 1268.4110132.89 1268.4510134.42 1268.5610140.86 1268.9610142.92 1269.06
 10148.28 1269.3110152.36 1269.5110158.17 1269.6510164.02 1269.8610171.48 1270.22
 10173.09 1270.2810183.26 1270.4210184.88 1270.4710194.51 1270.5310196.76 1270.53
 10207.5 1270.5510210.01 1270.5810211.67 1270.5710222.11 1270.44 10226.8 1270.38
 10231.64 1270.3410238.07 1270.2910243.95 1270.27 10254.4 1270.210256.86 1270.17
 10257.85 1270.1510266.11 1269.9910272.66 1269.8510275.55 1269.7810279.03 1269.71
 10286.6 1269.5410295.14 1269.39 10300 1269.41

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val

 9500 .056 9969.34 .0410030.99 .056

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 9969.3410030.99 523.4 500 496.4 .1 .3

CROSS SECTION

RIVER: MDOW
 REACH: Reach1 RS: 2.367

INPUT

Description:

Station Elevation Data num= 202
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev

 9700 1269.02 9701.98 1269.03 9712.06 1268.84 9713.93 1268.81 9716.54 1268.75
 9726.56 1268.6 9727.44 1268.54 9728.91 1268.51 9732.28 1268.58 9737.13 1268.58
 9739.87 1268.54 9740.54 1268.53 9741.35 1268.53 9743.01 1268.51 9749.96 1268.47
 9750.52 1268.47 9757.12 1268.47 9761.72 1268.5 9765.71 1268.54 9773.62 1268.53
 9781.43 1268.5 9785.62 1268.48 9791.38 1268.49 9796.29 1268.47 9805.4 1268.45
 9805.47 1268.45 9805.62 1268.45 9817.65 1268.78 9821.83 1268.86 9828.39 1268.93
 9840.64 1268.84 9842.09 1268.84 9843.61 1268.82 9855.03 1268.6 9858.25 1268.54
 9863.29 1268.4 9870.5 1267.95 9870.88 1267.93 9879.46 1267.18 9880.36 1267.1
 9880.4 1267.09 9888.68 1266.47 9891.44 1266.08 9895.43 1265.48 9896.62 1265.31
 9897.32 1265.16 9901.08 1264.35 9904.96 1263.05 9907.69 1262.07 9910.86 1261.2
 9914.67 1260.14 9916.33 1260.02 9923.45 1259.67 9929.36 1259.56 9930.81 1259.55
 9932.48 1259.56 9935.16 1259.61 9937.84 1259.64 9939.62 1259.83 9943.46 1260.21
 9946.25 1260.51 9948.64 1260.98 9950.09 1261.02 9951.66 1261.08 9953.91 1261.03
 9955.59 1261 9956.84 1260.87 9958.03 1260.81 9961.45 1260.43 9962.42 1260.39
 9964.58 1260.89 9966.17 1261.17 9966.4 1261.12 9967.6 1260.91 9968.49 1260.69
 9969.78 1260.23 9972.48 1259.09 9972.9 1258.94 9976.24 1257.68 9976.79 1257.45
 9977.55 1257.09 9980.48 1255.77 9982.02 1254.93 9987.5 1252.74 9987.83 1252.61
 9988.05 1252.51 9988.21 1252.51 9994.96 1252.37 9997.62 1252.44 10000 1252.49

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10002.08	1252.5410006.08	1252.3910007.26	1252.3810012.03	1253.3510012.32	1253.41
10012.53	1253.5410018.41	1257.1310019.81	1258.8410021.65	1261.1710024.02	1261.57
10028.65	1262.310034.31	1262.41 10034.4	1262.4110034.44	1262.4110034.69	1262.4
10045.15	126210046.52	1262.1110048.81	1262.310049.83	1262.1810052.86	1261.85
10053.92	1261.4110057.25	1259.9910060.93	1259.45 10062.6	1259.2210064.48	1259.17
10068.95	1258.9510070.72	1259.3310072.39	1259.7510073.57	1260.110074.56	1260.49
10076.31	1261.1710080.58	1261.63 10080.9	1261.6710081.01	1261.6810081.31	1261.67
10090.4	1261.5110098.62	1261.6510101.82	1261.6810107.28	1261.8210108.04	1261.84
10108.26	1261.8410108.51	1261.8310112.47	1261.5310116.27	1261.4410118.28	1261.36
10119.72	1261.1710120.65	1261.10122.39	1261.6810123.17	1262.0110123.35	1262.02
10124.89	1262.0410128.55	1262.1510134.25	1262.1510135.94	1262.1510143.79	1262.27
10144.43	1262.2810146.92	1262.4210152.32	1262.7810154.43	1262.89 10161.8	1263.3
10166.81	1263.4810169.14	1263.5910174.82	1263.810175.75	1263.8210176.06	1263.83
10181.71	1263.910184.38	1263.8910189.39	1263.8610197.79	1263.7910198.53	1263.78
10200.19	1263.8110207.25	1263.8110210.34	1263.7910214.81	1263.6910223.92	1263.56
10224.16	1263.5510230.39	1263.5510232.35	1263.5310236.79	1263.410243.67	1263.45
10250.04	1263.5110253.76	1263.5710260.19	1263.6510264.17	1263.710271.23	1263.97
10273.94	1264.0910277.87	1264.4610281.96	1264.8510285.05	1265.1510293.62	1265.92
10301.85	1266.2910303.88	1266.3710306.23	1266.410315.26	1266.46 10322	1266.57
10329.3	1266.7110336.69	1266.86 10342.5	1266.8810344.25	1266.8910352.59	1266.87
10352.95	1266.8710353.22	1266.8710373.59	1266.7410376.03	1266.72 10379.8	1266.67
10382.75	1266.510384.08	1266.4 10388.2	1266.35 10395.7	1266.35 10397.2	1266.34
10398.01	1266.34 10400	1266.38			

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val

 9700 .056 9966.17 .0410021.65 .056

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 9966.1710021.65 505.9 500 430.1 .1 .3

CROSS SECTION

RIVER: MDOW
 REACH: Reach1 RS: 2.272

INPUT
 Description:
 Station Elevation Data num= 135
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev

 9800 1267.37 9804.81 1267.34 9807.61 1267.34 9818.42 1267.2 9819.63 1267.2
 9820.78 1267.18 9832.62 1267.14 9840.85 1266.82 9840.93 1266.82 9840.97 1266.82
 9848.67 1266.83 9849 1266.86 9851.26 1267.17 9860.2 1267.12 9864.01 1267.1
 9869.27 1267.1 9877 1267.1 9880.37 1267.11 9889.12 1267.12 9895.09 1267.13
 9902.08 1267.18 9912.66 1267.12 9915.54 1267.09 9919.79 1267.09 9925.05 1267
 9928.56 1266.91 9930.51 1266.89 9940.59 1266.65 9946.8 1266.47 9952.25 1266.31
 9958.88 1265.13 9959.76 1266.11 9964.28 1266 9965.45 1265.9 9967.91 1265.75
 9968.57 1265.62 9969.47 1265.48 9973.23 1264.85 9976.51 1256.65 9977.72 1253.68
 9978.12 1252.68 9978.4 1252.56 9981.98 1251.24 9986.14 1249.1 9987.24 1248.57
 9988.4 1248.57 9992.21 1248.59 9993.99 1248.56 9996.83 1248.65 9999.22 1248.74
 10000 1248.7810002.85 1248.9110005.61 1248.9410007.47 1249.0410011.08 1250.47
 10011.81 1250.7710011.99 1250.8910016.34 1253.6310020.82 1256.4710021.21 1256.72
 10022.01 1256.7910025.06 1257.1610031.57 1257.8510039.16 1257.78 10043 1257.7
 10044.92 1257.7310053.92 1257.7210061.26 1257.610063.93 1257.5410066.97 1257.55
 10075.68 1257.5110081.54 1257.5110087.94 1257.5410095.36 1257.5710100.69 1257.6
 10112.78 1257.5310113.52 1257.5210114.05 1257.5210125.22 1257.4210127.32 1257.44
 10137.96 1257.5210138.57 1257.5310149.58 1257.6810151.33 1257.6810161.58 1257.64
 10164.12 1257.6310164.42 1257.6310177.58 1257.7410178.19 1257.74 10191.4 1257.79
 10199.15 1257.8910203.99 1257.9210209.12 1257.9110213.77 1257.9510222.19 1257.92
 10224.49 1257.9210225.47 1257.9310234.15 1258.0910238.24 1258.0810243.94 1258.08
 10251.49 1258.1110254.44 1258.5 10260.8 1259.3810261.14 1259.4210261.55 1259.47
 10270.36 1260.5710276.49 1261.510278.79 1261.8810281.16 1261.9710287.15 1262.18
 10292.34 1262.2810293.79 1262.31 10294.2 1262.2410297.12 1261.810300.63 1262.01
 10307.01 1262.4210310.57 1262.6510312.92 1262.810315.44 1262.9310323.74 1263.44
 10326.82 1263.6610337.66 1264.3910339.94 1264.5210349.51 1264.8110351.51 1264.87
 10363.58 1265.09 10364.5 1265.1310364.94 1265.1510365.76 1265.1610367.49 1265.17
 10380.01 1265.510386.12 1265.5610391.48 1265.5810399.66 1265.61 10400 1265.61

Manning's n Values num= 4
 Sta n Val Sta n Val Sta n Val Sta n Val

 9800 .056 9976.51 .0410021.21 .0310251.49 .056

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 9976.5110021.21 414.3 400.91 327.7 .3 .5

CROSS SECTION

RIVER: MDOW
 REACH: Reach1 RS: 2.196

INPUT
 Description:
 Station Elevation Data num= 198
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev

 9700 1264.95 9706.16 1264.94 9707.73 1264.94 9707.91 1264.94 9708.49 1264.93
 9721.74 1264.73 9729.75 1264.69 9735.82 1264.65 9741.68 1264.69 9749.48 1264.58
 9756.96 1264.29 9759.03 1264.21 9759.91 1264.17 9760.86 1264.18 9767.96 1264.15
 9771.31 1264.38 9771.59 1264.42 9781.26 1264.62 9781.87 1264.63 9782.66 1264.62
 9795.42 1264.48 9797.81 1264.39 9804.11 1264.3 9808.76 1264.34 9813.73 1264.38
 9820.95 1264.26 9821.94 1264.25 9824.29 1264.23 9830.54 1264.21 9837.28 1264.08
 9840.68 1264.04 9844.17 1263.9 9854.8 1263.58 9857.87 1263.56 9858.9 1263.57
 9859.24 1263.49 9861.89 1262.93 9865.49 1262.79 9866.75 1262.71 9868.79 1262.76
 9870.72 1262.8 9877.34 1263.2 9878.62 1263.25 9882.46 1263.38 9885.77 1263.46
 9889.06 1263.46 9894.71 1263.43 9896.61 1263.34 9898.84 1262.96 9898.98 1262.96
 9899.24 1262.87 9900.29 1262.61 9908.49 1260.6 9910.55 1260.07 9917.86 1258.13
 9925.79 1256.19 9926.47 1256.01 9935.3 1253.89 9937.18 1253.34 9938.91 1252.78
 9940.84 1252.34 9943.02 1252.39 9945.15 1252.19 9946.78 1252.1 9950.32 1251.64
 9950.8 1251.61 9951.03 1251.53 9951.36 1251.41 9952.69 1249.58 9953.08 1249.4
 9958.73 1248.27 9959.5 1248.07 9965.04 1248.43 9965.56 1248.46 9966.1 1248.45
 9971.66 1248.38 9973.45 1248.34 9974.72 1248.34 9981.86 1248.6 9982.63 1248.61

williamsCLOMR_rep
 9983.48 1248.63 9991.26 1248.71 9999.72 1248.84 10000 1248.83 10000.4 1248.83
 10000.52 1248.83 10001.4 1248.8410013.39 1248.72 10016.8 1248.610020.38 1248.46
 10029.15 1248.9910029.61 1249.0210030.21 1249.0310039.79 1249.2710046.05 1249.26
 10049.49 1249.3110053.08 1248.6610053.34 1248.5910053.71 1248.7 10059.7 1250.04
 10060.69 1250.3710061.73 1250.74 10063.7 1251.0210064.16 1251.1910066.69 1251.84
 10066.75 1251.8610066.79 1251.8710069.95 1252.4210071.25 1252.610075.21 1253.16
 10078.01 1253.4510080.56 1253.810083.66 1254.1710089.92 1255.0910090.03 1255.1
 10090.2 1255.1110092.92 1255.1610096.49 1255.3710100.67 1255.610103.55 1255.62
 10108.79 1255.65 10111.7 1255.8110116.79 1255.9 10124.1 1256.110127.55 1256.15
 10131.34 1256.1810137.76 1256.2110141.19 1256.2510147.58 1256.3210150.62 1256.45
 10156.4 1256.5910159.49 1256.710162.87 1256.8310167.65 1257.0210170.65 1257.07
 10178.1 1257.1610180.87 1257.2710187.36 1257.5110190.45 1257.6410192.42 1257.76
 10195.09 1257.8410198.36 1258.4610203.24 1259.6510205.01 1260.0510206.88 1260.14
 10209.68 1260.2410212.94 1260.34 10216.6 1260.3810217.61 1260.41 10226.1 1260.43
 10228.85 1260.4710235.23 1260.54 10239.1 1260.5310247.48 1260.5610255.55 1260.56
 10259.07 1260.5910267.48 1260.58 10271.5 1260.6110280.66 1260.5610284.56 1260.61
 10294.77 1260.81 10297.8 1260.8610307.79 1261.21 10310.7 1261.2410321.04 1261.42
 10322.01 1261.4610328.15 1261.5510331.84 1261.6310333.72 1261.7 10341.8 1261.75
 10343.61 1261.7610344.22 1261.7710352.22 1261.710356.34 1261.78 10362.9 1261.86
 10371.35 126210373.65 1262.0610375.14 1262.0710387.84 1262.310389.12 1262.3
 10391.19 1262.310404.89 1262.3510405.76 1262.3810413.33 1262.5510418.24 1262.69
 10422.77 1262.8510426.95 1262.9710434.67 1263.0610437.45 1263.1710447.18 1263.24
 10450.16 1263.2910456.42 1263.3510458.69 1263.3810472.25 1263.5210472.95 1263.53
 10486.11 1263.7810486.97 1263.8 10500 1263.99

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val

 9700 .056 9925.79 .0410100.67 .056

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 9925.7910100.67 235.48 235.48 235.48 .3 .5
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 9700 9916.58 1260.73 F
 10069.92 10500 1260.51 F

CULVERT

RIVER: MDOW
 REACH: Reach1 RS: 2.174

INPUT
 Description: El Mirage Road North Culvert
 Distance from Upstream XS = 57.6
 Deck/Roadway Width = 130
 Weir Coefficient = 2.6

Upstream Deck/Roadway Coordinates
 num= 11
 Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord

 9700 1262.47 9756.3 1262 9874.32 1261
 9998.63 1260.2 10184.01 1261 10253.8 1262
 10317.34 1263 10370.29 1264 10412.45 1265
 10455.91 1266 10500 1267

Upstream Bridge Cross Section Data
 Station Elevation Data num= 198
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev

 9700 1264.95 9706.16 1264.94 9707.73 1264.94 9707.91 1264.94 9708.49 1264.93
 9721.74 1264.73 9729.75 1264.69 9735.82 1264.65 9741.68 1264.69 9749.48 1264.58
 9756.96 1264.29 9759.03 1264.21 9759.91 1264.17 9760.86 1264.18 9767.96 1264.15
 9771.31 1264.38 9771.59 1264.42 9781.26 1264.62 9781.87 1264.63 9782.66 1264.62
 9795.42 1264.48 9797.81 1264.39 9804.11 1264.3 9808.76 1264.34 9813.73 1264.38
 9820.95 1264.26 9821.94 1264.25 9824.29 1264.23 9830.54 1264.21 9837.28 1264.08
 9840.68 1264.04 9844.17 1263.9 9854.8 1263.58 9857.87 1263.56 9858.9 1263.57
 9859.24 1263.49 9861.89 1262.93 9865.49 1262.79 9866.75 1262.71 9868.79 1262.76
 9870.72 1262.8 9877.34 1263.2 9878.62 1263.25 9882.46 1263.38 9885.77 1263.46
 9889.06 1263.46 9894.71 1263.43 9896.61 1263.34 9898.84 1262.96 9898.98 1262.93
 9899.24 1262.87 9900.29 1262.61 9908.49 1260.6 9910.55 1260.07 9917.86 1258.13
 9925.79 1256.19 9926.47 1256.01 9935.3 1253.89 9937.18 1253.34 9938.91 1252.78
 9940.84 1252.34 9943.02 1252.39 9945.15 1252.19 9946.78 1252.1 9950.32 1251.64
 9950.8 1251.61 9951.03 1251.53 9951.36 1251.41 9952.69 1249.58 9953.08 1249.4
 9958.73 1248.27 9959.5 1248.07 9965.04 1248.43 9965.56 1248.46 9966.1 1248.45
 9971.66 1248.38 9973.45 1248.34 9974.72 1248.34 9981.86 1248.6 9982.63 1248.61
 9983.48 1248.63 9991.26 1248.71 9999.72 1248.84 10000 1248.83 10000.4 1248.83
 10000.52 1248.83 10001.4 1248.8410013.39 1248.72 10016.8 1248.610020.38 1248.46
 10029.15 1248.9910029.61 1249.0210030.21 1249.0310039.79 1249.2710046.05 1249.26
 10049.49 1249.3110053.08 1248.6610053.34 1248.5910053.71 1248.7 10059.7 1250.04
 10060.69 1250.3710061.73 1250.74 10063.7 1251.0210064.16 1251.1910066.69 1251.84
 10066.75 1251.8610066.79 1251.8710069.95 1252.4210071.25 1252.610075.21 1253.16
 10078.01 1253.4510080.56 1253.810083.66 1254.1710089.92 1255.0910090.03 1255.1
 10090.2 1255.1110092.92 1255.1610096.49 1255.3710100.67 1255.610103.55 1255.62
 10108.79 1255.65 10111.7 1255.8110116.79 1255.9 10124.1 1256.110127.55 1256.15
 10131.34 1256.1810137.76 1256.2110141.19 1256.2510147.58 1256.3210150.62 1256.45
 10156.4 1256.5910159.49 1256.710162.87 1256.8310167.65 1257.0210170.65 1257.07
 10178.1 1257.1610180.87 1257.2710187.36 1257.5110190.45 1257.6410192.42 1257.76
 10195.09 1257.8410198.36 1258.4610203.24 1259.6510205.01 1260.0510206.88 1260.14
 10209.68 1260.2410212.94 1260.34 10216.6 1260.3810217.61 1260.41 10226.1 1260.43
 10228.85 1260.4710235.23 1260.54 10239.1 1260.5310247.48 1260.5610255.55 1260.56
 10259.07 1260.5910267.48 1260.58 10271.5 1260.6110280.66 1260.5610284.56 1260.61
 10294.77 1260.81 10297.8 1260.8610307.79 1261.21 10310.7 1261.2410321.04 1261.42
 10322.01 1261.4610328.15 1261.5510331.84 1261.6310333.72 1261.7 10341.8 1261.75
 10343.61 1261.7610344.22 1261.7710352.22 1261.710356.34 1261.78 10362.9 1261.86
 10371.35 126210373.65 1262.0610375.14 1262.0710387.84 1262.310389.12 1262.3
 10391.19 1262.310404.89 1262.3510405.76 1262.3810413.33 1262.5510418.24 1262.69
 10422.77 1262.8510426.95 1262.9710434.67 1263.0610437.45 1263.1710447.18 1263.24
 10450.16 1263.2910456.42 1263.3510458.69 1263.3810472.25 1263.5210472.95 1263.53
 10486.11 1263.7810486.97 1263.8 10500 1263.99

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val

 9700 .056 9925.79 .0410100.67 .056

Bank Sta: Left Right Coeff Contr. Expan.
 9925.7910100.67 .3 .5
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 9700 9916.58 1260.73 F
 10069.92 10500 1260.51 F

Downstream Deck/Roadway Coordinates
 num= 11
 Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord

 9779.74 1262.47 9836.04 1262 9954.06 1261
 10078.37 1260.2 10263.75 1261 10333.54 1262
 10397.08 1263 10450.03 1264 10492.19 1265
 10535.65 1266 10579.74 1267

Downstream Bridge Cross Section Data
 Station Elevation Data num= 211
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev

 9779.74 1261.66 9782.98 1261.85 9785.98 1262.03 9795.37 1262.57 9795.99 1262.57
 9796.16 1262.57 9806.78 1262.65 9807.99 1262.64 9810.31 1262.64 9820.62 1262.71
 9826.48 1262.65 9832.71 1262.52 9839.66 1262.58 9842.57 1262.56 9850.28 1262.41
 9850.93 1262.38 9854.13 1262.16 9857.18 1261.94 9857.46 1261.9 9862.88 1261.32
 9863.67 1261.18 9875.86 1258.98 9876.45 1258.86 9882.33 1257.87 9885.06 1257.49
 9886.54 1257.21 9889.45 1257.26 9894.15 1257.36 9900.14 1257.31 9901.97 1257.26
 9907.44 1256.08 9907.78 1256.01 9908.03 1255.96 9909.03 1255.75 9913.1 1254.94
 9913.67 1254.77 9916.94 1254.11 9922.46 1253.16 9924.13 1252.7 9926.77 1252.08
 9929.88 1251.28 9932.21 1251.25 9933.65 1251.27 9934.14 1251.18 9934.62 1250.87
 9937.67 1247.57 9940.59 1247.47 9946.61 1247.32 9947.97 1247.3 9951.98 1247.28
 9957.89 1247.15 9961.8 1247.14 9962.87 1247.13 9964.07 1247.12 9966.38 1247.02
 9974.24 1247.06 9975.88 1247.14 9982 1247.1 9988.26 1246.94 9996.58 1246.86
 9998.67 1246.87 10000 1246.8910000.38 1246.8910009.08 1246.8710010.22 1246.92
 10010.94 1246.9310020.83 1247.1110024.33 1247.310031.35 1248.2210033.71 1248.35
 10039.26 1248.8710040.26 1248.94 10044.8 1248.4810044.81 1248.4810044.82 1248.48
 10045.09 1248.5910049.69 1250.4610050.16 1250.610051.36 1250.710051.45 1250.72
 10054.24 1251.0510056.77 1251.6510058.13 1251.7410059.47 1251.910060.68 1251.98
 10061.16 1252.0110063.31 1252.710067.27 1253.510070.82 1254.2710075.67 1255.08
 10075.76 1255.0810076.14 1255.09 10085.7 1255.2710087.36 1255.2910088.35 1255.32
 10099.48 1255.3610100.06 1255.3610101.06 1255.3610105.93 1255.2710114.64 1255.56
 10115.32 1255.61 10118.6 1255.8110126.64 1256.2810127.49 1256.3310131.96 1256.63
 10138.49 1257.0710140.86 1257.3910143.82 1257.7510146.06 1258.0110147.95 1258.18
 10150.75 1258.51 10151.4 1258.6210154.87 1259.0710158.07 1259.2310160.63 1259.49
 10165.89 1259.8310172.45 1260.32 10173.6 1260.3510173.89 1260.3610180.01 1260.39
 10182.86 1260.4910189.12 1260.5710190.44 1260.59 10192.6 1260.63 10196.8 1260.64
 10201.63 1260.7310203.36 1260.8 10208.2 1261.0110210.09 1261.0910215.23 1261.49
 10220.33 1261.8110221.06 1261.8510225.65 1262.0410228.29 1262.1310228.74 1262.15
 10229.29 1262.1810238.04 1262.5210243.37 1262.6110245.24 1262.710251.69 1262.83
 10253.73 1262.94 10256 1263.09 10258.4 1263.1910262.26 1263.3610263.68 1263.41
 10269.77 1263.4210271.55 1263.44 10274.6 1263.8710278.94 1263.8610281.11 1263.91
 10285.33 1264.04 10287.5 1264.1110292.25 1264.1310297.46 1264.0510301.54 1264.07
 10307.44 1263.9210309.98 1263.8810312.08 1263.8710313.78 1263.9510318.54 1264
 10322.7 1264.0610327.32 1264.1610329.98 1264.1610334.67 1264.26 10341.5 1264.32
 10345.28 1264.3110350.04 1264.3110353.81 1264.3210358.65 1264.3210361.72 1264.37
 10364.66 1264.4910366.77 1264.5310368.94 1264.7110371.38 1264.6410374.32 1264.63
 10380.27 1264.5410383.25 1264.4910392.83 1264.4110393.24 1264.4 10394.6 1264.4
 10404.42 1264.510405.24 1264.4510409.98 1264.53 10415.5 1264.6410418.38 1264.73
 10424.68 1264.7610426.42 1264.7510431.89 1264.6410436.54 1264.610440.03 1264.64
 10448.7 1264.6510455.35 1264.7410464.91 1264.8210466.92 1264.8310480.87 1264.98
 10482.94 1264.9910496.25 1265.0610497.88 1265.0710513.74 1265.1410515.04 1265.16
 10529.97 1265.3210530.05 1265.3210542.28 1265.5710542.71 1265.5710555.43 1265.62
 10556.47 1265.6210556.79 1265.6210568.03 1265.7310569.97 1265.7610579.68 1265.84
 10579.74 1265.84

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val

 9779.74 .056 9933.65 .0410054.24 .056

Bank Sta: Left Right Coeff Contr. Expan.
 9901.9710075.67 .3 .5
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 9779.74 9962.19 1258.09 F
 10047.4210579.74 1257.81 F

Upstream Embankment side slope = 0 horiz. to 1.0 vertical
 Downstream Embankment side slope = 0 horiz. to 1.0 vertical
 Maximum allowable submergence for weir flow = .98
 Elevation at which weir flow begins =
 Energy head used in spillway design =
 Spillway height used in design =
 weir crest shape = Broad Crested

Number of Culverts = 1

Culvert Name Shape Rise Span
 Culvert #1 Box 7 10
 FHWA Chart # 8 - flared wingwalls
 FHWA Scale # 1 - wingwall flared 30 to 75 deg.
 Solution Criteria = Highest U.S. EG
 Culvert Upstrm Dist Length Top n Bottom n Depth Blocked Entrance Loss Coef Exit Loss Coef
 35.88 168 .013 .013 0 .4 1

Number of Barrels = 7
 Upstream Elevation = 1248.68
 Centerline Stations
 Sta. Sta. Sta. Sta. Sta. Sta. Sta.
 9957.43 9969.38 9981.32 9993.2610005.2110017.1510029.09
 Downstream Elevation = 1248.23
 Centerline Stations
 Sta. Sta. Sta. Sta. Sta. Sta. Sta.
 9968.39 9980.53 9992.67 10004.810016.9410029.0810041.22

CROSS SECTION

RIVER: MDOW
REACH: Reach1 RS: 2.151

INPUT

Description:

Station Elevation Data num= 211											
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9779.74	1261.66	9782.98	1261.85	9785.98	1262.03	9795.37	1262.57	9795.99	1262.57		
9796.16	1262.57	9806.78	1262.65	9807.99	1262.64	9810.31	1262.64	9820.62	1262.71		
9826.48	1262.65	9832.71	1262.52	9839.66	1262.58	9842.57	1262.56	9850.28	1262.41		
9850.93	1262.38	9854.13	1262.16	9857.18	1261.94	9857.46	1261.9	9862.88	1261.32		
9863.67	1261.18	9875.86	1258.98	9876.45	1258.86	9882.33	1257.87	9885.06	1257.49		
9886.54	1257.21	9889.45	1257.26	9894.15	1257.36	9900.14	1257.31	9901.97	1257.26		
9907.44	1256.08	9907.78	1256.01	9908.03	1255.96	9909.03	1255.75	9913.1	1254.94		
9913.67	1254.77	9916.94	1254.11	9922.46	1253.16	9924.13	1252.7	9926.77	1252.08		
9929.88	1251.28	9932.21	1251.25	9933.65	1251.27	9934.14	1251.18	9934.62	1250.87		
9937.67	1247.57	9940.59	1247.47	9946.61	1247.32	9947.97	1247.3	9951.98	1247.28		
9957.89	1247.15	9961.8	1247.14	9962.87	1247.13	9964.07	1247.12	9966.38	1247.02		
9974.24	1247.06	9975.88	1247.14	9982	1247.1	9988.26	1246.94	9996.58	1246.86		
9998.67	1246.87	10000	1246.8910000.38	1246.8910009.08	1246.8710010.22	1246.92					
10010.94	1246.9310020.83	1247.1110024.33	1247.310031.35	1248.2210033.71	1248.35						
10039.26	1248.8710040.26	1248.94 10044.8	1248.4810044.81	1248.4810044.82	1248.48						
10045.09	1248.5910049.69	1250.4610050.16	1250.610051.36	1250.710051.45	1250.72						
10054.24	1251.0510056.77	1251.6510058.13	1251.7410059.47	1251.910060.68	1251.98						
10061.16	1252.0110063.31	1252.710067.27	1253.510070.82	1254.2710075.67	1255.08						
10075.76	1255.0810076.14	1255.09 10085.7	1255.2710087.36	1255.2910088.35	1255.32						
10099.48	1255.3610100.06	1255.3610101.06	1255.3610105.93	1255.2710114.64	1255.56						
10115.32	1255.61 10118.6	1255.8110126.64	1256.2810127.49	1256.3310131.96	1256.63						
10138.49	1257.0710140.86	1257.3910143.82	1257.7510146.06	1258.0110147.95	1258.18						
10150.75	1258.51 10151.4	1258.6210154.87	1259.0710158.07	1259.2310160.63	1259.49						
10165.89	1259.8310172.45	1260.32 10173.6	1260.3510173.89	1260.3610180.01	1260.39						
10182.86	1260.4910189.12	1260.5710190.44	1260.59 10192.6	1260.63 10196.8	1260.64						
10201.63	1260.7310203.36	1260.8 10208.2	1261.0110210.09	1261.0910215.23	1261.49						
10220.33	1261.8110221.06	1261.8510225.65	1262.0410228.29	1262.1310228.74	1262.15						
10229.29	1262.1810238.04	1262.5210243.37	1262.6110245.24	1262.710251.69	1262.83						
10253.73	1262.94 10256	1263.09 10258.4	1263.1910262.26	1263.3610263.68	1263.41						
10269.77	1263.4210271.55	1263.44 10274.6	1263.8710278.94	1263.8610281.11	1263.91						
10285.33	1264.04 10287.5	1264.1110292.25	1264.1310297.46	1264.0510301.54	1264.07						
10307.44	1263.9210309.98	1263.8810312.08	1263.8710313.78	1263.9510318.54	1264						
10322.7	1264.0610327.32	1264.1610329.98	1264.1610334.67	1264.26 10341.5	1264.32						
10345.28	1264.3110350.04	1264.3110353.81	1264.3210358.65	1264.3210361.72	1264.37						
10364.66	1264.4910366.77	1264.5310368.94	1264.7110371.38	1264.6410374.32	1264.63						
10380.27	1264.5410383.25	1264.4910392.83	1264.4110393.24	1264.4 10394.6	1264.4						
10404.42	1264.510405.24	1264.4510409.98	1264.53 10415.5	1264.6410418.38	1264.73						
10424.68	1264.7610426.42	1264.7510431.89	1264.6410436.54	1264.610440.03	1264.64						
10448.7	1264.6510455.35	1264.7410464.91	1264.8210466.92	1264.8310480.87	1264.98						
10482.94	1264.9910496.25	1265.0610497.88	1265.0710513.74	1265.1410515.04	1265.16						
10529.97	1265.3210530.05	1265.3210542.28	1265.5710542.71	1265.5710555.43	1265.62						
10556.47	1265.6210556.79	1265.6210568.03	1265.7310569.97	1265.7610579.68	1265.84						
10579.74	1265.84										

Manning's n Values num= 3					
Sta	n Val	Sta	n Val	Sta	n Val
9779.74	.056	9933.65	.041	10054.24	.056

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	9901.97	10075.67		480.9	536.32	564.8		.3	.5
Ineffective Flow num= 2									
Sta L	Sta R	Elev	Permanent						
9779.74	9962.19	1258.09	F						
10047.42	10579.74	1257.81	F						

CROSS SECTION

RIVER: MDOW
REACH: Reach1 RS: 2.050

INPUT

Description:

Station Elevation Data num= 106											
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9800	1261.52	9801.05	1261.51	9803.91	1261.45	9812.63	1261.36	9814.81	1261.35		
9823.7	1261.44	9824.49	1261.45	9824.69	1261.45	9824.84	1261.44	9828.08	1261.39		
9835.24	1261.34	9836.32	1261.32	9842.28	1261.13	9845.1	1261.05	9849.06	1261		
9853.96	1260.96	9857.48	1260.91	9861.02	1260.85	9864.06	1260.82	9866.55	1260.79		
9869.83	1260.54	9872.15	1260.34	9873.84	1260.23	9876.35	1261.15	9878.7	1262.01		
9879.19	1262.04	9879.3	1262.05	9879.37	1262.06	9882.09	1260.71	9887.13	1258.23		
9888.48	1258.12	9889.76	1257.96	9893.17	1256.98	9896.1	1256.01	9898.52	1255.14		
9901.13	1254.13	9902.28	1253.78	9906.49	1252.33	9908.7	1251.54	9913.18	1249.94		
9914.23	1249.54	9916.53	1249.29	9920.87	1248.85	9923.65	1248.62	9926.21	1248.4		
9929.38	1248.05	9933.7	1247.66	9939.41	1247.24	9944.02	1246.93	9947.68	1246.78		
9948.43	1246.76	9949.94	1246.74	9961.25	1246.43	9967.27	1246.16	9971.16	1245.99		
9971.47	1245.97	9975.03	1245.82	9982.04	1245.5	9982.71	1245.47	9992.48	1245.1		
9995.2	1245.07	10000	1245.0110000.21	1245.0110004.27	1245.0510008.29	1245.09					
10015.49	1245.15	10017.9	1245.1710019.64	1245.3510026.21	1246.0210032.64	1246.31					
10038.54	1246.5310050.52	1246.8610052.27	1246.9110063.36	1247.2610065.01	1247.31						
10075.11	1247.6710081.09	1247.8810086.98	1248.0810089.08	1248.1810091.66	1248.27						
10097.05	1248.51 10097.6	1248.7210098.73	1249.1110099.34	1248.9810100.91	1248.65						
10107.44	1248.7810111.29	1248.8410116.61	1248.8810116.81	1248.8710117.09	1248.91						
10126.12	1250.0610128.41	1250.5710134.84	1252.110143.25	1253.69 10146.7	1254.35						
10151.34	1254.4510157.55	1254.610158.95	1254.6210159.44	1254.710161.27	1255.01						
10166.33	1255.0510173.73	1255.1610184.92	1255.2610187.69	1255.27 10192.9	1255.44						
10196.79	1255.56										

Manning's n Values num= 3					
Sta	n Val	Sta	n Val	Sta	n Val
9800	.05	9944.02	.035	10091.66	.05

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	9901.13	10146.7		816	797.41	747.7		.1	.3

CROSS SECTION

RIVER: MDOW
REACH: Reach1 RS: 1.899

INPUT

Description:

Table with columns: Station, Elev, Data, num=110, Sta, Elev, Sta, Elev, Sta, Elev. Contains 110 data points for station elevations.

Manning's n Values table with columns: Sta, n Val, Sta, n Val, Sta, n Val. Values include 0.05, 0.35, 0.05.

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan. Values include 9888.83, 10123.82, 500.5, 500, 499.5, .1, .3.

CROSS SECTION

RIVER: MDOW
REACH: Reach1 RS: 1.804

INPUT

Description:

Table with columns: Station, Elev, Data, num=130, Sta, Elev, Sta, Elev, Sta, Elev. Contains 130 data points for station elevations.

Manning's n Values table with columns: Sta, n Val, Sta, n Val, Sta, n Val. Values include 0.05, 0.35, 0.05.

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan. Values include 9888.87, 10118.98, 700.3, 702.71, 704.1, .1, .3.

CROSS SECTION

RIVER: MDOW
REACH: Reach1 RS: 1.671

INPUT

Description:

Table with columns: Station, Elev, Data, num=207, Sta, Elev, Sta, Elev, Sta, Elev. Contains 207 data points for station elevations.

williamsCLOMR.rep

9854.27	1249.09	9856.74	1248.75	9864.53	1248.09	9871.44	1247.51	9873.55	1247.31
9877.14	1246.84	9881.49	1246.6	9887.33	1246.32	9894.79	1244.09	9902.64	1241.75
9906.87	1240.28	9910.36	1239.01	9913.94	1238.67	9917.14	1238.35	9918.99	1238
9921.39	1237.55	9923.12	1237.43	9926.56	1237.4	9932.43	1237.2	9934.81	1237.26
9937.55	1237.42	9941.63	1237.58	9944.15	1237.67	9949.79	1237.72	9951.93	1237.75
9957.41	1237.75	9959.16	1237.72	9968.41	1237.83	9973.98	1237.85	9980.13	1237.85
9984.41	1237.83	9990.94	1237.88	9992.69	1237.9	9997.42	1237.8	10000	1237.68
10002.85	1237.54	10004.86	1237.43	10010.09	1237.73	10010.36	1237.75	10010.62	1237.76
10010.97	1237.75	10019.39	1237.87	10023.61	1237.93	10031.31	1237.93	10037	1238.05
10044.06	1238.18	10046.8	1238.21	10052.71	1238.21	10058.17	1238.15	10063.3	1238.15
10066.94	1238.02	10077.96	1237.62	10079.19	1237.53	10080.22	1237.53	10082.11	1237.6
10092.81	1238.4	10098.7	1238.8	10105	1240.46	10108.14	1241.35	10113.62	1243.5
10117.33	1244.98	10117.83	1245.22	10118.94	1245.53	10120.36	1245.86	10123.75	1246.13
10138.69	1246.71	10148.33	1246.89	10152.6	1247.03	10155.73	1247.07	10165.57	1247.23
10169.53	1247.69	10171.91	1247.88	10174.44	1248.27	10178.34	1248.73	10181.32	1249.35
10181.52	1249.39	10182.77	1249.28	10188.47	1248.66	10193.55	1249.03	10198.69	1249.35
10200.27	1249.46	10203.18	1249.58	10203.23	1249.58	10203.29	1249.58	10203.34	1249.58
10203.4	1249.59	10203.45	1249.59	10203.51	1249.59	10203.58	1249.59	10203.64	1249.59
10203.71	1249.59	10203.78	1249.61	10203.85	1249.61	10204.33	1249.6	10204	1249.6
10204.08	1249.61	10204.16	1249.61	10204.24	1249.61	10204.33	1249.61	10204.42	1249.61
10204.52	1249.62	10204.62	1249.62	10204.72	1249.62	10204.82	1249.63	10204.93	1249.63
10205.05	1249.63	10205.17	1249.63	10205.29	1249.64	10205.42	1249.64	10205.45	1249.64
10205.55	1249.65	10205.71	1249.65	10205.99	1249.66	10206.21	1249.67	10206.4	1249.68
10206.56	1249.69	10206.7	1249.69	10206.82	1249.71	10206.92	1249.71	10207.02	1249.7
10207.1	1249.71	10207.18	1249.71	10207.24	1249.71	10207.3	1249.72	10207.36	1249.72
10207.41	1249.72	10207.46	1249.72	10207.5	1249.72	10207.54	1249.73	10207.58	1249.73
10207.62	1249.73	10207.65	1249.73	10207.68	1249.73	10207.71	1249.73	10208.63	1249.77
10209.43	1249.77	10210.65	1249.77	10211.25	1249.76	10211.65	1249.76	10211.97	1249.76
10212.26	1249.76	10212.56	1249.76	10212.9	1249.76	10213.35	1249.76	10214.03	1249.76
10215.32	1249.77	10217.05	1249.77	10217.29	1249.77	10217.58	1249.77	10217.78	1249.76
10218.05	1249.76	10218.07	1249.76	10218.34	1249.76	10218.37	1249.76	10218.39	1249.76
10218.67	1249.76	10218.72	1249.76	10218.77	1249.75	10219.06	1249.75	10219.32	1249.74
10219.52	1249.73	10219.67	1249.73	10219.77	1249.72	10220.54	1249.73	10224.92	1249.61
10244.14	1249.46	10271.89	1249.52	10276.11	1249.54	10277.68	1249.54	10286.23	1249.26
10286.26	1249.26	10286.27	1249.26	10286.28	1249.26	10286.31	1249.27	10295.68	1249.6
10297.17	1249.61	10300	1249.56						

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val

 9700 .05 9923.12 .03510080.22 .05

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 9887.3310120.36 489.9 500 506.8 .1 .3

CROSS SECTION

RIVER: MDOW
 REACH: Reach1 RS: 1.576

INPUT
 Description:
 Station Elevation Data num= 176
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev

 9700 1247.7 9700.43 1247.69 9708.04 1247.88 9708.52 1247.89 9717.73 1248.2
 9718.78 1248.24 9718.82 1248.24 9718.88 1248.24 9731.89 1248.59 9732.62 1248.59
 9744.3 1248.64 9745.95 1248.66 9754.67 1248.65 9757.4 1248.61 9764.75 1248.54
 9767.28 1248.6 9774.26 1248.54 9778.06 1248.49 9784.66 1248.39 9788.54 1248.19
 9792.68 1248.04 9797.36 1247.78 9802.5 1247.47 9806.2 1247.16 9811.55 1246.92
 9815.82 1246.71 9819.68 1246.46 9823.64 1246.39 9829.18 1246.29 9832.48 1246.09
 9838.92 1245.79 9843.29 1245.65 9849.66 1245.16 9853.55 1245.03 9856.01 1244.87
 9861.18 1244.63 9862.88 1244.58 9871.89 1244.32 9875.32 1244.24 9876.56 1244.22
 9878.16 1243.79 9879.26 1243.73 9880.06 1243.65 9880.84 1243.58 9881.71 1243.33
 9882.9 1243.04 9883.36 1242.82 9884.24 1242.6 9885.26 1242.26 9886.14 1242.27
 9886.38 1242.28 9886.46 1242.26 9886.73 1242.19 9890.77 1241.04 9893.02 1240.27
 9895.7 1239.55 9899.87 1238.54 9903.36 1237.48 9906.21 1237.07 9912.95 1236
 9915.21 1235.82 9918.34 1235.83 9923.08 1235.72 9931.5 1235.84 9932.87 1235.87
 9938.8 1235.93 9940.96 1235.93 9948.42 1235.87 9951.62 1235.85 9955.13 1235.9
 9959.04 1235.93 9963.66 1235.93 9966.96 1235.87 9972.18 1235.78 9978.47 1235.73
 9982.01 1235.69 9986.77 1235.65 9990.98 1235.41 9992.88 1235.41 9996.49 1235.27
 9999.51 1235.15 10000 1235.17 10002.29 1235.25 10002.96 1235.28 10006.39 1235.33
 10009.76 1235.43 10012.33 1235.49 10016.92 1235.44 10020.55 1235.52 10025.48 1235.56
 10028.36 1235.72 10030.69 1235.72 10036.99 1235.72 10039.52 1235.72 10047 1235.66
 10048.57 1235.66 10055.67 1235.65 10056.76 1235.68 10063.93 1235.67 10064.39 1235.66
 10065.92 1235.69 10072.24 1235.53 10074.4 1235.97 10074.79 1235.99 10082.59 1236.35
 10091.02 1237.06 10091.36 1237.11 10099.92 1238.42 10102.48 1238.82 10102.67 1238.85
 10102.91 1238.91 10119.14 1243.04 10121.71 1243.19 10122.53 1243.18 10123.15 1243.42
 10123.93 1243.72 10124.42 1243.91 10133.25 1244.19 10142.28 1244.44 10145.36 1244.54
 10147.03 1244.57 10157.86 1244.64 10159.55 1244.65 10159.99 1244.66 10171.21 1244.9
 10172.87 1245.06 10176.57 1245.54 10177.49 1245.63 10180.79 1246.11 10184.93 1246.67
 10186.95 1246.24 10191.5 1245.31 10191.91 1245.21 10192.16 1245.18 10196.73 1244.21
 10197.14 1244.2 10201.4 1244.34 10202.14 1244.34 10205.11 1244.38 10205.38 1244.4
 10205.54 1244.42 10209.21 1244.76 10211.91 1245.04 10213.96 1245.24 10216.38 1245.55
 10219.49 1245.13 10223.16 1244.76 10228.62 1244.81 10230.41 1244.81 10237.46 1244.76
 10239.96 1244.74 10241.99 1244.71 10252.48 1244.73 10254.03 1244.72 10257.45 1244.78
 10265.78 1244.76 10270.34 1244.93 10272.53 1245.21 10273.37 1245.23 10276.59 1245.3
 10279.03 1245.41 10280.84 1245.41 10284.49 1245.33 10284.84 1245.34 10285.19 1245.34
 10285.6 1245.29 10287.88 1245.01 10289.34 1244.87 10290.75 1244.72 10296.99 1244.67
 10297.55 1244.67 10297.84 1244.66 10298.09 1244.67 10298.22 1244.68 10298.63 1244.68
 10300 1244.7

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val

 9700 .05 9915.21 .03510072.24 .05

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 9876.5610124.42 400.4 399.43 396.6 .1 .3

CROSS SECTION

RIVER: MDOW
 REACH: Reach1 RS: 1.501

INPUT

Description:

Station	Elevation	Data	num=	178	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1249.25	9706.53	1249.14	9708.11	1249.09	9711.38	1249.22	9712	1249.27			
9714.79	1249.29	9715.01	1249.28	9715.8	1249.18	9717.49	1249.11	9717.72	1249.1			
9717.79	1249.1	9717.87	1249.09	9722.6	1248.76	9731.03	1248.45	9734.85	1248.41			
9739.78	1248.21	9743.11	1248.02	9749.89	1247.71	9752.15	1247.69	9756.91	1247.35			
9759.42	1247.21	9765.4	1247.1	9766.71	1247.06	9773.25	1246.56	9774.46	1246.48			
9783.1	1246.22	9784.02	1246.15	9789.8	1245.82	9790.52	1245.77	9798.57	1245.15			
9798.73	1245.14	9798.78	1245.14	9798.95	1245.13	9803.73	1244.94	9807.22	1244.8			
9807.83	1244.74	9810.57	1244.55	9814.55	1244.24	9815.7	1243.85	9818.84	1242.74			
9819.65	1242.55	9821.6	1242	9826.9	1240.3	9827.3	1240.13	9827.98	1240.08			
9831.15	1239.79	9832.51	1239.87	9834.94	1240.33	9836.04	1240.61	9841.01	1242.17			
9843.27	1242.41	9847.08	1242.74	9848.82	1242.89	9850.05	1242.98	9855.34	1243			
9857.97	1243.01	9858.34	1242.97	9859.09	1242.89	9863.89	1242.37	9868.74	1240.83			
9869.82	1240.49	9872.96	1240.05	9874.21	1239.83	9876.07	1239.93	9878.54	1239.97			
9879.8	1240.35	9881.03	1240.65	9882.76	1241.02	9885.21	1241.64	9888.41	1242.44			
9892.56	1242.88	9895.54	1243.03	9896.94	1243.21	9903.78	1240.47	9904.09	1240.36			
9904.28	1240.29	9908.31	1239.14	9913.01	1237.47	9915.32	1236.82	9917.86	1236.15			
9923.59	1234.93	9925.16	1234.56	9926.33	1234.51	9927.88	1234.44	9929.5	1234.5			
9929.63	1234.5	9930.81	1234.43	9931.03	1234.42	9931.62	1234.43	9932.14	1234.43			
9940.35	1234.34	9946.48	1234.33	9949.02	1234.31	9955.85	1234.19	9957.91	1234.19			
9964.44	1234.06	9966.25	1234.03	9972.87	1233.9	9974.21	1233.87	9983.42	1233.93			
9984.33	1233.91	9994.66	1233.84	9995.07	1233.84	9995.46	1233.84	10000	1233.88			
10004.53	1233.9110004.79	1233.9110004.84	1233.9110005.13	1233.9210009.61	1234.08							
10010.67	1234.110012.56	1234.110018.55	1234.110023.38	1234.0210025.82	1233.97							
10027.26	1233.9710032.88	1233.9610039.24	1234.0110043.5	1234.0610049.43	1234.1							
10055.53	1234.1510058.52	1234.1810063.16	1234.1310067.17	1234.0510072.15	1234.03							
10074.6	1234.0910080.19	1234.2310084.56	1234.3110085.46	1234.3310086.31	1234.36							
10095.13	1234.5110105.75	1234.6910106.57	1234.6510107.1	1234.7110107.92	1234.82							
10110.86	1235.0410119.19	1236.210121.07	1236.4710128.17	1237.3610131.13	1237.73							
10131.34	1237.7610136.64	1238.8510141.36	1239.5810142.12	1239.710144.01	1239.74							
10151.04	1239.9410151.48	1240.0510152.22	1240.2510152.34	1240.2710152.75	1240.28							
10173.09	1241.3710182.75	1241.6210187.28	1241.7410189.94	1241.7610200.69	1241.84							
10201.83	1241.9110205.56	1242.2210206.04	1242.2310211.05	1242.7910213.15	1243.02							
10213.41	124310216.13	1242.6610220.36	1242.4810224.15	1242.3410225.87	1241.37							
10227.29	1240.5610230.23	1240.5610234.12	1240.6210237.65	1240.5610239.43	1240.52							
10242.35	1240.5210252.93	1240.6810264.06	1240.8210278.36	1240.9510286.68	1241.09							
10292.74	1241.1410297.68	1241.08	10300	1241.09								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.05	9927.88	.03510106.57		.05

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

9908.31	10142.12	99.2	102.63	108	.1	.3
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CROSS SECTION

RIVER: MDOW
 REACH: Reach1 RS: 1.481

INPUT

Description:

Station	Elevation	Data	num=	158	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1248.86	9705.82	1248.86	9709.67	1248.76	9713.51	1248.65	9722.18	1248.5			
9722.98	1248.48	9723.54	1248.46	9723.86	1248.45	9730.51	1248.41	9730.69	1248.4			
9732.58	1248.42	9737.85	1248.42	9738.65	1248.4	9745.76	1248.05	9746.63	1248.02			
9752.92	1247.65	9755.29	1247.61	9759.31	1247.51	9761	1247.51	9764.66	1247.39			
9769.47	1247.17	9772.29	1246.95	9774.22	1246.96	9779.56	1247	9781.01	1246.9			
9785.02	1246.72	9788.89	1246.6	9790.65	1246.46	9793.93	1246.48	9799.18	1246.02			
9799.74	1246	9803.36	1246.22	9803.77	1246.18	9806.59	1245.53	9812.04	1245.15			
9812.42	1245.12	9813.01	1245.08	9818.1	1244.95	9818.56	1244.94	9819.12	1244.94			
9822.19	1245.27	9823.08	1245.32	9824.6	1245.26	9825.39	1245.24	9828.96	1245.06			
9830.48	1244.91	9833.53	1244.85	9835.89	1244.71	9836.45	1244.65	9837.13	1244.6			
9838.69	1244.39	9841.91	1243.96	9843.28	1244.09	9845.18	1244.21	9846.78	1244.24			
9849.4	1244.31	9850.16	1244.38	9855.31	1244.18	9857.73	1244.18	9860.36	1244.11			
9862.61	1243.85	9864.92	1243.89	9867.06	1243.68	9870.3	1243.41	9871.94	1243.33			
9874.5	1243.09	9877.97	1242.89	9879.48	1242.94	9883.6	1242.72	9885.04	1242.61			
9888.59	1241.92	9891.46	1241.36	9891.81	1241.29	9893.04	1240.97	9898.6	1239.56			
9900.02	1239.55	9903.47	1239.33	9907.55	1238.34	9922.88	1234.72	9924.86	1234.29			
9927.85	1234.18	9928.32	1234.14	9929.03	1234.03	9938.3	1233.81	9940.43	1233.78			
9942.41	1233.76	9961.64	1233.44	9964.35	1233.4	9981.07	1233.39	9983.12	1233.42			
9986.23	1233.53	9992.32	1233.67	9995.59	1233.62	10000	1233.62	10002.68	1233.62			
10004.82	1233.6310007.22	1233.5910013.22	1233.6110015.62	1233.6410025.34	1233.75							
10027.6	1233.7510047.82	1233.7610049.13	1233.7910054.21	1233.5510055.1	1233.54							
10055.88	1233.5510077.66	1233.7910078.06	1233.810078.26	1233.810079.75	1233.81							
10102.49	1233.9410102.85	1233.9610103.24	1233.9910109.39	1234.5410109.88	1234.57							
10121.71	1235.2910121.99	1235.3210135.25	1236.5210137.52	1236.6810150.43	1237.67							
10155.91	1238.0110163.4	1238.5110166.57	1238.8610166.58	1238.8610166.61	1238.87							
10167	1238.8710176.23	1239.0710177.59	1239.1110190.99	1239.5510199.12	1239.56							
10204.79	1239.5810205.66	1239.6510206.42	1239.6710207.43	1239.5510208.65	1239.6							
10210.1	1240.0910211.64	1240.6410213.24	1241.0310217.3	1241.9510223.07	1240.71							
10224.06	1240.4510228.27	1239.1910228.51	1239.1310228.74	1239.1210234.69	1239.15							
10235.3	1239.210236.68	1239.2410248.9	1239.5110249.62	1239.5410256.4	1239.9							
10256.59	1239.9110258.11	1239.9110268.44	1239.910271.82	1239.9310272.77	1239.98							
10278.59	1239.9410285.83	1239.94	10300	1239.95								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9700	.025	9903.47	.0210166.57		.025

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

9903.47	10166.57	403.1	397.37	388.8	.1	.3
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CROSS SECTION

RIVER: MDOW
REACH: Reach1

RS: 1.406

INPUT

Description:

Station Elevation Data									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1243.02	9700.12	1243.01	9706.38	1241.85	9708.23	1241.58	9708.87	1241.7
9709.66	1241.63	9715.17	1240.63	9715.19	1240.63	9715.28	1240.61	9719.89	1240.43
9720.73	1240.39	9724.93	1239.97	9727.49	1239.72	9728.59	1239.54	9729.14	1239.28
9730.06	1239.15	9731.58	1238.97	9734.25	1239.82	9734.84	1240.02	9739.15	1241.24
9740.98	1241.41	9744.61	1240.67	9746.5	1240.72	9748.31	1240.49	9751.15	1240.23
9752.31	1240.07	9755.48	1240.2	9757.06	1240.48	9758.87	1240.76	9760.26	1240.8
9762.83	1240.94	9764.82	1240.9	9766.59	1240.74	9769.11	1240.78	9772.6	1241.22
9774.75	1241.47	9775.62	1241.52	9781.91	1242.17	9782.77	1242.18	9783.2	1242.15
9787.26	1242.15	9789.75	1242.23	9792.61	1242.44	9796.25	1242.67	9800.44	1242.71
9801.81	1242.82	9804.77	1242.98	9807.99	1243.14	9810.44	1242.47	9813.52	1241.78
9819.6	1239.49	9821.71	1238.7	9824.48	1237.75	9833.37	1234.75	9842.01	1231.88
9842.85	1231.6	9843.3	1231.45	9853.96	1228.04	9861.42	1225.31	9862.66	1224.91
9863.6	1224.64	9868.7	1223.21	9877.54	1220.43	9880.62	1219.46	9891.47	1215.91
9893.8	1215.21	9899.03	1213.89	9908.9	1211.47	9911.7	1211.08	9915.18	1210.59
9917.81	1210.52	9921.81	1210.46	9926.45	1210.31	9928.77	1210.31	9930.89	1210.31
9933.17	1210.44	9934.78	1210.5	9936.63	1210.33	9937.85	1210.19	9939.36	1210.14
9940.41	1210.13	9942.77	1210.18	9947.76	1210.12	9951.96	1210.13	9956.65	1210.14
9960.66	1210.15	9966.58	1210.06	9970.3	1209.96	9975.45	1209.96	9987.02	1210.18
9988.38	1210.18	9994.99	1210.14	9996.52	1210.12	10000	1210.15	10000.49	1210.15
10001.15	1210.12	10002.45	1210.03	10003.37	1209.94	10003.59	1209.94	10014.36	1210.07
10015.68	1210.05	10016.87	1210.05	10032.82	1210.16	10034.05	1210.19	10035.12	1210.2
10036.45	1210.21	10052.21	1210.31	10053.44	1210.32	10054.47	1210.32	10071.23	1210.66
10075.29	1211.10	10077.84	1211.23	10082.2	1211.33	10093.87	1214.47	10096.2	1214.98
10096.96	1215.19	10109.74	1218.69	10110.35	1218.91	10119.32	1221.61	10122.34	1222.49
10127.29	1223.98	10128.82	1224.44	10132.08	1225.63	10135.67	1226.83	10139.61	1228.04
10144.97	1229.61	10152.65	1233.73	10155.11	1234.97	10157.48	1235.57	10160.05	1236.2
10160.52	1236.33	10161.53	1236.56	10164.7	1236.81	10172.86	1237.42	10177.34	1237.73
10179.67	1237.77	10191.71	1237.79	10194.41	1237.82	10204.71	1238.02	10209.27	1238.29
10211.17	1238.28	10213.4	1238.54	10217.58	1239.18	10223.01	1238.42	10223.27	1238.38
10223.54	1238.34	10223.94	1238.27	10224.79	1238.08	10226.64	1237.79	10227.53	1237.85
10230.93	1238.24	10231.1	1238.26	10234.6	1238.39	10235.43	1238.44	10236.98	1238.58
10241.05	1238.75	10241.25	1238.77	10243.64	1238.92	10244.2	1238.98	10247.73	1238.97
10247.81	1238.97	10247.89	1238.97	10247.98	1238.97	10248.06	1238.97	10248.15	1238.97
10248.23	1238.97	10248.32	1238.97	10248.4	1238.97	10248.48	1238.97	10248.57	1238.97
10248.65	1238.97	10248.73	1238.97	10248.81	1238.97	10248.89	1238.97	10248.96	1238.97
10249.04	1238.97	10249.11	1238.97	10249.64	1238.97	10249.72	1238.97	10249.8	1238.97
10252.77	1238.95	10252.89	1238.95	10253	1238.95	10253.11	1238.95	10253.23	1238.95
10253.34	1238.95	10253.45	1238.95	10253.56	1238.95	10253.66	1238.95	10253.77	1238.95
10253.87	1238.95	10253.97	1238.95	10254.07	1238.95	10254.17	1238.95	10254.26	1238.95
10254.35	1238.95	10254.44	1238.95	10254.53	1238.95	10254.61	1238.95	10254.69	1238.95
10254.77	1238.95	10254.85	1238.95	10261.15	1238.97	10261.3	1238.97	10261.46	1238.97
10261.61	1238.97	10261.76	1238.97	10261.91	1238.97	10262.05	1238.97	10262.19	1238.97
10262.33	1238.97	10262.47	1238.97	10262.61	1238.97	10262.74	1238.97	10262.87	1238.97
10262.99	1238.97	10263.11	1238.97	10263.23	1238.97	10263.35	1238.97	10263.46	1238.97
10263.58	1238.97	10263.68	1238.97	10266.5	1238.97	10268.84	1238.97	10270.86	1238.97
10272.67	1238.97	10272.68	1238.97	10272.69	1238.97	10272.7	1238.97	10272.71	1238.97
10272.72	1238.97	10272.73	1238.97	10272.74	1238.97	10272.75	1238.97	10272.76	1238.97
10272.77	1238.97	10272.78	1238.97	10272.79	1238.97	10272.8	1238.97	10272.81	1238.97
10272.82	1238.97	10272.83	1238.97	10272.84	1238.97	10272.85	1238.97	10272.86	1238.97
10272.87	1238.97	10272.88	1238.97	10272.89	1238.97	10272.9	1238.97	10272.91	1238.97
10272.92	1238.97	10272.93	1238.97	10272.94	1238.97	10272.95	1238.97	10272.96	1238.97
10272.97	1238.97	10272.98	1238.97	10272.99	1238.97	10273	1238.97	10273.01	1238.97
10273.02	1238.97	10291.39	1238.92	10300	1238.79				

Manning's n Values			
Sta	n Val	Sta	n Val
9700	.025	9862.66	.025

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	9862.66	10128.82	236.5	234.93	233.4	.1	.3	

CROSS SECTION

RIVER: MDOW
REACH: Reach1

RS: 1.362

INPUT

Description:

Station Elevation Data									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1246.31	9704.92	1246.31	9705.64	1246.29	9713.06	1246.15	9713.86	1246.15
9714.33	1246.16	9730.94	1246.23	9731.28	1246.23	9731.9	1246.23	9746.94	1246.23
9747.44	1246.22	9759.87	1246.22	9760.2	1246.23	9774.95	1246.15	9775.04	1246.15
9775.13	1246.15	9783.14	1246.09	9785.39	1246.07	9785.4	1246.07	9789.15	1246.22
9789.18	1246.22	9789.51	1246.23	9800.09	1246.02	9803.93	1246.37	9804.84	1246.43
9804.88	1246.46	9804.97	1246.45	9809.04	1246.06	9815.24	1244.13	9819.96	1242.75
9827.89	1240.35	9830.78	1239.45	9840.84	1235.98	9842.64	1235.35	9845.61	1234.32
9852.25	1232.05	9856.09	1230.78	9862.63	1228.84	9873.99	1225.37	9875.3	1224.97
9876.07	1224.7	9884.63	1221.62	9887.82	1220.39	9890.42	1219.32	9891.71	1218.83
9896.67	1217.02	9898.9	1216.35	9905.59	1214.46	9905.91	1214.37	9906.65	1214.26
9911.47	1213.57	9911.92	1213.41	9912.43	1213.36	9916.21	1212.94	9920.91	1212.76
9921.68	1212.95	9923.01	1213.07	9924.2	1212.9	9924.69	1212.74	9928.82	1212.59
9931.33	1212.39	9941.6	1212.15	9944.82	1212.04	9950.8	1211.66	9959.04	1211.23
9963.79	1210.77	9966.02	1210.58	9966.47	1210.55	9968.03	1210.58	9971.62	1209.86
9975.69	1209.6	9981.09	1209.15	9991.35	1209	9993.82	1208.9	9995.65	1208.87
9997.45	1208.28	9997.97	1208.34	10000	1208.33	10002.59	1208.31	10003.86	1208.31
10005.12	1208.78	10006.01	1208.73	10009.9	1208.89	10016.48	1208.61	10019.63	1209.38
10025.69	1209.77	10027.64	1209.75	10034.83	1209.44	10037.33	1209.5	10047.1	1209.78
10051.7	1210.16	10061.68	1210.46	10066.07	1210.91	10068.66	1211.21	10069.82	1211.34
10071.66	1211.44	10073.48	1211.57	10077.98	1211.95	10079.09	1212.05	10082.53	1212.46
10088.12	1212.93	10088.55	1212.97	10090.55	1213.24	10092.28	1213.15	10094.27	1213.39
10102.01	1215.41	10109.57	1217.47	10113.36	1218.73	10116.48	1219.75	10119.54	1220.87
10124.42	1222.71	10125.97	1223.21	10131.78	1225.21	10134.81	1226.25	10136.4	1226.88
10140.54	1228.38	10143.98	1229.85	10152.88	1234.54	10153.59	1234.89	10153.92	1234.98
10157.49	1235.81	10164.8	1237.39	10168.71	1237.6	10181.1	1238.09	10192.21	1238.29

WilliamsCLOMR.rep
 10194.63 1238.3410201.85 1238.4710207.46 1238.5710208.45 1238.610209.17 1238.67
 10211.99 1238.9110218.35 1239.56 10220.7 1239.8710223.56 1239.5910227.57 1239.28
 10231.41 1238.5610232.34 1238.3910233.49 1238.4710237.26 1238.7710238.62 1238.8
 10240.11 1238.8410248.89 1239.4310251.42 1239.5710260.22 1239.8810260.49 1239.89
 10266.13 1240.0310270.55 1240.1710275.89 1240.0810279.64 1239.9610283.82 1239.78
 10300 1239.7

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val

 9700 .025 9873.99 .0210134.81 .025

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 9873.9910134.81 500 500 499.7 .1 .3

CROSS SECTION

RIVER: MDOW
 REACH: Reach1 RS: 1.267

INPUT

Description:
 Station Elevation Data num= 146
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev

 9700 1242.44 9706.3 1242.37 9722.08 1242.39 9729.01 1242.37 9729.7 1242.51
 9730.51 1242.61 9731.28 1242.62 9735.99 1242.89 9740.21 1243.04 9748.38 1243.2
 9753.88 1243.14 9763.02 1243.24 9768.96 1243.33 9778.45 1243.5 9785.51 1243.58
 9792.58 1243.54 9799.43 1243.49 9808.27 1243.47 9814.75 1243.49 9816.54 1243.38
 9821.76 1243.26 9826.7 1242.29 9827.63 1242.12 9828.43 1241.85 9829.74 1241.4
 9830.12 1239.3 9830.34 1238.39 9831.15 1238.06 9840.5 1233.19 9843.84 1231.41
 9849.29 1228.32 9853.16 1226.01 9856.96 1224.21 9859.82 1223.25 9866.3 1221.34
 9874.17 1219.13 9875.56 1218.97 9875.71 1218.95 9876.86 1218.86 9877.13 1218.89
 9877.71 1218.89 9878.91 1218.93 9879.66 1218.98 9880.53 1219.11 9882.3 1219.05
 9883.4 1219.05 9884.14 1218.91 9884.89 1218.71 9886.01 1218.65 9886.95 1218.73
 9888.81 1218.93 9889.06 1218.97 9890.09 1218.63 9897.19 1216.36 9898.21 1216.01
 9900.53 1215.33 9902.05 1214.78 9912.01 1211.33 9913.56 1211.48 9914.54 1211.63
 9916.2 1211.69 9918.03 1211.81 9923.64 1211.91 9926.17 1211.97 9926.96 1212.24
 9928.09 1212.63 9928.33 1212.42 9929.44 1211.71 9937.21 1211.31 9940.37 1211.14
 9953.91 1209.93 9968.2 1208.64 9975.2 1207.83 9976.41 1207.68 9982.42 1207.24
 9983.56 1207.14 9983.77 1207.13 9984.05 1207.11 9989.09 1206.73 9998.65 1206.32
 10000 1206.2610001.35 1206.1910016.32 1206.7510016.83 1206.7810017.32 1206.82
 10031.71 1208.3410047.92 1209.4810057.56 1210.1810058.15 1210.1610059.52 1210.1
 10068.42 1210.6310073.37 1210.8410086.92 1210.5410089.49 1210.4910090.89 1210.84
 10091.75 1210.5 10091.9 1210.5110092.16 1210.5510101.33 1211.9410101.94 1212.11
 10111.82 1215.1910116.13 1216.4510131.06 1220.8510143.44 1225.310147.09 1226.43
 10148.97 1227.2510162.55 1233.7610164.45 1234.6410164.92 1234.9110165.56 1234.93
 10166.23 1234.9410167.24 1235.17 10169.8 1235.9910173.36 1235.9910174.01 1236.04
 10175.63 1236.0910178.19 1236.3710181.18 1236.4210186.03 1236.7510197.89 1237
 10199.59 1237.0410200.56 1237.0510212.82 1237.2310215.05 1237.5710215.62 1237.69
 10224.97 1239.8510225.62 124010226.42 1239.92 10235.8 1239.0310235.82 1238.88
 10238.32 1238.910239.95 1239.0110247.71 1239.3210253.26 1239.5310263.06 1239.67
 10268.77 1239.7810272.72 1239.69 10274.8 1239.7610278.61 1239.7810279.95 1239.84
 10281.91 1239.8310282.85 1239.7910284.95 1239.8810285.46 1239.8710288.54 1239.86
 10300 1239.8

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val

 9700 .05 9923.64 .03510089.49 .05

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 9889.0610131.06 685.8 686.37 686.4 .1 .3

CROSS SECTION

RIVER: MDOW
 REACH: Reach1 RS: 1.137

INPUT

Description:
 Station Elevation Data num= 151
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev

 9700 1234.79 9701.18 1234.72 9708.01 1233.85 9712.22 1233.38 9714.9 1233.08
 9718.31 1232.6 9721.39 1232.18 9727.9 1231.76 9730.05 1231.56 9731.32 1231.64
 9738.11 1231.22 9739.35 1231.07 9740.67 1230.93 9741.45 1230.81 9747.26 1230.14
 9748.05 1230.09 9748.52 1230.04 9755.03 1228.88 9755.91 1228.71 9756.3 1228.61
 9760.82 1228.05 9761.37 1227.92 9762.72 1227.6 9764.06 1227.38 9774.25 1225.23
 9776.26 1224.97 9776.72 1224.83 9777.73 1224.55 9779.26 1224.18 9781.64 1223.62
 9782.37 1223.44 9782.63 1223.38 9784.15 1222.85 9786.13 1222.31 9786.18 1222.3
 9786.21 1222.29 9787.72 1222.43 9788.22 1222.54 9790.75 1222.85 9794.34 1223.15
 9797.01 1223.4 9798.47 1223.54 9804.91 1223.17 9807.8 1223.25 9808.97 1223.25
 9809.61 1223.16 9815.23 1222.22 9823.52 1220.09 9826.36 1219.4 9829.69 1218.19
 9833.16 1217.2 9837.28 1215.79 9838.31 1215.57 9842.88 1215.36 9846.13 1215.17
 9847.02 1215.22 9857.16 1215.3 9859.63 1215.28 9872.91 1215.45 9875.67 1215.51
 9876.75 1215.56 9879.05 1215.66 9879.69 1215.67 9891.82 1212.05 9893.22 1211.63
 9893.71 1211.47 9894.53 1211.21 9895.05 1211.05 9895.46 1210.91 9897.75 1210.19
 9905.8 1207.64 9909.32 1208.49 9909.56 1208.54 9909.65 1208.57 9909.68 1208.56
 9910.87 1208.21 9914.66 1208.15 9918.13 1208.02 9919.24 1208.25 9919.95 1208.48
 9920.79 1208.09 9921.49 1207.75 9937.78 1206.7 9945.41 1206.16 9960.77 1205.15
 9965.35 1204.87 9968.98 1204.6 9980.35 1203.83 9982.09 1203.69 9988.67 1203.22
 9991.57 1203.09 9992.65 1203.08 9995.27 1203.07 9999.88 1203.09 10000 1203.1
 10007.58 1203.6510010.41 1203.8610021.96 1204.5910053.29 1206.5310060.05 1206.94
 10069.28 1207.5810078.85 1207.7310082.35 1207.7610084.54 1207.7910085.74 1207.79
 10089.41 1208.4110093.42 1209.06 10107.6 1212.9210110.71 1213.7510116.39 1215.33
 10120.73 1216.5210127.01 1218.510129.78 1219.3910142.55 1224.12 10154.1 1228.27
 10155.17 1228.3710155.95 1228.3910156.82 1228.7710157.42 1229.0410161.66 1229.27
 10161.74 1229.2810161.79 1229.2810161.86 1229.2910166.17 1229.8210170.91 1230.09
 10174.7 1230.3510184.48 1230.4510188.89 1230.5210192.53 1230.5810202.07 1230.94
 10202.74 1230.9410203.96 1231.1410204.16 1231.2210206.53 1231.8310209.35 1233.18
 10211.23 1233.8410215.09 1235.4710218.63 1236.410224.55 1235.6810232.08 1234.74
 10233.76 1234.9310235.79 1234.9710240.66 1234.8910240.76 1234.910241.47 1234.91
 10254.73 1235.2710264.99 1235.4710272.17 1235.57 10278.8 1235.5710293.35 1235.61

10300 1235.59

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val

 9700 .05 9905.8 .03510085.74 .05

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 9879.6910116.39 500.4 500 499.5 .1 .3

CROSS SECTION

RIVER: MDOW
 REACH: Reach1 RS: 1.042

INPUT Description:

Station Elevation Data		num= 166		Sta Elev		Sta Elev		Sta Elev	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9700	1215.04	9700.15	1215.04	9701.54	1215	9702.81	1214.94	9712	1214.89
9714.58	1214.86	9718.88	1214.87	9722.27	1214.87	9729.66	1214.94	9737.67	1214.97
9741.04	1215.01	9743.12	1214.98	9751.74	1215.02	9753.56	1215.04	9763.64	1215
9766.76	1215.02	9775.92	1215.11	9779.26	1215.14	9787.97	1215.24	9791.07	1215.24
9796.22	1215.18	9798.96	1215.19	9805.31	1215.15	9808.27	1215.28	9809.72	1215.18
9814.55	1214.83	9815.48	1214.77	9816.4	1214.66	9820.36	1214.08	9821.02	1213.95
9821.29	1213.89	9821.53	1213.77	9823.43	1212.8	9825.21	1213.42	9827.39	1214.16
9829.2	1214.17	9830.67	1214.16	9831.26	1214.24	9833.43	1214.73	9837.17	1215.56
9839.72	1216.24	9842.08	1216.65	9843.13	1216.71	9847.1	1216.75	9849.84	1216.59
9850.42	1216.57	9853.02	1216.34	9853.48	1216.31	9856.45	1216.47	9856.8	1216.49
9860.66	1216.53	9861.04	1216.53	9864.76	1216.53	9865.22	1216.54	9868.86	1216.21
9869.12	1216.19	9869.42	1216.13	9875.13	1215.26	9875.35	1215.22	9882.37	1214
9882.57	1213.95	9884.88	1213.33	9887.54	1212.58	9888.17	1212.49	9891.39	1211.31
9892.68	1210.81	9893.37	1210.53	9896.69	1209.28	9897.12	1209.14	9900.69	1208.02
9900.81	1207.96	9902.03	1207.41	9904.01	1206.8	9904.74	1206.58	9906.4	1206.09
9910.43	1205.56	9910.81	1205.49	9911.05	1205.54	9913.32	1206.04	9914.74	1205.58
9914.93	1205.5	9918.41	1205.62	9918.43	1205.62	9918.53	1205.65	9920.7	1206.25
9922.08	1205.7	9922.11	1205.69	9922.63	1205.66	9941.37	1204.81	9948.36	1204.32
9957.11	1203.7	9962.78	1203.33	9967.22	1202.91	9979.07	1201.76	9985.91	1201.23
9987.28	1201.12	9987.7	1201.1	9990.89	1201.02	9996.49	1201.04	10000	1200.99
10000.27	1200.99	10005.58	1201.25	10015.43	1201.62	10032.67	1203.15	10051.26	1204.68
10062.07	1205.22	10065.6	1205.36	10069.86	1205.37	10077.2	1205.37	10081.51	1205.35
10082.79	1205.26	10084.01	1205.23	10085.36	1205.32	10085.45	1205.33	10085.49	1205.32
10087	1205.07	10088.75	1205.28	10091.45	1205.66	10097.94	1206.95	10105.36	1208.19
10111.08	1209.42	10118.83	1211.11	10127.49	1212.95	10131.34	1213.72	10133.24	1214.12
10143.09	1216.13	10148.96	1217.84	10150.19	1218.32	10151.93	1218.98	10154.17	1219.91
10155.2	1219.61	10155.31	1219.55	10155.37	1219.53	10155.48	1219.59	10156.53	1220.09
10161.56	1220.32	10167.05	1220.63	10170.48	1220.75	10177.08	1220.97	10189.2	1221.38
10191.57	1221.43	10196.51	1221.51	10204.34	1221.73	10207.05	1221.67	10209.88	1221.64
10210.73	1221.65	10212.02	1221.95	10215.31	1222.91	10220.97	1225.10	10222.13	1225.34
10224.58	1225.9	10235.2	1228.21	10238.69	1228.73	10255.24	1230.10	10260.84	1229.68
10272.22	1229.14	10272.32	1229.13	10274.23	1229.19	10274.77	1229.32	10275.8	1229.36
10279.8	1229.43	10280.07	1229.48	10280.74	1229.24	10284.45	1229.35	10294.35	1229.68
10300	1229.81								

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val

 9700 .05 9922.08 .03510085.36 .05

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 9864.7610143.09 553.8 555.03 555.9 .1 .3

CROSS SECTION

RIVER: MDOW
 REACH: Reach1 RS: 0.937

INPUT Description:

Station Elevation Data		num= 113		Sta Elev		Sta Elev		Sta Elev	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9800	1221.51	9802.62	1220.3	9805.72	1219.11	9808.16	1217.39	9810.46	1215.72
9811.41	1215.25	9814.91	1213.44	9819.89	1211.49	9820.72	1211.14	9822.04	1211.34
9826.79	1211.92	9829.89	1211.93	9831.84	1211.87	9832.35	1211.86	9834.37	1211.79
9835.84	1211.8	9837.03	1211.79	9837.86	1211.79	9839.43	1211.85	9841.1	1211.94
9842.53	1211.96	9843.82	1211.98	9845.25	1212.39	9845.26	1212.4	9846.52	1211.95
9846.6	1211.91	9849.61	1211.92	9850.68	1211.92	9855.48	1211.98	9857.58	1212.03
9859.33	1212.08	9860.55	1212.12	9861.5	1212.18	9862.29	1212.22	9863.21	1212.27
9863.72	1212.28	9864.26	1212.42	9865.21	1212.64	9866.81	1213.1	9867.27	1213.2
9873.2	1213.38	9874.39	1213.39	9874.52	1213.38	9874.91	1213.43	9878.12	1213.49
9878.99	1213.5	9879.29	1213.51	9880.59	1213.61	9883.03	1213.83	9888.72	1213.69
9892.58	1213.62	9893.51	1213.14	9894.37	1212.51	9903.42	1207.44	9907.42	1206.01
9910.55	1204.85	9913.85	1204.13	9916.59	1203.49	9917.2	1203.52	9919.74	1203.71
9921.53	1203.26	9921.82	1203.19	9922.01	1203.19	9930.27	1203.22	9940.17	1202.7
9950.22	1202.09	9957.32	1201.59	9963.3	1201.1	9976.14	1199.99	9976.31	1199.97
9976.44	1199.96	9977.66	1199.84	9987.92	1198.85	9989.06	1198.85	10000	1198.75
10001.75	1198.74	10005.69	1198.93	10008.92	1199.11	10024.63	1200.35	10027.72	1200.59
10030.16	1200.75	10033.92	1200.99	10061.43	1202.71	10066.18	1202.91	10073.81	1203.23
10083.64	1203.33	10088.47	1203.39	10089.67	1203.21	10090.16	1203.12	10090.74	1203.14
10093.75	1203.23	10101.21	1204.14	10103.5	1204.42	10108.79	1205.64	10115.65	1207.25
10122.94	1209.29	10128.66	1210.91	10130.79	1211.53	10138.29	1213.71	10147.03	1216.62
10149.34	1217.38	10150.13	1217.73	10158.37	1221.22	10163.89	1224.11	10166.78	1225.59
10167.04	1225.68	10168.78	1226.33	10174.65	1226.65	10176.72	1226.77	10181	1227.02
10185.25	1227.25	10187.71	1227.35	10200	1227.7				

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val

 9800 .05 9921.82 .03510083.64 .05

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 9892.5810138.29 556 600.99 631.9 .1 .3

CROSS SECTION

RIVER: MDOW
 REACH: Reach1 RS: 0.823

INPUT

Description:

Station	Elevation	Data	num=	235	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9544.29	1218.72	9548.74	1218.53	9549.86	1218.48	9550.23	1218.45	9556.59	1217.97			
9559.22	1217.75	9560.43	1217.61	9561.12	1217.52	9562.49	1217.42	9565.97	1217.1			
9567.37	1217.1	9567.65	1217.02	9568.94	1216.48	9569.35	1216.43	9569.54	1216.41			
9571.85	1216.16	9572.34	1216.1	9573.46	1215.95	9573.59	1215.93	9574.2	1215.8			
9577.54	1215.23	9578.56	1215.11	9579.68	1215.04	9581.57	1214.95	9583.01	1214.87			
9585.27	1214.67	9587.08	1214.54	9588.2	1214.54	9588.81	1214.56	9590.91	1214.52			
9591.91	1214.43	9592.18	1214.42	9592.76	1214.42	9595.84	1214.37	9596.33	1214.36			
9596.35	1214.36	9596.93	1214.25	9600.82	1213.46	9603.41	1212.71	9605.17	1212.22			
9605.35	1212.11	9606.4	1211.74	9611.18	1209.87	9612.39	1209.59	9613.74	1209.24			
9616.92	1208.52	9617.45	1208.47	9619.21	1208.27	9620.62	1208.13	9621.03	1208.04			
9621.73	1207.81	9622.26	1207.55	9622.82	1207.34	9625.81	1207.11	9627.34	1207.06			
9627.78	1207.01	9628.86	1206.76	9631.77	1206.5	9633.9	1206.43	9634.48	1206.48			
9637.49	1206.45	9637.95	1206.45	9638.98	1206.46	9647.16	1206.23	9647.84	1206.24			
9648.59	1206.24	9650.86	1206.32	9651.39	1206.33	9653.18	1206.44	9653.78	1206.46			
9656.36	1206.57	9658.87	1206.77	9663.69	1207.18	9667.81	1207.31	9668.17	1207.32			
9668.5	1207.33	9675.06	1207.72	9675.62	1207.75	9676.46	1207.79	9684.74	1208.05			
9686.01	1208.09	9689.37	1208.33	9693.71	1208.32	9694.76	1208.35	9697.28	1208.27			
9701.04	1208.23	9704.84	1208.24	9706.79	1208.25	9708.92	1208.32	9714.28	1208.36			
9714.88	1208.36	9723.82	1208.36	9723.92	1208.36	9736.22	1208.17	9736.28	1208.17			
9736.56	1208.17	9736.72	1208.16	9744.19	1208.07	9752.75	1207.88	9752.96	1207.88			
9753.13	1207.87	9764.19	1207.44	9764.71	1207.42	9764.99	1207.4	9765.24	1207.39			
9775.36	1207.09	9775.68	1207.12	9776.47	1207.07	9777.54	1206.95	9778.71	1206.89			
9785.71	1206.67	9786.52	1206.7	9787.6	1206.66	9787.8	1206.59	9789.16	1206.56			
9790.67	1206.38	9790.77	1206.37	9791.18	1206.32	9792.5	1206.24	9793.02	1206.19			
9793.51	1206.13	9794.74	1206.18	9796.19	1206.07	9799.95	1205.82	9801.77	1205.8			
9804.27	1205.57	9807.8	1205.6	9809.18	1205.62	9814.43	1205.55	9816.07	1205.51			
9819.6	1205.54	9820.78	1205.53	9823.19	1205.59	9825.41	1205.4	9825.68	1205.38			
9825.72	1205.38	9828.5	1205.12	9834.26	1205.15	9837.42	1205.07	9838.15	1205.01			
9843.1	1205.12	9843.77	1205.09	9847	1205.25	9851.85	1205.13	9852.38	1205.12			
9857.14	1205.02	9860.07	1205.04	9864.31	1205.01	9866.07	1205.04	9868.66	1205.03			
9869.53	1205.13	9870.12	1205.2	9872.34	1204.62	9875.98	1203.68	9879.26	1202.97			
9882.01	1202.33	9890.6	1201.19	9893.25	1200.86	9897.55	1200.49	9898.2	1200.42			
9899.07	1200.35	9902.47	1200.16	9908.49	1199.8	9908.92	1199.87	9910.49	1200.13			
9911.61	1199.71	9911.88	1199.6	9922.78	1199.15	9928.71	1198.8	9936.46	1198.32			
9940.11	1198.11	9951.77	1197.28	9957.77	1196.83	9959.56	1196.69	9964.44	1196.33			
9966.11	1196.21	9967.62	1196.2	9984.17	1196.33	9991.85	1196.07	9993.53	1196.05			
9999.08	1195.84	10000.01	1195.79	10001.07	1195.73	10002.78	1196.02	10004.57	1196.33			
10007.96	1196.67	10012.56	1197.09	10017.65	1197.48	10028.97	1198.31	10035.98	1198.82			
10044.75	1199.44	10055.13	1200.22	10060.53	1200.57	10064.84	1200.91	10075.85	1201.47			
10075.93	1201.48	10078.09	1201.82	10081.8	1202.27	10082.89	1202.43	10088.4	1203.27			
10101.56	1205.26	101015.03	1207.57	10119.42	1208.28	10131.71	1210.21	10132.02	1210.26			
10136.37	1211.17	10137.83	1211.47	10145.23	1212.93	10148.88	1213.55	10156.77	1215.26			
10163.82	1217.10	10174.66	1219.98	10183.57	1222.58	10189.36	1224.92	10192.63	1226.24			
10194.42	1226.45	10197.3	1226.62	10201.98	1226.83	10204.15	1226.97	10204.32	1227.03			
10205.39	1227.34	10206.31	1227.12	10206.74	1227.10	10209.5	1227.06	10218.43	1227.23			
10223.99	1227.29	10229.47	1227.35	10244.82	1227.78	10247.72	1227.85	10254.32	1227.8			
10262.15	1227.72	10264.54	1227.88	10265.55	1227.91	10268.78	1228.18	10270.66	1228.38			

Manning's n Values	num=	4					
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
9544.29	.05	9870.12	.035	10078.09	.02	10132.02	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expans.
9595.84	10148.88	103.9	165.71	207	.3	.5

CROSS SECTION

RIVER: MDOW
 REACH: Reach1 RS: 0.792

INPUT

Description:

Station	Elevation	Data	num=	335	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9500	1219.74	9503.8	1219.76	9504.34	1219.76	9509.74	1219.81	9510.87	1219.82			
9511.34	1219.82	9516.33	1219.78	9519.78	1219.79	9524.93	1219.74	9527.21	1219.71			
9529.14	1219.68	9529.34	1219.68	9529.79	1219.68	9531.65	1219.68	9533.87	1219.67			
9535.2	1219.64	9535.31	1219.64	9535.56	1219.65	9535.93	1219.64	9537.53	1219.66			
9538.88	1219.6	9540.3	1219.57	9541.5	1219.57	9543.64	1219.51	9544.42	1219.47			
9547.72	1219.28	9547.75	1219.28	9547.8	1219.28	9552.45	1218.44	9555.38	1217.88			
9555.7	1217.77	9555.86	1217.71	9556.2	1217.58	9562.58	1215.19	9568.84	1212.77			
9569.5	1212.53	9570.32	1212.21	9578.64	1209.14	9583.09	1207.42	9588.92	1206.07			
9589.19	1206	9590.62	1205.87	9599.78	1205.03	9599.95	1205.02	9600.52	1205.04			
9600.95	1205.06	9603.8	1204.9	9605.2	1204.86	9607.37	1204.74	9609.08	1204.61			
9609.24	1204.61	9609.27	1204.59	9611.09	1204.56	9611.29	1204.55	9611.41	1204.56			
9611.52	1204.56	9614.79	1204.74	9616.64	1204.82	9618.27	1204.88	9621.67	1205.06			
9623.93	1205.08	9624.58	1205.08	9628.99	1205.18	9630.78	1205.21	9633.6	1205.15			
9635.88	1205.18	9639.31	1205.21	9641.22	1205.21	9642.76	1205.17	9643.73	1205.15			
9649.67	1205.2	9650.17	1205.22	9651.94	1205.19	9657.19	1205.29	9657.23	1205.29			
9657.75	1205.3	9662.94	1205.37	9663.47	1205.38	9669.66	1205.4	9672.54	1205.31			
9674.28	1205.31	9675.33	1205.39	9678.58	1205.37	9681.09	1205.34	9682.74	1205.28			
9683.48	1205.28	9685.36	1205.24	9685.96	1205.19	9687.47	1205.19	9688.25	1205.12			
9689.88	1205.13	9691.45	1205.13	9693.4	1205.19	9693.72	1205.2	9693.86	1205.2			
9695.33	1205.16	9696.29	1205.11	9696.71	1205.11	9698.33	1205.11	9700.16	1205.11			
9702.92	1205.12	9703.09	1205.13	9703.85	1205.16	9705.36	1205.33	9706.03	1205.32			
9707.82	1205.38	9710.32	1205.49	9712.48	1205.42	9712.65	1205.42	9712.73	1205.41			
9720.66	1205.22	9724.49	1205.07	9725.51	1205	9725.84	1204.98	9726.35	1204.93			
9730.3	1204.57	9733.52	1204.33	9735.38	1204.11	9738.48	1203.89	9738.74	1203.88			
9739.46	1203.83	9741.4	1203.66	9743.11	1203.43	9744.5	1203.27	9745.7	1203.14			
9746.16	1203.14	9747.15	1203.09	9749.2	1202.99	9749.84	1202.91	9751.07	1202.73			
9752.47	1202.55	9756.12	1202.96	9757.48	1203.12	9758.08	1203.12	9765.95	1203.05			

Table with 12 columns of numerical data, likely representing stationing and elevation points along a project reach.

Manning's n Values table with columns: num=, Sta, n Val, Sta, n Val, Sta, n Val.

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

CULVERT

RIVER: MDOW
REACH: Reach1 RS: 0.768

INPUT
Description: El Mirage Road South Culvert
Distance from Upstream XS = 59
Deck/Roadway width = 130
Weir Coefficient = 2.6
Upstream Deck/Roadway Coordinates

Table with 12 columns: num=, Sta, Hi, Cord, Lo, Cord, Sta, Hi, Cord, Lo, Cord, Sta, Hi, Cord, Lo, Cord.

Upstream Bridge Cross Section Data

Table with 12 columns: Station, Elevation, Station, Elevation, Station, Elevation, Station, Elevation, Station, Elevation.

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9796.19	1203.08	9797.05	1203.12	9798.24	1203.17	9798.8	1203.22	9800.52	1203.26
9801.11	1203.28	9802.79	1203.27	9804.78	1203.23	9805.12	1203.21	9807.22	1203.2
9808.51	1203.3	9808.89	1203.28	9809.64	1203.27	9809.92	1203.29	9812.06	1203.27
9817.45	1203.18	9819.31	1203.2	9820.91	1203.21	9821.47	1203.21	9824.81	1203.28
9825.8	1203.33	9826.44	1203.34	9827.12	1203.46	9828.91	1203.86	9829.99	1204.04
9831.66	1204.84	9834.41	1206.03	9834.46	1206.05	9834.48	1206.06	9834.5	1206.06
9834.53	1206.06	9838.12	1205.76	9838.49	1205.69	9838.79	1205.66	9841.05	1205.23
9841.51	1205.14	9841.6	1205.12	9845.13	1204.52	9845.39	1204.5	9845.69	1204.5
9847.97	1204.36	9848.56	1204.53	9849.04	1204.66	9850.08	1204.71	9850.12	1204.71
9857.4	1205.64	9858.38	1205.84	9858.65	1205.91	9859.02	1205.96	9859.67	1205.75
9862.06	1205.15	9863.25	1205.42	9863.52	1205.48	9864.08	1205.24	9864.84	1204.95
9868.15	1203.48	9870.31	1202.51	9872.02	1202.53	9872.75	1202.59	9873.76	1202.59
9873.95	1202.58	9874.7	1202.5	9883.24	1201.9	9883.64	1201.86	9887.38	1201.59
9891.58	1201.28	9891.94	1201.24	9897.3	1200.82	9897.58	1200.81	9903.76	1200.46
9904.13	1200.56	9904.54	1200.64	9907.23	1199.99	9908.17	1199.75	9908.76	1199.89
9912.41	1200.66	9916.09	1201.09	9916.48	1201.12	9917.91	1201.08	9924.72	1200.94
9931.76	1200.13	9932.55	1200.06	9937.77	1199.82	9946.05	1199.44	9946.67	1199.42
9946.82	1199.49	9946.92	1199.55	9947.14	1199.79	9947.79	1199.69	9950.82	1199.21
9951.51	1199.19	9952.28	1199.22	9952.81	1198.73	9956.77	1196.4	9958.21	1195.58
9960.29	1194.81	9962.12	1194.41	9962.54	1194.27	9965.07	1194.05	9965.46	1194.03
9965.91	1194.04	9969.14	1194.46	9970.2	1194.66	9982.87	1194.72	9992.39	1194.8
9998.77	1194.85	10000	1194.8510000.65	1194.8510005.03	1194.8210018.03	1194.76	10022.36	1194.6810024.36	1194.1310025.08
10028.59	1193.84	10031.9	1193.7810034.42	1193.8210038.48	1193.7610039.79	1193.75	10041.57	1193.7510043.37	1193.7510047.17
10057.25	1193.7810057.33	1193.7910057.51	1193.8110060.78	1194.38	10063.3	1194.38	10065.01	1194.2610068.89	1196.5110072.44
10076.89	1199.8710079.63	1200.6610079.98	1200.5	10080.7	1200.18	10081.1	1200.3	10082.79	1200.9610084.66
10091.66	1205.4210092.47	1205.8910093.39	1206.3610095.45	1207.25	10101	1209.56	10103.5	1210.1110103.99	1210.4610104.69
10107.13	1214.8510107.61	1224.0410110.86	1224.0610111.74	1224.1510115.48	1224.27	10118.42	1224.2910120.81	1224.3210125.26	1224.3710128.47
10143.01	1224.26	10157	1224.210159.59	1224.2110179.06	1224.1210180.82	1224.11	10181.96	1224.1210198.16	1224.1410199.19
10224.12	1224.2410233.21	1224.2410234.33	1224.23	10254.5	1224.210257.48	1224.21	10260.83	1224.210277.95	1224.13
10283.9	1224.1110297.91	1224.08	10300	1224.07	1224.07				

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val

 9500 .05 9960.29 .035 10063.3 .05

Bank Sta: Left Right Coeff Contr. Expan.
 9547.7210107.61 .3 .5
 Ineffective Flow num= 2
 Sta L Sta R Elev Permanent
 9500 9953.12 1206.32 F
 10081.6 10300 1207.36 F

Downstream Deck/Roadway Coordinates
 num= 9
 Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord

 9406.69 1210 9452.03 1209 9512.74 1208
 9621.56 1207 9795.17 1206 9943.37 1207
 10018.53 1208 10074.7 1209 10122.11 1210

Downstream Bridge Cross Section Data
 Station Elevation Data num= 194
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev

 9388.89 1210.86 9395.87 1210.95 9400.19 1211 9402.27 1210.97 9403.44 1210.97
 9414.14 1211.37 9416.24 1211.43 9429.06 1211.89 9431.19 1211.98 9432.04 1212
 9438.45 1212.22 9447.8 1212.51 9448.47 1212.53 9457.27 1212.64 9462.39 1212.77
 9470.92 1212.82 9474.46 1212.79 9482.89 1212.78 9483.79 1212.75 9486.21 1212.66
 9489.96 1212.52 9491.83 1212.52 9493.15 1212.48 9498.9 1212.14 9502.07 1211.87
 9508.48 1211.03 9509.29 1210.93 9510.07 1210.77 9513.22 1210.17 9522.34 1208.6
 9526.82 1207.71 9528.7 1207.3 9530.66 1206.94 9535.1 1205.99 9542.16 1204.85
 9542.8 1204.75 9546.74 1204.23 9546.86 1204.18 9549.3 1203.48 9551.3 1203.05
 9553.91 1202.63 9555.3 1202.4 9557.96 1202.29 9562.49 1202.14 9565.03 1202.14
 9570.71 1202.16 9574.08 1202.2 9581.44 1202.45 9581.59 1202.44 9581.64 1202.44
 9581.71 1202.44 9587.88 1202.25 9590.84 1202.19 9593.63 1202.08 9596.78 1201.89
 9599.49 1201.8 9604.17 1201.74 9606.86 1201.69 9613.63 1201.64 9616.66 1201.56
 9620.41 1201.56 9628.81 1201.53 9632.44 1201.55 9635.95 1201.54 9639.99 1201.5
 9644.63 1201.4 9651.66 1201.28 9656.1 1201.23 9656.88 1201.23 9666.82 1201.2
 9669.87 1201.19 9670.33 1201.2 9674.1 1201.18 9680.77 1201.14 9692.98 1201.2
 9697.53 1201.22 9698.55 1201.23 9707.11 1201.23 9709.81 1201.24 9711.07 1201.24
 9722.01 1201.24 9723.25 1201.24 9731.53 1201.29 9734.46 1201.26 9737.27 1201.2
 9745.54 1201.03 9751.92 1200.89 9754.79 1200.85 9760.63 1200.74 9764.76 1200.61
 9768.52 1200.58 9783.55 1200.43 9784.62 1200.41 9785.63 1200.42 9798.66 1200.46
 9802.07 1200.42 9806.54 1200.43 9814.32 1200.37 9815.78 1200.27 9819 1200.24
 9821.89 1200.18 9824.78 1200.17 9825.16 1200.14 9832.23 1200.08 9843.23 1199.96
 9846.67 1199.88 9847.37 1199.87 9849.12 1199.69 9858.16 1198.91 9859.13 1198.54
 9859.72 1198.33 9861.08 1198.02 9861.85 1197.85 9862.35 1197.92 9863.6 1198.08
 9866.01 1198.76 9868.67 1199.47 9872.73 1200.54 9875.27 1201.28 9877.25 1201.73
 9878.2 1201.93 9879.29 1202.12 9881.95 1202.57 9886.24 1202.53 9889.97 1202.5
 9893.39 1202.34 9897.17 1202.2 9913.31 1200.41 9920.47 1199.62 9920.92 1199.78
 9921.68 1199.98 9924.65 1199.34 9927.32 1198.67 9932.94 1195.21 9938.97 1191.95
 9946.26 1193.04 9948.06 1193.29 9959.16 1193.44 9962.68 1193.47 9966.36 1193.42
 9972.38 1193.27 9973.07 1193.25 9974.77 1193.26 9981.68 1193.33 9987.94 1193.34
 9989.14 1193.34 9989.21 1193.34 9993.32 1193.34 9997.36 1193.39 10000 1193.45
 10002.49 1193.51 10008.3 1193.5210011.33 1193.5910016.04 1193.6410019.74 1193.63
 10024.45 1193.38 10027.3 1193.2710030.86 1193.2210034.21 1193.0510035.16 1193
 10039.74 1191.5110039.83 1191.4910043.58 1191.0210043.99 1190.9810054.53 1193.64
 10056.25 1194.35 10057.6 1195.33 10060.4 1197.8110061.94 1200.0610063.63 1200.64
 10073.24 1205.39 10074.9 1206.2410075.41 1206.4510079.88 1208.39 10081.6 1209.07
 10086.96 1211.1610089.55 1211.5810098.74 1213.6410099.18 1218.8610099.58 1224.29
 10102.4 1223.9910104.43 1223.910106.17 1223.8710109.19 1223.8610113.06 1223.79
 10118.4 1223.7610125.49 1223.6710132.65 1223.6610141.47 1223.6510156.88 1223.71
 10162.46 1223.74 10172.4 1223.8 10175.4 1223.8510188.89 1223.98

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val

 9388.89 .06 9498.9 .0610098.74 .06

Bank Sta: Left Right
9498.910098.74
Coeff Contr. Expan.
.3 .5
Ineffective Flow num= 2
Sta L Sta R Elev Permanent
9388.89 9949.16 1204.39 F
10034.5210188.89 1205.77 F

Upstream Embankment side slope = 0 horiz. to 1.0 vertical
Downstream Embankment side slope = 0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .98
Elevation at which weir flow begins =
Energy head used in spillway design =
Spillway height used in design =
Weir crest shape = Broad Crested

Number of Culverts = 1

Culvert Name Shape Rise Span
Culvert #1 Box 8 10
FHWA Chart # 8 - flared wingwalls
FHWA Scale # 1 - wingwall flared 30 to 75 deg.
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist Length Top n Bottom n Depth Blocked Entrance Loss Coef Exit Loss Coef
24.5 197 .013 .013 0 .4 1

Number of Barrels = 7

Upstream Elevation = 1194.11
Centerline Stations
Sta. Sta. Sta. Sta. Sta. Sta. Sta.
9980.68 9992.8110004.9510017.0810029.2110041.3510053.48
Downstream Elevation = 1193.7
Centerline Stations
Sta. Sta. Sta. Sta. Sta. Sta. Sta.
9955.4 9967.55 9979.69 9991.8410003.9910016.1310028.28

CROSS SECTION

RIVER: MDOW
REACH: Reach1 RS: 0.744

INPUT

Description:
Station Elevation Data num= 194
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
9388.89 1210.86 9395.87 1210.95 9400.19 1211 9402.27 1210.97 9403.44 1210.97
9414.14 1211.37 9416.24 1211.43 9429.06 1211.89 9431.19 1211.98 9432.04 1212
9438.45 1212.22 9447.8 1212.51 9448.47 1212.53 9457.27 1212.64 9462.39 1212.77
9470.92 1212.82 9474.46 1212.79 9482.89 1212.78 9483.79 1212.75 9486.21 1212.66
9489.96 1212.52 9491.83 1212.52 9493.15 1212.48 9498.9 1212.14 9502.07 1211.87
9508.48 1211.03 9509.29 1210.93 9510.07 1210.77 9513.22 1210.17 9522.34 1208.6
9526.82 1207.71 9528.7 1207.3 9530.66 1206.94 9535.1 1205.99 9542.16 1204.85
9542.8 1204.75 9546.74 1204.23 9546.86 1204.18 9549.3 1203.48 9551.3 1203.05
9553.91 1202.63 9555.3 1202.4 9557.96 1202.29 9562.49 1202.14 9565.03 1202.14
9570.71 1202.16 9574.08 1202.2 9581.44 1202.45 9581.59 1202.44 9581.64 1202.44
9581.71 1202.44 9587.88 1202.25 9590.84 1202.19 9593.63 1202.08 9596.78 1201.89
9599.49 1201.8 9604.17 1201.74 9606.86 1201.69 9613.63 1201.64 9616.66 1201.56
9620.41 1201.56 9628.81 1201.53 9632.44 1201.55 9635.95 1201.54 9639.99 1201.5
9644.63 1201.4 9651.66 1201.28 9656.1 1201.23 9656.88 1201.23 9666.82 1201.2
9669.87 1201.19 9670.33 1201.2 9674.1 1201.18 9680.77 1201.14 9692.98 1201.2
9697.53 1201.22 9698.55 1201.23 9707.11 1201.23 9709.81 1201.24 9711.07 1201.24
9722.01 1201.24 9723.25 1201.24 9731.53 1201.29 9734.46 1201.26 9737.27 1201.2
9745.54 1201.03 9751.92 1200.89 9754.79 1200.85 9760.63 1200.74 9764.76 1200.61
9768.52 1200.58 9783.55 1200.43 9784.62 1200.41 9785.63 1200.42 9798.66 1200.46
9802.07 1200.42 9806.54 1200.43 9814.32 1200.37 9815.78 1200.27 9819 1200.24
9821.89 1200.18 9824.78 1200.17 9825.16 1200.14 9832.23 1200.08 9843.23 1199.96
9846.67 1199.88 9847.37 1199.87 9849.12 1199.69 9858.16 1198.91 9859.13 1198.54
9859.72 1198.33 9861.08 1198.02 9861.85 1197.85 9862.35 1197.92 9863.6 1198.08
9866.01 1198.76 9866.67 1199.47 9872.73 1200.54 9875.27 1201.28 9877.25 1201.73
9878.2 1201.93 9879.29 1202.12 9881.95 1202.57 9886.24 1202.53 9889.97 1202.5
9893.39 1202.34 9897.17 1202.2 9913.31 1200.41 9920.47 1199.62 9920.92 1199.78
9921.68 1199.98 9924.65 1199.34 9927.32 1198.67 9932.94 1195.21 9938.97 1191.95
9946.26 1193.04 9948.06 1193.29 9959.16 1193.44 9962.68 1193.47 9966.36 1193.42
9972.38 1193.27 9973.07 1193.25 9974.77 1193.26 9981.68 1193.33 9987.94 1193.34
9989.14 1193.34 9989.21 1193.34 9993.32 1193.34 9997.36 1193.39 10000 1193.45
10002.49 1193.51 10008.3 1193.5210011.33 1193.5910016.04 1193.6410019.74 1193.63
10024.45 1193.38 10027.3 1193.2710030.86 1193.2210034.21 1193.0510035.16 1193
10039.74 1191.5110039.83 1191.4910043.58 1191.0210043.99 1190.9810054.53 1193.64
10056.25 1194.35 10057.6 1195.33 10060.4 1197.8110061.94 1200.0610063.63 1200.64
10073.24 1205.39 10074.9 1206.2410075.41 1206.4510079.88 1208.39 10081.6 1209.07
10086.96 1211.1610089.55 1211.5810098.74 1213.6410099.18 1218.8610099.58 1224.29
10102.4 1223.9910104.43 1223.910106.17 1223.8710109.19 1223.8610113.06 1223.79
10118.4 1223.7610125.49 1223.6710132.65 1223.6610141.47 1223.6510156.88 1223.71
10162.46 1223.74 10172.4 1223.8 10175.4 1223.8510188.89 1223.98

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
9388.89 .06 9498.9 .0610098.74 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9498.910098.74 240.4 185.96 179.9 .3 .5
Ineffective Flow num= 2
Sta L Sta R Elev Permanent
9388.89 9949.16 1204.39 F
10034.5210188.89 1205.77 F

CROSS SECTION

RIVER: MDOW
REACH: Reach1 RS: 0.709

INPUT

Description:

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9456.75	1216.56	9457.76	1216.22	9458.25	1215.97	9462.12	1214.81	9469.35	1211.66
9475.81	1208.86	9481.98	1206.26	9482.44	1206.1	9483.4	1205.87	9489.28	1204.53
9493.11	1204.08	9501.41	1202.79	9505.02	1202.39	9507.5	1202	9509.37	1201.84
9511.79	1201.57	9518.01	1201.37	9522.76	1201.32	9525.51	1201.3	9528.46	1201.27
9531.61	1201.24	9534.89	1201.2	9539.75	1201.19	9541.52	1201.15	9545.81	1201.12
9548.89	1200.99	9553.63	1200.96	9566.24	1201.03	9576.34	1200.94	9581.2	1200.88
9590.59	1200.75	9600.76	1200.66	9604.16	1200.62	9607.83	1200.58	9619.32	1200.51
9626.24	1200.49	9632.32	1200.53	9633.84	1200.53	9644.57	1200.57	9646.21	1200.57
9646.32	1200.57	9647.1	1200.56	9658.94	1200.34	9660.89	1200.28	9661.84	1200.3
9667.64	1200.33	9669.87	1200.42	9673.45	1200.42	9674.5	1200.5	9675.86	1200.6
9677.71	1200.62	9680.6	1200.72	9682.58	1200.73	9685.07	1200.61	9686.41	1200.63
9687.16	1200.78	9688.13	1200.7	9689.19	1200.75	9693.97	1200.76	9705.32	1200.87
9705.8	1200.87	9707.86	1200.83	9713.56	1200.92	9715.49	1200.99	9718.3	1201.03
9721.2	1201.08	9721.92	1201.07	9727.24	1201.13	9728.94	1201.09	9732.24	1200.96
9735.85	1200.89	9736.62	1200.89	9742.67	1200.95	9742.75	1200.95	9742.8	1200.95
9748.59	1200.99	9753.38	1200.84	9753.65	1200.82	9758.91	1200.7	9764.22	1200.52
9765.2	1200.46	9766.1	1200.38	9772.2	1199.32	9772.21	1199.32	9773.11	1199.26
9775.2	1199.05	9777.77	1198.89	9782.2	1198.67	9785.01	1198.53	9789.32	1198.31
9792.41	1197.91	9793.44	1197.66	9795.33	1197.86	9800.15	1198.5	9808.24	1198.28
9810.89	1198.23	9819.92	1197.89	9820.59	1197.78	9823.6	1196.98	9824.78	1196.96
9826.82	1197.25	9829.21	1197.4	9831.7	1197.9	9832.33	1197.95	9832.57	1197.94
9833.39	1197.93	9836.01	1197.69	9836.92	1197.59	9841.72	1197.18	9842.86	1197.06
9845.27	1196.46	9847.01	1196.04	9849.95	1195.28	9852.39	1195.15	9857.08	1194.81
9857.11	1194.82	9857.43	1194.9	9860.1	1195.51	9860.17	1195.55	9861.13	1196.04
9863.52	1197.19	9864.46	1197.24	9874.39	1197.61	9879.66	1197.63	9885.19	1197.62
9888.97	1197.59	9891.82	1197.59	9895.42	1197.57	9896.58	1197.56	9898.2	1197.89
9903.08	1198.98	9904.52	1198.73	9910.08	1197.79	9914.8	1197.61	9917.98	1197.55
9924.85	1197.37	9931.59	1197.21	9937.08	1196.74	9940.49	1196.44	9945.24	1196.15
9946.29	1196.04	9948.59	1195.95	9951.6	1195.72	9953.59	1195.5	9957.17	1194.93
9961.15	1194.61	9962.75	1194.53	9963.59	1194.47	9968.37	1194.26	9971.37	1194.07
9976	1193.72	9977.14	1193.6	9979.73	1193.26	9982.43	1193.27	9985.2	1193.12
9987.46	1192.96	9989.82	1192.79	9991	1192.66	9992.82	1192.5	9994.57	1192.39
9996.07	1192.41	9999.41	1192.48	9999.99	1192.4810001.27	1192.4810002.58	1192.79	1192.79	1192.79
10006.37	1193.4610013.04	1194.9210013.74	1195.0610019.21	1194.310020.87	1194.1110038.57	1194.1110038.57	1194.09	1194.09	1194.09
10025.33	1194.3810027.47	1194.5810029.48	1194.4810035.59	1194.3110055.89	1196.8810058.31	1197.04	1196.98	1196.98	1196.98
10042.37	1194.2310048.07	1195.3710052.37	1196.3110067.92	1197.3510068.5	1197.3110073.19	1196.98	1196.98	1196.98	1196.98
10061.45	1197.3510067.02	1197.3510067.02	1197.3510068.5	1197.3510068.5	1197.3510068.5	1197.3510068.5	1197.3510068.5	1197.3510068.5	1197.3510068.5
10077.15	1196.810080.37	1196.7610085.81	1196.6410088.08	1197.1210103.17	1197.1210103.17	1197.32	1197.32	1197.32	1197.32
10092.75	1196.7110094.64	1196.8510097.14	1197.0410099.17	1197.9210114.54	1197.9210114.54	1196.83	1196.83	1196.83	1196.83
10103.9	1197.33	10106.2	1197.4410113.55	1196.9610114.03	1196.9210114.54	1196.83	1196.83	1196.83	1196.83
10119.72	1195.810124.09	1195.3810127.18	1195.07	10128.5	1195.1110133.72	1195.25	1195.25	1195.25	1195.25
10139.7	1197.0110142.53	1197.9310145.68	1198.7710147.24	1199.1810148.52	1199.82	1199.82	1199.82	1199.82	1199.82
10161.77	1207.0610163.95	1208.210170.05	1214.3510176.27	1220.4310176.54	1220.75	1220.75	1220.75	1220.75	1220.75
10178.97	1220.9110181.04	1221.0710184.44	1221.3510185.51	1221.4310189.23	1221.79	1221.79	1221.79	1221.79	1221.79
10194.2	1222.210197.26	1222.32	10203	1222.4110203.48	1222.59	1222.59	1222.59	1222.59	1222.59
10213.66	1222.87	10220.7	1223.2810221.05	1223.3					

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9456.75	.06	9931.59	.06	10061.45	.06

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

9931.59	10061.45	608.3	558.51	463.9	.1	.3
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CROSS SECTION

RIVER: MDOW
 REACH: Reach1 RS: 0.603

INPUT Description:

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9800	1197.77	9808.63	1197.86	9815.79	1198.23	9818.4	1198.32	9820.44	1198.46
9831.61	1198.36	9831.97	1198.37	9844.96	1198.82	9852.73	1199.21	9858.39	1199.99
9863.73	1200.71	9870.96	1201.33	9874.56	1201.63	9882.24	1202.26	9884.51	1202.39
9886.03	1202.43	9900.38	1202.78	9906.88	1202.94	9912.37	1203.06	9921.06	1203.22
9922.89	1203.26	9928.67	1203.35	9942.84	1203.44	9945.98	1203.46	9946.01	1203.47
9946.03	1203.46	9946.05	1203.46	9954.9	1203.41	9957.83	1203.43	9963.89	1203.35
9965.07	1203.35	9965.81	1203.32	9966.32	1203.29	9966.78	1202.57	9970.31	1197.77
9970.74	1197.48	9975.71	1194.07	9978.1	1192.67	9978.77	1192.27	9979.08	1192.09
9980.47	1191.17	9982.37	1189.45	9983.5	1188.64	9985.43	1187.6	9987.69	1186.51
9992.13	1186.36	9992.15	1186.36	9992.17	1186.37	9995.32	1186.99	10000	1187.42
10000.93	1187.5110003.42	1187.810005.04	1188.0410009.71	1188.6610012.34	1188.97	1188.97	1188.97	1188.97	1188.97
10018.46	1190.2210018.93	1190.2910024.25	1190.45	10027.4	1190.5810029.28	1190.56	1190.56	1190.56	1190.56
10033.62	1191.1710037.93	1191.8110040.15	1191.7210047.59	1191.4	10047.9	1191.37	1191.37	1191.37	1191.37
10048.2	1191.3410052.49	1190.9110057.16	1190.5810058.36	1190.6710059.29	1190.74	1190.74	1190.74	1190.74	1190.74
10063.53	1190.91	10066.9	1191.1310067.28	1191.22	10070.8	1191.39	10075.9	1191.34	1191.34
10078.86	1191.410080.26	1191.4410083.59	1191.6310086.76	1191.7310089.67	1191.75	1191.75	1191.75	1191.75	1191.75
10095.23	1191.5810099.22	1191.4910100.39	1191.4710101.56	1191.41	10105.4	1190.99	1190.99	1190.99	1190.99
10106.82	1190.9210109.79	1190.9410111.01	1190.7710115.54	1190.5210117.17	1190.35	1190.35	1190.35	1190.35	1190.35
10118.46	1190.3910121.15	1191.2710122.98	1191.8310126.25	1191.0110129.69	1190.2	1190.2	1190.2	1190.2	1190.2
10137.85	1191.1210140.02	1191.2410141.16	1191.1310148.63	1190.6210153.83	1191.44	1191.44	1191.44	1191.44	1191.44
10160.32	1192.5210162.52	1192.6910165.19	1192.9210168.52	1192.81	10174	1192.62	1192.62	1192.62	1192.62
10181	1192.2910184.06	1192.1410187.64	1192.2910189.06	1192.3110189.49	1192.35	1192.35	1192.35	1192.35	1192.35
10194.41	1192.5410197.56	1192.6810200.94	1192.8210209.41	1192.910211.58	1192.91	1192.91	1192.91	1192.91	1192.91
10213.66	1192.910217.38	1192.8510218.38	1192.8310221.23	1192.710222.55	1192.62	1192.62	1192.62	1192.62	1192.62
10230.2	1191.6910232.62	1191.4810233.65	1191.5110238.43	1191.6110245.69	1192.05	1192.05	1192.05	1192.05	1192.05
10251.35	1192.4510253.39	1192.4610253.46	1192.510259.13	1192.4610262.47	1192.48	1192.48	1192.48	1192.48	1192.48
10263.1	1192.49	10266.3	1192.3710270.84	1192.4510283.73	1192.4610292.99	1192.5	1192.5	1192.5	1192.5
10295.34	1192.4610303.27	1191.6710303.51	1191.6510303.58	1191.6410309.29	1191.59	1191.59	1191.59	1191.59	1191.59
10312.3	1191.3910317.67	1190.9910318.85	1191.0810325.17	1191.4710327.92	1191.42	1191.42	1191.42	1191.42	1191.42
10329.72	1191.4310333.24	1190.7910336.88	1190.1210338.36	1190.1	10339	1190.15	1190.15	1190.15	1190.15
10341.95	1190.4110344.21	1190.6710344.73	1190.7410349.84	1191.1610350.13	1191.19	1191.19	1191.19	1191.19	1191.19
10350.44	1191.2710356.39	1192.8210357.68	1192.7610367.25	1192.1910369.39	1191.9	1191.9	1191.9	1191.9	1191.9
10371.9	1191.5210373.32	1191.5	10377.5	1191.6110381.33	1191.7210384.43	1191.97	1191.97	1191.97	1191.97
10389.69	1192.3910394.37	1192.7510396.75	1193.0110399.07	1192.7	10400.8	1192.49	1192.49	1192.49	1192.49
10406.37	1191.7410409.85	1191.4510410.54	1191.4310410.94	1191.3910415.45	1190.94	1190.94	1190.94	1190.94	1190.94
10421.22	1190.8110423.68	1190.7610425.97	1192.2210426.29	1192.4410427.05	1192.64	1192.64	1192.64	1192.64	1192.64
10435.07	1194.9310437.26	1195.0310437.58	1195.0610440.51	1195.01	10443.1	1194.91	1194.91	1194.91	1194.91

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10445.21	1194.8810445.76	1194.8610448.92	1194.8710450.99	1194.8510451.15	1194.86
10452.56	1195.01 10454.9	1194.9810457.32	1194.9710460.77	1194.9610463.55	1194.87
10465.59	1194.7910466.84	1194.7710468.25	1194.7910472.35	1194.89 10475.6	1194.96
10483.05	1195.3110485.13	1195.2410487.61	1195.1410490.84	1195.2810492.39	1195.26
10496.06	1194.8210503.06	1194.2210507.02	1194.2210513.52	1194.2210515.72	1194.37
10519.25	1194.5710527.99	1196.9210531.03	1197.7210533.43	1198.7410540.64	1201.62
10548.98	1206.1910559.57	1211.7810561.32	1213.2810563.43	1215.02 10563.7	1215.1
10566.57	1215.8610566.75	1215.8910567.24	1215.9210569.46	1216.1110569.93	1216.02
10572.25	1215.7610574.04	1215.410581.04	1214.1610581.87	1214.0710584.81	1213.86
10585.56	1214.0110590.16	1214.9810594.24	1215.6210594.97	1215.75 10595.4	1215.83
10600	1216.32				

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val

 9800 .06 9979.08 .0610037.93 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 9979.0810037.93 510.5 500 400.9 .1 .3

CROSS SECTION

RIVER: MDOW
 REACH: Reach1 RS: 0.509

INPUT
 Description:
 Station Elevation Data num= 363

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9255.91	1200.26	9256.62	1200.1	9260.53	1199.7	9262.43	1199.56	9262.75	1199.51
9263.45	1199.44	9268.53	1198.89	9274.25	1198.63	9276.8	1198.49	9286.83	1197.75
9288.36	1197.65	9293.62	1197.36	9294.5	1197.29	9296.65		9300.94	1196.35
9302.65	1196.05	9305.13	1195.42	9305.27	1195.4	9311.91	1194.28	9315.61	1193.98
9319.55	1193.78	9321.79	1193.68	9323.38	1193.59	9329.92	1193.29	9335.33	1193.07
9341.02	1192.86	9346.54	1192.71	9355.64	1192.43	9355.8	1192.43	9355.92	1192.43
9356.52	1192.44	9363.82	1192.57	9366	1192.61	9367.27	1192.49	9368.33	1192.52
9372.08	1192.38	9372.09	1192.38	9372.1	1192.39	9372.25	1192.4	9378.03	1192.94
9378.19	1192.94	9379.86	1192.86	9381.1	1192.84	9384.43	1192.52	9386.44	1192.61
9386.93	1192.63	9388.44	1192.69	9389.75	1192.78	9391.17	1192.84	9392.15	1192.96
9394.9	1193.22	9395.38	1193.26	9395.48	1193.26	9397.63	1193.06	9399.29	1193.2
9400.98	1193.26	9405.02	1193.62	9408.66	1193.87	9410.19	1193.96	9412.74	1194.22
9414.09	1194.39	9416.19	1194.57	9419.08	1194.83	9423.93	1195.2	9430.91	1195.4
9435.87	1195.43	9436.09	1195.43	9436.3	1195.43	9436.66	1195.43	9442.4	1195.38
9444.38	1195.28	9451.69	1195.08	9453.2	1195.09	9454.53	1195.02	9463.64	1194.07
9464.26	1194.01	9464.4	1194.01	9474.52	1193.95	9480.82	1193.8	9483.97	1193.85
9491.17	1193.6	9491.3	1193.59	9491.52	1193.56	9495.12	1192.96	9496.98	1192.77
9498.28	1192.62	9498.49	1192.61	9498.7	1192.6	9498.92	1192.59	9499.16	1192.59
9499.42	1192.58	9499.71	1192.57	9500.03	1192.57	9500.39	1192.56	9500.82	1192.55
9501.32	1192.54	9501.94	1192.54	9502.74	1192.53	9503.79	1192.51	9505.27	1192.5
9507.56	1192.48	9511.58	1192.45	9515.62	1192.39	9516.73	1192.41	9517.19	1192.43
9519.63	1192.45	9531.99	1192.6	9535.89	1193.25	9536.49	1193.38	9537.65	1193.42
9539.13	1193.38	9543.09	1193.59	9544.32	1193.57	9551.92	1193.58	9553.18	1193.46
9559.05	1193.01	9564.98	1192.53	9566.41	1192.36	9572.13	1191.64	9575.57	1191.24
9577.35	1191.31	9583.08	1191.11	9584.23	1191.02	9587.98	1190.27	9589.7	1190.04
9590.94	1189.84	9595.54	1189.32	9597.44	1189.34	9607.86	1188.91	9621.81	1189.45
9625.5	1189.57	9633.17	1189.34	9636.59	1189.23	9638.36	1189.48	9640.61	1189.65
9648.25	1190.42	9651.11	1190.55	9654.27	1190.86	9659.48	1190.84	9663.07	1190.78
9669.84	1190.56	9685.11	1190.99	9687.19	1191.02	9703.24	1191.24	9705.67	1191.24
9706.84	1191.32	9713.04	1191.47	9715.28	1191.54	9725.82	1191.41	9730.56	1191.37
9733.48	1191.13	9746.79	1190.38	9766.92	1190.74	9775.02	1191.01	9790.87	1191.56
9797.34	1191.82	9798.86	1191.84	9801.14	1191.08	9805.56	1189.51	9806.15	1189.39
9806.44	1189.45	9812.02	1188.57	9815.34	1186.56	9816.28	1185.71	9820.23	1184.55
9822.04	1183.96	9822.83	1183.9	9823.4	1183.89	9825.58	1183.81	9829.51	1183.68
9831.42	1183.51	9834.23	1183.33	9841.91	1183.44	9842.49	1185.57	9845.83	1185.94
9846.02	1185.96	9849.61	1186.26	9850.45	1186.22	9851.5	1186.13	9852.27	1186.01
9856.77	1185.58	9858.89	1185.73	9861.14	1185.68	9863.19	1185.73	9865.96	1186.04
9866.62	1186.05	9868.27	1186.39	9869.05	1186.41	9869.69	1186.41	9870.08	1186.41
9887.04	1186.48	9889.2	1186.52	9889.44	1186.52	9889.86	1186.52	9896.22	1186.46
9897.35	1186.56	9899.38	1186.68	9899.82	1186.68	9900.33	1186.73	9902.95	1187.15
9906.36	1187.12	9908.27	1187.14	9910.67	1187.01	9911.89	1186.98	9912.57	1186.89
9916.03	1186.66	9918.87	1186.89	9920.49	1187.02	9924.13	1187.08	9925.11	1187.07
9928.49	1186.56	9933.63	1185.83	9940.83	1185.93	9947.04	1186.01	9948.22	1186.07
9952.05	1186.25	9956.25	1186.44	9958.66	1186.58	9961.31	1186.34	9963.79	1185.93
9966.1	1186	9966.77	1185.97	9967.34	1186	9968.66	1185.61	9971.53	1184.81
9975.51	1185.56	9978.78	1186.08	9980.5	1186.36	9980.62	1186.4	9985.16	1185.49
9985.4	1185.41	9991.43	1184.99	9999.62	1184.43	9999.99	1184.44	10000.19	1184.44
10002.64	1184.61	10007.44	1186.23	10008.58	1186.59	10009.18	1186.62	10013.47	1186.66
10015.45	1187.39	10015.56	1187.42	10017.66	1187.38	10018.16	1187.42	10023.35	1187.3
10027.92	1187.85	10030.08	1187.71	10030.45	1187.75	10031.45	1188.12	10031.9	1188.14
10038.48	1188.41	10040.34	1188.47	10041.88	1188.56	10043.76	1188.55	10046.59	1188.47
10049.74	1188.41	10052.48	1189.11	10056.26	1190.15	10060.27	1190.19	10063.22	1190.08
10070.31	119010074.17	1189.98	10079.82	1189.89	10083.28	1189.83	10089.38	1189.55	1189.55
10092.9	1189.41	10093.81	1189.31	10098.41	1189.03	10101.31	1188.85	10102.24	1188.88
10105.12	1188.95	10112.02	1189.44	10121.25	1190.46	10121.78	1190.51	10122.08	1190.55
10122.42	1190.56	10129.97	1190.96	10136.86	1191.32	10137.03	1191.33	10137.11	1191.34
10137.3	1191.35	10147.69	1191.44	10155.83	1191.55	10162.03	1191.61	10168.87	1191.63
10171.4	1191.65	10185.81	1191.84	10186.5	1191.84	10187.92	1191.91	10196.38	1191.55
10207.84	1191.02	10208.38	1191.03	10212.35	1190.68	10213.25	1190.63	10214.28	1190.48
10215.01	1190.48	10217.65	1190.43	10219.05	1190.68	10220.46	1190.65	10221.59	1190.49
10221.85	1190.41	10223.44	1190.35	10224.02	1190.31	10224.97	1190.47	10241.36	1190.84
10247.39	1190.86	10254.39	1191.11	10257.12	1191.27	10257.29	1191.21	10257.49	1191.21
10257.64	1191.21	10259.26	1191.09	10271.26	1191.52	10273.94	1191.51	10281.15	1191.62
10282.54	1191.64	10284.48	1191.71	10290.82	1192.31	10292.87	1192.55	10294.51	1192.8
10299.27	1193.45	10300.1	1193.63	10300.85	1193.72	10303.65	1194.24	10304.25	1194.44
10306	1195.02	10310.09	1196.39	10311.4	1196.89	10315.1	1198.93	10315.98	1199.41
10317.58	1200.32	10321.45	1202.52	10322.81	1203.31	10327.51	1205.89	10337.1	1209.89
10339.03	1210.47	10342.02	1211.45	10348.58	1213.71	10349.34	1213.98	10349.56	1214.06
10350.94	1214.21	10351.54	1214.25	10352.02	1214.23	10353.23	1214.33	10354.06	1214.4
10355.55	1214.36	10357.74	1214.44	10359.71	1214.39	10361.48	1214.38	10367.15	1214.48
10370.1	1214.48	10372.33	1214.49	10382.35	1214.45	10383.78	1214.36	10384.29	1214.39
10385.75	1214.43	10386.42	1214.32	10387.78	1214.04	10390.91	1213.27	10393.98	1212.38
10394.98	1211.99	10397.94	1211.12	10400.06	1210.53				

Manning's n Values num= 3

Sta n Val Sta n Val Sta n Val

9255.91 .06 9798.86 .0610056.26 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9798.8610056.26 347.2 498.38 566.8 .1 .3

CROSS SECTION

RIVER: MDOW
REACH: Reach1 RS: 0.414

INPUT

Description:

Table with 10 columns: Station, Elev, Data, num=, Elev, Sta, Elev, Sta, Elev, Sta, Elev. Contains a long list of station and elevation data points.

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val

9668.36 .06 9894.55 .0610051.73 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9894.5510051.73 430.6 475.19 507.1 .1 .3

CROSS SECTION

RIVER: MDOW
REACH: Reach1 RS: 0.324

INPUT

Description:

Table with 10 columns: Station, Elev, Data, num=, Elev, Sta, Elev, Sta, Elev, Sta, Elev. Contains a long list of station and elevation data points.

Table with 12 columns of numerical data representing various measurements and station identifiers.

Manning's n Values table with columns: Sta, n, Val, Sta, n, Val, Sta, n, Val.

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

SUMMARY OF REACH LENGTHS

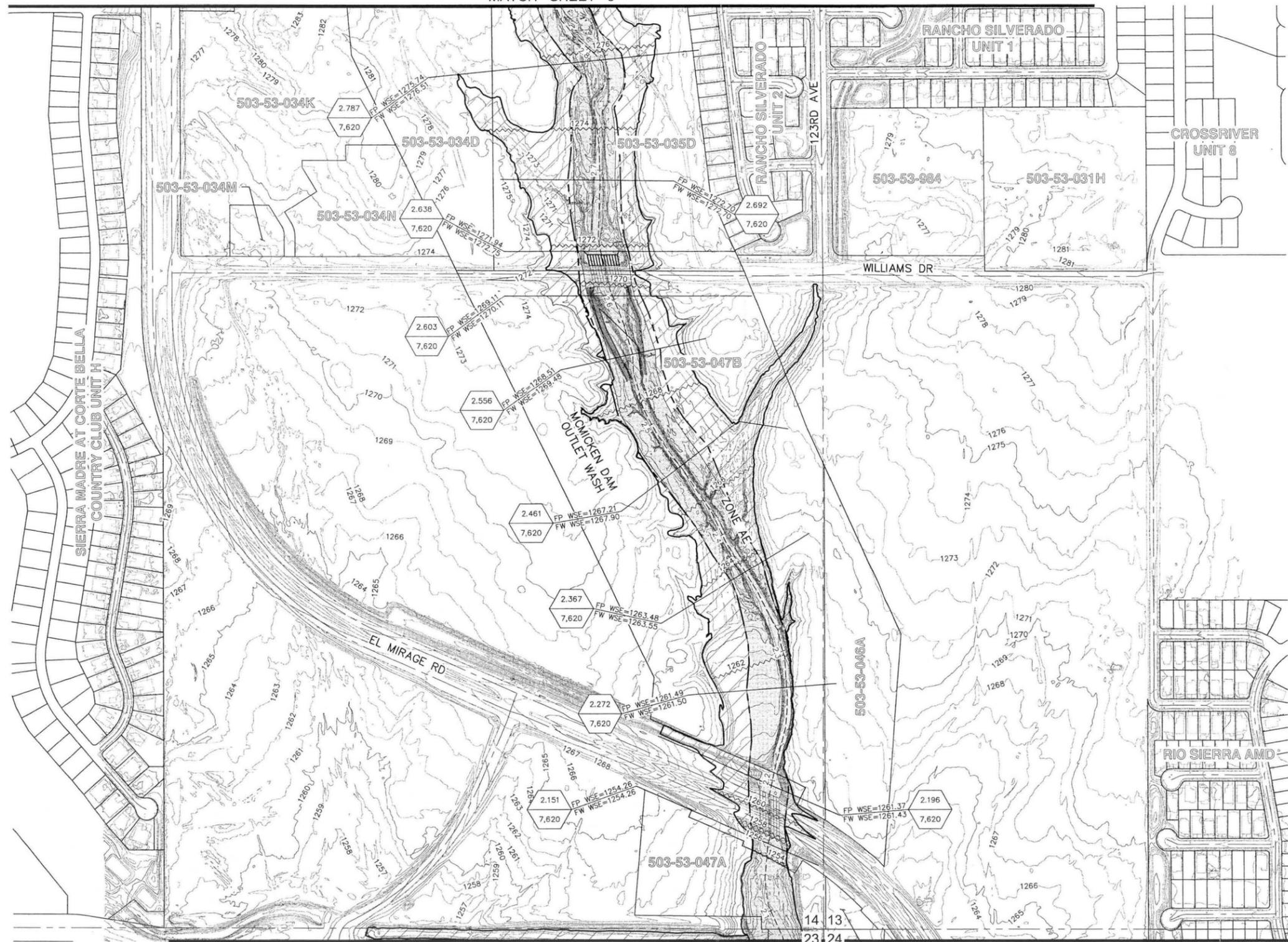
River: MDOW

Summary of Reach Lengths table with columns: Reach, River Sta., Left, Channel, Right.

WilliamsCLOMR.rep

*Reach1	*	2.272	*	414.3*	400.91*	327.7*
*Reach1	*	2.196	*	235.48*	235.48*	235.48*
*Reach1	*	2.174	*	*Culvert *	*	*
*Reach1	*	2.151	*	480.9*	536.32*	564.8*
*Reach1	*	2.050	*	816*	797.41*	747.7*
*Reach1	*	1.899	*	500.5*	500*	499.5*
*Reach1	*	1.804	*	700.3*	702.71*	704.1*
*Reach1	*	1.671	*	489.9*	500*	506.8*
*Reach1	*	1.576	*	400.4*	399.43*	396.6*
*Reach1	*	1.501	*	99.2*	102.63*	108*
*Reach1	*	1.481	*	403.1*	397.37*	388.8*
*Reach1	*	1.406	*	236.5*	234.93*	233.4*
*Reach1	*	1.362	*	500*	500*	499.7*
*Reach1	*	1.267	*	685.8*	686.37*	686.4*
*Reach1	*	1.137	*	500.4*	500*	499.5*
*Reach1	*	1.042	*	553.8*	555.03*	555.9*
*Reach1	*	0.937	*	556*	600.99*	631.9*
*Reach1	*	0.823	*	103.9*	165.71*	207*
*Reach1	*	0.792	*	250.88*	250.88*	250.88*
*Reach1	*	0.768	*	*Culvert *	*	*
*Reach1	*	0.744	*	240.4*	185.96*	179.9*
*Reach1	*	0.709	*	608.3*	558.51*	463.9*
*Reach1	*	0.603	*	510.5*	500*	400.9*
*Reach1	*	0.509	*	347.2*	498.38*	566.8*
*Reach1	*	0.414	*	430.6*	475.19*	507.1*
*Reach1	*	0.324	*	0*	0*	0*

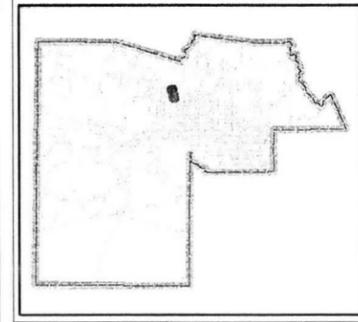
MATCH SHEET 6



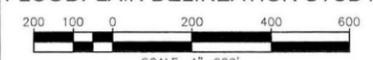
MATCH SHEET 4

503-53-046B

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY



MCMICKEN DAM OUTLET WASH FLOODPLAIN DELINEATION STUDY



LEGEND

- EXISTING ZONE A
- EXISTING ZONE AE
- EXISTING FLOODWAY
- HYDRAULIC BASE LINE
- 1S2WS18B(J37) WASH I.D.
- STATION RIVER MILE CROSS SECTION Q100 (CFS)
- CROSS SECTIONS
- PROPOSED ZONE A FLOODPLAIN
- PROPOSED ZONE AE FLOODPLAIN
- PROPOSED ZONE X FLOODPLAIN
- FLOODWAY
- 1700 EXISTING CONTOUR
- 1700 BASE FLOOD ELEVATION

NOTE: THE PARCEL BOUNDARIES AND APN'S ON THIS SHEET ARE FOR ILLUSTRATIVE PURPOSES ONLY. THE EXACT RELATIONSHIPS OF PARCELS AND APN'S SHOULD BE INDEPENDENTLY RESEARCHED AND VERIFIED.

NO.	BY	DESCRIPTION	APP'D	DATE
REVISIONS				

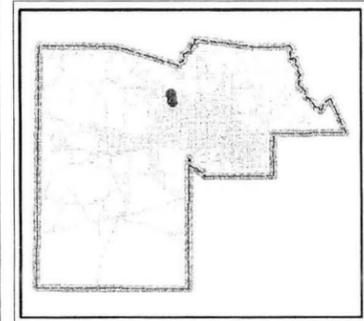
MCMICKEN DAM OUTLET WASH WILLIAMS DRIVE CLOMR

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	LAYOUT	DRAFTED	CHECKED
	NEF	DLP	NEF
	DRAWING SCALE(S)		
	1" = 200'		
PLAN DATE			SHEET NO.
OCT/2013			5
PROJECT NUMBER			OF 7 SHEETS
133347			

I:\PD\A\133347\CADD\Stm\mcmickendm\CLOMR\133347-SW-005.dwg Pearce, Derek 10/30/13 10:08:45 AM

FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY



MCMICKEN DAM OUTLET WASH
FLOODPLAIN DELINEATION STUDY



SCALE: 1"=200'
LEGEND

- EXISTING ZONE A
- EXISTING ZONE AE
- EXISTING FLOODWAY
- HYDRAULIC BASE LINE
- 1S2WS18B(J37) WASH I.D.
- STATION RIVER MILE CROSS SECTION Q100 (CFS)
- CROSS SECTIONS
- PROPOSED ZONE A FLOODPLAIN
- PROPOSED ZONE AE FLOODPLAIN
- PROPOSED ZONE X FLOODPLAIN
- FLOODWAY
- 1700 EXISTING CONTOUR
- 1700 BASE FLOOD ELEVATION

NOTE:
THE PARCEL BOUNDARIES AND APN'S ON THIS SHEET ARE FOR ILLUSTRATIVE PURPOSES ONLY. THE EXACT RELATIONSHIPS OF PARCELS AND APN'S SHOULD BE INDEPENDENTLY RESEARCHED AND VERIFIED.

NO.	BY	DESCRIPTION	APPD	DATE
REVISIONS				

MCMICKEN DAM OUTLET WASH
WILLIAMS DRIVE CLOMR

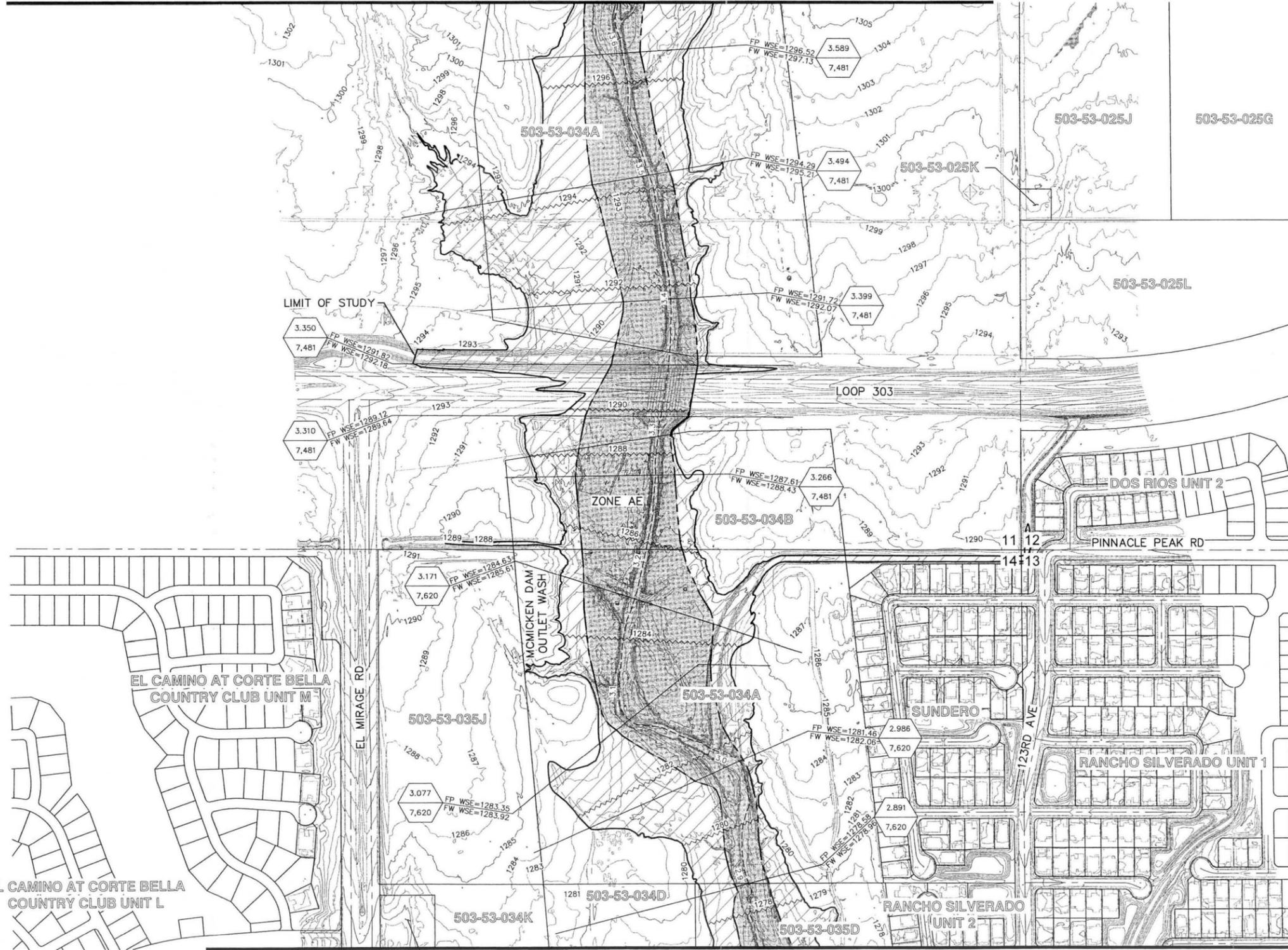
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LAYOUT	DRAFTED	CHECKED
NEF	DLP	NEF

DRAWING SCALE(S)
1" = 200'

PLAN DATE	SHEET NO.
OCT/2013	6
PROJECT NUMBER	OF 7 SHEETS
133347	

MATCH SHEET 7



MATCH SHEET 5

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